

Technostress in the Digital Workplace: A Systematic Literature Review of Antecedents, Employee Outcomes, and Mitigation Strategies

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Abstract: This systematic literature review examines how technostress emerges in digital workplaces, how it is associated with employee outcomes, and which personal and organizational resources may mitigate its adverse consequences. The review followed the PRISMA framework and used Scopus as the bibliographic source, with record retrieval and screening facilitated by Watase. The initial search using the keyword combination “Technostress and employee” identified 71 records. After screening, retrieval, and full-text eligibility assessment, 13 studies published between 2019 and 2026 were included in the final qualitative synthesis. The evidence shows that technostress arises from interacting technological, organizational, work-design, and individual conditions rather than from technology use alone. Across the included studies, adverse associations were reported for work engagement, well-being, exhaustion, knowledge hiding, work-family conflict, turnover intention, life satisfaction, and performance-related outcomes. At the same time, some technological demands operated as challenge stressors when employees had sufficient resources for adaptation, supporting voice behavior, skill development, proactive career behavior, and performance. Mitigation mechanisms identified in the included studies comprised training, creative self-efficacy, mindfulness, job crafting, workplace friendship, organizational learning, technical and literacy support, and organizational or family support. The synthesis therefore indicates that technostress is best understood as a dynamic process in which digital demands are interpreted through employee appraisal and shaped by available personal and organizational resources.

Keywords: Technostress; Digital Workplace; Employee Outcomes; Mitigation Strategies; Systematic Literature Review

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INTRODUCTION

Digital technologies have become embedded in routine work through cloud platforms, mobile communication, remote collaboration systems, algorithmic applications, and artificial intelligence. These tools can expand access to information and support flexible coordination, but they also create demands that require employees to process more information, learn changing systems, and remain responsive across increasingly permeable work boundaries. Systematic

evidence has linked these technology-related demands with both health and work outcomes, particularly when digital requirements exceed employees' available resources or capacity to recover (Borle et al., 2021; Pansini et al., 2023). Recent reviews further show that the consequences of technostress extend beyond a single psychological response and include cognitive, emotional, behavioral, and work-life effects (Kumar, 2024; Mansuroğlu & Smith, 2026). The central issue is therefore not whether workplaces use digital technology, but how technological demands are organized, interpreted, and resourced within everyday work. This distinction is increasingly relevant as digital transformation shifts from conventional information and communication technologies toward data-intensive and AI-supported work systems.

Technostress captures this tension by describing strain associated with the use of, interaction with, or demands imposed by workplace technologies. Research commonly distinguishes techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty, although the conditions that generate these stressors vary across jobs and organizations. A meta-analysis of work-related technostress antecedents found substantial heterogeneity across stressor dimensions, indicating that technological characteristics alone do not provide a sufficient explanation (Kotek & Vranjes, 2025). Organizational arrangements can intensify these pressures through poorly coordinated implementation, ambiguous expectations, or additional meta-work such as troubleshooting and system configuration (Bellini et al., 2026; Rikala et al., 2026). Boundary preferences and work arrangements also shape how employees experience technology-induced spillover between work and non-work domains (Becker & Lanzl, 2023). Technostress should consequently be treated as an interaction among digital demands, organizational conditions, and employees' adaptive resources rather than as a direct consequence of technology exposure.

The employee consequences reported in the literature are similarly diverse. Technostress has been associated with work exhaustion and lower well-being, while particular stressor dimensions have also been linked with knowledge hiding, reduced work engagement, work-family conflict, and turnover-related outcomes (Harris et al., 2022; Wang et al., 2023; Zhang et al., 2022). Evidence from ICT-intensive work further suggests that impaired work-life balance can transmit the association between techno-overload, techno-insecurity, techno-invasion, and lower engagement (Pham et al., 2026). Comparable patterns have been reported in studies of ICT-user employees, academics, and virtual workers, where social support, personal resources, and work design influence the strength of adverse outcomes (Alkhayyal & Bajaba, 2024; Azpíroz-Dorronsoro et al., 2024; Truța et al., 2023). These findings indicate that employee outcomes cannot be inferred from the presence of a digital stressor alone. Attention must also be given to the mechanisms through which the demand consumes resources and to the context in which employees attempt to manage it.

At the same time, the empirical record does not support a uniformly harmful interpretation of technology-related stress. Saleem et al. (2021) reported a positive association between technostress and performance among university instructors under conditions in which training and creative self-efficacy supported adaptation. Buzás et al. (2025) likewise showed that techno-uncertainty and, to a lesser extent, techno-overload could operate as challenge stressors associated with employee voice, whereas techno-insecurity and techno-complexity were more consistent with hindrance processes. This distinction has become more salient with artificial intelligence, because AI can simultaneously create learning opportunities, uncertainty, insecurity, and changes in occupational routines. Recent studies describe dual pathways in which AI-related demands may stimulate skill development and proactive career behavior or, alternatively,

increase anxiety and constrain resilience (Jin et al., 2026; Zhou et al., 2026). Qualitative evidence on generative AI also suggests that established technostress categories remain relevant but are being reconfigured by new forms of interaction, opacity, and adaptation (Högemann et al., 2025). A contemporary review therefore needs to account for both resource loss and potentially constructive adaptation.

This variability also changes how mitigation should be conceptualized. Technostress management is not limited to helping employees cope after strain has emerged; it can also involve redesigning digital work, strengthening support, and reducing preventable demands. Empirical studies identify literacy facilitation, technical support, mindfulness, job crafting, workplace friendship, organizational learning, training, and creative self-efficacy as mechanisms that can alter employees' responses to technological demands (Hang et al., 2022; Saleem et al., 2021; Tuan, 2022; Zhang et al., 2022). Other research emphasizes digitally competent leadership, work-based learning, and a digital mindset as resources that can reduce exhaustion or weaken adverse reactions to techno-stressors (Alkhayyal & Bajaba, 2024; Ertiö et al., 2024; Valta et al., 2024). A prevention-oriented Delphi study similarly argues for primary, secondary, and tertiary measures rather than a single intervention applied across all stressors (Berger et al., 2024). Evidence from digitally intensive healthcare settings further supports the distinction between technostress creators and inhibitors when examining job satisfaction, strain, and organizational commitment (Abou Hashish & Alnajjar, 2026). These findings point toward multilevel mitigation in which technology design, organizational practices, leadership, and personal resources are considered together.

Several recent reviews have advanced this field, but they differ substantially in purpose and organizing logic. Borle et al. (2021) synthesized associations between techno-stressors and health or work outcomes, while Bahamondes-Rosado et al. (2023) concentrated on technostress during the COVID-19 lockdown period. Pansini et al. (2023) positioned technostress within the Job Demands-Resources framework, and Kumar (2024) reviewed dimensions, impacts, and management strategies across a broader organizational literature. More recent syntheses have focused specifically on antecedents through meta-analysis or on employee well-being across a large empirical evidence base (Kotek & Vranjes, 2025; Mansuroğlu & Smith, 2026). These contributions show that the literature is mature enough for synthesis, but they also reveal that antecedents, employee outcomes, and mitigating resources are often organized as separate analytical problems or examined under different inclusion scopes. An employee-centered synthesis that explicitly connects these three domains within one evidence chain remains useful for clarifying why similar technological demands are associated with different outcomes and how emerging AI-related pressures fit within established technostress mechanisms.

Against this background, the present study uses a Systematic Literature Review to examine technostress in the digital workplace through three connected analytical domains: antecedents, employee outcomes, and mitigation strategies. The review aims to identify the technological, organizational, work-related, and individual conditions associated with technostress; synthesize the psychological, behavioral, attitudinal, work-life, and performance-related outcomes reported for employees; and examine the personal and organizational resources that mitigate or modify these relationships. It also considers mediating and moderating mechanisms to explain why comparable digital demands may produce different employee responses across contexts. The theoretical contribution lies in linking demand formation, employee appraisal and resource processes, resulting outcomes, and mitigation within a single interpretive structure rather than treating them as isolated topics. Practically, the synthesis can support organizations in

distinguishing between demands that should be reduced, resources that should be strengthened, and digital challenges that may be made manageable through appropriate support. This scope is especially relevant for workplaces in which conventional ICT-related demands increasingly coexist with AI-enabled work processes.

METHOD

Review Design and Eligibility Criteria

This study employed a Systematic Literature Review (SLR) to identify, appraise, and synthesize research on technostress among employees in contemporary work settings. An SLR was appropriate because the objective required a transparent comparison of findings across heterogeneous organizational contexts rather than the estimation of a single effect size. The review was reported with reference to PRISMA 2020 principles for study identification, screening, eligibility assessment, and inclusion (Page et al., 2021), alongside methodological guidance for management and interdisciplinary reviews (Kraus et al., 2022; Sauer & Seuring, 2023). Eligibility criteria followed the screening configuration used in the original review process. Studies were eligible when they were indexed in Scopus, published between 2016 and 2026, located within recognized Q1-Q4 journal quartiles, directly addressed technostress in relation to employees or workplace settings, and contained sufficient information on objectives, methods, and findings relevant to antecedents, employee outcomes, or mitigation mechanisms. Studies were excluded when they fell outside the publication window or journal-tier criteria, lacked direct relevance to employee technostress, could not be retrieved for full-text assessment, or did not provide sufficient evidence for the analytical focus. Although the eligibility window began in 2016, the 13 studies meeting all final criteria were published between 2019 and 2026.

Information Source and Search Strategy

The bibliographic search was conducted in Scopus, and Watase software was used to retrieve, organize, and screen the records. Scopus was selected because the review was designed to construct a focused corpus of peer-reviewed journal research with traceable indexing and journal-quality information. The search used the keyword combination “Technostress and employee,” reflecting the review’s employee-centered scope. The initial retrieval produced 71 records. Screening filters were then applied according to publication year, journal quartile, topical relevance, retrievability, and the final analytical eligibility criteria. The use of a single database and a focused keyword combination was retained because these settings reflect the actual search process on which the reported PRISMA counts and final evidence base were generated; no additional databases or unrecorded search terms were introduced during manuscript revision. The search and screening procedure was documented to maintain a direct audit trail between the review question, the retrieved records, and the 13 studies entering the synthesis (Kolaski et al., 2023; Sauer & Seuring, 2023).

Study Selection and PRISMA Flow

Study selection followed the stages of identification, screening, retrieval, eligibility assessment, and inclusion shown in Figure 1. The Scopus search conducted through Watase identified 71 records. No duplicate records were removed. Before title and abstract screening, one record was excluded because it fell outside the 2016-2026 publication criterion and one record was removed because it did not meet the Q1-Q4 journal-tier requirement, leaving 69 records for screening. Four records were excluded at the title and abstract stage, after which 65 reports were sought for retrieval. Twenty-two reports could not be retrieved, leaving 43 full-text reports for eligibility assessment. A further 30 reports did not satisfy the final analytical eligibility

requirements recorded in the screening output, resulting in 13 studies and 13 corresponding reports in the final review. No additional studies were identified from other sources. Figure 1 provides the flowchart of this selection process in accordance with PRISMA reporting conventions (Page et al., 2021).

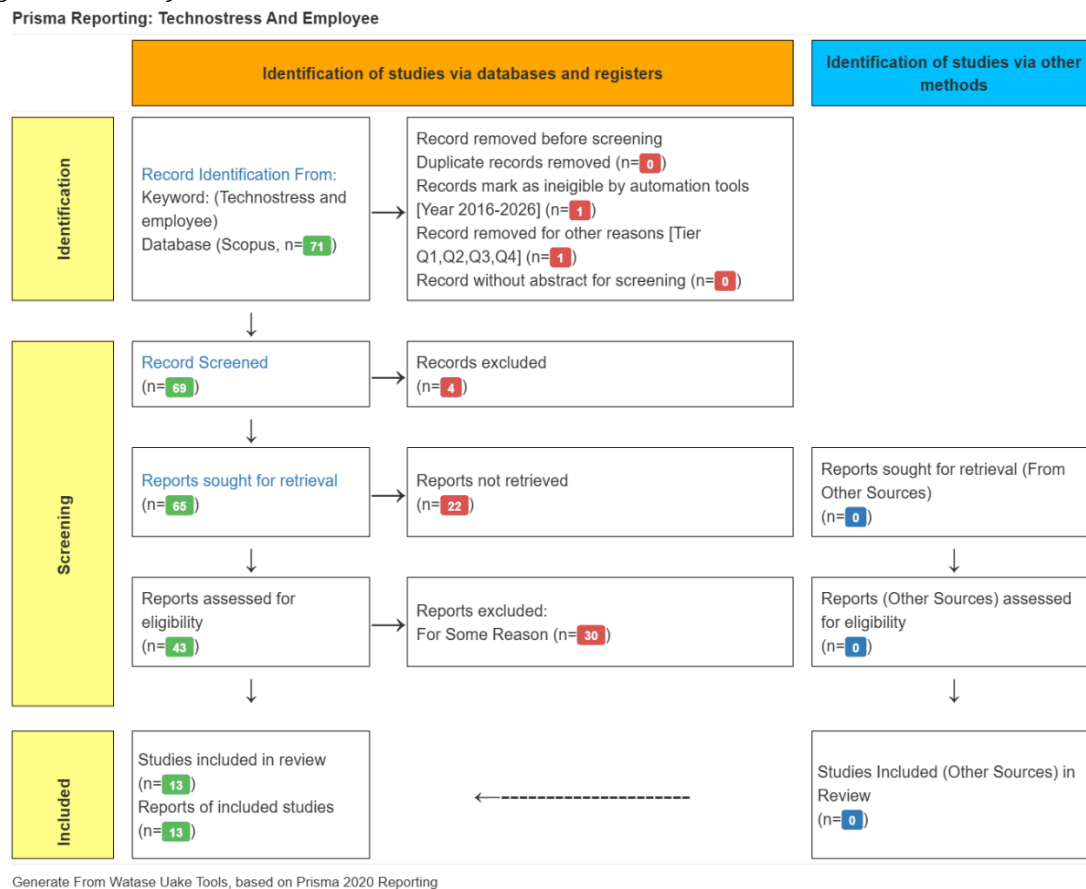


Figure 1. PRISMA Flow Diagram for the Identification and Selection of Studies on Technostress and Employees

Data Extraction and Synthesis

The 13 eligible studies were subjected to structured data extraction and qualitative synthesis. For each study, the review recorded authors and publication year, article title, journal, journal quartile, research objective, methodological approach, study context, focal variables or concepts, instruments or indicators, and principal findings. These fields were selected to permit cross-study comparison while retaining information needed to interpret differences in design and context. The extracted evidence was analyzed using descriptive and narrative synthesis because the studies differed in employee populations, sectors, theoretical perspectives, measures, and outcome variables. Recurring findings were compared and organized into three analytical domains: antecedents of technostress, employee outcomes, and mitigation strategies. Mediating and moderating mechanisms were coded within these domains when they helped explain why comparable technological demands were associated with different responses. The synthesis therefore emphasized convergence, divergence, and plausible explanatory mechanisms rather than statistical aggregation (Kraus et al., 2022; Sauer & Seuring, 2023).

Quality Appraisal

Quality appraisal was integrated into the full-text eligibility and synthesis stages. Each potentially eligible study was examined for direct relevance to workplace technostress, clarity of

the research objective, transparency of the methodological procedure, adequacy of the reported analysis, clarity of the findings, and contribution to at least one of the three analytical domains. The appraisal was qualitative rather than based on a numerical score because the included studies used different designs and analytical approaches. No unreported standardized appraisal instrument or reliability statistic was added during revision. Studies retained in the final corpus were those for which the available report provided sufficient methodological and substantive information to support interpretation within the review. This procedure allowed methodological adequacy to be considered alongside relevance while preserving the evidence actually available in the original review process (Kolaski et al., 2023).

RESULTS

The final review comprised 13 studies published between 2019 and 2026. The descriptive analysis first examined when the studies were published and where they appeared, followed by extraction of their objectives, methods, focal variables, indicators, and main findings. These descriptive characteristics establish the composition of the evidence base before the thematic synthesis of antecedents, employee outcomes, and mitigation mechanisms. Table 1 presents the annual distribution of the included studies.

Table 1. Document distribution by year

Year	Number of Documents	Year	Number of Documents
2019	1	2023	0
2020	0	2024	1
2021	2	2025	2
2022	3	2026	4

Source: Scopus, Analyze results, processed by the author

The publication distribution was uneven across the review period. One included study was published in 2019, none in 2020, two in 2021, three in 2022, none in 2023, one in 2024, two in 2025, and four in 2026. The largest concentration therefore occurred in the most recent year represented in the corpus. Because these counts describe only the 13 studies that satisfied the review criteria, they should be interpreted as the temporal composition of the included evidence rather than as a bibliometric estimate of the entire technostress field. Figure 2 visualizes this distribution.

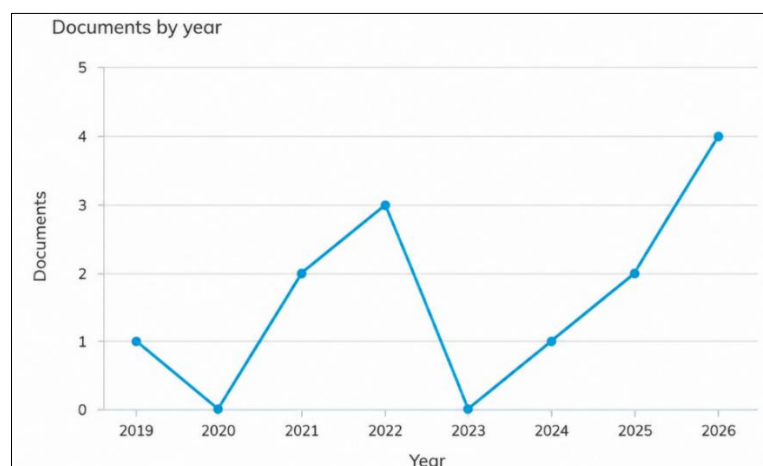


Figure 2. Annual publication distribution

Source: Scopus, Analyze results, processed by the author

Figure 2 shows the non-linear distribution of publications within the final corpus. The selected studies were sparse in the earlier years and became more concentrated from 2024 to 2026. The recent records also broadened the substantive focus of the review by examining employee profiles, meta-work, work engagement, resilience, career growth, bureaucratic conditions, and AI-related technostress. This shift is descriptive of the included studies and provides context for the thematic analysis that follows.

The review also examined the distribution of the included studies across publication outlets. The 13 studies were dispersed across journals in psychology, information systems, management, human-computer interaction, hospitality, public administration, and related fields. Figure 3 presents annual publication patterns for the five outlets most visible in the selected corpus. The dispersion is consistent with the cross-disciplinary character of workplace technostress, although the small corpus does not support conclusions about the publication structure of the broader field.

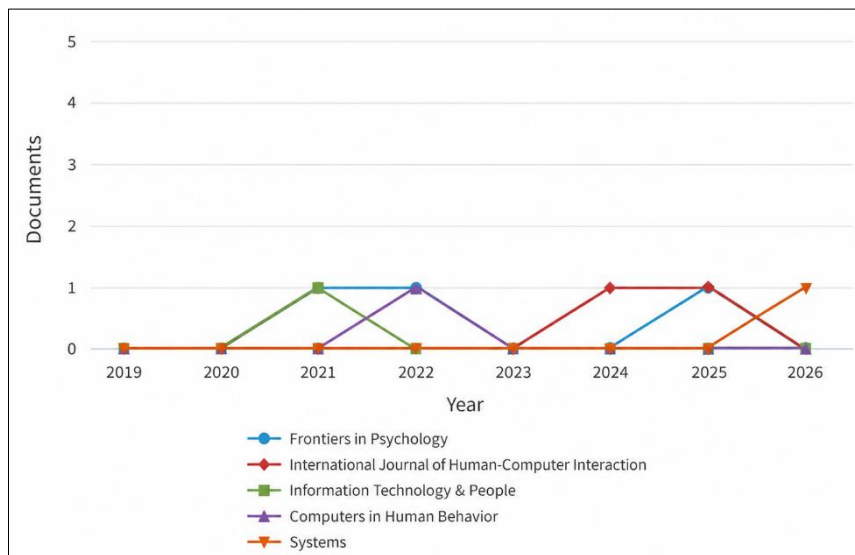


Figure 3. Annual Document Trends Across the Top 5 Outlets

Source: Scopus, Analyze results, processed by the author

Within the selected records, Frontiers in Psychology appeared across several publication years, while the International Journal of Human-Computer Interaction was represented in the more recent period. Information Technology & People, Computers in Human Behavior, and Systems each represented additional disciplinary perspectives. The pattern indicates that the final evidence base was not concentrated in one publication venue. Figure 4 summarizes the five outlets with the highest representation in the included corpus.

The outlet counts provide a compact view of where the included studies were published. Frontiers in Psychology contributed three studies, the International Journal of Human-Computer Interaction contributed two, and each of the remaining displayed outlets contributed one. These counts are used only to describe the review corpus and are not treated as evidence of journal influence or field-wide publication dominance.

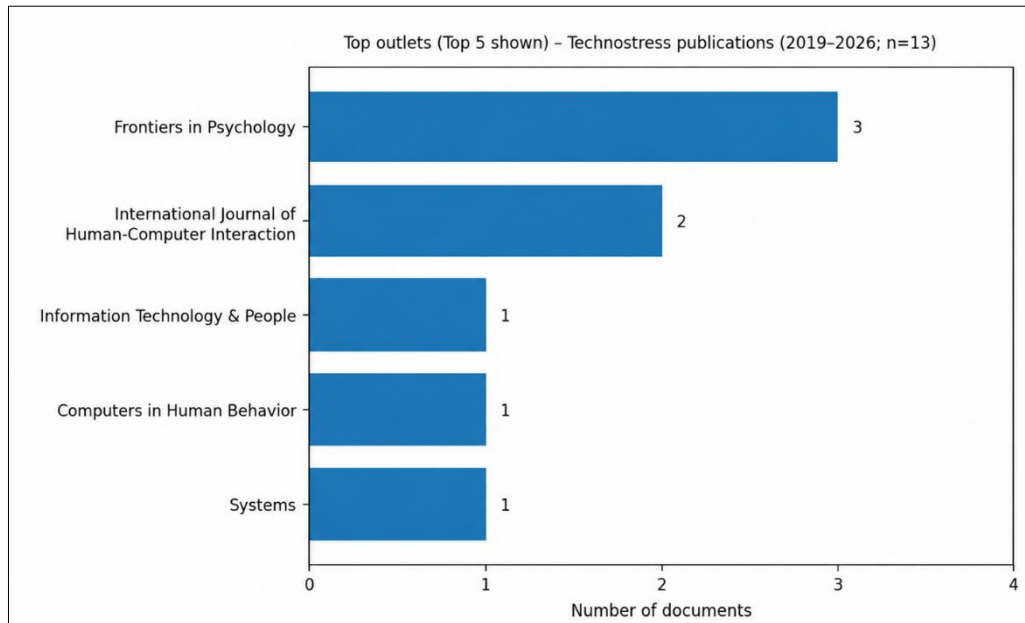


Figure 4. Top outlets (Top 5) for technostress publications

Source: Scopus, Analyze results, processed by the author

Beyond publication characteristics, the review extracted the substantive and methodological features of each study. Table 2 summarizes the research objective, method, focal variables, instruments or indicators, and principal findings for all 13 included studies. The studies encompassed public-sector employees, ICT workers, university instructors, hotel employees, research and development personnel, and other technology-using employees, with quantitative survey designs predominating alongside experimental, multi-wave, and mixed-method approaches.

Across the 13 studies, the extracted findings clustered into three recurring domains. Antecedents included specific techno-stressors as well as organizational conditions, work arrangements, meta-work, sociodemographic characteristics, and emerging AI-related demands. Employee outcomes included well-being, exhaustion, work engagement, knowledge hiding, work-family conflict, turnover intention, life satisfaction, resilience, career growth, voice behavior, and perceived performance. Mitigating or modifying resources included training, creative self-efficacy, mindfulness, job crafting, workplace friendship, organizational learning, technical support, literacy facilitation, and organizational or family support. Several studies also identified mediating and moderating mechanisms, indicating that the relationship between technological demands and employee outcomes was conditional rather than uniform. These patterns form the basis of the discussion below.

Table 2. Characteristics and Synthesis of the Included Studies

No.	Authors and Year	Article Title	Research Objective	Research Method	Main Focus or Variables	Instruments or Indicators	Main Findings
1	Bellini et al. (2026)	Bureaucratic Red Tape and Technostress: Hierarchical Control in Technology Adoption and Employee Well-Being, and the Dual Moderating Role of	To examine whether bureaucratic red tape contributes to technostress and whether resistance to change modifies this relationship.	Online survey of 1,020 Italian public sector employees; EFA, CFA, hierarchical regression, and moderation analysis.	Bureaucratic red tape, techno-overload, techno-invasion, techno-complexity, resistance to change.	Bureaucratic red tape scale, technostress scale, resistance to change scale, Likert based measures.	Bureaucratic organizational conditions were associated with technostress. The relationship between bureaucratic red tape and techno-complexity became weaker at lower levels

			Resistance to Change as a Demand or an Overlooked Resource				of resistance to change, indicating interaction between organizational demands and employees' responses to change.
2	Zhou et al. (2026)	Good Stress or Bad Stress? A Dual-Pathway Model of How AI-Induced Technostress Shapes Employee Resilience	To explain how AI-induced technostress creators and inhibitors influence employee resilience through job crafting and support resources.	Three scenario based experiments and a three-wave multisource field survey; total N = 1,108.	AI-induced technostress creators, technostress inhibitors, job crafting, employee resilience, organizational support, family support.	Experimental manipulations, 9-item job crafting scale, 25-item employee resilience scale, organizational and family support measures.	AI technostress creators reduced resilience by constraining job crafting, whereas technostress inhibitors enhanced resilience by facilitating job crafting. Organizational and family support showed complex boundary effects rather than uniformly beneficial effects.
3	Pham et al. (2026)	Technostress and Work Engagement in the ICT Industry: The Role of Work-Life Balance and Employee Moonlighting	To examine how technostress affects work engagement through work-life balance and whether employee moonlighting strengthens these effects.	Survey of 354 Vietnamese ICT employees; SEM and PROCESS analysis.	Techno-overload, techno-insecurity, techno-invasion, work-life balance, work engagement, moonlighting	Multi-item latent construct measures validated through CFA, reliability, convergent validity, and discriminant validity tests.	All three technostress dimensions reduced work engagement directly and indirectly by weakening work-life balance. Moonlighting intensified the adverse pathway by increasing resource depletion.
4	Jin et al. (2026)	Understanding AI Technostress and Employee Career Growth from a Socio-Technical Systems Perspective: A Dual-Path Model	To explain how challenge related and hindrance related AI technostress influence employee career growth within a socio-technical system.	Two-stage, multi-wave dyadic survey involving 326 matched employee and supervisor pairs; PLS-SEM using SmartPLS 4.	AI challenge technostress, AI hindrance technostress, AI personal utility, job insecurity, resilience, proactive career behavior, workplace anxiety, organizational AI support, career growth.	AI technostress 7 items, organizational AI support 4 items, resilience 9 items, proactive career behavior 3 items, workplace anxiety 5 items, career growth 15 items.	Challenge related AI technostress stimulated proactive adaptation and skill development, whereas hindrance related technostress generated insecurity and anxiety that impeded career growth.
5	Rikala et al. (2026)	Exploring Technostress and Meta-Work: Identifying Subgroups	To identify employee subgroups based on the relationship between	Exploratory mixed methods study; online questionnaire , N = 1,025;	Technostress , meta-work, coping, technological skills, age,	Adapted technostress items covering techno-overload, techno-	Four distinct employee profiles were identified. Intensive meta-work increased

		Among Finnish Employees	technostress and meta-work and examine factors differentiating these profiles.	thematic analysis, multiple correspondence analysis, and hierarchical clustering.	organizational factors.	invasion, techno-complexity, and techno-uncertainty, combined with open ended responses on meta-work.	burden and technostress, whereas technological competence, coping effectiveness, and organizational conditions differentiated employee experiences.
6	Buzás et al. (2025)	Navigating the Digital Landscape: Unraveling the Interplay of Challenge and Hindrance Components of Technostress on Employee Voice Behavior	To determine whether individual technostress dimensions operate as challenge or hindrance stressors in relation to employee voice behavior.	Cross-sectional online survey of 361 office employees; hierarchical regression and SEM.	Five technostressors, voice behavior, psychological safety, intrinsic motivation, affective commitment.	23-item Technostress Creators Inventory and measures of promotive and prohibitive voice, psychological safety, intrinsic motivation, and affective commitment.	Techno-uncertainty and partly techno-overload acted as challenge stressors that supported voice behavior; while techno-insecurity and techno-complexity primarily operated as hindrance stressors.
7	Ficapal-Cusí et al. (2025)	Employee Technostress: Analyzing the Influence of Sociodemographic Characteristics on Technostressors and Their Consequences	To analyze relationships between sociodemographic characteristics and technostressors, identify employee technostress profiles, and compare their consequences.	Cross-sectional survey of 1,187 Chilean employees; descriptive analysis, cluster analysis, and multinomial logistic regression.	Five technostressors, sociodemographic characteristics, role overload, role conflict, life satisfaction, work-family conflict.	Technostress Creators Scale, Role Overload Scale, Role Conflict Scale, Life Satisfaction Scale, and Work Home Conflict Scale.	Three technostress profiles were identified. Employees in the high technostress group experienced greater role overload, role conflict, and work-family conflict and lower life satisfaction. Several demographic and organizational characteristics predicted profile membership.
8	Tuan (2022)	Employee Mindfulness and Proactive Coping for Technostress in the COVID-19 Outbreak: The Roles of Regulatory Foci, Technostress, and Job Insecurity	To investigate how mindfulness contributes to proactive coping for technostress through regulatory focus and under different levels of technostress and job insecurity.	Three-wave survey of 714 employees from 38 service companies in Vietnam; SEM.	Dispositional mindfulness, interpersonal mindfulness, prevention focus, promotion focus, technostress, job insecurity, proactive coping.	39-item dispositional mindfulness, 27-item interpersonal mindfulness, regulatory focus scales, 9-item proactive coping scale, 4-item job insecurity scale, 18-item technostress scale.	Prevention focus and promotion focus mediated different mindfulness pathways to proactive coping. Technostress and job insecurity altered the strength of these coping mechanisms.
9	Wu et al. (2022)	Technostress and the Smart Hospitality Employee	To investigate the effects of technostress on employee well-being	Survey of 454 smart hotel employees in China; PLS-SEM.	Technostress, engagement, overall well-being,	Measures of information overload, system feature overload,	Technostress reduced employee well-being and performance.

			and performance and assess organizational learning as a moderating resource.		employee performance, organizational learning.	perceived complexity, engagement, well-being, performance, and organizational learning.	Well-being mediated the relationship with performance. Organizational learning weakened the adverse performance effect but unexpectedly intensified the negative association with engagement.
10	Zhang et al. (2022)	Does Technostress Increase R&D Employees' Knowledge Hiding in the Digital Era?	To examine whether different technostress dimensions generate knowledge hiding through work exhaustion and whether workplace friendship buffers these effects.	Two-wave questionnaire study of 254 R&D employees; structural analysis with SmartPLS and 5,000 bootstrap samples.	Five technostressors, work exhaustion, knowledge hiding, workplace friendship.	Established scales for technostressors, work exhaustion, workplace friendship, evasive hiding, and playing dumb.	Techno-invasion, techno-insecurity, and techno-complexity increased work exhaustion, which subsequently increased knowledge hiding. Techno-overload and techno-uncertainty did not show the same pathway. Workplace friendship produced different moderating effects across stressor dimensions.
11	Harris et al. (2022)	Technostress and the Entitled Employee: Impacts on Work and Family	To examine the effects of techno-overload and techno-invasion on work and family outcomes and test psychological entitlement as a moderator.	Two-time survey of 253 employees; hierarchical moderated regression.	Techno-overload, techno-invasion, turnover intention, work-family conflict, family burnout, psychological entitlement.	4-item techno-overload scale, 3-item techno-invasion scale, 9-item entitlement scale, turnover intention and work-family conflict measures.	Techno-overload and techno-invasion increased turnover intentions, work-family conflict, and family burnout. These adverse associations were stronger among employees with greater psychological entitlement.
12	Saleem et al. (2021)	Technostress and Employee Performance Nexus During COVID-19: Training and Creative Self-Efficacy as Moderators	To test the relationship between technostress and employee performance and examine training and creative self-efficacy as boundary conditions.	Cross-sectional survey of 222 university instructors in Pakistan; stepwise regression and PROCESS analysis.	Technostress, employee performance, training, creative self-efficacy.	Closed ended questionnaire with adapted technostress measures, training and creative self-efficacy scales, and an 8-item contextual performance scale.	Unlike most adverse effect studies, technostress positively predicted performance. Training and creative self-efficacy strengthened employees' ability to maintain

							performance under technological pressure.
13	Al-Ansari & Alshare (2019)	The Impact of Technostress Components on the Employees Satisfaction and Perceived Performance: The Case of Qatar	To examine how technostress creators and inhibitors influence job satisfaction, organizational commitment, and perceived performance.	Web based survey of 401 usable responses from ICT using employees in Qatar; SEM.	Technostress creators, technostress inhibitors, job satisfaction, organizational commitment, perceived performance.	Five technostress creator dimensions, literacy facilitation, technical support provision, involvement facilitation, and four-item outcome measures.	Technostress creators reduced job satisfaction, whereas technostress inhibitors increased it. Job satisfaction strengthened organizational commitment, and organizational commitment positively influenced perceived performance.

Methodologically, the corpus was dominated by survey-based organizational research, but the designs were not homogeneous. The included studies used cross-sectional, time-lagged, multi-wave, experimental, dyadic, and mixed-method approaches, and their samples ranged across different sectors and national settings. This diversity enabled comparison of technostress across contexts, while also limiting direct equivalence among measures and outcomes.

The direction of evidence was predominantly adverse for employee well-being and work-related outcomes, but several studies reported challenge-oriented or resource-dependent pathways. In particular, techno-uncertainty, selected forms of overload, and AI-related challenge demands were sometimes associated with voice, adaptation, skill development, career behavior, or performance when supporting resources were present. The result is a heterogeneous evidence base in which stressor type, appraisal, and available resources appear central to understanding divergent outcomes.

DISCUSSION

The first interpretive pattern is that technostress originates from a configuration of demands rather than from digital technology itself. Within the review corpus, bureaucratic red tape, intensive meta-work, specific techno-stressors, work arrangements, and employee characteristics were associated with different technostress experiences (Bellini et al., 2026; Ficapal-Cusí et al., 2025; Rikala et al., 2026). This pattern is consistent with the meta-analytic conclusion that antecedents differ across techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty (Kotek & Vranjes, 2025). Evidence beyond the final corpus similarly shows that work-from-home arrangements and boundary conditions can shape technology-related strain rather than merely increasing it in a uniform way (Camacho & Barrios, 2022; Farmania et al., 2022). From a transactional perspective, the same technological feature may be appraised differently depending on work demands, competence, and available control. The implication is that organizations should diagnose the source of strain at the level of the specific demand and work arrangement instead of treating “technology use” as a single exposure.

A second pattern concerns resource depletion and the predominantly adverse employee outcomes associated with technostress. The reviewed studies connect technology-related demands with exhaustion, lower well-being, weaker engagement, knowledge hiding, work-family conflict, turnover intention, and reduced life satisfaction or performance-related outcomes

(Ficapal-Cusí et al., 2025; Harris et al., 2022; Pham et al., 2026; Wu et al., 2022; Zhang et al., 2022). The Job Demands-Resources perspective provides a coherent explanation because sustained digital demands require cognitive, emotional, and temporal resources that may become difficult to replenish. Research on academics, virtual workers, and ICT-user employees reports comparable patterns, particularly when technological connectivity extends work demands or erodes recovery opportunities (Alkhayyal & Bajaba, 2024; Azpíroz-Dorransoro et al., 2024; Truța et al., 2023). The consistency is strongest for resource-loss mechanisms such as exhaustion and work-life interference, although the magnitude and specific outcome vary across sectors. The review therefore supports an interpretation of technostress as an organizational work-design issue rather than a problem attributable solely to employee coping capacity.

The evidence nevertheless complicates a simple harmful-effects model. Saleem et al. (2021) found that technostress was positively associated with performance among university instructors when training and creative self-efficacy were considered, while Buzás et al. (2025) showed that techno-uncertainty and part of techno-overload could function as challenge stressors linked with employee voice. Studies of remote work also indicate that digital work arrangements can coexist with positive work experiences when resources and work design reduce strain (Andrulli & Gerards, 2023; Taser et al., 2022). This pattern aligns with the challenge-hindrance distinction: a demand may stimulate learning or proactive behavior when it is appraised as manageable and potentially rewarding, but impede functioning when it threatens valued resources or exceeds coping capacity. The distinction should not be interpreted to mean that high technostress is beneficial. Rather, it indicates that specific technology-related demands can have different consequences depending on their content, intensity, appraisal, and resource context. This interpretation explains why aggregated technostress measures can obscure meaningful differences among stressor dimensions.

Mediating and moderating mechanisms provide a fourth explanation for the heterogeneity of outcomes. In the included studies, work exhaustion was reported as a mediator between selected techno-stressors and knowledge hiding, work-life balance helped explain lower engagement, and job crafting mediated associations between AI-related technostress and resilience (Pham et al., 2026; Zhang et al., 2022; Zhou et al., 2026). Mindfulness and regulatory focus were associated with proactive coping, while workplace friendship and organizational learning altered selected stressor-outcome relationships (Tuan, 2022; Wu et al., 2022; Zhang et al., 2022). Related research suggests that segmentation preferences and employees' digital mindset also influence how digital demands spill over or are cognitively interpreted (Becker & Lanzl, 2023; Valta et al., 2024). These mechanisms indicate that antecedents and outcomes should not be connected as a direct deterministic sequence. A more plausible interpretation is a process in which technological demands are filtered through appraisal, recovery, coping, social relations, and opportunities to modify work. This process perspective helps reconcile findings that appear contradictory when only direct associations are compared.

The mitigation evidence consequently favors a multilevel approach. Within the final corpus, training, creative self-efficacy, technical and literacy support, mindfulness, workplace friendship, organizational learning, job crafting, and organizational or family support were reported as resources or boundary conditions (Al-Ansari & Alshare, 2019; Saleem et al., 2021; Tuan, 2022; Wu et al., 2022; Zhang et al., 2022; Zhou et al., 2026). Studies outside the corpus reinforce the importance of digital leadership, work-based learning, and prevention measures designed at primary, secondary, and tertiary levels (Alkhayyal & Bajaba, 2024; Berger et al., 2024; Ertiö et al., 2024). Recent healthcare evidence likewise distinguishes the adverse role of technostress

creators from the protective role of inhibitors in relation to strain, satisfaction, and commitment (Abou Hashish & Alnajjar, 2026). These findings imply that training alone is unlikely to be sufficient when the underlying problem is excessive workload, intrusive connectivity, poor system design, or unclear implementation. Effective mitigation requires matching the intervention to the source of the demand while also strengthening resources that support adaptation and recovery.

Artificial intelligence extends the technostress problem because it changes both the content of digital demands and employees' perceptions of occupational security and competence. Jin et al. (2026) distinguished challenge-related AI technostress that could support proactive adaptation and skill development from hindrance-related demands associated with insecurity and workplace anxiety. Zhou et al. (2026) similarly identified opposing pathways through job crafting, with AI-related technostress creators associated with lower resilience through constrained job crafting and inhibitors associated with stronger resilience through facilitated job crafting. Qualitative evidence on generative AI suggests that young professionals experience established concerns such as overload and uncertainty alongside issues tied to new forms of human-AI interaction (Högemann et al., 2025). These studies indicate continuity with earlier technostress theory, but they also broaden the relevant socio-technical system by making algorithmic capability, automation, and AI support part of the work environment. Future research should therefore avoid treating AI technostress as completely separate from earlier ICT research while still testing whether AI-specific stressors require revised measures and mechanisms. This is particularly important because the current review contains only a small number of AI-focused studies.

Taken together, the findings support an integrated theoretical position in which technostress develops through the interaction of job demands, appraisal processes, resources, and socio-technical conditions. Job Demands-Resources theory explains resource depletion and buffering, transactional stress theory clarifies why the same digital demand may be appraised differently, the challenge-hindrance framework accounts for potentially divergent behavioral responses, and socio-technical systems theory locates these processes within interacting technological, human, and organizational subsystems. Previous reviews have illuminated individual parts of this structure, including health and work outcomes, JD-R mechanisms, pandemic-specific patterns, and broader dimensions or management strategies (Bahamondes-Rosado et al., 2023; Borle et al., 2021; Kumar, 2024; Pansini et al., 2023). More recent syntheses have separately provided a meta-analytic account of antecedents and a broad review of well-being evidence (Kotek & Vranjes, 2025; Mansuroğlu & Smith, 2026). The contribution of the present review is therefore organizational rather than a claim that these domains have never been reviewed: it links antecedents, employee outcomes, and mitigation resources in one employee-centered analytical chain. This structure makes visible where resource loss occurs, where boundary conditions intervene, and why constructive and adverse responses can coexist across different digital work contexts.

The findings should be interpreted within the limits of the review design. The evidence base was constructed from a single database using a focused keyword combination, and 22 reports sought for retrieval could not be obtained; both features may have narrowed the final corpus. The 13 included studies also varied in sector, country, measurement strategy, and analytical design, while survey-based approaches were prominent, limiting the extent to which findings can be treated as directly comparable or causal. The qualitative quality appraisal supported interpretive screening but did not use a standardized numerical tool, so it does not provide a formal risk-of-bias score. Future reviews could broaden database coverage, document a more extensive reproducible search syntax, and apply design-sensitive appraisal tools while preserving

distinctions among technostress dimensions. Primary research would also benefit from longitudinal, experimental, cross-cultural, and mixed-method designs that trace appraisal and resource processes over time. These priorities are especially relevant for emerging AI-enabled workplaces, where technological demands may change faster than established technostress measures.

CONCLUSIONS

This systematic literature review synthesized 13 studies on technostress and employees within a PRISMA-based selection process. The evidence indicates that technostress is multidimensional and is shaped by technological demands together with organizational conditions, work arrangements, meta-work, employee characteristics, and the resources available for adaptation. The review therefore does not support an interpretation in which digital technology itself is treated as a uniform source of strain. Instead, stressor type, appraisal, and context help explain why employees exposed to technology-intensive work can experience different outcomes.

Across the included studies, adverse outcomes were more common than constructive ones and included lower work engagement and well-being, exhaustion, knowledge hiding, work-family conflict, turnover intention, lower life satisfaction, insecurity, and anxiety. Nevertheless, selected demands could operate as challenge stressors when employees perceived them as manageable and had access to relevant resources, with reported outcomes including voice behavior, performance, skill development, and proactive career behavior. This duality is particularly visible in emerging AI-related research and reinforces the need to distinguish among technostress dimensions rather than relying only on an aggregate score.

The synthesis also shows that mitigation operates through both personal and organizational resources. Training, creative self-efficacy, mindfulness, job crafting, workplace friendship, organizational learning, technical support, literacy facilitation, and organizational or family support were identified as factors that may modify how technological demands are experienced. For practice, this means that organizations should match interventions to the specific source of technostress instead of relying on one general coping program. For research, the focused Scopus corpus and the heterogeneity of the 13 included studies limit broad generalization, so future work should use broader search coverage and stronger longitudinal, experimental, and cross-cultural designs. Within these boundaries, the review provides an integrated account of how antecedents, employee outcomes, and mitigation resources connect in the contemporary digital workplace.

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