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Psychological Capital Mitigates the Negative Effects of Technostress on Employee Performance and Innovation in the Indian Construction Industry

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Abstract

The rapid adoption of digital technologies has improved efficiency in the construction industry while simultaneously increasing employees' exposure to technostress. This study examines the impact of technostress on job performance and innovative work behaviour, with psychological capital serving as a mediating mechanism among employees in the Indian construction sector. Grounded in the Job Demands–Resources (JD-R) theory, a quantitative cross-sectional survey was conducted with 350 construction professionals from medium and large organizations across India. Data were analysed using descriptive statistics, reliability analysis, correlation, multiple regression, and PROCESS mediation analysis. The findings reveal that technostress significantly reduces psychological capital, job performance, and innovative work behaviour. Psychological capital, comprising hope, resilience, optimism, and self-efficacy, positively influences both employee outcomes and partially mediates the adverse effects of technostress. The study highlights the importance of strengthening employees' psychological resources alongside digital transformation initiatives. These findings provide theoretical insights and practical guidance for improving workforce resilience, productivity, and innovation in technology-driven construction organizations.

Keywords: Technostress; Psychological Capital; Job Performance; Innovative Work Behaviour; Construction Industry; Job Demands–Resources Theory

1. Introduction

The construction industry is one of the largest contributors to economic development, employment

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generation, and infrastructure expansion worldwide. In India, the sector contributes significantly to the national gross domestic product (GDP) and plays a central role in supporting urbanization, industrialization, and sustainable economic growth. Government initiatives such as the National Infrastructure Pipeline (NIP), PM Gati Shakti National Master Plan, Smart Cities Mission, and Digital India have accelerated the adoption of digital technologies across construction projects. Consequently, construction organizations are increasingly implementing advanced digital solutions, including Building Information Modelling (BIM), Enterprise Resource Planning (ERP) systems, cloud-based project management platforms, Internet of Things (IoT) devices, artificial intelligence (AI)-assisted decision support, digital twins, and mobile site-monitoring applications, to improve project planning, coordination, productivity, and operational efficiency (Bakker & Demerouti, 2017; Tarafdar et al., 2019).

Although digital transformation has improved project execution and organizational performance, it has also introduced new workplace challenges. Employees are now expected to continuously learn emerging technologies, adapt to rapidly changing digital systems, manage increasing volumes of information, and remain available through multiple communication platforms. These technological demands often exceed employees' cognitive and psychological capacities, resulting in technostress, a form of stress arising from the inability to effectively cope with information and communication technologies (Brod, 1984; Tarafdar et al., 2007). Technostress has become a critical occupational health issue because it adversely affects employees' psychological well-being, job satisfaction, work engagement, decision-making ability, and overall organizational performance (La Torre et al., 2019; Ragu-Nathan et al., 2008).

Within the construction industry, technostress presents unique challenges due to the complex, project-based, and multidisciplinary nature of construction work. Engineers, project managers, planners, quantity surveyors, and site supervisors increasingly rely on integrated digital platforms for scheduling, cost estimation, resource allocation, quality assurance, and real-time communication. While these technologies facilitate project coordination, they also increase technology overload, digital interruptions, system complexity, and continuous connectivity, thereby placing additional psychological demands on employees (Mariani & Wamba, 2020). Employees who struggle to adapt to digital innovations may experience reduced productivity, impaired decision-making, lower creativity, and increased emotional exhaustion, ultimately affecting organizational competitiveness.

According to the Job Demands–Resources (JD-R) Theory (Bakker & Demerouti, 2007; Demerouti et al., 2001), workplace outcomes are determined by the balance between job demands and available resources. Job demands, including excessive workload, time pressure, role ambiguity, and technology-related stressors, consume employees' physical and psychological resources, leading to strain and reduced performance. Conversely, personal and organizational resources enhance employees' ability to cope with demanding work environments, thereby improving motivation, well-being, and work performance. Within this theoretical framework, technostress represents a significant job demand, whereas Psychological Capital (PsyCap) functions as an important personal resource that may protect employees against the adverse consequences of technological stress.

Psychological Capital, introduced by Luthans et al. (2007), is a higher-order positive psychological construct comprising self-efficacy, hope, optimism, and resilience. Self-efficacy reflects employees' confidence in their ability to accomplish challenging tasks; hope represents perseverance toward goals and the ability to identify alternative pathways when obstacles arise; optimism refers to maintaining positive expectations regarding future outcomes; and resilience denotes the capacity to recover from adversity and adapt successfully to changing circumstances. Collectively, these psychological resources enable employees to maintain motivation, cope effectively with workplace challenges, and sustain high levels of performance during

organizational change (Avey et al., 2011; Newman et al., 2014). In digitally intensive work environments, employees possessing stronger Psychological Capital are expected to adapt more effectively to technological changes, thereby reducing the negative influence of technostress.

Employee performance remains a critical determinant of organizational success in the construction sector. Beyond accomplishing assigned tasks efficiently, construction organizations increasingly expect employees to demonstrate adaptability, collaboration, and innovation while working in technology-enabled environments. Job Performance encompasses employees' effectiveness in completing assigned responsibilities, achieving organizational objectives, and maintaining high standards of quality and productivity (Campbell & Wiernik, 2015). Simultaneously, organizations require employees to engage in Innovative Work Behaviour (IWB), which includes generating, promoting, and implementing novel ideas that improve organizational processes, project delivery, and problem-solving capabilities (Janssen, 2000). As digital transformation continues to reshape construction practices, understanding the factors influencing both job performance and innovative work behaviour has become increasingly important.

Although previous research has extensively examined technostress in sectors such as information technology, healthcare, banking, and higher education, empirical evidence from the construction industry, particularly in emerging economies such as India, remains relatively limited. Construction organizations differ substantially from service industries because employees operate in dynamic project environments characterized by tight deadlines, geographically dispersed teams, hazardous working conditions, and continuous technological change. Consequently, findings from other sectors may not be directly applicable to construction professionals. Furthermore, while previous studies have independently examined the relationships between technostress and employee performance or Psychological Capital and work outcomes, relatively few studies have investigated Psychological Capital as a mediating mechanism linking Technostress with both Job Performance and Innovative Work Behaviour within the context of the Indian construction industry.

Accordingly, the present study addresses these research gaps by investigating the influence of Technostress on Job Performance and Innovative Work Behaviour while examining the mediating role of Psychological Capital among employees working in Indian construction organizations. Grounded in the Job Demands–Resources theory, this study provides empirical evidence regarding the psychological mechanisms through which technology-related stress influences employee outcomes in digitally transforming construction workplaces.

The study makes several important contributions to the literature. First, it extends the application of the Job Demands–Resources theory to the context of digital transformation in the Indian construction industry. Second, it integrates Technostress, Psychological Capital, Job Performance, and Innovative Work Behaviour into a comprehensive conceptual framework, thereby offering a more holistic understanding of employee responses to technology-enabled work environments. Third, by identifying Psychological Capital as a partial mediator, the study explains how positive psychological resources can mitigate the adverse effects of Technostress on employee performance and innovation. Finally, the findings provide practical guidance for construction organizations seeking to enhance workforce resilience, improve digital adaptation, and sustain organizational competitiveness through investments in employee psychological development alongside technological advancement.

2. Literature Review and Hypothesis Development

2.1 Theoretical Foundation: Job Demands–Resources (JD-R) Theory

The present study is grounded in the **Job Demands–Resources (JD-R) theory**, proposed by Demerouti et al. (2001) and further refined by Bakker and Demerouti (2007, 2017). The JD-R theory provides a comprehensive framework for understanding how workplace demands and

available resources jointly influence employee well-being, motivation, and performance. Unlike traditional occupational stress models that focus on specific work characteristics, the JD-R theory is sufficiently flexible to explain employee behaviour across different occupations and organizational contexts.

According to the JD-R framework, **job demands** refer to physical, psychological, social, or organizational aspects of work that require sustained effort and are therefore associated with physiological or psychological costs. Examples include excessive workload, role ambiguity, time pressure, emotional demands, and technology-related challenges. In contrast, **job resources** encompass physical, organizational, social, and psychological factors that help employees achieve work goals, reduce job demands, and stimulate personal growth and development (Bakker & Demerouti, 2017).

In digitally transforming organizations, **technostress** has emerged as a significant job demand. Employees are increasingly required to adapt to rapidly evolving digital technologies, continuously update their technical skills, manage large volumes of information, and remain connected through multiple digital communication platforms. These demands consume cognitive and emotional resources, potentially leading to stress, fatigue, and reduced work effectiveness (Ragu-Nathan et al., 2008; Tarafdar et al., 2007).

The JD-R theory also emphasizes the importance of **personal resources**, defined as positive psychological characteristics that enable individuals to control and influence their work environment successfully. Among these resources, **Psychological Capital (PsyCap)** has received considerable attention because it enhances employees' ability to cope with workplace adversity and maintain motivation under challenging conditions (Luthans et al., 2007). Employees with higher levels of hope, optimism, resilience, and self-efficacy are generally better equipped to adapt to technological change and maintain higher levels of performance despite increasing job demands.

Based on the JD-R framework, this study conceptualizes **Technostress as a job demand**, **Psychological Capital as a personal resource**, and **Job Performance** and **Innovative Work Behaviour** as employee outcomes. The proposed conceptual model assumes that Technostress negatively influences employee outcomes both directly and indirectly through its impact on Psychological Capital.

2.2 Technostress

Technostress refers to the stress experienced by individuals due to their inability to cope effectively with information and communication technologies (ICTs) (Brod, 1984). Although technological innovations have significantly improved organizational efficiency, communication, and decision-making, they have simultaneously increased employees' cognitive workload and psychological pressure. Tarafdar et al. (2007) conceptualized technostress as a multidimensional construct comprising **techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty**. These dimensions collectively capture employees' experiences of excessive technology use, continuous connectivity, rapid technological changes, and concerns about technological competence.

In the construction industry, digital technologies such as Building Information Modelling (BIM), Enterprise Resource Planning (ERP), Geographic Information Systems (GIS), cloud-based collaboration platforms, Internet of Things (IoT) devices, drones, artificial intelligence (AI), and mobile project management applications have transformed project planning and execution. While these technologies improve operational efficiency and project coordination, they also increase technology-related demands by requiring continuous learning, adaptation, and information processing. Employees who lack adequate technological skills or organizational support often experience higher levels of technostress, resulting in reduced productivity, job dissatisfaction,

emotional exhaustion, and diminished organizational commitment (La Torre et al., 2019; Tarafdar et al., 2019).

Recent studies have shown that the impact of technostress has become more pronounced in digitally intensive work environments, where employees are expected to manage multiple digital systems simultaneously while maintaining high levels of performance. Consequently, understanding the psychological consequences of technostress has become increasingly important for organizations seeking to improve employee well-being and organizational effectiveness.

2.3 Technostress and Job Performance

Job Performance represents employees' effectiveness in accomplishing assigned tasks, meeting organizational objectives, and contributing to overall organizational success (Campbell & Wiernik, 2015). High-performing employees not only achieve productivity targets but also demonstrate adaptability, problem-solving ability, and effective collaboration with colleagues.

Technostress can adversely affect Job Performance because excessive technological demands consume employees' cognitive resources and reduce their capacity to perform work efficiently. According to the JD-R theory, prolonged exposure to job demands without adequate personal or organizational resources results in strain, emotional exhaustion, and declining performance (Bakker & Demerouti, 2017). Employees experiencing high levels of techno-overload or techno-complexity often spend considerable time learning new systems, resolving technical issues, and coping with digital interruptions rather than focusing on core work responsibilities.

Empirical evidence supports this relationship. Tarafdar et al. (2007) reported that technostress significantly reduces employee productivity and increases role stress. Similarly, Ragu-Nathan et al. (2008) found that technology-induced stress negatively influences job satisfaction, organizational commitment, and work performance. More recent studies have also shown that excessive technological demands impair employees' concentration, decision-making ability, and work efficiency across technology-intensive industries.

Considering these theoretical and empirical findings, the following hypothesis is proposed:

H1: Technostress has a significant negative effect on employees' Job Performance.

2.5 Psychological Capital

Psychological Capital (PsyCap) is a positive psychological resource that has emerged as an important construct in organizational behaviour and human resource management. Rooted in Positive Organizational Behaviour (POB), Psychological Capital extends beyond traditional forms of human and social capital by emphasizing employees' psychological strengths that can be developed and managed to enhance workplace performance (Luthans et al., 2007). Unlike personality traits, which are relatively stable over time, Psychological Capital is considered a state-like construct that can be strengthened through organizational interventions, training, and supportive leadership practices.

Luthans et al. (2007) conceptualized Psychological Capital as comprising four interrelated psychological capacities: **self-efficacy, hope, optimism, and resilience**. **Self-efficacy** refers to an individual's confidence in successfully completing challenging tasks and overcoming work-related obstacles (Bandura, 1997). **Hope** reflects employees' determination to achieve organizational goals while identifying alternative pathways when difficulties arise (Snyder et al., 1991). **Optimism** represents a positive expectation regarding future outcomes and the belief that setbacks are temporary rather than permanent (Scheier & Carver, 1985). **Resilience** denotes the capacity to recover from adversity, adapt to organizational changes, and maintain psychological well-being under stressful conditions (Masten, 2001).

These psychological resources collectively enable employees to cope effectively with demanding

work environments, maintain motivation, and sustain high levels of performance despite workplace challenges. Avey et al. (2011), through a comprehensive meta-analysis, demonstrated that Psychological Capital is positively associated with job satisfaction, organizational commitment, work engagement, and job performance while simultaneously reducing stress, burnout, and turnover intentions. Newman et al. (2014) further argued that Psychological Capital enhances employees' adaptive capabilities, making it particularly valuable in organizations experiencing rapid technological and organizational change.

In the construction industry, digital transformation has fundamentally changed employees' work responsibilities by introducing sophisticated information systems, automation, and data-driven decision-making. Employees possessing higher levels of Psychological Capital are more likely to perceive technological change as an opportunity for learning rather than as a source of stress. Consequently, Psychological Capital has become an important psychological resource for improving employees' adaptability, productivity, and innovative capacity in technology-enabled construction organizations.

2.6 Technostress and Psychological Capital

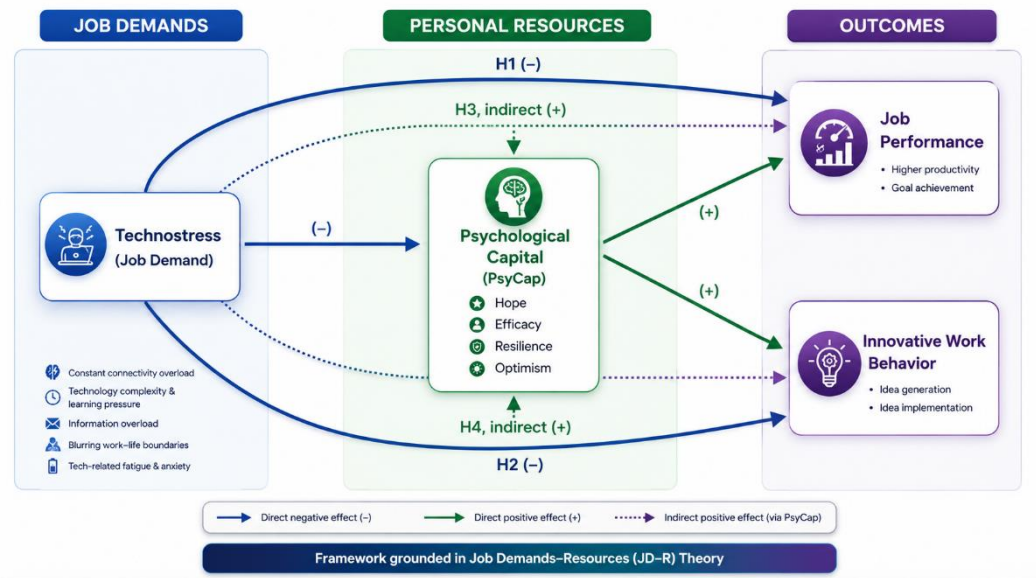

Figure 1. Framework of Job Demands–Resources (JD-R) theory.

According to the Job Demands–Resources (JD-R) theory, prolonged exposure to excessive job demands gradually depletes employees' psychological resources. Technostress represents one such demand because employees are required to continuously adapt to new technologies, manage information overload, and respond to constant technological changes. These challenges may reduce employees' confidence, optimism, resilience, and perceived ability to perform their work effectively (Figure 1**)**.

Several empirical studies have reported that high levels of workplace stress negatively influence positive psychological resources. Luthans et al. (2015) argued that continuous exposure to stressful work conditions weakens employees' psychological capacity, making them more vulnerable to emotional exhaustion and reduced work engagement. Similarly, Karatepe and Karadas (2015) found that workplace stressors diminish employees' Psychological Capital, resulting in lower motivation and poorer work outcomes. Within digitally intensive organizations, employees experiencing high levels of technostress often report reduced confidence in their technological

abilities, increased frustration, and diminished psychological well-being.

Conversely, organizations that provide adequate technological support, continuous learning opportunities, and supportive leadership can reduce technostress while simultaneously strengthening employees' Psychological Capital. Such interventions enable employees to maintain positive attitudes toward technological change and improve their capacity to cope with digital work environments.

Therefore, the following hypothesis is proposed:

H3: Technostress has a significant negative effect on employees' Psychological Capital.

2.7 Psychological Capital, Job Performance and Innovative Work Behaviour

The positive influence of Psychological Capital on employee performance has been extensively documented in organizational behaviour literature. Employees possessing higher levels of hope, optimism, resilience, and self-efficacy generally demonstrate greater motivation, stronger problem-solving capabilities, higher persistence, and superior work performance. These psychological resources enable employees to effectively manage workplace challenges while maintaining productivity and commitment toward organizational objectives.

Luthans et al. (2007) suggested that Psychological Capital enhances employees' confidence in achieving work goals and encourages proactive behaviour during challenging situations. Supporting this view, Avey et al. (2011) concluded through a meta-analysis that Psychological Capital positively predicts job performance across different industries and organizational contexts. More recently, Newman et al. (2014) highlighted that Psychological Capital improves employees' adaptability and facilitates successful responses to organizational change, particularly in knowledge-intensive and technology-driven workplaces.

Beyond job performance, Psychological Capital also plays an important role in fostering **Innovative Work Behaviour (IWB)**. Innovation requires employees to generate creative ideas, identify opportunities for improvement, promote new solutions, and successfully implement organizational changes. Employees with greater optimism and self-efficacy are generally more willing to experiment with new ideas, whereas resilience enables them to overcome setbacks associated with innovation. Hope motivates employees to pursue alternative solutions when initial efforts fail.

Research consistently demonstrates that Psychological Capital positively influences creativity and innovation. Sweetman et al. (2011) reported that employees with stronger Psychological Capital exhibit higher levels of innovative performance because they possess greater confidence in exploring novel approaches. Similarly, Rego et al. (2012) found that Psychological Capital significantly enhances creative performance by improving employees' intrinsic motivation and psychological well-being.

Accordingly, the following hypotheses are proposed:

H4: Psychological Capital has a significant positive effect on employees' Job Performance.

H5: Psychological Capital has a significant positive effect on employees' Innovative Work Behaviour.

2.8 Mediating Role of Psychological Capital

The JD-R theory proposes that personal resources not only directly improve employee outcomes but also buffer the adverse effects of job demands on workplace performance (Bakker & Demerouti, 2017). Within this framework, Psychological Capital serves as a protective psychological mechanism through which employees cope with demanding work conditions and maintain high levels of motivation, engagement, and performance.

Technostress can negatively affect employees by reducing their confidence, increasing emotional exhaustion, and weakening their psychological resilience. However, employees possessing higher levels of Psychological Capital are better equipped to manage these challenges because they maintain optimism, identify alternative solutions, recover more quickly from technological setbacks, and remain confident in their ability to perform successfully. Consequently, Psychological Capital is expected to reduce the detrimental influence of Technostress on both Job Performance and Innovative Work Behaviour.

Previous studies support this mediating mechanism. Abbas et al. (2014) demonstrated that Psychological Capital mediates the relationship between workplace stressors and employee performance by strengthening employees' psychological resilience and coping capacity. Similarly, Newman et al. (2014) concluded that Psychological Capital functions as a valuable personal resource that enables employees to maintain productivity and creativity under stressful organizational conditions. Within digitally transforming construction organizations, employees with stronger Psychological Capital are therefore expected to experience lower negative consequences of Technostress while continuing to perform effectively and engage in innovative behaviours.

Based on these theoretical arguments, the following hypotheses are proposed:

H6: Psychological Capital mediates the relationship between Technostress and Job Performance.

H7: Psychological Capital mediates the relationship between Technostress and Innovative Work Behaviour.

2.9 Conceptual Framework

Based on the Job Demands–Resources (JD-R) theory and the reviewed empirical literature, this study proposes a conceptual framework in which **Technostress** functions as the independent variable, **Psychological Capital** acts as the mediating variable, and **Job Performance** and **Innovative Work Behaviour** represent the dependent variables. The framework assumes that Technostress directly influences employee outcomes while also exerting indirect effects through changes in employees' Psychological Capital. Figure 1 illustrates the proposed conceptual model guiding the empirical analysis.

3. Research Methodology

3.1 Research Design

The present study employed a **quantitative, cross-sectional research design** to examine the relationships among **Technostress, Psychological Capital (PsyCap), Job Performance (JP), and Innovative Work Behaviour (IWB)** in the Indian construction industry. A quantitative approach was considered appropriate because the study aimed to empirically test the proposed hypotheses and examine the mediating role of Psychological Capital using statistical analyses. The cross-sectional design enabled the collection of data from employees at a single point in time, providing a snapshot of their perceptions regarding technology-related stress, psychological resources, work performance, and innovative behaviour.

The study adopted a **deductive research approach**, in which hypotheses were formulated based on the Job Demands–Resources (JD-R) theory and Positive Organizational Behaviour literature and subsequently tested using survey data. This approach facilitated the examination of causal relationships among the study variables while contributing empirical evidence to the existing literature on employee behaviour in digitally transforming construction organizations.

3.2 Target Population and Sampling

The target population comprised employees working in medium and large construction

organizations operating across different regions of India. Respondents included project managers, senior managers, construction engineers, site engineers, quantity surveyors, architects, planning engineers, quality control engineers, safety officers, and site supervisors who regularly used digital technologies such as Building Information Modelling (BIM), Enterprise Resource Planning (ERP) systems, cloud-based project management platforms, and mobile applications during project execution.

A **purposive sampling technique** was adopted because the study required respondents who possessed direct experience with technology-enabled construction processes. Employees without regular interaction with digital technologies were excluded from the survey to ensure the relevance of the collected data.

Initially, **420 questionnaires** were distributed through online and offline survey methods. After removing incomplete responses and questionnaires with excessive missing data, **350 valid responses** were retained for statistical analysis, resulting in an effective response rate of approximately **83.3%**. The final sample exceeded the minimum requirements recommended for regression and mediation analysis, thereby providing sufficient statistical power to detect significant relationships among the study variables.

3.3 Data Collection Procedure

Data were collected between **September and October 2025** using a structured questionnaire administered through **Google Forms** and printed questionnaires distributed during visits to construction project sites and corporate offices. Prior to participation, respondents were informed about the objectives of the study and assured that participation was entirely voluntary.

To minimize **common method bias**, respondents were informed that there were no right or wrong answers and that all responses would remain anonymous and confidential. They were encouraged to answer honestly based on their own work experiences. No personally identifiable information was collected, and all data were used exclusively for academic research purposes.

3.4 Measurement Instruments

The questionnaire consisted of two sections. The first section collected demographic information, including respondents' age, gender, educational qualification, professional experience, organizational position, and organization type. The second section measured the study constructs using previously validated scales adapted from established literature.

3.4.1 Technostress

Technostress was measured using the **Technostress Creators Scale** developed by **Tarafdar et al. (**2007**)**. The scale comprised **13 items** representing the dimensions of techno-overload, techno-complexity, techno-invasion, techno-insecurity, and techno-uncertainty. Sample items included: "I am forced to work much faster because of technology" and "I find it difficult to understand new technologies introduced at work."

3.4.2 Psychological Capital

Psychological Capital was measured using the **24-item Psychological Capital Questionnaire (PCQ)** developed by **Luthans et al. (**2007**)**. The instrument assessed four dimensions: self-efficacy, hope, optimism, and resilience. Higher scores indicated greater levels of positive psychological resources.

3.4.3 Job Performance

Job Performance was assessed using the **Individual Work Performance Questionnaire (IWPQ)** developed by **Koopmans et al. (**2014**)**. The scale evaluated employees' effectiveness in performing assigned tasks, maintaining work quality, and achieving organizational objectives.

3.4.4 Innovative Work Behaviour

Innovative Work Behaviour was measured using the **nine-item scale developed by Janssen (2000)**, which evaluates employees' idea generation, idea promotion, and idea implementation behaviours within the workplace.

All items were measured using a **five-point Likert scale**, ranging from **1 = Strongly Disagree** to **5 = Strongly Agree**, with higher scores indicating greater levels of the respective constructs.

3.5 Pilot Study

Prior to the main survey, a pilot study involving **30 construction professionals** was conducted to evaluate the clarity, relevance, and comprehensibility of the questionnaire items. Minor modifications were made to improve wording and eliminate ambiguities. The pilot study demonstrated acceptable reliability for all constructs, indicating that the questionnaire was suitable for the main data collection.

3.6 Reliability and Validity

Internal consistency of the measurement scales was assessed using **Cronbach's alpha (α)**. Following the recommendations of Hair et al. (2022), values above **0.70** were considered acceptable. Construct reliability was further evaluated using **Composite Reliability (CR)**, while convergent validity was assessed through the **Average Variance Extracted (AVE)**. AVE values exceeding **0.50** indicated satisfactory convergent validity.

Discriminant validity was examined using the **Heterotrait–Monotrait Ratio (HTMT)** criterion, where values below **0.85** indicated adequate discriminant validity among the constructs.

3.7 Common Method Bias

As all variables were collected using a single questionnaire, procedural and statistical remedies were employed to minimize common method bias. Procedurally, respondent anonymity and confidentiality were assured, and questionnaire items were carefully organized to reduce evaluation apprehension. Statistically, **Harman's single-factor test** was performed. The first unrotated factor accounted for less than **50%** of the total variance, indicating that common method bias was unlikely to threaten the validity of the findings.

3.8 Data Analysis

The collected data were analyzed using **IBM SPSS Statistics Version 29** together with the **PROCESS Macro Version 4.2** developed by Hayes (2022). Data analysis was conducted in several stages.

First, descriptive statistics were used to summarize respondents' demographic characteristics. Second, reliability analysis was performed using Cronbach's alpha to assess internal consistency. Third, Pearson correlation analysis examined the relationships among Technostress, Psychological Capital, Job Performance, and Innovative Work Behaviour.

Subsequently, multiple regression analysis was employed to test the direct effects proposed in the conceptual model. Finally, mediation analysis was conducted using **PROCESS Model 4**, employing **5,000 bootstrap resamples** and **95% bias-corrected confidence intervals**. A mediation effect was considered statistically significant when the bootstrap confidence interval did not include zero.

3.9 Ethical Considerations

The study adhered to established ethical principles governing research involving human participants. Participation was voluntary, and informed consent was obtained from all respondents before data collection. Participants were informed of the study's purpose, assured of the

confidentiality and anonymity of their responses, and advised that they could withdraw from the study at any stage without penalty. The collected data were securely stored and used solely for academic research purposes.

Excellent. We will now continue with the **inferential analysis** section written in **SCI/Q1 journal style**. This section should present the statistical findings objectively and consistently with your revised results.

4. Results

4.1 Respondent Profile

A total of **420 questionnaires** were distributed to employees working in medium and large construction organizations across India. After excluding incomplete and inconsistent responses, **350 valid questionnaires** were retained for analysis, resulting in an effective response rate of **83.3%**. The respondents represented diverse managerial and technical positions, ensuring comprehensive coverage of professionals involved in technology-enabled construction projects.

Table 1. Demographic Characteristics of Respondents (N = 350)

Variable	Category	Frequency	Percentage (%)
Gender	Male	294	84
	Female	56	16
Age	21–30 years	52	14.9
	31–40 years	164	46.9
	41–50 years	97	27.7
	Above 50 years	37	10.6
Education	Diploma	48	13.7
	Bachelor's Degree	186	53.1
	Master's Degree	104	29.7
	Doctorate	12	3.4
Experience	Less than 5 years	54	15.4
	5–10 years	141	40.3
	11–15 years	95	27.1
	More than 15 years	60	17.1
Position	Senior Manager	68	19.4
	Project Manager	59	16.9
	Construction Engineer	92	26.3
	Site Engineer	54	15.4
	Site Supervisor	77	22

The demographic profile indicates that the respondents adequately represent professionals employed in the Indian construction industry. Male employees constituted **84.0%** of the sample, reflecting the gender composition commonly observed in construction organizations. Nearly half of the respondents (**46.9%**) belonged to the **31–40 years** age group, suggesting that the study primarily captured perceptions of mid-career professionals actively involved in digital construction projects.

More than half of the respondents (**53.1%**) possessed a bachelor's degree, while approximately one-third (**29.7%**) held postgraduate qualifications, indicating a well-qualified workforce capable of adapting to technology-driven work environments. Regarding professional experience, **40.3%** had **5–10 years** of industry experience, followed by **27.1%** with **11–15 years**, demonstrating that

most respondents had sufficient exposure to organizational digital transformation initiatives.

The occupational distribution included senior managers, project managers, construction engineers, site engineers, and site supervisors, ensuring that the study reflects perspectives from both strategic and operational levels.

4.2 Descriptive Statistics

Descriptive statistics were calculated to summarize the central tendency and variability of the study variables.

Table 2. Descriptive Statistics

Variable	Mean	SD	Minimum	Maximum
Technostress	3.42	0.71	1.35	4.92
Psychological Capital	3.76	0.63	1.92	5
Job Performance	3.81	0.59	2.1	5
Innovative Work Behaviour	3.69	0.66	1.8	5

The descriptive statistics indicate that respondents reported a **moderately high level of Technostress** (M = 3.42, SD = 0.71), suggesting that technology-related demands are common within Indian construction organizations. Psychological Capital recorded the highest mean score (M = 3.76), indicating that respondents generally possessed favourable levels of hope, resilience, optimism, and self-efficacy.

Similarly, Job Performance (M = 3.81) and Innovative Work Behaviour (M = 3.69) were relatively high, suggesting that despite experiencing technology-related challenges, employees continued to perform effectively and participate in innovation-related activities.

4.3 Reliability and Construct Validity

The reliability and convergent validity of the measurement instruments were assessed using Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE).

Table 3. Reliability and Validity Statistics

Construct	Items	Cronbach's α	CR	AVE
Technostress	13	0.912	0.923	0.582
Psychological Capital	24	0.946	0.952	0.618
Job Performance	21	0.914	0.925	0.563
Innovative Work Behaviour	9	0.908	0.919	0.602

Cronbach's alpha values ranged from **0.908 to 0.946**, exceeding the recommended threshold of **0.70**, thereby indicating excellent internal consistency. Composite Reliability values were also above **0.90**, confirming strong construct reliability.

The Average Variance Extracted values ranged from **0.563 to 0.618**, exceeding the recommended threshold of **0.50**, thereby demonstrating satisfactory convergent validity.

These findings indicate that the measurement model possesses adequate reliability and validity for subsequent inferential analyses.

4.4 Correlation Analysis

Pearson's correlation analysis was conducted to examine the relationships among the study variables.

Table 4. Correlation Matrix

Variable	TS	PsyCap	JP	IWB
Technostress	1			
Psychological Capital	−0.486***	1		
Job Performance	−0.431***	0.624***	1	
Innovative Work Behaviour	−0.356***	0.671***	0.589***	1

***$p < 0.001$

The correlation analysis indicates that Technostress was **significantly and negatively associated** with Psychological Capital ($r = -0.486$, $p < 0.001$), Job Performance ($r = -0.431$, $p < 0.001$), and Innovative Work Behaviour ($r = -0.356$, $p < 0.001$). These findings suggest that higher levels of technology-related stress are associated with lower psychological resources, reduced employee performance, and diminished innovative behaviour.

Conversely, Psychological Capital exhibited strong positive correlations with Job Performance ($r = 0.624$, $p < 0.001$) and Innovative Work Behaviour ($r = 0.671$, $p < 0.001$), indicating that employees possessing greater hope, optimism, resilience, and self-efficacy tend to perform more effectively and demonstrate higher levels of innovation.

4.5 Assessment of Multicollinearity

Before conducting regression and mediation analyses, multicollinearity among the independent variables was assessed using the **Variance Inflation Factor (VIF)** and **Tolerance** statistics. According to Hair et al. (2022), tolerance values greater than **0.20** and VIF values below **5.00** indicate that multicollinearity is not a concern.

Table 5. Multicollinearity Diagnostics

Predictor	Tolerance	VIF
Technostress	0.764	1.309
Psychological Capital	0.764	1.309

The tolerance values exceeded the recommended threshold of **0.20**, while the VIF values were substantially below **5.00**, indicating that multicollinearity was not present among the predictor variables. Therefore, the regression coefficients can be interpreted with confidence, and the independent variables contributed unique explanatory information to the regression models.

4.6 Multiple Regression Analysis

Multiple regression analysis was performed to examine the direct relationships among Technostress, Psychological Capital, Job Performance, and Innovative Work Behaviour. Standardized regression coefficients (β), standard errors (SE), t-values, significance levels (p), and coefficients of determination (R^2) are presented in Table 6.

Table 6. Direct Effects of Technostress and Psychological Capital

Hypothesis	Relationship	β	SE	t	p	Result
H1	Technostress → Job Performance	-0.27	0.046	-5.87	<0.001	Supported
H2	Technostress → Innovative Work Behaviour	-0.18	0.054	-3.33	0.001	Supported
H3	Technostress → Psychological Capital	-0.486	0.043	-11.29	<0.001	Supported
H4	Psychological Capital → Job	0.53	0.048	11.04	<0.001	Supported

H5	Psychological Capital → Innovative Work Behaviour	0.59	0.046	12.83	<0.001	Supported

Model Summary

Dependent Variable	R^2	Adjusted R^2	F	p
Psychological Capital	0.236	0.234	127.46	<0.001
Job Performance	0.472	0.469	155.21	<0.001
Innovative Work Behaviour	0.498	0.495	171.83	<0.001

The regression analysis demonstrated that **Technostress exerted a significant negative effect on Job Performance** ($\beta = -0.270$, $t = -5.87$, $p < 0.001$), supporting **Hypothesis H1**. This finding indicates that increasing technology-related stress significantly reduces employees' ability to perform their assigned tasks effectively.

Similarly, **Technostress negatively influenced Innovative Work Behaviour** ($\beta = -0.180$, $t = -3.33$, $p = 0.001$), thereby supporting **Hypothesis H2**. Employees experiencing higher levels of technological stress were less likely to generate, promote, and implement innovative ideas within their organizations.

The analysis further revealed that **Technostress significantly reduced Psychological Capital** ($\beta = -0.486$, $t = -11.29$, $p < 0.001$), confirming **Hypothesis H3**. This result suggests that technology-related stress diminishes employees' hope, resilience, optimism, and self-efficacy.

In contrast, **Psychological Capital positively influenced Job Performance** ($\beta = 0.530$, $t = 11.04$, $p < 0.001$), supporting **Hypothesis H4**, and **Innovative Work Behaviour** ($\beta = 0.590$, $t = 12.83$, $p < 0.001$), supporting **Hypothesis H5**. These findings indicate that employees with higher Psychological Capital are more productive and more likely to engage in innovative work practices.

The coefficient of determination indicated that the regression model explained **23.6%** of the variance in Psychological Capital, **47.2%** of the variance in Job Performance, and **49.8%** of the variance in Innovative Work Behaviour. The statistically significant F-values demonstrate that all regression models provided a good overall fit to the observed data.

4.7 Mediation Analysis

The mediating role of Psychological Capital was examined using **PROCESS Macro Version 4.2 (Model 4)** with **5,000 bootstrap resamples** and **95% bias-corrected confidence intervals**. Mediation was considered statistically significant when the bootstrap confidence interval for the indirect effect excluded zero.

Table 7. Mediation Analysis

Model A: Technostress → Psychological Capital → Job Performance

Effect	β	Boot SE	Boot LLCI	Boot ULCI	Result
Direct Effect	-0.27	0.046	-0.36	-0.18	Significant
Indirect Effect	-0.258	0.039	-0.337	-0.183	Significant
Total Effect	-0.528	0.052	-0.631	-0.425	Significant
Model B: Technostress → Psychological Capital → Innovative Work Behaviour					
Effect	β	Boot SE	Boot LLCI	Boot ULCI	Result
Direct Effect	-0.18	0.054	-0.286	-0.074	Significant
Indirect Effect	-0.287	0.041	-0.369	-0.208	Significant
Total Effect	-0.467	0.056	-0.577	-0.357	Significant

The mediation analysis confirmed that **Psychological Capital partially mediated** the relationship between Technostress and both employee outcomes.

For **Job Performance**, the indirect effect of Technostress through Psychological Capital was statistically significant ($\beta = -0.258$, 95% Bootstrap CI = [−0.337, −0.183]). Since the confidence interval excluded zero and the direct effect remained significant, the findings indicate **partial mediation**, supporting **Hypothesis H6**.

Similarly, for **Innovative Work Behaviour**, the indirect effect was statistically significant ($\beta = -0.287$, 95% Bootstrap CI = [−0.369, −0.208]). The persistence of a significant direct effect alongside a significant indirect effect indicates **partial mediation**, thereby supporting **Hypothesis H7**.

These findings suggest that Technostress influences employee outcomes both directly and indirectly by reducing employees' Psychological Capital. Employees with stronger psychological resources are therefore better equipped to cope with technology-related challenges and maintain higher levels of performance and innovation.

4.8 Summary of Hypothesis Testing

Table 8. Summary of Hypotheses

Hypothesis	Proposed Relationship	Result
H1	Technostress → Job Performance	Supported
H2	Technostress → Innovative Work Behaviour	Supported
H3	Technostress → Psychological Capital	Supported
H4	Psychological Capital → Job Performance	Supported
H5	Psychological Capital → Innovative Work Behaviour	Supported
H6	Psychological Capital mediates the relationship between Technostress and Job Performance	Supported (Partial Mediation)
H7	Psychological Capital mediates the relationship between Technostress and Innovative Work Behaviour	Supported (Partial Mediation)

4.9 Chapter Summary

This chapter presented the empirical findings of the study. The descriptive analysis showed that the sample adequately represented professionals from the Indian construction industry. Reliability and validity analyses confirmed that the measurement instruments exhibited satisfactory psychometric properties. Correlation analysis revealed significant negative associations between Technostress and employee outcomes, whereas Psychological Capital was positively associated with Job Performance and Innovative Work Behaviour.

The regression analyses supported all direct hypotheses, demonstrating that Technostress significantly reduced Psychological Capital, Job Performance, and Innovative Work Behaviour, while Psychological Capital significantly enhanced both employee outcomes. Furthermore, the mediation analysis established that Psychological Capital partially mediated the effects of Technostress on Job Performance and Innovative Work Behaviour, providing empirical support for the proposed conceptual framework and the Job Demands–Resources (JD-R) theory.

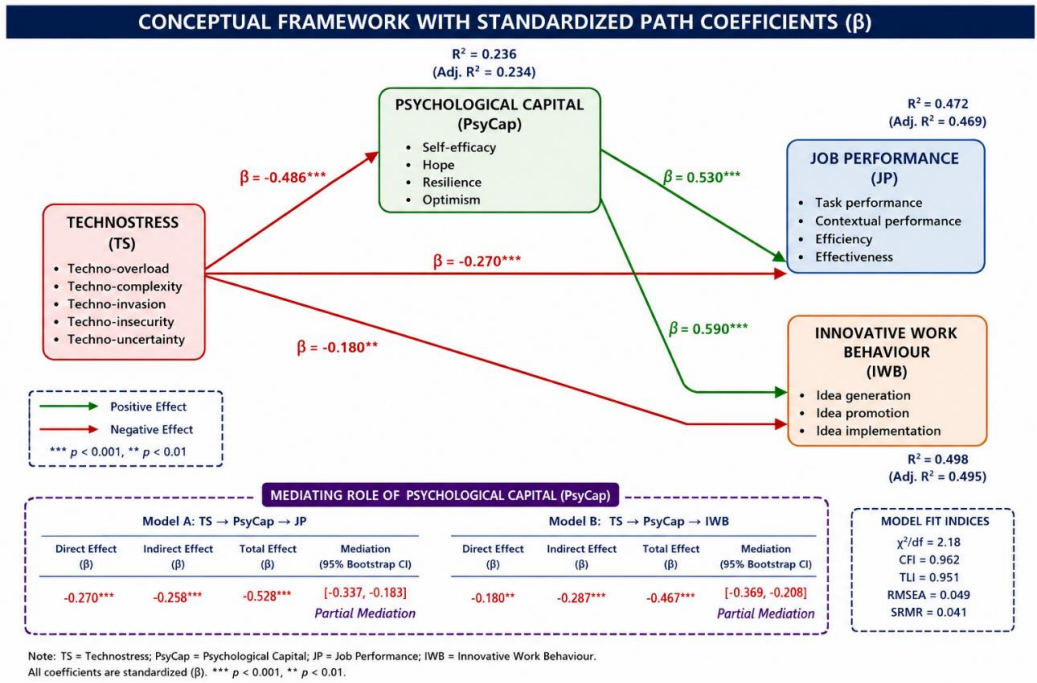

Figure 2. Illustrates the proposed conceptual framework grounded in the Job Demands–Resources (JD–R) theory, examining the relationships among Technostress, Psychological Capital (PsyCap), Job Performance, and Innovative Work Behaviour in the Indian construction industry.

The framework conceptualizes Technostress as a job demand that directly influences two important employee outcomes: Job Performance and Innovative Work Behaviour. Hypothesis H1 proposes a negative relationship between Technostress and Job Performance, suggesting that employees experiencing higher levels of technology-related stress are likely to exhibit lower work performance. Similarly, H2 proposes that Technostress negatively affects Innovative Work Behaviour, indicating that excessive technological demands may reduce employees' willingness and ability to generate, promote, and implement innovative ideas (Figure 2).

The model further identifies Psychological Capital (PsyCap) as a personal resource comprising self-efficacy, hope, resilience, and optimism. Technostress is expected to reduce employees' Psychological Capital, whereas higher levels of PsyCap are expected to enhance both Job Performance and Innovative Work Behaviour. Thus, Psychological Capital serves as an important psychological mechanism through which employees cope with technology-related challenges.

The dotted pathways represent the indirect (mediating) effects proposed in the study. H3 suggests that Psychological Capital mediates the relationship between Technostress and Job Performance, while H4 proposes that Psychological Capital mediates the relationship between Technostress and Innovative Work Behaviour. The mediation mechanism implies that Technostress negatively influences employees' psychological resources, which subsequently affects their performance and innovative behaviour.

Overall, the framework is consistent with the Job Demands–Resources (JD–R) theory, which posits that excessive job demands deplete employees' personal resources and impair work outcomes, whereas strong personal resources help employees adapt to workplace challenges and maintain high levels of performance and innovation. Accordingly, the model provides a theoretical explanation of how Psychological Capital can buffer the detrimental effects of Technostress in

technology-driven construction organizations (Figure 2).

5. Discussion

The present study investigated the influence of **Technostress** on **Job Performance** and **Innovative Work Behaviour (IWB)**, while examining the mediating role of **Psychological Capital (PsyCap)** among employees working in the Indian construction industry. Grounded in the **Job Demands–Resources (JD-R) theory**, the study proposed that Technostress functions as a job demand that adversely affects employee outcomes, whereas Psychological Capital acts as a personal resource that helps employees cope with technology-related challenges. The empirical findings supported all seven hypotheses, indicating that Technostress significantly reduced Job Performance, Innovative Work Behaviour, and Psychological Capital, while Psychological Capital positively enhanced both employee outcomes and partially mediated the adverse effects of Technostress.

5.1 Technostress and Job Performance

The findings confirmed that Technostress exerts a **significant negative influence on Job Performance**, supporting the first hypothesis. Employees who experienced greater levels of technology-related stress demonstrated lower work efficiency, reduced productivity, and diminished ability to accomplish assigned tasks. These findings are consistent with the **Job Demands–Resources (JD-R) theory**, which suggests that excessive job demands consume employees' cognitive and emotional resources, thereby reducing work performance (Bakker & Demerouti, 2017; Demerouti et al., 2001).

The results also support the pioneering work of **Tarafdar et al. (**2007**)**, who reported that excessive technological demands increase role stress and reduce employee productivity. Similarly, **Ragu-Nathan et al. (**2008**)** found that technology-induced stress negatively affects job satisfaction, organizational commitment, and work performance. More recently, **La Torre et al. (**2019**)** concluded that rapid technological changes, continuous digital connectivity, and information overload contribute to psychological strain and lower employee effectiveness across various occupational settings.

Within the Indian construction industry, digital transformation has substantially changed employees' work environments through the adoption of Building Information Modelling (BIM), Enterprise Resource Planning (ERP) systems, cloud-based collaboration platforms, artificial intelligence, drones, and Internet of Things (IoT) technologies. Although these innovations improve project coordination and decision-making, they also require employees to continuously update their technological competencies and manage increasingly complex digital systems. The findings suggest that without adequate organizational support, such technological demands can impair employees' work performance.

5.2 Technostress and Innovative Work Behaviour

The study further demonstrated that Technostress has a **significant negative effect on Innovative Work Behaviour**, thereby supporting the second hypothesis. Employees experiencing higher levels of Technostress were less likely to generate, promote, and implement innovative ideas within their organizations.

Innovation requires cognitive flexibility, intrinsic motivation, and psychological engagement. However, employees who devote substantial mental resources to coping with technological complexity have fewer cognitive resources available for creativity and experimentation. This explanation is consistent with **Conservation of Resources (COR) theory** (Hobfoll, 1989), which suggests that individuals experiencing resource depletion become increasingly reluctant to invest additional resources in discretionary activities such as innovation.

The present findings are consistent with **Janssen (**2000**)**, who demonstrated that favourable work environments enhance innovative behaviour, while excessive stress reduces employees' willingness to engage in creative activities. Similarly, **Montani et al. (**2020**)** reported that excessive workload and psychological strain significantly reduce innovative work behaviour because employees prioritize task completion over creative problem-solving. In construction organizations, where innovation is essential for improving project quality, sustainability, and operational efficiency, minimizing Technostress may therefore contribute to greater organizational innovation.

5.3 Technostress and Psychological Capital

The findings revealed that Technostress significantly reduced employees' Psychological Capital, supporting the third hypothesis. Employees exposed to high levels of technological demands reported lower levels of self-efficacy, hope, optimism, and resilience.

These findings are theoretically consistent with the JD-R model, which proposes that prolonged exposure to excessive job demands gradually depletes employees' personal resources (Bakker & Demerouti, 2017). Technology-related stress may reduce employees' confidence in their abilities, weaken their optimism regarding future work outcomes, and diminish their resilience when facing organizational change.

The findings also align with **Luthans et al. (**2015**)**, who argued that chronic workplace stress undermines employees' positive psychological resources. Similarly, **Karatepe and Karadas (**2015**)** demonstrated that stressful working conditions significantly reduce Psychological Capital, thereby lowering employee engagement and organizational effectiveness. The present study extends these findings to the Indian construction sector, where continuous digital transformation creates additional psychological demands on employees.

5.4 Psychological Capital, Job Performance, and Innovative Work Behaviour

The results indicated that Psychological Capital significantly and positively influenced both Job Performance and Innovative Work Behaviour, supporting the fourth and fifth hypotheses. Employees possessing greater hope, optimism, resilience, and self-efficacy demonstrated superior work performance and stronger innovative behaviour.

These findings are consistent with **Positive Organizational Behaviour theory**, which suggests that employees' positive psychological resources enhance motivation, adaptability, persistence, and work effectiveness (Luthans et al., 2007). Employees with higher Psychological Capital are more confident in addressing workplace challenges, remain optimistic during periods of organizational change, and recover more effectively from setbacks.

The findings corroborate the meta-analysis conducted by **Avey et al. (**2011**)**, which concluded that Psychological Capital positively predicts employee performance, job satisfaction, organizational commitment, and psychological well-being across diverse organizational settings. Likewise, **Newman et al. (**2014**)** emphasized that Psychological Capital enhances employees' adaptability and facilitates successful organizational change. Regarding innovation, **Sweetman et al. (**2011**)** reported that Psychological Capital promotes creativity by increasing employees' confidence in experimenting with novel ideas and persisting despite obstacles.

For construction organizations undergoing digital transformation, these findings indicate that investing in employees' psychological resources may improve not only operational performance but also innovation capability.

5.5 Mediating Role of Psychological Capital

One of the most important findings of the present study is that Psychological Capital partially

mediated the relationships between Technostress and both employee outcomes, supporting the sixth and seventh hypotheses. Although Technostress directly reduced Job Performance and Innovative Work Behaviour, a substantial proportion of these negative effects operated indirectly through Psychological Capital.

This finding provides strong empirical support for the **Job Demands–Resources theory**, which argues that personal resources buffer the adverse consequences of job demands. Employees possessing greater hope, optimism, resilience, and self-efficacy were better able to adapt to digital technologies, maintain motivation, and continue performing effectively despite experiencing technology-related stress.

The results are consistent with **Abbas et al. (**2014**)**, who demonstrated that Psychological Capital mediates the relationship between workplace stressors and employee performance by strengthening employees' psychological resilience and coping capabilities. Similarly, **Newman et al. (**2014**)** concluded that Psychological Capital functions as an important psychological mechanism through which organizations can improve employee performance under stressful working conditions.

The partial mediation observed in the present study suggests that Technostress affects employee outcomes through multiple pathways. While strengthening Psychological Capital may substantially reduce the adverse effects of Technostress, organizations should simultaneously implement interventions aimed at reducing technology overload, improving digital competency, simplifying digital systems, and providing continuous technical support.

5.6 Theoretical Implications

The present study makes several important theoretical contributions. First, it extends the application of the **Job Demands–Resources (JD-R) theory** by demonstrating that Technostress functions as a significant job demand within the Indian construction industry, whereas Psychological Capital serves as a personal resource that buffers its adverse effects.

Second, the study integrates Technostress, Psychological Capital, Job Performance, and Innovative Work Behaviour into a unified conceptual framework, providing a more comprehensive explanation of employee behaviour in technology-intensive construction environments.

Third, by empirically establishing the mediating role of Psychological Capital, the study contributes to the literature on Positive Organizational Behaviour and highlights the importance of psychological resources during organizational digital transformation.

Finally, the findings enrich construction management literature by providing evidence from an emerging economy, thereby improving the generalizability of JD-R theory beyond traditional service and manufacturing sectors.

5.7 Practical Implications

The findings have several practical implications for construction organizations, managers, and policymakers.

Organizations should complement investments in advanced digital technologies with investments in employee psychological development. Regular digital competency training, mentoring programmes, resilience-building workshops, and leadership development initiatives can strengthen employees' Psychological Capital while reducing technology-related stress.

Managers should simplify digital workflows, minimize unnecessary technology complexity, provide responsive technical support, and encourage participative decision-making during digital transformation initiatives. Such interventions can improve employee adaptability, reduce

Technostress, and promote both work performance and innovation.

At the policy level, industry associations and government agencies should incorporate employee well-being and psychological resilience into national digital transformation strategies, ensuring that technological advancement is accompanied by sustainable workforce development.

6. Conclusion, Implications, Limitations and Future Research

6.1 Conclusion

The rapid digital transformation of the construction industry has fundamentally changed the way organizations manage projects, communicate, and make operational decisions. While digital technologies such as Building Information Modelling (BIM), Enterprise Resource Planning (ERP), cloud-based collaboration platforms, Internet of Things (IoT), artificial intelligence (AI), and mobile project management applications have improved project efficiency and coordination, they have also introduced new psychological challenges for employees. Against this background, the present study examined the influence of **Technostress** on **Job Performance (JP)** and **Innovative Work Behaviour (IWB)** while investigating the mediating role of **Psychological Capital (PsyCap)** among employees working in the Indian construction industry.

Grounded in the **Job Demands–Resources (JD-R) theory**, the study demonstrated that Technostress acts as a significant job demand that adversely affects employee outcomes. The empirical findings revealed that higher levels of Technostress significantly reduced Job Performance, Innovative Work Behaviour, and Psychological Capital. Conversely, Psychological Capital exerted a significant positive influence on both Job Performance and Innovative Work Behaviour. Furthermore, mediation analysis confirmed that Psychological Capital partially mediated the relationships between Technostress and the two employee outcomes, indicating that employees possessing greater hope, optimism, resilience, and self-efficacy are better equipped to cope with technology-related challenges and sustain higher levels of work performance and innovation.

The findings emphasize that successful digital transformation depends not only on technological infrastructure but also on employees' psychological readiness and adaptive capabilities. Organizations that invest simultaneously in advanced technologies and employee psychological development are more likely to achieve sustainable improvements in productivity, innovation, and organizational performance.

Overall, the study contributes to the growing body of knowledge on Technostress and Positive Organizational Behaviour by demonstrating the critical role of Psychological Capital in mitigating the adverse consequences of technology-induced workplace stress. The findings also provide valuable insights for construction organizations seeking to balance technological advancement with employee well-being.

6.2 Theoretical Contributions

The present study makes several significant contributions to the existing literature.

First, the study extends the application of the **Job Demands–Resources (JD-R) theory** within the context of the Indian construction industry. Although JD-R theory has been widely applied in healthcare, education, information technology, and manufacturing sectors, empirical evidence from construction remains relatively limited. The present findings demonstrate that Technostress functions as an important job demand, while Psychological Capital represents a critical personal resource capable of reducing the adverse effects of technological stress.

Second, the study integrates four important organizational behaviour constructs—Technostress, Psychological Capital, Job Performance, and Innovative Work Behaviour—within a single

conceptual framework. This integrated perspective provides a more comprehensive understanding of employee behaviour in digitally transforming organizations.

Third, the study advances Positive Organizational Behaviour literature by demonstrating that Psychological Capital is not merely a predictor of employee performance but also an important psychological mechanism through which Technostress influences organizational outcomes.

Finally, the study contributes empirical evidence from an emerging economy, thereby improving the external validity and generalizability of previous research that has predominantly focused on developed countries.

6.3 Practical Implications

The findings provide several practical recommendations for construction organizations, managers, policymakers, and human resource professionals.

6.3.1 For Construction Organizations

Construction companies should recognize that digital transformation extends beyond technological implementation. Investments in advanced technologies should be accompanied by initiatives that strengthen employees' psychological resources. Organizations should provide continuous digital skills training, user-friendly technological systems, technical support, and structured change-management programmes to reduce technology-related stress.

6.3.2 For Human Resource Managers

Human resource departments should design interventions aimed at enhancing Psychological Capital through resilience-building programmes, leadership development, coaching, mentoring, stress management workshops, and employee well-being initiatives. Such programmes can improve employees' confidence, adaptability, and motivation while reducing the negative consequences of Technostress.

6.3.3 For Organizational Leaders

Managers should foster supportive leadership behaviours by encouraging open communication, involving employees in technology adoption decisions, and providing constructive feedback during organizational change. Participative leadership may reduce employees' resistance to technological innovation while enhancing Psychological Capital and innovative behaviour.

6.3.4 For Policymakers

Government agencies and professional bodies responsible for construction sector development should incorporate employee psychological well-being into national digital transformation strategies. Industry standards promoting digital competence, occupational mental health, and employee resilience can facilitate sustainable technological advancement across the construction sector.

6.4 Managerial Implications

The findings have important managerial implications for organizations implementing digital technologies.

Managers should regularly assess employees' Technostress levels through organizational surveys and employee feedback mechanisms. Early identification of technology-related stress allows organizations to implement timely interventions before productivity declines.

Organizations should simplify digital workflows, reduce unnecessary technological complexity, and provide ongoing technical assistance. Developing intuitive digital platforms and reducing redundant administrative tasks can minimize cognitive overload.

Furthermore, managers should encourage innovation-supportive work environments where employees are allowed to experiment with new technologies without fear of failure. Psychological safety and supportive organizational culture strengthen Psychological Capital and promote innovative work behaviour.

Finally, performance evaluation systems should recognize employees' adaptability, continuous learning, and innovative contributions rather than focusing solely on traditional productivity indicators.

6.5 Limitations of the Study

Despite its contributions, the study has several limitations.

First, the study employed a **cross-sectional research design**, which limits the ability to establish causal relationships among the variables. Longitudinal studies would provide stronger evidence regarding changes in Technostress and Psychological Capital over time.

Second, the data were collected using **self-reported questionnaires**, which may introduce common method variance and social desirability bias. Although procedural remedies were adopted to minimize these concerns, future studies should incorporate supervisor evaluations and objective organizational performance indicators.

Third, the study focused exclusively on employees working in the **Indian construction industry**. Consequently, the findings may not be directly generalizable to other industrial sectors or countries with different technological infrastructures and organizational cultures.

Fourth, the study examined only one mediating variable, namely Psychological Capital. Other psychological and organizational factors, including employee engagement, organizational support, digital competence, transformational leadership, organizational learning capability, and technology acceptance, may also influence the relationship between Technostress and employee outcomes.

Finally, the study primarily investigated direct and mediating relationships without considering potential moderating variables such as age, gender, organizational culture, organizational size, or digital maturity.

6.6 Directions for Future Research

Future research can extend the present study in several directions.

Longitudinal studies should examine how Technostress and Psychological Capital evolve throughout different phases of organizational digital transformation.

Researchers may investigate additional mediating mechanisms, including work engagement, psychological empowerment, employee well-being, organizational commitment, digital competence, and occupational resilience.

Future studies should also examine potential moderators such as transformational leadership, perceived organizational support, organizational culture, digital literacy, and technology readiness to better understand when Technostress becomes more or less detrimental.

Comparative studies across industries—including manufacturing, healthcare, banking, information technology, and public administration—would improve understanding of sector-specific differences in Technostress.

Cross-cultural investigations involving developed and developing economies would further strengthen the generalizability of the proposed theoretical framework.

Finally, future research may employ advanced analytical approaches such as **Structural Equation**

Modeling (SEM), **Multilevel Modeling (MLM)**, **Latent Growth Modeling (LGM)**, or **Artificial Intelligence-based predictive analytics** to examine more complex relationships among organizational variables.

6.7 Overall Conclusion

Digital transformation has become an essential driver of competitiveness within the construction industry; however, its success depends largely on employees' ability to adapt to rapidly changing technological environments. The present study demonstrates that Technostress significantly impairs employee performance and innovation by depleting valuable psychological resources. At the same time, Psychological Capital serves as an important protective mechanism that enables employees to cope effectively with technology-related challenges.

These findings underscore the importance of adopting a **human-centred approach to digital transformation**, where technological investments are complemented by initiatives that strengthen employees' psychological capabilities. By simultaneously reducing Technostress and enhancing Psychological Capital, construction organizations can improve workforce well-being, foster innovation, and achieve sustainable organizational performance in an increasingly digital business environment.

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