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Research Article

Digitalization and Job Stress: A Comparative Analysis of Public and Private Bank Employees in Bangalore

M. Roopa^{1*} and M. Devaki²

¹Research Scholar, PG and Research Department of Commerce, Thanthai Hans Roever College (Autonomous), Affiliated to Bharathidasan University, 621220 Perambalur, India

²Assistant professor and Research Advisor, PG and Research Department of Commerce, Thanthai Hans Roever College (Autonomous), Affiliated to Bharathidasan University, 621220 Perambalur, India

*Corresponding Author

Dr. M. Roopa
(roopapranav15@gmail.com)

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Abstract: The hyper-digitalization of the Indian banking sector, accelerated by FinTech integration, core banking solutions, Unified Payment Interfaces (UPI) and artificial intelligence driven customer analytics, has radically altered organizational dynamics and work environments. While digitalization has improved operational speed, transaction volume and customer convenience, it has introduced novel occupational challenges, collectively known as 'technostress'. This study presents a robust empirical and comparative analysis of job stress induced by digitalization among 340 employees (170 public sector bank employees and 170 private sector bank employees) across Bangalore City, India's primary technology and financial hub. Grounded in the Job Demands-Resources (JD-R) Model and the Technostress Creator Framework, the research investigates five critical techno-stressors: techno-overload, techno-invasion, techno-complexity, techno-insecurity and techno-uncertainty. Primary data collected via structured questionnaire were subjected to rigorous statistical evaluation, including Cronbach's alpha reliability tests, independent sample t-tests, Chi-Square test of independence, multiple linear regression, moderation analysis and Structural Equation Modeling (SEM). The empirical results reveal that private sector bank employees exhibit significantly higher levels of overall digitalization stress (Mean = 3.94) compared to their public sector counterparts (Mean = 3.48; $t = -6.12, p < 0.001$), primarily driven by aggressive digital sales targets, constant real-time tracking, techno-invasion and job insecurity. Conversely, public sector bank employees report acute stress stemming from techno-complexity, rapid system updates without adequate training, legacy system integration bottlenecks and compliance pressures. Regression and SEM analyses demonstrate that techno-overload and techno-invasion are the strongest predictors of occupational burnout and diminished job performance across both sectors. Moderation analysis further proves that organizational support mechanisms and adaptive individual coping strategies significantly attenuate the adverse impact of technostress on employee performance. The paper concludes with actionable managerial strategies, ergonomic digital interventions and policy frameworks aimed at fostering a sustainable, digitally resilient work culture in metropolitan banking institutions.

Keywords: Technostress, Digitalization, Banking Sector, Public vs Private Banks, Job Demands-Resources (JD-R) Model, Employee Performance, Bangalore City, Work-Life Balance

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INTRODUCTION

The financial ecosystem of India has witnessed an unprecedented paradigm shift over the past decade. Driven by government initiatives such as Digital India, the expansion of the Unified Payments Interface (UPI) and the rapid penetration of FinTech architectures, commercial banks have transitioned from traditional brick-and-mortar operations to omni-channel, technology-driven digital enterprises. Bangalore, universally recognized as the Silicon Valley of India, serves as the epicenter of this technological convergence. Within this vibrant metropolitan ecosystem, public and private

sector banks operate under intensely competitive conditions, leveraging advanced Core Banking Systems (CBS), Artificial Intelligence (AI) chatbots, automated credit underwriting algorithms and mobile banking applications to serve an increasingly tech-savvy demographic [1].

While the seamless migration to digital channels has brought immense benefits-such as enhanced operational efficiency, reduced transaction costs, 24/7 availability and expanded customer reach-it has simultaneously fundamentally reconfigured the daily work routines, expectations and psychological contracts of banking professionals. Bank employees are no longer merely financial intermediaries or record keepers; they are now required to function as digital troubleshooters, rapid data entry operators, online customer support agents and aggressive sellers of digital financial products. This continuous requirement to adapt to rapidly evolving software platforms, handle massive real-time transaction volumes, maintain absolute data accuracy and meet stringent digital sales quotas has created a high-pressure workplace environment characterized by chronic psychological strain, commonly defined as 'technostress' or digitalization-induced job stress [2,3].

Job stress within the banking sector is not a new phenomenon; however, the nature and intensity of stressors have evolved dramatically with digitalization. Historically, banking stress in India was associated with manual ledger balancing, heavy physical cash handling and bureaucratic paperwork. In the contemporary digital era, stressors manifest as perpetual connectivity ('always-on' work culture), continuous digital monitoring, screen fatigue, complex software interfaces, frequent server downtime, cyber-security anxieties and performance appraisals tied directly to digital platform adoption metrics [4]. Furthermore, the structural, cultural and operational differences between Public Sector Banks (PSBs)-such as State Bank of India, Canara Bank and Bank of Baroda-and Private Sector Banks (PVBs)-such as HDFC Bank, ICICI Bank and Axis Bank-create distinct stress topographies for their respective workforces.

Public sector bank employees in Bangalore often navigate bureaucratic hierarchies, legacy infrastructure transitions, massive government scheme implementations (e.g., Jan Dhan Yojana, PM-KISAN payouts) and diverse, non-digital customer segments, leading to frustration related to system slowness and techno-complexity. On the other hand, private sector bank employees operate in hyper-competitive, result-oriented environments characterized by aggressive digital cross-selling targets, strict Key Performance Indicators (KPIs), rapid adoption of cutting-edge sales technologies and relatively lower perceived job security, causing severe techno-overload and techno-invasion [5].

Statement of the Problem

Despite extensive literature on occupational stress in general service industries, empirical research specifically comparing the psychological and performance impacts of digitalization across public and private sector bank employees in metropolitan financial hubs like Bangalore remains fragmented. Most existing studies focus either on general job stress without isolating techno-stressors or examine technology adoption strictly from a customer-satisfaction perspective. There is a critical empirical gap in understanding how specific dimensions of technostress-such as techno-overload, techno-invasion, techno-complexity, techno-insecurity and techno-uncertainty-differentially operate within public versus private sector organizational cultures. Furthermore, the mediating mechanisms linking digital job demands to employee performance and the moderating role of organizational support coping frameworks remain inadequately explored in the Indian context. Addressing this gap is imperative for bank management, HR strategists and policy makers seeking to mitigate burnout, reduce employee turnover and maintain operational resilience in an increasingly automated banking industry.

Research Questions

- What are the dominant digitalization-induced stressors (techno-stressors) experienced by employees in public and private sector banks in Bangalore?
- Is there a statistically significant difference in the levels of digitalization job stress between public sector and private sector bank employees?
- How do socio-demographic factors (age, gender, experience, educational qualification and bank category) influence the perception of technostress?
- What is the impact of digitalization stress on overall employee job performance and psychological well-being?
- To what extent do organizational support systems and individual coping mechanisms moderate the negative relationship between digitalization stress and employee performance?

Objectives of the Study

- To identify and quantify the core dimensions of digitalization job stress among commercial bank employees in Bangalore City
- To conduct a comparative evaluation of technostress levels between public sector bank employees and private sector bank employees

- To examine the association between demographic characteristics and employee stress levels stemming from digital work environments
- To analyze the empirical relationship between techno-stressors, overall job stress and employee performance using regression and structural modeling
- To evaluate the moderating efficacy of organizational coping strategies and provide actionable HR and managerial policy recommendations

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical Foundations

This research is theoretical grounded in two prominent organizational behavior paradigms: The Job Demands-Resources (JD-R) Model [6] and the Technostress Creator Framework [3,7].

Job Demands-Resources (JD-R) Model

The Job Demands-Resources (JD-R) Model posits that any occupational environment can be divided into two general categories: job demands and job resources. Job demands refer to those physical, psychological, social or organizational aspects of the job that require sustained physical or psychological effort and are therefore associated with physiological and psychological costs. In the context of digitalized banking, job demands encompass high digital transaction speed, constant technological adaptation, real-time customer query resolution, extended screen hours and aggressive digital product sales quotas. Job resources, conversely, refer to physical, psychological, social or organizational aspects that facilitate goal achievement, reduce job demands and stimulate personal growth and development. In banking, resources include digital skills training, IT technical support, supportive leadership, ergonomics and adequate coping mechanisms. According to JD-R theory, an imbalance where high digital demands overwhelm available job resources leads to chronic strain, health impairment and diminished performance.

Technostress Creator Framework

Complementing the JD-R framework, the Technostress Creator Framework developed by Ragu-Nathan *et al.* [3] isolates five distinct technology-induced stressors (Techno-Creators):

- **Techno-Overload:** Situations where digital technology forces employees to work faster, longer and process massive volumes of information beyond their cognitive capacity
- **Techno-Invasion:** The blurring of boundaries between work and personal life due to constant connectivity via smartphones, emails and messaging apps, forcing employees to be reachable at all times
- **Techno-Complexity:** Feelings of inadequacy and intimidation caused by complex, difficult-to-master banking software, frequent software updates and multi-step verification workflows
- **Techno-Insecurity:** The psychological anxiety that one's job could be replaced by automated systems, AI algorithms or younger, tech-savvy workers
- **Techno-Uncertainty:** The stress resulting from continuous changes, updates and instability in hardware and software platforms, requiring constant unlearning and relearning

Digitalization Dynamics in Indian Commercial Banking

The transformation of Indian banking from traditional transaction processing to digital-first banking has accelerated following post-demonetization policies and the COVID-19 pandemic. Public and private commercial banks in metropolitan hubs like Bangalore have heavily invested in Core Banking Solutions (CBS), centralized databases, Customer Relationship Management (CRM) software, automated teller networks and mobile banking applications [8]. While these technologies streamline financial intermediation, they have altered employee job descriptions. Employees face persistent pressure to convert foot-traffic customers into digital app users, troubleshoot customer payment failures and manage real-time fraud alerts. Furthermore, central bank regulatory directives require rigorous data validation and Know-Your-Customer (KYC) compliance, adding digital documentation burdens onto operational staff.

Public Sector vs. Private Sector Bank Work Environments in Bangalore

Extensive literature highlights substantial structural differences between Public Sector Banks (PSBs) and Private Sector Banks (PVBs) in India. PSBs are traditionally characterized by institutional stability, formalized procedures, standardized wage structures under bipartite settlements and strong job security. However, they frequently contend with rigid bureaucratic channels, legacy IT systems, high customer volume per employee and rapid deployment of government welfare schemes [9]. Employees in PSBs often experience techno-stressors arising from technological glitches, inadequate IT support infrastructure and mandatory multi-tasking without corresponding digital skill upgrades.

Conversely, private sector banks operate under performance-driven governance, lean staffing models, sophisticated digital infrastructure and merit-based compensation structures. However, PVB employees face intense commercial pressure, stringent target tracking through real-time dashboards, long working hours and high performance-contingent job insecurity [1]. The competitive banking landscape in Bangalore intensifies these dynamics, as private banks aggressively deploy digital cross-selling technologies (credit cards, mutual funds, insurance) that employees must sell alongside routine banking services.

Impact of Digitalization Stress on Employee Performance and Well-Being

Occupational stress induced by digital overload has far-reaching consequences for both individual employees and organizational effectiveness. Chronically elevated technostress leads to cognitive fatigue, emotional exhaustion, psychological anxiety, visual strain and musculoskeletal disorders [10]. From an organizational perspective, technostress manifests in increased error rates in transaction processing, high employee absenteeism, lower job satisfaction, affective detachment and elevated turnover intentions-particularly among mid-level operational staff and junior branch officers [11,12].

Coping Mechanisms and Organizational Support

Transactional Theory of Stress and Coping suggests that the impact of stress on individual performance depends on cognitive appraisal and coping strategies [13]. Coping strategies can be problem-focused (e.g., seeking technical training, managing digital communication schedules) or emotion-focused (e.g., peer support, mindfulness, psychological detachment after work hours). Organizational resources-such as comprehensive IT user support, regular digital skills workshops, ergonomic workstation designs and realistic digital sales target setting-play a crucial role in buffering the negative consequences of techno-stressors [14].

Research Gaps and Hypotheses Development

While prior research has independently analyzed job stress in banks or technology adoption among consumers, comparative empirical studies evaluating the detailed dimensions of technostress across public and private banks in Bangalore remain limited. To address these gaps, this study formulates the conceptual model and hypotheses (Figure 1).

Hypotheses Formulations

- **H1:** Techno-stressors (overload, invasion, complexity, insecurity, uncertainty) have a significant positive impact on overall digitalization job stress among bank employees
- **H2:** There is a statistically significant difference in overall digitalization job stress levels between private sector bank employees and public sector bank employees in Bangalore
- **H3:** Private sector bank employees experience significantly higher techno-overload, techno-invasion and techno-insecurity than public sector bank employees

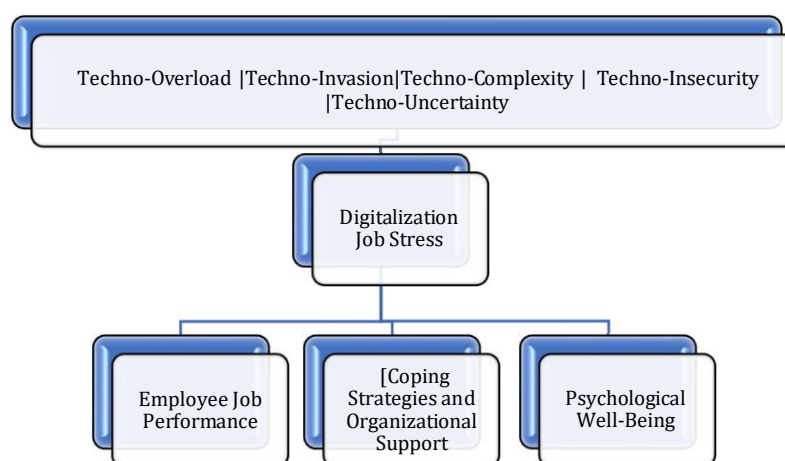


Figure 1: Conceptual Framework of Digitalization Stress and Performance

- **H4:** Public sector bank employees experience significantly higher techno-complexity and techno-uncertainty than private sector bank employees
- **H5:** Demographic factors (age, gender, experience and educational level) significantly influence perceived digitalization stress
- **H6:** Digitalization job stress has a significant negative impact on employee job performance
- **H7:** Digitalization job stress mediates the relationship between techno-stressors and employee job performance
- **H8:** Coping strategies and organizational support significantly moderate the negative impact of digitalization stress on employee job performance

RESEARCH METHODOLOGY

Research Design

This study adopts a descriptive, comparative and explanatory cross-sectional quantitative research design. A deductive approach was utilized, testing theoretical constructs derived from the JD-R model and technostress theory through empirical data collected from commercial bank employees operating within Bangalore City.

Population and Sampling Design

The target population comprises full-time operational employees, customer service executives, relationship managers, loan officers and branch managers working in commercial bank branches across major business zones in Bangalore (e.g., MG Road, Koramangala, Indiranagar, Whitefield, Electronic City and Jayanagar). A stratified random sampling technique was employed to select representative samples from both public and private sector banks.

The sample frame included three major Public Sector Banks (State Bank of India, Canara Bank and Bank of Baroda) and three major Private Sector Banks (HDFC Bank, ICICI Bank and Axis Bank). A total of 400 structured questionnaires were distributed (200 to public sector branches and 200 to private sector branches). After screening for missing data and unengaged responses, 340 valid questionnaires (170 from PSBs and 170 from PVBs) were retained for final statistical analysis, yielding an effective response rate of 85.0%.

Data Collection Instrument and Measurement Scales

Primary data were gathered using a comprehensive, highly structured survey questionnaire divided into four distinct sections:

- **Section A:** Socio-Demographic and Employment Profile (Age, Gender, Education, Bank Sector, Job Designation, Work Experience, Daily Screen Time)
- **Section B:** Technostress Creators Scale (Adapted from Ragu-Nathan et al., 2008 and Tarafdar et al., 2007; 20 items measuring Techno-Overload, Techno-Invasion, Techno-Complexity, Techno-Insecurity and Techno-Uncertainty on a 5-point Likert Scale)
- **Section C:** Digitalization Job Stress and Psychological Strain Scale (10 items adapted from Parker and DeCotiis, 1983; measuring perceived workload pressure, emotional exhaustion and digital burnout)
- **Section D:** Employee Job Performance and Coping Resources (10 items adapted from Koopmans et al., 2014 and Carver, 1997; measuring task efficiency, accuracy, service quality, coping mechanisms and IT support adequacy)

Data Analysis Techniques

Statistical analyses were executed using SPSS (Version 28.0) and AMOS (Version 26.0). The analytical sequence included:

- **Descriptive Analysis:** Frequencies, percentages, means and standard deviations to summarize sample demographic profiles and baseline construct scores
- **Psychometric Property Evaluation:** Cronbach's alpha (α), Composite Reliability (CR) and Average Variance Extracted (AVE) to verify construct reliability and convergent/discriminant validity
- **Inferential Hypotheses Testing:** Independent Samples t-Tests to evaluate sector-wise mean differences; Chi-Square (χ^2) Tests of Independence to assess demographic associations
- **Bivariate and Multivariate Modeling:** Pearson correlation analysis, Multiple Linear Regression, Baron and Kenny mediation pathways and PROCESS Macro moderation modeling
- **Structural Equation Modeling (SEM):** Confirmatory Factor Analysis (CFA) and path analysis to evaluate overall structural model fit (χ^2/df , CFI, TLI, RMSEA, SRMR)

EMPIRICAL RESULTS AND DATA ANALYSIS

Socio-Demographic Profile of Respondents

Table 1 outlines the detailed demographic and professional characteristics of the 340 surveyed bank employees, segmented by public and private sector institutions.

Table 1: Socio-Demographic and Work Profile of Respondents

Demographic Category	Sub-Category	Public Sector (N = 170)	Private Sector (N = 170)	Total Sample (N = 340)	Percentage
Gender	Male	98	104	202	59.4%
	Female	72	66	138	40.6%
Age Group	Under 30 Years	34	68	102	30.0%
	30 - 40 Years	76	72	148	43.5%
	41 - 50 Years	42	22	64	18.8%
	Above 50 Years	18	8	26	7.6%
Education Level	Bachelor's Degree	94	86	180	52.9%
	Master's Degree/Professional	76	84	160	47.1%
Experience in Banking	Less than 5 Years	32	64	96	28.2%
	5 - 10 Years	68	76	144	42.4%
	More than 10 Years	70	30	100	29.4%
Daily Digital Screen Time	Less than 4 Hours	14	6	20	5.9%
	4 - 7 Hours	82	54	136	40.0%
	More than 7 Hours	74	110	184	54.1%

Table 2: Psychometric Evaluation of Measurement Constructs

Construct/Scale	No. of Items	Cronbach's Alpha (α)	Composite Reliability (CR)	AVE	Validity Assessment
Techno-Overload	4	0.88	0.89	0.67	Established
Techno-Invasion	4	0.86	0.87	0.63	Established
Techno-Complexity	4	0.84	0.85	0.59	Established
Techno-Insecurity	4	0.87	0.88	0.65	Established
Techno-Uncertainty	4	0.83	0.84	0.57	Established
Digitalization Stress	6	0.91	0.92	0.68	Established
Employee Performance	5	0.85	0.86	0.58	Established
Coping and Org Support	5	0.82	0.83	0.53	Established

Table 3: Independent Samples t-Test Results (Public vs. Private Banks)

Variable/Construct	Public Sector Mean (SD)	Private Sector Mean (SD)	t-value	df	p-value	Significance Level
Techno-Overload	3.42 (0.68)	4.15 (0.54)	-10.96	338	<0.001	Significant (PVB>PSB)
Techno-Invasion	3.25 (0.72)	4.08 (0.58)	-11.68	338	<0.001	Significant (PVB>PSB)
Techno-Complexity	3.85 (0.61)	3.12 (0.66)	10.58	338	<0.001	Significant (PSB>PVB)
Techno-Insecurity	3.10 (0.75)	3.78 (0.69)	-8.69	338	<0.001	Significant (PVB>PSB)
Techno-Uncertainty	3.72 (0.64)	3.28 (0.70)	6.05	338	<0.001	Significant (PSB>PVB)
Overall Digital Stress	3.48 (0.59)	3.94 (0.52)	-7.61	338	<0.001	Significant (PVB>PSB)
Employee Performance	3.55 (0.58)	3.18 (0.64)	5.58	338	<0.001	Significant (PSB>PVB)

As reflected in Table 1, the sample presents a balanced representation across gender (59.4% male, 40.6% female). Notably, private sector bank employees skew younger, with 40.0% under 30 years of age compared to 20.0% in public sector banks. Furthermore, 54.1% of all respondents spend more than 7 hours daily interacting with digital banking interfaces, with private sector staff demonstrating higher intense digital engagement (64.7%) than public sector staff (43.5%).

Scale Reliability and Construct Validity

To ensure psychometric robustness, Cronbach's alpha (α), Composite Reliability (CR) and Average Variance Extracted (AVE) were evaluated for all measurement constructs.

All constructs demonstrated Cronbach's alpha and CR values well above the recommended threshold of 0.70 [15], ranging from 0.82-0.92. The AVE values exceeded 0.50, confirming convergent validity across all scales (Table 2).

Comparative Analysis: Public vs. Private Sector Bank Employees

To test H2, H3 and H4, independent sample t-tests were conducted to compare the mean scores of techno-stressors and overall digitalization stress between public and private sector bank employees.

The t-test results in Table 3 provide strong empirical support for Hypotheses H2, H3 and H4:

- **Overall Digitalization Stress:** Private sector bank employees experience significantly higher overall digitalization stress ($M = 3.94$, $SD = 0.52$) than public sector bank employees ($M = 3.48$, $SD = 0.59$; $t = -7.61$, $p < 0.001$), fully supporting H2
- **Techno-Overload, Invasion and Insecurity:** Private sector bank staff scored significantly higher on Techno-Overload (4.15 vs. 3.42), Techno-Invasion (4.08 vs. 3.25) and Techno-Insecurity (3.78 vs. 3.10), fully supporting H3. This reflects the hyper-connected, target-intensive sales environment in private banking

Table 4: Chi-Square Test of Independence for Demographic Factors

Demographic Factor	Chi-Square Value (χ^2)	Degrees of Freedom (df)	p-value	Statistical Inference
Gender×Stress Level	2.14	1	0.143	Not Significant
Age Group×Stress Level	18.65	3	<0.001	Statistically Significant
Banking Experience×Stress Level	14.32	2	0.001	Statistically Significant
Bank Sector×Stress Level	24.88	1	<0.001	Statistically Significant
Daily Screen Time×Stress Level	31.45	2	<0.001	Statistically Significant

Table 5: Pearson Bivariate Correlation Matrix

Construct	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Techno-Overload	1.00							
(2) Techno-Invasion	0.68**	1.00						
(3) Techno-Complexity	0.45**	0.41**	1.00					
(4) Techno-Insecurity	0.58**	0.62**	0.48**	1.00				
(5) Techno-Uncertainty	0.51**	0.47**	0.65**	0.52**	1.00			
(6) Digitalization Stress	0.74**	0.71**	0.62**	0.66**	0.59**	1.00		
(7) Employee Performance	-0.54**	-0.51**	-0.43**	-0.48**	-0.39**	-0.63**	1.00	
(8) Coping and Org Support	-0.38**	-0.35**	-0.31**	-0.33**	-0.28**	-0.46**	0.58**	1.00

**p<0.01

Table 6: Multiple Regression Analysis Predicting Digitalization Stress

Independent Variable	Unstandardized B	Std. Error	Standardized Beta (β)	t-value	p-value	VIF
(Constant)	0.42	0.12	-	3.50	0.001	-
Techno-Overload	0.32	0.04	0.35	7.85	<0.001	1.85
Techno-Invasion	0.26	0.04	0.28	6.42	<0.001	1.74
Techno-Complexity	0.18	0.03	0.19	4.88	<0.001	1.52
Techno-Insecurity	0.20	0.04	0.21	5.12	<0.001	1.66
Techno-Uncertainty	0.14	0.03	0.15	3.95	<0.001	1.58

Model $R^2 = 0.684$, $F = 144.5$, $p < 0.001$

- **Techno-Complexity and Uncertainty:** Public sector bank staff scored significantly higher on Techno-Complexity (3.85 vs. 3.12) and Techno-Uncertainty (3.72 vs. 3.28), fully supporting H4. This aligns with legacy system transitions, frequent operational software upgrades and inadequate standardized IT training in public sector institutions

Demographic Factors and Digitalization Stress (Chi-Square Analysis)

Chi-Square (χ^2) tests of independence were performed to examine whether demographic variables (Age, Gender, Experience and Daily Screen Time) are significantly associated with high levels of digitalization stress (categorized as Moderate vs. High stress).

The Chi-Square analysis in Table 4 confirms Hypothesis H5 for Age, Banking Experience, Bank Sector and Daily Screen Time. Older employees (>40 years) in public banks exhibit higher stress related to techno-complexity, whereas younger employees (<30 years) in private banks report severe stress from techno-invasion and target monitoring. Daily screen time exceeding 7 hours showed a highly significant association with extreme digital burnout ($\chi^2 = 31.45$, $p < 0.001$).

Pearson Correlation Analysis

Bivariate Pearson correlation coefficients were computed to assess the directional relationships between individual techno-stressors, overall digital stress, coping mechanisms and employee performance.

The correlation matrix demonstrates that all five techno-stressors possess strong, positive correlations with overall Digitalization Stress (r ranging from 0.59 to 0.74, $p < 0.01$). Furthermore, Digitalization Stress exhibits a potent inverse relationship with Employee Job Performance (r = -0.63, $p < 0.01$), providing preliminary support for H1 and H6 (Table 5).

Multiple Regression Analysis: Predictors of Digitalization Stress

A multiple linear regression analysis was executed using the five techno-stressors as independent variables and Digitalization Stress as the dependent variable to test Hypothesis H1.

The regression model is statistically significant ($F = 144.5$, $p < 0.001$) and accounts for 68.4% of the variance in Digitalization Stress ($R^2 = 0.684$). All five dimensions significantly contribute to digital stress, confirming H1. Techno-Overload ($\beta = 0.35$, $p < 0.001$) and Techno-Invasion ($\beta = 0.28$, $p < 0.001$) emerge as the two primary drivers of occupational stress among banking professionals (Table 6).

Impact of Digitalization Stress on Employee Performance

Simple and hierarchical regression analyses were performed to test H6 (the direct negative effect of digital stress on performance) and H8 (the moderating role of coping and organizational support).

Table 7: Regression and Moderation Modeling on Employee Job Performance

Model/Predictor	Unstandardized B	Std. Error	Beta (β)	t-value	p-value	Model R ²	ΔR^2
Model 1: Direct Effect							
Digitalization Stress	-0.65	0.04	-0.63	-14.92	<0.001	0.397	-
Model 2: Moderation Effect							
Digitalization Stress	-0.42	0.05	-0.41	-8.40	<0.001	0.521	0.124
Coping and Org Support	0.38	0.04	0.36	8.15	<0.001		
Stress×Coping Interaction	0.24	0.04	0.22	5.65	<0.001		

Table 8: SEM Path Coefficients and Mediation Analysis

Hypothesized Structural Path	Standardized Path Coefficient (β)	Standard Error (SE)	Critical Ratio (CR)	p-value	Hypothesis Result
Techno-Stressors→Digitalization Stress	0.82	0.04	20.50	<0.001	Supported
Digitalization Stress→Employee Performance	-0.58	0.05	-11.60	<0.001	Supported
Techno-Stressors→Employee Performance (Direct)	-0.15	0.06	-2.50	0.012	Partial Mediation
Techno-Stressors→Digital Stress→Performance (Indirect)	-0.48	0.04	Sobel z = 9.85	<0.001	Supported (H7)

Table 9: SEM Structural Model Fit Summary

Fit Index Metric	Recommended Threshold	Obtained SEM Value	Model Fit Conclusion
Chi-Square/df (χ^2/df)	<3.00	2.18	Good Fit
Comparative Fit Index (CFI)	>0.90	0.952	Excellent Fit
Tucker-Lewis Index (TLI)	>0.90	0.941	Good Fit
Root Mean Square Error of Approx. (RMSEA)	<0.08	0.058	Acceptable Fit
Standardized Root Mean Residual (SRMR)	<0.08	0.049	Good Fit

Model 1 confirms that Digitalization Stress exerts a strong negative impact on Employee Job Performance ($\beta = -0.63$, $p < 0.001$), explaining 39.7% of performance variance and supporting H6. Model 2 incorporates the interaction term (Stress×Coping). The interaction coefficient is statistically significant ($\beta = 0.22$, $t = 5.65$, $p < 0.001$) and increases explained variance by 12.4% ($\Delta R^2 = 0.124$). This confirms H8: strong organizational support and coping mechanisms buffer the harmful effects of digital stress on performance (Table 7).

Mediation Analysis (Structural Equation Modeling-SEM)

To test H7, Structural Equation Modeling (SEM) was conducted using AMOS to evaluate whether Digitalization Stress mediates the path from composite Techno-Stressors to Employee Job Performance.

The SEM analysis yields excellent fit statistics ($\chi^2/df = 2.18$, CFI = 0.952, RMSEA = 0.058). The indirect path coefficient (-0.48, $p < 0.001$) confirms that Digitalization Stress significantly mediates the relationship between techno-stressors and employee performance, supporting Hypothesis H7 (Table 8-9).

DISCUSSION OF FINDINGS

The empirical findings of this study offer vital insights into how digitalization reshapes the work lives of bank employees in Bangalore City. The comparative results demonstrate a striking dichotomy between public and private sector banking environments.

In private sector banks, employees suffer acutely from techno-overload and techno-invasion. The deployment of real-time sales tracking dashboards, omni-channel messaging and mandatory digital product conversion targets forces staff to maintain continuous digital availability. Employees reported feeling unable to mentally disconnect from work after office hours due to official WhatsApp groups, automated performance alerts and customer emails. This constant connectivity bleeds into personal life, generating severe work-family conflict and emotional exhaustion. Furthermore, performance-linked reward structures in private banks amplify techno-insecurity; employees express continuous fear that failure to achieve digital target metrics could impair their career progression or lead to employment termination [1].

Conversely, public sector bank employees present a different stress profile, dominated by techno-complexity and techno-uncertainty. While PSBs offer high job security, employees face systemic bottlenecks during technology adoption. Legacy software platforms, periodic system crashes, slow server response times during peak hours and frequent, unannounced software UI updates create significant daily frustration. PSB employees, particularly those in older age cohorts (>40 years), reported high anxiety regarding mandatory digital processing of government welfare schemes and complex compliance workflows without adequate step-by-step IT training. When digital systems slow down or fail, employees bear the brunt of customer dissatisfaction and branch overcrowding, creating intense psychological strain [5].

From a theoretical perspective, the findings strongly validate the Job Demands-Resources (JD-R) model. High digital demands act as an energy-depleting mechanism that lowers task accuracy, service quality and overall job performance.

However, the moderation analysis highlights the vital role of job resources. Bank employees who reported access to responsive internal IT helpdesks, formal digital skill training programs, supportive peer networks and clear boundaries regarding off-hour digital communications demonstrated significantly higher resilience and lower performance degradation.

Strategic Implications and Recommendations

Policy Recommendations for Private Sector Banks

- **Institutionalization of 'Right to Disconnect' Policies:** Establish explicit organizational guidelines prohibiting work-related digital communication (emails, WhatsApp messages, dashboard alerts) after designated working hours to curb techno-invasion
- **Rationalization of Digital Sales Quotas:** Re-evaluate aggressive digital product conversion metrics. Performance appraisals should emphasize customer service quality and compliance rather than solely tracking real-time digital sales conversion rates
- **Mental Health and Burnout Prevention Programs:** Provide access to confidential psychological counseling, digital wellness workshops and stress-mitigation resources tailored to high-pressure corporate banking environments

Policy Recommendations for Public Sector Banks

- **IT Infrastructure Modernization and Server Upgrades:** Invest heavily in expanding core banking bandwidth, server capacities and cloud infrastructure to minimize server downtime and transaction processing latency during peak business hours
- **Comprehensive and Continuous Digital Upskilling:** Implement structured, user-friendly training programs whenever new software, updates or digital modules are introduced. Special support modules should target senior personnel to build technological confidence
- **Standardized IT Technical Support:** Establish dedicated, responsive IT helpdesks at the district and zonal levels to instantly resolve software glitches, freeing operational staff from technical troubleshooting burdens

Ergonomic and Workplace Interventions

- **Digital Ergonomics:** Introduce ergonomic workstations, anti-glare monitors, adjustable seating and mandatory 10-minute micro-breaks during extended screen sessions to prevent visual fatigue and musculoskeletal strain
- **Digital Process Automation (DPA):** Streamline multi-step manual data entry workflows into intuitive, automated single-sign-on interfaces to reduce cognitive load and processing errors

Limitations and Directions for Future Research

While this study provides robust empirical contributions, certain limitations must be acknowledged. First, the cross-sectional survey design captures employee perceptions at a single point in time; longitudinal studies could provide deeper insights into how technostress evolves over prolonged technological shifts. Second, the study focused exclusively on commercial bank branches in Bangalore City; future research could expand the geographical scope to tier-2 and tier-3 cities or rural banking units, where digital infrastructure and customer readiness differ significantly. Finally, future studies could explore additional psychological moderators, such as emotional intelligence, psychological hardness and leadership styles.

CONCLUSION

Digitalization has permanently altered the landscape of commercial banking, delivering immense operational efficiency while simultaneously creating complex psychological challenges for bank employees. This comparative study in Bangalore demonstrates that while digitalization stress is pervasive across the industry, its manifestations differ sharply between public and private sector banks. Private bank employees endure severe stress from techno-overload, techno-invasion and aggressive target tracking, whereas public bank employees suffer from techno-complexity, legacy system bottlenecks and inadequate digital training. Mitigating these stressors requires a balanced organizational approach that pairs technological advancement with human-centric HR policies, robust IT support, continuous skill development and employee well-being initiatives. By building a supportive digital ecosystem, banking institutions can optimize operational productivity while safeguarding the health and performance of their human capital.

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APPENDIX: STRUCTURED SURVEY QUESTIONNAIRE

Instructions

Please rate your level of agreement with each statement on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Section A: Technostress Creators

Construct	Code	Measurement Item Statement
Techno-Overload	TO1	I am forced by digital banking tools to work much faster than comfortable.
	TO2	The volume of digital communications and real-time transaction processing is overwhelming.
	TO3	I have to sacrifice my lunch breaks and rest time to keep up with online banking entries.
	TO4	I feel flooded with constant digital notifications, target alerts and operational messages.
Techno-Invasion	TI1	Digital technologies force me to stay connected to work even during personal and evening time.
	TI2	I am expected to respond to official WhatsApp messages and emails outside working hours.
	TI3	I feel my personal life is invaded by work due to smartphone connectivity and remote tracking.
	TI4	I rarely get time to mentally detach from digital banking responsibilities on weekends.
Techno-Complexity	TC1	I often find new digital banking platforms and core software complex and difficult to use.
	TC2	I do not have enough technical knowledge to troubleshoot system errors during client transactions.
	TC3	It takes a long time for me to understand and adapt to frequent software update procedures.
	TC4	I feel intimidated by complex digital verification, compliance and multi-factor authentication steps.
Techno-Insecurity	TS1	I fear that younger, more digitally skilled employees will replace me in my job.
	TS2	I worry that automation, AI chatbots and digital self-service will make my current role redundant.
	TS3	I constantly feel pressured to upgrade my digital skills just to maintain my current job status.
	TS4	Failure to meet digital product sales targets negatively impacts my appraisal and security.