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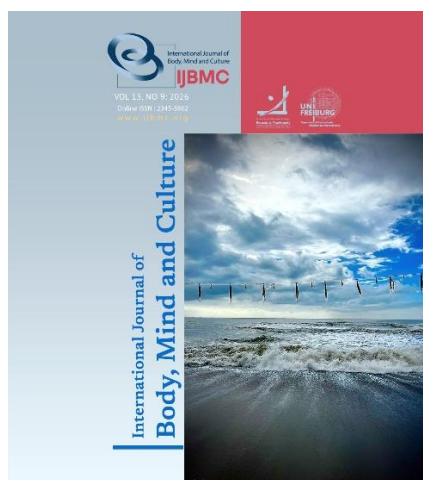
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The Effects of Technology Acceptance and Digital Lifestyle on Work Engagement and Employee Deviant Behaviors: The Mediating Roles of Organizational Commitment and Innovative Work Behavior

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ABSTRACT

Objective: This study aimed to test a structural equation model linking technology acceptance and digital lifestyle to work engagement and employee deviant behaviors, with organizational commitment and innovative work behavior as mediating variables.

Methods and Materials: A quantitative cross-sectional descriptive-correlational design was used. The population included faculty members and administrative employees of Islamic Azad University branches in Semnan Province, Iran, in 2024. A total of 300 participants were selected through simple random sampling. Data were collected using standardized self-report measures of technology acceptance, digital lifestyle, work engagement, organizational deviance, organizational commitment, and innovative work behavior. Data were analyzed using Pearson correlation in SPSS 22 and structural equation modeling with bootstrap analysis in AMOS 22.

Findings: The final model showed good fit: $\chi^2/df = 1.81$, GFI = .94, AGFI = .91, CFI = .97, TLI = .96, IFI = .97, NFI = .93, RMSEA = .052, and SRMR = .045. Technology acceptance positively predicted work engagement ($\beta = .24$), organizational commitment ($\beta = .39$), and innovative work behavior ($\beta = .35$), and negatively predicted employee deviance ($\beta = -.18$). Digital lifestyle positively predicted work engagement ($\beta = .19$), organizational commitment ($\beta = .31$), and innovative work behavior ($\beta = .37$), and negatively predicted deviance ($\beta = -.14$). The model explained 42% of organizational commitment, 55% of innovative work behavior, 62% of work engagement, and 49% of employee deviance. Bootstrap results confirmed significant indirect effects.

Conclusion: Technology acceptance and digital lifestyle were associated with higher work engagement and lower workplace deviance through organizational commitment and innovative work behavior.

Keywords: Technology Acceptance, Digital Lifestyle, Work Engagement, Workplace Deviance, Organizational Commitment, Innovative Work Behavior.

Introduction

Digital transformation has altered not only organizational infrastructures but also the psychological and behavioral experience of work. Employees increasingly perform their roles through interconnected platforms, digital communication systems, data-driven processes, and technology-mediated workflows. Consequently, the quality of employees' interaction with technology has become a central concern for organizational psychology and human resource management. Contemporary research suggests that digital technologies may function as job resources by increasing access to information, flexibility, collaboration, and learning, but they may also generate new demands through information overload, technostress, constant connectivity, and intensified monitoring (Marsh et al., 2022; Scholze & Hecker, 2024). Understanding why digitalization produces constructive outcomes for some employees but strain and counterproductive behavior for others therefore requires attention to both technology-related attitudes and the broader patterns through which digital tools become embedded in everyday life.

Technology acceptance provides one of the most established frameworks for explaining employees' willingness to adopt and use digital systems. The Technology Acceptance Model proposes that perceived usefulness and perceived ease of use shape attitudes toward technology and subsequent use behavior (Davis, 1989). Later extensions have shown that technology acceptance is influenced by organizational support, facilitating conditions, social norms, trust, and user experience, particularly when technology is embedded in complex institutional settings (Abdullah & Ward, 2016; Tamilmani et al., 2021). In workplaces, high technology acceptance may reduce friction in digital task execution, increase perceived competence, and allow employees to focus cognitive and motivational resources on core responsibilities rather than on resistance to or avoidance of organizational systems.

Technology acceptance, however, captures only part of employees' digital experience. Digital lifestyle refers to the relatively stable habits, preferences, and patterns through which individuals integrate digital tools into everyday activities, communication, information seeking, learning,

and work. The boundary between personal and occupational digital life has become increasingly permeable, especially in hybrid and platform-based work environments (Dunn et al., 2024; Marsh et al., 2022). A constructive digital lifestyle may facilitate rapid access to information, collaborative problem solving, learning, and adaptive use of digital resources. Conversely, an unbalanced digital lifestyle may contribute to distraction, blurred work-life boundaries, and digital fatigue (Mondo et al., 2023). Thus, digital lifestyle should be considered alongside technology acceptance when examining employee adaptation to digital work environments.

One important positive outcome of digital adaptation is work engagement. Work engagement describes a positive and fulfilling work-related state characterized by energy, dedication, and absorption. Within the Job Demands-Resources framework, resources that enhance autonomy, competence, feedback, and access to information are expected to strengthen motivational processes and engagement (Bakker & Demerouti, 2017; Bakker et al., 2023; Schaufeli, 2017). When digital technologies are perceived as useful, manageable, and aligned with work goals, they may function as resources that facilitate accomplishment and learning. By contrast, poor technology fit or excessive digital demands can undermine engagement through frustration and strain. Digital adaptation may therefore be directly linked with engagement, but the strength of this relationship may depend on psychological and behavioral mechanisms within the organization.

At the negative end of the behavioral continuum, workplace deviance comprises intentional behaviors that violate important organizational norms and threaten the organization or its members (Bennett & Robinson, 2000). Such behaviors may include wasting time, deliberately reducing effort, misusing organizational resources, disregarding procedures, or engaging in technology-related forms of counterproductive behavior. Workplace deviance is shaped by individual, relational, and organizational conditions, including perceived injustice, strain, weak attachment to the organization, and stressful work contexts (Arshad, 2020; Bujang et al., 2024). Digitalization may either reduce or amplify such behaviors. Well-designed

technologies can improve clarity and efficiency, whereas poorly governed digital systems may create frustration, perceptions of control, and opportunities for cyberloafing or other forms of technology-enabled deviance (Marsh et al., 2022).

Organizational commitment is a plausible mechanism linking digital experience to work behavior. Commitment reflects the psychological bond between employees and their organization and has affective, continuance, and normative dimensions (Meyer & Allen, 1991). Employees who perceive organizational systems as enabling rather than obstructive may be more likely to interpret digital transformation as evidence that the organization supports their performance and development. This can reinforce identification, belonging, and willingness to invest effort in organizational goals. Stronger commitment, in turn, is associated with constructive work attitudes and a lower likelihood of behaviors that harm the organization (Meyer et al., 2002). In digital transformation contexts, leadership, continuous learning opportunities, and supportive digital capabilities have also been linked to organizational commitment (Braojos et al., 2024). Recent evidence also supports organizational commitment as a mediating mechanism connecting organizational conditions with employee performance outcomes (Retnowati et al., 2026).

Innovative work behavior constitutes a second mechanism through which digital adaptation may influence employee outcomes. Innovative work behavior includes opportunity exploration, idea generation, idea championing, and implementation of new solutions in the workplace (De Jong & Den Hartog, 2010). Technology-rich environments provide access to information and tools that can support experimentation, knowledge sharing, and novel problem solving. Reviews of innovative work behavior consistently identify job resources, supportive environments, and learning opportunities as important antecedents (AlEssa & Durugbo, 2022; Srirahayu et al., 2023). Employees who are both comfortable with technology and embedded in a constructive digital lifestyle may therefore be better positioned to engage in innovative behavior. Innovation may subsequently strengthen work engagement by increasing meaningful involvement and personal agency and may

reduce deviant behavior by redirecting effort toward constructive change. Related evidence also links creativity and job engagement with meaningful work outcomes, reinforcing the importance of constructive behavioral pathways in organizational settings (Karnaji & Subiyantoro, 2026).

These relationships are particularly relevant in higher education, where faculty and administrative employees must continuously adapt to learning management systems, digital administrative platforms, electronic communication, data systems, and new modes of service delivery. Higher education institutions are knowledge-intensive environments in which technology adoption, employee commitment, innovation, and engagement may jointly determine the quality and sustainability of organizational performance. Yet previous studies have often examined these constructs in separate pairs or within narrower theoretical models. Less attention has been given to an integrated structural model that simultaneously considers technology acceptance and digital lifestyle as predictors, organizational commitment and innovative work behavior as mediators, and both work engagement and employee deviance as outcomes.

Accordingly, the present study tested an integrated structural equation model in which technology acceptance and digital lifestyle were expected to have direct positive effects on organizational commitment, innovative work behavior, and work engagement, and direct negative effects on employee deviance. Organizational commitment was expected to predict greater innovative work behavior and work engagement and lower deviance. Innovative work behavior was expected to predict greater engagement and lower deviance, while work engagement was expected to predict lower deviant behavior. Finally, organizational commitment and innovative work behavior were examined as mediators of the relationships between the two digital predictors and the two employee outcomes.

Theoretical Integration and Hypotheses

The proposed model integrates the Technology Acceptance Model with the Job Demands-Resources perspective and organizational-behavior mechanisms. Technology acceptance captures employees' system-specific

appraisal of usefulness and ease of use, whereas digital lifestyle captures the broader behavioral ecology through which digital tools are embedded in communication, learning, and daily routines. In combination, these forms of digital adaptation are expected to influence employee outcomes not only directly but also by shaping organizational attachment and the willingness to generate and implement new ideas (Bakker & Demerouti, 2017; Davis, 1989; Thomas, 2024).

Accordingly, six hypothesis sets were evaluated: technology acceptance was expected to predict organizational commitment, innovative work behavior, and work engagement positively and employee deviance negatively (H1); digital lifestyle was expected to show the same directional pattern (H2); organizational commitment was expected to predict innovative work behavior and engagement positively and deviance negatively (H3); innovative work behavior was expected to predict engagement positively and deviance negatively (H4); work engagement was expected to predict lower employee deviance (H5); and organizational commitment and innovative work behavior were expected to mediate, including sequentially, the relationships of technology acceptance and digital lifestyle with work engagement and employee deviance (H6).

Methods and Materials

Design and Participants

This study used a quantitative, cross-sectional, descriptive-correlational design and structural equation modeling (SEM) to examine direct and indirect relationships among the study variables. The study population consisted of faculty members and administrative employees working at Islamic Azad University branches in Semnan Province during Iranian year 2024. The institutional units represented in the sampling frame included Semnan, Garmsar, Shahrud, Damghan, Shahmirzad, and Mahdishahr branches.

Simple random sampling was used. After obtaining lists of eligible personnel from the relevant university units, individuals were assigned codes and selected randomly. Where complete access to personnel lists was restricted,

recruitment was coordinated through human resources while preserving voluntary participation. Sample-size planning followed an indicator-based SEM rule: 18 observed indicators were considered, and a minimum of approximately 15 participants per indicator yielded an estimated requirement of 270. To allow for incomplete or unusable questionnaires, the final target sample was increased to 300, and 300 complete cases were available for analysis.

Eligibility criteria included employment as a faculty or administrative staff member at one of the participating Islamic Azad University branches, at least one year of work experience, exposure to digital administrative, educational, communication, or information technologies in the workplace, voluntary participation, informed consent, and ability to complete the questionnaires. Exclusion criteria included withdrawal, incomplete questionnaires, implausible or repetitive response patterns, insufficient work experience, temporary or unofficial employment, no meaningful exposure to workplace digital technologies, or failure to provide informed consent.

Measures

Technology Acceptance Questionnaire. Technology acceptance was assessed with a 35-item questionnaire based on the Technology Acceptance Model. The instrument covered five domains: perceived usefulness, perceived ease of use, attitude toward technology use, behavioral intention to use technology, and actual technology use. Most items were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores reflecting greater acceptance, a more positive orientation toward technology, and stronger readiness to use digital tools at work. The questionnaire structure was grounded in the TAM framework introduced by Davis (1989). Prior reliability evidence for its component scales ranged approximately from .70 to .84.

Digital Lifestyle Questionnaire. Digital lifestyle was measured using the 49-item Digital Lifestyle Questionnaire developed by Khademian and Hosseini. The instrument assesses five domains: digital lifestyle practices (Items 1-13), awareness of digitalization (Items 14-22), social structure in relation to digitalization (Items 23-32), internalization of

digitalization as a norm (Items 33-41), and compatibility of family religious culture with digitalization (Items 42-49). Items are scored on a five-point scale from 1 (very low) to 5 (very high). Higher scores indicate a stronger and more extensive digital lifestyle. Prior Cronbach alpha coefficients were .77, .82, .80, .81, and .92 for the five domains, respectively, and .92 for the total score.

Utrecht Work Engagement Scale. Work engagement was assessed with a 17-item form of the Utrecht Work Engagement Scale measuring vigor (6 items), dedication (5 items), and absorption (6 items). In the study protocol, items were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), yielding a possible total score from 17 to 85. Higher scores represent stronger positive involvement with work. Prior Iranian evidence indicated factorial validity and an internal consistency coefficient of .88. The conceptualization of engagement is consistent with the vigor-dedication-absorption framework used in the work engagement literature (Schaufeli & Bakker, 2004).

Organizational Deviance Scale. Employee deviant behavior was assessed using the organizationally directed component of the workplace deviance measure developed by Bennett and Robinson (2000). The version used in this study contained 8 items reflecting behaviors that can harm the organization, its resources, work performance, or formal rules. Items were rated on a six-point frequency scale from 1 (never) to 6 (always). Higher scores indicate more frequent organizational deviance. Previous reliability evidence indicated an internal consistency coefficient of approximately .74 for this measure.

Organizational Commitment Questionnaire. Organizational commitment was measured with an 18-item questionnaire based on the three-component framework of Meyer and Allen. The measure included affective commitment (6 items), continuance commitment (6 items), and normative commitment (6 items). Items were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with several reverse-scored items. Total scores could range from 18 to 90, with higher scores indicating stronger organizational commitment. Prior Iranian studies reported total-scale reliability coefficients in

the acceptable range, including estimates of .73, .81, and .83. The conceptual model follows Meyer and Allen (1991).

Innovative Work Behavior Questionnaire. Innovative work behavior was assessed with the 10-item measure developed by De Jong and Den Hartog (2010). The instrument assesses behaviors related to exploring opportunities, generating ideas, promoting or championing ideas, and implementing innovations in the workplace. Items were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), producing scores from 10 to 50. Higher scores indicate stronger innovative work behavior. Iranian psychometric evidence reported a Cronbach alpha coefficient of .80.

Procedure and Ethical Considerations

After institutional and human-resources permissions were obtained, eligible employees were informed about the aims and procedures of the study. Questionnaires were distributed in both paper and electronic formats. Participants were given approximately 45 minutes to complete the full battery. Data were coded after collection so that individual identities were not included in the analytic database.

Participation was voluntary. The study purpose and conditions of participation were explained before data collection, written informed consent was obtained, confidentiality was emphasized, and participants could discontinue participation at any stage.

Statistical Analysis

Data were analyzed using SPSS version 22 and AMOS version 22. Descriptive statistics were used to summarize participant characteristics and study variables. Pearson correlations were calculated to examine bivariate associations. Before SEM, the dataset was evaluated for missing values, univariate outliers, univariate normality, multivariate normality, and multicollinearity. Model fit was evaluated using chi-square, the chi-square/df ratio, GFI, AGFI, CFI, TLI, IFI, NFI, RMSEA, and SRMR. Direct effects were evaluated from standardized path coefficients and critical ratios, and indirect effects were examined using bootstrap confidence intervals. Statistical significance was interpreted at $p < .05$. The SEM reporting strategy followed contemporary recommendations for covariance-based

model evaluation and transparent reporting of fit and structural effects (Schuberth et al., 2023).

Findings and Results

Participant Characteristics

The final sample comprised 300 employees. Men represented 56.0% ($n = 168$) and women 44.0% ($n = 132$).

Administrative employees represented 61.3% of the sample and faculty members 38.7%. The largest age group was 30-39 years (34.7%), followed by 40-49 years (32.0%). Most participants were married (69.4%), and the most common educational level was a master's degree (42.7%). The sample profile is summarized in Table 1.

Table 1.

Participant characteristics (N = 300)

Characteristic	Category	n	%
Sex	Men	168	56.0
	Women	132	44.0
Age	<30 years	38	12.7
	30-39 years	104	34.7
	40-49 years	96	32.0
	>=50 years	62	20.6
Marital status	Single	82	27.3
	Married	208	69.4
	Divorced/widowed	10	3.3
Education	Bachelor's	74	24.7
	Master's	128	42.7
	Doctoral	98	32.6
Job type	Administrative staff	184	61.3
	Faculty member	116	38.7
Service	<5 years	41	13.7
	5-10 years	78	26.0
	11-20 years	119	39.6
	>20 years	62	20.7

Data Screening and Descriptive Statistics

There were no missing values on any of the six primary variables. Standardized scores ranged within approximately -2.56 to +2.61, and no problematic univariate outliers were identified. Skewness and kurtosis values were within acceptable limits. The Mardia multivariate kurtosis

coefficient was 8.94, with a critical ratio of 2.61, which met the prespecified acceptability criterion. Tolerance values ranged from .52 to .61 and variance inflation factors ranged from 1.64 to 1.92, indicating no problematic multicollinearity. Descriptive distributional indices are reported in Table 2.

Table 2.

Descriptive statistics and univariate distribution indices

Variable	M	SD	Skewness	Kurtosis
Technology acceptance	3.71	0.58	-0.34	0.41
Digital lifestyle	3.64	0.61	-0.28	0.36
Work engagement	3.82	0.55	-0.31	0.44
Employee deviance	2.26	0.67	0.52	0.38
Organizational commitment	3.69	0.57	-0.22	0.29
Innovative work behavior	3.58	0.60	-0.19	0.33

Bivariate correlations supported the expected pattern of associations. Technology acceptance, digital lifestyle, organizational commitment, innovative work behavior, and work engagement were positively intercorrelated, whereas employee deviance was negatively associated with all five constructs. The strongest positive correlation was between

organizational commitment and work engagement ($r = .58$), followed by organizational commitment and innovative work behavior ($r = .55$) and innovative work behavior and work engagement ($r = .56$). Work engagement showed the strongest negative correlation with deviance ($r = -.45$). The complete correlation matrix is presented in Table 3.

Table 3.*Pearson correlations among study variable*

Variable	1	2	3	4	5	6
1. Technology acceptance	1					
2. Digital lifestyle	.46**	1				
3. Organizational commitment	.51**	.43**	1			
4. Innovative work behavior	.49**	.47**	.55**	1		
5. Work engagement	.53**	.45**	.58**	.56**	1	
6. Employee deviance	-.31**	-.24**	-.42**	-.37**	-.45**	1

Note. ** $p < .01$.

Structural Model Fit

The structural model demonstrated satisfactory fit across all reported indices. The chi-square statistic was 231.46 with

128 degrees of freedom, yielding a chi-square/df ratio of 1.81. Incremental and comparative indices exceeded .90, and both RMSEA and SRMR were below .08. The fit statistics and evaluation criteria are summarized in [Table 4](#).

Table 4.*Fit indices for the final structural model*

Fit index	Observed value	Criterion	Interpretation
chi-square	231.46	-	-
df	128	-	-
chi-square/df	1.81	< 3	Good
GFI	.94	> .90	Good
AGFI	.91	> .90	Good
CFI	.97	> .90	Good
TLI	.96	> .90	Good
IFI	.97	> .90	Good
NFI	.93	> .90	Good
RMSEA	.052	< .08	Good
SRMR	.045	< .08	Good

Explained Variance

The model explained substantial variance in the endogenous constructs. Technology acceptance and digital lifestyle jointly explained 42% of organizational commitment. Technology acceptance, digital lifestyle, and organizational commitment explained 55% of innovative

work behavior. Together, technology acceptance, digital lifestyle, organizational commitment, and innovative work behavior explained 62% of work engagement. The complete model, including work engagement, explained 49% of employee deviance. Coefficients of determination are reported in [Table 5](#).

Table 5.*Coefficients of determination for endogenous variables*

Endogenous variable	Predictors	R ²	Variance explained
Organizational commitment	Technology acceptance; digital lifestyle	.42	42%
Innovative work behavior	Technology acceptance; digital lifestyle; organizational commitment	.55	55%
Work engagement	Technology acceptance; digital lifestyle; organizational commitment; innovative work behavior	.62	62%
Employee deviance	Technology acceptance; digital lifestyle; organizational commitment; innovative work behavior; work engagement	.49	49%

Direct Structural Effects

All 14 direct structural paths reported in the final model were statistically significant. Technology acceptance positively predicted work engagement ($\beta = .24$), organizational commitment ($\beta = .39$), and innovative work behavior ($\beta = .35$), while negatively predicting employee deviance ($\beta = -.18$). Digital lifestyle showed the same general pattern: positive effects on engagement ($\beta = .19$), commitment ($\beta = .31$), and innovation ($\beta = .37$),

and a negative effect on deviance ($\beta = -.14$). Organizational commitment and innovative work behavior were both positively related to engagement and negatively related to deviance. Organizational commitment also positively predicted innovative work behavior ($\beta = .34$). Finally, work engagement negatively predicted employee deviance ($\beta = -.20$). The complete set of standardized direct effects is reported in [Table 6](#) and visualized in [Figure 1](#).

Table 6.*Direct structural paths in the final model*

Structural path	beta	SE	CR	p	Result
Technology acceptance -> Employee deviance	-.18	.06	-3.00	.003	Significant
Technology acceptance -> Work engagement	.24	.06	4.00	<.001	Significant
Digital lifestyle -> Employee deviance	-.14	.05	-2.80	.005	Significant
Digital lifestyle -> Work engagement	.19	.06	3.16	.002	Significant
Technology acceptance -> Organizational commitment	.39	.05	7.80	<.001	Significant
Technology acceptance -> Innovative work behavior	.35	.05	7.00	<.001	Significant
Digital lifestyle -> Organizational commitment	.31	.05	6.20	<.001	Significant
Digital lifestyle -> Innovative work behavior	.37	.05	7.40	<.001	Significant
Organizational commitment -> Work engagement	.34	.06	5.66	<.001	Significant
Organizational commitment -> Employee deviance	-.29	.06	-4.83	<.001	Significant
Innovative work behavior -> Work engagement	.31	.06	5.16	<.001	Significant
Innovative work behavior -> Employee deviance	-.23	.06	-3.83	<.001	Significant
Organizational commitment -> Innovative work behavior	.34	.06	5.66	<.001	Significant
Work engagement -> Employee deviance	-.20	.06	-3.33	<.001	Significant

Indirect Effects on Work Engagement

Bootstrap confidence intervals supported all indirect effects on work engagement. Technology acceptance influenced engagement through organizational commitment (indirect effect = .13) and innovative work behavior (.11). Digital lifestyle also influenced engagement through

organizational commitment (.10) and innovative work behavior (.11). In addition, the sequential pathways from technology acceptance and digital lifestyle through organizational commitment and then innovative work behavior were significant. The bootstrap indirect effects on work engagement are summarized in Table 7.

Bootstrap indirect effects on work engagement

Indirect path	Effect	95% CI LL	95% CI UL	Result
Technology acceptance -> Organizational commitment -> Work engagement	.13	.07	.21	Significant
Technology acceptance -> Innovative work behavior -> Work engagement	.11	.06	.19	Significant
Digital lifestyle -> Organizational commitment -> Work engagement	.10	.05	.17	Significant
Digital lifestyle -> Innovative work behavior -> Work engagement	.11	.06	.18	Significant
Technology acceptance -> Organizational commitment -> Innovative work behavior -> Work engagement	.04	.02	.08	Significant
Digital lifestyle -> Organizational commitment -> Innovative work behavior -> Work engagement	.03	.01	.07	Significant

Indirect Effects on Employee Deviance

All indirect effects on employee deviance had confidence intervals that excluded zero. Technology acceptance and digital lifestyle reduced deviance indirectly through organizational commitment, innovative work behavior, and work engagement. Additional sequential pathways involving commitment followed by innovation, and pathways ending

in work engagement, were also significant. These results support a multi-stage process in which positive digital adaptation strengthens organizational attachment and constructive work behavior, which in turn increases engagement and reduces deviance. The corresponding bootstrap indirect effects on employee deviance are presented in Table 8.

Table 8.*Bootstrap indirect effects on employee deviance*

Indirect path	Effect	95% CI LL	95% CI UL	Result
Technology acceptance -> Organizational commitment -> Employee deviance	-.11	-.18	-.05	Significant
Technology acceptance -> Innovative work behavior -> Employee deviance	-.08	-.14	-.03	Significant
Digital lifestyle -> Organizational commitment -> Employee deviance	-.09	-.15	-.04	Significant
Digital lifestyle -> Innovative work behavior -> Employee deviance	-.09	-.16	-.04	Significant
Technology acceptance -> Work engagement -> Employee deviance	-.05	-.09	-.02	Significant
Digital lifestyle -> Work engagement -> Employee deviance	-.04	-.08	-.01	Significant
Organizational commitment -> Work engagement -> Employee deviance	-.07	-.12	-.03	Significant
Innovative work behavior -> Work engagement -> Employee deviance	-.06	-.11	-.02	Significant
Technology acceptance -> Organizational commitment -> Innovative work behavior -> Employee deviance	-.03	-.07	-.01	Significant
Digital lifestyle -> Organizational commitment -> Innovative work behavior -> Employee deviance	-.02	-.06	-.01	Significant
Technology acceptance -> Organizational commitment -> Work engagement -> Employee deviance	-.03	-.07	-.01	Significant
Digital lifestyle -> Organizational commitment -> Work engagement -> Employee deviance	-.02	-.06	-.01	Significant
Technology acceptance -> Innovative work behavior -> Work engagement -> Employee deviance	-.02	-.05	-.01	Significant
Digital lifestyle -> Innovative work behavior -> Work engagement -> Employee deviance	-.02	-.05	-.01	Significant

The decomposition of effects further showed that technology acceptance had a total effect of .52 on work engagement and -.50 on employee deviance, while digital lifestyle had total effects of .43 and -.42, respectively. Organizational commitment had a total effect of .45 on engagement and -.49 on deviance. Innovative work behavior had a total effect of .31 on engagement and -.29 on deviance. These patterns reinforce the importance of both direct and mediated mechanisms in the final model.

Discussion and Conclusion

The purpose of this study was to test an integrated structural model connecting technology acceptance and digital lifestyle with work engagement and employee deviant behavior through organizational commitment and innovative work behavior. The model showed good global fit and accounted for meaningful proportions of variance in each endogenous construct. The results therefore support the central proposition that employee adaptation to digital work is not merely a technical issue. Rather, technology-related attitudes and digital habits appear to shape organizational attachment, constructive innovation, motivation, and behavior through a network of mutually reinforcing pathways.

Technology acceptance had positive direct effects on work engagement, organizational commitment, and innovative work behavior, and a negative direct effect on deviance. This pattern is consistent with the logic of the Technology Acceptance Model: when employees perceive technology as useful and manageable, they are more likely to approach it with confidence and integrate it into their work (Davis, 1989). In practical terms, accepted technologies reduce unnecessary cognitive friction and may allow employees to experience digital systems as resources rather than obstacles. Within the Job Demands-Resources framework, such systems can expand access to information, feedback, coordination, and task control, thereby strengthening motivational processes associated with engagement (Bakker & Demerouti, 2017; Bakker et al., 2023).

The negative association between technology acceptance and employee deviance is also theoretically meaningful.

Resistance to difficult or poorly integrated technologies can contribute to frustration, disengagement, rule avoidance, and misuse of digital resources. Conversely, employees who see organizational technologies as legitimate, useful, and consistent with their work needs may have less reason to evade procedures or compensate for digital strain through counterproductive behavior. Research on the dark side of the digital workplace has emphasized that technology-related stress, overload, and perceived control can shape negative work behavior (Marsh et al., 2022). The present results suggest the complementary possibility that positive technology acceptance can operate as a protective factor.

Digital lifestyle showed a parallel set of relationships. A more constructive digital lifestyle predicted higher work engagement, organizational commitment, and innovative work behavior and lower employee deviance. This finding extends the analysis beyond attitudes toward a specific system. Digital lifestyle represents the broader manner in which employees incorporate technology into communication, learning, problem solving, and daily routines. When that integration is functional and balanced, employees may enter the workplace with stronger digital fluency, greater confidence, and more adaptive habits. These qualities can enhance perceived control and facilitate access to digital job resources. At the same time, the result should not be interpreted to mean that greater digital exposure is always beneficial. Digital work can also generate technostress and work-life interference when its intensity exceeds employees' coping resources (Mondo et al., 2023; Scholze & Hecker, 2024). The positive pattern observed here is best understood as reflecting adaptive integration rather than indiscriminate digital use.

Organizational commitment emerged as a central mediator. Technology acceptance and digital lifestyle both positively predicted commitment, and commitment in turn predicted greater engagement, more innovative work behavior, and less deviance. The result is consistent with the three-component perspective in which commitment represents a psychological bond to the organization (Meyer & Allen, 1991). When employees experience digital systems and organizational transformation as enabling rather than threatening, they may be more likely to identify with the

organization and perceive their continued participation as worthwhile. Digital transformation research has similarly highlighted the importance of leadership, learning environments, and organizational capabilities in strengthening commitment during technological change (Brajos et al., 2024).

The strong negative association between commitment and deviance is especially important. Workplace deviance involves intentional violations of organizational norms (Bennett & Robinson, 2000; Tian & Guo, 2023). A strong psychological bond to the organization should reduce the attractiveness of behaviors that damage organizational resources, performance, or rules. Meta-analytic and review evidence has long linked commitment with lower withdrawal and more constructive organizational behavior (Meyer et al., 2002). The present model extends this logic to digital adaptation by showing that technology acceptance and digital lifestyle can influence deviance indirectly through commitment.

Innovative work behavior also occupied a key position in the model. Both technology acceptance and digital lifestyle positively predicted innovation, and innovative work behavior was associated with greater engagement and less deviance. These findings are consistent with the view that innovation is not a single creative act but a sequence of behaviors involving the recognition of opportunities, generation of ideas, promotion of solutions, and implementation (De Jong & Den Hartog, 2010). Digital technologies can lower the cost of information search, increase access to knowledge, and facilitate collaboration, thereby creating opportunities for innovation. Reviews of innovative work behavior likewise emphasize supportive work conditions, learning, and resources as major antecedents (AlEsa & Durugbo, 2022; Srirahayu et al., 2023).

The positive path from organizational commitment to innovative work behavior adds an important sequential mechanism. Employees who feel attached to and responsible for their organization may be more willing to invest discretionary effort in improving work processes. Innovation often requires uncertainty, persistence, and the social effort of persuading colleagues to support new ideas.

Commitment may provide a motivational basis for those investments. In the final model, the sequential indirect pathways from both technology acceptance and digital lifestyle through commitment and innovation to work engagement were significant, suggesting that digital adaptation may become motivationally meaningful when it is translated into attachment and constructive change.

Work engagement itself negatively predicted employee deviance. This result is consistent with engagement theory: employees who are energetic, dedicated, and absorbed in their work are less likely to allocate effort toward behaviors that undermine organizational goals. Engagement can represent a state in which employees perceive work as meaningful and worthy of investment (Kahn, 1990; Schaufeli & Bakker, 2004). The finding also explains why several longer indirect pathways to deviance were significant. Technology acceptance, digital lifestyle, commitment, and innovation were able to reduce deviance partly because they increased engagement, which then functioned as a proximal motivational barrier to counterproductive behavior.

The magnitude of explained variance is noteworthy. The model accounted for 62% of work engagement and 49% of employee deviance, while also explaining 42% of commitment and 55% of innovative work behavior. Although these values do not establish causality, they suggest that the proposed digital-organizational framework captures a substantial portion of variation in important employee outcomes. In practical terms, interventions focused only on the technical deployment of new systems may miss the mechanisms through which technology is translated into behavior. Digital transformation strategies should therefore combine user-centered technology implementation with efforts to strengthen commitment, create opportunities for innovation, and support meaningful engagement.

The higher-education context gives these findings additional relevance. University employees operate in environments where administrative systems, digital learning infrastructure, online communication, and knowledge work intersect. Successful digitalization depends not only on system quality but also on whether employees accept the systems, integrate them into everyday routines, remain psychologically attached to the institution, and use

technology as a platform for innovation. Involving employees in digital transformation and providing learning opportunities may be particularly important in such settings (Ullrich et al., 2023).

Theoretical Contributions

The study contributes to digital-work research in three ways. First, it connects technology acceptance with digital lifestyle, thereby distinguishing employees' evaluations of specific technologies from the broader patterns through which digital tools are incorporated into everyday functioning. Second, the model simultaneously represents an energizing pathway toward work engagement and a protective pathway away from employee deviance. This dual-outcome structure extends digital transformation research beyond adoption itself and places employee motivation and counterproductive behavior within the same explanatory framework (Marsh et al., 2022; Scholze & Hecker, 2024).

Third, the significant indirect and sequential effects position organizational commitment and innovative work behavior as translation mechanisms between digital adaptation and employee outcomes. This interpretation is consistent with socio-technical perspectives that treat successful digital transformation as a joint product of technological, motivational, interpersonal, and organizational conditions rather than technology alone (Thomas, 2024). The findings therefore support a more integrated account in which digital readiness becomes behaviorally consequential when it is converted into attachment, innovation, and engagement.

Practical Implications

Organizations should treat technology acceptance as a human-resource and organizational-development issue rather than solely an information-technology issue. Before and during implementation of new systems, managers should assess perceived usefulness, ease of use, workflow fit, and employee concerns. Training should focus on practical job applications and should be accompanied by accessible technical support.

Digital well-being should be incorporated into organizational digital strategies. Because an adaptive digital lifestyle appears to be associated with positive employee

outcomes, organizations should encourage purposeful use of digital tools while establishing reasonable expectations regarding availability, communication load, and work-life boundaries.

Commitment and innovation should be actively cultivated as mechanisms that convert digital readiness into positive work behavior. Employee participation in digital change, recognition of innovative contributions, psychological safety for idea sharing, and transparent communication about the purpose of new technologies may strengthen both mediators.

Prevention of workplace deviance should not rely exclusively on surveillance and disciplinary control. The findings indicate that positive pathways - greater technology acceptance, commitment, innovation, and engagement - may reduce deviance. Developmental and motivational strategies can therefore complement formal control systems.

Limitations and Future Research

The study was conducted among faculty and administrative employees of Islamic Azad University branches in one Iranian province. Generalization to other universities, industries, public agencies, healthcare organizations, or private companies should therefore be made cautiously because digital maturity, organizational culture, leadership, and job demands may differ across sectors.

The cross-sectional design limits causal interpretation. SEM can test whether a theoretically specified model is compatible with the observed covariance structure, but it cannot establish temporal causality. Longitudinal and experimental designs are needed to determine whether changes in technology acceptance and digital lifestyle precede subsequent changes in commitment, innovation, engagement, and deviance.

All study variables were measured using self-report questionnaires. Common-method variance and social-desirability bias are therefore possible, particularly for workplace deviance because participants may underreport behavior that violates organizational norms. Future research should combine employee reports with supervisor ratings, peer reports, objective system-use indicators, or organizational performance data. Future studies should also

use temporal separation of predictors and outcomes, marker-variable procedures, or latent common-method-factor approaches when feasible to evaluate common-method bias more directly.

The model focused on a defined set of variables. Other constructs such as perceived organizational support, digital leadership, organizational justice, psychological safety, digital literacy, technostress, burnout, job satisfaction, and organizational trust may also shape the relationships examined here. Future studies could test these variables as additional mediators or moderators.

Finally, the study did not distinguish in detail between different types or intensities of technology use. Future research should examine whether the structural relationships vary according to digital skill, type of technology, daily usage intensity, occupational role, age, gender, or prior experience with digital systems.

The findings support an integrated model in which technology acceptance and digital lifestyle are associated with both positive and negative employee outcomes through direct and indirect pathways. Employees who reported stronger technology acceptance and a more developed digital lifestyle also reported greater organizational commitment, stronger innovative work behavior, and higher work engagement, along with lower levels of organizational deviance. Organizational commitment and innovative work behavior functioned as important mediating mechanisms, and work engagement provided an additional pathway to reduced deviance. These results suggest that successful digital transformation depends on more than the availability of technology: it also depends on how employees accept, integrate, and psychologically connect with digital work. Organizations that combine usable technologies with supportive practices that strengthen commitment, innovation, and engagement may be better positioned to obtain the benefits of digitalization while reducing counterproductive behavior.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Declaration of Helsinki, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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