

EMPOWERMENT AND INNOVATIVE WORK BEHAVIOR: DOES EMPLOYEE CREATIVITY EXPLAIN THE RELATIONSHIP?

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DOI: <https://doi.org/10.5281/zenodo.22094403>

Keywords

Digital Empowerment; Structural Empowerment; Psychological Empowerment; Employee Creativity; Individual Innovative Behavior; Creative Work Environment

Article History

Received: 28 April 2026

Accepted: 15 June 2026

Published: 30 June 2026

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Abstract

This study examines the role of digital empowerment, structural empowerment, and psychological empowerment in enhancing employees' individual innovative behavior within the telecommunications sector of Pakistan, and investigates employee creativity as the underlying mechanism linking these empowerment practices to innovative outcomes. Data were collected from 200 employees of telecommunication companies across Pakistan using a structured survey and were analyzed using partial least squares structural equation modeling (PLS-SEM) in SmartPLS. The findings indicate that structural, psychological, and digital empowerment each significantly and positively predict employee creativity, and that employee creativity, in turn, significantly predicts individual innovative behavior. The results further show that employee creativity mediates the relationships between each empowerment dimension and individual innovative behavior, and that the creative work environment moderates the relationship between empowerment and innovative behavior. This study contributes to the empowerment and creativity literature by jointly examining digital, structural, and psychological empowerment alongside employee creativity, creative work environment, and individual innovative behavior within a single model in the telecommunications sector. For practitioners, the findings suggest that structural, digital, and psychological empowerment are important organizational levers for stimulating employee creativity and encouraging innovative behavior, particularly as telecommunication firms face increasing pressure to innovate sustainably and remain competitive.

1. Introduction

The research on employees' creativity began approximately 30 years ago with the work of Amabile. The concept of creativity has been modeled as a personal construct on the level of personal performance and actions that result in novel and useful ideas (Amabile, 1983, 1996;

Perry-Smith, 2006; Jiang et al., 2012). Generally, the process of employees' creativity would involve creating new and useful ideas by employees from an organization and previous studies (e.g. Gong et al., 2013) showed that the intrinsic motivation theory has positive implications for employee

creativity that would have positive effects on employee organizational creativity and innovation. Several individual and contextual factors have been examined as antecedents of employee creativity, including task complexity, the quality of relationships with supervisors and colleagues, recognition and appraisal practices, time pressure and goal structures, and the duration of collaborative effort. Other studies have examined mediating mechanisms such as learning goal orientation and performance goal orientation (Hirst, Van Knippenberg, & Zhou, 2009), as well as affect-based trust, perceived organizational support, and knowledge sharing. Structural empowerment, in particular, has long been recognized as central to how individuals experience the workplace (Gutiérrez, 1990; Pinderhughes, 1983; Simon, 1990) and has been extensively studied by both organizational scholars and practitioners (Conger & Kanungo, 1988; Donovan, 1994; Kanter, 1989; Spreitzer, 1995). Digital empowerment is increasingly recognized as a driver of employee effectiveness, helping employees make better-informed decisions, improve performance, and reduce operational costs (Masoudi, 2019). A gap remains, however, in understanding how emotional and psychological states shape individual innovative behavior (IIB); the present study addresses this gap by examining employee creativity as a psychologically grounded mechanism linking empowerment to innovative behavior. Distinct forms of stimulation are treated here as key antecedents of workplace innovation, with direct implications for IIB. In particular, the telecommunications sector is under sustained pressure to strengthen employee performance through digital and structural empowerment, given that a supportive, creative work environment has been shown to help employees perform better and feel more empowered (Ardito & Dangelico, 2018).

The purpose of this study is therefore to examine how psychological, structural, and digital empowerment practices relate to individual innovative behavior among telecommunications employees, and to clarify the role that employee creativity plays in this relationship. The study

extends the employee-creativity literature by adopting an empowerment-focused lens, and contributes to the empowerment literature by empirically testing these relationships in an underexplored organizational context.

2. Conceptual Framework and Hypotheses Development

This section reviews the theoretical foundations of the study and develops the hypothesized relationships among the study's constructs.

2.1 Structural Empowerment

Structural empowerment the perception that organizational structures provide employees with access to information, resources, support, and opportunities to grow has been well received by both organizational researchers and practitioners (Conger & Kanungo, 1988; Donovan, 1994; Kanter, 1989; Spreitzer, 1995). A substantial body of research has operationalized and tested the effects of this construct on a range of organizational outcomes (Erkutlu & Chafra, 2012). Kanter's (1977, 1993) theory of organizational power offers a foundational lens for examining the sources and consequences of empowerment, arguing that structural conditions in the workplace shape employee behavior more strongly than individual dispositions alone, even though individual characteristics still play an important role in shaping employee attitudes. Kanter further argues that structural conditions can constrain effective performance regardless of employees' individual capabilities. Access to resources such as information, organizational support, and opportunities for growth is therefore essential for employees to perform effectively and innovate (Kanter, 1977, 1993; Laschinger, Finegan, & Shamian, 2001).

2.2 Employee Creativity

Creativity is conceptualized as a personal-level variable describing individual and group-level attitudes and behaviors that generate novel ideas (Amabile, 1983; Amabile et al., 1996; Perry-Smith, 2006). Distinct knowledge resources are typically combined in the process of generating novel ideas

(Wang, Wang, & Liang, 2014), and employees require specific competencies to translate creative ideas into suggestions that support organizational growth. Employee expertise is regarded as one of the organization's "rare resources," alongside innovative thinking ability and the motivation to apply it (Wang, Wang, & Liang, 2014).

Innovative ideas are a defining output of employee creativity (Koseoglu et al., 2017) and represent a key driver of organizational growth, effectiveness, sustainability, and long-term success (Thuan & Thanh, 2019; Matsuo, 2018). Creativity is also enhanced through interaction and idea-sharing among employees; when organizations foster social ties and communities of practice, employee creativity tends to increase as a result (Wang & Noe, 2010; Corvino et al., 2019; Chen et al., 2014; Chow & Chan, 2008; Wang et al., 2014). Two theoretical perspectives are drawn on here: the theory of reasoned action (Fishbein & Ajzen, 1975), which links employee attitudes to behavior, and social cognitive theory (Bandura, 1986, 1997), which explains how employees generate the ideas, processes, and outcomes that support organizational effectiveness (Amabile & Pratt, 2016).

2.3 Psychological Empowerment

Employee empowerment is an important lever for improving effectiveness and strengthening employees' commitment to constructive performance (AlKahtani et al., 2021; Francis & Alagas, 2020). Empowerment helps employees act proactively by fostering a sense of ownership over their work, rather than relying solely on formal authority or delegation (Malik, Sarwar, & Orr, 2021).

Psychological empowerment is essential for employees to fulfil their duties and responsibilities effectively. Employees experience psychological empowerment when they recognize the significance of their work, possess the requisite skills and capabilities, understand their autonomy in deciding how to perform their tasks, and believe in their capacity to influence organizational outcomes (Singh & Singh, 2019). It is typically characterized by four dimensions: meaning (the

value of the work to the individual), competence (the capacity to perform the work), self-determination (autonomy), and impact (the capacity to influence outcomes) (Shah, Khattak, Zolin, & Shah, 2019). Psychological empowerment has been recognized as an effective means of retaining employees and as a source of sustained competitive advantage for organizations (Pigeon, Montani, & Boudrias, 2017); its dimensions of autonomy, competence, meaning, and self-efficacy can translate into stronger organizational performance (Shah et al., 2019).

2.4 Individual Innovative Behavior

Individual innovative behavior (IIB) is a key driver of innovation performance, shaped by both internal and external organizational conditions (Shi & Wu, 2017; Tsai, 2016). Factors influencing IIB operate at both the structural and individual level (Aldahdouh et al., 2019). At the structural level, relevant factors include leadership style, organizational climate, and managerial support (Tastan & Davoudi, 2015), workgroup climate (Shanker et al., 2017), and person-organization fit (Bradley et al., 2012). At the individual level, emotional and dispositional factors have been shown to directly and meaningfully shape employees' innovative behavior (Yang et al., 2020). Innovative behavior can be defined as the intentional generation, promotion, and realization of new ideas within a work role, work group, or organization, with the aim of benefiting individual performance, group functioning, or organizational outcomes (Lee & Hong, 2014). Examples include experimenting with new tools, proposing new ways of achieving objectives, adopting new work methods, and securing the resources needed to implement new ideas (Yesil & Sozbilir, 2013). Innovation is best understood as a multi-stage process. It begins with idea generation the creation of novel and useful ideas in any domain followed by idea promotion, in which the employee engages others to build support, find sponsors, and form coalitions capable of advancing the idea. The process concludes with idea realization, in which a prototype or model of the innovation is developed and applied within a

work role, group, or the organization as a whole (Liu, 2017; Long et al., 2017).

Employees' innovative behavior is an important capability that allows organizations to thrive in dynamic business environments (Li et al., 2019). A structural culture that encourages risk-taking and creativity, together with empowering practices, participative decision-making, effective reward systems, open communication, high-quality leader-member relationships, and supportive job characteristics, has been identified as an important enabler of individual-level innovation (Hietschold, Reinhardt, & Gurtner, 2020; Woo, Kang, & Kim, 2021).

2.5 Creative Work Environment

Creative work environment is captured here using a nine-item instrument that assesses employees' perceptions of organizational structure, leadership, and fairness within the workplace (Kim & Kao, 2014). Prior research on work environment has tended to focus on narrower, single-dimension constructs, such as task conflict, social support, psychological safety, and perceived fairness. The present study draws primarily on the literature on psychological and organizational climate (e.g., Barth, Lloyd, Christ, Chapman, & Dickinson, 2008; Chung et al., 2020; Geisler, Berthelsen, & Muhonen, 2019; McFarlin & Sweeney, 1992; Mor Barak, Levin, Nissly, & Lane, 2006). Psychological climate refers to how an individual perceives the work environment and its consequences for their own job performance and satisfaction, whereas organizational climate refers to the shared perceptions employees hold collectively about their work environment (James & Jones, 1974; Parker et al., 2003).

2.6 Digital Empowerment

Digital empowerment refers to the extent to which digital tools and information technologies enable employees to access information, communicate efficiently, and make timely, well-informed decisions (Masoudi, 2019). By providing employees with digital resources and reducing informational barriers, organizations can improve the quality of decision-making, operational

efficiency, and responsiveness to change. In technology-intensive sectors such as telecommunications, digital empowerment is expected to strengthen employees' confidence and capability to generate and implement new ideas, and organizational investment in digital training and infrastructure plays an important role in sustaining these capabilities.

2.7 Hypotheses

Building on the theoretical foundations outlined above, and consistent with the relationships tested in the structural model reported in Section 4, the following hypotheses are proposed:

- H1.** Structural empowerment is positively related to employee creativity.
- H2.** Psychological empowerment is positively related to employee creativity.
- H3.** Digital empowerment is positively related to employee creativity.
- H4.** Employee creativity is positively related to individual innovative behavior.
- H5.** Creative work environment moderates the relationship between empowerment and individual innovative behavior.
- H6.** Employee creativity mediates the relationship between structural empowerment and individual innovative behavior.
- H7.** Employee creativity mediates the relationship between psychological empowerment and individual innovative behavior.
- H8.** Employee creativity mediates the relationship between digital empowerment and individual innovative behavior.

2.8 Conceptual Framework

The hypothesized model positions digital, structural, and psychological empowerment as antecedents of employee creativity, employee creativity as an antecedent of individual innovative behavior, and creative work environment as a moderator of the empowerment innovative behavior relationship

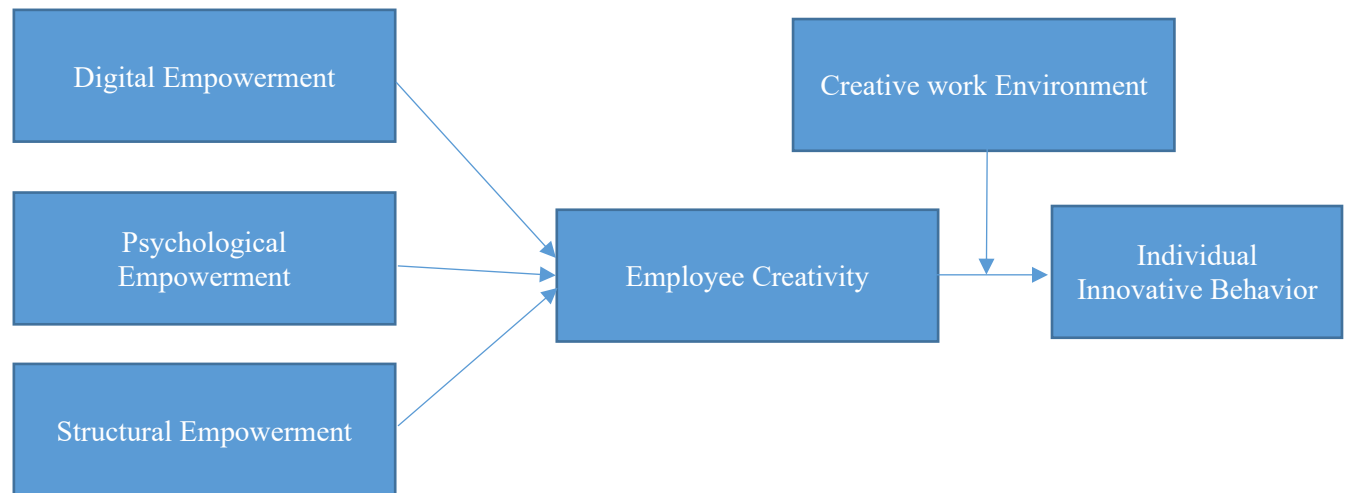


Figure 1: Conceptual Framework

3. Methodology

This study focuses on employees of telecommunication companies operating in Pakistan and examines whether digital, structural, and psychological empowerment enhance individual innovative behavior, and whether this relationship operates through employee creativity and is shaped by the creative work environment. Data were collected from employees at several telecommunication companies using a researcher-administered survey. A total of 300 questionnaires were distributed; after screening for completeness, 200 were retained for analysis, a response rate consistent with prior telecommunications-sector research involving employee samples (Chen et al., 2015; Tang, 2016).

3.1 Measures

All constructs were measured using multi-item scales adapted from prior validated research, with responses captured on a 5-point Likert scale (1 = strongly agree, 5 = strongly disagree). Employee creativity was measured using an 8-item scale. Structural empowerment was measured using a 5-item self-report scale adapted from Wu et al. (2022). Psychological empowerment was measured using seven items adapted from Kundu et al. (2019). Creative work environment was measured using nine items adapted from Janczewski, Mersky, and Plummer Lee (2021). Individual

innovative behavior was measured using a 10-item scale adapted from Siregar et al. (2019). Digital empowerment was measured using a 5-item scale adapted from Xiao, Chen, and McNeil.

Content validity was established through review by experienced researchers and practitioners. Prior to full-scale data collection, a pre-test was conducted with three academics and two employees from the participating telecommunication companies; minor revisions were made to the survey based on their feedback to improve clarity and readability.

4. Data Analysis and Results

4.1 Model Estimation

Data were analyzed using the partial least squares structural equation modeling (PLS-SEM) technique in SmartPLS. The analysis proceeds in two stages: assessment of the measurement model (convergent and discriminant validity) and assessment of the structural model (hypothesis testing via direct and indirect paths, moderation analysis, R^2 , f^2 , and variance inflation factor).

4.2 Measurement Model Assessment

In PLS-SEM, item reliability is assessed by examining item loadings on their corresponding latent construct (Hulland, 1999). Higher loadings indicate a greater share of variance explained by the construct relative to measurement error, whereas low loadings indicate weaker explanatory

power. Reliability was assessed using composite reliability, and validity was assessed using convergent and discriminant validity. Confirmatory factor analysis was used to evaluate internal consistency (composite reliability), convergent validity (average variance extracted), and discriminant validity (cross-loadings, the Fornell-Larcker criterion, and the heterotrait-monotrait [HTMT] ratio).

4.3 Convergent Validity

Convergent validity was assessed using the average variance extracted (AVE) for each construct, reported in Table 1.

4.4 Composite Reliability

Internal consistency reliability was assessed using composite reliability (CR). All reflective-construct item loadings were evaluated against a recommended cutoff of 0.50 (Hair, Hult, Ringle, & Sarstedt, 2016).

Table 1. Convergent Validity and Reliability

Construct	Item	Loading	Cronbach's Alpha	CR	AVE
Structural empowerment	SE1	0.674	0.925	0.933	0.540
	SE2	0.745			
	SE3	0.701			
	SE4	0.686			
	SE5	0.704			
Digital empowerment	DE1	0.886	0.808	0.871	0.631
	DE2	0.879			
	DE3	0.747			
	DE4	0.642			
	DE5	0.876			
Psychological empowerment	PE1	0.725	0.936	0.946	0.635
	PE2	0.843			
	PE3	0.791			
	PE4	0.794			
	PE5	0.754			
	PE6	0.843			
	PE7	0.820			
Employee creativity	EC1	0.814	0.807	0.858	0.525
	EC2	0.883			
	EC3	0.794			

Construct	Item	Loading	Cronbach's Alpha	CR	AVE
	EC4	0.741			
	EC5	0.239*			
	EC6	0.686			
	EC7	0.765			
	EC8	0.987			
Creative work environment	CWE1	0.886	0.947	0.959	0.824
	CWE2	0.936			
	CWE3	0.927			
	CWE4	0.901			
	CWE5	0.891			
	CWE6	0.546			
	CWE7	0.657			
	CWE8	0.876			
	CWE9	0.765			
Individual innovative behavior	IIB1	0.904	0.945	0.961	0.859
	IIB2	0.946			
	IIB3	0.944			
	IIB4	0.913			
	IIB5	0.876			
	IIB6	0.565			
	IIB7	0.786			
	IIB8	0.665			
	IIB9	0.675			
	IIB10	0.765			

* EC5 falls below the 0.50 loading threshold applied elsewhere in this table; the authors should consider re-examining or removing this item and re-running the model prior to submission.

Criteria applied for convergent validity

Factor loading: greater than 0.50. AVE: greater than 0.50. Composite reliability: greater than 0.70.

4.5 Discriminant Validity

Discriminant validity was assessed using cross-loadings and the Fornell-Larcker criterion. Standardized loading estimates were expected to be 0.50 or higher, and ideally 0.70 or higher (Hair,

Babin, & Anderson, 2010; Chin, 1998); items with loadings below 0.40 are typically candidates for removal (Hair et al., 2011; Hair et al., 2016).

4.5.1 Heterotrait-Monotrait Ratio (HTMT)

Henseler, Ringle, and Sarstedt (2015) proposed the HTMT ratio as an alternative to the Fornell-Larcker criterion and cross-loadings for assessing discriminant validity in variance-based structural

equation modeling, arguing that the two traditional approaches often fail to detect discriminant validity problems. The HTMT ratio, based on the multitrait-multimethod matrix, has since been widely adopted (Ab Hamid, Sami, & Sidek, 2017; Ali, Rasoolimanesh, Sarstedt, Ringle, & Ryu, 2018; Haider, Jabeen, & Ahmad, 2018; Hussein & Baharudin, 2017; Janadari, Sri Ramalu, & Wei, 2016).

Table 2. HTMT Ratio

	SE	PE	DE	EC	CWE	IIB
Structural empowerment (SE)						
Psychological empowerment (PE)	0.601					
Digital empowerment (DE)	0.658	0.609				
Employee creativity (EC)	0.624	0.640	0.614			
Creative work environment (CWE)	0.529	0.732	0.565	0.611		
Individual innovative behavior (IIB)	0.500	0.734	0.536	0.604	0.759	

Note: Values below the 0.85 threshold indicate acceptable discriminant validity (Kline, 2011).

4.5.2 Fornell-Larcker Criterion

Table 3. Fornell-Larcker Criterion

	SE	PE	DE	EC	CWE	IIB
Structural empowerment (SE)	0.720					
Psychological empowerment (PE)	0.533	0.795				
Digital empowerment (DE)	0.618	0.555	0.797			
Employee creativity (EC)	0.546	0.549	0.571	0.723		
Creative work environment (CWE)	0.497	0.629	0.535	0.543	0.908	
Individual innovative behavior (IIB)	0.471	0.653	0.508	0.546	0.718	0.927

Note: Diagonal values (bold in the original analysis) represent the square root of AVE; off-diagonal values represent inter-construct correlations. For adequate discriminant validity, each diagonal value should exceed the correlations in its corresponding row and column.

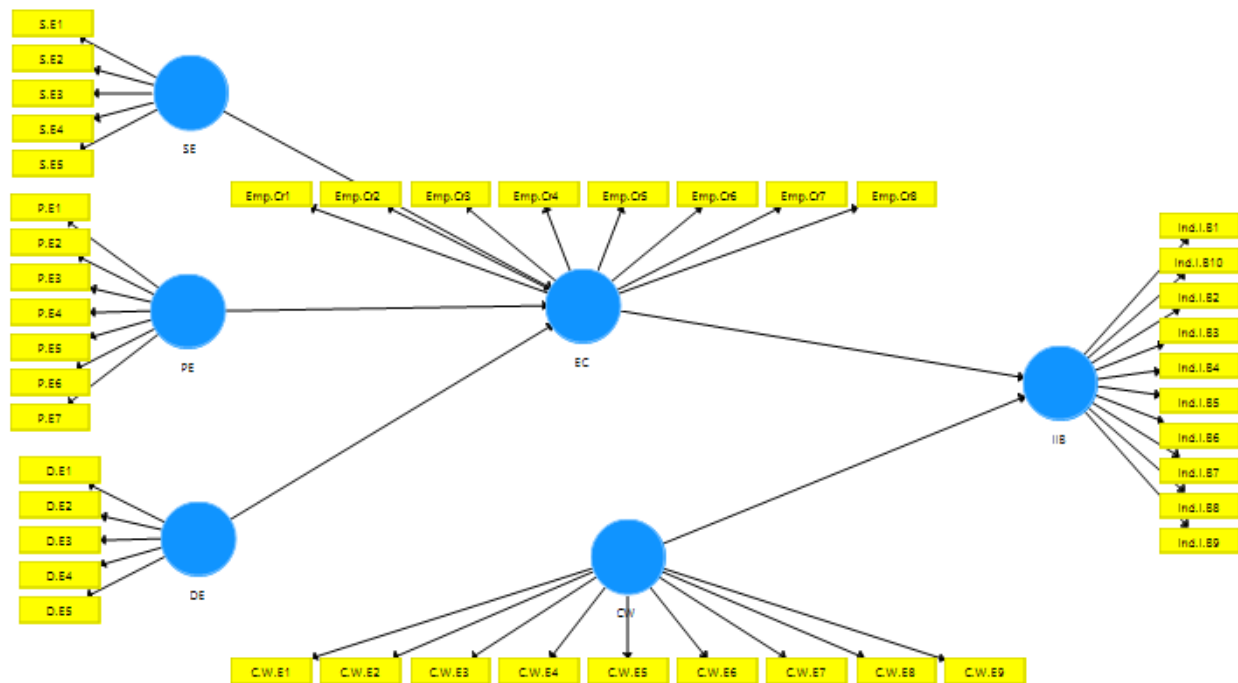


Figure 1. Measurement Model Assessment

4.6 Structural Model Assessment

Having established the adequacy of the measurement model, hypotheses were tested by running the PLS-SEM algorithm and bootstrapping procedure (Esposito Vinzi, Chin, Henseler, & Wang, 2010). The predictive power of the structural model was evaluated using the

coefficient of determination (R^2) for each endogenous construct, and the significance of path coefficients was assessed (Hair et al., 2016). Following Cohen (1992, 2013), R^2 values of approximately 0.26, 0.13, and 0.02 are interpreted as substantial, moderate, and weak, respectively.

Table 4. R^2 (Coefficient of Determination)

Endogenous Construct	R Square
Employee creativity	0.476
Individual innovative behavior	0.414

Table 5. f^2 (Effect Size)

Path	Effect on Employee Creativity	Effect on Individual Innovative Behavior	Interpretation
Structural empowerment	0.217	—	Medium
Psychological empowerment	0.045	—	Small
Digital empowerment	0.045	—	Small
Employee creativity	—	0.163	Medium

Path	Effect on Employee Creativity	Effect on Individual Innovative Behavior	Interpretation
Creative work environment	—	0.140	Small

Interpretation follows Cohen (2013): 0.02 = small, 0.15 = medium, 0.35 = large.

4.6.1 Moderation Effect

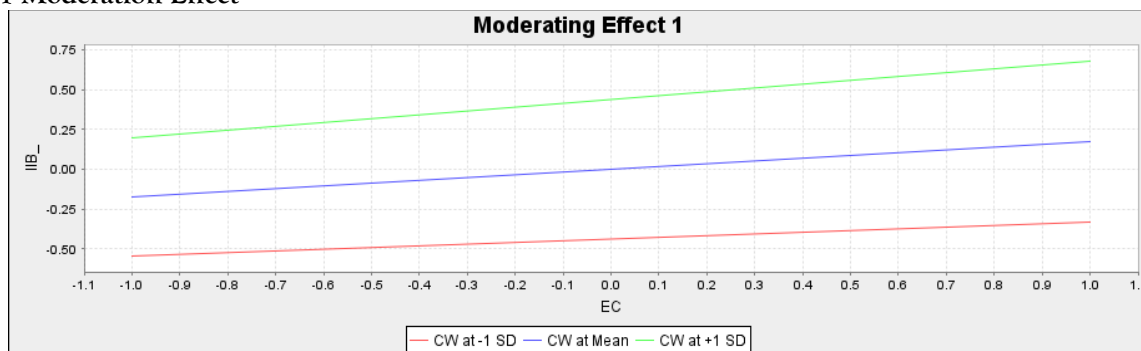


Figure 2. Moderation Effect of Creative Work Environment

4.6.2 Hypothesis Testing

Table 6. Direct and Moderating Effects

Hyp.	Relationship	Beta	STDEV	t-value	p-value	Decision
H1	Structural empowerment → Employee creativity	0.410	0.065	6.335	0.000	Supported
H2	Psychological empowerment → Employee creativity	0.209	0.095	2.205	0.014	Supported
H3	Digital empowerment → Employee creativity	0.202	0.090	2.254	0.012	Supported
H4	Employee creativity → Individual innovative behavior	0.355	0.065	5.449	0.000	Supported
H5	Creative work environment (moderator) → Individual innovative behavior	0.144	0.050	2.879	0.002	Supported

Table 7. Indirect (Mediating) Effects

Hyp.	Relationship	Beta	STDEV	t-value	p-value	Decision
H6	Structural empowerment → Employee creativity → Individual innovative behavior	0.072	0.035	2.033	0.021	Supported
H7	Psychological empowerment → Employee creativity → Individual innovative behavior	0.074	0.038	1.957	0.025	Supported
H8	Digital empowerment → Employee creativity → Individual innovative behavior	0.146	0.036	4.048	0.000	Supported

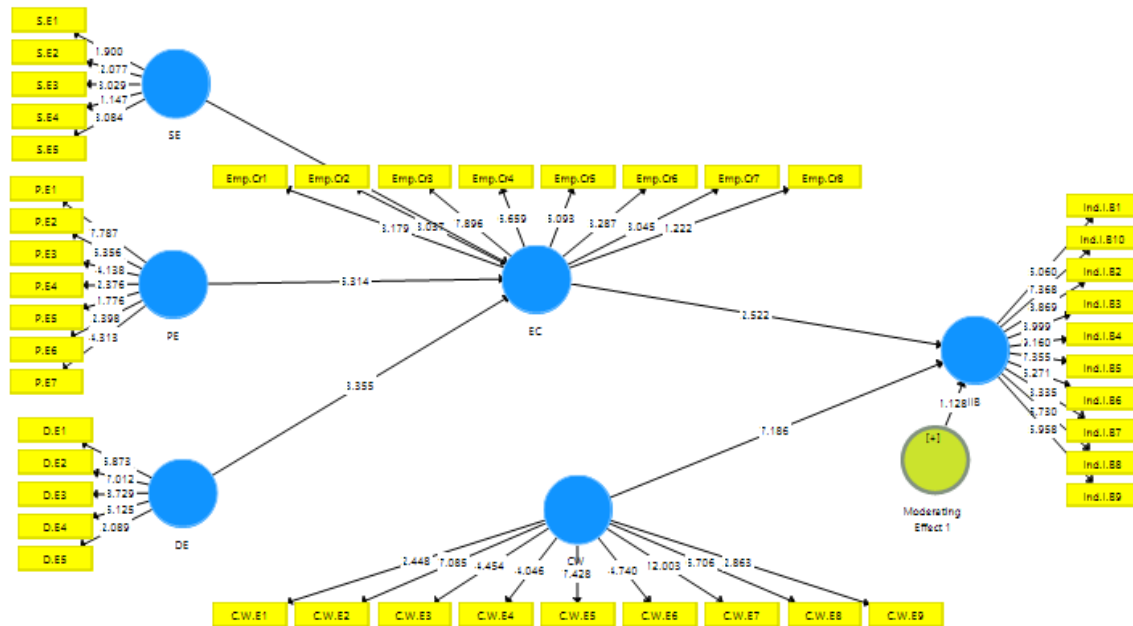


Figure 3. Structural Model Assessment

5. Discussion

This study examined how digital, structural, and psychological empowerment relate to individual innovative behavior and the creative work environment among telecommunication employees in Pakistan. Consistent with prior research, the results show that structural, psychological, and digital empowerment each positively influence employee creativity, and that employee creativity, in turn, positively influences individual innovative behavior. Empowerment practices were found to affect individual innovative behavior both directly and indirectly, with employee creativity acting as a significant mediating mechanism for each of the three empowerment dimensions. The creative work environment was also found to significantly moderate the relationship between empowerment and innovative behavior. Taken together, these findings underscore the importance of empowerment practices for retaining employees and fostering a more creative work environment, with potential downstream benefits for cost efficiency and organizational reputation within the telecommunications sector.

5.1 Theoretical Implications

This study contributes to the literature in several ways. First, it extends the creativity-management literature by examining the effects of empowerment on individual innovative behavior specifically within telecommunications firms in an emerging economy. It also contributes by demonstrating that structural, digital, and psychological empowerment jointly shape creativity and enhance individual innovative behavior among telecommunications employees, building on prior work linking empowerment to organizational performance, knowledge management, motivation, affective commitment, and job creativity. By articulating the role of employee creativity as a mediating mechanism, this study clarifies the direct relationships between structural, digital, and psychological empowerment and employee creativity, and demonstrates the mediating role of employee creativity between empowerment and individual innovative behavior. It further extends understanding of structural and digital empowerment and the creative work environment by empirically testing the moderating role of creative work environment in the empowerment-

creativity relationship, offering a more complete model of how structural, digital, and psychological empowerment translate into innovative outcomes.

5.2 Practical Implications

Telecommunications employees are typically required to manage a wide range of responsibilities, which places a premium on creativity as a means of meeting these demands efficiently. Employee creativity is understood here as the generation of novel and valuable ideas that improve the efficiency and effectiveness of organizational processes, and the findings offer several implications for the practical management of telecommunications employees. Senior management should pay close attention to employee creativity and individual innovative behavior and recognize their strategic importance. The findings suggest that a stronger empowerment orientation increases both employee creativity and individual innovative behavior, benefiting the organization as a whole. Telecommunications management should place particular emphasis on structural and digital empowerment to strengthen employees' individual innovative behavior, enabling them to help drive the industry forward through original thinking. Because individual innovative behavior improves efficiency and supports employee engagement, managers should also devote sustained attention to employee creativity as a lever for organizational change. The findings further indicate that digital empowerment can directly affect employee innovative behavior and creativity through its influence on the creative work environment; managers should therefore actively support and motivate employees to build the digital and structural conditions that sustain creativity as organizations adapt to changing operating environments.

This study has several limitations that suggest directions for future research. It was conducted within the telecommunications sector of an emerging economy; future studies could examine whether these relationships hold in developed-country contexts. The study also relied on a quantitative, cross-sectional design; future work

could apply a qualitative or mixed-methods design to add depth and context to these findings. Finally, while this study established employee creativity as a mediator between empowerment and individual innovative behavior, future research should consider additional mediating or moderating variables to build a fuller picture of how structural, digital, and psychological empowerment shape innovative outcomes.

6. Conclusion

This study examined the role of empowerment in fostering employee adaptiveness and individual innovative behavior, and tested the mediating role of employee creativity between structural, psychological, and digital empowerment and individual innovative behavior. The moderating role of the creative work environment in this relationship was also tested and supported. The findings confirm that structural, psychological, and digital empowerment are important drivers of employee creativity and adaptiveness, and that employee creativity meaningfully mediates the relationship between empowerment and individual innovative behavior.

This study is subject to several limitations. First, it relies on cross-sectional data collected using a quantitative design; qualitative approaches were not employed. Second, the study focuses specifically on individual innovative behavior and employee creativity as outcomes of empowerment, without incorporating other potentially relevant outcomes. Third, the research was conducted exclusively within the telecommunications sector. Addressing these limitations offers promising directions for future research: subsequent studies could adopt a longitudinal or mixed-methods design, and could examine individual innovative behavior alongside other organizational variables such as knowledge management systems and organizational structure.

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