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The Impact of Socially Responsible Human Resource Management on Employee Innovation Performance: Exploring the Roles of Person–Organization Fit, Work Engagement, and Individualism Orientation

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Abstract

Employee innovation performance (EIP) plays a crucial role in enhancing competitiveness within high-tech enterprises, and socially responsible human resource management (SRHRM) is increasingly recognized as a key factor. By integrating corporate social responsibility principles, SRHRM shapes employees' attitudes and behaviors. Grounded in person-environment fit theory, this study proposes and tests a moderated serial mediation model to uncover the complex mechanisms through which SRHRM influences EIP. Using cross-sectional data collected via a questionnaire from 440 employees in Chinese high-tech firms, the results indicate that SRHRM impacts employee innovation both directly and indirectly. The indirect effects operate through individual mediators such as person-organization fit (P-O fit) and work engagement (WE), either independently or sequentially. Additionally, individualism orientation (IO) moderates both the link between P-O fit and WE and the serial mediation pathway connecting SRHRM to EIP, such that higher IO strengthens these positive relationships. The findings contribute to the understanding of SRHRM's impact on innovation by emphasizing the importance of P-O fit and WE in fostering employee innovation and highlighting the moderating role of individual cultural values.

Keywords: Individualism orientation, SRHRM, Work engagement, Employee innovation performance, Person-organization fit

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Introduction

As China's economy enters a new phase emphasizing high-quality growth amidst the gradual slowdown of rapid expansion, there is increasing attention on implementing innovation-driven strategies to facilitate structural economic transformation. Central to this approach is enabling enterprises to strengthen their innovation capacity, which stimulates market dynamism, supports sustained development, and fosters high-quality growth [1, 2]. The critical role of innovation in providing high-tech enterprises with competitive advantages is widely acknowledged in China, where such enterprises are regarded as the main drivers of technological progress [3].

Nonetheless, evidence indicates that China's progress in innovation still lags behind many developed nations despite substantial government support [4]. According to the World Intellectual Property Organization's (WIPO) Global Innovation Index 2023, China ranks 12th, behind leading economies such as the US, UK, France, and Germany [5]. The research challenge lies in the gap between Chinese firms' significant R&D investments and their actual innovation outcomes; although seventeen Chinese companies are among the top R&D investors on the Industrial R&D Investment Scoreboard, only five appear on Clarivate's Top 100 Global Innovators list [6], reflecting a disparity between investment and recognized innovative performance. This highlights an underlying concern with employee innovation performance (EIP), a core driver of firms'

ability to innovate and transform business models [7-9]. EIP is also vital for sustaining organizational competitive advantages [10], as employees are central to generating and implementing innovative ideas [11, 12]. Therefore, understanding the factors driving EIP is crucial for business competitiveness and sustainability.

Previous studies have linked various HRM practices to employee innovation [13-16]. However, in contemporary business contexts, organizations face increasing pressure to adopt socially and ethically responsible practices, making sustainability-integrated HRM more common [17]. By embedding corporate social responsibility (CSR) principles into HRM, socially responsible human resource management (SRHRM) practices—such as fair treatment, ethical conduct, and community engagement—can enhance employees' sense of belonging and purpose, fostering engagement in innovative behaviors [18]. While the positive effects of socially responsible practices on organizational outcomes are well documented [19, 20], limited research has examined the specific influence of SRHRM on EIP, as prior studies largely focus on general CSR initiatives rather than HRM's role in promoting innovation [21].

Our study draws on person-environment fit theory (P-E fit; Kristof-Brown *et al.* [22]), which posits that individual performance is shaped by the alignment between personal attributes and the work environment. Within SRHRM contexts, this theory suggests that when organizational practices align with employees' values and expectations, they foster a supportive environment that enhances well-being, engagement, and motivation [23].

The HRM literature often conceptualizes management practices as indirectly affecting employee outcomes, emphasizing the need to examine the mechanisms involved [24, 25]. Guided by this perspective and P-E fit theory, our model introduces two serial mediators: person-organization fit (P-O fit) and work engagement (WE). When HRM practices enhance employee outcomes, both alignment with the organization and positive psychological states play critical roles [26-30]. Accordingly, we selected P-O fit and WE, which are associated with individual innovation [31-33], as mediators. Recognizing the complex nature of SRHRM's influence on EIP, we adopt a sequential mediation framework [34], proposing that SRHRM affects EIP by first fostering alignment between employees and the organization, which then enhances engagement and promotes innovative behaviors.

Research indicates that WE varies according to cultural orientations [35]. Employees with strong individualism orientation (IO) are more likely to engage in work that allows personal expression, goal attainment, and autonomy-driven success [36]. Conversely, individuals with lower IO (more collectivist) may derive higher engagement from collaborative work aimed at group goals and fostering community [37]. While China is largely collectivist, individuals exhibit diverse cultural orientations, including varying degrees of individualism [38-41]. Prior studies suggest that IO significantly influences innovation [42-44], and our research seeks to validate this in a predominantly collectivist context. We hypothesize that IO moderates the relationship between P-O fit and WE, such that employees with higher IO demonstrate greater engagement and innovation.

This study addresses three main objectives: (a) examining the impact of SRHRM on EIP, (b) investigating the serial psychological processes involving P-O fit and WE, and (c) assessing the moderating role of IO in these relationships. Our research contributes to the literature in several ways. First, it emphasizes the often-overlooked influence of socially responsible HRM practices on employee behavior, particularly EIP [45]. Second, by applying P-E fit theory, we advance understanding of the psychological mechanisms linking SRHRM to individual innovation through a serial mediation model. Previous research has largely focused on either organizational or individual factors affecting employee innovation [46-48], leaving the predictive value of alignment between these factors underexplored. By integrating SRHRM, P-O fit, and WE into a unified framework, our study deepens insight into the drivers of employee innovation.

EIP and SRHRM

Socially responsible human resource management (SRHRM) emerges from the principles of corporate social responsibility (CSR) [49] and serves as a strategic approach for organizations to achieve long-term objectives and sustainable development [50, 51]. Initially introduced by Orlitzky and Swanson [52], SRHRM provides a framework for translating CSR values into everyday HR practices. Rooted in ethical and socially conscious management [53], SRHRM focuses on meeting the needs of employees and their families, recognizing them as primary stakeholders [54, 55]. Unlike conventional HRM practices, SRHRM seeks to create value that extends beyond legal or economic obligations [56], including ensuring workplace safety, offering competitive salaries, supporting work-life balance [55, 57], and fostering fair and humane treatment of employees. It also emphasizes equity and justice, providing equal development opportunities, constructive performance feedback, and participatory decision-making to create democratic work environments [55, 57]. Additionally, SRHRM aims to nurture employees not just as professionals but as responsible members of society, highlighting its broader role beyond traditional task-focused HRM.

Research on SRHRM has increasingly examined its impact on workplace outcomes [53-55, 57, 58]. Building on this, the current study investigates its effect on employee innovation performance (EIP), which involves employees' efforts to generate, implement, and advocate novel ideas that benefit their organization [59].

HRM practices influence employees by creating supportive work environments that promote engagement and positive behaviors [60-62]. In this context, SRHRM can be expected to stimulate innovation, functioning as an ethical anchor within

the workplace [53, 63]. By promoting inclusivity, fairness, and diversity, SRHRM fosters an environment where employees' contributions are valued, enhancing their willingness to think creatively and engage in innovative work. Research confirms that such culturally supportive workplaces lead to improved employee outcomes [64]. Based on this rationale, we propose:
H1. SRHRM positively influences EIP.

SRHRM, P-O fit, and EIP

Person-organization fit (P-O fit), defined by Kristof [65] as the degree of alignment between individual characteristics and organizational attributes, has gained attention for its influence on employees' attitudes and behaviors and its relevance to strategic HRM [66-68]. Empirical evidence links P-O fit to positive employee outcomes, including creativity, innovative work behaviors, and overall innovation performance [69-71].

According to person-environment fit theory, individual performance improves when employees' values align with those of the organization [72, 73]. Employees who prioritize ethical conduct and social responsibility are more likely to perceive alignment with organizations that implement SRHRM practices [55]. For example, socially responsible hiring practices attract individuals with strong ethical standards and commitment to CSR, helping them feel a sense of belonging and alignment with the organization. This alignment can motivate employees to innovate, as they view organizational practices as supporting their values and providing meaningful support for their work. Evidence indicates that employees perform best in environments consistent with their values [54, 74, 75].

Accordingly, we hypothesize:
H2. P-O fit mediates the relationship between SRHRM and EIP.

SRHRM, Work Engagement, and EIP

Work engagement (WE) is conceptualized as a positive, fulfilling state related to one's work, characterized by vigor, dedication, and absorption—reflecting employees' connection to their tasks and willingness to invest effort in achieving organizational objectives [76]. Engaged employees exhibit heightened motivation, focus, and commitment to their roles and the broader goals of their organizations. Recently, WE has received growing attention as a mediator linking HRM practices to favorable work outcomes [77], largely due to its strong association with key individual, team, and organizational performance indicators [78].

Given that SRHRM emphasizes creating value for employees through practices beyond legal or economic obligations [56], such practices are likely to enhance engagement. When employees experience fairness, equal opportunities, recognition, and respect, they are motivated to invest discretionary effort in their work. Empirical studies suggest that engaged employees demonstrate increased intrinsic motivation and are more inclined to seek innovative solutions to workplace challenges [79-81]. They also tend to support colleagues and exceed performance expectations, contributing to positive individual-level outcomes [82-84]. Based on these insights:
H3. WE mediates the positive relationship between SRHRM and EIP.

SRHRM, P-O fit, EIP, and WE

Thus far, we have discussed SRHRM's influence on EIP through separate mediating pathways. Following the "black-box" perspective in HRM, which highlights the indirect and complex effects of organizational practices on employee outcomes [34], there is theoretical justification for a sequential mediation model incorporating both P-O fit and WE. Literature indicates that P-O fit can indirectly influence EIP by fostering greater engagement; employees who perceive a strong alignment with their organization are more likely to be engaged and exhibit innovative behaviors [85, 86]. Additionally, WE directly enhances EIP, as engaged employees demonstrate higher levels of creativity and innovation [32].

Person-environment fit theory further supports this sequential mechanism, suggesting that alignment between an individual and the work environment drives performance [23]. Therefore, it is plausible that SRHRM strengthens employees' perceived P-O fit, which in turn elevates their WE, ultimately leading to greater innovative performance. Accordingly:
H4. P-O fit and WE sequentially mediate the relationship between SRHRM and EIP.

Individualism Orientation (IO) as Moderator

Cultural orientation shapes how employees respond to person-environment fit in the workplace [87]. Individualism-collectivism, a core cultural dimension, reflects the degree to which individuals prioritize personal versus group goals [88]. While traditionally conceptualized as a bipolar continuum, contemporary research recognizes that individuals may display both collectivist and individualist tendencies, even within predominantly collectivist societies [38, 39, 41]. Accordingly, we focus on individual-level variation in IO, whereby employees with higher IO prioritize autonomy, personal goals, and self-reliance over collective objectives [89, 90].

IO can shape work attitudes and values [91]. Employees high in IO are intrinsically motivated by their own needs and preferences, rather than group norms. Prior research suggests that IO influences innovative behavior [42, 44]. We propose

that employees with higher IO are more likely to engage with their work and demonstrate innovation, as SRHRM practices support personal development, recognition, and ethical behavior, aligning with their individualistic orientation. In contrast, employees lower in IO may value collective goals and interdependence, perceiving a weaker fit with SRHRM practices focused on individual achievement, which may reduce engagement and innovation. Thus:

H5. IO moderates the relationship between P-O fit and WE, such that higher IO strengthens this positive relationship.

Combining the moderated pathway (H5) with the sequential mediation model (H4) suggests that IO also influences the overall indirect effect of SRHRM on EIP. Specifically, the positive serial mediation effect through P-O fit and WE is expected to be stronger for employees with higher IO. Therefore:

H6. IO moderates the sequential indirect effect of SRHRM on EIP via P-O fit and WE, with the positive effect being amplified at higher IO levels.

Figure 1 depicts the hypothesized relationships among the study variables.

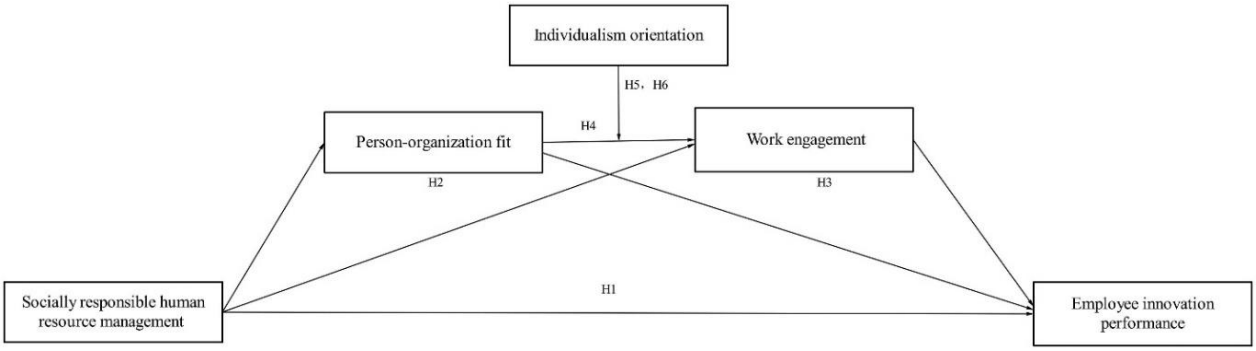

Figure 1. The proposed model

Method

Participants and procedure

Data were collected through online surveys targeting employees in high-tech enterprises located in Zhuhai, Guangdong, China, one of China's earliest four special economic zones, which hosts 2,075 high-tech companies, mainly in the smart home appliances sector. Using professional and personal networks, one researcher obtained permission from ten companies to conduct the study after explaining its objectives and implementation process. Given the companies' preference for digital communication, an online survey format was chosen. The survey was developed using China's largest professional survey platform, www.wjx.cn, and was accessible on both computers and mobile devices via a URL link or QR code, distributed through email or WeChat.

The survey began with an introductory page describing the study's purpose, intended use of the data, and statements ensuring voluntary participation and anonymity. Participants provided informed consent by clicking a confirmation button and were informed that they could withdraw at any point without consequences, aligning with recommended procedures to reduce survey-related biases [92]. To further limit potential biases, the questionnaire was divided into blocks, each representing a single variable; participants could not proceed until all items in a block were completed, and reminders prompted completion of any missed items. The survey was conducted in Chinese, with back-translation employed to ensure equivalence to the English original [93]. Ethical approval was granted by the Ethics Committee of Walailak University (Approval No. WUEC-23-292-01), in accordance with the Declaration of Helsinki.

A total of 440 valid responses were collected. The sample consisted of 57.73% male participants. Age distribution was 19.95% aged ≤25 years, 37.27% aged 26–35, 31.82% aged 36–45, and 12.95% over 45. Most participants held a bachelor's degree (65.45%), followed by a master's (13.86%) and doctorate (3.64%), with the remainder having secondary school qualifications. Job roles included technicians and professionals (44.77%), managers (21.14%), sales staff (8.41%), and other positions (25.68%).

Measures

Validated instruments were used to assess all constructs, with items rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The complete list of items is provided in the Appendix.

SRHRM

SRHRM was measured using six items adapted from Shen and Benson [55], including statements such as "my company provides adequate CSR training to promote CSR as a core organizational value" and "my company considers employee social

performance in performance appraisals." Cronbach's α was 0.90. The scale's validity in the Chinese context has been previously confirmed [53].

EIP

Employee innovation performance was measured with nine items following Janssen and Van Yperen [59], covering idea generation, promotion, and implementation in the workplace. An example item was "creating new ideas for difficult issues." Cronbach's α was 0.98, validated with reference to Wisse *et al.* [94].

P-O fit

Person-organization fit was assessed using six items adapted from Memon *et al.* [95], including "I really fit this organization." Cronbach's α was 0.93. The scale has been validated in prior studies [95].

WE

Work engagement was measured using the Utrecht Work Engagement Scale [76], validated in Chinese contexts [96]. A sample item was "At my work, I feel bursting with energy." Cronbach's α was 0.93.

IO

Individualism orientation was measured using seven items from Van Hooft and De Jong [97], validated in the Chinese context [91, 98]. An example item was "I am unique, different from others in many respects," with Cronbach's α of 0.779 [91].

Control variables

Control variables included age, gender, educational level, job position, tenure, and enterprise ownership, as these factors may influence innovation intentions and perceptions of HRM practices. Differences in enterprise ownership can also shape organizational culture and employees' understanding of innovation.

Results

Data analysis

Data analysis was conducted using SPSS 26. Reliability analyses, including Cronbach's α, descriptive statistics, common method bias tests, correlations, and regression analyses were performed. Group differences across demographic variables were examined using t-tests and one-way ANOVA. Confirmatory factor analyses were conducted in SPSS AMOS 25 to assess convergent and discriminant validity and to evaluate model fit indices.

To test hypotheses, Hayes's SPSS PROCESS macro (v4.1) was used to examine mediation, sequential mediation, and moderation effects via bootstrapping [99]. PROCESS has been widely applied to investigate complex mediation structures [100, 101], including serial mediation (Model 6) and moderated serial mediation (Model 91), which aligns with the analytical approach employed in this study where two mediators operate in sequence and a moderator affects their relationship.

Common Method Bias (CMB)

To minimize potential common method bias (CMB) in our data, we employed both procedural and statistical remedies [102]. Procedurally, the survey was carefully designed to separate measurements of independent, mediator, moderator, and dependent variables. The survey cover letter clarified to participants that responses on independent variables were not linked to dependent variables. Data were collected anonymously, and respondents were informed that participation was voluntary, reducing the likelihood that social desirability or passive response tendencies would affect the results [103].

Statistically, we applied Harman's single-factor test using exploratory factor analysis to examine CMB. The Kaiser-Meyer-Olkin (KMO) measure was 0.937, and Bartlett's test of sphericity was significant at $p < 0.001$. Analysis revealed five factors with eigenvalues above 1, explaining 59.934% of total variance. The first factor accounted for only 27.644% of the variance prior to rotation, below the 40% threshold recommended in the literature, indicating that CMB was not a significant concern [104].

Measurement reliability and validity

Internal consistency of the constructs was assessed using Cronbach's α, with values exceeding 0.70 as suggested by Nunnally and Bernstein [105]. As shown in **Table 1**, Cronbach's α values ranged from 0.837 to 0.944, confirming the reliability of the measures.

Convergent and discriminant validity were evaluated to ensure measurement quality. For convergent validity, factor loadings for all items were required to exceed 0.50 [106]. Composite reliability (CR) values were assessed with a threshold of 0.70

[107], and average variance extracted (AVE) values were considered acceptable if between 0.36 and 0.50 [108]. **Table 2** presents standardized factor loadings obtained from confirmatory factor analysis, which ranged from 0.643 to 0.822. CR values ranged between 0.839 and 0.944, and AVE values ranged from 0.466 to 0.652. These results indicate that the measures exhibit strong convergent validity.

Table 1. Assessing the measurement model

Construct	Item	SE	*p*	FL	Reliability and validity
EIP	EIP1	–	–	0.822	$\alpha = 0.944$; CR = 0.944; AVE = 0.652
	EIP2	0.047	***	0.816	
	EIP3	0.048	***	0.809	
	EIP4	0.047	***	0.794	
	EIP5	0.048	***	0.806	
	EIP6	0.046	***	0.801	
	EIP7	0.047	***	0.805	
	EIP8	0.048	***	0.796	
	EIP9	0.048	***	0.817	
SRHRM	SRHRM1	–	–	0.75	$\alpha = 0.888$; CR = 0.889; AVE = 0.571
	SRHRM2	0.062	***	0.742	
	SRHRM3	0.058	***	0.8	
	SRHRM4	0.058	***	0.767	
	SRHRM5	0.061	***	0.729	
	SRHRM6	0.06	***	0.746	
WE	WE1	–	–	0.674	$\alpha = 0.889$; CR = 0.89; AVE = 0.473
	WE2	0.081	***	0.723	
	WE3	0.075	***	0.663	
	WE4	0.073	***	0.709	
	WE5	0.082	***	0.706	
	WE6	0.075	***	0.672	
	WE7	0.077	***	0.686	
	WE8	0.077	***	0.701	
	WE9	0.082	***	0.65	
P-O fit	P-O fit1	–	–	0.672	$\alpha = 0.837$; CR = 0.839; AVE = 0.466
	P-O fit2	0.08	***	0.643	
	P-O fit3	0.078	***	0.689	
	P-O fit4	0.076	***	0.739	
	P-O fit5	0.089	***	0.673	
	P-O fit6	0.08	***	0.674	
IO	IO1	–	–	0.669	$\alpha = 0.859$; CR = 0.86; AVE = 0.469
	IO2	0.084	***	0.626	
	IO3	0.078	***	0.71	
	IO4	0.082	***	0.721	
	IO5	0.088	***	0.656	
	IO6	0.08	***	0.717	
	IO7	0.082	***	0.688	

Note: ***$p < 0.001$; FL= factor loading; SE = standard error; CR = composite reliability; AVE = average variance extracted; α = Cronbach's alpha.

Table 2. Discriminant validity

	M	SD	EIP	SRHRM	WE	P-O fit	IO
EIP	3.622	0.973	(0.807)				
SRHRM	3.712	0.876	0.454**	(0.756)			
WE	3.865	0.727	0.48**	0.22**	(0.688)		
P-O fit	4.001	0.733	0.456**	0.261**	0.283**	(0.682)	
IO	3.134	0.654	0.069**	0.038**	0.051**	0.068**	(0.685)

Note: *M* = mean; SD = standard deviation; **Correlations are significant at 0.01 (two-tailed).

Discriminant validity was evaluated following the guidelines of Fornell and Larcker [107] by comparing the square root of the average variance extracted (AVE) for each construct with the correlations between constructs. As shown in **Table 2**, the square root of the AVE for all constructs exceeded the inter-construct correlations, providing evidence of satisfactory discriminant validity.

Table 3 presents the results of the confirmatory factor analysis (CFA) assessing measurement model fit, which were found to be acceptable. Although there is no universal agreement among researchers on which fit indices to report, Hair *et al.* [109, 110] and Holmes-Smith *et al.* [111] recommend reporting at least three indices from different categories, including absolute, incremental, and parsimonious fit indices. From the absolute fit category, we included the goodness-of-fit index (GFI), chi-square (χ^2), root-mean-square error of approximation (RMSEA), adjusted goodness-of-fit index (AGFI), and root-mean-square residual (RMR). Incremental fit indices reported were the normed fit index (NFI), comparative fit index (CFI), Tucker-Lewis index (TLI), and incremental fit index (IFI). Finally, the normed chi-square (χ^2/df) represented the parsimonious fit index. All indices reported in **Table 3** exceeded the recommended cut-off values, confirming that the measurement model demonstrated a good overall fit.

Table 3. Goodness-of-fit indices for measurement models

Model fit summary	Criteria (assessment)	Thresholds	Obtained values	Criteria sources
Absolute fit	x^2		669.639	Marsh and Hocevar [112]; Bagozzi and Yi [113]
	RMSEA	≤0.08	<0.10	
	AGFI	≥0.9	0.917	
	GFI	≥0.9	0.927	
	RMR	<0.05	0.037	
Incremental fit	CFI	≥0.9	0.994	Browne and Cudeck [114]; Hair *et al.* [109]
	NFI	≥0.9	0.923	
	TLI	≥0.9	0.993	
	IFI	≥0.9	0.994	
Parsimonious fit	x^2/df	<3	1.082	Wheaton *et al.* [115]

Testing direct, indirect, and serial mediation effects

To examine the proposed hypotheses, composite scale scores were computed in SPSS 26 and analyzed using the SPSS macro-PROCESS (version 4.1), following Hayes's [99] recommended procedures. The six hypotheses, encompassing direct effects, indirect (mediation) effects, serial mediation, moderation, and moderated serial mediation, were tested with a 95% confidence interval and 5000 bootstrap resamples.

Hypotheses 1 through 4, which involved the serial mediation model, were evaluated using PROCESS Model 6 as outlined by Hayes [99]. A hypothesis was considered supported if the 95% confidence interval for the effect did not include zero. Bootstrap results for both direct and indirect effects, including mediation paths, are presented in **Tables 4 and 5**.

Four models were constructed with age, gender, education, job position, tenure, and enterprise ownership included as control variables, though their coefficients are omitted from **Table 4** to focus on the primary hypothesized pathways. Models 1 and 2 assessed the effects of SRHRM on the proposed mediators and the direct linkage between P-O fit and WE. Model 3 examined the total effect of SRHRM on EIP, while Model 4 evaluated the direct and mediated effects of SRHRM on EIP through the proposed serial mediation pathway.

Table 4. Mediation results using PROCESS macro ($N = 440$)

Independent variables	Coefficient	SE	Lower CI	Upper CI
Model 1: Dependent variable = P-O fit (R^2 = 10.9%)				
SRHRM	0.212***	0.039	0.136	0.288
Model 2: Dependent variable = WE (R^2 = 11.4%)				
SRHRM	0.125**	0.040	0.047	0.203
P-O fit	0.229***	0.048	0.135	0.322
Model 3: Dependent variable = EIP (R^2 = 26.5%)				
SRHRM	0.489***	0.047	0.398	0.581
Model 4: Dependent variable = EIP (R^2 = 45.3%)				
SRHRM	0.343***	0.042	0.260	0.426
P-O fit	0.343***	0.052	0.242	0.445
WE	0.425***	0.051	0.325	0.525

Note: **$p \leq 0.01$; ***$p \leq 0.001$; CI = 95% confidence interval.

Table 5. The direct and mediated effects of SRHRM on EIP

Path	Effect	Boot SE	*t*	*p*	Boot LLCI	Boot ULCI
Total effect	0.489	0.047	10.463	0.000	0.398	0.581
Direct effect	0.343	0.042	8.102	0.000	0.26	0.426
Total indirect effect	0.147	0.026	–	–	0.08	0.18

Indirect effect (Xa → P-O fit → Yb)	0.073	0.016	–	–	0.034	0.098
Indirect effect (X → WE → Y)	0.053	0.018	–	–	0.014	0.083
Indirect effect (X → P-O fit → WE → Y)	0.021	0.006	–	–	0.008	0.031

Boot SE = bootstrap standard error; Boot LLCI = bootstrap lower confidence interval; Boot ULCI = bootstrap upper confidence interval.
[a] X = SRHRM.
[b] Y = EIP.

The analysis indicated that SRHRM exerted a significant total effect on EIP (β = 0.489, 95% CI [0.398, 0.581]), with the direct effect also significant (β = 0.343, 95% CI [0.26, 0.426]), providing support for H1.

Further examination of indirect effects revealed significant mediation. Specifically, SRHRM influenced EIP indirectly via P-O fit (SRHRM → P-O fit → EIP) and through WE (SRHRM → WE → EIP), with 95% confidence intervals of [0.034, 0.098] and [0.014, 0.083], respectively. The overall serial mediation effect through P-O fit and WE (SRHRM → P-O fit → WE → EIP) was also significant (95% CI [0.008, 0.031]), supporting H2 through H4.

Moderation and moderated serial mediation

Hypotheses 5 and 6 proposed that IO moderates the relationship between P-O fit and WE, as well as the full serial mediation pathway. To test these, PROCESS Model 91 (moderated serial mediation) was employed. Three models were constructed: Model 1 examined the direct effect of SRHRM on the first mediator (P-O fit); Model 2 assessed the influence of P-O fit on WE while including the moderation effect of IO and the P-O fit × IO interaction; Model 3 evaluated the overall effect of SRHRM on EIP through the serial mediators while incorporating IO as a moderator across the entire pathway. Variables were mean-centered, and adjustment terms were applied to improve interpretability of regression coefficients [99, 116, 117].

Results from Model 2 **(Table 6)** indicated that P-O fit significantly predicted WE (β = 0.218, p < 0.001). The interaction between P-O fit and IO was also significant (β = 0.277, p < 0.001), confirming that IO moderates the P-O fit → WE relationship. Interaction plots at high, average, and low IO levels (mean ± 1 SD) showed that P-O fit had a stronger positive association with WE when IO was high, supporting H5 **(Figure 2)**.

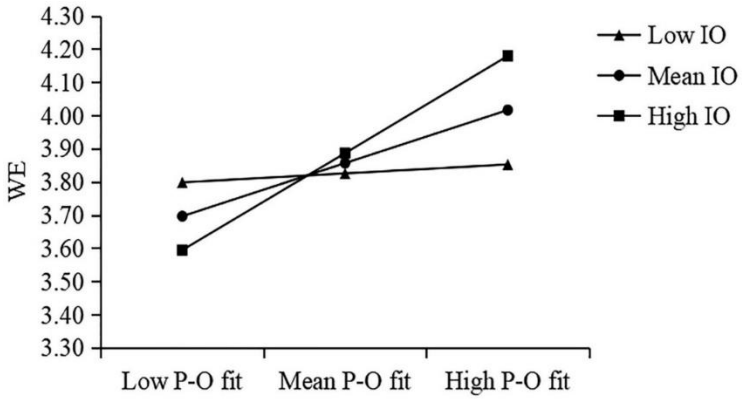

Figure 2. WE as a function of P-O Fit, illustrated at different levels of IO: mean, +1 SD and −1 SD

Table 6. Results of the moderated mediation analysis

Predictor	Model 1		Model 2		Model 3	
	Mediator variable P-O fit		Mediator variable WE		Dependent variable EIP	
	β	*t*	*β*	*t*	*β*	*t*
Constant	−0.810***	−5.509	3.384***	23.170	0.633**	2.695
	[−1.099,−0.521]		[3.097,3.671]		[0.171,1.095]	
SRHRM	0.218***	5.660	0.127**	3.311	0.342***	8.100
	[0.143,0.294]		[0.052,0.202]		[0.259,0.425]	
P-O fit			0.218***	4.715	0.374***	7.282
			[0.127,0.309]		[0.273,0.475]	
IO			0.047	0.939		
			[−0.051,0.145]			
P-O fit × IO			0.277***	3.773		
			[0.133,0.421]			
WE					0.445***	8.692
					[0.344,0.546]	
R^2	0.068		0.132		0.428	

F	$F(1,438) = 32.037$, $p = 0.000$	$F(4,435) = 16.568$, $p = 0.000$	$F(3,436) = 108.646$, $p = 0.000$

Note: $^{**}p < 0.01$; $^{***}p < 0.001$; β = beta coefficient; t = t-value.

Table 7 shows that the indirect effect of SRHRM on EIP via P-O fit and WE becomes stronger as the moderator, IO, increases. The moderated mediation index was statistically significant, with a bootstrapped 95% confidence interval ranging from 0.01 to 0.049 and an effect size of 0.027, confirming the proposed Hypothesis 6.

Table 7. Index of moderated serial mediation

Moderator value	**The conditional indirect effect at mean and ±1 SD, with IO as the moderator**			
	Effect	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Low IO, −1 SD	0.004	0.008	−0.012	0.019
Mean	0.021	0.007	0.009	0.036
High IO, +1 SD	0.039	0.011	0.019	0.062
	Index of moderated mediation (SRHRM → P-O fit → WE → EIP)			
	Index	Boot SE	Boot LLCI	Boot ULCI
IO	0.027	0.01	0.01	0.049

Discussion

This study investigated how SRHRM influences EIP through the sequential mediation of P-O fit and WE, while also considering the moderating role of IO under the framework of P-E fit theory [118]. According to this theory, individuals who experience a closer alignment with their work environment tend to achieve more favorable outcomes, including higher innovation performance [119]. Consistent with our expectations, the findings confirm the hypotheses: SRHRM positively predicts P-O fit, WE, and EIP. Beyond the independent mediating effects of P-O fit and WE, SRHRM also exerts a sequential influence on EIP, whereby enhanced P-O fit strengthens WE, which in turn fosters innovation. Notably, IO moderated this sequential pathway. Collectively, these results reinforce the applicability of P-E fit theory in clarifying the complex mechanisms linking SRHRM to employee innovation. The following sections elaborate on the theoretical and practical implications.

Theoretical contributions and implications

This research makes several key theoretical contributions. First, it advances understanding in the intersection of SRHRM and innovation. By demonstrating a positive relationship between SRHRM and EIP within Chinese high-tech firms, the study supports existing literature emphasizing HRM's role in enhancing organizational innovation potential while promoting sustainable development principles [120]. Additionally, it responds to Yassin and Beckmann's [45] call for empirical studies examining how CSR-related practices impact employees' innovative behaviors, addressing a gap in prior SRHRM research.

A major contribution lies in highlighting the serial mediation process, explaining SRHRM's influence on EIP. The results align with the black-box perspective, illustrating that SRHRM affects employee outcomes in multifaceted, indirect ways, where one mediator can influence another [34]. Specifically, SRHRM strengthens P-O fit, which increases employees' engagement, ultimately leading to higher innovation performance. This sequential pathway underscores P-O fit's role in enhancing WE and its downstream effect on job-related outcomes, corroborating findings from Suwanti *et al.* [121] and Cheng *et al.* [32]. Furthermore, WE has been consistently linked to increased creativity, proactivity, and innovative behaviors [122-124]. By examining how changes in one mediator affect the other, our study offers a more nuanced theoretical understanding of the mechanisms driving innovation, addressing a scarcity of research on serial mediation in organizational contexts [125]. The findings also reinforce previous studies demonstrating P-O fit and WE as mediators of employee innovation [30-32, 74, 126-129]. The distinct mediating effects of P-O fit and WE highlight multiple pathways through which SRHRM can influence EIP, suggesting avenues for future research to explore additional underlying mechanisms.

Finally, the study contributes to understanding the moderating role of IO in these relationships. IO was found to strengthen both the link between P-O fit and WE and the sequential indirect effect of SRHRM on EIP. This aligns with Ouyang *et al.* [130], who suggested that the relationship between P-O fit and work outcomes varies according to cultural orientations. P-E fit theory explains that individualistic employees are more sensitive to perceived alignment with their environment and are more likely to invest effort in their tasks when they perceive a strong fit. These findings underscore that collectivist cultures, such as China's, are not homogeneous [40, 131]. Employees with higher IO are more motivated to innovate due to the value placed on autonomy, personal achievement, and self-reliance [42, 44], which can be nurtured through SRHRM practices. By integrating IO as a moderator, this study enriches the theoretical model by accounting for individual cultural differences in how employees align with organizational practices, further extending the applicability of P-E fit theory across diverse cultural contexts.

Practical implications

The findings of this study offer actionable guidance for organizations seeking to enhance employees' innovation performance. First, companies should adopt SRHRM practices, including hiring individuals with strong social responsibility values, implementing CSR-focused HR development programs, addressing employees' personal and family needs, and promoting workplace autonomy and participative decision-making. These practices improve the alignment between employees and the organization, boost work engagement, and ultimately foster innovation.

Second, managers should assess HRM strategies through the lens of P-E fit. This involves recruiting employees whose goals, values, and cultural orientations align with the organization, providing training to facilitate alignment with organizational and normative expectations, and maintaining continuous communication to understand employees' job-related needs. By offering necessary resources and support, organizations can strengthen employees' emotional connection to their work, encouraging them to generate and implement innovative ideas that advance organizational objectives.

Third, managers should recognize the influence of employees' social values on work behaviors. For teams with higher individualistic tendencies, SRHRM practices should be tailored accordingly, including fair and competitive compensation, support for work-life balance, open and equal communication, personalized training opportunities, and involvement in CSR activities. These interventions enhance perceived P-O fit, elevate work engagement, and improve innovation performance. This approach is particularly relevant in contemporary Chinese workplaces, where younger employees increasingly value individuality and equality despite the traditionally collectivist culture.

Limitations and future research

While this study provides valuable theoretical and practical insights, several limitations suggest directions for future research. First, given the cross-sectional design, causal inferences should be drawn with caution; future studies could adopt longitudinal designs to better establish causal relationships among SRHRM, P-O fit, WE, IO, and EIP. Second, the effects of HRM practices, including SRHRM, may vary across regions, industries, and countries. As this research focused on China's high-tech sector, generalizations to other contexts should be made carefully. Future studies could examine diverse sectors, such as services or manufacturing, and other countries to improve external validity. Third, this study tested a single serial mediation model linking SRHRM to EIP through P-O fit and WE. Subsequent research could explore additional mediators suggested by P-E fit theory, such as person-job fit, person-supervisor fit, self-efficacy, mindfulness, or knowledge-sharing behaviors, as well as potential moderators like organizational innovation climate, transformational leadership, or uncertainty avoidance, to strengthen the explanatory power of the model.

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