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Artificial Intelligence and HRM for Sustainability: Enhancing Employee Performance and Creativity through Creative Self-Efficacy

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Abstract

This study investigates the influence of Artificial Intelligence (AI) augmented human resource management (HRM) practices on workers' outcomes including performance and creativity in the service industry while considering the role of creative self-efficacy. Data were collected from 347 full-time workers of a four-star hotel in China. Results revealed strong, statistically significant associations between AI-enhanced HRM practices and employee service performance and creativity. Results further showed that creative self-efficacy is a key mediating mechanism between AI-HRM practices and employee outcomes. Findings validated the strategic importance of AI-HRM systems in enhancing employee competencies and elucidated the psychological mechanism, via increased creative confidence, through which this transformation occurs. Our study presents a unique model on the influence of AI Augmented HRM on employees and creativity through creative self-efficacy in the service sector. Our study advances the Sustainable Development Goals (SDGs), specifically SDG 8 (decent work and economic growth) and SDG 9 (industry, innovation, and infrastructure), by explaining how AI- HRM practices cultivate sustainable workforce competencies through increased performance and creativity in organisations.

1. Introduction

Technological advancements in the modern days are transforming businesses by enhancing operational efficiency, optimizing decision-making, and enabling more agile and innovative workforce practices (Haidar, 2025; Leong, Bai, Rasheed, Hameed, & Okumus, 2025; A. Malik, P. Budhwar, & S. Kazmi, 2023b). Artificial intelligence (AI) technologies have shown a huge transformation in how human resource management (HRM) is practiced in organizations. In the recent times, AI-based HR systems have emerged as sophisticated decision-making tools in such areas as recruitment, performance appraisals, and education (Budhwar et al., 2023; A. Malik, P. Budhwar, & B. A. Kazmi, 2023a). These systems have been established to enhance productivity, decrease expenses, and enhance the morale of staff (Padma, 2024). The changes are particularly essential to the hospitality industry, which is rapidly changing and highly competitive. Within this context, AI in HR is perceived as one of the most important tools. It will be able to decrease the administrative burden of managers to focus on creative solutions and strategic objectives. It is also used to make organizations more agile so that they can respond fast to the evolving customer and market demands (Chowdhury et al., 2023).

Upon careful investigation of the current findings, a distinct issue emerges. Extensive research indicates that AI can enhance business efficiency; nevertheless, its impact on managerial roles remains largely unexplored (Böhmer & Schinnenburg, 2023). Current discussions are mostly about the technology and how it can help organizations as a whole, but they don't talk about the people involved. We don't know how AI tools affect a manager's performance psychologically. The way AI influences the behavior of managers is a mystery, as Böhmer and Schinnenburg (2023) state. The genuine advantage of AI in the HR sector may not be its capacity to automate, but rather its capacity to instill confidence in the creative self-efficacy of a manager. Probably this confidence is what in turn propels their performance and

innovativeness. It results in the main question this research attempts to answer: how does AI-augmented HRM relate to increased performance and creativity?

This research is significant both in theory and in practice. Theoretically, this study provides a more detailed perspective on how AI HRM shapes workers outcomes in organizations. As such, this study shifts the focus of our discussion towards what technology does with employees and how it does that. In practice, the findings of our research provide the service industry leaders with a roadmap to adopting AI HR in a manner that will boost their workers' outcomes. Further, our study connects AI-augmented HRM practices with employee creativity and performance, which helps with sustainable workforce development and organizational adaptability. This is in line with the global Sustainable Development Goals (SDGs) priorities.

2. Theory and Hypotheses Development

2.1. AI Augmented HRM and employee outcomes

AI is a tool for of integrating HRM practices is fundamentally altering the traditional HRM practices in organization. In order to comprehend this transformation, a critical lens in the understanding of this transformation is social cognitive theory (SCT) presented by Bandura (1986). SCT centers around the concept of self-efficacy which is described as an individual's belief in their capacity to act in the ways necessary to achieve specific goals (Ahmed, Nawaz, & Rasheed, 2019; Rasheed, Weng, Umrani, & Moin, 2021). Creative self-efficacy on the other hand is referred to the confidence one has on their ability to be creative (Peng, Liang, Fatima, Wang, & Rasheed, 2024).

SCT suggests that AI-augmented HRM systems can help workers to be more flexible and creative by boosting their creative self-efficacy. As such, AI-HRM builds employees' confidence in their creative abilities by giving them smart feedback, personalized learning, and decision support (Basu, Majumdar, Mukherjee, Munjal, & Palaksha, 2023). This helps them adapt quickly and come up with new ideas. So, more creative self-efficacy leads to more flexible and creative work behavior.

The term AI-augmented HRM describes the change of the conventional HR functions by the systems that bring new and efficient approaches and minimise the human factor in the decision-making. They facilitate the routine workflows and improve the data analytics, transforming such areas as recruitment via continuous evaluation of candidates and allowing the use of the data to conduct employee training based on the data, despite the reported implementation issues.

The shift from technological implementation to significant influence on management conduct is not certain. The literature indicates a vital difference between the simple existence of an AI tool and its strategic integration into the employee workflow and decision-making philosophy. This absorption depends on more than just the technology itself. It also depends on how well the manager can understand AI-driven insights, how well AI outputs fit with strategic objectives, and how ready the business as a whole is for change (Böhmer & Schinnenburg, 2023). Therefore, AI-enhanced HRM is

better thought of as an organizational competency that blends technology with human experience and supports procedures to perhaps unleash higher-level managing skills.

The major psychological consequence of the technological changes, specifically in the field of AI is the fact that it may increase creative self-efficacy (Malik et al., 2023a). AI tools are also able to release managerial time to strategic and disruptive thinking by automating routine administrative functions. Moreover, the advanced analytical intelligence held by AI offers critical operational insights that have the potential to motivate new creative options (Ghosh, Sengupta, Narayanamurthy, & Ishizaka, 2023). Personalised AI-based learning systems also develop managerial competence, which directly raises confidence in their creative skills. It is paramount to underline the fact that AI can be used as a complement to the human creative process, not its substitute in this situation. Artificial intelligence is expected to bring sustainability in industries (Waqas & Naseem, 2025).

The enhanced self-efficacy is associated with the ability of AI-based HRM systems to trigger innovative behaviour in workers (Alsaif & Sabih Aksoy, 2023). When guided by reliable AI-based data insights that rock the traditional ways of thinking, workers feel confident in their innovative thinking. An example would be AI-based insights that are more direct and immediate, which induce creativity and deliver innovative results. On the other hand, AI-HRM is expected to boos workers performance in organizations. AI-enabled HRM improves employee performance through its delivery of real-time data and predictive insights together with customized development resources which enable workers to adapt to changing job requirements. The automation of repetitive tasks together with decision support functions in AI-HRM systems enables workers to concentrate on solving problems and executing their work tasks in an adaptable manner (Pan, Froese, Liu, Hu, & Ye, 2023). The enhanced capacity to handle unexpected situations, together with improved flexibility, enables employees to perform better in fast-changing work conditions.

In addition, AI-augmented HRM serves as a strategic capability which enables organizations to develop sustainable human capital resources through its sustainable human capital development. The system improves self-efficacy and performance and creativity development which helps organizations achieve long-term sustainability and creativity. Here we hypothesise;

H1: *AI-augmented HRM is positively associated with workers' creative self-efficacy.*

H2: *AI-augmented HRM is positively associated with workers' service performance.*

H3: *AI-augmented HRM is positively associated with workers' creativity.*

2.2. Mediating role of creative self-efficacy

A robust sense of creative self-efficacy is inherently connected to employee service performance and creativity. As such, workers with higher level of confidence are expected to be more creative, problem-solving, and more adept at making judgements their daily job tasks (Tierney & Farmer, 2011). AI enhances workers' performance by delivering immediate data insights and predictive analytics, which

expedite evidence-based decision-making and facilitate rapid reactions to internal and external changes (Chowdhury et al., 2023; Wang, Lin, & Shao, 2022). This association, however, is nuanced as research by Puozzo and Audrin (2021) indicates that creative self-efficacy alone may not fully translate into performance without structured organizational support systems.

Nevertheless, the successful aggregation and deployment of these resources and their transposition are fundamentally reliant on the higher-order organizational resources of a supportive managerial environment and an experimental culture (Schneider, Kanbach, Kraus, & Dabić, 2023). We argue that AI-enabled HRM enhances employees' service performance and creativity through its implementation of three main components which include real-time data and adaptive learning and intelligent decision support for their daily work activities. Organisations can achieve better workforce performance through AI implementation, which provides talent analytics and personalised training and dynamic task allocation to match employee skills with new job requirements. Employees can use AI-driven feedback systems to receive performance updates which help them learn how to modify their behavior and test different strategies while they adapt to new situations. AI tools enable knowledge sharing and idea generation by detecting patterns that link employees to the expertise they need, while reducing routine tasks and freeing up mental capacity for creative thinking. Employees develop greater adaptability and operational readiness through their work experience which allows them to produce creative solutions for the company. This process results in organisations achieving higher levels of adaptability, which produces a stronger competitive edge. Here we hypothesize that;

H4: *Creative self-efficacy mediates the relationship between AI-augmented HRM and employee service performance.*

H5: *Creative self-efficacy mediates the relationship between AI-augmented HRM and employee creativity.*

Figure 1 illustrates the conceptual model of our research wherein AI *augmented* HRM practices result in higher creative self- efficacy among workers, which positively influences their performance and creativity in organizations.

[**Figure 1**]

3. Research Methodology

3.1. Procedure and participants

This paper analyses how AI-augmented HRM practices can influence workers' performance and creativity through creative self-efficacy. A quantitative research methodology was used, and a cross-sectional survey design was applied to collect primary data from the hospitality industry. Research team contacted the human resource (HR) manager of a four-star hotel in China and asked her help to conduct an online research survey among frontline workers of the hotel. Over a four-month period, researchers collected 380 surveys through convenience sampling. After screening for missing values, outliers, and

other issues, we included a total of 347 samples in our final survey. Table 1 presents the detailed demographics information of 347 respondents.

[**Table 1**]

3.2. Measures

We adapted a 17-item scale from Jangbahadur, Ahlawat, Rozera, and Gupta (2025) to measure our respondents' perceptions of AI-HRM practices. A sample item is, for example, *"AI-HRM provide a high degree of interactivity with other workers".* Cronbach's alpha for this scale found in our study was 0.93.

We utilised a six-item scale (Karwowski, 2011) to assess our respondents' perceptions of creative self-efficacy. A sample item is, for example, "I know I can efficiently solve even complicated problems". Cronbach's alpha for this scale found in our study was 0.90.

We utilised a seven-item scale (Liao & Chuang, 2004) to assess the perceptions about the service job performance of our respondents. A sample item is, for example, "*I am involved in explaining a product's features and benefits to overcome a customer's objections*". Cronbach's alpha for this scale found in our study was .90.

We utilised a six-item scale (Zhou & George, 2001) to measure the employee creativity behaviour (α = .86) of our respondents. A sample item is "*I suggest new ways to achieve goals and objectives*". Cronbach's alpha for this scale found in our study was 0.89.

4. Analysis & Results

4.1. Data Analysis and Results

We used a two-stage analytical method to assess the measurement and structural models. First, we conducted Partial Least Squares Structural Equation Modelling (PLS-SEM) testing to evaluate the measurement model's reliability and validity. We conducted structural model analysis with bootstrapping procedures (5,000 resamples) to test the proposed relationships. PLS-SEM was chosen because it can effectively handle complex models that include multiple constructs and mediation effects, while also maintaining strong performance with non-normally distributed data and research designs that focus on prediction.

4.1. Measurement Model Evaluation

The measurement model of our study was first assessed through the examination of factor loadings, internal consistency, reliability, and convergent validity. The results shown in Table 2 have demonstrated that all indicator loadings achieved values above the 0.70 threshold which shows that all items meet the requirement for reliable measurement.

The internal consistency of the constructs was confirmed, as Cronbach's alpha (α) values ranged from 0.89 to 0.93, while composite reliability (CR) values ranged from 0.91 to 0.94. The measurement scales show strong reliability because their values exceed the 0.70 cutoff which researchers consider acceptable. The researchers demonstrated convergent validity using average variance extracted (AVE), which ranged from 0.54 to 0.66 (except for three items of AI-HRM and 1 item of service performance, which were removed from the final analysis) and exceeded the recommended threshold of 0.50.

Overall, these results have shown that each construct accounts for a major part of the variance found in its measurement indicators.

4.2. Descriptive Statistics and Correlations

Table 3 presents the means, standard deviations, and correlations among the study variables. These findings provide preliminary support for the hypothesised relationships.

4.3. Structural Model and Hypotheses Testing

The results of hypothesis testing are presented in Table 4. Consistent with our H1, AI-augmented HRM had a significant positive relationship with creative self-efficacy ($\beta = 0.48$, $t = 9.60$, $p < .001$). In support of H2, AI augmented HRM was positively associated with employee service performance ($\beta = 0.29$, $t = 4.83$, $p < .001$). Similarly, H3 was supported, as AI augmented HRM demonstrated a significant positive relationship with employee creativity ($\beta = 0.24$, $t = 4.00$, $p < .001$).

Regarding the mediating mechanism, creative self-efficacy was positively related to employee service performance ($\beta = 0.42$, $t = 8.40$, $p < .001$), supporting H4a. Likewise, creative self-efficacy significantly predicted employee creativity ($\beta = 0.45$, $t = 9.00$, $p < .001$), supporting H4b.

We utilized bootstrapping methods to analyze the indirect effects which helped them investigate the mediating function of creative self-efficacy. The results showed that the indirect effect of AI-augmented HRM on employee service performance through creative self-efficacy was positive and significant, as the confidence intervals excluded zero. The direct effect from AI augmented HRM to employee creativity through creative self-efficacy showed the same pattern of significance.

5. Discussion and implications

5.1. Theoretical Implications

Modern technological advancements are reshaping businesses by improving efficiency, decision-making, and workforce performance (Muttaki, Sahi, Abdulla, & Aljebur, 2025). In particular, artificial intelligence is significantly transforming the practice of human resource management in organisations (Budhwar, Malik, De Silva, & Thevisuthan, 2022; Leong et al., 2025). For example, the strong positive impact of AI augmented HRM practices on creative self-efficacy (which supports H1) confirms a key psychological mechanism in the literature on technology adoption. Previous research has conceptually associated AI

with diminished cognitive load (Ghosh et al., 2023); This study quantitatively illustrates that AI-enhanced HR systems significantly bolster an individual's confidence in their creative problem-solving capabilities. This discovery transforms the theoretical perspective of AI in HRM from a mere efficient instrument to a valid precursor of psychological capital, directly connecting technological affordance theory with social cognitive theory.

Second, the supported direct effect of AI augmented HRM on performance (H2) validates the instrumental pathway posited by dynamic capabilities theory. This finding corroborates the claims made by scholars such as Franco and Landini (2022) that AI's real-time data processing and predictive analytics furnish the essential resources of speed and insight necessary for swift adaptation. In theory, this shows that AI augmented HRM works as an operational resource that directly improves an organization's ability to respond, in addition to its role in building psychological resources.

Third, the confirmed direct link between AI augmented HRM and creativity (H3) shows that AI can do more than just automate tasks. This is in line with studies by Belhadi, Mani, Kamble, Khan, and Verma (2024) and (Mariani, Machado, Magrelli, & Dwivedi, 2023), which said that AI could lead to new ideas and ways to combine them. The finding corroborates the hypothesis that AI systems function as direct cognitive collaborators in the creative process, providing data-driven stimulus that can inspire novel ideas irrespective of alterations in self-perception.

Fourth, and most Importantly, the significant mediation of creative self-efficacy between AI-HRM and creativity (supporting H4) is the most important theoretical contribution. This finding clarifies the principal psychosocial mechanism by which technology affects creative output, providing robust empirical support for Bandura (1996) agentic perspective in a digital work environment. It contests deterministic "tech-centric" models by demonstrating that AI's influence on creativity is significantly mediated through the enhancement of human self-efficacy, thereby introducing an agentic augmentation framework to the literature. This framework asserts that the paramount value of AI in creative endeavors resides not in supplanting human ingenuity, but in enhancing the individual's confidence to utilize it (McGuire, 2024).

5.2. Practical Implications

Evidence for all proposed relationships requires hospitality organizations to adopt a comprehensive, human-centered approach to the integration of AI and human resource management. The validated pathways demonstrating that AI augmented HRM enhances creative self-efficacy, directly improves performance and creativity, and utilizes self-efficacy as a fundamental mechanism for creativity collectively assert that success hinges on the integration of technological, psychological, and cultural components. To put these findings into action, the following strategies are suggested.

First, organizations should plan AI augmented HRM implementations in a way that clearly focuses on boosting creative self-efficacy. This study validates that creative self-efficacy is a crucial determinant of creativity and a mediator for the influence of AI; thus, systems should transcend mere automation.

Features that give helpful feedback, suggest other creative ways to solve problems, and show off successful user-generated creativity can help managers feel more confident in their own creative abilities. This changes the HR system from a tool for following procedures to a psychological asset.

Second, the proven direct effect of AI augmented HRM on performance shows how important it is to make sure that AI insights are seamlessly integrated into decision-making processes that happen in real time. To take advantage of this effect, companies need to make sure that AI tools are built into management platforms that give managers direct access to dashboards that show predictive analytics on workforce trends, sentiment, and skill gaps. This makes it easier to go from insight to action, which means that the potential of AI to make things more flexible, as shown in this research, can be fully realized.

Third, the dual-pathway to creativity, both direct and through self-efficacy, necessitates a dual-focused training methodology. Upskilling programs need to do two things: (1) teach people how to use AI tools to come up with new ideas (using the direct effect), and (2) coach managers so that they can internalise AI-supported successes to boost their creative self-belief (using the mediated effect). Therefore, training should combine psychological empowerment with data literacy.

Fourth, leaders must promote a culture of *"agentic augmentation"* in which AI is seen as a way to empower people rather than replace them. The validated mediation model demonstrates that optimal creative enhancements arise when AI amplifies human agency. Leaders should publicly acknowledge instances where AI-enhanced analysis resulted in innovative manager-led solutions, thereby emphasising the significance of the human-AI collaboration and cultivating an innovation-friendly culture identified by this research as conducive to such outcomes.

Lastly, the metrics used to evaluate things need to change. to keep track of efficiency gains (like time saved in hiring), companies should use KPIs that show the results this study shows: measures of managerial creative self-efficacy, speed of adaptive response (performance), and rate of implemented innovative ideas (creativity). Regularly checking these human-centered metrics will make sure that investments in AI-HRM lead to real improvements in strategic capabilities, closing the loop between implementation, measured psychological and behavioral impact, and organizational value.

5.3. Limitations and Future Research Directions.

This research is limited in a number of ways. The cross-sectional design limits the capacity of making a causal conclusion on the correlation of AI- augmented HRM practices and managerial outcomes. Moreover, convenience sampling can also be used in the hospitality industry, which can influence the external validity of the results. Future studies are to be longitudinal in design to encapsulate the long-term effects of AI adoption on creativity, performance and creativity.

More advanced AI systems that can go beyond simple HR functions like predictive analytics, employee development, and strategic decision-making support that could potentially elicit a greater impact on

managerial behaviour should also be explored in further studies. To enhance the external validity, researchers are urged to study various industries and organizational contexts, as well as explore how the influence of such factors as organizational culture, leadership support, and digital maturity mediate the impact of AI on the managerial outcomes.

Declarations

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Conflict of Interest: Authors declare no conflict of interest related to this study submission.

Authors' Contribution: Yixiang Wang conceptualized the study and contributed to writing first draft of manuscript. Muhammad Naeem Sharif assisted in the research design and theoretical development. Muhammad Wasim Akran contributed to data analysis and interpretation of the results and worked on writing first draft of the paper. Noor Mubarak Bajuwaiber worked on

in literature review and manuscript revision, he also worked on discussion sections. Amneh Al-jaber contributed to data analysis and interpreting results as well as writing first draft of paper. Muhammad Khalid Anser contributed to reviewing, editing, and improving the final manuscript. All authors read and approved the final version of the manuscript.

Ethics statement: This study involved human participants and data were collected through a structured questionnaire survey. All research procedures were conducted in accordance with the relevant guidelines and regulations of the Declaration of Helsinki as well as the ethical standards for research involving human subjects in the social sciences. The research protocol including sampling procedures, data collection methods, informed consent, and confidentiality protections was reviewed and approved by the Ethical Review Committee of the department at department of tourism and hospitality management, the Islamia University of Bahawalpur, Pakistan (Approval No.: 2026/RP/DTHM/0423).

Consent to Participate: Informed consent was obtained from all individual participants included in the study. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time. All responses were collected anonymously and used solely for research purposes.

Consent to Publish: Not applicable.

Conflict of Interest: The authors declare that they have no conflict of interests related to this study submission.

Data Availability Statement: The datasets generated during and/or analysed during the current study are available from the corresponding author on request.

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Tables

Table 1

Demographics information

Variable	Category	n	%
Gender	Male	188	54
	Female	159	46
Age (years)	18–24	52	15
	25–34	156	45
	35–44	84	24
	Above 45	55	16
Education	Intermediate	42	12
	Bachelor	156	45
	Master/M.Phil.	118	34
	PhD	31	9
Working Duration	Less than 1 year	48	14
	1–3 years	121	35
	3–5 years	83	24
	5–10 years	64	18
	More than 10 years	31	9
Duration with AI-HRM	Less than 6 months	67	19
	6–12 months	104	30
	1–2 years	96	28
	2–3 years	52	15
	More than 3 years	28	8

Table 2

CFA Model

Construct	Item	Loading	α	CR	AVE
AI-HRM	AIHRM1	0.71	0.93	0.94	0.55
	AIHRM2	0.74			
	AIHRM3	0.76			
	AIHRM5	0.73			
	AIHRM7	0.78			
	AIHRM8	0.75			
	AIHRM10	0.77			
	AIHRM11	0.72			
	AIHRM12	0.79			
	AIHRM13	0.74			
	AIHRM14	0.76			
	AIHRM16	0.73			
	AIHRM17	0.75			
Creative Self-Efficacy	CSE1	0.79	0.90	0.92	0.66
	CSE2	0.82			
	CSE3	0.84			
	CSE4	0.80			
	CSE5	0.81			
	CSE6	0.78			
Service Performance	SP1	0.72	0.88	0.90	0.57
	SP2	0.75			
	SP3	0.77			
	SP4	0.74			
	SP5	0.76			
	SP7	0.79			
Employee Creativity	CR1	0.81	0.89	0.91	0.63
	CR2	0.83			
	CR3	0.79			

Construct	Item	Loading	α	CR	AVE
	CR4	0.80			
	CR5	0.77			
	CR6	0.82			

Table 3.

Descriptive statistics and correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Gender	1.46	0.50	—								
2. Age	2.81	0.02	.06	—							
3. Education	2.40	0.89	.04	.12	—						
4. Working Duration	2.78	0.11	.05	.28	.19	—					
5. Working Duration with AI-HRM	2.63	0.12	.03	.06	.05	.08	—				
6. AI-HRM	3.62	0.71	.03	.05	.04	.06	.09	—			
7. Creative Self-Efficacy	3.74	0.65	.02	.03	.05	.04	.07	.48**	—		
8. Service Performance	3.69	0.68	.01	.04	.03	.05	.06	.52**	.55**	—	
9. Employee Creativity	3.58	0.72	.02	.03	.04	.05	.05	.46**	.57**	.60**	—

Table 4.

Path results (structural model)

Hypothesis	Path	*β*	*SE*	*t-value*	*p-value*	*Result*
H1	AI-HRM → Creative Self-Efficacy	0.48	0.05	9.60	< .001	Supported
H2	AI-HRM → Service Performance	0.29	0.06	4.83	< .001	Supported
H3	AI-HRM → Employee Creativity	0.24	0.06	4.00	< .001	Supported
H4a	Creative Self-Efficacy → Service Performance	0.42	0.05	8.40	< .001	Supported
H4b	Creative Self-Efficacy → Employee Creativity	0.45	0.05	9.00	< .001	Supported

Figures

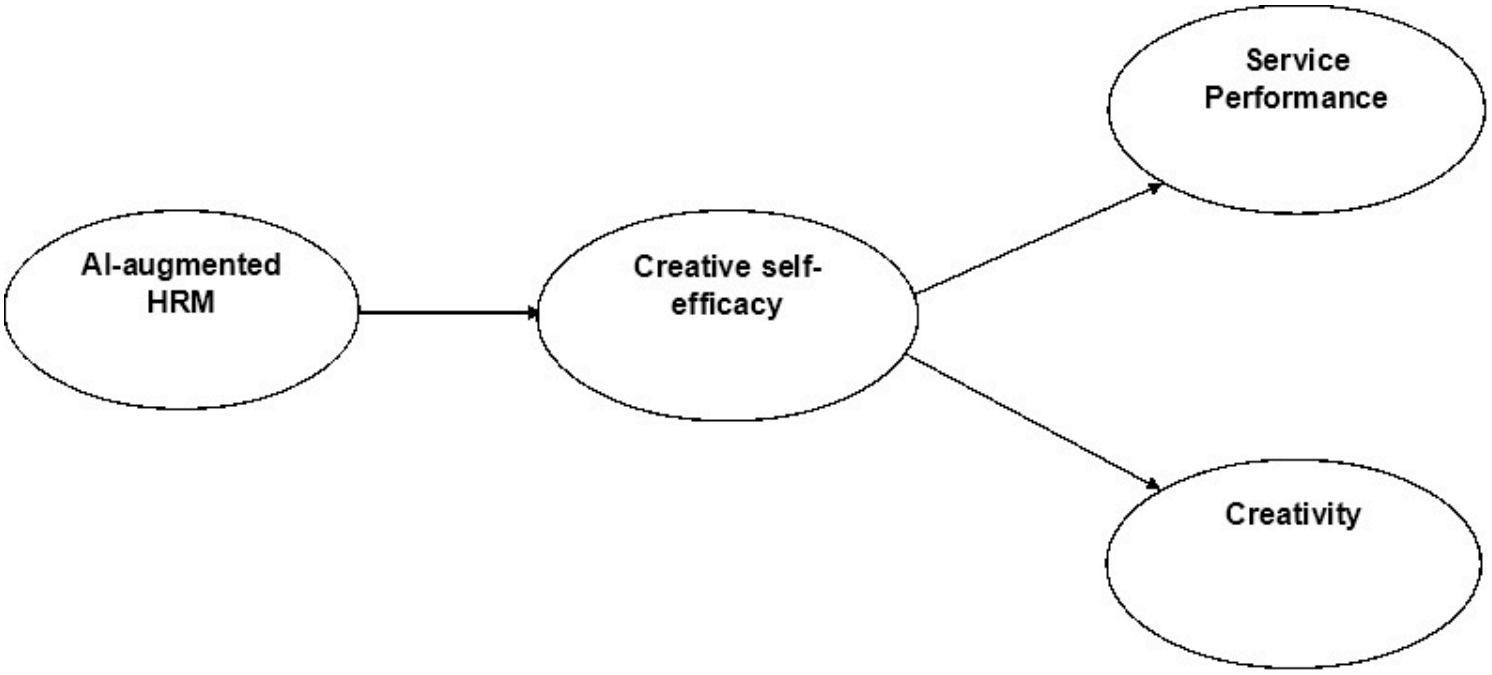


Figure 1

Research Model