The Impact of AI-driven HR analytics on Employee Retention in the Post-Pandemic Era: Evidence from Chongqing Enterprises

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ABSTRACT:

In the post-pandemic era, the global labor market has undergone profound changes, with employee retention and organizational stability becoming core issues in enterprise management. AI-driven HR analytics, through its capabilities in data monitoring, risk warning, and precise intervention, has gradually become an important tool for improving employee retention. As a key hub for manufacturing and digital economy development in western China, Chongqing is accelerating its digital transformation. This study takes enterprises in Chongqing as the research subject to explore the mechanism through which AI-driven HR analytics affects employee retention in the post-pandemic context. This study suggests that AI-driven HR analytics may enhance employees' intention to stay and reduce turnover risk through pathways such as turnover risk warning, person-job fit, incentive optimization, and career development support. By constructing a digital talent retention framework, this study provides practical insights for enterprises to strengthen talent management through digital technologies and support the stable development of regional industries.

Keywords: artificial intelligence; HR analytics; employee retention; digital transformation; Chongqing enterprises

1.INTRODUCTION

In the post-pandemic era, the structure of the labor market and employees' work attitudes have undergone significant changes. Employees are more concerned about stable income, job security, psychological support, career development, and work-life balance, while companies face management pressures such as rising recruitment costs, staff turnover in key positions, organizational knowledge gaps, and declining team stability. Existing employee turnover studies show that whether employees stay in an organization is influenced by a combination of factors such as job satisfaction, organizational commitment, organizational support, job fit, and sense of organizational equity (Allen et al., 2010; Hom et al., 2017). Therefore, employee retention is no longer just a traditional personnel management issue; it also relates to organizational stability, business continuity, and long-term competitiveness.

Chongqing is an important manufacturing base and a city for digital economy development in western China. In recent years, Chongqing has focused on high-quality manufacturing development and the construction of the "33618" modern manufacturing cluster system, accelerating the digital transformation of industries such as automotive, electronic information, intelligent equipment, and software services (Chongqing Municipal People's Government, 2023). Industrial upgrading has increased enterprises' demand for technical, versatile, and stable talent, and has given employee retention issues greater regional practical significance. However, some Chongqing enterprises still rely heavily on experiential judgment in human resource management, with shortcomings in identifying attrition risks, improving person-job fit, optimizing incentives, and supporting career development. As employment choices become more flexible, companies that fail to promptly identify employee needs and attrition risks may face loss of core talent and declining organizational stability.

AI-driven HR analytics refers to companies using artificial intelligence, big data analytics, and predictive algorithms to integrate data on employee performance, attendance, training, skills, job changes, satisfaction, and career development needs to support HR decision-making. Existing research has indicated that HR analytics helps shift HR management from empirical judgment to data-driven decision-making, but its actual value depends on data quality, analytical capabilities, organizational management context, and employees' acceptance of algorithmic decisions (Angrave et al., 2016; Marler & Boudreau, 2017; Tambe et al., 2019)。 Compared to

traditional HR management, AI-driven HR analysis can identify turnover risks earlier, more accurately judge the degree of match between employees and positions, support incentive decisions more effectively, and provide more targeted career development support.

Based on the above background, this paper takes Chongqing enterprises as a research context to explore the mechanisms by which AI-driven HR analytics influences employee retention in the post-pandemic era. This article mainly addresses two research questions: First, how does AI-driven HR analytics affect employee retention in Chongqing enterprises? Second, through what mechanisms does AI-driven HR analytics reduce employee turnover risk and enhance employees' intention to stay?

2.CONCEPTUAL AND THEORETICAL FOUNDATION

AI-driven HR analytics is an important manifestation of digital human resource management. Marler and Boudreau (2017) believe that HR analytics is a process that improves decision-making quality by identifying and quantifying the relationship between HR practices, employee behavior, and organizational outcomes. Angrave et al. (2016) further pointed out that if HR professionals lack data analysis capabilities, HR analytics may struggle to truly create strategic value. Therefore, AI-driven HR analytics should not be understood as a simple technological substitute, but rather as a decision support system where data, algorithms, HR professional judgment, and organizational management goals work together. In employee retention management, AI-driven HR analytics mainly includes attrition risk prediction, employee profiling, job-to-person matching, performance analysis, training recommendations, incentive optimization, and career development support. Its core value lies in driving enterprises from "post-event remediation" management to "pre-warning" and "precise intervention" management.

Employee retention refers to a company's ability to reduce voluntary resignation, enhance employees' willingness to stay, and maintain organizational stability through management measures. Employee turnover research shows that employee turnover is a complex process influenced by individual, positional, organizational, and external labor market factors (Hom et al., 2017). In the post-pandemic era, pay levels remain important, but employees' concerns about occupational safety, work stress, organizational support, growth opportunities, flexible work arrangements, and a sense of equity have significantly increased. Organizational support theory

points out that when employees feel that the organization values their contributions and cares about their well-being, they develop more positive organizational attitudes and behaviors (Eisenberger et al., 1986). Organizational commitment theory also shows that employees' emotional attachment and ongoing commitment to the organization affect their willingness to stay (Meyer & Allen, 1991). Therefore, employee retention management in the post-pandemic era needs to be more data-driven, personalized, and forward-looking.

Conservation of Resources Theory (COR) provides a suitable perspective for explaining the relationship between AI-driven HR analytics and employee retention. Hobfoll (1989) proposed that individuals tend to acquire, protect, and maintain valuable resources; Individuals experience stress when resources are threatened, losses occur, or resource investments do not yield expected returns. Subsequent research further pointed out that resource loss often has a stronger impact on individual psychology and behavior than resource acquisition (Hobfoll et al., 2018). In the post-pandemic era, employees may face income pressures, increased workloads, emotional exhaustion, career uncertainty, and limited development opportunities, leading to resource losses. Based on resource conservation theory, AI-driven HR analytics can reduce resource loss through attrition warnings, and support work, economic, psychological, and development resources through job-person matching, incentive optimization, and career development support, thereby promoting employee retention.

3.CHONGQING CONTEXT AND RETENTION CHALLENGES

Chongqing enterprises, especially those in manufacturing and digital economy-related sectors, face multiple pressures in the post-pandemic era from industrial upgrading, job changes, and employment stability. High-quality development and digital transformation in manufacturing have increased enterprises' demand for technical workers, engineering technicians, digital management talents, and versatile professionals (Chongqing Municipal People's Government, 2023). Against this backdrop, employee retention not only affects the human resource costs of individual enterprises but also relates to regional industrial chain stability and industrial upgrading processes. Based on the background of digital transformation in Chongqing enterprises and observations from human resource management practices, the challenges faced by employee retention in Chongqing enterprises can be summarized into the following three aspects.

First, the risk of key employee turnover is rising. In the post-pandemic era, employment choices for employees have become more flexible, and some Chongqing enterprises face an increased risk of losing technical backbones, frontline skilled workers, and front-line managers. Traditional HR management often relies on exit interviews, annual satisfaction surveys, or managerial experience to assess employee status, but these methods often lag behind the scenes. When companies realize employees may leave, employees often have strong intentions to leave and have even secured other job opportunities. For manufacturing and digital economy enterprises, the sudden departure of key employees may affect production continuity, project progress, and organizational stability.

Second, insufficient matching between people and positions. Some companies still rely on experience-based judgment during recruitment, job assignment, and job transfer processes, lacking systematic data analysis support. There may be mismatches between employees' professional abilities, skill structures, and career interests with actual job requirements. Person-job fit research shows that the degree of match between employees and their positions affects job satisfaction, organizational commitment, and turnover intention (Kristof-Brown et al., 2005). If employees remain in positions that do not fully match their abilities and development directions for a long time, they are prone to feelings of limited growth and inefficient fit, which lowers job satisfaction and increases the tendency to leave.

Finally, insufficient motivation and career development support. Some Chongqing companies still use relatively unified salary, benefits, and promotion systems, making it difficult to meet the differentiated needs of employees in the post-pandemic era. Some employees feel that the connection between performance appraisal and actual contribution is not close enough, that motivation methods lack flexibility, and that career development paths are unclear. Organizational equity research shows that employees' perceptions of distributive fairness, procedural fairness, and interactional fairness influence their work attitudes and behavioral responses (Colquitt, 2001). When employees cannot see future growth opportunities or feel the organization's support for their long-term development, their organizational commitment and willingness to remain tend to decline.

4.MECHANISMS OF AI-DRIVEN HR ANALYTICS AFFECTING EMPLOYEE RETENTION

AI-driven HR analysis does not directly affect employee retention, but rather improves employee experience and resource perception by enhancing the company's ability to identify, match, motivate, and support development, thereby influencing employees' willingness to stay. Based on resource conservation theory, this paper proposes four mechanisms of action.

4.1 Turnover Risk Warning and Early Intervention

AI-driven HR analytics can integrate data such as employee attendance, performance changes, training participation, job changes, satisfaction feedback, and internal communication to identify potential signs of employee turnover risks. For example, recent fluctuations in employee performance, increased leave frequency, reduced participation in training, decreased job adaptation, or decreased satisfaction can all be signs of potential attrition risk. Research on HR analytics suggests that data analytics can help companies predict employee behavior and improve HR decisions (Marler & Boudreau, 2017). Through AI analysis, companies can identify high-risk employees earlier, and HR and department managers can communicate, provide psychological support, adjust jobs, recommend training, or coach career development.

This mechanism helps companies shift from passive responses to proactive retention management. Traditional employee retention management often takes remedial measures only after employees resign, whereas AI-driven HR analytics can move management steps forward. From the perspective of resource conservation theory, early warning of turnover risk can help companies detect employee resource loss signals earlier and reduce further resource loss through intervention (Hobfoll, 1989; Hobfoll et al., 2018)。 For Chongqing enterprises, the sudden departure of key employees may lead to job vacancies, project delays, and unstable production. Therefore, AI-driven attrition risk early warning helps reduce resource losses caused by sudden talent loss and enhances the foresight of employee retention management.

4.2 Person-Job Fit

AI can analyze employees' skills, work experience, performance records, career interests, and job competency requirements to build more accurate job-person matching models. For Chongqing enterprises undergoing digital transformation, job requirements change rapidly, and

the traditional experience-based approach may struggle to adapt promptly to new technologies, new positions, and new business needs. AI-driven job-to-person matching can help companies identify gaps between employee abilities and job requirements, and offer suggestions for job transfers, rotations, or training.

When employees are in positions that better match their abilities and development goals, their job adaptability, sense of achievement, and satisfaction improve. Improving job-person matching not only enhances employee performance but also reduces frustration and resource waste caused by mismatched positions. Existing research shows that the degree of fit between individuals and their positions affects employee attitudes and organizational outcomes (Kristof-Brown et al., 2005). From the perspective of resource conservation theory, person-job matching can reduce the psychological and skill resources employees continuously consume in unsuitable positions, making employees more willing to seek development opportunities within the organization rather than change their situation through resignation.

4.3 Incentive Optimization and Perceived Fairness

AI-driven HR analytics can provide decision support for corporate compensation incentives and benefits allocation by integrating performance data, job contributions, compensation structures, employee preferences, and market compensation information. It is important to emphasize that AI should not directly determine employee compensation or promotion, but rather serve as an auxiliary tool to help managers better understand employee contributions and differentiated needs. Tambe et al. (2019) pointed out that AI has the potential to improve efficiency and predictive capabilities in human resource management, but it also faces challenges such as the complexity of HR issues, limitations in small data, fairness responsibilities, and negative employee reactions. Therefore, the application of AI in incentive management must be combined with managerial judgment and organizational ethics requirements.

In Chongqing enterprises, standardized incentive methods may struggle to meet employees' differentiated needs. AI analysis can help companies design more differentiated incentive packages, such as performance bonuses, training opportunities, flexible work arrangements, promotion support, and personalized benefits. When employees feel that organizational incentives are fairer, more transparent, and better suited to their needs, their sense of

organizational equity and satisfaction increase. Organizational fairness can influence employees' acceptance of management decisions and their work attitude (Colquitt, 2001). Therefore, AI-driven incentive optimization can enhance fairness and satisfaction, reduce resource waste caused by insufficient incentives or unfair distribution, and thereby strengthen employee retention.

4.4 Career Development Support and Organizational Commitment

AI can also be used for employee capability gap diagnosis, training course recommendations, internal mentor matching, career path planning, and promotion preparation support. By analyzing employees' current skills, job requirements, and future development directions, AI systems can provide personalized learning paths and career development suggestions, helping employees clarify their next growth goals. Unlike traditional standardized training, AI-supported career development management places greater emphasis on employees' differentiated needs and long-term development potential.

In the post-pandemic era, employees are increasingly valuing long-term career development and personal employ ability. If companies can use AI tools to provide employees with clear development paths and resources for continuous growth, employees will more likely feel valued by the organization, thereby strengthening organizational commitment. Organizational commitment theory holds that employees' emotional attachment, sustained engagement, and normative identification with the organization influence their willingness to stay (Meyer & Allen, 1991). Recent AI work scenario studies also show that employee collaboration with AI may promote proactive behavior by reducing workload and supplementing cognitive resources (Sun et al., 2025), and generative AI adoption may influence employee outcomes through job reshaping and career commitment (Liu et al., 2025). Therefore, when AI helps employees gain clearer development paths and growth resources, they are more likely to develop stronger organizational commitment and increase their willingness to stay.

5.DISCUSSION AND CONCLUSION

This study develops a mechanism-based framework to explain how AI-driven HR analytics may influence employee retention in Chongqing enterprises in the post-pandemic era. From the perspective of COR theory, the four mechanisms identified in this study-turnover risk warning,

person-job fit, incentive optimization, and career development support-can be understood as processes of reducing resource loss and increasing resource gain. Turnover risk warning helps organizations identify early signs of employee resource depletion; person-job fit reduces resource waste caused by job mismatch; incentive optimization supplements economic resources and strengthens perceived fairness; and career development support enhances growth resources and organizational commitment.

The analysis offers several practical implications for Chongqing enterprises. Rather than implementing AI-driven HR analytics in a comprehensive but fragmented manner, enterprises may adopt a step-by-step approach. Small and medium-sized enterprises can begin with basic employee data integration and turnover risk warning, and then gradually expand to person-job fit analysis, incentive optimization and career development recommendation. In addition, HR professionals and line managers should improve their digital capability so that AI-generated analytical results can be interpreted appropriately and combined with managerial judgment and human concern. In this sense, AI-driven HR analytics should be positioned as a tool for employee support and organizational development rather than as a purely technical monitoring system.

Ethical governance is also essential for the effective application of AI in human resource management. Employee data used in AI-driven HR analytics may include attendance, performance, behavioral signals and even psychological information. Therefore, organizations should clearly define the boundaries of data collection, protect employees' rights to informed consent and privacy, and prevent misuse of sensitive data. Moreover, algorithmic models may reproduce or amplify historical biases related to gender, age, educational background or job category. Studies on algorithmic hiring and evaluation have warned that AI systems may generate bias due to data selection, prediction targets and model design (Raghavan et al., 2020). Accordingly, Chongqing enterprises should establish data governance mechanisms, algorithmic fairness review procedures and human intervention channels. AI should function as a human-centered decision-support tool rather than a substitute for managerial responsibility.

Overall, this study suggests that AI-driven HR analytics can promote employee retention by providing work, economic, psychological and developmental resources to employees. The proposed framework contributes to the understanding of digital talent retention in a regional enterprise context and provides practical insights for Chongqing enterprises seeking to improve

employee retention through AI-enabled HR management. However, the conclusions should be interpreted within certain research boundaries. The study is mainly based on conceptual analysis and contextual observation rather than large-scale questionnaire data or longitudinal evidence. Future research may further test the proposed framework using empirical data from different industries and enterprise sizes. It may also examine the moderating roles of AI trust, privacy concern and perceived algorithmic fairness in the relationship between AI-driven HR analytics and employee retention.

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