



Original Article (Mixed)

Validating the Digital Talent Management Model Using Artificial Intelligence

Elham Alirezazadeh Golzari¹ , Alireza Rousta² , Azadeh Ashrafi³ , Hassan Soltani⁴ 

1- Department of Public Administration, Ki.C, Islamic Azad University, Kish, Iran.

2- Department of Business Management, ShQ.C., Islamic Azad University, Shahr-e Qods, Iran.

3- Department of Public Administration, NT.C., Islamic Azad University, Tehran, Iran.

4- Department of Management, Shi.C., Islamic Azad University, Shiraz, Iran.

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Abstract

The current research aims to validate the digital talent management model using artificial intelligence. The research methodology, considering its objective, is applicable; and in terms of execution, it is mixed (qualitative-quantitative). The statistical population of the research in the qualitative section includes 14 university professors in the field of public management and managers and experts of mining companies, selected by purposive sampling. The statistical population in the quantitative section includes active employees of mining companies, of which 215 individuals were considered based on Cochran's formula, using a random sampling method. Data collection in the qualitative section was derived from semi-structured interviews based on theoretical foundations. The validity of the codes in the qualitative section was confirmed by two independent researchers, and its reliability was confirmed by the Cohen's Kappa coefficient. In the quantitative section, a questionnaire was used. For data analysis, thematic analysis was used in the qualitative section, and SPSS and Lisrel software were used in the quantitative section. As a result of this process, the dimensions of the process functions (automatic screening and decision support tools), job matching (precise matching of jobs and skills, improvement of qualitative assessments), personality trait evaluation (analysis of psychological tests, identification of personality types), educational recommendations (personalized training, intelligent and dynamic training, triple synergy, and educational justice), and prediction of job turnover (job turnover analytical system and preventive diagnosis) were identified. The results of confirmatory factor analysis also indicate the validity of the final conceptual model of the research.

Keywords:

Talent Management,
Digital Talent,
Artificial
Intelligence,
Smart Training,
Automatic Screening

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Corresponding Author: Alireza Rousta

Email: alirezarousta@iau.ac.ir

Extended Abstract

Introduction

Nowadays, with the advancement of technology, traditional talent management processes have become manual, time-consuming, and inefficient. Artificial intelligence (AI) has demonstrated its potential significantly across various sectors and has currently become a strategic tool for improving organizational efficiency (Abraham et al., 2025). With the rapid development of AI, big data, cloud computing, and other tools, traditional talent management methods can no longer meet the development needs of modern organizations. These tools may provide opportunities and challenges for reforming the human resource management system (Sithambaram et al., 2023). Traditional methods cannot objectively and reasonably collect in-depth data on organizational talent. These tools are incapable of accurately managing the analysis and processing of data resources such as the alignment status between talents and positions, and the matching status between talents and their superiors and subordinates. Talent selection, utilization, training and development, and retention, within digital talent pools using traditional methods, are not only unfavorable to the long-term development of organizations and talents but also, to some extent, reduce the enthusiasm of organizational talents (Saini & Tarkar, 2022). Conversely, many researchers have emphasized the transformative potential of AI in reshaping traditional approaches to talent acquisition, development, and retention, highlighting its benefits in improving recruitment processes, such as reducing bias in candidate selection and enhancing predictive analytics for identifying outstanding potential talents. Accordingly, AI simplifies administrative tasks, allowing HR professionals to focus on the strategic aspects of talent management. This is because talents are considered highly valuable resources for organizations to achieve long-term development (Weber et al., 2024). On the other hand, studies show that very few digital talent management models have been presented in this area. For example, the talent attraction and selection model proposed by Kathiravan et al. (2023) can be mentioned. This model optimizes the recruitment and selection process of employees using AI and machine learning algorithms. Talent management systems can automatically analyze resumes and identify the best candidates based on predefined criteria. This approach not only reduces recruitment time and costs but also increases selection accuracy. The AI-based talent development and training model proposed by Kaliannan et al. (2023) also aids in personalizing training and development processes. Given the aforementioned points, the main research question of the current study is: How is the digital talent management model based on artificial intelligence validated?

Theoretical Framework

Talent Management

Talent management is an integrated strategy or system designed to develop processes for recruiting, selecting, and developing individuals, and retaining those with the necessary skills, often examined with a long-term, comprehensive plan in mind (Almaaitah et al., 2020).

Artificial Intelligence

As a branch of computer science, artificial intelligence develops an intelligent machine product that, based on understanding the nature of intelligence, reacts in a manner similar to human intelligence. Research in this field primarily includes image recognition, speech recognition, language processing, expert systems, and robotics (Yanling Shi, 2020).

El Hajal et al. (2025) explored artificial intelligence and the future of talent management in tourism and hospitality. Using scenario planning, they outlined four alternative futures for AI-driven talent management, emphasizing the importance of ethics, continuous learning, and the complementary role of AI.



Kumar & Hariharasudhan (2025) investigated the role of artificial intelligence in recruitment and talent management. Through qualitative interviews, they found that AI can automate resume screening and interview scheduling stages, thereby reducing human biases.

Research Methodology

The research method, considering its objective, is applicable; and in terms of execution, it is a mixed-methods (qualitative-quantitative) approach. The statistical population of the research in the qualitative section includes 14 university professors in the field of public management and managers and experts in mining companies, selected using purposive sampling. The statistical population in the quantitative section includes active employees of mining companies, with 215 individuals determined based on Cochran's formula, using random sampling. Data collection in the qualitative section was based on semi-structured interviews derived from theoretical foundations. The validity of the codes in the qualitative section was confirmed by two independent researchers, and its reliability was confirmed by Cohen's Kappa coefficient. In the quantitative section, data was collected through questionnaires.

Research Findings

Thematic analysis was used to analyze the data in the qualitative section, while SPSS and Lisrel software were used for the quantitative section. As a result of this process, the identified dimensions include dimensions of process functions (automatic screening and decision support tool), job matching (precise job and skill matching, improvement of qualitative assessments), personality trait evaluation (analysis of psychological tests, identification of personality types), educational recommendations (personalized training, intelligent and dynamic training, triple synergy, and educational justice), and prediction of job turnover (job turnover analytical system and preventive detection). The results of the confirmatory factor analysis also indicate the validity of the final conceptual model of the research.

Conclusion

The present research aimed to validate the digital talent management model utilizing artificial intelligence. The results of this study align with findings from Kumar & Hariharasudhan (2025), Kambur & Akar (2022), and others such as Faqihi & Miah (2023), Yazdani & Ahmadi Qajari (2024), Heidary et al. (2023), and El Hajal et al. (2025). Faqihi & Miah (2023) demonstrated that AI-based talent management, employing machine learning and moderating technology theories, leads to better job matching and targeted training.

Based on the results obtained from this research, the following recommendations are proposed:

Other researchers are encouraged to investigate the relationship between the identified dimensions in the current study and other variables, such as attrition intention, digital emotional exhaustion, human capital management, and digital organizational commitment. To enhance the external reliability and generalizability of the proposed model, it is recommended that this model be applied in other private and public companies across various industries, with results presented comparatively. Given that the statistical sample of this study was purposively selected from employees of mining companies, caution and necessary considerations should be taken when generalizing the findings to other organizations, industries, or organizational cultures.