Research on the Efficiency Enhancement of Hospital Human Resource Management under Digital Transformation

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Abstract: *With the rapid development of digital technology, hospitals are facing unprecedented management challenges and opportunities, especially in human resource management. Digital transformation has become a key factor in improving hospital management efficiency, optimizing human resource allocation, and enhancing employee satisfaction. This study aims to explore how digital transformation can promote the improvement of hospital human resource management efficiency, with a focus on analyzing the application and effectiveness of digital technology in recruitment, training, performance evaluation, employee management, and other fields. Through literature review, field investigation, and case analysis, the study found that digital transformation can not only improve the efficiency of hospital human resource management, but also enhance employee participation and satisfaction, which helps hospitals optimize human resource allocation and reduce management costs. In addition, digital transformation provides hospitals with more scientific and accurate management methods through data analysis and decision support. This study provides theoretical basis and practical guidance for hospitals in the process of digital transformation of human resource management, which has important practical significance and application value.*

Keywords: *digital transformation, human resource management, efficiency improvement*

1. Introduction

With the rapid development of information technology and the rapid transformation of the global healthcare industry, digital transformation has become an inevitable choice for modern hospitals to cope with complex challenges. Especially in China, with the deepening of healthcare system reform and the promotion of the Healthy China strategy, hospital management is facing unprecedented pressure. The traditional hospital human resource management model, although ensuring smooth daily operations to a certain extent, has gradually exposed many problems in the face of the era of informatization and intelligence. For example, the low efficiency of the recruitment process, lack of personalized employee training, and lack of transparency in performance evaluation seriously constrain the efficient operation of hospital management and the improvement of service quality. Therefore, how to use digital means to enhance the efficiency of hospital human resource management has become an important issue that urgently needs to be addressed.

Digital transformation refers to the use of advanced information technology and digital tools to improve the overall operational efficiency, management level, and innovation capability of an organization by restructuring management processes, business models, and organizational structures. For hospitals, digital transformation is not only a technological upgrade, but also a comprehensive management innovation. Especially in the field of human resource management, digital means can achieve qualitative leaps in recruitment, training, performance management, employee relations, and other aspects, thereby improving the comprehensive operational efficiency and employee satisfaction of hospitals.

This study aims to explore the mechanism of digital transformation in improving the efficiency of hospital human resource management, analyze its application status and challenges in hospital management, and propose optimization paths and implementation strategies for hospital human resource management under digital transformation. Through in-depth analysis of the profound impact of digital technology on various aspects of hospital human resource management, it is expected to provide theoretical support and practical guidance for hospitals in achieving digital transformation. The

significance of this study lies not only in enriching academic research on digital transformation and human resource management, filling the research gap in the field of digital transformation of hospital human resource management in China, but also in providing hospital managers with a systematic digital transformation plan to help them allocate human resources more efficiently, improve employee satisfaction, and ultimately promote the overall service quality and social benefits of hospitals. This study aims to provide innovative ideas and practical solutions for human resource management in the process of hospital digital transformation, and to provide reference and inspiration for digital transformation in other industries.

2. Literature review

2.1 Overview of digital transformation

Digital transformation refers to the use of digital technology and its derivatives to drive changes in various aspects of an organization's strategy, business processes, culture, and employee behavior, in order to achieve efficiency improvement, business innovation, and value creation [1]. With the rapid development of information technology, digital transformation has become an important trend in the development of various industries worldwide. The application of digital technology is not limited to the Internet and big data, but also involves the combination and comprehensive utilization of artificial intelligence, cloud computing, the Internet of Things, blockchain and other emerging technologies. The widespread application of these technologies has brought fundamental changes to organizational management models, business operations, and employee work styles.

In various organizations such as enterprises and governments, the core goals of digital transformation are usually to improve efficiency, reduce costs, enhance competitiveness, innovate products and services, optimize customer experience, etc. With the deepening of informatization and intelligence, the connotation of digital transformation is gradually expanding, especially in the field of management, where traditional manual operations and paper-based management are gradually transitioning towards automation and intelligence. In this process, enterprises, especially public service industries such as hospitals, rely on digital technology to promote comprehensive upgrading of management and operation models, which has become a key factor in improving overall operational efficiency and sustainable development.

In the healthcare industry, especially in the hospital system, digital transformation is not limited to the modernization of medical equipment, but also includes the digitization and intelligence of hospital management and service processes [2]. For example, the application of digital management tools such as electronic medical records (EMR), hospital information management systems (HIS), intelligent scheduling, and online training has improved the quality and efficiency of medical services. However, the advancement of digital transformation is not achieved overnight. It requires in-depth institutional and cultural changes in the medical industry, updates in management concepts, support from technology platforms, and comprehensive optimization of human resource management.

2.2 Current situation of hospital human resource management

As a non-profit organization serving the public, the core competitiveness of hospitals largely depends on the quality and work efficiency of hospital employees. Hospital human resource management, as a key link supporting the normal operation of hospitals, covers multiple aspects such as employee recruitment, training, performance evaluation, salary management, and employee relations [3]. The traditional hospital human resource management model has certain limitations and drawbacks, which pose challenges to the service quality, employee satisfaction, and sustainable development of the hospital. Firstly, in the recruitment and selection process, hospitals often rely on manual interviews and traditional recruitment channels, resulting in low efficiency and a lack of flexibility and specificity in the recruitment process. In terms of training management, although hospitals attach great importance to continuing education and professional training for medical staff, the content and forms of training are diverse and lack personalized customization, making it difficult to evaluate and track the effectiveness of training. In terms of performance evaluation, traditional evaluation methods are relatively single and often focus too much on workload and basic performance, neglecting the consideration of employees' multi-dimensional qualities such as innovation and teamwork ability. In addition, in terms of employee relationship management, the hospital's management model relies heavily on traditional manual management, and the feedback mechanism for employees is relatively backward, making it difficult to

timely detect and solve their work difficulties and psychological problems. With the continuous deepening of medical reform, hospitals are facing more challenges. The demand for high-quality medical services is increasing day by day, and problems such as conflicts between patients and medical staff, as well as high pressure from hospital management, are constantly emerging. These factors force hospitals to innovate on the basis of traditional human resource management models to improve their management level and overall operational efficiency. Especially with the updating of medical technology and management concepts, the digital transformation of hospital human resource management has become a necessary path to enhance the core competitiveness of hospitals.

2.3 The impact of digital transformation on hospital human resource management

The impact of digital transformation on hospital human resource management is profound and multi-level. By introducing digital technology, hospitals can optimize human resource management processes in multiple aspects, improve management efficiency, enhance management transparency, and ultimately improve the overall operational level of the hospital and employee job satisfaction. Firstly, digital technology has had a significant impact on the recruitment process in hospitals. Through intelligent recruitment platforms and big data analysis, hospitals can more accurately identify and screen candidates who meet job requirements. Traditional recruitment methods often rely on manual screening and interviews, while digital transformation makes the recruitment process more efficient, transparent, and can significantly improve the matching of talents. For example, artificial intelligence can analyze massive resumes and provide candidate recommendations for recruiters based on the actual needs of hospitals, reducing the time cost and judgment errors of recruiters. Secondly, digital transformation has brought revolutionary changes to the training of hospital employees. The application of online learning platforms, virtual training, and intelligent learning tools enables employees to learn professional knowledge and skills anytime and anywhere, especially in the medical field. This flexible and efficient training method is crucial for the continuous development of medical personnel. In addition, through data analysis, hospitals can customize personalized training programs based on employees' learning progress, learning effectiveness, and knowledge mastery, improving the pertinence and effectiveness of training.

In terms of performance management, digital technology provides hospitals with more scientific and comprehensive performance evaluation methods. The performance evaluation system based on big data can evaluate the work performance of medical staff from multiple dimensions, not only focusing on workload and quality, but also integrating multiple dimensions such as patient satisfaction, teamwork ability, and innovative contributions for comprehensive evaluation. This approach ensures that performance evaluation is more objective and fair, avoiding the common subjective biases and incomplete evaluations in traditional performance management. In addition, digital transformation can also strengthen employee relationship management. Through digital platforms, hospitals can establish more efficient communication channels, allowing employees to provide timely feedback on work issues and needs, and managers to respond and handle them quickly. At the same time, data analysis can help hospital management understand employees' emotional state, workload, job satisfaction, etc. in real time, providing more accurate support and care for employees, thereby improving their sense of belonging and work enthusiasm.

3. Hospital human resource management model under digital transformation

Digital transformation is profoundly changing the operation and management of various fields in hospitals, especially in human resource management. Through the application of modern technology, it not only improves management efficiency but also promotes the optimization of the overall operational quality of hospitals. In this process, the application of digital tools and their transformation models and paths have become the core elements driving the transformation of hospital human resource management.

3.1 Application of digital tools

Digital tools are the core of promoting the modernization of hospital human resource management [4]. With the continuous development of information technology, intelligent and automated tools have been widely used in hospital human resource management, improving the efficiency of recruitment, training, performance evaluation, and employee relationship management. The intelligent recruitment system utilizes artificial intelligence and big data to analyze resumes, backgrounds, and past

performance, recommending the most suitable candidates for hospitals, avoiding biases in manual screening, and improving recruitment efficiency. Online learning and training platforms provide flexible learning pathways for healthcare workers, enhancing their professional competence through video courses, online testing, and virtual reality (VR) training. Additionally, the platform can collect data to support personalized career development planning. The digital performance management system relies on big data analysis and cloud computing to collect real-time work data of medical staff, such as patient satisfaction and medical quality, for multi-dimensional performance evaluation. It not only improves the fairness of evaluation, but also helps hospitals discover problems in a timely manner and make improvements. The employee relationship management platform collects real-time feedback and opinions from employees through online surveys and anonymous suggestion boxes, helping hospitals understand their work status, mental health, and career development needs, thereby enhancing employee satisfaction and sense of belonging. The digital labor scheduling and scheduling system, combined with artificial intelligence and big data, optimizes scheduling plans based on employees' working hours, health status, and abilities, avoiding problems of overwork and personnel shortage, and ensuring the efficient operation of hospitals. The application of these digital tools has made hospital human resource management more scientific and refined, and greatly improved the overall operational efficiency of the hospital.

3.2 Models and paths of digital transformation

The success of digital transformation depends not only on the application of technological tools, but more importantly, on choosing the appropriate transformation mode and path. Hospitals should develop clear transformation plans based on their own resources, needs, and development strategies.

The digital integration model improves information flow and collaborative efficiency by integrating various business processes within the hospital. Traditional human resource management is usually decentralized and independent, while the integrated model connects recruitment, training, performance evaluation and other links through digital technology to form a unified management platform, thereby achieving data sharing and system collaboration. For some hospitals with limited resources, a gradual transformation model is more feasible. This model is implemented in stages to gradually promote digital transformation. Hospitals can start with recruitment and training management, gradually introduce intelligent tools, and then expand to areas such as performance evaluation. This method helps to share the pressure of technology and human resources, ensure steady progress, and reduce risks. Digital transformation is not only the task of the technology department, but also requires cross departmental collaboration. In the cross departmental collaboration mode, the hospital will organize a digital transformation team composed of various departments to ensure the integration of technology and operations. For example, the human resources department may focus on digitizing recruitment and employee relations, while the IT department focuses on system security and technical architecture support. By collaborating across multiple departments, the advantages of digital transformation can be maximized.

Flexible innovation paths are also an important aspect of hospital digital transformation. Hospitals should not only rely on existing mature technologies, but also encourage the adoption of cutting-edge technologies such as artificial intelligence, blockchain, and big data. Artificial intelligence can be used for employee performance evaluation, recruitment, and training, while blockchain technology can improve the transparency and security of salary management. Through innovative paths, hospitals can solve practical problems in the short term and gain an advantage in long-term competition. The data-driven decision-making path requires hospitals to optimize human resource management by collecting and analyzing employee data. Through a comprehensive data collection and analysis mechanism, hospitals can understand employee needs, evaluate management effectiveness, make scientific decisions based on data, and improve management efficiency and employee satisfaction.

4. The role of digital transformation in enhancing the efficiency of hospital human resource management

As the challenges faced by the healthcare industry become increasingly complex, the human resource management of hospitals is also increasingly influenced by digital transformation. Digital technology provides a new perspective and solution for hospital employee management, resource allocation, and decision support, significantly improving management efficiency, employee satisfaction, and resource optimization capabilities. By fully deploying digital tools, hospitals can achieve more

precise personnel management, refined resource scheduling, and scientific decision support.

4.1 Improvement of management efficiency

In the traditional hospital human resource management model, processes such as personnel recruitment, training, and performance evaluation often require a lot of manual intervention, and information is often redundant and lagging, resulting in low management efficiency. With the introduction of digital technology, hospitals can achieve automation and digitization of various management tasks through information systems, greatly improving work efficiency. For example, intelligent recruitment systems can automatically screen job applicants' resumes based on job requirements and provide the most suitable candidate recommendations through data analysis; An electronic training management system can help hospitals customize personalized learning plans based on employee needs and work reality, saving time for manual coordination and management. In addition, the hospital's performance evaluation system can also collect real-time data through a digital platform, quickly generate evaluation reports, and effectively avoid the bias and delay caused by traditional manual evaluation. Through these automated and information-based management tools, hospitals can efficiently complete daily human resource management tasks and improve overall operational efficiency.

4.2 Employee satisfaction and retention rate improvement

Employee satisfaction is one of the key factors determining whether a hospital can continue to provide high-quality medical services. With the advancement of digital transformation in hospitals, the work experience and career development of employees have been significantly improved, thereby increasing employee satisfaction and retention rates.

Digital tools enable employees to more easily manage their personal work content. Through the mobile human resources management platform, employees can view their schedules, salary information, vacation records, etc. anytime and anywhere, avoiding the dissatisfaction and troubles caused by information asymmetry in traditional models. In addition, personalized training and career development path recommendations based on data analysis can also help employees plan their careers more clearly, thereby enhancing their sense of belonging and loyalty. In addition, digital transformation enables hospitals to conduct employee performance evaluations more efficiently and enhance employee motivation through precise incentive measures. Through a performance management system, hospitals can fairly and justly evaluate employee performance based on actual performance, avoiding subjectivity and bias in traditional manual evaluations, and increasing employee acceptance of evaluation results and incentive measures. Enhance employees' trust and satisfaction with the hospital, thereby effectively improving employee retention rates.

4.3 Resource optimization and decision support

Digital transformation can not only improve the efficiency of daily management, but also play an important role in resource optimization and decision support. By establishing a comprehensive data management system for all staff, hospitals can real-time grasp the work status, performance data, training records, and other information of employees, thus making more accurate decisions in recruitment, transfer, training, and other aspects.

In terms of resource optimization, hospitals can allocate human resources reasonably through data analysis, avoiding situations of excessive recruitment or shortage of human resources. For example, based on historical data analysis, hospitals can predict the personnel needs of various departments, prepare for recruitment in advance, and avoid excessive work pressure caused by insufficient personnel; At the same time, reasonable job allocation and optimization of personnel configuration can be carried out based on employees' work performance, ability evaluation and other data, thereby improving the overall work efficiency of the hospital. On the other hand, the real-time data support provided by digital transformation can help management make more scientific decisions. Through the human resource management system, hospital leaders can constantly monitor the work dynamics of employees and the personnel structure of departments, providing accurate basis for strategic decision-making. The data analysis system can also combine the hospital's operational situation to predict future human resource needs and provide decision support for the hospital's long-term development.

Digital transformation has not only improved management efficiency for hospitals, but also created

a better work experience for employees, enhancing their satisfaction and willingness to stay [5]. Meanwhile, digital technology, through data analysis and intelligent decision support, has helped hospitals achieve precise optimization of human resources, laying a solid foundation for their long-term development. In the future, hospitals will continue to innovate and optimize in the process of promoting digital transformation, in order to adapt to the increasingly complex medical environment and maintain their competitiveness in the industry.

5. Conclusion

This study aims to explore the role of digital transformation in improving the efficiency of hospital human resource management, analyze the application of digital technology in hospital human resource management, and its specific impact on management efficiency, employee satisfaction, and resource optimization. Through reviewing relevant literature and analyzing practical cases, we have drawn the following main conclusions:

Firstly, digital transformation has significantly improved the efficiency of hospital human resource management. By introducing information management tools such as intelligent recruitment systems, electronic training management platforms, and performance evaluation systems, hospitals can achieve automation and informatization of various management tasks, thereby reducing manual intervention, improving work efficiency, and reducing management costs. Secondly, digital transformation has a positive effect on improving hospital employee satisfaction and retention rates. Through digital platforms, employees can easily access personal information and participate in career development planning. Hospitals can also enhance employees' sense of belonging and loyalty through data-driven personalized training and incentive mechanisms. A more efficient performance evaluation system also allows employees' job performance to be fairly and justly recognized, thereby improving overall employee satisfaction and retention. Finally, the role of digital transformation in resource optimization and decision support cannot be ignored. Hospitals can accurately grasp the dynamics of human resources through real-time data analysis, allocate personnel reasonably, and avoid situations of resource waste and manpower shortage. At the same time, the data-driven decision-making system provides hospital management with more scientific and accurate decision-making basis, helping hospitals achieve sustainable development in complex and changing environments.

Overall, digital transformation has comprehensively improved the efficiency of hospital human resource management, not only optimizing management processes, but also enhancing the work experience of employees and the overall operational level of the hospital. However, the successful implementation of digital transformation relies on the decision support of hospital leadership, continuous innovation of digital technology, and the adaptation and participation of employees. Therefore, in the future, when promoting digital transformation, hospitals need to increase investment in information technology, strengthen employee training and adaptive management, and focus on continuously optimizing digital systems to ensure the continuous improvement of human resource management efficiency, thereby promoting the overall service quality and sustainable development of hospitals.

Acknowledgements

References

[1] Ke Z Y, Yu A. Research Hotspots, Themes Evolution and Development Trends of Digital Transformation: A Bibliometric Analysis Based on CSSCI Data [J]. Journal of Library and Information Science, 2024, (5):54-65.
[2] Chen X Y, Yang J J. On the goals and strategies of hospital digital transformation [J]. China Digital Medicine, 2024, (2):30-35.
[3] Du K, Yang X F. Analysis of the development course and construction strategy of hospital human resource management information system [J]. Market Weekly, 2024, (5):17-20.
[4] Liu L N. Planning and Practice of the Digital Transformation of Hospitals [J]. China Public Science, 2024, (5):84-87.
[5] Yao G, Zhang X X. Construction of internet hospital promotes the practice of hospital digital transformation [J]. China Digital Medicine, 2022, (10):13-18.