

Analysis on the information construction of human resource management in public hospitals

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Abstract: Against the backdrop of the rapid development of information technology in human resource management, public hospitals, as a vital component of the healthcare system, face increasingly complex and dynamic management demands alongside intensifying industry competition. The advancement of information technology has become a crucial pathway to improving the efficiency of human resource management, enhancing the core competitiveness of hospitals, and achieving modern hospital governance. However, public hospitals still encounter numerous bottlenecks in the process of implementing information systems. These challenges include insufficient resource allocation, outdated management concepts, and issues surrounding data security and privacy protection. This paper begins by examining the strategic significance and bottlenecks of human resource management informatization in public hospitals. It then conducts an in-depth analysis of key pathways for system development, proposing optimization strategies such as strengthening top-level design, promoting transformations in management philosophy, and enhancing data management practices. These insights aim to provide theoretical references and practical guidance for medical institutions striving to achieve digital transformation in human resource management.

1. Introduction

With the intensification of competition in the healthcare industry and the deepening implementation of national policies promoting informatization, the human resource management (HRM) models of public hospitals are undergoing profound transformation. Traditional HRM approaches, characterized by inefficiencies, fragmented data, and insufficient decision-making support, are increasingly unable to meet the demands of modern hospitals for effective and efficient management. The adoption of HRM informatization, leveraging advanced information technologies, facilitates data sharing, optimizes management processes, and enhances decision-making efficiency, thereby providing robust support for the high-quality development of hospitals. Although research on HRM informatization has gained momentum both domestically and internationally, its application in the unique context of public hospitals remains underdeveloped. On one hand, the healthcare industry's HRM is distinguished by its large workforce, diverse job requirements, and high sensitivity of data, which impose higher demands on informatization efforts. On the other hand, public hospitals face multiple challenges during the implementation process, including resource

allocation constraints, resistance to conceptual shifts, and significant security risks. Therefore, exploring how to tailor HRM informatization pathways to the specific circumstances of public hospitals is not only of substantial theoretical importance but also of significant practical relevance. This paper begins by emphasizing the critical importance of informatization in HRM, analyzes the primary bottlenecks and challenges encountered by public hospitals in the construction of HRM informatization systems, and proposes optimized development strategies. The aim is to provide medical institutions with valuable reference frameworks and practical insights for advancing their informatization management practices.

2. The Importance of Human Resource Informationization in Public Hospitals

2.1. The Necessity of Enhancing the Efficiency of Human Resource Management

Public hospitals face extensive human resource management (HRM) tasks in their daily operations, including recruitment, training, performance evaluation, and other critical processes. Traditional management models, often reliant on manual operations, are characterized by lengthy workflows and cumbersome data processing, making them increasingly inadequate for meeting the efficiency demands of the modern healthcare industry. The adoption of informatization provides a powerful solution by digitally integrating complex HRM processes, enabling the efficient transmission and real-time sharing of data while minimizing human error. The application of modern information technologies significantly reduces repetitive tasks and enhances accuracy in routine operations. For instance, intelligent screening systems in recruitment processes can quickly identify suitable candidates, significantly improving hiring efficiency. Informatization also optimizes resource allocation, making HRM more precise, flexible, and efficient. This not only streamlines administrative tasks but also frees up time and energy for management personnel to focus on enhancing core operational areas. By leveraging these advancements, public hospitals can align their HRM practices with the evolving demands of the healthcare sector, fostering sustainable growth and operational excellence^[1].

2.2. The Strategic Significance of Strengthening the Core Competitiveness of Hospitals

The increasingly competitive landscape of the healthcare industry has positioned talent as a critical determinant of a hospital's overall strength. Informatized management systems provide efficient support for the cultivation and management of medical talent, enabling hospitals to gain a competitive edge. Through digital platforms, hospitals can efficiently record and analyze employees' developmental trajectories, offering data-driven insights for personalized training and career development planning. Furthermore, advanced human resource management systems optimize key processes such as compensation allocation and performance evaluation, enhancing employee satisfaction and fostering a sense of belonging within the organization. Effective recruitment and management of high-caliber medical professionals significantly bolster a hospital's core competencies in areas such as technological innovation and discipline development. In addition, informatization tools empower hospitals to accurately discern emerging trends in the healthcare industry, allowing for timely strategic adjustments to navigate changes in the external environment. By leveraging these capabilities, hospitals not only strengthen their talent management but also enhance their adaptability and resilience, solidifying their position in an increasingly dynamic and competitive market^[2].

2.3. A Critical Path to Achieving Modernized Hospital Governance

Modern hospital governance requires scientific decision-making support and efficient execution capabilities, both of which are significantly enhanced by informatized management systems. Informatization provides a crucial foundation for achieving these objectives by enabling in-depth analysis and utilization of human resource data, thereby equipping hospital management with accurate and actionable decision-making insights. For instance, through advanced data modeling and analysis, managers can gain a comprehensive understanding of personnel distribution, job role demands, and resource allocation, which facilitates evidence-based adjustments and optimization. Additionally, informatization systems support the implementation of flatter organizational structures, reducing the time and complexity associated with hierarchical communication and enhancing overall operational efficiency. In the journey toward modern hospital development, human resource informatization serves not only as a foundational initiative but also as a pivotal tool for realizing scientific management practices. It offers robust technical support for the hospital's long-term sustainability, reinforcing the quality of medical services while enhancing public trust and institutional credibility. As such, the integration of human resource informatization into hospital governance is essential for driving both operational excellence and organizational innovation^[3].

3. Bottlenecks and Challenges in the Informationization of Human Resource Management in Public Hospitals

3.1. Insufficient Resource Investment in Informationization Construction

The construction of human resource management (HRM) informatization requires stable financial support, specialized technical teams, and continuous equipment upgrades—factors that are often areas of weakness for many public hospitals. On one hand, many hospitals have historically focused on enhancing their medical service capabilities, placing insufficient emphasis on informatization initiatives. As a result, resource allocation tends to prioritize immediate clinical needs, leaving inadequate funding for informatization efforts. The procurement and maintenance of hardware, the development and updating of software systems, and the recruitment and training of skilled technical personnel all demand significant financial investment. However, constrained budgets frequently prevent these critical elements from reaching the expected standards. On the other hand, the financial investments in some hospitals' informatization projects lack long-term strategic planning. This often leads to an initial abundance of funds during the early stages of project development, followed by insufficient resources for subsequent operations and maintenance. Such funding shortages not only hinder the system's ability to sustain its intended functionality but also prevent timely upgrades, causing the system's features to fall behind the evolving needs of the hospital. These challenges compromise the overall effectiveness of HRM informatization efforts, limiting the potential to fully integrate modern information systems into hospital management practices and reducing their ability to drive long-term organizational improvements. Addressing these issues requires a balanced approach that prioritizes both short-term implementation and long-term sustainability, ensuring that informatization systems remain adaptable and aligned with the hospital's strategic goals and operational requirements.

In addition to financial constraints, the inadequacy of technical resources presents a significant challenge in the construction of human resource management (HRM) informatization systems. Many hospitals focus heavily on short-term objectives during project initiation, often neglecting the flexibility and scalability of system architecture. This oversight frequently leads to exponentially higher costs in subsequent development phases. Furthermore, the continuity of technical support is often difficult to ensure. After the completion of informatization projects, some hospitals lack

sufficient technical maintenance personnel, making it challenging to address operational issues promptly. This not only disrupts system performance but also diminishes user satisfaction and willingness to utilize the system effectively. The shortage of skilled personnel further exacerbates these challenges. The successful implementation of informatization systems requires specialized technical teams, including developers and operational support staff. However, many public hospitals face difficulties in attracting or cultivating such talent, resulting in suboptimal system performance. In some cases, the disconnect between the constructed system and the hospital's actual needs becomes apparent, further undermining the intended benefits of informatization efforts. Addressing these barriers requires hospitals to adopt a long-term, strategic approach to technical planning, prioritizing the development of adaptable system architectures, sustained investment in technical support infrastructure, and comprehensive talent acquisition and training programs. Without these measures, the effectiveness of HRM informatization remains limited, hindering its potential to drive meaningful improvements in hospital management and operational efficiency^[4].

3.2. Outdated Concepts in Human Resource Management

The traditional human resource management (HRM) philosophies in public hospitals tend to be conservative, resulting in limited acceptance and adaptability toward informatization initiatives. Among some hospital managers, HRM is predominantly viewed as a practice reliant on experiential judgment and manual operations rather than being driven by data and supported by information systems. This mindset often leads to hesitation when confronting informatization efforts, with certain managers exhibiting resistance to the integration of information technology. Their understanding of informatization remains superficial, perceiving it merely as the adoption of a technical system while overlooking its deeper implications for restructuring management models and redesigning operational processes. Such perspectives not only slow the progress of informatization but also hinder the realization of its full potential, limiting the system's capacity to deliver meaningful improvements in efficiency and effectiveness.

At the same time, the acceptance of informatization among frontline employees significantly influences the effectiveness of its implementation. Many employees lack sufficient knowledge of and proficiency in using informatization tools, limiting the system's functionality and utility in actual operations. Some employees even view informatization initiatives with skepticism, perceiving the introduction of such systems as a potential increase in workload or a disruption to established divisions of responsibilities and authority. Additionally, the absence of systematic training programs tailored to informatization in many hospitals exacerbates these challenges. Without adequate training, both managers and employees may experience resistance, rooted in either a lack of technical skills or misaligned perceptions, further hindering the adoption and effective utilization of the system. This issue of outdated mindsets manifests not only in cognitive attitudes but also in practical execution. For example, the implementation of informatization projects often lacks clearly defined management objectives and long-term strategic planning. Consequently, systems may suffer from low utilization rates and fail to realize their intended functions. Furthermore, due to these lagging mindsets, informatization efforts in some hospitals are treated more as "vanity projects" than as substantive initiatives aligned with the hospital's strategic development and human resource management needs. In such cases, the fundamental objectives of informatization are disconnected from the hospital's broader goals, preventing the system from delivering its full, long-term value. This misalignment undermines the potential for informatization to drive meaningful improvements in operational efficiency and strategic resource management, reducing it to a superficial effort rather than a transformative one.

3.3. Issues of Data Security and Privacy Protection

With the advancement of human resource management (HRM) informatization, issues surrounding data security and privacy protection have become increasingly prominent. Public hospitals manage vast amounts of sensitive data, including employees' personal information, salary details, and performance records. Any breach of such data could severely damage the hospital's reputation and erode employees' trust. In practice, some hospitals' informatization systems lack robust security mechanisms, leaving them vulnerable to cyberattacks and data breaches. For example, inadequate encryption measures during data storage and insufficient security monitoring during data transmission make these systems susceptible to exploitation by malware or hackers. Additionally, certain hospitals fail to thoroughly evaluate the technical capabilities and security credentials of their informatization system providers. This oversight results in the adoption of systems with latent vulnerabilities, creating significant security risks in daily operations. Regarding privacy protection, some systems neglect the importance of hierarchical data management and access control during their design phase, leading to improper allocation of operational permissions. Consequently, unauthorized personnel may gain access to sensitive information. Furthermore, due to the absence of comprehensive regulations and oversight measures, instances of data misuse or improper sharing are not entirely avoidable. These issues not only infringe on employees' rights but also expose hospitals to legal risks. Data security and privacy protection have thus emerged as critical challenges in the construction of HRM informatization. These concerns directly impact the credibility of the system and its overall effectiveness, underscoring the necessity for hospitals to address these vulnerabilities proactively and systematically.

4. Optimization Pathways for Human Resource Informationization in Public Hospitals

4.1. Strengthening Top-Level Design and Resource Assurance

The efficient development of human resource management (HRM) informatization requires guidance from a scientifically formulated top-level design, ensuring the overall coherence and sustainability of the initiative through systematic planning. The primary task of top-level design is to define the strategic objectives of informatization and integrate them into the hospital's overall development framework, aligning efforts with key areas such as medical services and operational management. Building upon this foundation, it is essential to segment the initiative into phased tasks, accompanied by detailed timelines and implementation plans, to ensure steady progress and high-quality outcomes. To translate top-level design into actionable results, establishing a cross-departmental coordination mechanism is crucial. This mechanism should enable seamless collaboration among technical teams, human resource departments, and senior management. Regular meetings, progress reports, and issue-resolution sessions should be conducted to identify and address challenges encountered during the implementation process promptly. Such measures are vital to maintaining the momentum and ensuring the effectiveness of the informatization project, fostering its successful integration within the broader organizational structure.

In terms of resource assurance, financial support serves as the foundation. Hospital management must secure funding through multiple channels to ensure sufficient resource allocation across all stages of the informatization process, from hardware procurement and software development to ongoing maintenance. Beyond internal hospital budgets, additional funding sources can include government grants, social capital investments, or technical support from medical alliances, thereby broadening the financial base. Efforts should also be made to actively involve external technical expertise in the construction process. Collaborations with technology firms or research institutions offering mature solutions can enhance resource efficiency. Regarding personnel allocation, it is

essential to establish a professional project management team responsible for overseeing the entire process, from needs assessment to technical implementation, ensuring standardization and efficiency throughout the project lifecycle. Resource assurance further extends to policy support. Hospital management should introduce relevant institutional frameworks to provide organizational backing for informatization efforts. This includes defining clear responsibilities, implementing departmental accountability, and using performance evaluations to motivate active participation across departments. Through the comprehensive strategic planning of top-level design and robust resource assurance, the development of human resource management informatization can progress to a more advanced and sophisticated stage^[5].

4.2. Promoting the Transformation of Management Concepts and Talent Development

The fundamental objective of informatization is to enhance management efficiency through technological means, and the transformation of management philosophies is crucial to achieving this goal. Facilitating this transformation requires senior management to deeply understand the strategic value of informatization, recognizing it not merely as a technical tool but as a vital mechanism for improving the efficiency of human resource management. To this end, internal organizational campaigns and communication initiatives should be conducted to foster a shared understanding of the importance of informatization and cultivate a positive environment conducive to innovation. The transformation of management philosophies also requires empirical validation to enhance its persuasiveness. By selecting specific business units to serve as pilot projects for informatization, organizations can accumulate practical experience, demonstrate tangible outcomes, and gradually shift the perceptions of both managers and employees. This approach lays a solid foundation for the broader implementation of informatization initiatives across the organization.

In practice, the transformation of management philosophies must be closely integrated with talent development. It is essential to design a tiered training program tailored to the needs of different roles, ensuring that managers, technical staff, and general employees alike are proficient in using informatization systems. For key positions, such as core management personnel in the human resources department, training should focus on developing data analysis skills and informatization-oriented management thinking to maximize the system's value. Equally important is the upskilling of frontline employees, for whom simplified and accessible training courses, along with robust technical support, should be provided to lower the barriers to effective system utilization. Beyond internal training, hospitals can benefit from external learning opportunities, such as case studies and experience-sharing platforms, to adopt advanced practices and broaden strategic perspectives. In terms of talent acquisition, hospitals should formulate long-term plans to address existing talent gaps by recruiting high-level informatization experts. This approach will help build a workforce that emphasizes both technical expertise and managerial capabilities. By deeply integrating management philosophy transformation with talent development, the effectiveness of informatization initiatives can be significantly enhanced, ultimately positioning informatization as a core driver for improving the hospital's comprehensive management capabilities.

4.3. Enhancing Data Management and System Security

In the construction of human resource management (HRM) informatization, the accuracy and security of data directly impact the effectiveness of system operations. Therefore, strengthening data management and security measures must be prioritized as a key aspect of optimization strategies. In terms of data management, it is essential to establish scientific mechanisms for data collection and updating to ensure the completeness and real-time accuracy of human resource information. Within informatization systems, data should be managed through a hierarchical and

categorized approach. Different types of data should be assigned appropriate usage permissions based on their level of importance, thereby mitigating the risks of misuse or unauthorized disclosure. Data integration also represents a critical task; by consolidating fragmented data across various departments, centralized resource management can be achieved, significantly enhancing the value and utility of data. In the area of data analysis, the adoption of artificial intelligence (AI) and big data technologies enables in-depth mining of human resource information. These advanced tools can uncover valuable insights, providing more precise and informed support for hospital decision-making processes.

To address security concerns, it is essential to adopt advanced technological solutions and implement stringent regulatory measures. Informatization systems must be equipped with comprehensive encryption functionalities to safeguard data during storage and transmission. Additionally, real-time monitoring and rapid response mechanisms should be established to promptly detect and mitigate potential cyberattacks or system malfunctions. To enhance security, hospitals should collaborate with professional cybersecurity organizations to conduct regular system vulnerability scans and stress tests, ensuring compliance with industry security standards. In system operations, standardized procedures and clearly defined access permissions must be enforced to prevent data breaches caused by human error. Furthermore, the development of robust emergency response plans is indispensable; such plans enable rapid system recovery and minimize losses in the event of unexpected data leaks or system failures. By comprehensively strengthening data management and security measures, hospitals can not only ensure the stable operation of informatization systems but also enhance employees' trust in these systems, thereby fostering deeper integration of informatization practices. Moreover, these measures contribute to improved compliance in human resource management, reducing legal and ethical risks and providing a stronger foundation for the hospital's long-term development.

5. Conclusions

Human resource management (HRM) informatization is a critical tool for public hospitals to achieve modern governance, with its effectiveness directly influencing the hospital's talent competitiveness and overall management capabilities. However, at the current stage, the construction of HRM informatization faces numerous bottlenecks, including insufficient resource allocation, outdated management concepts, and data security risks. Strengthening top-level design and resource assurance can help clarify the direction of development and ensure the efficient execution of key processes. Promoting the transformation of management philosophies and fostering talent development can stimulate internal organizational synergies, thereby enhancing the practical value of HRM systems. Furthermore, reinforcing data management and system security is essential to ensuring the sustainability of informatization efforts and addressing potential risks. The development of HRM informatization in public hospitals is a long-term and complex systemic endeavor that requires the coordinated advancement of technological and managerial innovations. Looking ahead, as information technologies continue to evolve and their application scenarios become increasingly diversified, HRM informatization will play a more significant role in enhancing hospitals' comprehensive capabilities, optimizing the allocation of medical resources, and driving the advancement of the healthcare industry. This process not only addresses the urgent developmental needs of hospitals themselves but also positions HRM informatization as a pivotal component in the digital transformation of the healthcare sector.

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