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Research on an Innovation-Oriented Performance Management Model to Stimulate Talent

Xiao Dong, Zhihui Wang

Organization and Human Resources Department, the First Affiliated Hospital of Wenzhou Medical University, Wenzhou, 325000, China

Abstract: *Against the backdrop of increasingly complex market competition and evolving patient demands in the healthcare industry, the limitations of traditional performance management models in balancing economic efficiency, patient service, and the developmental needs of high-level talent have become increasingly evident. Using Wenzhou Medical University First Affiliated Hospital as a case study, this paper analyzes performance data from 2023 across six categories of positions (including medical, research, nursing, totaling 1089 personnel) to explore the differential impact of an innovation-oriented performance management model on the research enthusiasm of medical talents. Our study finds that the innovation-oriented performance management model, through a synergistic "Capability-Resource-Incentive" mechanism, significantly enhances the transformation of scientific research achievements among highly educated (doctoral degree holders) and high-ranking (full professor/chief physician-level) talents. In fields such as medical and research, leveraging advantages in interdisciplinary collaboration, resource integration, and academic leadership, they lead technological breakthroughs and complex research tasks, confirming the "Matthew Effect" in research management. However, in technically execution-oriented departments like laboratory assistants and nursing, where the nature of work aligns less with innovation goals, research performance did not stratify based on degree or rank, highlighting the limitations of individual incentive models in skill-dependent roles. Based on these findings, the study proposes a dual optimization path: for high-potential departments (e.g., medical, research), strengthen resource allocation bias and academic autonomy; for technically execution-oriented departments, shift towards team collaboration-oriented performance design, stimulating practice-driven innovation through a "research-practice linkage" closed-loop management system.*

Keywords: *Performance Management; Stimulate Talent; Technological Innovation*

1. Introduction

Performance refers to the effectiveness and efficiency with which individuals, teams, or organizations accomplish tasks or achieve goals within a specific timeframe[1]. In the management of modern healthcare institutions, constructing a performance management system is undoubtedly crucial. A clear and quantifiable performance goal system, serving as the cornerstone of management, ensures that every employee deeply understands their responsibilities and expectations, greatly boosting their morale and initiative. By creating a fair and transparent performance evaluation system, it ensures that every employee can fully realize their potential in a just competitive atmosphere, working together to propel the hospital's vigorous development. The performance management system should continuously adjust and optimize in response to societal progress, technological evolution, industrial restructuring, and shifts in employee psychology[2]. At different stages of a hospital's development, we should keenly identify and implement performance management mechanisms suited to each stage, ensuring alignment with the hospital's strategic objectives.

Within this context, performance management is not merely a tool for evaluating employee work; it is also a key factor in attracting and retaining talent. Good performance is often closely linked to compensation and bonuses. Outstanding performance can bring economic rewards to talent while also opening new doors for their career development. This virtuous cycle makes high-performing talent more likely to obtain promotion opportunities within the organization, thereby motivating them to strive continuously in their roles and enhancing their sense of belonging and loyalty to the organization. In a performance-oriented environment, talent can not only access rich training and development opportunities but also find a sense of accomplishment and satisfaction in growth and learning. This positive work experience makes them more aligned with the organization's goals and willing to dedicate

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greater passion and effort. Research shows that talent who experience a sense of accomplishment often exhibit higher job satisfaction, which in turn strengthens their motivation to stay[3]. Effective performance management also fosters a positive work atmosphere, promoting teamwork and communication, and enhancing team cohesion. In such an environment, talent feel not only the support and encouragement from colleagues but also recognition and respect from the organization. This emotional resonance makes them more willing to take root here, reducing the likelihood of turnover. High-performing talent, being valued within the organization, also inspires other employees to learn from them, thereby forming a positive team culture. However, the setting of performance goals needs to align with the personal values of the talent. When employees find that organizational goals align with their own values, their willingness to stay naturally strengthens. Conversely, if performance goals contradict personal beliefs, talent may feel lost and disappointed, ultimately choosing to leave[4]. Furthermore, setting reasonable expectations and goals is crucial. Moderate pressure can motivate talent to continuously improve, while overly high expectations may suffocate them, leading to departure. Regular performance feedback is particularly important. This not only helps talent understand their own performance and areas for improvement but also enhances their trust and loyalty to the organization. Feedback should be two-way. Hospitals should establish good communication channels with talent, allowing them to freely express their thoughts and feelings. This sense of participation can increase employee engagement in their work.

Amidst the rapid development of the healthcare industry, hospitals, as vital providers of medical services, face an increasingly complex market environment and intense competition. Economic efficiency is undoubtedly the foundation for a hospital's survival and development[5]. The traditional hospital-operation-dominated performance management model, focusing on enhancing overall operational efficiency and economic benefits, aims to strengthen the hospital's sustainable development capabilities and ensure financial stability. However, with the awakening of patient self-awareness, the traditional hospital-centered performance management model struggles to meet patients' high expectations for medical services. Conversely, the patient-demand-dominated performance management model places patient needs, expectations, and experience at the core of service design and implementation[6]. Hospitals regularly collect patient feedback to understand changing needs in real-time and adjust service processes accordingly[7]. Although this model can effectively improve patient treatment experiences and enhance patient loyalty to hospital services in the short term, its limitations are also apparent. Excessive focus on patients' immediate needs can easily lead to the neglect of the essential requirements of high-level talent. Consequently, while short-term patient demands are met, the unmet needs of high-level talent make it difficult for the hospital to effectively respond to investments in technological innovation, particularly breakthroughs in complex disease treatments and improvements, hindering greater strides in medical technology advancement and the transformation of scientific research achievements.

The innovation-oriented performance management model refers to a system within an organization's performance management framework that emphasizes technological innovation as the core driver of performance scoring, using the discovery of new phenomena and the invention of new technologies and products as the scoring standard. This management model focuses more on developing and uncovering high-level technical talent, requiring healthcare professionals to transition from executors of medical protocols to pioneers[8]. Linking the transformation and application of scientific research achievements to performance satisfies both patients' demands for treating difficult diseases and the developmental needs of high-level talent. Under this model, hospitals can not only significantly improve the overall quality of medical services but also play an important role in resource allocation, patient satisfaction, and overall hospital competitiveness. By introducing globally top-tier high-tech talent and advanced research platforms and equipment, hospitals can broaden their research horizons, accelerate the transformation and application of research results, elevate their research level, and greatly enhance their comprehensive strength. More importantly, continuous innovation not only helps improve the hospital's medical standards and treatment outcomes but also attracts patients from around the world, promoting international medical cooperation and the expansion of cross-border medical services. As innovative achievements accumulate, hospitals can establish a strong brand effect globally, expanding their visibility and market share, thereby securing a leading position in the international healthcare industry[9]. Therefore, the technology-innovation-driven performance management model can not only improve treatment quality in the short term but also enhance the hospital's core competitiveness in the long term, supporting its sustainable development, attracting more high-end patients, and securing a favorable position in the global medical field[10]. Although this model may not directly address patients' immediate needs in the short term, in the long run, the continuous drive of technological innovation will significantly increase cure rates, solve long-untreated difficult diseases, and provide patients with more reliable and

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sustainable treatment outcomes.

This paper focuses on the differential impact of the innovation-oriented performance management model on talent research enthusiasm, selecting Wenzhou Medical University First Affiliated Hospital as a typical case study. Using a combination of quantitative and qualitative methods, it systematically collected talent performance data from the hospital during 2023 (covering 6 categories of positions including medical, research, nursing, totaling 1089 personnel). Data analysis shows that the innovation-driven performance management model significantly optimized the research output efficiency of highly educated and high-ranking talent but also presented adaptability challenges in some technically execution-oriented departments. The following sections will present empirical results from three dimensions: the incentive effectiveness for highly educated talent, the incentive effectiveness for high-ranking talent, and the heterogeneous response characteristics across departments, to reveal the dynamic mechanism of performance reform on hospital talent development.

2. Experimental Methods

This study primarily employed questionnaire surveys and literature review to collect data, adopting an approach that combines large-scale sampling with qualitative analysis to research this topic. All statistical analyses were performed using IBM SPSS Statistics 27.0.1, and all data provided originated from Wenzhou Medical University First Affiliated Hospital. As the data were non-normally distributed, the Kruskal-Wallis H test was used to compare differences among three or more independent samples, with Bonferroni correction applied for post-hoc pairwise comparisons. Significance levels: $p < 0.05$ denoted by "*", $p < 0.01$ by "**", $p < 0.001$ by "***".

3. Result

3.1 Innovation-Oriented Performance Management Promotes Technological Innovation Among High-Level Talent

The innovation-oriented performance management model, linking technological innovation to performance, demonstrates a significant promoting effect on stimulating the research enthusiasm of highly educated talent. Analysis across different occupational groups such as medical, research, technicians, and pharmacists reveals that after the trial implementation of the innovation-oriented performance management model, doctorate degree holders generally outperformed master's and bachelor's degree holders in research performance. This phenomenon not only reflects the advantage of highly educated talent in research capability but also reveals the potential of the innovation-oriented performance management model in optimizing resource allocation and enhancing research output. In the medical field, the research performance of doctorate degree holders was significantly higher than that of master's and bachelor's degree holders. As the core force of the healthcare system, the research capabilities of medical personnel directly impact medical advancement and the quality of clinical practice[11]. Doctorate degree holders typically possess more systematic research training and deeper professional knowledge, enabling them to achieve breakthrough results in clinical research, disease mechanism exploration, and medical technology innovation[12]. The innovation-oriented performance management model further stimulates the research potential of doctoral talent by providing a flexible research environment, ample resource support, and scientific incentive mechanisms, allowing them to play a greater role in medical research. In the research field, the research performance of doctorate degree holders was also significantly higher than that of master's degree holders. The research field demands high theoretical depth and innovation. Doctorate degree holders, through long-term academic training, possess the ability to conduct high-level research independently[12]. The innovation-oriented performance management model provides doctoral talent with a broad research stage by encouraging interdisciplinary collaboration, supporting frontier research topics, and establishing achievement-oriented assessment mechanisms, enabling them to achieve more breakthroughs in basic and applied research.

In the technician field, the research performance of doctorate degree holders was also significantly better than that of master's and bachelor's degree holders. Technicians, as important drivers of technological innovation, have research capabilities directly related to technological progress and process improvement[13]. Doctorate degree holders excel in areas like technology development, equipment optimization, and process innovation. The innovation-oriented performance management model further enhances their research output by providing platforms and resources for technology transfer. In the

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pharmaceutical field, doctorate degree holders possess significant advantages in drug development, pharmacological research, and clinical trials. The innovation-oriented performance management model provides strong support for their research innovation by optimizing research processes and enhancing reward mechanisms. In summary, the innovation-oriented performance management model significantly boosts the research enthusiasm of highly educated talent through scientific incentive mechanisms and flexible management approaches, particularly evident among doctorate degree holders. This model not only brings higher research output to the organization but also injects strong momentum into promoting innovation and development across various fields. In the future, organizations should further optimize performance management strategies, formulating differentiated incentive measures tailored to the characteristics of talent at different educational levels to fully unleash the potential of various talents and achieve sustainable development in research innovation , as shown in Figure 1.

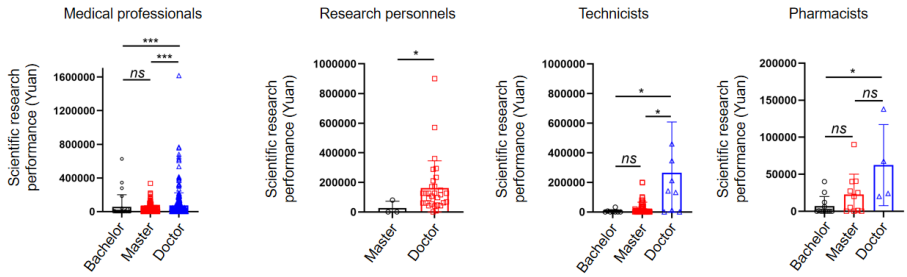

Figure 1: Scientific research performance statistics of medical professionals, research personnel, technicians, and pharmacists by degree type in 2023.

3.2 Innovation-Oriented Performance Management Significantly Promotes the Enthusiasm of High-Ranking Talent

The innovation-oriented performance management model can significantly stimulate the research enthusiasm of high-ranking talent. This effect is fully evidenced across different occupational groups such as medical, research, technicians, and pharmacists. The stratified characteristics of research performance show: primary-ranking personnel generally have the lowest research performance, intermediate-ranking personnel rank third, associate senior-ranking personnel hold the second position, while full professor/chief physician-level personnel stably rank first. This gradient distribution not only highlights the deep correlation between professional rank and research capability but also reveals the precise activating effect of the innovation-oriented performance management model on the innovation potential of high-ranking talent. Taking the medical field as an example, primary medical personnel have the lowest research performance due to heavy clinical workloads, insufficient research experience, and limited resource access. In contrast, full professor/chief physician-level personnel achieve breakthrough results in medical research leveraging rich research experience, extensive academic influence, and efficient resource integration capabilities. The innovation-oriented performance management model further amplifies the advantages of high-ranking talent by providing a flexible research environment, strengthening incentive mechanisms, and optimizing resource allocation, enabling them to play a core leading role in research project design, team collaboration, and achievement translation[14]. A similar pattern is observed in the research field. Primary researchers, limited by immature independent research capabilities, exhibit weaker performance, while full professor-level personnel, relying on profound academic accumulation, extensive research networks, and academic status advantages, consistently produce high-quality outcomes in basic and applied research. The innovation-oriented performance management model creates a more competitive research ecosystem for high-ranking talent by supporting interdisciplinary collaboration, encouraging exploration of frontier topics, and implementing outcome-oriented assessment mechanisms.

In technology-driven fields, the incentive effect of the innovation-oriented performance management model on high-ranking talent is even more significant. Primary technicians have the lowest research performance due to insufficient technical experience and innovation capability, while full professor/chief technician-level technicians achieve breakthroughs in equipment optimization and technological innovation by leveraging outstanding technical R&D capabilities, process innovation experience, and resource integration advantages.

Although senior pharmacists possess deep theoretical knowledge, rich clinical experience, and industry-academia-research collaboration advantages, making them natural innovation cores, data

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indicates that their potential is far from fully unleashed under the new performance system: this may be limited by sample size or suggests that the model still requires iterative optimization. Overall, this model effectively releases the technological innovation potential of high-ranking talent by building technology transfer platforms, strengthening industry-academia-research linkages, and providing specialized resource support. In summary, the innovation-oriented performance management model significantly strengthens the dominant position of high-ranking talent in research innovation through differentiated incentives, resource allocation bias, and capability empowerment. Its mechanism of action manifests in three aspects: firstly, releasing the academic leadership of high-ranking talent through flexible mechanisms; secondly, improving the efficiency of tackling complex research tasks through resource aggregation advantages; thirdly, strengthening their endogenous motivation for continuous innovation through assessment incentives. In the future, organizations need to further deepen performance management reforms, constructing a synergistic "Capability-Resource-Incentive" driven system for high-ranking talent, while optimizing the growth path for primary and intermediate-ranking personnel to form a tiered, sustainable research innovation ecosystem , as shown in Figure 2.

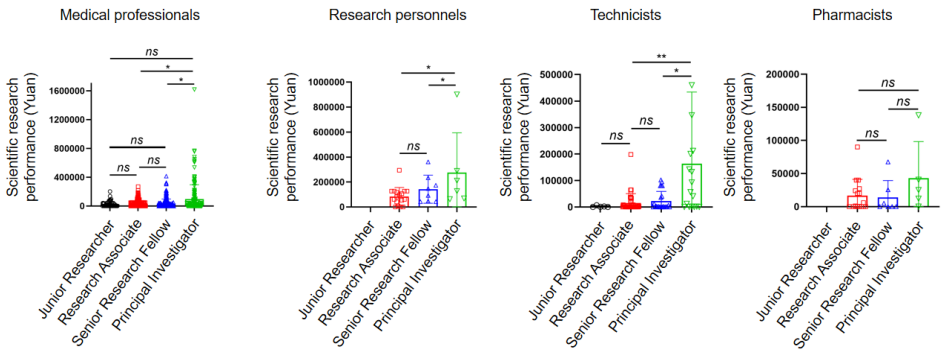

Figure 2: Research performance statistics of medical personnel, research staff, technologists, and pharmacists by professional title category in 2023.

3.3 Some Departments Exhibit Sluggish Response to the Innovation-Oriented Performance Management Model

Although the innovation-oriented performance management model demonstrates significant effects in stimulating the research enthusiasm of highly educated talent and personnel at different rank levels, due to differences in functional characteristics and resource endowments across departments, some departments exhibit a relatively sluggish response to this model. Particularly among laboratory assistant and nursing personnel, research performance did not show significant differences based on degree or rank. Among laboratory assistant personnel, no significant difference in research performance was observed among bachelor's, master's, or doctoral degree holders. This may be related to the nature of experimental work. The primary responsibilities of laboratory assistants focus on technical support, data collection, and experimental operation, emphasizing technical execution rather than innovative research[15]. Therefore, educational level has a relatively limited impact on their research performance. Similarly, no significant difference in research performance was found among primary, intermediate, associate senior, or full senior-ranked laboratory assistants. This may be because experimental work is highly technical and operational; rank level reflects more on work experience and technical proficiency rather than research innovation capability. Thus, rank differences did not significantly affect research performance.

Among nursing personnel, no significant difference in research performance was observed among bachelor's, master's, or doctoral degree holders. The core of nursing work lies in clinical nursing practice and patient care; their research activities typically revolve around nursing technique improvement and nursing management optimization[16]. Educational level has a relatively limited impact on nursing research performance. Furthermore, no significant difference in research performance was found among primary, intermediate, associate senior, or full senior-ranked nursing personnel. This may be because nursing work is highly practical and service-oriented; rank level reflects more on clinical experience and management ability rather than research output capability. Therefore, rank differences did not significantly affect research performance.

This phenomenon indicates that the effectiveness of the innovation-oriented performance management model varies significantly across departments. For groups primarily focused on technical

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execution and practical service, such as laboratory assistants and nurses, educational level and professional rank have a relatively limited impact on their research performance. This may be closely related to their nature of work, functional positioning, and resource acquisition ability. The research activities of laboratory assistants and nurses depend more on team collaboration and resource support than on individual innovation capability. Therefore, the role of the innovation-oriented performance management model in stimulating their research enthusiasm is relatively limited. In the future, when implementing the innovation-oriented performance management model, organizations should fully consider the functional characteristics and resource endowments of different departments. For groups such as laboratory assistants and nurses, more tailored performance management strategies aligned with their actual work should be formulated. For example, by strengthening team collaboration, optimizing resource allocation, and providing targeted research training, their research capabilities and innovation awareness can be further enhanced, thereby promoting the overall improvement of research performance , as shown in Figure 3.

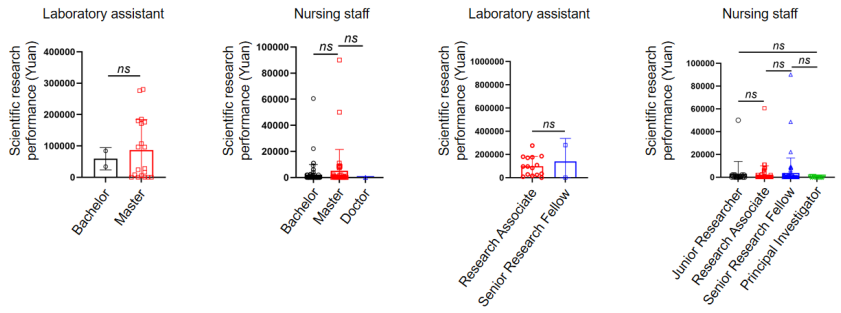

Figure 3: Research performance statistics for nursing staff and laboratory personnel.

4. Discussion

By analyzing the impact of the innovation-oriented performance management model on the research performance of personnel with different educational levels and professional ranks, this study reveals its differential mechanism of action in research management while also exposing the model's applicability limitations in certain departments.

The innovation-oriented performance management model has a significant promoting effect on the research enthusiasm of highly educated talent (especially doctoral degree holders) and high-ranking talent (especially full professor/chief physician-level personnel). This phenomenon is particularly prominent in fields such as medical, research, and technicians. Its core mechanism lies in the synergistic effect of resource integration advantages and capability empowerment. Doctorate holders, leveraging systematic research training and professional knowledge reserves, can more efficiently utilize the interdisciplinary collaboration platforms, frontier topic support, and outcome-oriented incentive mechanisms provided by the innovation model, thereby achieving breakthroughs in basic research and technology application. High-ranking talent, relying on rich experience accumulation, academic leadership, and resource coordination capabilities, play a leading role in complex research tasks. For instance, full professor/chief physician-level personnel in the medical field significantly improve the translation efficiency of medical research by integrating clinical resources and research networks; full professor/chief technician-level talent in the technician field demonstrate the leveraging effect of resource aggregation in technology R&D and process innovation. This indicates that the innovation-oriented performance management model, through its "Capability-Resource-Incentive" integrated design, effectively amplifies the research advantages of highly educated and high-ranking groups, confirming the real existence of the "Matthew Effect" in research management.

The study simultaneously found that laboratory assistant and nursing personnel groups exhibited a relatively sluggish response to the innovation-oriented performance management model, with their research performance not stratified by degree or rank. This result reveals the issue of fit between research management strategies and departmental functional characteristics. The core work of laboratory assistants lies in technical execution and data support; their research output relies more on standardized operations than individual innovation capability, hence educational level and rank have limited impact on their performance. Nurses primarily focus on clinical service and practice optimization; their research activities concentrate on nursing technique improvement rather than theoretical innovation, making it

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difficult for individual academic ability to directly translate into research performance. This phenomenon aligns with Resource Dependence Theory: when the core function of a department has low alignment with the preset goals of the innovation model (e.g., theoretical breakthroughs, technological originality), the marginal benefits of the management strategy decrease significantly. Therefore, the effectiveness of the innovation-oriented performance management model is highly dependent on the "innovation weight" and "resource plasticity" of departmental functions.

The practical significance of this study lies in providing organizations with a new management model for optimizing performance management—the innovation-oriented performance management model. Its core is to precisely activate the innovation potential of high-potential talent through a synergistic "Capability-Resource-Incentive" mechanism. Additionally, this study proposes that while activating the innovation potential of high-potential talent, we need to accommodate the adaptability needs of different functional departments. For high-potential departments like medical and research, resource allocation bias (e.g., special funds, cross-institutional collaboration networks) and academic autonomy should be strengthened to support high-risk, high-return innovation projects. For execution-oriented departments like laboratory assistants and nursing, performance design should shift towards team collaboration orientation, stimulating practice-driven innovation by incorporating technical improvements and clinical problem-solving into the assessment system through a "research-practice linkage" mechanism.

This study still has certain limitations. Firstly, the sample coverage of medical units is limited; future research needs to include more units to verify the generalizability of the conclusions. Secondly, it did not deeply explore the moderating effects of contextual factors such as organizational culture and leadership style on the efficacy of the performance management model. Furthermore, the lack of longitudinal data restricts strict verification of causal relationships. Follow-up research could employ mixed-methods approaches, combining longitudinal surveys and case comparisons to further reveal the dynamic evolution patterns of the innovation-oriented performance management model in different organizational ecosystems. In conclusion, the innovation-oriented performance management model is not a "universal formula"; its successful implementation requires precise departmental diagnosis as a prerequisite, achieving the transformation of research management from "standardization" to "ecologicalization" through "categorized strategies and dynamic optimization."

5. Conclusion

This study focuses on the dual effects of the innovation-oriented performance management model in medical talent management: On one hand, through a synergistic "Capability-Resource-Incentive" mechanism, the model significantly stimulates the research enthusiasm of highly educated (doctoral degree) and high-ranking (full professor/chief physician-level) talent, promoting their core role in medical research, technological innovation, and achievement translation. In medical and research fields, highly educated talent achieve technological breakthroughs leveraging interdisciplinary collaboration platforms and frontier topic support, while high-ranking talent lead complex research tasks by virtue of academic leadership and resource integration capabilities. On the other hand, departments focused on execution, such as laboratory assistants and nursing, exhibit sluggish response due to insufficient alignment between their work nature and innovation goals. Their research performance lacks stratification based on degree or rank, reflecting the limitations of individual incentive models in skill-dependent positions.

Consequently, a dual optimization path is proposed: For high-potential departments (e.g., medical, pharmacy), strengthen resource allocation bias and academic autonomy; for technically execution-oriented departments, shift towards team collaboration-oriented performance design, stimulating practice-driven innovation through a "research-practice linkage" mechanism that incorporates technical.

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