

ORIGINAL ARTICLE



Evaluating Incentive Strategies for Technological Career Anchor Talent in Public Hospitals: An Ecosystem Theory Approach

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Abstract:

Objective: To develop a scientific, standardized, and practical incentive plan for technical talents in public hospitals in China.

Methods: Between April to May 2024, the research team systematically searched both Chinese and English databases for literature on talent incentives in public hospitals. Using a mixed-method research approach, we conducted a systematic review. Guided by ecosystem theory and career anchor theory, a technical talent incentive plan for public hospitals in China was developed and subsequently evaluated by an expert panel.

Results: The expert panel's review showed a positive coefficient of 100%, an authority coefficient of 0.86, and Kendall's W coefficients for the first, second, and third-level indicators of 0.217, 0.200, and 0.192, respectively. The finalized incentive plan consists of three primary indicators (social, organizational, and individual), 14 secondary indicators, and 50 tertiary indicators. The plan was noted for its high level of professionalism, authority, representativeness, and proactivity, with all levels of indicators being well-received by the experts for their importance and feasibility.

Conclusion: The incentive plan for technical career anchors in public hospitals constructed from the perspective of ecosystem theory, exhibits scientific rigor, systematic design, reliability, transferability, specificity, and comprehensiveness. It offers a valuable framework for motivating technical talents in public hospitals across China.

Keywords: Ecosystem theory; Career anchor; Public hospitals; Technical talents; Expert panel; Talent motivation

Introduction

Public hospitals are pivotal in delivering public health services in China and play a central role in safeguarding public health. Medical technical talents, as key resources in hospitals, are essential for high-quality hospital development and are fundamental to achieving the healthy World. Previous research has predominantly focused on innovative and high-level hospital talents, with less emphasis on a systematic study of incentives for medical technical talents[1]. Current incentive models are often simplistic and do not provide a comprehensive system. Yet, optimizing incentive policies for technical talents in hospitals to enhance work efficiency is crucial for the optimal allocation of human resources within these

institutions.

Guided by ecosystem theory and career anchor theory, this study conducts a systematic review of both domestic and international literature on talent management incentive plans in hospitals. Employing a mixed-method research approach, the study assesses and refines findings to develop a preliminary incentive plan for technological career anchor talents in public hospitals. Following a rigorous expert panel review, the final incentive plan for technological career anchor talents in China's public hospitals is established, aiming to offer valuable insights and references for the development of technical talent in Chinese public hospitals.

2. Concepts and definitions

This study employed ecosystem theory and career anchors to develop the incentive plan. Ecosystem theory proposed by scholar Bronfenbrenner in 1979[2], posits that human development is shaped by the ecological environment, encompassing

macro, meso, and micro systems (illustrated in Figure 1). Guided by this framework, this study aims to analyze talent incentive measures in China's public hospitals across three levels: societal (macro), organizational (meso), and individual (micro).

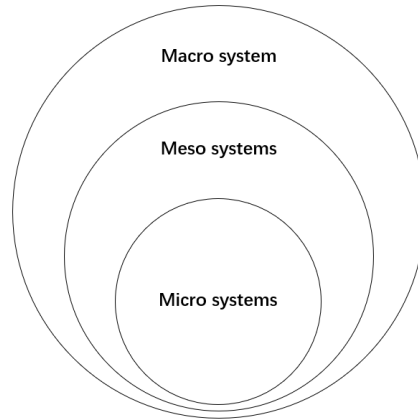


Figure 1 Ecosystem Theory Model

The concept of career anchors was introduced by the prominent American career management researcher, Professor E. H. Schein, in 1978[3]. A career anchor is defined as a long-term career orientation that enables individuals to achieve self-fulfillment and derive satisfaction from their work experiences. Schein identified eight types of career anchors, which are depicted in Figure 2: Technical/Functional Career Anchor, Managerial Career Anchor, Entrepreneurial Creativity Career Anchor, Autonomy/Independence Career Anchor, Security/Stability Career Anchor, Service/Dedication to a Cause Career Anchor, Pure Challenge Career Anchor, and Lifestyle Career Anchor.

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The Technical/Functional Career Anchor specifically relates to individuals who are committed to growth and continuous improvement in their skills within a technical or functional area. They seek opportunities to apply these skills and derive their sense of self-worth from their level of expertise. These individuals thrive on challenges within their field of specialization.

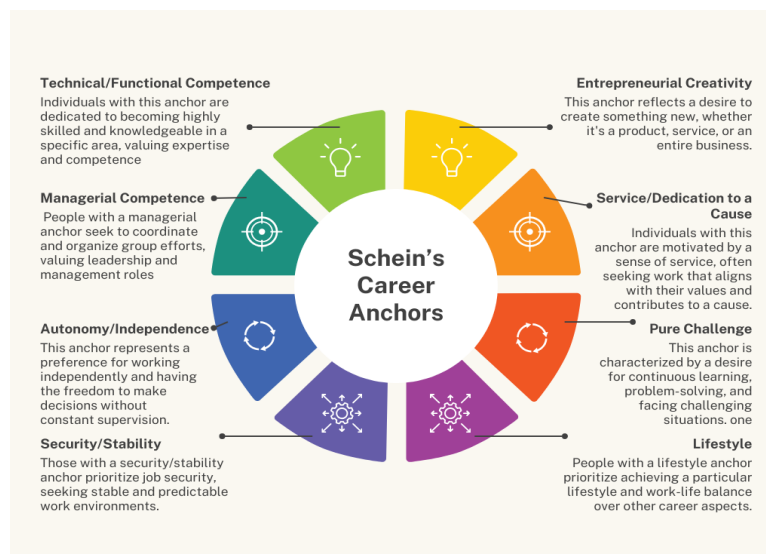


Figure 2 Schein's career anchor model

3. Methods

3.1. Mixed Research Methods

Guided by evidence-based principles, this study employs a Mixed Methods Systematic Review (MMSR) to analyze talent incentive measures in public hospitals[4]. An MMSR involves a comprehensive systematic search of literature addressing a specific research question, incorporating quantitative, qualitative, and mixed studies[5]. This approach includes rigorous quality assessment, analysis, and integration of data to form reliable conclusions.

The literature search covered seven English-language databases: PUBMED, WEB OF SCIENCE, SCOPUS, CINAHL, COCHRANE, EBASE, and PROQUEST, and four Chinese databases: CNKI, Wanfang, VIP, and the Chinese Biomedical Literature Database. The search timeframe extended from the inception of each database to May 2024. Following a multi-stage screening and quality evaluation, low-quality studies were excluded, resulting in a total of 38 articles—17 in Chinese and 21 in English.

This study selected the Bayesian method for conducting the systematic review based on the

research question[6]. The Bayesian method is notable for its emphasis on transforming data from various research approaches into compatible formats, thereby facilitating a comprehensive summary of the evidence. The included studies, spanning qualitative, quantitative, and mixed-methods research, were integrated using the Bayesian approach by converting all quantitative data into qualitative thematic descriptions. This method enabled effective meta-integration, i.e., the conversion of quantitative data into qualitative insights.

Underpinned by ecosystem theory, the mixed-methods systematic review screened the literature, and the Bayesian method was employed to analyze the qualitative descriptions. This process led to the development of an initial incentive plan for technological career anchor talents in public hospitals.

3.2. Structure and Composition of the Initial Incentive Plan for Technological Career Anchor Talents

Table 1. Structure and Composition of the Initial Incentive Plan

Number	Structure
1	Preface
2	Expert Information: Includes details about the experts and the basis for their judgments, specifically their familiarity with the subject matter.
3	Ratings and Revision Comments on the Initial Draft of the Study "Research on the Incentive Plan for Technological Career Anchor Talents in Public Hospitals from the Perspective of Ecosystem Theory": This study involved consulting experts in hospital talent management, including doctors, nurses, medical technicians, logistics staff, and researchers, to ensure the scientific validity and feasibility of the strategy.

3.3. Expert meeting panel

Table 2 Selection Criteria for experts in the meeting panel

Selection Criteria for experts	
1	Professionals whose work involves hospital talent management, including doctors, nurses, medical technicians, logistics staff, and researchers.
2	Holders of a bachelor's degree or higher (excluding initial degrees).
3	Possess a senior professional title (associate senior level or above).
4	Willing to voluntarily participate in this study.

3.3.1. Meeting Agenda

Confirm whether the framework and items of the study "Research on the Incentive Plan for

Technological Career Anchor Talents in Public Hospitals from the Perspective of Ecosystem Theory" are appropriate and determine whether the specific content of each item in the plan

requires further revision.

3.3.2. Implementation Process

The expert meeting was executed using both online and offline methods. The offline component took place in a small conference room within an administrative building located in a city in Shanxi Province. Simultaneously, the online component was facilitated through Tencent Meeting[7]. The steps of the meeting included:

Formation of the Expert Panel: A panel of experts was assembled to provide specialized insights into the development of the incentive plan.

Preparation Before the Meeting: One week prior to the meeting, all necessary materials including the draft of the "Research on the Incentive Plan for Technological Career Anchor Talents in Public Hospitals from the Perspective of Ecosystem Theory" and details of the meeting agenda were emailed to the experts.

Conducting the Expert Meeting: The meeting, which lasted approximately 90 minutes, was led by the project leader. Project team members served as secretaries, responsible for coordination and record-keeping. Additional team members provided on-site services such as technical support for the Tencent Meeting platform and managed the distribution and collection of consultation forms, including collecting electronic forms from online participants. The chairperson introduced the research topic, objectives, agenda, and procedures at the start of the meeting and encouraged active participation to foster a dynamic discussion. The meeting secretary meticulously recorded each expert's contributions, clarifying and confirming details to ensure the accuracy of the information gathered.

Post-Meeting Actions: Following the meeting, the research team consolidated and analyzed the feedback from the experts. They refined and enhanced the draft of the incentive plan based on this expert input. The final version, titled "Research on the Incentive Plan for Technological Career Anchor Talents in Public Hospitals from the Perspective of Ecosystem Theory," was crafted reflecting the collective expertise and suggestions of the panel.

3.3.3. Statistical Methods and Data Analysis

The research team extracted data from each

consultation form in pairs and conducted statistical analysis using SPSS 26.0[8]. General information about the experts was recorded in Excel. The positivity of the experts was represented by the response rate of the consultation forms and the rate at which experts provided feedback. The authority level (Cr) of the experts was calculated as the arithmetic mean of the judgment coefficient (Ca) and the familiarity coefficient (Cs) [9]. A Cr value of 0.7 or higher was considered acceptable, while a Cr value of 0.80 or higher indicated a relatively high level of authority[10]. The coordination level of the experts was assessed using the coefficient of variation (CV) and Kendall's W[11]. A CV value of less than 0.25 indicated relatively consistent coordination among experts, while a Kendall's W value between 0 and 1, with higher values and $P < 0.05$, suggested a higher degree of coordination among experts regarding the proposed plan.

The entropy weight method was employed to determine the weights of the indicators. The selection of indicators was based on a comprehensive consideration of the concentration, dispersion, and coordination of expert ratings. Specifically, indicators with an average importance score greater than 4 and a coefficient of variation less than 0.25 were retained. For indicators with an average importance score greater than 4 but a coefficient of variation of 0.25 or higher, their retention was determined through a combined evaluation of expert feedback and the consensus reached by the expert consultation panel.

3.3.4 Quality Control

This study upheld the principles of representativeness, authority, and professionalism in selecting its panel of experts. A hybrid approach combining online and offline methods was employed for the expert meetings to maximize participation. One week prior to the meeting, consultation materials were distributed via email, providing experts ample time to prepare for the discussion topics. The meetings were led by the project leader, ensuring efficient management and fostering thorough discussions. A designated meeting secretary was responsible for documenting the proceedings, which helped maintain the completeness and accuracy of the records. For data collation and analysis, a dual-review system was implemented, enhancing the

accuracy and reliability of the findings.

4. Results

4.1. General Information of Participating Experts

The meeting included 15 experts, the detailed information are shown in Error! Reference source not found.

Table 3. Information of participating experts

Category	Details
Total Participants	15
Gender Distribution	1 Male, 14 Females
Age Range	29 - 60 years
Work Experience	2 - 40 years
Education Level	7 with Master's or higher degrees 8 with Bachelor's degrees
Professional Titles	10 Senior Professionals 4 Associate Senior Titles
Expertise Breakdown	8 Hospital Management Experts 3 Core Medical Technical Staff 3 Clinical Nursing Experts 1 Administrative Logistics Staff

4.2. Experts' Positivity, Authority, and Coordination

The positivity of the experts was assessed through the response rate of the consultation forms and the proportion of experts providing substantive feedback[12]. During this expert meeting, 15 consultation forms were distributed and all were successfully collected, yielding a 100% response rate, indicating a high level of participation and engagement.

In this study, the judgment coefficient (Ca) was 0.90, and the familiarity coefficient (Cs) was 0.73, resulting in an authority coefficient (Cr) of 0.815. This reflects a high level of authority among the experts, lending strong credibility to their feedback and the meeting's outcomes[10].

The CV values for the rated items were all less than 0.25, suggesting consistent coordination among the experts. Kendall's W was 0.72, with $P < 0.05$, indicating a high degree of agreement and coordination in the experts' evaluations of the incentive plan[11].

4.3. Experts' Suggestions on Modifications to the Incentive Plan

After extensive discussions, all experts agreed that there were no modifications needed for the first-level indicators of the Incentive Plan. However, there are some suggestions regarding the indicators.

Modifications to the Second-Level Indicators

The following suggestions were accepted: Two experts pointed out that the description of "the general public" under the social level was not sufficiently accurate, as it only considered the human factor. They recommended revising it to "social recognition." One expert argued that the work at the individual level was not directly related to talent incentives and suggested removing this item.

Modifications to the Third-Level Indicators

The following suggestions were accepted:

Three experts suggested that the item "hospital staff evaluation and management" could induce pressure rather than serve as an incentive. Additionally, as this item is under the social level, it lacks operational feasibility and may become merely formal. They recommended modifying it to "provide appropriate honors and recognition for medical and healthcare technical personnel, along with preferential treatment in areas such as food, housing, and transportation."

One expert proposed that the three indicators related to "national policy support and emphasis on medical and healthcare personnel (such as fiscal investment ratios and amounts, national policy enforcement, staffing allocations)," "career security policies for medical personnel," and "national government funding programs (such as recruitment subsidies, continuing education

subsidies, salary subsidies for healthcare talents, State Council allowances)" are redundant in meaning and should be consolidated. The expert suggested merging them into one indicator: "national policy support and emphasis on medical and healthcare personnel (fiscal investment ratios and amounts, career security policies, and economic subsidies and allowances for medical personnel)."

Two experts suggested changing "available continuing education/advanced study/education loans" to "provide financial support for continuing education/advanced study."

One expert recommended modifying "risk-based remuneration for special technical positions" to "set special position allowances."

One expert suggested removing the item "evaluation and supervision," as it belongs more appropriately to a third-level indicator under hospital operation and management, such as "hospital system standards, efficient management, and a comprehensive evaluation and supervision system."

One expert proposed changing "provide insurance and medical health check-ups" to "offer personalized insurance and health check-ups."

One expert suggested modifying "hospital support for new project technologies" to "provide opportunities and platforms for innovation, encouraging and supporting innovation."

One expert recommended changing "focus on medical quality and patient care, with grassroots managers leading on the front lines" to "focus on medical quality and patient care."

One expert suggested modifying "fair hospital reward system, ensuring equitable distribution of prizes, bonuses, and honors" to "fair hospital reward system."

One expert proposed modifying "points are earned based on education, management, and academic part-time tasks, with corresponding rewards" to "provide corresponding rewards for teaching, management, and academic part-time tasks."

One expert recommended changing "purchase of books and acquisition of work-related materials" to "provide books, courses, and other work materials, with multiple channels and avenues for acquiring professional knowledge."

One expert suggested merging "work autonomy" and "focus on the essential nature of work" into "focus on the essential nature of work, with some autonomy within the scope of industry standards and patient safety."

One expert argued that "having the option to pursue a professional path" and "having a smooth career path with well-planned promotion channels" overlap in meaning and suggested deleting "having the option to pursue a professional path."

One expert pointed out that "engaging in technically challenging work," "being able to use personal talents in work," and "seeking the highest degree of autonomy in executing work" are characteristics of a career anchor and do not belong in the incentive plan, suggesting their removal.

One expert proposed combining "becoming a mentor to newcomers" and "becoming a team leader/teaching staff" into "becoming a team leader/teaching staff/graduate mentor, etc."

One expert suggested combining "sharing professional knowledge" and "re-designing work and providing professional opinions for the industry" into "sharing professional knowledge with both internal and external stakeholders, providing professional advice."

One expert argued that "further learning in professional fields, self-development opportunities, and educational opportunities," "attending professional conferences," and "undergoing professional training" overlap in meaning and recommended merging them into "attending professional conferences, continuing education, and vocational training in the relevant field."

One expert noted that "desiring more facilities, budgets, and resources to perform work better" and "equipment budgets related to technical functions" have overlapping meanings and suggested combining them into "increase the equipment budget related to medical technology."

One expert found that "the right to express superior knowledge and skills" was too vague and recommended removing it.

One expert suggested merging "feedback on work" and "recognition of service quality" into "work feedback and recognition of service

quality."

The following suggestion was not accepted:

An expert suggested that "clear hospital ideals, beliefs, mission, responsibility, and vision" is a macro-level concept and has little impact on technical personnel. However, considering that the hospital's beliefs and mission serve as guidance in talent management, the research team

discussed this and decided not to accept the suggestion, retaining the original item.

4.3. The Incentive Plan(Final Draft)

The research team compiled and organized the opinions and suggestions from all the experts, ultimately forming the final draft of the Incentive Plan with the detailed content presented in **Table 4**

Table 4 Incentive Plan for Technical-Type Career Anchor Talent in Public Hospitals from the Perspective of Ecosystem Theory

first-level indicator	second-level indicator	Third-Level Indicators	Importance weight	Coefficient of Variation	
			($\bar{x} \pm s$)	(%)	
Social Level	National Policy	1. The country elevates the status of healthcare personnel — healthcare workers are seen as comprehensive health guardians, entrusted with the mission of maintaining and promoting public health	4.73±0.59	12.54	
		2. National policy support and emphasis on healthcare personnel (including fiscal investment ratios and amounts, safety policy guarantees, and financial support and subsidies from the government for healthcare personnel)	4.73±0.46	9.67	
	Regional Policy	3. Regional healthcare talent policies are effectively implemented	4.73±0.46	9.67	
		4. Regional hospital staff salary policies are effectively executed	4.93±0.26	5.23	
		5. Implementation of provincial or regional financial recruitment incentive plans	4.6±0.51	11.02	
		6. Regions provide corresponding honors and recognition for healthcare technical personnel, offering advantages in areas such as food, housing, and daily living	4.33±0.62	14.24	
	Social Recognition	7. Public media guide public opinion correctly towards healthcare personnel	4.33±0.72	16.70	
		8. The general public's acceptance and recognition of healthcare workers	4.33±0.90	20.76	
	Organization al Level	Hospital Development Prospects and Management	9. The hospital's ideals, beliefs, mission, responsibility, and vision are clearly defined.	4.27±0.96	22.53
			10. The hospital has a good reputation and image.	4.80±0.41	8.63
		Philosophy	11. The hospital's business development philosophy aligns with the	4.73±0.46	9.67

		professional development direction and self-actualization goals of healthcare personnel.		
Hospital Operations and Management		12. Medical staff have stable and secure jobs.	4.87±0.35	7.23
		13. Human resource allocation is reasonable	4.60±0.63	13.75
		14. Regulations are standardized, management is efficient, and the evaluation and supervision system is well-established.	4.40±0.74	16.75
Participation in Organizational Decision-Making		15. There is an effective communication platform.	4.53±0.64	14.12
		16. Employees participate in the hospital's democratic management and supervision.	4.07±0.96	23.63
Work Environment		17. The hospital has good physical facilities, and the work environment (hospital and office equipment) is safe and comfortable.	4.40±0.83	18.82
		18. Work safety and occupational protection systems are complete and well-equipped.	4.67±0.62	13.23
Organizational Culture and Atmosphere		19. The hospital's culture and goals are clear: it follows a fair, just, and people-centered hospital culture	4.53±0.83	18.39
		20. A positive work and organizational atmosphere is provided, where employees feel respected	4.80±0.41	8.63
		21. Relationships among superiors, colleagues, and between medical staff and patients are harmonious	4.40±0.63	14.37
		22. Opportunities and platforms for innovation are provided, encouraging and supporting innovation	4.67±0.49	10.46
		23. Emphasis is placed on medical quality and patient care.	4.40±0.63	14.37
Performance/Compensation/Benefits		24. The performance evaluation criteria are reasonable (e.g., considering skill level, work experience, overall ability, difficulty of filling vacant positions, and educational level for corresponding salary and benefits). 25. Salary matches the labor value (i.e., considering mental and physical workload, job stress, and corresponding allowances).	4.87±0.35	7.23
		25. Salary matches the labor value (i.e., considering mental and physical workload, job stress, and corresponding allowances).	5.00±0.00	0.00
		26. The hospital's reward system is fair.	4.80±0.56	11.68

		27. Salary and benefits are aligned with external market fairness.	4.53±0.52	11.39
		28. Paid leave	4.27±0.70	16.49
		29. Personalized insurance and health checkups are provided.	4.47±0.83	18.67
		30. Special position allowances, such as for anesthesiologists, healthcare workers in radiation-prone surgical rooms, extended shifts, infectious disease wards, etc.	4.53±0.64	14.12
		31. Benefits promoting employees' healthy lifestyle, including clubs for quitting smoking/weight loss, aerobic exercise/dance/yoga to reduce stress, weight management and control programs, stress management courses, and fitness equipment.	4.27±0.70	16.49
		32. Compensation for teaching, management, and academic part-time roles	4.20±0.77	18.44
		33. Financial support for continuing education and professional development.	4.13±0.74	17.98
Individual Level	Growth Opportunities	34. Increasing technical challenges in new work tasks to measure growth.	4.27±0.88	20.71
		35. Sharing professional knowledge and providing professional advice within and outside the industry	4.13±0.64	15.48
		36. Becoming a team leader/teaching mentor/postgraduate supervisor, etc.	4.40±0.83	18.82
		37. Attending professional conferences, continuing education, and vocational training in their field	4.33±0.62	14.24
		38. Providing books, courses, and other work materials to gain professional knowledge through multiple channels and approaches.	4.20±0.56	13.35
		39. Increasing the budget for medical technology-related equipment.	4.27±0.59	13.91
		40. A smooth career path with a scientifically planned promotion pathway and progression steps.	4.73±0.59	12.54
		Recognition	41. Expanding the scope of work (e.g., undertaking research and teaching tasks).	4.00±0.76
	42. Receiving feedback on work and gaining recognition for service quality.		4.47±0.74	16.64
	43. Gaining more budget, technical support, and participation in high-level decision-making.		4.53±0.52	11.39
	44. Recognition from peers in the same		4.67±0.49	10.46

		field, acknowledging professional skills, knowledge, and experience (with more weight than recognition from the management team).		
		45. Recognition and respect for work from colleagues and valuable experts in the field.	4.80±0.41	8.63
	Work Autonomy	46. Focus on the essential aspects of the work, with a certain degree of autonomy, while adhering to industry standards and ensuring patient safety.	4.27±0.80	18.72
	Sense of Fairness and Job Satisfaction	47. Experience fairness in the workplace.	4.67±0.49	10.46
		48. Feel a sense of fulfillment by utilizing one's skills as an expert.	4.13±0.83	20.17
		49. The compensation and benefits received align with expectations (Expectancy Theory).	4.67±0.49	10.46
		50. Experience a sense of meaningfulness in the work.	4.53±0.52	11.39

5. Discussion

The talent incentive program for technical career anchors in public hospitals developed in this study exhibits high scientific rigor. Career anchors are essentially core self-awareness derived from an individual's deep-rooted self-recognition, becoming indispensable at each stage of career development. This self-awareness often emerges from growth experiences during the early learning process. When individuals find themselves in roles that do not align with their inclinations, this self-awareness guides them toward a more suitable career path, known as their career anchor. Among the eight identified types of career anchors, the technical career anchor focuses on individuals who prioritize growth in technical or functional fields, continuous skill enhancement, and the application of these skills. Medical professionals in hospitals, who predominantly fall into this category, utilize their specialized skills to deliver health services, playing a crucial role in improving public health outcomes.

Motivating technical talent in public hospitals is critical, as their motivation underpins the overall health system's efficacy. Motivation aims to unlock individuals' potential and maximize their initiative and creativity. Scholars define motivation as encompassing all internal conditions, hopes, desires, and drives that propel individuals[13]. It is described as the process that

activates, directs, and sustains behavior towards achieving specific goals[14].

In this study, a mixed-methods approach, employing the Bayesian method, was used to systematically evaluate the elements of the public hospital technical talent incentive program[15]. This approach ensured that the sources of the program items were standardized and comprehensive, undergoing rigorous quality assessments[16]. After consulting experts on the initial draft, the final version of the program, titled "Research on the Incentive Program for Technical Career Anchors in Public Hospitals from the Ecosystem Theory Perspective," was refined based on expert feedback, enhancing its scientific integrity and relevance.

The talent incentive program for technical career anchors in public hospitals developed in this study demonstrates certain reliability and applicability for broader implementation. The number of experts selected for this study meets the requirements of the expert meeting method. The invited experts represent a wide range of fields, including hospital management, medical services, nursing, medical technology, human resources, and logistics, all holding at least an associate senior professional title, with rich experience in hospital talent management. The response rate for the on-site questionnaire during the expert meeting was 100%. Several experts proposed

modifications and suggestions for the public hospital technical career anchor talent incentive program, indicating high levels of expert engagement. The expert authority coefficient in this study was greater than 0.8, suggesting a high level of reliability in the questionnaire results. Additionally, the coordination coefficient of expert opinions was statistically significant, indicating a high degree of consensus among experts.

Moreover, during the selection of specific indicators for the public hospital technical career anchor talent incentive program, modifications were made based on expert feedback, which were further discussed and finalized by the research team, ensuring that the final decisions reflected a broad consensus. This process further guarantees the reliability of the incentive program and its potential for broader application. It can serve as a reference for the incentive programs for technical talent in public hospitals in China.

The talent incentive program for technical career anchors developed in this study is both targeted and systematic. The talent incentive program developed in this study is highly targeted, specifically aimed at motivating technical career anchor talent in public hospitals. For example, the program addresses the unique characteristics of technical career anchors by providing incentives such as sharing professional knowledge, increasing job autonomy, and offering opportunities to provide expert advice. These measures enable technical healthcare workers to find meaning in their work, spark greater interest, and enhance their skill development, ultimately improving work efficiency and boosting job performance[17].

Additionally, this study's program emphasizes the recognition of technical career anchor talent as a means of incentivizing them. For instance, expanding job responsibilities, acknowledging service quality, and receiving peer recognition are all ways to motivate these professionals. While previous research on hospital talent incentives has often focused on higher-level or innovative talents[18-20], this study provides a valuable exploration in the field of technical career anchor talent motivation.

Moreover, guided by the ecosystem theory, the incentive measures developed in this study are

more systematic, encompassing incentives at the societal, organizational, and individual levels. At the societal level, the incentive measures for technical career anchor talent primarily include three dimensions: national policies, regional policies, and social recognition. These measures aim to create a macro-level incentivizing environment for technical career anchors, such as positioning the identity of healthcare workers, financial and recruitment incentives for technical professionals at the national/regional level, and the public's acceptance and recognition of healthcare workers. These factors collectively contribute to fostering a favorable ecosystem for talent on a macro level.

At the organizational level, which is another critical aspect of the talent incentive measures for technical career anchors, the focus is on hospital development prospects, operational strategies, participation in organizational decision-making, work environment, organizational culture, performance, remuneration, welfare, and evaluation and supervision. Organizational-level incentives encompass both economic and non-economic rewards. Economic incentives include reasonable performance evaluation metrics, matching remuneration with labor value, reflecting fairness in the external market, and promoting employee health through welfare programs. These findings are consistent with the research of J. Seitovirta *et al.*[21], which suggests that increasing employee compensation and welfare enhances the effect of incentives.

However, some studies indicate that offering only economic rewards is insufficient; a non-economic reward system must also be established. For example, the results of this study show that hospital development prospects and operational strategies play an essential role in nurturing and caring for talent. A positive cultural atmosphere can, to some extent[22], provide healthcare workers with positive emotional experiences, thus achieving the goal of emotional incentives. Furthermore, research has shown that non-economic rewards can increase nurses' commitment and job satisfaction while reducing turnover rates[23]. Compared to material-based economic incentive systems, non-material incentives can better meet the higher-level needs of organizational members[23].

The incentive measures at the individual level are

a critical component of the technical career anchor talent incentive system. By fulfilling the diverse incentive needs of individuals, these measures stimulate behavioral motivation, maintaining strong work drive and enthusiasm. This, in turn, guides personal behavior towards organizational development, ultimately achieving a win-win situation for both personal and organizational goals[22].

The results of this study show that individual-level talent incentive measures include five secondary indicators: job type, growth opportunities, recognition, work autonomy, and work fairness and satisfaction. The characteristic of technical career anchor talent is the desire to engage in technically challenging work. When they are involved in tasks related to their field of expertise and share professional knowledge, they experience pride in their professional skills[21]. Employees with this type of career anchor seek growth in the technical/functional domain and continuous improvement of their skills, along with opportunities to apply this technology. Their self-recognition comes from their professional competence, and they enjoy facing challenges from their area of expertise.

Therefore, this study suggests that the incentive measures for technical career anchor talent should incorporate challenging tasks into their work types, providing them with opportunities to use their skills, autonomy in decision-making, and timely feedback. Furthermore, offering growth opportunities at the individual level, such as increasing equipment budgets related to technical functions, attending conferences, continuing education opportunities, sharing professional knowledge, and becoming a professional mentor, can effectively motivate technical talent. Research has shown that offering allowances such as travel expenses and research funding is an effective form of academic incentive[24]. This aligns with the intrinsic psychological needs of technical career anchor talent, which involve recognition, appreciation, feedback, and acknowledgment of their performance[25].

Additionally, studies have pointed out that when developing hospital employee reward systems, it is important to consider employees' perceptions of fairness, opportunities to influence their work, and feelings of appreciation[21]. Special attention should be given to the uniqueness of healthcare

personnel incentives, such as tailoring rewards to employees' specific preferences[26].

6. Conclusions

In conclusion, guided by ecosystem theory and career anchor theory, this study utilized a mixed research method with Bayesian analysis to systematically evaluate and identify incentive measures for technical career anchor talent in public hospitals. Reviewed and refined through an expert meeting process, the study developed a comprehensive incentive plan tailored for public hospitals in China. The finalized plan is structured across three levels—social, organizational, and individual—with 14 secondary indicators and 50 tertiary indicators, ensuring high scientific validity, reliability, and scalability. As technical talent forms the cornerstone of public hospital development and plays a crucial role in safeguarding public health, the established incentive measures offer valuable insights and guidance for motivating medical and health talents within China's public hospitals.

This research has successfully formulated the technical career anchor incentive plan. Moving forward, empirical studies will be undertaken to validate the scientific and practical effectiveness of these incentive measures in actual hospital talent management scenarios. These measures will be continuously refined to further enhance the quality of medical services in hospitals.

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