

## Research Article

# Innovative Performance Evaluation Mechanism for Information Talent in Zhuhai

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## Abstract

With the development of information technology, enterprises are facing new challenges and opportunities in talent introduction, training and management. Since the epidemic era, the economy of enterprises in the information field has been severely hit, among which small and medium-sized enterprises are the most seriously affected, and enterprises are facing new challenges and opportunities in talent introduction, training and management. The innovation ability and performance of information talents are crucial to the development of enterprises and society. The rapid development of information technology has put forward higher requirements for the demand for information talents, so it is very important to establish a scientific and effective innovation performance evaluation mechanism for cultivating and selecting excellent information talents. This paper summarizes the research results and experience in the innovation performance evaluation of information talents at home and abroad, analyzes the existing problems of the existing evaluation mechanism, and proposes the Innovative Performance Evaluation Mechanism for Information Talents (IPEMI-Talents), which includes improving the evaluation index system, innovative evaluation methods, The effectiveness of IPEMI-Talents was verified by strengthening the application of evaluation results and improving the fairness and transparency of the evaluation mechanism. The innovation performance evaluation mechanism for information talents is of great significance to improve the innovation ability and comprehensive quality of information talents.

## Keywords

Innovation Performance Evaluation, Evaluation Index System, Evaluation Method

## 1. Introduction

With the rapid development and application of information technology, the demand for information talents is increasing, and they have become an important force in all walks of life. The innovation ability and performance of information talents

are crucial to the development of enterprises and society. However, the state attaches great importance to technological innovation and gives a lot of support. A large number of emerging enterprises are gathered in Zhuhai. Therefore, how to evaluate the innovation performance of information talents has become an urgent problem to be solved.

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## 2. Research Status at Home and Abroad

### 2.1. The Status Quo of Innovation Performance Evaluation of Information Talents at Home and Abroad

Foreign research on talent evaluation mainly focuses on three dimensions of evaluation content [1]: first, it includes cognitive ability, personality traits, strategic thinking, emotional intelligence, behavioral motivation and other potentials; second, including adaptability, learning ability and career aspirations; the third is to include relevant professional knowledge and necessary skills for engaging in scientific research. Domestic research mainly focuses on the construction of evaluation indicators and the selection of methods, such as the performance evaluation method of information talents based on the performance evaluation index system, and the performance evaluation method of information talents based on data mining. In addition, the United States, Germany, and Japan have opened a collaborative innovation model [2-4], and the gathering of enterprises, governments, universities, and other scientific research institutions is conducive to technology transfer and collaborative innovation among each other.

The innovation performance evaluation mechanism of information talents in China has been gradually improved, but it is more inclined to theoretical research and pays more attention to the single data of innovation performance, while foreign research mainly focuses on the innovation and application of evaluation methods, while the innovation performance evaluation mechanism of information talents in foreign countries is more complete and systematic, and is more used in enterprises, and the evaluation of innovation performance is usually associated with the development of information talents [5].

### 2.2. The Innovative Performance Evaluation Mechanism of Information Talents in China

In the past decade, there have been some problems in the research on the utilization and evaluation mechanism of high-end innovative talents in the domestic academic circles, such as convergence of views, lack of sufficient evidence support, lack of systematic, hierarchical and pertinent [6]:

The evaluation index system is not perfect, and there are still some blind spots in the current evaluation index system, such as the evaluation index of the sense of social responsibility and innovation consciousness of information talents is not perfect; the evaluation method is not scientific enough, and the current evaluation methods are mainly interviews, questionnaires, and Case analysis lack objectivity, and is easily influenced by subjective factors; data collection and analysis are not accurate enough, the methods of collection and analysis of evaluation data are not scientific enough, and the accuracy and credibility of data need to be improved; the

application of evaluation results is not sufficient, and there is a lack of support and help for career planning, training, and promotion of information talents; the fairness and transparency of the evaluation mechanism need to be improved, and the evaluation results are easily affected by human factors, and lack fairness and objectivity. The evaluation of the innovation performance of information talents is no exception. The traditional talent utilization and performance evaluation mechanism has been in China for many years, and the traditional thinking restricts the development of the talent mechanism, the talent management system has large loopholes, and the talent incentive mechanism is not effectively implemented, and the overall weakness of the talent training mechanism, the lack of talent guarantee and development mechanism [7]. Therefore, many regions still maintain the outdated concept of utilization and evaluation mechanism of innovative talents [8], and take papers or projects as the only index of talent evaluation [9], which cannot be changed in a short period of time, resulting in the wrong tendency of the utilization mechanism of high-end innovative talents, which also biases the evaluation of the innovation performance of information talents to a single data. In the field of information talent innovation, the evaluation of talent innovation performance is often not comprehensive and objective, and the importance of the future development of innovative talents has not been recognized.

## 3. Innovation Performance Evaluation

### 3.1. Evaluation Index System

In order to evaluate information innovative talents in a diversified and comprehensive manner, the talent evaluation index system should include the following aspects in the innovation performance evaluation mechanism for information talents [10, 11]:

1) Professional skills, including indicators of professional knowledge, skills and experience of information talents, such as academic qualifications, degrees, professional titles, professional skills, etc.

2) Innovation ability: including the indicators of innovative thinking, innovation ability and innovation achievements of information talents, such as scientific research projects, paper publications, patent applications, transformation of scientific and technological achievements, etc.

3) Teamwork ability: including the teamwork ability, communication ability and leadership ability of information talents, such as teamwork projects, team management experience, teamwork ability, etc.

4) Project management ability: including the project management ability, resource management ability and risk management ability of information talents, such as project management experience, project management skills, project management results, etc.

5) Learning ability: including the learning ability, self-development ability and adaptability of information tal-

ents, such as learning results, self-development plans, career planning, etc.

Among them, the evaluation of scientific and technological talents can be mainly divided into two dimensions: personal ability and quality [12], and the selection of indicators is directly and indirectly, and direct evaluation can intuitively reflect the scientific and technological performance of scientific and technological talents.

The following is a further detailed description of the improved evaluation indicators for information talents:

1. Professional skills: For information talents, professional skills are a very important ability. Direct evaluation research can evaluate the professional skill level of information talents by examining their professional skills in practical work, such as the results of completed projects, the efficiency and ability to solve problems, etc.

2. Innovation ability: Information talents need to have innovative thinking and innovation ability to cope with the rapidly changing market demand and technological development trends. Direct evaluation research can evaluate the innovation ability of information talents by examining their innovative performance in practical work, such as the innovative ideas put forward and the innovative projects completed.

3. Teamwork ability: Information talents need to have teamwork ability to complete project tasks with team members. Direct evaluation research can evaluate the teamwork ability of information talents by examining their teamwork performance in actual work, such as communication and collaboration skills with team members and contribution to team goals.

4. Project management ability: Information talents need to have project management ability to ensure the smooth completion of the project. Direct evaluation research can evaluate the project management ability of information talents by examining their project management performance in actual work, such as the formulation and implementation of project plans, the identification and response of project risks, etc.

5. Learning ability: Information talents need to have learning ability and self-development awareness to continuously adapt to the rapidly changing market demand and technological development trends. Direct evaluation research can evaluate the learning ability of information talents by examining their learning performance in practical work, such as participation in training and learning, and the results of self-learning and development.

### 3.2. Evaluation Methodology

In the innovation performance evaluation mechanism for information talents, the iceberg model [10] can be used to evaluate the innovation performance of information talents. The iceberg model is a commonly used management tool to analyze the relationship between the nature of the problem and the superficial phenomenon. In the evaluation of the innovation performance of information talents, the iceberg

model can help the evaluators to understand the innovation performance of information talents more comprehensively, so as to evaluate the innovation ability and performance of information talents more accurately.

At the same time, capital flow enhances the city's scientific and technological influence [13], and it is also found that the flow of innovation factors significantly promotes innovation performance. In this region of high-tech industry innovation performance, capital flow affects the flow of innovation factors, and under certain conditions, there is a substitution relationship between resource input, innovation subjects, and environmental factors in the regional innovation ecosystem, and there are significant spatial differences in driving the innovation performance of high-tech industries [14].

In addition to the flow of capital and innovation factors, different factors at the individual, organizational, and national levels comprehensively stimulate the innovation quality of skilled talents, forming a multi-level influence relationship model [15], which positively affects the innovation quality of skilled talents. The leadership style, internal motivation, work engagement and innovation performance variables at the individual level, as well as the organizational innovation strategy and organizational innovation atmosphere at the organizational level constitute the internal stimulation system of the innovation quality of skilled talents [16]. The variables of policy and law, social culture, knowledge management, finance and public recognition at the national level constitute the external stimulation system of the innovation quality of skilled talents, which provides resource guarantee for the stimulation of the innovation quality of skilled talents.

1. 360-degree evaluation method: obtain comprehensive performance information through multi-faceted evaluation. In addition to the evaluation of the supervisor, it can also include the evaluation of colleagues, subordinates, customers and other related personnel. This approach provides feedback from multiple perspectives to get a more complete picture of an individual's performance.

2. A combination of self-assessment and other evaluation: the individual conducts self-assessment and accepts the evaluation of others. Self-evaluations can give individuals a deeper understanding of their own performance, while self-evaluations can provide external observations and feedback. This approach can promote self-reflection and development in the individual.

3. Result-oriented method: evaluate performance according to the actual results of individuals in innovation projects. You can consider the completion of the project, the quality and effectiveness of the project, etc. This approach focuses on practical results and is a direct reflection of an individual's contribution to the innovation effort.

4. Behavior observation method: evaluate performance by observing the individual's behavior at work. Individual innovation behaviors, teamwork behaviors, learning and development behaviors, etc., can be considered. This method allows for direct observation and assessment of an individual's

performance at work.

5. Performance evaluation interview: Evaluate the individual's innovation performance through face-to-face discussions and exchanges. Regular performance appraisal interviews can be conducted with the individual by a supervisor or a professional evaluator to discuss the individual's innovative work performance, achievements and development needs. This approach can provide a two-way communication and feedback mechanism that promotes individual development and improvement.

6. Project evaluation: Evaluate innovative projects in which individuals participate. The contribution and performance of individuals in the project can be evaluated through project review, project outcome evaluation and project team evaluation.

7. Performance records and files: Establish individual performance records and archives to record individual innovation performance, achievements and development. It can include individual participation in innovation projects, innovation outcomes and professional development.

To ensure objectivity and consistency in evaluations, each indicator needs to have a clear scoring criterion. Here are some example scoring criteria for some metrics:

(1) Publications:

Top journal papers in Class A: 10 points, Category B high-impact journal papers: 5 points; Category C general journal papers: 2 points; Conference Papers: 1 point

(2) Patent authorization:

Invention patent (international patent): 10 points, Invention patent (domestic patent): 5 points, Utility model patent: 3 points, Design patent: 1 point

(3) Project participation and completion:

National key projects: 5 points, Provincial and ministerial projects: 3 points, Municipal projects: 1 point

(4) Technological innovation:

Major technological innovation (industry-leading): 10 points, Significant technological innovation (with industry impact): 5 points, General technological innovation (internal contributions): 2 points

(5) Teamwork and leadership:

Success in leading important projects: 5 points, Playing a key role in a team: 3 points, Active participation in teamwork: 1 point

(6) Personal growth:

Gain an industry-recognised professional qualification: 5 points, Completion of advanced training or degree program: 3 points

Regular participation in professional development activities: 1 point

(7) The strength of the company:

Industry Leader (Global/Domestic Leading): 10 points, Industry leader (with some influence in the industry): 7 points, Industry followers (have a certain market share within the industry): 5 points, Startups (relatively young and have a smaller market share): 3 points

The company strength adjustment factor is a coefficient determined according to the company strength scoring criteria,

and its value should range from 0 to 1. For example, if the company's strength score is 10 points, the adjustment factor is 1, if the company's strength score is 7 points, the adjustment factor is 0.7, and so on. Based on each of the above metrics, make a weight allocation that should be based on the organization's strategic goals and talent development needs.

The final TPS (Total Performance Score) will be a quantitative indicator that comprehensively reflects the innovation performance of information talents. Enter the number or status of each indicator based on the actual situation, and calculate the score based on the scoring criteria and weights. Then, add up the adjusted scores of all metrics to get the overall score. Finally, the level of talent is determined based on the total score.

At the same time, in order to evaluate and grade talents, we can set different scoring ranges to define the innovation performance level of talents. The following is a grading scheme based on the grading of talent evaluation, and the corresponding form template. Talent levels are determined based on evaluation scores.

## 4. Summary

Through the summary and analysis of the evaluation results, the advantages and disadvantages of talents can be discovered, and the basis for enterprises to formulate more targeted talent training plans and provide more accurate career development suggestions. The innovation performance evaluation mechanism for information talents plays an important role in promoting talent innovation and development, and there is still a lot of room and potential for development in the future. Looking forward to the future, the innovative performance evaluation mechanism for information talents needs to be continuously improved and developed. With the continuous progress and application of technology, more intelligent and data-based evaluation methods can be explored to improve the objectivity and accuracy of evaluation results. At the same time, it is also necessary to strengthen the application and transformation of evaluation results, and combine evaluation results with talent training, career development, incentive mechanisms, etc., so as to provide more comprehensive support and help for the growth and development of information talents.

## Abbreviations

IPEMI-Talents	Innovative Performance Evaluation Mechanism for Information Talents
TPS	Total Performance Score

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## Conflicts of Interest

The authors declare no conflicts of interest.

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