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# Research and development management system reform and development direction

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***ABSTRACT.*** *In the research field of China, the current scientific research management mechanism still has certain drawbacks. In order to realize the sustainable development of scientific research in China, this paper is based on the development background of scientific development concept, proposes the reform and development direction of scientific research management mechanism, and realizes people-oriented, Scientific research management reform ideas based on decision-making and classified management in accordance with the law, and promote the sound development of scientific research projects in China.*

***Keywords:*** *research management mechanism; reform; development*

## 0. Introduction

With the in-depth development of science and technology and the substantial increase in investment in science and technology, the drawbacks of China's current scientific research management system have become increasingly prominent, and even become a "bottleneck" that restricts further development. The reform of the scientific research management system is a complex system engineering involving many aspects from micro to macro. This paper mainly puts forward some thoughts and suggestions from the five aspects of resource allocation, government function, project management, evaluation orientation and reward system, combined with the characteristics of basic research.

## 1. The shortcomings of the current scientific research management mechanism

### *1.1 The project execution process management is weak*

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The management of the project execution process is an important part of the daily work of scientific research managers, and is the key link to ensure that the project is completed on time and in a qualified manner. However, there are still cases of re-establishment and light management in scientific research units. On the one hand, due to the substantial increase in the number of research projects in recent years, the source of the project and the diversification of research fields have increased the difficulty of scientific research management. On the other hand, due to insufficient attention from the unit management department and the research group, many managers and researchers of the unit are busy with project establishment, but they lack the necessary tracking and inspection of the implementation of the project, and the acceptance is not standardized, which reduces the quality of scientific research. The issue of project extension is outstanding, and it is not even possible to complete the research content stipulated in the project contract.

### *1.2 Repeated project phenomenon frequently*

Under the current scientific research management system in China, scientific research units can apply for research funding from various channels, including various national science funds[1], scientific planning projects, project establishments of higher authorities and projects of competent departments of various industries, as well as horizontal research with enterprises. There will be duplicate projects for the same project or similar projects.

### *1.3 poor management of research funds*

In order to strive for project approval, the scientific research unit did not formulate a reasonable, feasible and specific budget plan when applying for the project, and promised supporting funds and formalized the formalities. However, after the project was neglected to manage and supervise the expenditures, some funds were used for improper expenditures, and the supporting funds were often not in place. Another extreme situation is that the management of research funds is too strict, and the procedures for reimbursement are complicated, which hinders the scientific research process.

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### *1.4 blindly equipped equipment*

In the implementation process of scientific research projects, there is a widespread problem of blindly purchasing instruments and equipment, and some projects are used for the excessive proportion of equipment purchases. Teaching and scientific research cannot be reasonably shared on instruments and equipment, and some teaching instruments and equipment are idle for a long time. Each research group has relative independence. Even among the research groups of related disciplines, they often use their own instruments and equipment independently, and rarely exchange and cooperate, resulting in a serious waste of limited research funding.

### *1.5 The scientific research results have a poor conversion rate*

The competent department of science and technology is not a user of scientific research results. The identification of scientific research results is often only a form. A large number of scientific research results are idle and cannot be transformed into productive forces to directly serve the society. Some researchers have not paid much attention to improving the level of scientific research after applying for funding, but have been dealing with errands and using some low-end results to identify the results.

## 2. The direction of scientific research management mechanism reform

### *2.1 update scientific research management concept*

Scientific research aims at institutional innovation and mechanism innovation, and promotes knowledge-transformed productivity as the center, and continuously strengthens the modern scientific management concept of people-oriented, market-oriented[2], and property rights. In the process of formulating scientific research development strategy planning, designing scientific research management system, and implementing scientific research management plan, give full play to the leading role of scientific research personnel, take the national, social and market development needs as the starting point of scientific research work, adopt

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humanized management, strengthen scientific research technology and The combination of market economy. Strengthen horizontal cooperation, joint research, and build a scientific research with complementary advantages. Adopt various means to bridge the gap between scientific research and production, and form a multi-level, multi-channel, multi-form consortium and scientific research production cooperation network.

### *2.2 Strengthen the construction of scientific research management team*

In the process of implementing the scientific development concept, the science and technology management team plays an important role in linking up and down. Its construction and development are directly related to knowledge innovation, discipline construction and talent cultivation. Strengthening the construction of scientific and technological management team is an inherent need for the development of scientific research institutions and an important means to enhance the ability of scientific and technological innovation[3]. The main body of science and technology management should be management talents with high comprehensive quality, innovation ability and team awareness. They are not only familiar with business, but also better at coordinated management. Reasonably integrating and deploying scientific research management teams is a key condition for improving management and improving management efficiency. Establish a flexible and diverse talent hiring mechanism, and gather and attract outstanding talents to engage in scientific research management in accordance with the principle of setting up on-demand, open recruitment, and selecting and hiring. A variety of professional combinations take into account the management profession, while considering the gender ratio; based on the comprehensive ability to position, clear responsibilities, fulfill obligations, and build a learning, research-oriented, innovative management cadre team.

### *2.3 Standardized scientific research management system*

Establish a scientific and standardized scientific research management system with specific content, practicality, pertinence and operability, clear responsibilities, scientific evaluation, open and orderly, management norms, and good options in the

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implementation of the project. Work on important aspects such as program formulation[4], plan formulation, file establishment, stage summary, results evaluation, data compilation, report writing, conclusion acceptance and results promotion will be carefully guided and strictly managed to achieve the intended purpose. Establish a complete and systematic scientific research archives management system, provide effective evidence for the application of various types of scientific research projects, results appraisal, and results awards, and serve the discipline construction better.

### *2.4 Sound research and reward mechanism*

The current scientific research reward system has some shortcomings, which can not produce good positive incentives for scientific research work[5]. On the contrary, it will lead to a decline in scientific research level, a decline in scientific research ethics, a waste of valuable research and reward resources, and a damage to the academic atmosphere and the harm of personal scientific research. Extremely serious. The basic research results should be based on their academic value or the substantive promotion of science and technology development, mainly by recognized academic organizations and academic groups to evaluate the rewards; and the application of research results should examine its practical application and promotion, The award is mainly judged by market mechanisms and the like. The authority of a reward should not depend on the administrative level or function of the organization's review department, and the reward should not be excessive. Follow the objective development rules of different types and levels of science and technology, reform the science and technology reward mechanism, so that the basic research results that are widely recognized in the academic world or the application research results that truly withstand the market test are reasonably rewarded and form a correct scientific research orientation.

### *2.5 Advocating green management*

The essence of green management is harmony, including ecological harmony, human harmony and mentality harmony. The unification of three states is the new concept of management in the 21st century and a new mode of innovation

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management. The implementation of green management can adopt four management strategies: democratic management, standardized management, hierarchical management, and people-oriented management. Introducing green management into scientific research management, requiring scientific research managers to take the guidance of sustainable development concept, grasp the connotation of green management and their own responsibilities, and organize and implement various scientific research management work based on long-term development, improve management realm, pay attention to Management art, rational allocation of management resources, innovation system, truly people-oriented, advocating human care, fully mobilize and give full play to the initiative, enthusiasm and creativity of researchers in the management system of equality, mutual assistance and collaboration.

### *2.6 Reform of scientific research evaluation system*

Scientific research evaluation refers to the value evaluation of the scientific research work carried out by scientific research personnel and the scientific research achievements and achievements obtained in this process according to a certain value orientation[6]. With the continuous deepening of the reform of the science and technology system, some of the shortcomings and adverse consequences of the current scientific research evaluation system have seriously affected the development of scientific research. A good scientific evaluation system will guide the healthy development of science and technology, promote social harmony and progress, and a bad evaluation system will make science and technology in an inefficient and chaotic state.

## Conclusion

In short, in order to realize the sustainable development of scientific research projects in China, it is necessary to realize continuous innovation and innovative ideas of scientific research management mechanisms, keep pace with the times, improve the overall scientific research level, and create a good environment for the high-level development of science and technology and the growth of high-quality scientific and technological talents in China.

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