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The Impact of Financial System Construction on the Financial Management of Research Units and Optimization Strategy

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Abstract: This paper analyzes the construction and connotation of the financial system, describes its key impact on the financial management of scientific research units, analyzes the characteristics of scientific research units and the financial status quo, and then puts forward effective strategies to optimize the financial management, which is aimed at helping scientific research units to improve the financial system, enhance the level of financial management, and ensure the smooth progress of scientific research activities.

Keywords: Financial system; Research unit; Financial management; Impact role; Optimization strategy

Introduction

In today's knowledge-based economy, scientific research units, as the main force of scientific and technological innovation, are responsible for promoting social progress and tackling cutting-edge problems. Financial management is the key support for the orderly operation of scientific research units, in which the construction of financial system plays a cornerstone role. A set of sound and appropriate financial system not only regulates the flow and application of funds, but also is closely linked with the development strategy of scientific research units, injecting a constant power for scientific research and innovation.

1. Analysis of the concept and role of the financial system

1.1 Context of the financial system

Financial system refers to a series of rules, procedures and methods formulated within the organization to regulate financial activities and deal with financial relations. It covers many aspects such as financial accounting, budget management, fund collection and payment, cost control, financial reporting, etc., and clarifies the responsibilities and authorities of each link, operation process and standard requirements, and is the action guide of unit financial management.

1.2 The important role played by the financial system in the financial management of the unit

On the one hand, it provides a standardized framework for financial management, ensures the accuracy, comparability and timeliness of financial information, makes the financial data truly reflect the economic situation of the unit, and provides a reliable basis for decision-making. On the other hand, it effectively restrains the behavior of internal personnel, prevents fraud, waste and other irregularities, safeguards the safety and integrity of assets, and maintains the stability of the unit's economic order^[1].

2. Analysis of the characteristics of research units and their financial management status

2.1 Basic characteristics of research units

Scientific research units are characterized by their knowledge-intensive and technological innovation-driven nature. Scientific research projects have a long cycle, high uncertainty, involve the cross-fertilization of multiple disciplines, and have a complex transformation process. At the same time, the professionalization of the talent team is high, the demand for R&D investment is large, and cross-departmental and cross-institutional cooperation is often required.

2.2 Financial Management Requirements and Key Elements for Research Organizations

Financial management requires accurate matching of funding needs of scientific research projects to ensure a continuous and stable supply of funds; flexible response to dynamic changes in scientific research activities and reasonable sharing of costs; and assisting in the commercial transformation of scientific research results to maximize the value of knowledge. The main contents include budgeting and execution of scientific research projects, review and approval of financial reimbursement, registration and management of scientific research assets, and

accounting for the distribution of results and benefits.

2.3 Current status of financial management of scientific research units

At present, the financial management of scientific research units presents a multi-faceted status quo. On the one hand, the budget management problem is more prominent, some research units lack of foresight and precision in budgeting, not fully consider the variables in the cycle of scientific research projects, resulting in a disconnect between the budget and the actual needs of the implementation of the process of frequent adjustments, and the phenomenon of cost overruns is not uncommon. On the other hand, the audit of the rationality of the use of funds is facing challenges. The innovative and flexible nature of scientific research activities makes the expense categories complicated, which makes it difficult for financial personnel to rely on the conventional standards to judge, and is prone to irregular reimbursement, misappropriation of funds and other hidden dangers.

In addition, there are communication barriers between financial staff and researchers, both sides are in different professional fields, financial staff do not understand the details of scientific research, and researchers are not familiar with the financial process, resulting in researchers complaining about the tediousness of financial approvals, and financial staff are worried about the funds out of control, which affects the quality of financial services, and impedes the efficient promotion of scientific research work. At the same time, the informationization construction is lagging behind, the efficiency of financial data processing is low, it is difficult to provide timely and powerful support for management decision-making, and it is impossible to adapt to the rhythm of rapid development of scientific research.

3. The impact of financial system construction on the financial management of research units

3.1 Ensure the rational use and management of research project funds

The fine financial system clarifies the scope and standard of scientific research expenses, from equipment procurement, travel expenses to the issuance of personnel labor costs, are based on evidence, to eliminate unreasonable expenditures, to ensure that the funds flow to the key scientific research links, improve the efficiency of the use of funds, so that the limited funds to play the maximum scientific research efficiency.

3.2 Promote scientific and effective financial decision-making

The collection, collation and analysis of financial information under the institutional standardization are more accurate and efficient, providing quantitative support for decision-making on the establishment, suspension and continuation of scientific research projects, such as through cost-benefit analysis and return on investment measurement, helping the leadership to make precise choices, avoiding blind investment, and optimizing the allocation of scientific research resources^[2].

3.3 Enhance internal control and risk prevention and control capabilities

The complete financial system builds up a closed loop of internal control covering approval, execution and supervision, strengthens the control of key nodes such as contract signing, payment and receipt, material procurement, etc., identifies and warns of potential risks such as capital cut-off, scientific research fraud, loss of achievements, etc., so as to guarantee the sound operation of scientific research units.

4. Promote the construction of financial system, optimize the effective strategy of financial management level of scientific research units

4.1 Develop detailed and specific financial operations manuals

Scientific research units should organize financial experts and scientific research backbones to work on joint research, deeply interpret relevant national financial laws and regulations, closely combine with the unit's project characteristics, organizational structure and past financial problems, and dismantle the financial process. Taking the reimbursement of scientific research project funds as an example, it clarifies the whole steps from the original bills pasting, filling in the reimbursement form, signing at the approval level to submitting it to the financial department; displays the standard forms corresponding to various types of expense reimbursement, and labels the mandatory items and error-prone points; and elaborates on the points of compliance and relevance that the auditing personnel should pay attention to, for example, proof of the relevance of the itinerary in the travel expenses to the scientific research tasks. At the same time, it incorporates actual cases, covering both routine and special cases, so that users can intuitively understand the operational details, which will help the management of research funds to change from "vague and random" to "precise and standardized", and significantly improve the smoothness of the financial process and the accuracy of the implementation rate.

4.2 Strengthening accountability and assessment of system implementation

Scientific research units need to build a complete responsibility system, vertically subdividing the tasks of system implementation into departments, positions and individuals, and horizontally clarifying the persons responsible for each business link, such as the person in charge

of budgeting and the person who audits the expenditure of funds, and so on. Supporting strict assessment program, regular quantitative assessment of system compliance, set "financial compliance index" and other key indicators, covering the budget implementation deviation rate, the frequency of illegal expenditure of funds and other dimensions. For violators, according to the severity of the case to give a warning, performance deduction, administrative sanctions, strict compliance with the system, efficient implementation of the department or individual, in the performance bonus, promotion opportunities, merit assessment on the tilt, to stimulate the staff to maintain the dignity of the financial system of the enthusiasm, so that the system from the wall "down", into the day-to-day scientific research and financial work in every detail! The system will be "down" from the wall and integrated into every detail of the daily scientific research financial work to ensure that the funds are managed in an orderly manner^[3].

4.3 Optimize financial management processes with the help of advanced technology

Introducing big data technology, integrating internal and external massive data resources, mining and analyzing the cost trend of scientific research projects, the efficiency of funding use and other in-depth information, and providing data support for accurate decision-making; cloud computing helps the financial system expand elastically, guaranteeing smooth computing during the peak of scientific research and reducing the cost of local operation and maintenance. Intelligent financial software revolutionizes the traditional process by OCR image recognition and intelligent matching, realizing second entry of bills, automatic classification of expenses, and 720-degree automatic auditing of reimbursement by financial robots, which significantly shortens the business cycle. At the same time, the mobile application allows researchers to submit reimbursements and inquire about the progress anytime and anywhere, and the financial staff to approve remotely, breaking the time and space constraints, so as to drive the reshaping of the financial process with science and technology, make the financial management flexible and agile, and keep up with the pace of scientific research and innovation.

5. Conclusion

To summarize, the construction of financial system is the core driver of financial management of scientific research units, which profoundly affects the efficiency of scientific research funding, the quality of decision-making and the effectiveness of risk prevention and control. In the face of the new situation of scientific research and innovation, scientific research units must be based on their own characteristics, continue to optimize the financial system, strengthen the implementation of the landing, with the help of scientific and technological empowerment, to improve the level of financial management in all aspects, so as to build a solid foundation for the development of the scientific research cause.

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