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The University's Scientific Research Management and it's innovation in the Knowledge-Economic Times

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ABSTRACT. *In the knowledge-economic times the science and technology develop faster and faster, which has brought forward higher request and challenge to the University's Scientific Research Management. This paper researches the problems in concept of management, mechanism and framework of organization, mechanism of appraisement, the invest in management and the culture of management in the University's Scientific Research Management, and gives the advice and solutions, which proves that the University's Scientific Research Management needs innovation.*

KEYWORDS: *knowledge-Economic kimes; scientific research management; Innovation*

1. Introduction

Institutions of higher learning are one of the core forces of scientific and technological innovation. As the base of scientific research, they play an important and irreplaceable role in the social economy. The scientific research in Colleges and universities provides a large number of scientific research results for the society, and is an important source for the government and business circles to develop and apply new technologies and expand new markets[1]. The development of high-tech is based on scientific research in colleges and universities. Universities not only have strong technical reserves, but also have obvious advantages of scientific and technological talents. At the same time, colleges and universities play a role in promoting the cultivation of scientific and technological innovative talents. However, for a long time, there have been a series of problems in the efficient management of scientific research in China, such as backward concept, imperfect system, outdated organizational model and so on. Therefore, in order to promote the development of science and technology, the management institutions of scientific research development in colleges and universities must improve their own concepts, management system, organizational model and other aspects.

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2. Management idea innovation

Teachers and scientific personnel shall submit their own applications for projects, and after obtaining approval from their superiors, they shall set up projects, allocate funds and conduct research. In this way, the research results have many prominent problems in the process of transforming into productive forces. Firstly, the topic is put forward by teachers and researchers on the basis of their own research direction, expertise and cognition. Most of the research focuses on basic research rather than on social and economic development and market demand. Such topics are often divorced from reality[2]. Secondly, some applied research topics are not enough market research, the market is not smooth after entering the market, it is not easy to form a fist product, can not promote the economy and meet the needs of market development.

In order to get rid of this traditional concept of scientific research behind closed doors, universities must make breakthroughs in innovative ideas and innovative models. On the one hand, we should integrate scientific research with economic development, strengthen the links between scientific research management departments the outside world, so that scientific researchers can have a better understanding of the technical needs of the market before they declare their projects. Considering the feasibility of application and transformation of scientific research results, we should integrate scientific research results with market demand, research institutions and industry enterprises, scientific research personnel and social needs, so as to achieve the direct connection and exchange between scientific research topics and market, change the current scientific research achievements of colleges and universities only in the hands of individuals, make them public resources of society and promote science, technology and economy at the same time. Develop and adjust industrial structure to transform scientific and technological achievements into productive forces as soon as possible.

On the other hand, research managers in colleges and universities should strengthen their professional knowledge in transformation of scientific achievements, application and management of intellectual property rights, pay close attention to market demand and development situation, grasp the social environment of scientific and technological work,and carry out their own scientific work, so as to adjust at any time in the work of scientific management and transformation of achievements.

3. Organizational structure innovation

At present, the organizational structure of scientific research management in most colleges and universities adopts the linear function system. That is a kind of organizational structure based on the linear structure and under the leadership of the party committee, which is headed by the headmaster, has corresponding functional departments and implements the combination of the unified command of the headmaster and the participation of the functional departments. Although this single vertical management mode has the characteristics of convenient and fast

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transmission of commands, it makes universities unable to adapt to the needs of rapid changes in the outside society to change or adjust the content and direction of scientific research in time.

In addition, there is a lack of effective means of regulation and cohesion mechanism in the current university system. On the one hand, the scientific resources and achievements between universities and universities, departments within universities, key laboratories and researchers are blocked each other, and the development of interdisciplinary research faces many difficulties. On the other hand, it is difficult for scientific researchers to adapt themselves to the requirements of tackling key problems in contemporary science and technology by relying solely on their own hardware research environment. This not only hinders the academic exchange of scholars in different fields, slows down the development of knowledge, but also is not conducive to the sharing of basic scientific research resources, resulting in unreasonable and wasteful allocation of resources[3].

To change this traditional management mechanism, we need to innovate in the management system and organizational structure, including promoting the innovation of scientific research institutes' entrepreneurship and organizational structure.

3.1 Enterpriseization of scientific research institutions

In order to realize the industrialization of science and technology, university scientific research management should first achieve its own development in the direction of entrepreneurship. It should guide and organize scientific research organizations and institutions within universities to become the main body of the market, and transform the management mode of scientific research institutions into the mechanism of enterprise management. This is an important step to realize the combination of production, learning and research in universities.

3.2 Innovation of Organizational Institutions

Although the linear functional organization has some advantages, it can not meet the requirements of scientific research management in the era of knowledge economy. It is necessary to study and promote a new organizational structure of scientific research management that meets the requirements of development.

Professor F. Tswiki, Department of Astrophysics, California Institute of Technology, USA, has invented an innovative method to solve problems by building a system structure called “Matirix Management Method”. It was promoted as a management method to stimulate innovation now. The “matrix management method” is to form a crisscross matrix of innovative elements with a considerable level in the same field for a certain work goal. Through management, elements and rows are transformed according to certain mathematical laws, thus creating conditions and stimulating innovation. The organizational structure model of scientific research management in universities can draw lessons from this “matrix

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management method". According to the needs of research, researchers are freely assembled, and the school scientific research management department provides financial resources and equipment for research to meet the conditions of research. Horizontally centered on the topic, and vertically centered on the relevant researchers of various colleges and departments, an interdisciplinary research group or key research group is formed to solve the problem. To realize the combination of interdisciplinary, interdisciplinary and interdisciplinary research, make full use of network technology, and realize the innovation of scientific research at the intersection of disciplines.

This matrix system of scientific research management organization structure is conducive to improving the efficiency of scientific research, promoting scientific research innovation, allocating scientific research resources reasonably and efficiently, strengthening exchanges and collaboration among secondary colleges, and cultivating innovative talents of compound type, so as to meet the requirements of scientific research management organization innovation.

4. The evaluation method of achievement is single, and the evaluation mechanism is not perfect enough.

Scientific evaluation is the performance appraisal of scientific and technological personnel in a given period of time. The evaluation results provide a basis for the incentive and competition system of colleges and universities, so as to determine a reasonable distribution of interests. At present, the evaluation of scientific research achievements in colleges and universities mostly adopts the way of evaluation of scientific research achievements, and basically adopts quantitative indicators, such as the amount of scientific research funds, the number of papers in core journals, the number of SCI papers, the number and level of award-winning achievements, etc. The appraisal of scientific and technological achievements, the transformation of scientific and technological achievements and the economic benefits generated are not considered as the contents of the appraisal. This will lead to scientific researchers only attaching importance to the improvement of academic level and despising the application value of scientific research results, subjectively restricting the transformation of results, so that university research results are put on the shelf, resulting in waste of resources and human resources.

How to evaluate the performance of scientists and technicians in different scientific research posts objectively and impartially. It requires constant exploration in practice. Therefore, colleges and universities should establish evaluation systems such as result appraisal, document retrieval, result evaluation, result award and result promotion, and establish objective and quantitative evaluation criteria acceptable to scientific and technological personnel. Achieving the transformation of achievement evaluation criteria from academic criteria to multi-criteria of social economy, that is to say, from the way of establishing projects, appropriating funds, submitting papers and samples, and reporting awards after appraisal to one of the important evaluation criteria. It is necessary to formulate protective and encouraging policies for choosing subjects that are highly risky and meaningful to explore, but can not produce direct

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economic benefits quickly. At the same time, in order to ensure the quality of scientific and technological achievements appraisal, it is advocated that the appraisal of scientific and technological achievements should be carried out after industrialization, and the formal review should be well grasped in the appraisal implementation, so as to reduce the impact of non-objective factors on the evaluation quality, and truly play its role in promoting the creativity, enthusiasm and initiative of scientific and technological personnel. In addition, the evaluation results should be publicized and feedback system, which is not only conducive to the transparency and authenticity of the evaluation, but also conducive to the full communication between the two sides of the evaluation, and promote the virtuous circle of scientific and technological innovation in colleges and universities.

5. Inadequate investment in scientific research management

Insufficient investment in efficient scientific research management is the fundamental reason that restricts the development of scientific research in universities. This includes not only insufficient investment in management funds, but also insufficient investment in efficient scientific research management personnel. In addition to the national key projects, the scientific research funds of colleges and universities are very small, and the management departments have less funds at their disposal. The funds of scientific research management mainly depend on funds allocation, but it is impossible to solve the problem of shortage of funds in scientific research management by funds allocation alone. In addition, facing the economic development, scientific research management institutions in universities are charged with finding market information, pursuing the breakthrough point of knowledge innovation and finding the mechanism for knowledge transformation. These tasks require a large number of staff from management institutions, and these staff should be managerial and managerial talents, so as to ensure the normal development of scientific research work. However, at present, there is a widespread lack of funds for the introduction of talents in universities in China, which leads to inefficiency and seriously hinders the normal development and smooth progress of scientific research management.

First, we should realize the innovation of talent resources input mechanism. Whether it is a management institution or a direct scientific research institution, the input of talents is the first resource. Talents will evolve from the concept of “cost” to the concept of “capital”.

Secondly, the investment in scientific research management should be adjusted to suit the direction of knowledge economy development. It is necessary to make proper allocation in order to make full use of the funds, because the investment of scientific research funds in universities is very limited. However, in order to carry out scientific research management smoothly, scientific research management must pay attention to invest appropriate funds and eliminate the misconception of “light management, emphasis on scientific research”.

Innovation raises new issues for the development of universities and new

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requirements for the construction of national innovation system. The scientific research of universities plays an important role in the national innovation system. In order to carry out scientific research work smoothly in Colleges and universities, the work of scientific research management must adapt to the requirements of the development of the times. All aspects of the work should be carefully studied and innovated and improved.

Reference

[1]Diana Hicks(2011). Performance-based university research funding systems. Research Policy, vol.41, no.2, pp.834.
[2]Auranen O , Nieminen M(2010) . University research funding and publication performance-An international comparison. Research Policy, vol.39, no.6, pp.834.
[3]Torben Schubert(2009). Empirical observations on New Public Management to increase efficiency in public research-Boon or bane? Research Policy, vol.38, no.8, pp.1234.