Research on the Incentive Optimization of Scientific and Technological Innovation in State-owned Enterprises

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Abstract. At present, there are still some shortcomings in the incentive work for state-owned enterprises in science and technology innovation. It is necessary to follow the law of scientific research work, aim at promoting the innovation and development of scientific research work, and proceed from the actual needs of scientific research personnel to optimize the incentive mechanism for scientific research personnel. Adopt economic incentives, honor incentives, environmental incentives and growth incentives to conduct multi-angle, all-round and multi-level incentives for researchers. Do a good job of “combination boxing” to continuously improve the enthusiasm and satisfaction of researchers.

1. Instruction
Since the 18th National Congress of the Party, the Party Central Committee with Comrade Xi Jinping as the core has taken over the overall situation of reform and development, vigorously implemented innovation-driven development strategies, and accelerated the overall innovation with science and technology as the core, taking technological innovation as a strategy to increase social productivity and overall national strength. Support is at the heart of the country’s overall development. Talents, as the promoters and practitioners of innovation, are the foundation and core of technological innovation.

2. Vigorously promote the salary reform of scientific research institutions

2.1. Insured object
First, the distribution of salaries must be tilted towards the core talent shortage. For scientific research units, scientific research personnel are undoubtedly the most important talents who can create value for enterprises. The ability to attract and use the top scientific research talents in the industry not only directly determines the core competitiveness of an organization, but also can critically impact the success of the organization. Therefore, the companies’ salary and incentive resources should be given priority to this part of the staff. It is necessary to give different incentives to different value positions., to ensure the core talent value creation can be reasonably rewarded. In addition, a compensation market benchmarking mechanism should be established, and we should implement special measures and policies for high-end talents, so that top experts can get the highest wages in the group, and make sure that their salary levels can reach and maintain on the industry leading or even global leading level. For the employees on the general and auxiliary positions whose salary level has been reached the market average, their income should not rise or fall.

Second, salary distribution should be tilted toward outstanding performance personnel. Salary is an important manifestation of employees’ labor and contribution value, and one of the main motivations for employees to improve work efficiency and work quality. In general, an appropriate pay gap is more
likely to motivate employees to break out of their potential and make them willing to work harder to get higher pay. Different employees contribute differently to the company. Therefore, it is necessary to accurately reflect the value of each employee to the company through a reasonable salary gap. Make the salary and the employees’ labor proportional to the return, properly open the gap between the struggler and the lazy, so that employees can feel fair and work will be motivated.

2.2. Implement compensation classification management
The first is to further increase the proportion of basic researchers’ stable income. The salary distribution of basic researchers should not only be based on past performance, but also on the scientific research capabilities and contribution potential of researchers. They should be provided with stable long-term guarantees so that they can focus on the scientific research they are engaged in without worrying about life issues. On the one hand, it can further increase the proportion of basic wages, provide the researchers stable basic income security, and provide performance wages as an effective supplement to basic wages. On the other hand, it can appropriately lengthen the assessment cycle, strengthen peer review and exchange feedback in the process, and stabilize their salary on the higher level of the industry, so that they can get rid of the cumbersome process of daily assessment and the economic pressure of daily life, and concentrate on scientific research.

The second is to highlight the applied researchers’ contribution in their compensation. For those who engaged in applied research, technology development and promotion, we should adhere to issues and results orientation, and focus on evaluating technological innovation and integration capabilities, major technological breakthroughs, results transformation benefits, technology promotion effectiveness, and actual contributions to industrial development. Then use these as the basis for determining the salary standard, and implement a certain range of floating wages, so that researchers can actually obtain the transformation benefits of scientific research results, thereby enhancing their motivation and enthusiasm for participating in scientific research and innovation. At the same time, we should build a deferred payment wage system based on capacity contribution, quality orientation and innovation incentives to prevent researchers from stimulating their long-term and major technological innovation activities in order to pursue short-term benefits.

3. Create an excellent scientific research environment

3.1. Building an open and inclusive culture of innovation
The first is to create an academic environment that is equal and free. Researchers should work in an open, vibrant environment. They should have the right to choose their own research questions and should not be subject to outside interference and control during the research process. In addition, scientific research work also requires the cooperation, communication and coordination of researchers. All researchers, regardless of their positions, experience and qualifications, should coordinate and help each other in a relatively equal environment, and encourage everyone to brainstorm. Therefore, state-owned enterprises should further break the administrative system of scientific research units, truly attach importance to scientific research work, respect scientific research rules, care for scientific research personnel, and prevent scientific researchers from carrying out research work according to the instructions and needs of superiors, which make the researchers unable to freely carry out scientific research and exploration. Then effectively promoting innovation and breakthrough of scientific research.

The second is to create a relaxed and inclusive scientific research environment. Some studies actually require a long research cycle and even face the risk of research failure. However, most of the scientific research projects have set relatively strict progress and completion time, and even refined the scientific research results to a fixed time node and included them in the assessment. Scientific researchers who are unable to complete the project research work on time need to go through the complicated project extension procedures, write relevant instructions, and even face assessment. Such demanding requirements have enabled researchers to rush to progress, and the quality of research cannot be guaranteed. State-owned enterprises should establish a tolerant environment for scientific research to
encourage exploration and allow failure. It is necessary to have strategic patience for scientific research. It is not allowed to operate scientific research according to a plan, nor can it be eager to seek success and meet the requirements. It is necessary to allow scientific researchers to explore freely and allow scientific research to fail. Only in this way can researchers dare to think, dare to create, and constantly break through.

3.2. Improve the soft environment for the work of science and technology personnel

The first is to optimize the management system for research funding. The long process of scientific and technological project fund management, the complicated materials required, and the excessive approval links are one of the main reasons for the excessive workload of scientific researchers. The period of scientific research projects are generally long, and it is difficult to accurately predict the expenses of the next few years when project declarations. Many researchers have to work hard to make the actual expenses and budgets during project execution fully correspond to the project. Such a fund management system is not in line with the actual situation of scientific research work, but also encroaches on the time that scientific researchers should be used for scientific research. Therefore, it is necessary to optimize the current rigid management system based on the use of research funds based on prior plans, budgets and approvals, and effectively reduce the burden of scientific researchers.

The second is to increase the technical support of personnel. Faced with increasingly strict regulatory management and inspection audit requirements, all scientific research units have to refine the requirements of financial management and increase the required supporting documents to ensure that the process traces are complete and the responsibilities are clear, thus effectively preventing the risk of financial management. In the case that the workload is difficult to further compress, it is an effective way to reduce the workload of scientific researchers by increasing the professional staff to share relevant work, or to improve the standardization of reimbursement and the level of facilitation through the online reimbursement system.

4. Optimize the talent growth system

4.1. Building an open and inclusive culture of innovation

The first is to further increase the training and exchange opportunities for researchers. At present, the training that researchers can enjoy is mostly the inclusive training organized by the company for scientific researchers. The training content is mostly based on the interpretation of new policies, the related fields of professional knowledge and advanced research results, management capacity improvement, team building and other related content. In addition, due to various restrictions on training funds, training schedules, and participation in training personnel, researchers generally can only passively receive training. Not only are they difficult to choose the right course according to their own needs and interests, but the information they can obtain through training is relatively single and one-way, lacking extensive access to external information and opportunities for multi-party communication.

State-owned enterprises should appropriately increase the training and exchange opportunities of scientific research personnel, and provide policy support for scientific research personnel to participate in external training exchanges.

The second is to further enrich the form of training and exchange of scientific research personnel. At present, the company's training for researchers is mainly focused on lecture-based or lecture-based training. Although such training methods have great advantages in interpreting new policies and imparting new knowledge, the openness and inclusiveness of scientific research requires researchers to passively accept knowledge while instilling multiple voices and actually learning, and integrate their own thinking and innovation. Therefore, researchers need more diverse training methods to meet the needs of different knowledge learning. For new policies, new concepts, and new technologies, centralized science education can be used; for the practical application of policies and technologies, symposiums and seminars can be used to increase understanding; for cutting-edge technology
development, it can be supplemented with on-site visits which will make the researchers more intuitively understand and feel the development and application of technology.

4.2. Optimize the career development channel for scientific researchers

The first is to deepen the reform of the evaluation of talents for researchers. The current professional promotion standards of the company's scientific research personnel are mainly based on hard conditions such as academic qualifications, professional titles, essays and awards, and the evaluation methods are more limited and dogmatic. As a result, researchers have to pay attention to their own performance while carrying out scientific research work. They spend a lot of time in writing papers, awarding materials, and upgrading their academic qualifications, which inevitably imposes a heavy burden on researchers. State-owned enterprises should actively respond to the call of national policies, implement the burden reduction activities of scientific research personnel, and pay more attention to the quality and influence of research results and the economic and social benefits of the results in the evaluation of talents.

The second is to open up barriers between management and technology channels. Although most of the research units have established a two-channel career development mechanism for management and technology, the exchange mechanism of researchers in the two channels is still not perfect. Although the correspondence between the management channels and technical channels of each unit is relatively clear, even if a researcher has a post adjustment, it can accurately map its existing rank to the corresponding rank of another sequence, the correspondence between channels often ignores the difference in promotion conditions between different sequences. Usually, post promotion and talent evaluation are carried out at a relatively fixed time. For a researcher who meets the promotion requirements of the research sequence and is about to be promoted, if he turns to work in the management sequence, he will face the re-accumulation of relevant performance according to the management sequence promotion requirements, which hinders the cross-sequence flow of researchers. Therefore, state-owned enterprises should further clarify the promotion mechanism of scientific researchers after the cross-staff flow, such as leaving a certain period of protection for scientific researchers, setting up alternative performance evaluation requirements, etc., to open up barriers between different promotion channels, and lay a solid foundation for researchers to cross-work and promote.

4.3. Improve the flow of talents “revolving door”

The first is to establish and improve the talent transfer mechanism between the government and enterprises. Improve civil service appointment policies, standardize their selection methods, standards, procedures and tenure, improve safeguard measures, encourage and absorb outstanding social talents to serve in government departments, and deliver fresh blood to the government. At the same time, gradually establish and improve the system of civil servants transfer to enterprises, and improve relevant safeguard measures. Through pilot exploration, we can gradually establish a rotation and suspension mechanism between government officials and research scholars. We can select relevant government departments as pilots for researchers to work or secondment work, and provide some key positions to researchers within a certain time limit. This can greatly enhance the understanding and communication between the research institutes and the government, and help to cultivate policy-makers with academic literacy and familiar with the policy-making process and more pragmatic researchers. For successful pilot experience, explore and institutionalize it.

The second is to further weaken the administrative management mechanism of scientific research units. Party and government cadres, especially retired government officials, may take up management positions in scientific research units, which can not only raising the level of strategic understanding of think tanks, but also enhance the public influence of think tanks to a certain extent. Scientific research units should absorb qualified party and government cadres, and innovate operational mechanisms to avoid the administrativeization of the construction of scientific research units, while defining boundaries, standardizing the transformation of party and government cadres to business managers and researchers, and better exerting their advantages.
5. Conclusion
First of all, we must adhere to both incentives and guarantees. While using the live performance salary, special incentives and other incentives, it will also help solve the core needs of the core talent housing, medical treatment, children enrolled in school and other practical difficulties, and effectively improve their sense of belonging.

Second, we must adhere to the combination of current incentives and medium- and long-term incentives. In combination with the actual work of scientific research, we will focus on promoting the full-cycle incentives for major scientific research projects and the incentives for the transformation of scientific and technological achievements, accelerating the construction of a community of interests with equity and dividend rights as the core, establishing a long-term mechanism, and enhancing the sense of participation and gain of researchers.

Third, we will adhere to both material and honorary incentives. Understanding new phenomena, mastering new laws, and achieving scientific and technological innovations and new breakthroughs in scientific research will bring huge sense of accomplishment and internal incentives to researchers. The effect of such incentives is often stronger and more durable. While doing material incentives, we should also establish an honor system based on the characteristics of scientific research personnel, timely recognize and recognize the contributions of scientific researchers, and enhance their sense of honor and value.

Finally, a soft incentive for the cultural climate will be implemented. All research institutes must break the bureaucratic thinking, dilute the sense of authoritarianism, actively cultivate a loose, equal, and democratic organizational culture, encourage free discussion, dare to question and boldly explore, and allow to challenge academic authority and tolerate failure, then create a good atmosphere of respect and dependence on scientific research talents.

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