

A Research on the Construction of University R&D Management Team in China

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Abstract: The system of Chinese universities R&D as a branch of the system of the whole country R&D, has a great effect on the development and innovation of country's science and technique. Consequently, it's important to construct an effective management team with high diathesis for University R&D management. Based on the statistics of the case study, this thesis finds out some problems of management team function, and other problems, therefore gives some proposals on R&D management team construction.

Key words: University; R&D Management; management team construction

“High-technology” revolution has accelerated the process of science-technology and economic globalization. The science-technology has more compact relations with the development of country's economy. Much international country development history has indicated that all developments more or less got the benefits from a good management group. At present, the most important task of R&D in Chinese universities is to construct an excellent management team or group with high diathesis and efficiency.

1. The Importance of the Construction of R&D Management Team

The R&D management team “is an organizational group that be constructed for adapting to the inner structure and the rule of science and technology.”^[1] Base on the difference of the objectives and functions in management, the team has been divided into different ranks. These days, it's accustomed to see the “2-rank” structure which includes university-school two ranks. This thesis takes the university-team as the research objective, to probe into the reform and development of the inner higher education system.

The functions of management team in Chinese university can be summarized as follows: (1) Manage R&D item, to declare the item and manage the fees, etc. (2) Layout the base, to manage the national lab and many kinds of R&D bases, etc. (3) Manage the production and patent of science and technology, to appraise, checkup the productions, manage patents, transfer and develop the technology, and cooperate the research and enterprise, etc.. (4) Paperwork. Cope with the paperwork of R&D section, manage, operate and organize all kinds of academic institutes, etc.^[2]

All above mentions have elaborated that the importance of manager team can be summarized as follows:

First of all, an excellent manager-team is good for university R&D. Manager-group services for the university R&D as “the media of university science and technology patent-transfer”, “the responder of technology marketing information” and the artificial person of “the bargaining and subscription of technological

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production”^[3]

Consequently, the construction of

University R&D manager group has big significance on the exertion of R&D functions.

Secondly, an excellent manager-team is good for cooperation between enterprises and universities. It could accelerate the transfer of research patents and promote the development of new production, so that to make more fits.

Finally, an excellent manager-team is good for perfecting the national creative system, and effectively operating the creative actions and items. There are two levels in the creative system, one is asymptotic, the other is essential. At the second level, basic research is important. The universities have taken more quotients, nearly $2/3$ ^[4]. This has effects on the importance of the construction of university R&D team.

2. The Analysis on Actuality and Characteristic of R&D Management Team

There are so many facts that have effects on the construction of R&D team. We chose three of them such as the structures, the degrees and age-levels, and the specialization of the group, to declare the actuality and characteristic of R&D management team.

On the aspect of structures in scientific research system, the group has been bureaucracy. The “2-level” management system includes university scientific research section, R&D department, and SR faculty, R&D secretary, etc..

On the aspect of structures in degree and age levels, we take the Tsinghua University as shown in table 1:

Table 1 The basic instance of rank one scientific research managers in Tsinghua (2001)^[5]

Degree Level	Ph.D.	Master	Bachelor	Acad.	Total
No.(person)	12	9	3	3	27
Age Structure	45~55	35~45	30~35	25~30	Total
No.(person)	5	9	9	2	25

Table 1 has showed us that the level of degrees is high, nearly 44% stuffs have got the Ph.D., and it’s higher than any other universities in China. And the age structure is centralized; 30-45 age old persons take the big share. The team is an active and young group. But the person who is at 25-30 years old is scant. Its disadvantage is lack of the deposited of freshman.

The level of teacher’s degree is “a symbol of training level and academic inherence.” And the structure of teacher’s age is “a symbol of energy and the direction of science and research of the group.”^[6] In a word, the manager in the university will be more and more with high degree such as Ph.D., and on the aspect of the age, there will be different-age-people work together to form the rundle model so that make the whole group be more activated and powerful. At present, the team has a defect on the construction of the age-rundle-model. Consequently, the group is lack of young person that in support.

On the specialization of the group, we judge from the status of the articles that are enunciable on the core journals. Table 2 is the statistic of enunciable articles of the R&D managers in university on the followed magazines that are “science technology progress and countermeasure”, “science manage research”, “science of science”, “science of science and science technology management”, “science and research management”, “R&D management”, “science and technology management research” from 1999 to 2004^[7,8].

Table 2 Proportion of the papers published by scientific research management staff in universities^[9]

Journal	Total Published Papers	Published Papers by SR Management Staff	Proportion (%)
Science and Technology Management Research	970	77	7.9
Science Technology Progress and Countermeasure	3911	92	2.4
Science Manage Research	741	9	1.2
Science of Science and Science Technology Management	553	4	0.7
Science of Science	1580	29	1.8
Science and Research Management	662	12	1.8
R&D management	550	116	21.1
Total	8967	339	3.8

From Table 2 we know that the proportion of the papers was published by scientific research management staff in universities is mostly less than 10% except papers on “R&D management”. The proportion is small so that in this aspect there’s a lot of work to do to make progress.

3. The Problems and Reform Policies on the Construction of R&D Management Team

On analyzing actuality and characteristic of R&D management team, the problems of the team construction, the author come into conclusions stated as follow.

First of all, “the scientific and technological management in universities is a multi-guidance management, between the departments of it; there is lack of holistic arrangement.” At the same time, it’s also lack of communication, intercourse and cooperation between different sections. The “double-deck” R&D management system “mostly restricts the stuff transfer”^[4], so that bring on an absence of actives and motivations at inner group.

Secondly, most staff is 30-40 years old; the lack of the youngster makes it difficult to form a ladder-group, and then result in lacking of reserves. On the structure of degree, the personnel with high degree is prevalent, and most with science or engineering degree. In a way these trends bring on the ignorance of art science.

Finally, we need to improve the level of group profession. The following factors make this to be important for the development of higher education, science and technology. Furthermore, we should enhance the quantity and quality of management papers, summarize the practical experiences, and transform them to the science management theories in time.

According to the forenamed problems, we put forward the following proposals on team-construction-reform:

3.1 Establish a flexible R&D management system

A flexible system is good for inspiring enthusiasm and creativity of the staff, and for releasing the actives of the whole team. It also provides an understanding and relax environment for R&D management so that the group could play an effective function during management. Some scholars in China have advised that we should transform “the ‘double-deck’ R&D management system which takes the college-school-department as the main unit”^[4] to another managing way which takes the subject-item as the main unit. It will improve the efficiency and reduce the trifling things wasting time, as well as be significant for multi-subjects research.

3.2 Reform the employee selection system

It’s necessary to reform the employee selection system to establish reasonable R&D managing group structure. When the group selects recruits, it should base on the analyses and evaluations of the present structure of the team, with that, make a scientific and rational plan to choose or replace the staff. The purpose of reforming

is to form a ladder group at age hierarchy and achieve a work model that the staff with different degree could work together well and come to an agreement and cooperation. Eventually we could realize the optimization of the staff configuration on the base of interplay of predominance.

3.3 Add stimulating and competing system

The most important thing to improve the professional lever of managing group is to add more and more chances for staff to be trained and learn. The training plan should be separated into short-term, medium-term, and long-term. Then operating different training ways such as profession education, adult education, internet education, part-time learning, regressive leaning, and experts' cathedra, etc. would make the staff acquire many theories and improve their ability. In addition, add stimulating and competing system to insure the effects of training and leaning.

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