Chapter 5.10

Development of RMA in China

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Abstract

With the government's increased investment in sci-tech and the requirement of scientific research management, RMAs have gradually flourished in China after the 1980s. However, there is no professional qualification specifically for RMA in China and RMA professionals are from various departments. With the arrival of the 21st century, the rapid development of sci-tech has led to the strengthening of the position and role of RMA in research activities. The profession of RMA has made great progress, and a professional contingent of RMA has gradually been formed. This chapter will review the history and development of RMAs in China. Specifically, it includes the evolutionary history of China's sci-tech policy, how RMAs developed as a profession, current state of RMAs, the size and nature of the RMA profession (taking the academic community CASSSP as an example), and future trends of RMAs in China.

Keywords: Research Managers and Administrators; professional qualification; The Chinese Association of Science of Science and sci-tech Policy Research (CASSSP); China; government; sci-tech

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Research Ecosystem

China's global rise as the world's second largest economy has led to increasingly complex and socialised science and technology activities, with a tendency towards deep integration of scientific resources with national goals (Xu, 2002). Since its founding in 1949, China has been optimising its science and technology policy to keep up with the rapid national and social development, and the policy is now more focussed than ever. It involves the macro-management of the country's sci-tech resources and understanding the impact of new sci-tech developments on government policies. It also involves determining the direction of sci-tech advancements, budgeting and investment, allocation of research funds, systemic reforms, the selection and management of major scientific projects, training and use of personnel, and the application and promotion of scientific and technological achievements.

From a macro perspective, the developmental pattern of China's sci-tech policy matches the global trend. In terms of strategic focus, its evolutionary history can be classified into four stages: national defense (1949–1977), economy (1978–1994), science and education (1995–2005), and national innovation (2006–present). Its objectives and focusses have expanded from building national defense capabilities to industrial (economic) development and ultimately social construction (Jin, 2015). The developmental trend of China's sci-tech policy is characterised by the following four features: from a supply-led policy to a demand-led policy; from a single supply system to diversified, multiform, and society-wide collaborative input; from rationalised development to equal emphasis on both rationality and scientific value; from governmental directives to both government-led and market-based regulation; and from tracking and imitation to an emphasis on independent innovation (Jin, 2015).

Since China began its sci-tech reform in 1985, its system of funding research has gone through multiple stages of establishment, improvement, and reform. In line with the science and technology evaluation reform document (MOST, 2014) released at the end of 2014, five new sci-tech programs were proposed: the National Natural Science Foundation of China (NSFC), National Science and Technology Major Project, National Key R&D Programs, Technology Innovation Guidance Special Projects (Funds), and Base Talent Special Projects. Among them, the NSFC is the main funding agency for basic research in China. It promotes basic research in natural sciences and basic disciplines, aiming to discover and cultivate outstanding scientific and technological talents. In 2019, NSFC's annual funding project expenditure totalled about 30.6 billion yuan (Li, 2020). The funds were allocated to 1,783 dependent units and nearly 105,000 projects. The funding expenditures are large, involving a wide range of people and evoking much social concern.

With the implementation of an innovation-driven development strategy, China's sci-tech innovation capacity continues to grow. According to the report released by the National Bureau of Statistics (NBS, 2022), China's gross expenditure on social research and experimental development (R&D) was estimated at 2.78 trillion yuan in 2021 (roughly US $400 billion), up by 14.2% over the previous year. China's R&D expenditure accounted for 2.44% of the GDP, an increase of 0.03% over the previous year. A report from the Ministry of Science and Technology shows that during the 13th Five-Year Plan period (2016–2020), the number of FTE R&D personnel (FTE) increased rapidly, with an average annual growth rate of more than 7%. The number increased from 3.878 million in 2016 to 5.092 million people in 2020, ranking first globally for consecutive years in terms of the number of FTE R&D personnel (MOST, 2021).

In China, scientific research is mainly carried out by research institutions represented by national research institutes and universities, and scientific and technological enterprises. Universities, which are an important part of the sci-tech innovation system, have entered a period of rapid growth driven by the policy. As of 2020, the number of regular higher education institutions had reached 2,738, with an average year-on-year growth rate in the number of institutions of 1.34% since 2014. There are 1,270 institutions offering degree programs and 1,468 are higher vocational colleges (MOE, 2021). With the status and role of scientific research activities in universities growing continuously, managing scientific research has become an important aspect of university management. A questionnaire survey in a study shows that nearly 70% of universities have a research management system (Tang & Wang, 2019).

Evolution of the Profession

With the government's increased investment in sci-tech and the requirement of scientific research management, RMA as a profession has gradually evolved in China after the 1980s. Professionals with backgrounds in science and technology management, public administration, personnel management, financial management, and other related fields are engaged in specific tasks that are considered research management and administration. These tasks include science and technology project management, personnel management, financial management, intellectual property management, research facilities management, scientific research, academic exchange, and cooperation management in universities and research institutes. Upon the arrival of the 21st century, the rapid development of sci-tech has led to the strengthening of the position and the role of RMA in research activities. In this context, RMA as a profession has made great progress, and a professional contingent of RMA has gradually been formed. The RMAs in China are more professional than ever. Up until now, there is no certification system nor professional qualification system specifically designed for RMA in China. However, RMAs in China are involved in studies on policy research at the national and even international levels. The Chinese Association of Science of Science and sci-tech Policy Research (CASSSP), a nationwide group of professionals engaged in sci-tech policy research, serves as a typical example. With a large number of well-known experts and scholars engaged in science and science policy research, the association carries out various activities for the development of China's sci-tech policy and management as well as the promotion of scientific and democratic decision-making.

Current Community

Today, universities, research institutions, and enterprises in China have set up research management departments. Their personnel sizes range from a few dozens to hundreds of employees. With the progression of the sci-tech reform, responsibilities of scientific research management departments have been increasing, with intellectual property management, scientific research integrity, and scientific research ethics being added to the traditional scientific research project management (Wu, 2020). The Chinese education system has not yet set up a degree called Research Management and Administration, and those who serve in the research management and administration generally do not come from a 'professional degree'; but diverse academic backgrounds (Li & Hu, 2020). In research institutions, some of the existing research managers are management professionals, while others have been transferred from areas such as research,

administration, finance, legal affairs, etc. (Wu, 2020). Meanwhile, CASSSP has developed more than 20 professional committees in 29 provinces of China, with a total of more than 2,000 registered members so far. Growing its influence, an increasing number of scholars and managers are joining academic events of CASSSP, which allow them to exchange ideas regarding research management and administration each year. Compared to 20 years ago, current members who actively engage in RMA work have rich research experiences.

Demographics

There is no comprehensive data available for RMAs in China, and data from RAAAP-2 (Kerridge, Ajai-Ajagbe, et al., 2022) is used for our discussion in this section. The CASSSP was responsible for the data collection in China. The CASSSP sent a link for filling out the questionnaire to its members through the WeChat group and reminded them to actively fill out the questionnaire. After data screening, a total of 132 respondents were obtained. The number of people in China who are truly engaged in RMA far exceeds this number, but due to the difficulty in obtaining data, this chapter only selects the survey data for analysis.

Types of RMAs: RMAs mainly come from universities, research institutions, research funding agencies (government or non-government), hospitals, and other government departments. The highest proportion responded to the survey are from universities (73.5%), of which the majority come from public universities (94.8%). In universities, nearly half of the RMAs work full-time, mainly in the academic departments, central research administration offices, and non-central research administration offices. A total of 15.2% of respondents come from research institutions, with most of them being from public research institutions. As many as 85.0% of RMAs also do part-time jobs related to research or other fields, primarily in the academic departments. According to the survey results, at funding agencies (governmental or non-governmental), all RMAs also do part-time work related to research or other fields in academic departments and the central research administration offices. In other government departments, RMAs work full-time, with just a few exceptions. Data from hospital RMAs are not available and will not be analysed here.

In terms of roles, 36.4% of RMAs undertake operational positions, responsible for undertaking specific duties, 34.1% are managers, and 20.5% are leaders. In terms of the research areas, more than half of RMAs are in the field of social science, followed by 28.0% in science and engineering. 47.0% of RMAs work in policy and governance, followed by program support (40.9%), service delivery (40.2%), proposal development (25.8%), training/communications (22.7%), research students (10.6%), research management systems (10.6%), audit and compliance (9.8%), other (4.5%), and translation (2.3%). In fact, RMAs can work in more than one of these sub-areas.

Make-up of RMAs: According to the survey results, the male-female ratio of RMAs is 56:44. In terms of age distribution, the highest percentage (43.9%) of RMAs are between 35 and 44, followed by 23.5% between 45 and 54, and 22.0% between 25 and 34 years old. The highest percentage (34.1%) of the respondents have worked in the research management field for over 10 years. Educational background plays a crucial role in the career development of RMAs. According to the survey, RMAs in China generally have high academic qualifications. More specifically, the vast majority of RMAs have a bachelor's degree or higher, with nearly 50% of RMAs holding a doctoral degree and a further 42.0% holding a master's degree. Among them, more than 1/3 of RMAs have obtained the doctoral degree before engaging in research

management and administration, and 9.8% of them obtained their doctoral degree during the time as an RMA. As for the areas of academic training, 39.4% of RMAs majored in social sciences, followed by science (18.9%), engineering (18.2%), business (12.9%), general/all (6.1%), medical and health sciences (2.3%), and others (2.4%). When asked if their educational background is aligned with the subject areas that they support, more than 90% of RMAs responded that their educational background is more or less related with the area that they support.

In addition, nearly half of RMAs in China have a positive attitude towards professional certification in research management and administration. 35.7% of RMAs believe that professional certification of RMA 'helps them to get promoted/get a new job'. Nearly 50% of RMAs believe that professional certification of RMA 'helps them to do their job well', 'makes them believe more in their abilities', 'makes their colleagues/scholars/researchers trust them more', and 'does not have it now and it would help his career if he had it'.

Directions/Future

RMAs in China are closely following global development trends, while retaining local characteristics. In general, the trends of RMA in China can be clarified in three aspects. First, the management model adopts a service-oriented concept of putting people first. In order to reduce the burden on researchers and create a more relaxing research environment, the Chinese government advocates that 'management' be eased and the concept of 'service' be adopted. For example, in recent years, the Chinese government has issued a series of policies in reducing the frequency of science and technological evaluation, optimising the use of research funds, and expanding the autonomy of scientific research personnel. Second, various methods and means are explored to improve the efficiency of RMA by promoting informatisation construction. Academic Resource Planning (ARP) as an information system project is a great example that establishes scientific resource planning of Chinese Academic of Sciences (CAS). Third, the RMA professionals have continued to expand in scale and structure. Their diverse professional backgrounds and understanding of research management have contributed to the development and innovation of the RMA industry while making the management more scientific.

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