RECOMMENDATION

Toward Research Evaluation for the Advancement of Science: Challenges and Prospects for Desirable Research Evaluation

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Science Council of Japan
Committee for Scientific Community
Subcommittee on Research Evaluation

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Abstract

1. Background and purpose of this recommendation

The main purposes of research assessment exercises are promotion of the sciences and to nurture researchers. For this reason, research assessments have traditionally been conducted within the research community of experts or the peer group. In today's context, however, research assessment systems have begun to be extended to several other domains: such as the assessments of institutions like universities/research institutes; assessment of research projects; organizational assessments of research and teaching departments; and individual assessments of researchers within institutions.

In Japan, since the 1990s, such research assessment exercises have begun to evolve and have become diverse and multilayered. Today, these research assessment exercises address a range of new contexts such as university management and organizational and personnel administration. In particular, with regard to the institutional assessment of national university corporations, it is increasingly noteworthy that the assessment of the activities involving individual researchers has become linked to the performance evaluation of the university/ research institute, making budgetary allocation and even rating the contributions of individual researchers. Given how widespread assessment exercises have become, there are now growing concerns about the over-reliance on quantitative evaluation. In countries with a wealth of research assessment experiences, debates on the need for reconsidering quantitative research assessment exercises have been growing. There is a call instead for new methods that can meaningfully factor in the impact of research results in addressing social issues. There is much to learn from these ongoing discussions on assessment methods.

The purpose of this recommendation is twofold: to urge that quantitative assessment methods not be overemphasized in research assessment, and to introduce international trends in order to help us find compelling pathways for carrying out research assessment exercises. We hope that this recommendation will be shared by all concerned, including the relevant ministries and agencies, universities and research institutes, and that it will provide an opportunity to reexamine the nature of research assessment that should ultimately be able to meaningfully contribute to the promotion of the sciences.

2. Content of the recommendation

(1) Necessity of designing the assessment system that meets the objectives of research assessment: The purpose of research assessment is to promote the sciences and to nurture researchers. Even when research assessment is used for deciding on the budget allocation for universities/research institutes or for evaluating the performance of individual researchers, it should be designed to promote research activities. The assessment design, therefore, should not only be based on the mission of the organization and the researcher to be evaluated, but sufficient consideration must also be given to prevent fatigue, demotivation and the excessive pressure that might redirect the research goals.

Stable basic funding and human resources are indispensable for promotion of the sciences. If research assessment is to be linked to resource allocation, it should primarily be based on qualitative assessments, while also not becoming overly dependent on quantitative metrics. From the perspective of nurturing researchers, there is a great risk that the inadvertent use of quantitative assessment metrics for individual research assessment will inhibit and have a negative impact on research diversity. Considering the current situation where new research assessment is placing additional administrative burdens on institutions and individual researchers, effective use of the existing assessment systems, such as the peer review system in KAKENHI, should be considered. In evaluating the research of early career researchers, careful consideration should be given to new research methods and methods for disseminating results, so that the assessment can encourage their growth as a researcher.

(2) Respecting Research Diversity in Research Assessment: In the research assessment exercise, research diversity should be encouraged to the maximum extent possible. In addition to evaluating academic contributions from multiple perspectives, it is necessary to set the criteria and the system that can flexibly respond to new initiatives that cannot otherwise be measured with the existing assessment exercise, including impacts of research outputs beyond the academic world.

In research assessment, it is necessary to fully account for the characteristics of each academic field, the desirable future state of academia, and the impact of the introduction of assessment on academia, based on the diversity of research activities and results. From the perspective of carrying out a multifaceted assessment of academic contributions, diversity in publication forums of research results, languages used, and research periods should be considered. As a new way of assessment, it is desirable to include not only the results of social impact but also the process (such as collaboration with stakeholders in society and industry in the formulation and

implementation of research plans) in the assessment, and to give due consideration to new methods of disseminating results via the Internet. It is also desirable that the scientific community, such as academic societies, actively propose meaningful ways of research assessment based on the characteristics of each research field.

(3) Basic principles of research assessment methods: In order to properly evaluate the research quality and impact taking into account the research diversity, it is desirable, in principle, to use qualitative research assessment by peer reviewers within the field as well as users of the research results. Quantitative indicators, on the other hand, may be used to support these qualitative assessments.

For the sustainable development of academia, the design of the research assessment system should focus on qualitative assessment by experts so that academic significance of the research outputs can be appropriately evaluated from a medium- to long-term perspective. Quantitative indicators (e.g., the number of outputs in the top 10 citation percentile) are effective for specific fields, but they should be used to support qualitative assessment. The concern that the overemphasis on quantitative indices may lead the entire research to be excessively oriented towards research that meets the assessment metrics rather than the academic significance is commonly understood and shared in other countries. Quantitative assessment with a limited time frame is also incompatible with supporting early career researchers.

(4) Research assessment and resource allocation: There is a certain rationality in using research assessment to effectively utilize limited public resources and to build and improve research environments that meet the mission of each institution. However, in doing so, careful consideration must be given from the perspective of promoting the sciences not to uniformly adopt quantitative metrics to ascertain research results that can then significantly increase or decrease the funds that support the foundation of institutional management.

While allocating resources for institutional management (budget and personnel) based on specific quantitative metrics, there is a great risk of discouraging research in the humanities and social sciences that do not lend themselves to quantitative assessment and basic research that cannot be measured by such metrics. Rather than relying on quantitative indicators, which are difficult to include in assessing research other than those that are short-term and quantifiable, promoting the sciences comprehensively and sustainably in preparation for unexpected future crises will lead to the security and happiness of people.

(5) Ensuring the credibility of qualitative assessments: In order to ensure the credibility of research assessment based on qualitative assessment, it is essential to ensure the transparency and fairness of the assessment so that funders and those evaluated can verify the assessment results. Toward that end, careful consideration needs to be given to the institutional design, including the establishment of data management and meta-assessment systems.

In order to ensure the reliability of qualitative assessment, it is essential to deliberate on the purpose and cost-effectiveness of research assessment, setting of assessment indicators, verification methods of assessment, fair selection of peer reviewers, training of professionals responsible for assessment design, and appropriate data management. It is desirable for the assessment implementing institutions and the Science Council of Japan to cooperate in building a system of meta-assessment that is able to regularly verify the state of research assessment.

(6) Responsibility of the scientific community: Research activities are supported by the basic expenses of institutions, public subsidies, and various grants. The scientific community and researchers have a responsibility to present the significance and orientation of their research in an easy-to-understand manner to funders and society, and to enhance the credibility of qualitative assessment.

The scientific community and researchers have a responsibility to enhance the credibility of qualitative assessment by eliminating unconscious bias and fixed assessment criteria, and by explaining in simple terms the desirable and avoidable ways of evaluating research.