

Concerns and challenges in the new reform of research evaluation in China

A radical reform of research assessment and funding was launched in China in February 2020. The country moves away from a strong focus on Web of Science-based indicators and encourages qualitative assessment and domestic publishing. This policy brief presents the reform and its background, and discusses its implementation.

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1. Against 'SCI worship'

Universities are urged to implement the policy locally by the end of July 2020 at the latest. How to implement the reform, and the possible consequences, have aroused intense discussion among Chinese academics and gained [worldwide attention](#) and [debate](#) after the reform was published in two prescriptive policy documents from the [Ministry of Science and Technology](#) and the [Ministry of Education](#).

The change in China does not come out of the blue. In 2016, President Xi Jinping called for reform towards [a more comprehensive evaluation system](#) for individual researchers. Further, in 2018, a document issued by the joint force of three ministries and two national central institutions specifically proposed [moving away from the 'Four only' phenomenon](#) of "only papers, only titles, only diplomas and only awards". Among these, the 'only papers' focus has received the broadest attention, for good reasons.

The reform explicitly turns away from what has been called 'SCI worship' in China for a long time (Science Citation Index is the original name of Web of Science). At all levels in the Chinese research system, there was and still is a strong focus on Journal Impact Factors, JCR Quartiles and ESI Highly Cited Papers. The uniform 'currency' of WoS-based indicators has been used in research evaluation, staff employment, career promotion, awards, university or disciplinary rankings, funding and resource allocation. Even individual [cash incentives](#) for WoS publications are widespread. WoS-based indicators have influenced China just as [being 'REFable' and 'three and four-star'](#) in the UK.

The effects have been twofold. On the one hand, Chinese researchers have been encouraged to publish according to world standards and communicate more broadly and visibly with international communities. Chinese researchers have benefited from the advice gained from international peer-review processes and improved

their research performance. It was also partly this focus that helped China surpass the USA as the [largest contributing nation](#) to international scientific journals. On the other hand, the heavy reliance on 'SCI papers' has been much debated as a form of goal displacement. Some individual researchers and institutions have pursued high numbers of publications while disregarding the quality and societal value of their research, even at the cost of research integrity, which has become a major concern for the Chinese government.

2. The need for new research assessment infrastructures

The new policy [aims](#) to restore "the scientific spirit, innovation quality, and societal contribution" of research and to "promote the return of universities to their original academic aims". As we understand from the policy documents, three main measures will be taken to reach these aims:

1. **Farewell to 'SCI worship'**. Indicators based on Web of Science will not be applied directly in evaluation and funding at any level. An alternative citation index with Chinese characteristics and international influence will be established.
2. **From metrics to peer review**. A new focus on novelty, scientific value, research integrity, innovation potential and societal outcomes will replace the 'paper only' orientation in panel evaluations at the individual, organizational and national levels. Publications will be presented for review as a limited set of 'representative work' with explicit relevance for the evaluation. Number of publications and journal impact factors will not count any more.
3. **Local relevance**. Publications in high-quality Chinese journals will be encouraged, and the development of such journals will be supported.

The reform has similarities with initiatives in other parts of the world, such as the [DORA declaration](#) on research assessment, the [Leiden Manifesto](#) for research metrics, and the [EU policy for Responsible](#)

[Research and Innovation](#). None of these initiatives have resulted in easy solutions in any country. Other countries will therefore not only recognize the aims of the reform, but also some problems with implementation. In our view, the need for national coordination and services to replace the Web of Science as a standard seems to be initially underestimated in China. Below we discuss some implementation problems regarding the three main measures of the reform.

3. Farewell to 'SCI worship'

By moving away from Web of Science (or Scopus) as a standard for their national research evaluation and funding system, China is empowering its own academic communities, research institutions and funding organizations in defining the principles, criteria and protocols for evaluation. Essentially, the country is moving from a commercial product-based system to a self-determined and self-organized [criteria-based system](#). To fulfil this move, an integrated research information system and a national journal evaluation system is still needed.

The new policy is aware of the need for a journal evaluation system to replace the use of journal impact factors and to cover journals beyond Web of Science. It speaks of blacklisting journals with questionable purposes and of giving extra weight to “[three types of high-quality papers](#), including those published in domestic scientific journals with international impact, internationally recognized top-level or important scientific journals, and papers reported at top academic conferences in China and abroad”. The selection for the two latter categories will be made locally by ‘the academic committee of the unit’ without clearer criteria than in these sentences. For the first category, a narrow selection of only 285 scientific and technological journals was already launched in 2019 by the [Chinese Science and Technology Journal Excellence Action Plan](#).

China has its own citation indexing services that cover selections of domestic scientific journals. They use different criteria and the influence of the Chinese academic communities is varying. Now, as the new policy wants to establish an alternative Citation Index with “Chinese characteristics and international influence”, how can existing services be coordinated, and how can power games be avoided?

To set a new legitimate standard with transparent procedures, there is a need to create a comprehensive and dynamic list of acknowledged journals representing a continuum of all research fields and including both domestic and international journals while taking care of marginal fields and inter-disciplinarity. The list must be dynamic to reflect a changing journal market, and it needs to be organized to represent a balanced influence of expert advice by all disciplines in China through inter-institutional representative bodies. The same organization of expert advice is needed if extra weight is to be given to specific selections of journals on the comprehensive list. Examples of such dynamic lists already exist in several non-English speaking countries in Africa, Asia, Europe and Latin-America, e.g. the [Latindex](#) and the [Nordic list](#).

The new policy demands a broader perspective in research assessment on novelty, scientific value, research integrity, innovation potential and societal outcomes. How will panels be informed about and be able to compare such achievements? There is need for more comprehensive sources of information to supplement Web of Science. These sources could be integrated in a national [Current Research Information System \(CRIS\)](#).

CRIS are databases or other information systems used within and among research organizations to store, manage, and exchange data for documentation, communication, and administration of research activities. CRIS are widespread globally, but most of them operate at the institutional level only and are closed systems. Most systems still require information from individual researchers instead of providing it for them by import from external data sources. The existing commercial solutions, e.g. [Converis](#) from Clarivate and [Pure](#) from Elsevier, are designed for local use only. It seems to be a challenge, mainly in the larger countries, to agree on an integrated and open national solution. However, a few countries, e.g. [Brazil](#), [Czech Republic](#), [Finland](#), [New Zealand](#), and [Norway](#), have managed to integrate a CRIS nationally with the help of non-commercial solutions.

In China, most universities and other research organizations already have their own local systems. An example is [Shanghai Tech University](#) with one of the most advanced technical CRIS solutions

worldwide, but only for local use. At the national level, the Ministry of Education (MoE), the Ministry of Science and Technology (MOST), and the National Natural Science Foundation of China (NSFC) have built databases for research and education information (with different focuses, strengths and coverages), but they are mainly used as internal sources. An integrated research information system in China would relieve individual researchers and institutions from providing all the information themselves every time they are evaluated. The national research information system should comprise both international and domestic scientific publications, and other types of research outputs and information such as books for teaching and general audiences, inventions, education, government advice and interaction with culture, society and industry.

4. From metrics to peer review

The new policy targets evaluation and funding at all levels in the Chinese research and innovation system. It seems to us, however, that methods for individual-level research assessment will be used as a model for evaluation also at more aggregated levels (institutions, thematic programs, research sectors). As an example, the new policy requires a small maximum number of representative publications to be read and evaluated at all levels. We think the new policy needs to differentiate more clearly between appropriate methods at different levels of aggregation. Depending on the purpose, [metrics can be useful](#) at [aggregate levels](#), and the data and indicators [need not be limited to WoS](#). When moving from metrics to peer review, a [multi-level application model](#) for roles and procedures in research evaluation will be needed.

Peer review allows for [formative, not only summative, evaluations](#). A formative evaluation learns from the past (strengths and weaknesses), looks forward (opportunities, threats) and [serves strategic development](#). A summative evaluation looks at past performance, checks whether goals or expectations have been reached, and serves accountability, decisions and/or resource allocation. Summative evaluation has dominated in China. The idea of formative evaluation is not present in the new policy. National coordination could allow for organizational learning at the aggregate level of institutions and for inter-institutional disciplinary collaboration. Institutions may have different

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strengths and can improve from collaboration even more than from competition.

5. Local relevance

Chinese researchers are now encouraged to publish more in [domestic journals](#): “In principle, when researchers provide representative publication lists, papers from domestic journals should account for at least one third of all the publications”. Several provincial governments and universities in China have already incorporated this new principle into their recently released policy documents. In our view, the principle needs to be applied with differentiation according to field, type and purpose of research. As examples, most studies in law will be published in national law journals in a country's native language because the research is most often about national law and aims to serve the country's legal system. On the other hand, most studies in astrophysics are published in English in all countries to ensure global research communication on topics that all countries share. But these publications in English are not preventing astrophysicists all over the world from communicating their knowledge to a general public in their native language. Publications in English are not in themselves making Chinese research less useful to the Chinese society.

Still, for some years now, there has been a concern that research funded and performed in China and expected to be useful for Chinese society is published in English in very distant journals. Recently, there was a debate about the fact that one of the first scientific articles carrying [an early warning of the Coronavirus](#) was published by Chinese scientists in a Western international journal before the general public in China was informed about the epidemic. The debate turned into a more general discussion of whether new scientific results from China should be firstly published in international or domestic journals. This was one of the [main controversies in Chinese social media](#) in

the early stage of the Coronavirus outbreak. Those against international publishing argued that it would delay the immediate use of the new knowledge needed to control the epidemic in China. This reaction in the general public is understandable, but experts in the field will know that international and local publishing cannot replace each other. Both are needed, and it is a question of balance. Time has also shown that global exchange of information and advice is crucial to stop the Corona epidemic itself as it reaches other countries and continents.

Although China is now the largest contributing country to international scientific journals, most scientific publications are still published in Chinese in China, with variations among fields. Some fields are internationally visible and impactful, others are not. The annual volume of domestic articles indexed by the Chinese Social Sciences Citation Index (CSSCI), covering only a limited number of domestic social science journals in China, is still around [ten times higher](#) than the annual volume of articles from China indexed by the Social Science Citation Index for the Web of Science. Young researchers are generally more active in publishing internationally than older researchers. Hence, the new policy resonates differently in the academic community. Some researchers are happy to leave behind the policy of globalization. Others are concerned that support for collaborating and publishing abroad will be taken away from them. China needs to find [a differentiated and dynamic balance](#) between local relevance and globalization of research.

Policy implications

In response to the three main messages of the new evaluation and funding policy in China, we suggest these possible solutions for the implementation:

- **Farewell to ‘SCI worship’:** With the move away from Web of Science as a standard, an integrated research information system and a national journal evaluation system is needed.
- **From metrics to peer review:** The function and weight of peer-review evaluation needs to be differentiated between the levels of the research system: individuals, units, institutions, and national agencies.
- **New priority to local relevance:** The optimal balance between globalization and local relevance must be allowed to differ by type and field of research.

Further reading

This Policy Brief is based on the authors’ article:

[The New Research Assessment Reform in China and Its Implementation](#), published in *Scholarly Assessment Reports*, 2(1), 3 (DOI: 10.29024/sar.15).

Further reading:

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