

Editorial

Introduction to the special section devoted to the 18th International Conference on Science and Technology Indicators ‘Translational Twists and Turns: Science as a Socio-Economic Endeavor’. Berlin, Germany, September 4–6 2013

In recent years the demand for and the use of science, technology, and innovation indicators increased significantly. On the one hand science policy is asking for ‘objective’ data to assess the performance, relative position, and interaction of the various players in the Science, Technology and Innovation (STI) system. Among other things, this rise in demand can be explained by the widespread move towards new modes of governance which increasingly can be characterized as ‘governing by competition’ and new public management. On the other hand science itself is calling for a better understanding of its knowledge production, dissemination, and transfer processes, cumulating in innovations for economic welfare and wider societal usage. Both sides serve as continuous driving forces for the development of quantitative studies of science, technology, and innovation.

New demands also emerged as a consequence of the growing complexity of science and innovation systems. This concerns, for instance, interactions at the regional, national, and international level but also changes in the scientific communication due to the increasing relevance of new communication channels. Consequently, new data sources open up new analytical options and new performance indicators emerge addressing these aspects (e.g. collaboration indicators, web indicators, indicators on human resources, career advancement, and mobility).

Furthermore, the continuously growing computer power and memory enable increasingly extensive and large-scale data analysis. Existing indicators are put to test whether they are still adequate and address the needs of science policy as much as science studies.

The International Science and Technology Indicators Conference, which is organized under the auspice of ENID, the European Network of Indicator Designers (www.enid-europe.org), provides a European and world-wide forum for presenting and discussing advances in constructing, using, and interpreting science and technology indicators. The requirements for data generation, indicator production, also for specific domains, their design, methodology, experimental development, and application will be discussed. The STI conference series is devoted to bring together researchers, STI producers and users, as well as other stakeholders. The STI conference series thus contributes to gain a better understanding with regard to STI indicators applied in different contexts which range from understanding institutional structures, developmental processes, and contexts of science itself to their use as analytical tools in knowledge management and science policy decision-making. It does so for exactly 25 years now since the first STI conference was held in Leiden in 1988.

A special section in *Research Evaluation* was foreseen to be devoted to the STI Conference 2013 which was

organized by the Institute for Research Information and Quality Assurance and held at the Berlin-Brandenburg Academy of Sciences and Humanities in Berlin on September 4–6, 2013. For this special issue, six contributions have been selected which impressively reflect the broad spectrum of topics covered by the conference. Accidentally four of these papers have been published in a previous issue of *Research Evaluation* (volume 23, issue 4). Nevertheless, this introduction to the special section devoted to the STI conference 2013 reflects on all six contributions which were selected to provide a rather comprehensive view on the topics addressed. (Links to the online versions of the four papers that were published in an earlier issue are provided at the end of this introduction. In addition, all six papers have been packaged into an online ‘virtual issue’ at <http://rev.oxfordjournals.org>.)

Focussing on grant allocation processes *van Arensbergen et al.* in their contribution discuss how talent in science can be identified and assessed. They studied the selection process on both the individual and panel level, which has been implemented for the Talent Scheme of the Dutch Research Council. The analysis of interviews with 29 panel members involved in grant allocation revealed large agreement on the notion of talent; however, the results also show the arising difficulties especially in the context of group decision-making, which is the case in a panel situation.

With the next contribution we are moving from a rather ex-ante perspective to an ex-post perspective at the same time moving from a qualitative approach to a bibliometric one. *Schneider and van Leeuwen* present results of a bibliometric analysis which was part of an evaluation of two funding schemes for Postdocs in Denmark. Focussing on long-term effects of funding they investigate long-term citation performance of three groups of researchers namely those who were funded by either of the schemes and a control group which did not receive respective support. According to the results all three groups perform well above the database average impact. Differences among the two funded groups hardly exist and the identified difference between funded groups and the control group is not robust.

Modes of financing research are the focus of the paper by *Primeri et al.* In particular they look at national research programs and their accessibility for external researchers, external here meaning researchers from outside the national research system. The paper provides an introduction into the complex and multidimensional phenomenon of opening up national research programmes and provides an overview of the state of play in three countries, namely, Switzerland, France, and Italy. In the paper descriptors and indicators used as basis for the data collection as well as the analysis of opening patterns are presented and preliminary evidence is discussed.

Third mission activities, those activities reflecting the engagement with society and industry increasingly complement the universities’ traditional missions of teaching and research. In his contribution *Schmoch* focusses on the universities’ transfer activities, specifically technology transfer regarding services. He introduces service marks as an indicator allowing analysing service innovations. While focussing on German universities his results reveal that the amount of service transfer from German universities is quite considerable and that German universities specifically target services in education and in particular further education.

Also the two remaining contributions focus on activities at the border between science and application. While *Barjak et al.* analyse the effects of institutional policies on outcomes of transfer performance *Luwel and van Wijk* attempt to identify bibliometric characteristics of translational research.

Barjak et al. report the results of a survey they carried out among 247 European universities and 40 public research organizations. They find that the effects of policies to establish clear rules, to improve transparency, and to provide financial or non-financial incentives vary by outcome. While non-financial incentives hardly can be attributed positive effects, positive correlation can be found between financial incentives and several outcomes.

Translational research whose objective it is to translate results from basic science into useful practical applications is a ‘hot’ topic. *Luwel and van Wijk* in their paper attempt to differentiate translation research from basic research based on the identification of bibliometric characteristic of the papers published. The authors present their methodological approach which is based on the comparative analysis of reference and citation patterns as well as the analysis of vocabulary they used in the papers’ abstracts. However, no significant differences were found between the different journal sets.

The papers collected for this special issue nicely reflect the broad spectrum of indicator-based analysis. It impressively shows the variety of methodological approaches which do not only encompass quantitative methodologies.

We would like to sincerely thank all the authors for their submissions and all the members of the scientific committee and our fellow members of the programme committee for their contributions.

Links to the online versions of the special section papers that were published in *Research Evaluation* volume 23, issue 4:

Van Arensbergen, Pleun. Different views on scholarly talent: What are the talents we are looking for in science? <<http://rev.oxfordjournals.org/content/23/4/273.full>>

Schneider, Jesper. Analysing robustness and uncertainty levels of bibliometric performance statistics supporting science policy. A case study evaluating Danish post-doc funding. <<http://rev.oxfordjournals.org/content/23/4/285.full>>

Primeri, Emilia. Measuring the opening of national R&D programs: what indicators for what purposes? <rev.oxfordjournals.org/content/23/4/312.full>

Schmoch, Ulrich. Knowledge transfer from universities into the service sector as reflected by service marks. <rev.oxfordjournals.org/content/23/4/341.full>

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