

Foreword

Understanding how knowledge creation and dissemination contributes to economic growth and societal wellbeing requires a sound evidence base. Throughout history, the outcomes from research and development (R&D) have transformed people's lives and societies in multiple ways, as well as the natural environment we are part of. This realisation has created a sustained demand among policy analysts and decision makers for documenting the level and nature of both human and financial resources that different countries, regions, firms and institutions devote to such endeavour, as a first step towards learning how to direct them towards desired objectives. Supporting this evidence need through internationally comparable statistics and a common language is the main objective of this manual.

In June 1963, the OECD met with national experts on research and experimental development (R&D) statistics at the Villa Falcioni in Frascati, Italy. The result was the first official version of the Proposed Standard Practice for Surveys of Research and Development, which has come to be better known as the Frascati Manual. This publication is the seventh edition of a manual that was first written in a rather different economic and geopolitical context from today's. More than five decades later, its continued relevance is justified by even stronger interest in comparing the R&D efforts made by different countries and identifying what key features underpin them. R&D is increasingly viewed as an input to innovation in the context of the overall efforts made in a knowledge-based global economy, but continues to play a crucial part and is a major focus of government policies because of its unique features. While demand for aggregate benchmarking is at the heart of this manual, this edition recognises the importance of enriching our macro picture of R&D performance with a better understanding of the dynamics and linkages at the micro level. This emphasises the relevance of R&D micro-data for purposes other than producing aggregate indicators, such as the analysis of its impacts across multiple actors.

Although the manual is basically a technical document, it is a cornerstone of OECD efforts to increase our understanding of the role played by science, technology and innovation when analysing national systems of research and innovation. Furthermore, by providing internationally accepted definitions of R&D and classifications of its component activities, the manual contributes to intergovernmental discussions on good practices for science and technology policies. It is however beyond the scope of

this manual to advise on the appropriateness of policy targets based on indicators and data described within this document.

This edition reflects probably one of the most substantial revisions of the original manual that have been carried out to date. It goes into a great level of detail to provide basic principles and practical suggestions on how to deal with the increasingly complex research and innovation landscape faced by today's economies and the defining features of different sectors. Among its many novelties, this manual pays specific attention to the relentless process of R&D globalisation and the increasing variety of arrangements by which R&D is funded and performed within and across sectoral boundaries.

The Frascati Manual is not only a standard for R&D data collection in OECD member countries. As a result of initiatives by the OECD, UNESCO, the European Union and various regional organisations, it has become a standard for R&D measurement worldwide. It is also a recognised standard in other statistical domains, such as in education and trade statistics. Most notably, with the 2008 revision of the System of National Accounts, the Frascati Manual's definitions and data were adopted as the basis upon which to treat for the first time expenditures on R&D as a capital formation activity, i.e. investment.

The Frascati Manual is firmly based on experience gained from collecting R&D statistics in both OECD and non-member countries. It is a result of the collective work of national experts in NESTI, the OECD Working Party of National Experts on Science and Technology Indicators. This group, with support from the OECD Secretariat, has worked over now more than 50 years as an effective community of practitioners to implement measurement approaches for the concepts of science, technology and innovation. This effort has resulted in a series of methodological manuals known as the "Frascati Family", which in addition to this manual includes guidance documents on the measurement of innovation (the Oslo Manual), human resources devoted to science and technology, patents, and technological balance of payments, but most importantly, it has provided the basis for the main statistics and indicators on science and technology that are currently used.

Reflecting its intended use as a working tool, the Frascati Manual is also available as an online publication on the OECD web site <http://oe.cd/frascati>. The website provides additional material and links to information on how countries collect R&D data, databases and key indicators. This website is to be updated frequently to incorporate new resources and new guidelines on specific subjects that form part of the agenda of the NESTI group. Putting this revised manual into effective use, also a

collective effort, will enable a new generation of R&D data, indicators and analyses that help meet policy needs and contribute to a better informed public debate on science, technology and innovation.

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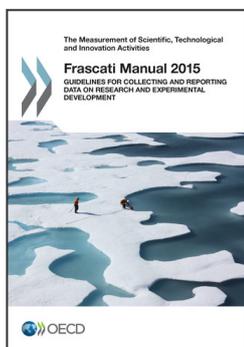
This publication is the outcome of a collective effort across all national delegates participating in the OECD Working Party of National Experts on Science and Technology Indicators (NESTI) and the Economic Analysis and Statistics (EAS) Division of the OECD Directorate for Science, Technology and Innovation (STI).

The present seventh edition came together thanks to the lead editing efforts of John Jankowski (National Science Foundation, United States) and Fred Gault (former NESTI Chair, UNU-MERIT, TUT-IERI and consultant to the Secretariat), on the basis of work conducted by national NESTI delegates and OECD experts organised as revision groups. Particular thanks are due to the members of the NESTI Bureau, namely Eveline von Gässler (Federal Ministry of Education and Germany), Tomohiro Ijichi (National Institute of Science and Technology Policy, Japan), John Jankowski (United States), Svein Olav Nås (The Research Council of Norway), Elisabeth Pastor (Federal Statistical Bureau, Switzerland), Giulio Perani (ISTAT, Italy and Eurostat) and Ward Ziarko (Federal Science Policy, Belgium). They invested considerable time and effort to help steer the revision process on behalf of the entire NESTI group and also contributed original material in the process.

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The revision work undertaken by NESTI was facilitated by the S&T indicators unit in EAS led by Fernando Galindo-Rueda with support from Laudeline Auriol and Vladimir López-Bassols. The work was overseen by Alessandra Colecchia as Head of the EAS division. Andrew Wyckoff and Dirk Pilat provided guidance and comments. Valuable comments were also received from Nadim Ahmad, Silvia Appelt, Koen de Backer, Fabienne Fortanier, Dominique Guellec, Guillaume Kpodar, Fabien Verger, Bettina Wistrom. This work would not have been possible without the input of several other OECD colleagues, including IT, publications and communication support staff, as well as the assistance of Marion Barberis and Catherine Bignon in EAS.

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