

Foreword

In 2012, the OECD published the *Handbook on Measuring the Space Economy*, the first international effort to systematically define and measure the “space economy”, a challenging task given its array of very diverse economic activities. Since then, the definition of the space economy provided in the publication has been widely adopted by governments and the private sector alike.

Much has changed in the space economy over the past decade, not least due to the ever-growing number of countries and business enterprises involved in space activities. Despite the development of new and improved surveys in many parts of world and significant overall progress in the quality of publicly available economic data, the international comparability of space economy statistics remains limited. Therefore, the time seems ripe to provide a revision of the *Handbook on Measuring the Space Economy* to reflect the changing landscape of space activities, space technologies and user needs for metrics.

The objective of this second edition of the *Handbook* is to encourage and facilitate data collection among both incumbent and new actors involved in space activities, as well as to respond to the needs of the public agencies that still fund the bulk of space programmes and to private-sector decision makers who also stand to benefit from improved statistics on the space economy. It updates and expands upon the first edition of the *Handbook* in the following areas:

- **Revised concepts and definitions for the space economy:** High-level terms are defined with the aim to encourage improved international comparability for organisations wishing to compare their results.
- **Main principles of industry surveys:** Building on best international practices and an extensive review of more than 20 space industry questionnaires, key principles have been assessed and outlined for organisations interested in developing space economy surveys. Original pointers and lessons learnt are provided, which may give new ideas to long-standing developers of surveys.
- **A statistical companion introducing approaches to evaluating and assessing the impacts of space activities:** Step-by-step approaches to conducting evaluation and impact assessments are available from other sources and the *Handbook* does not attempt to replicate them. However, it explains different techniques that may be used and points to many existing studies focused on the impact of the space economy.

The *Handbook* is structured according to the following chapters:

- Chapter 1: Introducing the *OECD Handbook on Measuring the Space Economy*
- Chapter 2: Progress in concepts, definitions and measurement of the space economy
- Chapter 3: Monitoring the evolving cast of space actors
- Chapter 4: Using industry surveys to better understand the space economy
- Chapter 5: Strengthening assessment of the impacts of the space economy.

This publication is based on research and analytical work conducted by the OECD Space Forum Secretariat in the Science and Technology Policy Division, within the Directorate for Science, Technology

and Innovation (STI). These activities are part of the broader programme of work of the OECD Committee for Scientific and Technological Policy (CSTP).

The indicators in this report are constructed using data regularly provided by member countries' authorities and from other OECD and international sources. The data primarily come from official sources such as OECD databases, statistical offices and national space agencies. In some cases, data are sourced directly from industry. The published indicators have been chosen based on reliability and timeliness of the required source data.

The team particularly thanks the member institutions of the OECD Space Forum for providing information, data and comments instrumental to the preparation of this publication. We also thank the representatives of industry, small businesses, academia, ministries and national delegates from the OECD Committee for Scientific and Technological Policy, who contributed substance during bilateral meetings and many OECD Space Forum workshops (see acknowledgements section).

The OECD Committee for Scientific and Technological Policy (CSTP) declassified the *OECD Handbook on Measuring the Space Economy, 2nd Edition* on 25 May 2022 by written procedure. The OECD Secretariat prepared it for publication.

Acknowledgements

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The report was drafted by Claire Jolly, Marit Undseth, Mattia Olivari and James Jolliffe, from the OECD Space Forum in the Directorate for Science, Technology and Innovation (STI), with Barrie Stevens, senior advisor, kindly providing comments.

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The publication has greatly benefited from insights collected during OECD Space Forum workshops and seminars, with over 500 experts involved in substantive discussions in the past six years:

- Online seminars, held on 4 May and 8 June 2021, on “Space Economy Measurement and Surveys”: The objective of these seminars was to understand the state-of-play in ongoing space economy surveys and related analysis from countries around the world.
- Online workshop, held on 9 October 2020, entitled “What’s Next for the Space economy in the Era of Covid-19?” The workshop assembled agencies and space industry representatives to discuss recent evolutions in statistical indicators.
- Workshop, held on 2 October 2019 at OECD Headquarters in Paris, entitled “Linking Policies and Indicators: A Fresh Look”: The main objectives of the workshop were to: 1) highlight new strategies in place at national and regional levels to attract and sustain space industry and investments; and 2) review the availability and quality of existing and experimental indicators used by public organisations to take stock of recent or ongoing programme evaluations and impact assessments.
- A meeting of the group of Space Agencies Technology Transfer Officers (SATTO), on 21 February 2019 at the International Space University (ISU) in Strasbourg, France: The objective was to discuss different national practices in technology transfers.
- Workshop, held on 27 April 2018 at OECD Headquarters, Paris, entitled “The Transformation of the Space Industry: Linking Innovation and Procurement”: The objective was to review administrations’ practices and their need for specific statistics.
- Workshop, jointly hosted by the OECD Space Forum and Space Agencies Technology Transfer Officers (SATTO), held on 21 June 2017 at the French space agency CNES, entitled “Technology

Transfer and Commercialisation (TTC) from Space Programmes: Enabling Conditions, Processes and Economic Impacts”: The objective was to discuss measurement of space technology transfers.

- Workshop, held on 22-23 June 2017 at OECD Headquarters, Paris, on “Economic and Innovation Indicators for the Space Sector”: The main objective was to take stock of recent public efforts to collect and analyse data and indicators related to economic development and innovation in the space sector, sharing experiences with stakeholders from OECD countries and beyond, including industry associations.
- Workshop, held on 10-11 March 2016, at OECD Headquarters, Paris, entitled “Data to Decisions: Valuing the Societal Benefit of Geospatial Information”. The event was hosted by OECD and organised in collaboration with NASA, USGS and the GEOValue Community: It was the first technical workshop assembling so many economists and scholars from academia and research institutes to specifically discuss the value of geospatial information and satellite data. The workshop brought together around 100 participants from 22 countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ghana, Japan, Korea, Mexico, Netherlands, Nigeria, Norway, South Africa, Sweden, Switzerland, Uganda, United Kingdom, United States, Viet Nam). (See Chapter 5 on impacts.)
- Workshop, held on 25 May 2015, at OECD Headquarters, Paris, entitled “Taxonomy in the Space Economy: Defining, Describing and Classifying Actors engaged in Space Activities”: The main objectives of the workshop were to share practical information about taxonomies and data collection to support national policies and agencies’ priorities and to build consensus on basic definitions and perimeters for space-related activities to improve international comparability.

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