

Foreword

The OECD Science, Technology and Industry Scoreboard 2015 draws on the latest internationally comparable data to uncover the strengths of the OECD and other leading economies, and examine current challenges to overcoming the effects of recent financial and economic crises and improving the well-being of societies.

It features indicators traditionally used to monitor developments in science, technology, innovation and industry, and complements them with new and experimental indicators that provide new insights into areas of policy interest.

The aim of the STI Scoreboard is not to “rank” countries or develop composite indicators. Instead, its objective is to provide policy makers and analysts with the means to compare economies with others of a similar size or with a similar structure and monitor progress towards desired national or supranational policy goals. It draws on OECD efforts to build data infrastructure to link actors, outcomes and impacts, and highlights the potential and limits of certain metrics, as well as indicating directions for further work.

Indicators are pointers; they do not address causal relationships. Moreover, the validity of a set of indicators depends on its use. The selected indicators have been developed with the following criteria in mind:

- Indicators should be based on high-quality statistics and robust analytical principles and be measurable internationally, over time and with prospects of improvement.
- Indicators should be relevant, particularly for decision makers.
- Experimental indicators that complement more established ones should bring new perspectives and advance the measurement agenda. They should help to stimulate policy debates and uncover new dynamics.

The first chapter, **Knowledge economies: Trends and features**, provides a broad perspective. It looks at innovation, firm dynamics, productivity and jobs against the backdrop of the recent economic crisis. It explores the new geography of growth from the perspectives of global value chains, the changing innovation landscape, current features of scientific research, and the characteristics of innovation beyond formal research and development.

Five thematic chapters focus on key areas of policy interest:

- **Investing in knowledge, talent and skills** examines the knowledge assets that many firms and governments view as current and future sources of long-term sustainable growth. It provides experimental metrics of knowledge-based capital, such as formal and on-the-job training and organisational assets, both in the private and public sector. It develops new indicators of research “excellence” pointing to the research performance of countries that follow different paths of scientific specialisation, as well as indicators of skills necessary for the new working environment shaped by ICT.
- **Connecting to knowledge** helps inform the policy debate with a set of metrics on the variety and nature of mechanisms for knowledge diffusion. It presents indicators on the international mobility of highly skilled individuals including students and scientists, the impact of scientific

collaboration (based on patent citations), science-technology linkages (based on citations of non-patent literature in patent documents) and collaboration among firms in innovation processes. Also included are new indicators on the role of scientific leadership in international collaboration and open access to publicly funded research, based on an OECD experimental survey of scientists.

- **Unlocking innovation in firms** explores the dynamism of the business sector and framework conditions crucial for innovation. It examines intellectual property bundles with a focus on firms' joint use of patents, trademarks and industrial designs to protect their innovations. New data on registered designs provide information on countries' approaches to protecting creativity and a novel technique is proposed to help track product areas characterised by emerging creative activities. New estimates of R&D tax incentives are combined with direct funding of R&D to provide a more complete picture of government efforts to promote business R&D, while new indicators based on innovation surveys look at the participation of innovative firms in public procurement markets. Other indicators address the broader policy environment for innovation.
- **Competing in the global economy** investigates how countries seek to build their competitive strengths and the extent to which economies are successful in integrating and specialising along global value chains. It assesses indicators on R&D specialisation, technological advantages and relative strengths, as well as the characteristics of innovative firms and their use of new technologies in business processes. New indicators building on the OECD Trade in Value Added (TiVA) Database shed light on economies' participation in global trade and value chains, and the implications of this participation for jobs and consumers everywhere. The greater sectoral detail provided by the new TiVA data release also enables analysis of economies' relative strengths in specific industry global value chains.
- **Empowering society with science and technology** focuses on the extent to which citizens participate in innovative processes, the degree of sophistication of demand, and readiness to accept and recognise the potential of science and technology. A set of key indicators examines individuals' access to and use of technologies from an early age, the level of sophistication of users, and their role as e-consumers and e-citizens. Another set of indicators explores support for innovation to tackle grand challenges, such as health and the environment, in relation to national leadership in the development of new technologies in those areas. Finally, new and experimental indicators make use of qualitative surveys to develop indicators of public perceptions of science and technology.

The main audience of the STI Scoreboard is policy analysts with a good understanding of the use of indicators and those engaged in producing indicators for analytical or policy-making purposes. A few paragraphs introduce each indicator and offer some interpretation. Accompanying boxes entitled "Definitions" and "Measurability" provide detail on the methodologies used and summarise measurement challenges, gaps and recent initiatives.

All figures and underlying data can be downloaded via the StatLinks (hyperlink to a webpage). Additional data that expand the coverage of countries and time periods are available at the same links as "more" data. Several thematic briefs and country notes, as well as online tools to visualise indicators and help users develop analyses based on their own interests, are available at the STI Scoreboard website (www.oecd.org/sti/scoreboard.htm).



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