

Innovation for societal challenges

Rationale and objectives

Innovation can make a substantial contribution to dealing with societal challenges such as poverty, ageing, social exclusion and health. Rapid technological change, and in particular the wide application of information and communication technologies (ICTs), can also affect overall well-being, thanks notably to the sharp decline in the cost of ICTs, which are now largely accessible to all categories of the population, including in developing economies.

Policy plays a critical role in shaping the contributions that science, technology and innovation (STI) can make to social challenges, as market mechanisms often do not address these challenges sufficiently. First, solutions in areas such as health require basic research and therefore rely on contributions from public universities and public research institutes (PRIs). Second, social gains from solutions to such challenges can be particularly important, but may not be matched by private-sector returns. Not-for-profit initiatives can also be relevant but will require adequate policy frameworks to operate successfully.

Major aspects and instruments

There is no single definition of social innovation, although most tend to emphasise the objective of meeting social goals and, to some extent, the types of actors involved (e.g. not-for-profit, individuals, universities, government agencies, enterprises). Social innovation is therefore defined more by the nature or objectives of innovation than by the characteristics of innovations themselves. Social innovation seeks new answers to social problems by identifying and delivering new services that improve the quality of life of individuals and communities and by identifying and implementing new labour market integration processes, new competencies, new jobs, and new forms of participation that help to improve the position of individuals in the workforce.

There are several reasons why social challenges are increasingly important today and why STI is critical for meeting them. First, it has becoming increasingly clear in recent years that growth alone does not guarantee well-being. The benefits of growth do not always trickle down automatically. In fact, for a range of OECD countries there is evidence to suggest that, with growth, those at the bottom of the income distribution have benefited little if at all, unlike those at the top. This has resulted in widening within-country inequalities (OECD, 2011). Many emerging and developing countries that have experienced positive growth dynamics have also found that poverty and exclusion continue to be a challenge (OECD, 2013). The role of innovation, an important driver of growth, in shaping inequalities and in helping to support well-being is therefore critical.

Second, a large number of OECD and non-OECD countries are undergoing a substantial demographic change. An increasingly large share of the population is aged 65 and older (see also the STI Outlook chapter on “Megatrends for STI”). In 2010, the share of the OECD population over 65 years old was around 15%; it is expected to reach 27% by 2050 (OECD, 2015a). This will increase the demand for health care and put further pressure on public expenditures related to health care. The low labour force participation of older age groups is increasing the strain on social security and pension systems. Thus, finding ways of reducing and improving health care and related expenditures and encouraging the continued participation of the elderly in economic activities are challenges that call for innovations to support the situation of the elderly. Innovation can also help address health challenges, which increase in an ageing society, by providing more personal, predictive and preventive health-care products (OECD, 2013). The rising cost of many health technologies, however, poses a challenge to the wider uptake of these technologies that needs to be addressed.



Third, it is more widely recognised that innovation can offer new ways to address social challenges. Inclusive innovation and innovative products for lower-income groups have been very successful in helping the poor improve their welfare. For instance, mobile health and education services, low-cost cars and portable, pedal-powered washing machines have brought within reach some of the benefits of products often taken for granted by others (OECD, 2015b). Their scale is, however, often limited due to obstacles businesses need to overcome to cater for those markets.

A critical factor for innovation policies that aim to address social challenges is the public perception of science and technology's contributions to well-being. The extent to which policies better orient science and technology towards addressing well-being can help reduce negative views and also generate greater interest in STI and a wider willingness to adopt new technologies, two critical elements for stimulating STI (see the "Policy profile: Building a science and innovation culture" in this STI Outlook).

There are different ways in which innovation policies can address social challenges, and the growing demands on policy to address inclusive growth has also meant that STI policy is being asked to contribute more in a variety of ways. As a result, social challenges have focused more prominently in national STI strategies next to economic growth-promoting objectives pursued. These objectives are then implemented by use of a variety of instruments, including by establishing research grants to address specific social challenges and by encouraging the private sector to engage via funding schemes for social innovation projects and prizes in recognition of social efforts. Another set of instruments aims at broadening the group of innovators beyond those usually most involved in the process.

Recent policy trends

STI efforts to address different social challenges, specifically challenges related to health and ageing societies, continue to be high on the innovation policy agenda of most countries. Examples include the following: Providing more general support for innovative, inclusive and adaptive societies is among the ten challenges identified by France's national research strategy (SNR), one of three pillars of Greece's National Smart Specialisation Strategy for 2014-20, one of the four strategic goals of Spain's Strategy for Science, Technology and Innovation and part of Turkey's 10th Development Plan (2014-18).

Regarding specific social challenges (aside from environmental challenges), addressing the challenges of ageing societies and improving solutions to health and health challenges are core priorities. France's Innovation 2030 Commission identifies the following social needs among its seven objectives: 1) personalised medicine, 2) silver economy – innovation in the service of longevity, and 3) innovative projects on public security and protection against threats. Portugal's National Research and Innovation Strategy for Smart Specialisation, defined for the same 2014-20 period, also refers to addressing ageing. In Germany, the Ministry for Education and Research (BMBF) started in 2015 the "Bringing technology to the people" research programme on human-machine interaction (HMI), which places the spotlight squarely on the human aspect, focusing research priorities on fields of urgent social relevance and with a wide-ranging interpretation of the concept of innovation, to include both technological and social innovations.. Health and health care are critical priorities in Japan's 4th S&T Basic Plan (2011-16), Korea's 3rd S&T Basic Plan for 2013-17, Norway's Long-Term Plan for Research and Higher Education (2015-24), Latvia's priority directions for research funding in 2014-17, Estonia's R&D and Innovation Strategy for the Estonian Health System (2015-20), and Turkey's 10th Development Plan (2014-18) and the 2013-2017 strategic plan of its Ministry of Health.

Dealing with poverty and exclusion is high on the innovation policy agendas of Brazil, Chile, Colombia, India and South Africa. South Africa is in the process of developing its Innovation for Inclusive Development (IID) strategy, which will be aligned with the National Development Plan to improve and maximise the inclusion and equitable participation of marginalised groups in the STI system. Existing examples of how STI is being used to address societal challenges include access to and the quality of health services, as well as how STI is being used to achieve sustainable agriculture and water supplies for all. Some countries have specific programmes explicitly designed to help poor communities in this field. Brazil's Digital Inclusion Programme, implemented by the Ministry of Science, Technology and Innovation in collaboration with local government and non-governmental institutions, aims to guarantee poor people's access to information technologies. Costa Rica similarly aims to reduce the digital divide faced by disadvantaged communities, including by operating so-called Intelligent Community Centres (CECI) that provide training and access to online services and tools. Chile's Prototypes of Social Innovation programme aims to solve social challenge faced by disadvantaged communities. The programme gives grants for solutions developed by individuals, business and universities that are aimed at addressing these challenges.





An interesting approach adopted by some countries consists in broadening participation in innovation and research to wider groups in society (see also the “Policy profile: Research careers” in this STI Outlook). The purpose of these initiatives is to achieve more inclusive participation in the STI system. Examples include France’s New Deal for Innovation, which explicitly refers to inclusive innovation. The 29 Pépites (Pôle étudiant pour l’innovation, le transfert et l’entrepreneuriat) networks created across different regions of France by the Ministry of Higher Education and Research offer financial support, advice and counselling to young entrepreneurs of innovative start-ups. Several programmes also aim at including underrepresented groups in the STI system. An example is Ireland’s Competitive Start Fund for Female Entrepreneurs, which provides female-led start-ups with early stage funding to reach commercial and technical milestones for international product launches. The programme provides both financial and counselling support. Similarly, Japan’s Programme to Support Research Activities of Female Researchers offers funds to research organisations to develop and implement measures aimed at improving the research environment for women researchers and to carry out awareness-raising activities in high schools and colleges aimed at encouraging women to take up careers in science, technology, engineering and mathematics (STEM) disciplines. Another example is Israel’s programmes for companies from the ultra-orthodox community and from minority communities. The programmes encourage and support entrepreneurship by providing grants to start-up activities.

Finally, several programmes aim at broadening awareness of science in order to involve the public and draw more talent into STI activities and policy design (see also the “Policy profiles: Strengthening education and skills for innovation” and “Building a science and innovation culture” in this STI Outlook). With regard to raising citizen awareness of science, one of the three core objectives of Japan’s 4th S&T Basic Plan for 2011-16 is to promote “science in society, science for society”. China also has a National Action Plan for Scientific Literacy, which aims to provide every adult citizen with basic scientific literacy by 2050. Approaches towards achieving objectives include awareness-raising campaigns (including by promoting exhibitions) and measures aimed at improving S&T literacy in society (including by adjusting curriculum design at different educational levels) and at providing the general public with easier access to research results (including by digitising research documents). In the United States, the government’s 2015 revised Strategy for American Innovation similarly emphasises the importance of expanding participation in STI activities, not only by providing better STEM education but also by offering opportunities for citizen science and crowdsourcing as ways of sourcing contributions from the public (NEC-OSTP, 2015).

References and further reading

EC (European Commission)/OECD (2016), *International Database on Science, Technology and Innovation Policies (STIP)*, edition 2016, www.innovationpolicyplatform.org/sti-policy-database.

Innovation Policy Platform (IPP), available at: <https://www.innovationpolicyplatform.org/content/Innovation-for-development-and-inclusive-growth>.

Kergroach, S., J. Chicot, C. Petrolí, J. Pruess, C. van Ooijen, N. Ono, I. Perianez-Forte, T. Watanabe, S. Fraccola and B. Serve, (forthcoming), “Mapping the policy mix for innovation: the OECD STI Outlook and the EC/OECD International STIP Database”, OECD Science, Technology and Industry Working Papers.

OECD (2015a), *Health at a Glance 2011*, OECD Publishing, Paris, http://dx.doi.org/10.1787/health_glance-2015-en.

OECD (2015b), *Innovation Policies for Inclusive Growth*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264229488-en>.

OECD (2013), *ICTs and the Health Sector: Towards Smarter Health and Wellness Models*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264202863-en>.

OECD (2011), *Towards Green Growth*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/978926411318-en>.

US National Economic Council and Office of Science and Technology Policy (NEC-OSTP) (2015), *A Strategy for American Innovation*, October 2015, The White House.

© OECD, 2016. This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

<http://oe.cd/STIOutlook> – STIPolicy.data@oecd.org –  @OECDInnovation – <http://oe.cd/stinews>





From:

OECD Science, Technology and Innovation Outlook 2016

Access the complete publication at:

https://doi.org/10.1787/sti_in_outlook-2016-en

Please cite this chapter as:

OECD (2016), “Innovation for societal challenges”, in *OECD Science, Technology and Innovation Outlook 2016*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/sti_in_outlook-2016-21-en

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.