



---

Discover the OECD  
Directorate for Science,  
Technology and Innovation

---

**2017**





## A message from the Secretary-General

**The** Organisation for Economic Co-operation and Development (OECD) prides itself on providing a forum in which governments work together to seek solutions to common problems, share experiences and identify best practices to promote better policies for better lives. For more than 50 years, we have helped forge global standards and provide insights into areas as diverse as governance and the fight against bribery and corruption, corporate responsibility, development, international investment, taxes, and the environment, to mention a few.

As one of the world's largest and most trusted sources of analysis and statistical data, we relish the opportunity to tackle the tough issues. The Directorate for Science, Technology and Innovation (DSTI) has contributed to many strands of the OECD's multidisciplinary analysis, including in areas such as global value chains (GVCs), productivity and inclusive growth. By leading the OECD's work on the 2015 update of the Innovation Strategy and knowledge-based capital (KBC), DSTI helped break new ground in understanding how policy makers must steer their economies in an increasingly complex and global world.

Looking ahead, one of the major challenges facing our member countries and partner economies will be to grasp the implications of digital transformation and new technologies for the shape of our economies and societies in the 21st century. DSTI will play a critical role in the OECD's new cross-cutting project – Going Digital – that will exploit our policy breadth and international purview to examine how the digital transformation affects policy making across a large spectrum of policy areas. This project will take advantage of lessons drawn from the OECD's "New Approaches to Economic Challenges" which, in the wake of the global financial crisis, involved a comprehensive organisation-wide reflection on how to renew and strengthen our analytical frameworks, policy instruments and tools.

Responding to the digital transformation will require fundamental rethinking of policies across many different areas. The OECD, and DSTI, are taking up the challenge.

**Ángel Gurría**  
OECD Secretary-General

It is part of the DNA of the Directorate for Science, Technology and Innovation (DSTI) to constantly look for ways of better understanding where our economies and societies are today, and where they are going tomorrow. We pride ourselves on tackling topics at the boundaries of our scientific and technological understanding, such as using bio- and nanotechnology to alter modes of production; a granular view on productivity; and how digital shifts like “big data,” earth observation and digital platforms are changing our world.

We traverse a vast range of topics, developing evidence-based policy advice on the contribution of science, technology and innovation to our economies and societies. From business dynamics and productivity to GVCs to the evolution of the digital economy, from innovation for social challenges to alleviating excess capacity in heavy industries, the DSTI seeks to provide new insights for policymakers. When called upon, we also “go national”, as seen in our 2016 in-depth reviews of innovation policies of Lithuania, Malaysia and Sweden.

The DSTI also benefits from strong statistical methodologies. Examples are those for measuring R&D and innovation (the *Frascati Manual* and *Oslo Manual*, respectively), as well as official data reconfigured to be analytically useful – such as the *Structural Analysis (STAN)* database and the inter-country input-output (ICIO) system that powers our *Trade in Value Added (TiVA)* indicators.

A key focus for us now is the OECD’s cross-cutting project on digital transformation: Going Digital. This work seeks to help policymakers better understand and pro-actively steer their economies and societies in a world that is increasingly digital and data-driven. As well as a holistic framework for analysing the digital transformation, the work will take “deep dives” on issues residing at the intersection of multiple policy areas, providing real and coherent solutions to policy makers. It will draw on the expertise of the whole of DSTI, bringing out fresh evidence on topics critical for a digital world.

I am proud to lead the DSTI and its work towards making our economies and societies stronger and ultimately fostering better policies for better lives.

**Andrew Wyckoff**  
STI Director



## The Directorate for Science, Technology and Innovation

# Contents

Productivity and the future of growth .....	5
Sustaining productivity growth .....	6
Using micro-data to inform policy .....	7
Innovation for growth and well-being .....	8
A strategic approach to innovation .....	9
Tailoring advice to the country context .....	10
Innovation for inclusive development .....	11
The digital future .....	12
The digital economy: Innovation, growth and social prosperity .....	13
Going Digital: Making the transformation work for growth and well-being ..	14
The fabric of the digital economy: Infrastructure and trust .....	15
Empowering consumers in the digital economy .....	16
Powering the future with knowledge-based capital .....	17
Knowledge-based capital: An essential part of growth .....	18
Driving growth with intellectual property .....	19
Data: The new key to innovation .....	20
Science and technology .....	21
Science as a foundation for innovation and socio-economic development ..	22
From deep space to the ocean depths .....	23
Policies on bio-, nano- and converging technologies .....	24
Industry and globalisation .....	25
Shedding light on industry and globalisation .....	26
Bringing about the next production revolution .....	27
Addressing structural challenges in the steel and shipbuilding sectors .....	28
Reaching beyond the OECD .....	29
Supporting global discussions of STI .....	30
Engaging with regional partners .....	31
Measurement: The backbone of DSTI analysis .....	32
Building the evidence base for policy:	
On-demand resources for policy makers .....	33
Bringing data to bear on STI issues .....	34
Annexes .....	35
Flagship publications .....	35
Working papers and policy reports .....	36
Our structure .....	37
Who we are .....	39



# Productivity and the future of growth



# Sustaining productivity growth

Despite the ongoing flow of new ideas, technological innovations and new business models in OECD countries, productivity growth has generally slowed over the past decade. The DSTI is working to harness unique data and analysis to understand why and offer new policy insights and recommendations.

**With** headwinds such as population ageing and plateauing educational attainment, economies must focus on productivity as the main driver of future growth. Drawing on micro-data projects run by the DSTI, new OECD work explores the economic forces shaping productivity by focusing on developments at the firm level. Productivity growth in firms that are the most productive globally (“global frontier firms”) has remained relatively robust, despite the slowdown in average productivity growth. But spillovers to other firms have remained weak and some firms have seen little or no productivity growth for a very long time.

Policy makers must consider how to create a market environment where the most productive firms can thrive and resource misallocations are reduced. If done successfully, this can make growth more inclusive, by allowing more firms and workers to reap the benefits of the knowledge economy.

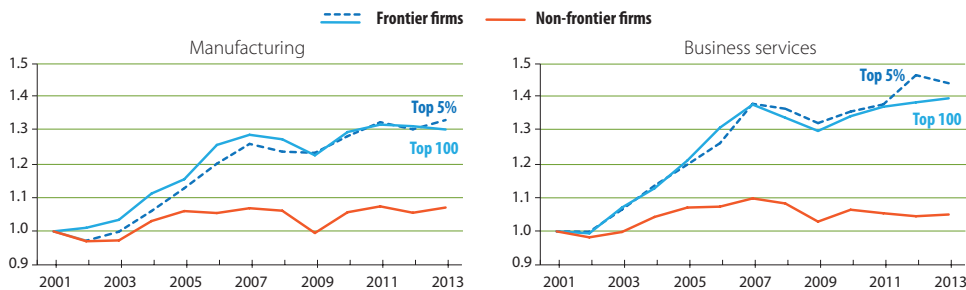
Work on productivity will continue to be a key theme in the DSTI, including through the newly established OECD Global Forum on Productivity, a collaborative effort between bodies of the DSTI and the OECD Economics Department, providing a mechanism for mutual exchange of information and international co-operation between public bodies with responsibility for promoting productivity-enhancing policies. Annual meetings and ongoing research work will keep this critical economic policy issue on the top of the global agenda. ■

## Q Find out more

- OECD (2015), *The Future of Productivity*, <http://dx.doi.org/10.1787/9789264248533-en>
- *OECD Productivity Working Papers* series <http://dx.doi.org/10.1787/24139424>
- *OECD Global Forum on Productivity* – <http://oe.cd/GFP>

## The productivity gap between leaders and laggards is widening

Labour productivity (index 2001=1)



Note: “Business services” excludes the financial sector.

Source: Andrews, D., C. Criscuolo and P. Gal (2016), “The Best versus the Rest: The Global Productivity Slowdown, Divergence across Firms and the Role of Public Policy”, *OECD Productivity Working Papers*, No. 5, OECD Publishing, Paris, <http://dx.doi.org/10.1787/63629cc9-en>.

## 💡 Did you know...?

Labour productivity at the global frontier increased at an average annual rate of 3.5% in the manufacturing sector over the 2000s, compared to an average growth in labour productivity of just 0.5% for non-frontier firms. The gap is even more pronounced in the services sector. ●

---

# Using micro-data to inform policy

---

Being able to study firm-level data gives valuable insights into what is driving our “headline” economic statistics, such as productivity and growth. The DSTI’s micro-data projects preserve confidentiality of the data while breaking new analytical ground.

---

**DSTI’s** micro-data projects work by giving national research teams commonly specified protocols and models to apply to their national (confidential) datasets and taking the results of those models to run cross-country analysis. For example, the MultiProd project explores the entire firm-level productivity distribution of a country over time, covering more than 15 countries. This project is an essential tool in the policy-making toolkit, as data on industry averages can mask underlying patterns and lead to sub-optimal policy decisions. For instance, low average productivity in a given country might be due to having too few firms at the top, which would hint at an underlying lack of innovation; or to having too many firms at the bottom, which would point to weak forces for firm exit and resource reallocation. These two opposite situations would call for very different policies. Recent work on the basis of the data suggests productivity dispersion is linked to wage

dispersion, with important implications for policies aimed at reducing inequality.

The DynEmp project offers insights into entrepreneurship and jobs, by providing new evidence on the employment dynamics of start-ups and incumbents across more than 20 OECD countries and partner economies. While new entrants disproportionately contribute to job creation, significant differences exist in the extent to which they manage to do so, and start-up rates appear to have declined in many countries over the past 15 years. This is a critical issue for governments, as national policies and framework conditions are likely to explain some of these trends. Policy failures appear to hamper significantly more start-ups than incumbents, especially in the most risky and volatile sectors, as well as in sectors that are more financially dependent. Getting policy right can unleash the growth and job creation potential of young, innovative firms. ■



---

## Q Find out more

- MultiProd – <http://oe.cd/multiprod>
- OECD (forthcoming), *Business Dynamics and Productivity*, <http://dx.doi.org/10.1787/9789264269231-en>
- OECD (forthcoming), “The great divergence(s)”, *OECD Science, Technology and Industry Policy Papers*
- Menon, C. (forthcoming), “Cross-country evidence on business dynamics over the last decade: From boom to gloom”, *OECD Science, Technology and Industry Working Papers*
- DynEmp – <http://oe.cd/dynemp>
- Calvino, F., C. Criscuolo and C. Menon (2016), “No Country for Young Firms”, *OECD Science, Technology and Industry Policy Papers*, No. 29, <http://dx.doi.org/10.1787/5jm22p40c8mw-en>



# Innovation for growth and well-being



---

# A strategic approach to innovation

---

Innovation is a key driver of productivity, growth and well-being, and plays an important role in helping address core public policy challenges like health, the environment, food security, education and public sector efficiency. The breadth of issues demands a strategic approach to innovation backed up by robust data.

---

**Seizing** innovation's potential – actually turning it into growth and jobs, improved well-being and health outcomes, or solutions to problems such as climate change – remains a challenge for many countries. To harness its contribution, policy makers need to foster a sound environment for innovation, invest in the foundations – such as research, education and knowledge infrastructure – and address critical barriers to innovation.

In 2015, the OECD launched its revised Innovation Strategy – *The Innovation Imperative: Contributing to Productivity, Growth and Well-being* – which provides a toolbox for governments that wish to strengthen innovation and make it more supportive of inclusive and green growth. The strategy is informed by an extensive suite of indicators and good policy practices, built up over 50 years in areas such as support to R&D, public/private partnerships for innovation and overall management of national innovation systems.

The list of policies for innovation is long and goes beyond research and technology policies, which implies the need for strong co-ordination across government policy areas. Four areas of policy are particularly important. First, inno-



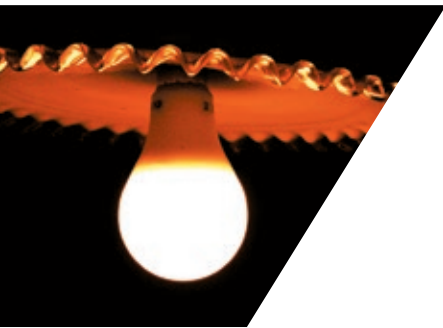
vation relies on a skilled workforce that can generate new ideas and technologies, implement them and bring them to the market. Addressing skills shortages and mismatching is critical in order for the workforce to adapt to technological and structural changes and promote inclusive growth. Second, innovation requires a sound business environment that encourages investment in technology and in KBC; that enables innovative firms to experiment with new ideas, technologies and business models; and that helps them to grow, increase their market share and reach scale. Third, innovation needs a strong and efficient system for knowledge creation and diffusion that invests in the systematic pursuit of fundamental knowledge and that diffuses knowledge throughout society. And finally, specific innovation policies are needed to tackle a range of barriers to innovation and entrepreneurial activity. ■



---

## Q Find out more

- OECD (2015), *The Innovation Imperative: Contributing to Productivity, Growth and Well-being*, <http://dx.doi.org/10.1787/9789264239814-en>
- OECD (2015), *OECD Science Technology and Industry Scoreboard 2015*, [http://dx.doi.org/10.1787/sti\\_scoreboard-2015-en](http://dx.doi.org/10.1787/sti_scoreboard-2015-en)
- OECD (2015), *Frascati Manual 2015*, <http://dx.doi.org/10.1787/9789264268111-ko>
- OECD Innovation Strategy – <http://oe.cd/InnovationStrategy>



## Tailoring advice to the country context

With differences in their basic conditions for innovation as well as institutional characteristics and approaches to policy, countries need innovation policies and related governance systems that are adapted to their specific circumstances and capacities but that leverage the policy experiences of their peers.

**Innovation** policy is becoming an integral part of economic policy in a wide range of countries, both advanced and emerging. The DSTI offers comprehensive country-level assessments of national innovation systems, focusing on the role of government. These reviews are a resource for policy makers attempting to leverage innovation to achieve their countries' goals, be they boosting productivity growth, moving up the value chain, or driving sustainable growth and development. The reviews, conducted at a country's request, provide concrete policy recommendations to strengthen the science system, harness technological change, boost economic growth, achieve needed social objectives and create environments conducive to further innovation.

Since the first review in 2006 – of Switzerland's innovation policy and system – the series has grown rapidly, covering a

range of OECD member countries and partner economies. Not only do the reviews provide tailored advice, they also comprise a well-spring of good practices in innovation policy that all countries can learn from. Malaysia, Sweden and Lithuania received reviews in 2016, and the coming years will see reviews of countries such as Finland, Norway and Portugal, the latter also incorporating a review of the higher education system. ■

### Q Find out more

- OECD Reviews of Innovation Policy – <http://dx.doi.org/10.1787/19934211>



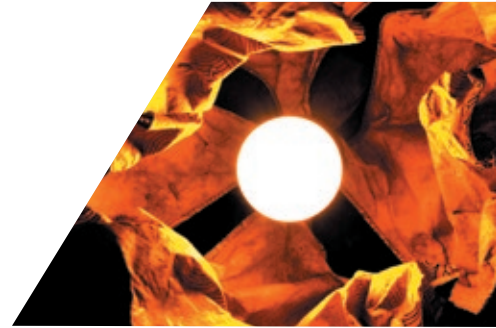
---

# Innovation for inclusive growth

---

Innovation and innovation policies can play a pivotal role in fostering both inclusiveness and growth. At a time of rapid technological change and concerns about inequalities, boosting the capacities and opportunities of individuals to participate in highly productive, innovative activities is important for policy.

---



**Throughout** history, technological change and innovation have fuelled massive socio-economic transformations that have greatly raised living standards. Today, innovations in information and communication technologies (ICTs) have brought similar contributions to all groups in society. Much will depend on people's opportunities to engage in innovation.

Many countries have introduced inclusive innovation policies that seek to address the barriers found by some social groups, firms and regions to participate in innovation, research and entrepreneurship activities. Innovation policies can also promote inclusiveness by encouraging the development of innovations that specifically serve the welfare of lower-income and excluded groups. An interactive Inclusive Innovation Policy Toolkit developed on the OECD-World Bank Innovation Policy Platform provides practical support to policy makers for the design and implementation of effective inclusive innovation policies, building on a range of examples from different countries.



National intellectual property (IP) systems in developing and emerging countries can support innovation performance. The OECD has analysed how IP systems can best serve development and conducted reviews of the national IP systems of Colombia, Indonesia, Kazakhstan and Malaysia. ■

---

## Q Find out more

- OECD (2015), *Innovation Policies for Inclusive Growth*, <http://dx.doi.org/10.1787/9789264229488-en>
- OECD (2016), *Boosting Kazakhstan's National Intellectual Property System for Innovation*, <http://dx.doi.org/10.1787/9789264260955-en>
- **Intellectual Property Studies** – <http://oe.cd/ip-studies>
- **Innovation for Inclusive Growth** – <http://oe.cd/inclusive>



# The digital future

# The digital economy: Innovation, growth and social prosperity

In June 2016, the OECD held its third Ministerial Meeting on the digital economy, in Cancún (Mexico), intended to help policy respond to the latest wave of digital change characterised by ubiquitous computing and data-driven innovation, and helping those in danger of being left behind.

**The** DSTI has long placed importance on the digital economy and has been a key player in shaping international policy norms. Previous ministerial meetings – in Ottawa in 1998 and Seoul in 2008 – led to important Declarations on Authentication for E-Commerce, the Protection of Privacy on Global Networks, and the Future of the Internet Economy, and laid the ground for the *OECD Council Recommendation on Principles for Internet Policy Making* that urges policy makers to protect the openness of the Internet to unleash innovation, creativity and economic growth.

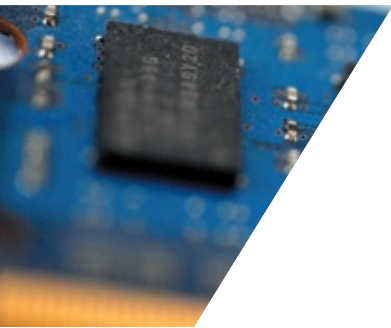
The Cancún Ministerial in 2016 again placed digital issues firmly on the global political agenda and underscored the importance of preserving the openness and accessibility of the Internet. Ministers underlined the need to invest in 21st-century digital technologies and services, and to use them effectively to reduce differences within and across countries, noting that this also requires investment in complementary assets such as skills, organisational change and data. Discussions on boosting trust in the digital economy led to calls for privacy and data protection strategies at the highest levels of government, for effective privacy and data protection across borders, and for treating security risks as an economic – not just a technical – risk. Helping workers succeed in the digital economy through the development of ICT skills and foundational skills, such as information processing, self-direction and problem solving, was recognised as a necessity for them to be able to function in “technology-rich environments”. With an explicit call to the OECD to measure the digital economy better and explore new areas – such as trust, cross-border data flows and the Internet of Things – the Cancún declaration, signed by 41 countries and the European Union, is a

major milestone in shaping a forward-looking roadmap for understanding and making the most of the opportunities of the digital economy. ■

## Q Find out more

- OECD (2016), *Ministerial Declaration on the Digital Economy*, <http://oe.cd/DigitalEcoDeclaration>
- OECD (2016), *Digital Economy Data Highlights*, <http://oe.cd/DigitalEcoDataHighlights>
- OECD (2011), *OECD Council Recommendation on Principles for Internet Policy Making*, <http://oe.cd/InternetPolicyMaking>
- *OECD Digital Economy Papers series* – <http://dx.doi.org/10.1787/20716826>





# Going Digital: Making the transformation work for growth and well-being

The OECD is undertaking a multidisciplinary project to better understand how to seize the benefits of digital transformation for growth and well-being. The aim is to give policy makers the tools they need to help their economies and societies prosper in a world that is increasingly digital and data-driven.

**The** ongoing digitalisation of the economy and society holds many promises to spur innovation, generate efficiencies and improve services, and in doing so boost more inclusive and sustainable growth as well as enhance well-being. But these benefits go hand in hand with disruptions. Digitalisation transforms how we interact with one another and with society more broadly, and it changes the nature and structure of organisations and markets, raising important issues around privacy, security, jobs and skills, and how to ensure that technological changes benefit society as a whole, among others.

To chart the road ahead, the OECD is carrying out a cross-cutting and multidisciplinary project on seizing the benefits of digital transformation for growth and well-being. It brings together the wide-ranging policy and analytical expertise of the OECD to help policy makers identify the policy options and trade-offs from a whole-of-government perspective so as to fully seize the potential benefits and address the challenges related to digital transformation.

The project will involve the development of an analytical framework for understanding the various dimensions of digitalisation and its impact, and how policy settings may need to be adjusted in response. Finally, it will undertake in-depth research to try to gain key insights into one or several aspects of some big questions we face in the digital era and that are at the intersection of more than one policy area, such as jobs and skills in the digital economy, the implications of the transformation for productivity, competition and market openness, and developing new tools for measuring the digital transformation. It will take a whole-of-government perspective, involving 14 OECD Committees during 2017-18. ■

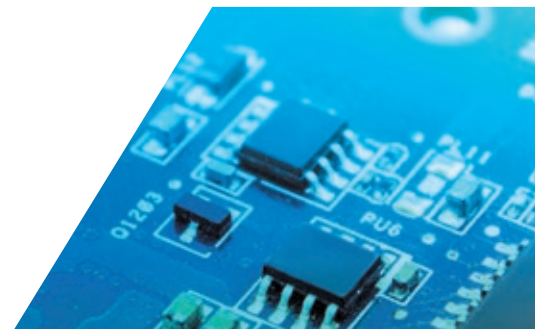
## Find out more

- **Going Digital project** – <http://oe.cd/goingdigital>



# The fabric of the digital economy: Infrastructure and trust

Two important preconditions for reaping the benefits of the digital economy are adequate access to broadband and a climate of trust among users so that this infrastructure can serve and be leveraged for economic and social gain.



**Broadband** is a fundamental infrastructure, serving as a communication and transaction platform for the entire economy and enabling improved productivity across all sectors, as well as increased opportunities for civic engagement.

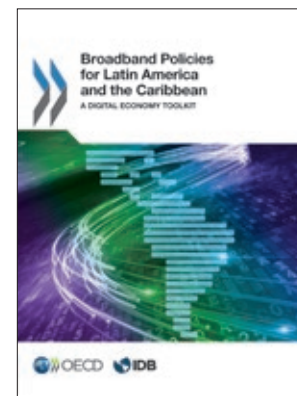


The DSTI performs analysis on telecommunication markets and performance; on regulatory issues such as interconnection, convergence and universal service; and on the development of communication infrastructure to support the digital economy. It also provides independent assessments of countries' progress in achieving policy objectives in the areas of telecommunication markets and national broadband plans. Telecommunication reviews – conducted at the request of governments – result in targeted recommendations and implementation

assessments, while broader reviews and toolkits promote peer learning and good practices and help governments implement reforms. The analyses are supported by a broad range of economic data – including broadband data available at the *OECD Broadband Portal* – and country experiences.

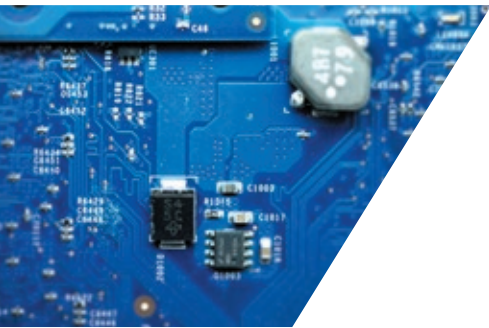
Over three decades, the DSTI has also played an important role in promoting policies and instruments for innovation and trust in the digital economy, in order to reap the benefits associated with the digital environment. Digital security incidents are growing in both number and sophistication each year, and can lead to significant economic and social consequences for public and private organisations. Examples include disruption of operations, direct financial loss,

lawsuits, reputational damage, and loss of competitiveness. Today's digital environment also challenges existing frameworks for personal data protection with potential adverse consequences on individual privacy and individual trust. A recent OECD Recommendation calls on stakeholders to integrate digital security risk management in their economic and social decision-making process, rather than approaching it solely from a technical perspective. Future work will explore how to address the particular challenges facing small and medium-sized enterprises and individuals, as well as the opportunities to develop and implement effective risk management strategies tailored to these stakeholders. ■



## Q Find out more

- OECD (forthcoming), *OECD Digital Economy Outlook 2017*
- OECD (2015), *OECD Digital Economy Outlook 2015*, <http://dx.doi.org/10.1787/9789264232440-en>
- OECD and IDB (2016), *Broadband Policies for Latin America and the Caribbean: A Digital Economy Toolkit*, <http://dx.doi.org/10.1787/9789264251823-en>
- **Telecommunication market reviews** – [www.oecd.org/sti/telecom/reports](http://www.oecd.org/sti/telecom/reports)
- *OECD Broadband Portal* – <http://oe.cd/broadband>
- OECD (2015), *Digital Security Risk Management: OECD Recommendation and Companion Document*, <http://oe.cd/DigitalSecurityRiskMgt>
- OECD (2013), *The OECD Privacy Framework*, <http://oe.cd/PrivacyFramework>



# Empowering consumers in the digital economy

The evolution of the digital economy brings expanded opportunities for consumers to access a variety of goods and services at competitive prices. But navigating this increasingly complex marketplace poses challenges and highlights the need for more effective consumer protection.

A **dynamic** and innovative e-commerce marketplace has developed, where consumers play a more active role and benefit from easier access to a wider range of goods and services. But business-to-consumer e-commerce has not reached its full potential. Although growing rapidly, it still represents a relatively small share of overall retail sales, and it is even more limited at cross-border level. Well-tailored consumer protection can help to enhance consumer engagement and trust in such a dynamic marketplace. In 2016, the OECD revised its *Recommendation on Consumer Protection in E-commerce*, modernising its approach to fair business practices, disclosures, payment protections, unsafe products, dispute resolution, enforcement and education.



One particular issue of interest is peer-to-peer transactions, which have long played a role in commerce, but which online platforms now enable on a much greater scale. These peer-platform markets – sometimes called the “sharing” economy – open up economic opportunities for the individuals supplying the goods or services and for the platforms making the connections. Consumers benefit from advantages in terms of price, selection, convenience and social experience. These online marketplaces also raise new policy challenges: a 2016 study identifies difficulties in applying existing consumer protection frameworks to business models that blur the boundaries between consumers and businesses and highlights the need for further work.

Another development is the growing complexity of online supply chains, where the tracking of manufacturers, sellers and products sold online has become more difficult. In such an environment, the need has become more acute to ensure that products offered for sale online are safe and meet relevant product safety standards. As revealed in a 2016 report, a range of products that have been banned or recalled in countries are available for sale online. Governments and private-sector actors from OECD countries and emerging economies are exploring how online market surveillance may be adapted to meet these challenges. ■

## Find out more

- OECD (2016), *Consumer Protection in E-commerce: OECD Recommendation*, <http://oe.cd/EcommerceRecommendation16>
- OECD (2016), “**Protecting Consumers in Peer Platform Markets**”, *OECD Digital Economy Papers*, No. 253, <http://dx.doi.org/10.1787/5j1wvz39m1zw-en>
- OECD (2016), “**Online Product Safety: Trends and Challenges**”, *OECD Digital Economy Papers*, No. 261, <http://dx.doi.org/10.1787/5j1nb5q93jlt-en>





A blurred high-speed train track with a cityscape in the background. The tracks are in the foreground, leading towards a bright horizon. The background shows a city with buildings and power lines. The overall color palette is dominated by blues and greys, with a bright white light at the end of the tracks.

Powering the  
future with  
knowledge-based  
capital



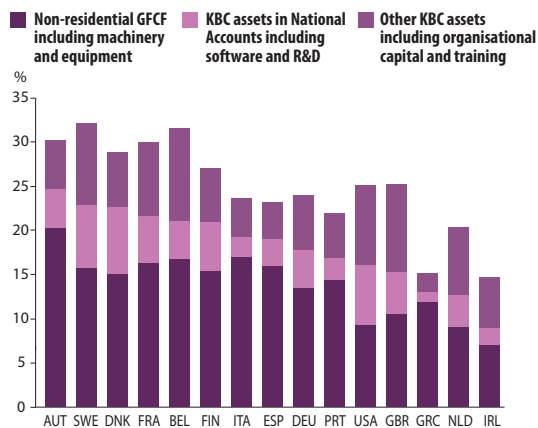
# Knowledge-based capital: An essential part of growth

Policy makers concerned with innovation often focus on R&D. But DSTI-led work shows that other forms of investment also matter for business innovation, implying the need for broad-based policies for innovation.

**Knowledge-based** capital (KBC) results from business investment in non-physical assets such as R&D, data, patents, new business models and processes, firm-specific skills and designs. The OECD's 2011-13 project, *New Sources of Growth: Knowledge-based Capital*, led by the DSTI, showed that business investment in KBC is a key to productivity growth and living standards. In many OECD countries, business investment in KBC has increased faster than investment in physical capital (such as machinery, equipment and buildings). Business investment in KBC now significantly exceeds investment in physical capital. Demographic and other constraints mean that growth in advanced economies will increasingly depend on knowledge-based increases in productivity.

Many existing policy settings, as well as systems of corporate reporting and national statistics, best suit a world in which physical capital rather than intangibles has primacy. Ensuring that policies are updated and conform to good practice is essential in such fields as taxation, entrepreneurship, education, competition, corporate reporting, IP and policies that enable the use of data as an economic asset. Getting the key framework conditions right can be a low-cost step for policy makers in fiscal terms, and is essential for harnessing growth in the 21st century. ■

**Business investment in fixed and knowledge-based capital, selected economies, 2013**



Source: OECD calculations based on INTAN-Invest data and OECD, *Structural Analysis (STAN)* database, <http://oe.cd/stan>, June 2015.

## Q Find out more

- OECD (2013), *Supporting Investment in Knowledge Capital, Growth and Innovation*, <http://dx.doi.org/10.1787/9789264193307-en>
- OECD (forthcoming), *OECD Science, Technology and Industry Scoreboard 2017*
- OECD (2015), *OECD Science, Technology and Industry Scoreboard 2015*, [http://dx.doi.org/10.1787/sti\\_scoreboard-2015-en](http://dx.doi.org/10.1787/sti_scoreboard-2015-en)
- KBC project – <http://oe.cd/kbc>

## 💡 Did you know...?

Research published in 2010 indicated that the iPhone had then added around USD 30 billion to the value of the Apple Corporation, with only 25% of this attributable to patentable technology stemming from R&D. Much of the rest was found to be attributable to Apple's innovations in design. ●

# Driving growth with intellectual property

With the rise in importance of knowledge-based capital, understanding the issues around the IP rights protecting KBC is critical. IP-protected capital plays an increasing role in economic activity, and IP policy is now an influential framework condition affecting innovation, as well as e.g. trade, competition and taxation.



In the second phase of the OECD's Knowledge-based Capital project, the DSTI explored IP's role in OECD countries and examined some of the forces affecting it, including digitisation and the growth of the Internet. The environment in which IP operates has been changing substantially due to developments such as globalisation and Internet growth. These have created both new challenges (e.g. increased risk of piracy) and new opportunities (e.g. streamlined patent research). As many IP laws date from eras preceding the rise of the digital economy, several countries have been reviewing them to ensure that they remain suitable for the digital era.



The study *Enquiries into Intellectual Property's Economic Impact* found that compared with patents, trademarks and design rights, copyright appears to be the most economically significant type of IP. Available data indicate that

it attracts the largest component of IP-protected investment and that copyright-intensive sectors had a higher job growth rate over the past 25 years than patent-and trademark-intensive sectors. Nevertheless, fewer empirical studies exist on copyright than on patents, likely due to a scarcity of data. Meanwhile, patent rights have grown stronger in OECD countries. This report also includes ground-breaking work that suggests a link between trade secret protection and innovation, pointing to an issue which merits continued study.

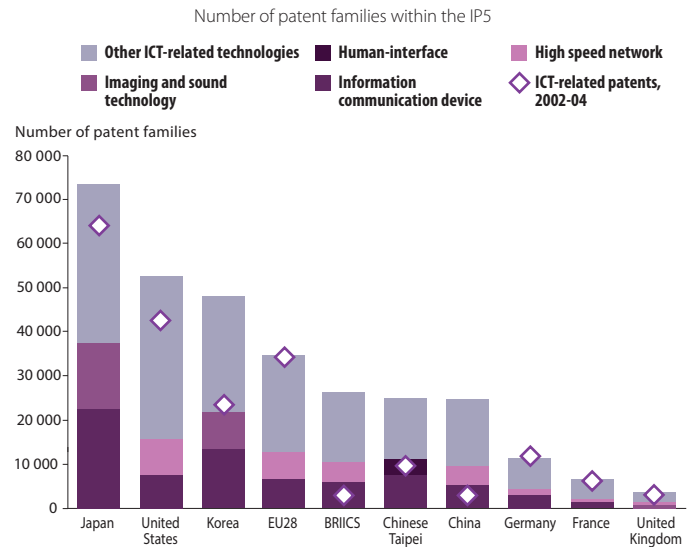
The DSTI remains heavily involved in analysing IP issues, including through its role in the annual IP Statistics for

Decision Makers conference. This forum brings together the world's IP offices, policy makers and academics to discuss the role of IP in our economies and societies. ■

## Find out more

- OECD (2015), *Enquiries into Intellectual Property's Economic Impact*, <http://oe.cd/ipr>
- IP Statistics for Decision Makers – <http://oe.cd/STIpatents>

## Top technologies in ICT-related patents of selected economies, 2012-14



Note: Data refer to families of patents filed with the Five IP offices (IP5), by first filing date, according to the applicant's residence using fractional counts. Patents in ICT are identified following a new experimental classification based on their International Patent Classification (IPC) codes. Data from 2013 are estimates. Source: OECD (2017), *STI Micro-data Lab, Intellectual Property database*, <http://oe.cd/ipstats>, February 2017.



# Data: The new key to innovation

Thanks to the Internet, now more than ever, the world is doing business globally and information is flowing within – and across – borders at an unprecedented pace. These data flows are critical for trade, innovation, entrepreneurship, growth and social prosperity.

**The** Internet has grown and diffused rapidly across the globe, bringing significant benefits to economies and societies. As another part of phase two of the OECD's Knowledge-based Capital project, the DSTI explored how the confluence of several trends, including the increasing migration of socio-economic activities to the Internet and the decline in the cost of data collection, storage and processing, is leading to the generation and use of huge volumes of data – commonly referred to as “big data”.

These large data sets are becoming a core asset in the economy, fostering new industries, processes and products and creating significant competitive advantages. The wealth of

data collected also offers immense opportunities in areas as diverse as public administration, health, education and research. But to tap these opportunities for data-driven innovation, governments will need to consider policy settings around privacy and security, flows of data, skills for a data-savvy population, and the environment for entrepreneurship and experimentation.

As data flows grow alongside the explosion of “smart” devices, policy-makers will also need to strive for technology neutrality, innovation and the promotion of new business models. A “whole-of-government” perspective, particularly on matters related to privacy and security, will be essential. Flexibility, transparency, equity, and – to the extent possible – far-sightedness will underpin the development of the Internet of Things and the potential opportunities it will bring. ■



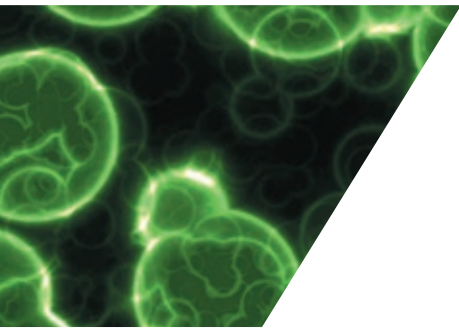
## Q Find out more

- OECD (forthcoming), *OECD Digital Economy Outlook 2017*
- OECD (2015), *OECD Digital Economy Outlook 2015*, <http://dx.doi.org/10.1787/9789264232440-en>
- OECD (2015), *Data-driven Innovation for Growth and Well-Being*, <http://dx.doi.org/10.1787/9789264229358-en>
- OECD (2014), *Measuring the Digital Economy*, <http://dx.doi.org/10.1787/9789264221796-en>
- DSTI work on data-driven innovation – <http://oe.cd/bigdata>





# Science and technology



# Science as a foundation for innovation and socio-economic development

With ever more economies investing in science, the need to ensure benefits to society from advances in scientific understanding has never been higher. The DSTI works hard to promote a shared vision of science for growth, job creation and enhanced well-being.

**Only** two decades ago, most scientific research capabilities were located in a small set of highly advanced countries. Today, although the United States is still the world's largest R&D performer, its domestic R&D expenditures are just about one-third more than the amount of R&D performed in China, which is itself broadly on a par with the combined R&D of the European Union. And since 2008, government R&D budgets – which are crucial for funding long-term, higher-risk research – have increased in countries such as Argentina, Mexico and Turkey. The globalisation of science presents new opportunities for international co-operation to address shared societal challenges.

One of DSTI's bodies dedicated to science policy and international co-operation is the Global Science Forum (GSF). Historically, much of GSF's work has been focused on international research infrastructures, which consume a large amount of the public research budget and require long-term strategic planning. Recent work on effective organisation and governance models for distributed infrastructures is being followed up in studies on their sustainability and assessment of their socio-economic impact. Open science and digital infrastructures have become an increasing focus of GSF interest. This includes recent studies on the ethics of research using new forms of data and ongoing work on international co-ordination and sustainable business models for data infrastructures. At a more generic level, how best to fund science, encourage novel ideas and promote interdisciplinary research are universal challenges. GSF has started new work analysing different competitive funding mechanisms – including aims, processes and outcomes – that is expected to provide insights for policy makers and identify potential gaps in terms of performance indicators and measurement. ■

## Q Find out more

- OECD Global Science, Forum – <http://oe.cd/gsf>
- OECD (2015), "Making Open Science a Reality", *OECD Science, Technology and Industry Policy Papers*, No. 25, <http://dx.doi.org/10.1787/5jrs2f963zs1-en>
- OECD work on science and technology – [www.oecd.org/science](http://www.oecd.org/science)
- OECD (2016), "Research Ethics and New Forms of Data for Social and Economic Research", *OECD Science, Technology and Industry Policy Papers*, No. 34, <http://dx.doi.org/10.1787/5jln7vnpxs32-en>



# From deep space to the ocean depths

Humanity's search for knowledge has long stretched to the far reaches of space and the mysterious ocean depths. But there are many practical policy issues that governments face as they attempt to harness these extremes for economic and social development.

In our interconnected world, science and technology activities are major drivers of productivity, economic growth and innovation, and the space sector is one vector of this dynamic. Many essential activities that shape our daily lives – such as weather forecasting, global communications or broadcasting – would be almost unthinkable today without satellite technology. In co-operation with the space community, the OECD Space Forum was established to assist governments, space-related agencies and the private sector to investigate the space infrastructure's economic significance, its role in innovation and potential impacts for the larger economy. This unique international platform contributes to exchanges of best practices on indicators and evaluation practices. The recent *Space and Innovation* publication highlights not only dynamics that are beginning to transform the space sector, but also how space innovation is diffusing in different parts of the economy.

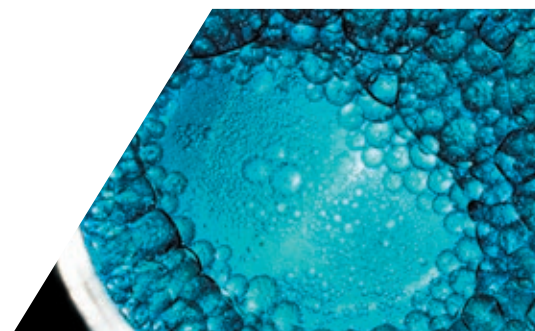
Closer to home, STI recently undertook a two-year project called The

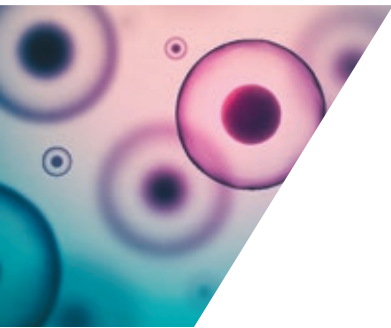
Future of the Ocean Economy: Exploring the prospects for emerging ocean industries to 2030. This major analytical exercise – published in *The Ocean Economy in 2030* – provides

an original forward-looking assessment of the ocean economy to 2030 and beyond. It places particular emphasis on the development potential of established and emerging ocean-based industries, as well as on the implications for the ocean environment and ocean management. This work stream will continue in 2017-18 with a focus on innovation in the ocean economy – researching and developing new indicators, reviewing platforms and patterns of collaboration in different parts of the world (e.g. clusters and incubators) and providing evidence-based information for an improved policy mix for ocean management. ■

## Q Find out more

- OECD Space Forum – <http://oe.cd/SpaceForum>
- OECD (2016), *Space and Innovation*, <http://dx.doi.org/10.1787/9789264264014-en>
- OECD (2016), *The Ocean Economy in 2030*, <http://dx.doi.org/10.1787/9789264251724-en>





# Policies on bio-, nano- and converging technologies

Emerging technologies have the potential to help address major challenges facing humanity. But they also raise important questions about the very future of societies. The DSTI supports governments and citizens in making informed choices about key technologies within their scientific, economic and social contexts.

**Climate** change, food production, global health and sustainability: each of these areas will require social and technological innovation. Hopes for key and emerging technologies such as bio, nano, and ICT run high. Developments in biotechnology – whether in genomics, cell-based therapies, pharmaceuticals or bioproduction – are currently improving health and the economy. Nanotechnology greatly contributes to the development of novel materials that could affect virtually every area of economic activity. And both areas are fast converging with information technology (IT) to generate powerful new systems of manufacturing and health care. It is becoming clear, for instance, that biotechnological production of industrial materials and fuels at scale is a large challenge that now requires greater convergence with computation and IT.

DSTI policy work on biotechnology, nanotechnology, ICTs and their interactions contributes original policy analysis and messages to the global community, sometimes making ground-breaking proposals to policy makers. Topics focus on research and technological development, innovation and commercialisation, standards and regulations, best-practice policy formulation and implementation, ethical, legal and social issues, public engagement, education, skills and training, organisation of research, and measurement and evaluation methods and tools. ■

## 🔍 Find out more

- OECD Working Party on Bio-, Nano- and Converging Technologies (BNCT) – <http://oe.cd/bnct>

## 💡 Did you know...?

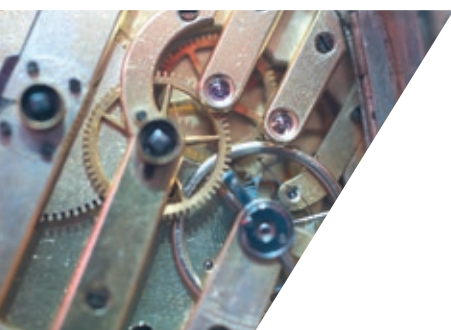
Many governments around the world are investing heavily in brain research and neurotechnologies, which they hope will improve medicine and lead to many kinds of innovation. Emerging neurotechnologies have the potential to spur a paradigm shift in the understanding of the structure and mechanistic functioning of the brain, including the biologic underpinnings of cognition, empathy, consciousness, and mind. The confluence of brain science, engineering and computing has led to the construction of an artificial neuron based on high speed and low energy nanoscale devices. ●







# Industry and globalisation



# Shedding light on industry and globalisation

A major concern of governments around the world is the impact of industrial globalisation on domestic employment, economic growth and innovative capacity. The DSTI work aims to provide an evidence base for policy makers to effectively manage the impacts of industrial globalisation on their economies.

**Governments** play a key role in fostering growth-enhancing structural reform. To inform their decisions, analysis by the DSTI focuses on the structural characteristics of economies for growth and productivity performance, including the respective roles of manufacturing and services in the economy, as well as the role of industrial globalisation. The aim of this work is to explore how governments can make efficient policy interventions to strengthen their economies and to foster new areas of potential growth, without distorting national or international markets in the process. The research is based on analysis of sectoral and firm-level data – including data on foreign affiliates – which provide detailed insights into firm behaviour and the role of policies in strengthening growth and productivity. The empirical analysis is complemented by qualitative evaluations of business cases and new business models to provide additional insights.

The analysis would not be complete without adding the trade perspective. In a globalised world, it is now common for many of the goods and services we buy to be composed of inputs from various countries around the world. However, the flows of goods and services within these global production chains are not always reflected in conventional measures of international trade. To address this issue, the OECD, in partnership with the World Trade Organisation (WTO), launched the Trade in Value Added (TiVA) initiative. TiVA statistics use a new accounting method that allocates the value produced by each stage of the value chain to the country where it was generated, rather than the country of final assembly and shipment. This sheds light on the real patterns of international trade, economic activity and value creation in the global economy, and

contributes to new thinking in a range of policy areas, from trade policy to industrial policy to labour market policy. Looking ahead, the OECD aims to develop further analysis to support a wider set of policy interests – including employment, skills, innovation, investment and the environment – through carbon embodiment. ■

## Find out more

- **Trade in Value Added** – <http://oe.cd/TIVA>
- **GVCs** – <http://oe.cd/gvc>
- Belderbos, R., et al. (2016), "Where to Locate Innovative Activities in Global Value Chains", *OECD Science, Technology and Industry Policy Papers*, No. 30, <http://dx.doi.org/10.1787/5jlv8zmp86jg-en>



# Bringing about the next production revolution

Many aspects of production are about to experience important technology-related changes. Speculation is widespread as to the implications of these developments. The DSTI is examining the key impacts and implications for policy.



**The** Next Production Revolution project has focused on the technologies of future production, with an emphasis on manufacturing. The background is one in which major science and technology-driven changes in the production and distribution of goods and services are occurring. Other developments – possibly more significant still – are on the horizon. Such changes will have far-reaching consequences for productivity, skills, income distribution, well-being and the environment. The more fully governments understand how production could develop, the better placed they will be to prepare for the risks and reap the benefits. Through judicious policy, the opportunity exists now to shape the next production revolution.

In the initial exploration over 2014-16, the project aimed to:

- Explore – and inform governments of – possible science and technology-driven developments in selected production technologies over the next 10 to 15 years.
- Outline the risks and opportunities that may be created by such changes. These risks and opportunities relate to the economy, society, well-being and the environment.
- Examine policies that could help to cope with risks and realise the opportunities.
- Assess how policymakers prepare for the future and what best-practice constitutes.



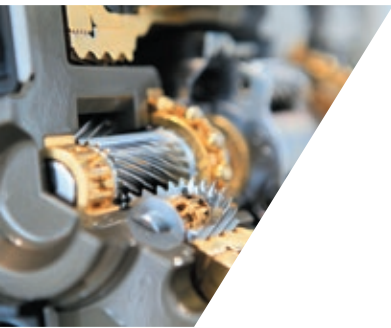
In addition to assessing the implications for a broad set of framework conditions, the project looked at information and communication technologies, bio-based production, nanotechnology and new materials, 3D printing, and technology diffusion (especially linking manufacturing and research, education and training systems, the labour market, foresight analysis, and public acceptance of technologies). ■

## Q Find out more

- OECD (forthcoming), *The Next Production Revolution: Implications for Governments and Business*, [www.oecd-ilibrary.org/science-and-technology/the-next-production-revolution\\_9789264271036-en](http://www.oecd-ilibrary.org/science-and-technology/the-next-production-revolution_9789264271036-en)
- OECD (forthcoming), *The Next Production Revolution: A report for the G20*

## 💡 Did you know...?

Recent advances in scientific instrumentation, data science and computation have contributed to a revolution in materials science. Industrial materials will have properties not seen before, and will be increasingly important for competitiveness in certain industries. Metals that shrink when heated, and solids with densities almost as light as air, already exist. In the near future, desired properties will be deliberately designed into materials. ●



## Addressing structural challenges in the steel and shipbuilding sectors

OECD work on the steel and shipbuilding sectors is currently focusing on policy approaches to help alleviate excess capacity and reduce trade tensions. By promoting structural adjustment through policy dialogue and transparency, the work of these two bodies helps to improve the economic health of both industries.

**The** OECD's Steel Committee and the Council Working Party on Shipbuilding (WP6) are two unique international bodies – created in 1978 and 1966, respectively – which bring together government representatives, industry, and trade union interests from OECD countries and partner economies alike to exchange views and conduct economic and policy analysis on all aspects of the steel and shipbuilding sectors, which are essential for the good functioning of the global economy: steel is one of the world's most widely used materials, and more than 90% of international trade is transported by ships. Given the strategic importance of these sectors, some governments seek to support their steel

and shipbuilding industries through market-distorting policies that can harm the longer-term viability of these sectors.

For decades, the OECD has promoted transparent and open markets for steel as well as normal competitive conditions in the shipbuilding sector. The OECD explores ways to reduce market distortions and excess capacity, and helps policy makers prepare for structural changes occurring in these areas. A number of partner economies that have significant shipbuilding and steel activity participate actively in Steel Committee and WP6 meetings, workshops and other events.



Key steel-producing and shipbuilding economies also participate in joint work with the OECD. For example, the OECD is currently working with the Development Research Center of the State Council of China to develop recommendations on efficiently managing industrial restructuring, addressing excess capacity and fostering a green transition of China's industrial sector. And the OECD is facilitating a G20-mandated Global Forum on Steel Excess Capacity, called for in the Hangzhou Communiqué, that aims to enhance information sharing and co-operation and to take effective steps to address the challenge of excess capacity. ■

### Q Find out more

- OECD Steel Committee – <http://oe.cd/steel>
- OECD Council Working Party on Shipbuilding (WP6) – <http://oe.cd/shipbuilding>



# Reaching beyond the OECD



# Supporting global discussions of STI

Issues of science, technology and innovation are moving to centre stage in discussions at the G20 and G7, as leaders of the biggest global economies increasingly focus their attention on identifying new sources of growth.

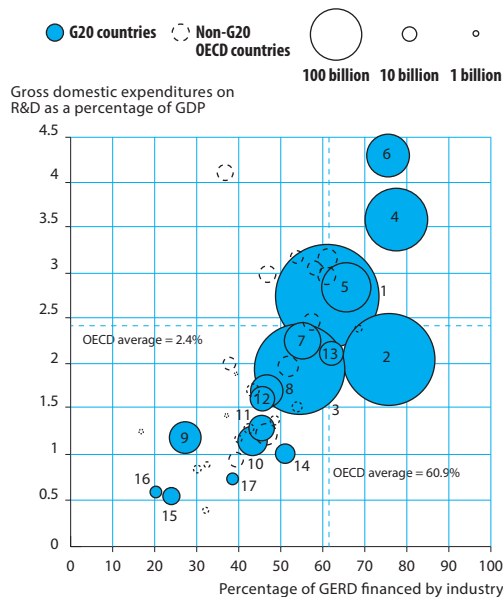
In 2016, the OECD worked closely with the Chinese Presidency to support G20 taskforces in developing a Blueprint for Innovative Growth linking the G20 work on innovation-led sources of growth with that on structural reform. The action plans developed by the taskforces aimed to unleash the potential of innovation for G20 economies, make the best of the opportunities offered by the digital economy and reap the benefits of the new industrial revolution underway. The Hangzhou Consensus, adopted at the Leaders' Summit, explicitly recognised

the role of innovation as a key driver of growth for individual countries and the global economy as a whole.

The OECD played a vital role in bringing data, evidence and analysis to the debate, particularly contributing to discussions on the definitions of innovation and open science, on measuring the digital economy, and – together with the International Monetary Fund (IMF) – on the macroeconomic debate on measuring productivity and digitalisation. At the STI Ministers Meeting in November 2016, the OECD presented the *G20 Innovation Report 2016* and received several mandates for further work, including on the new industrial revolution and metrics for the digital economy. It also received a mandate to facilitate a Global Forum on Excess Steel Capacity, highlighting its role in industry and structural reform.

Digital economy issues will be at the heart of the German G20 Presidency in 2017 and here, too, the OECD is playing a key role in providing cutting-edge analysis and evidence. At a conference in January 2017, the OECD presented its *Key Issues for Digital Transformation in the G20 report*. This work dovetails with the OECD's multidisciplinary project on digitalisation and highlights the strong synergies between OECD and G20 policy interests. At the same time, the OECD will assist the Italian G7 Presidency as it seeks to put people at the centre of innovation-led growth. ■

**R&D in selected G20 economies, 2013**



Sources: OECD (2016), *Main Science and Technology Indicators* database, January 2016, [www.oecd.org/sti/msti.htm](http://www.oecd.org/sti/msti.htm); data for Brazil from UNESCO Institute for Statistics, November 2015.

## Find out more

- OECD (2016), *G20 Innovation Report 2016*, <http://oe.cd/G20InnovationReport16>
- OECD (2017), *Key Issues for Digital Transformation in the G20*, <http://oe.cd/G20DigitalTransformation>

# Engaging with regional partners

Sharing good practices and experiences in STI policy making with economies in Southeast Asia and in Latin America and the Caribbean, provides valuable cross-country learning opportunities and strengthens the knowledge base for tackling common challenges.

**Southeast** Asia (SEA) is among the world's most dynamic – and diverse – regions, with an ambitious integration agenda that calls for increasing the region's competitiveness. The DSTI has been engaged with SEA economies for some time, offering advice on issues including innovation policy and IP via country-specific reviews, and incorporating economies into flagship publications such as the *OECD Science, Technology and Innovation Outlook*. Collaboration has stepped up in recent years, and the adherence of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand and Viet Nam to the OECD's Daejeon Declaration on STI Policies for the Global and Digital Age further strengthened the relationship. A major project over the coming years will see the DSTI working on enhancing small- and medium-sized enterprise (SME) productivity and maximising the benefits of the digital economy in support of SME productivity in ASEAN countries. In many countries, SMEs have a lower uptake of technology and less capacity to innovate, creating an ongoing structural impediment to sustainable and inclusive growth. Addressing this challenge could bring sizeable benefits to ASEAN countries.



The Latin America and the Caribbean (LAC) region has seen tens of millions of poorer households join the global middle class recently. The DSTI is working closely with LAC countries as they seek to harness the power of STI for their economies to lift living standards, tackle inequality and boost productivity. In 2015, Brazil, Chile, Colombia, Costa Rica and Mexico adhered to the Daejeon Declaration, joining the call for excellence in public research and boosting the impact of science and technology. This was followed by the 2016 Cancún Ministerial Meeting on the Digital Economy and the adherence of Argentina, Chile, Colombia, Costa Rica, Ecuador and Mexico to the Cancún Declaration. This underscored the importance LAC countries place on advancing digitalisation, and the *Broadband Policies for Latin America and the Caribbean: A Digital Economy Toolkit* publication launched at that event showcased the specialised policy advice and support the DSTI can bring to LAC partners' reform efforts. The DSTI has also drawn on its experience and cross-country knowledge to conduct country-specific reviews of telecommunication policy and regulation in Colombia and Mexico and *OECD Reviews of Innovation Policy for Chile, Colombia, Costa Rica, Mexico and Peru*. ■

## Q Find out more

- OECD and IDB (2016), *Broadband Policies for Latin America and the Caribbean: A Digital Economy Toolkit*, <http://dx.doi.org/10.1787/9789264251823-en>
- OECD and the World Bank (2014), *Science, Technology and Innovation in Viet Nam*, <http://dx.doi.org/10.1787/9789264213500-en>
- OECD (2014), *OECD Review of Telecommunication Policy and Regulation in Colombia*, <http://dx.doi.org/10.1787/9789264208131-en>



Measurement:  
The backbone  
of DSTI analysis

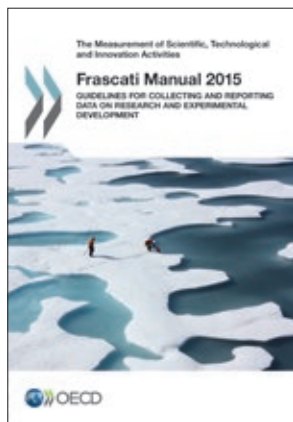


# Building the evidence base for policy: On-demand resources for policy makers

The strength of the DSTI's policy work is underpinned by robust data and world-class methodological frameworks. Working closely with policy makers to understand their needs, the DSTI seeks to constantly improve the evidence base for science, technology and innovation policy.



**Right** from the beginning, the DSTI has worked to push methodological boundaries for STI statistics. In 1963, the OECD developed the *Frascati Manual* to provide a standard for measuring R&D statistics. This manual was recently updated to its 6th edition by the OECD National Experts on Science and Technology Indicators, and is regarded as the international standard for R&D statistics in OECD countries and beyond.



In 2005 the DSTI led work to develop the *OECD Handbook on Economic Globalisation Indicators*, which reflected the multidimensional nature of globalisation and brought together expert guidance from the STI, foreign direct investment, trade and statistics communities at the OECD. This handbook is a prime example of the OECD seeking to update traditional indicators that had been overtaken by new economic trends.

The OECD plays a key role in the development of international guide-

lines for surveys of business innovation – the *Oslo Manual* – and the design of indicators constructed with data from such surveys. The OECD/Eurostat *Oslo Manual* is currently undergoing its fourth revision, which is expected to be completed by end 2017. The OECD is also working on the measurement of innovation outside the business sector.

The 2009 *OECD Patent Statistics Manual* provides guiding principles for the use of patent data in science and technology

measurement, and recommendations for the compilation and interpretation of a number of patent indicators. Recent methodological work has exploited information contained in patent documents to construct indicators mirroring the technological and economic value of patented inventions, and their possible impact on subsequent technological developments.

The OECD has also been setting statistical standards in the measurement of ICT, including through its *Model Survey on ICT Access and Usage by Households and Individuals* and its sister analysis on businesses. With digital transformation spanning all facets of economies and societies, the DSTI will continue to push measurement boundaries in this area to help policy makers make informed decisions. ■

## Q Find out more

- OECD (2015), *Frascati Manual*, <http://dx.doi.org/10.1787/9789264268111-ko>
- OECD (2005), *OECD Handbook on Economic Globalisation Indicators*, <http://dx.doi.org/10.1787/9789264108103-en>
- OECD (2005), *Oslo Manual*, <http://dx.doi.org/10.1787/9789264013100-en>
- OECD (2009), *OECD Patent Statistics Manual*, <http://dx.doi.org/10.1787/9789264056442-en>
- OECD (2015), *OECD Model Survey on ICT Access and Usage by Households and Individuals*, <http://oe.cd/hhind>
- OECD (2015), *OECD Model Survey on ICT Access and Usage by Businesses*, <http://oe.cd/bus>





## Bringing data to bear on STI issues

The DSTI provides a wealth of data, hosted across several key databases. These are regularly updated, feeding the OECD's analytical work and providing a solid base for economic decision makers.

One of the DSTI's key databases is the *Main Science and Technology Indicators (MSTI)* database, with indicators on R&D personnel and expenditures, as well as patents, technology balance of payments, and international trade in R&D-intensive industries. The *Structural Analysis (STAN)* database allows researchers to analyse industrial performance at a detailed level of activity across countries, while the *ICT Access and Use* database presents data for households and individuals and for businesses, respectively, on issues including e-commerce, uptake of ICT tools, and security and privacy. The full range of databases is described in DSTI's *Measuring Science, Technology and Innovation* brochure; users also can browse data on OECD.Stat. ■



The Innovation Policy Platform (IPP), a joint project between the OECD and the World Bank, is a web-based, open-data interactive platform to facilitate collective learning around science, technology and innovation policy. Its goal is to provide policy makers with tailored support in analysing and developing national innovation systems.

The IPP is built around a set of modules that cover core areas and frontier topics, including:

- policy briefs to provide short evidence-based descriptions of policy instruments and topics
- case studies that use written narratives and video to highlight specific experiences in tackling problems
- country profiles with snapshots of the main indicators characterising countries' innovation performance
- quantitative indicators to support policy analysis and benchmarking.

Interactive visualisation tools also enable users to explore and download data.

### Q Find out more

- Innovation Policy Platform – <http://oe.cd/IPP>
- *Main Science and Technology Indicators (MSTI)* database – <http://oe.cd/msti>
- *Structural Analysis (STAN)* database – <http://oe.cd/stan>
- OECD (2016), *Measuring Science, Technology and Innovation*, <http://oe.cd/sti-stats>
- OECD.stat website – <http://stats.oecd.org/>

# ANNEXES

## Flagship publications



- **OECD Science, Technology and Industry Scoreboard**

The most comprehensive set of indicators on the knowledge-based economy, the *OECD STI Scoreboard* brings together internationally comparable indicators. It has become a widely used reference that combines statistical rigour with easy access and readability.

• <http://dx.doi.org/10.1787/20725345>



- **OECD Science, Technology and Innovation Outlook**

The *OECD STI Outlook* reviews key trends in science, technology and innovation. It also provides individual profiles of the science and innovation performance for each OECD country, as well as for a number of major emerging economies.

• <http://dx.doi.org/10.1787/25186167>



- **OECD Digital Economy Outlook**

How can countries maximise the potential of the digital economy as a driver for innovation and inclusive growth? What evolutions and challenges in the digital economy do national digital strategies need to address? The *OECD Digital Economy Outlook* reviews the status and outlook of the digital economy, the main trends in the ICT sector, developments in communication and regulation policy, and the effects of the digital economy on growth and development.

• <http://dx.doi.org/10.1787/9789264232440-en>



---

## Working papers and policy reports

---

- **Science, Technology and Industry Working and Policy Papers**

OECD Science, Technology and Industry Papers cover a broad range of scientific and technological issues including industry and globalisation, innovation and entrepreneurship, scientific R&D and emerging technologies. Working Papers consist of technical or analytical studies prepared by staff or outside consultants in a bid to share early knowledge and elicit feedback. Policy Papers are officially declassified by an OECD Committee.

- <http://dx.doi.org/10.1787/18151965>

- <http://dx.doi.org/10.1787/23074957>

- **Digital Economy Papers**

The *OECD Digital Economy Papers* series covers a broad range of ICT-related issues and makes selected studies available to a wider readership. The series primarily includes policy reports, which are officially declassified by an OECD Committee for public diffusion.

- <http://dx.doi.org/10.1787/20716826>

- **Productivity Working Papers**

The *OECD Productivity Working Papers* are associated with the Global Forum on Productivity, which offers a platform for exchanging views, experiences and information, institutional and governance arrangements and government structures, with a view towards developing better policies. The Forum extends existing work in the OECD through a well-prioritised and coherent stream of analytical work serving the policy research needs of participants on the drivers of productivity growth.

- <http://dx.doi.org/10.1787/24139424>

- **STI Policy Notes**

To provide a quick and easy summary of the DSTI's key research results, the STI Policy Note series offers readers accessible 8-12 page overviews of work on a wide range of subjects, including business dynamics and young firms, data-driven innovation, the ocean economy in 2030, and jobs and global value chains.

- <http://oe.cd/STIPolicyNotes>

---

## Our structure

---

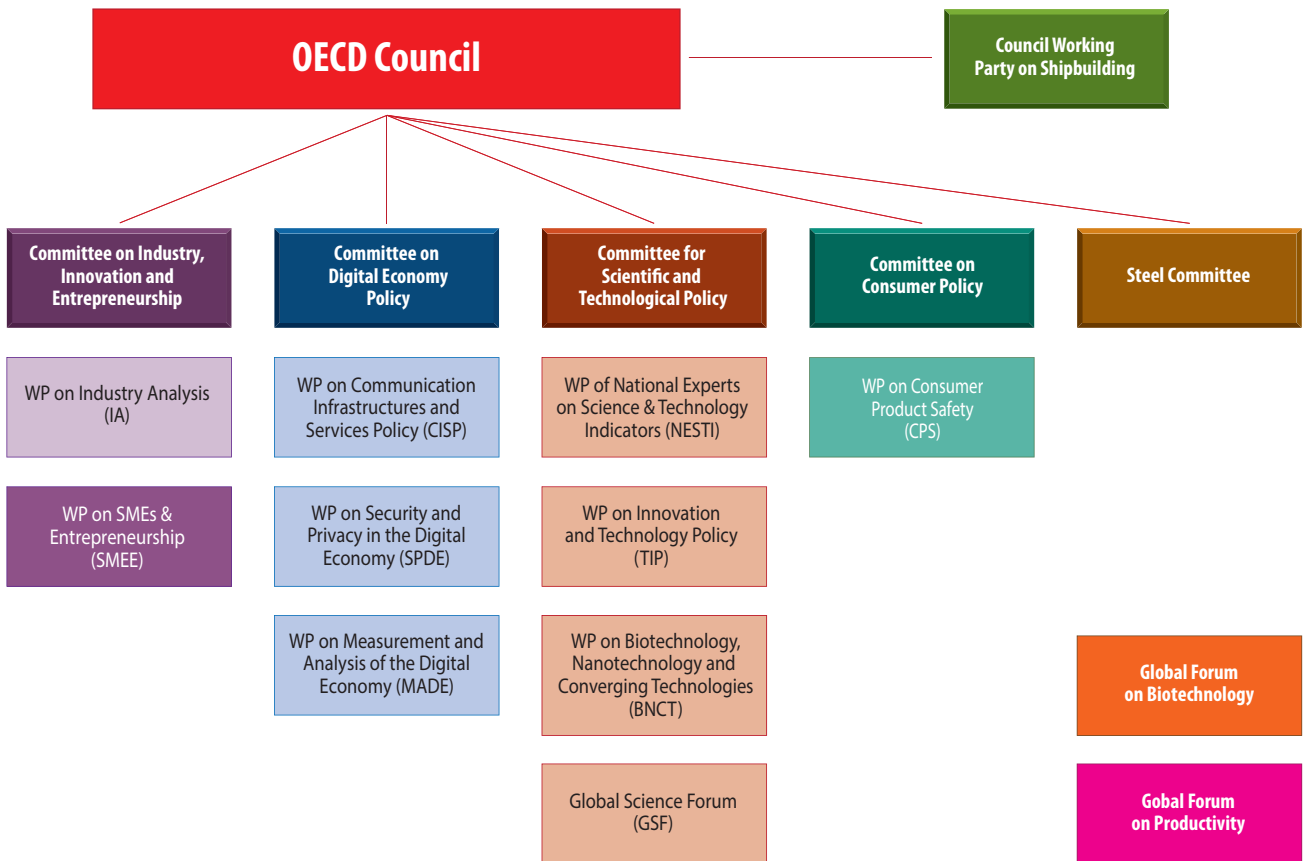
The work of the Directorate for Science, Technology and Innovation (DSTI) is governed by its committees and working parties, which are composed of senior civil servants from OECD countries nominated by their governments. Members are generally from ministries or government agencies with responsibility for policy making, regulation and implementation. They usually meet twice a year to discuss, assess and prioritise work.

In addition, the DSTI draws on a wide range of competencies both from within the OECD and from experts in government, universities, enterprises, trade union associations, the civil society and NGOs to provide input into key science, technology and innovation issues.

---

### Committees and working parties

- The **Committee for Scientific and Technological Policy (CSTP)** and its working parties advance the contribution of science for economic growth, sustainable development, the creation of skilled jobs and improved social well-being.
- The **Committee on Industry, Innovation and Entrepreneurship (CIIE)** and its working parties focus on drivers of industrial productivity and competitiveness, on factors affecting the performance of firms (large and small) and sectors (manufacturing and services) and on patterns and levels of industrial globalisation.
- The **Committee for Digital Economy Policy (CDEP)** and its working parties develop the policy and regulatory environments needed for the expansion of the Internet and information and communications technologies (ICTs) as drivers of innovation, productivity, growth, sustainable development and social well-being.
- The **Committee on Consumer Policy (CCP)** and its working party promote consumer trust by developing cross-border policies and mechanisms for a more efficient, transparent and fair global marketplace.
- The **Steel Committee (STEEL)** and the **Council Working Party on Shipbuilding (COUNCIL WP6)** work towards ensuring that markets in the steel and shipbuilding industries remain as unrestricted and free of distortion as possible.



## Who are we?



### **Andrew Wyckoff**

Director  
andrew.wyckoff@oecd.org  
Tel: +33 1 45 24 93 55



### **Dirk Pilat**

Deputy Director  
dirk.pilat@oecd.org  
Tel: +33 1 45 24 93 80



### **Anne Carblanc**

Head of Division  
Digital Economy Policy  
anne.carblanc@oecd.org  
Tel: +33 1 45 24 93 34



### **Alessandra Colecchia**

Head of Division  
Economic Analysis and Statistics  
alessandra.colecchia@oecd.org  
Tel: +33 1 45 24 94 12



### **Sarah Box**

Counsellor  
sarah.box@oecd.org  
Tel: +33 1 45 24 13 68



### **Michelle Ewart**

Head of Unit  
Management Support  
michelle.ewart@oecd.org  
Tel: +33 1 45 24 93 61



### **Dominique Guellec**

Head of Division  
Science and Technology Policy  
dominique.guellec@oecd.org  
Tel: +33 1 45 24 94 39



### **Nick Johnstone**

Head of Division  
Structural Policy  
nick.johnstone@oecd.org  
Tel: +33 1 45 24 79 22

## Stay in touch

### OECD Directorate for Science, Technology and Innovation

2, rue André Pascal 75775

Paris Cedex 16

France

Tel: +33 1 45 24 82 00 - Fax: +33 1 45 24 85 00

sti.contact@oecd.org

- Find us at: <https://www.oecd.org/sti/>
- Stay informed by subscribing to our newsletter: <http://oe.cd/stinews>
- Follow us on Twitter:  @OECDInnovation



**April 2017**