

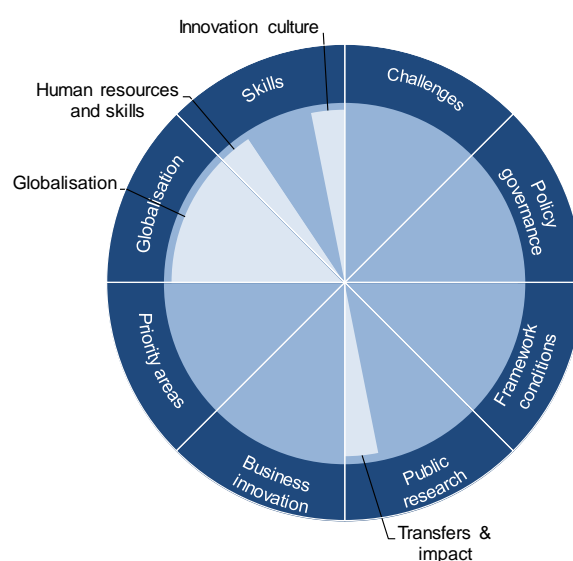
## EGYPT

Egypt is a lower middle-income economy that has grown little in per capita terms since 2011. High inflation, public debt, high unemployment rates and social inequalities pose important challenges. In this context, the government has committed to increase the level of investment in S&T in order to sustain growth and improve the quality of life. This is set out in the National Strategy for Science, Technology and Innovation for 2015-2030. There are plans to increase GERD, which was 0.7% in 2013, to 1%. The global crisis and the events of the Arab Spring strongly affected economic policy.

**Table 1.** Gross domestic expenditure on R&D (GERD)

	EGY	OECD
<b>GERD</b>		
USD million PPP, 2013	6 168	1 181 495
As a % of total OECD, 2013	0.5	100
<b>GERD intensity and growth</b>		
As a % of GDP, 2012	0.54	2.38
(annual growth rate, 2009-12)	n.a.	(+2.3)
<b>GERD publicly financed</b>		
As a % of GDP, 2014	n.a.	0.61
(annual growth rate, 2009-14)	n.a.	(+2.5)

**Figure 1.** Major STI policy priorities, 2016





## Hot issues

### Improving direct and indirect knowledge transfers

The contribution of the business sector to R&D and innovation has been almost insignificant. The National Strategy for Science, Technology and Innovation for 2015-2030 emphasises the need to foster the commercialisation of research and involve the private sector in technology transfer and research activities. Several programmes and grant schemes from the Science and Technology Development Fund (STDF) and Academy of Scientific Research and Technology (ASRT) are dedicated to promoting collaboration between academia and industry. The Research, Development and Innovation (RDI) Programme, introduced in 2007, allocated EU funding of EUR 11 million for 2007-2010 to foster linkages between academia and industry through the EU-Egypt Innovation Fund (EEIF). The programme was continued in 2011 with an additional EUR 20 million grant. The STDF and ASRT Demand-Driven Projects (DDP) is designed to address the needs of the private sector by financing universities and PRIs (with grants of up to 10 million Egyptian pounds – EGP) each for a maximum period of three years) to perform applied research in collaboration with private beneficiaries. Other measures include infrastructures to support public-private partnerships, such as the Zewail City of Science and Technology, inaugurated in 2011, which encompasses a university, research centres and a technology park. The Faculty for Every Factory Programme also aims to accelerate knowledge flows between academia and industry by supporting the hiring of researchers by companies.

### Addressing the challenges of STI globalisation and increasing international cooperation

In recent years, Egypt has put strong emphasis on the development of international partnerships, in particular with developed countries, and on the integration of its innovation system in global knowledge networks. The previously mentioned RDI programme was designed to ease Egypt's integration into the European Research Area by explicitly ensuring Egypt's participation in the European Union's (EU) Seventh Framework Programme. Moreover, STDF provides grants for joint research by promoting researcher mobility on the basis of bilateral agreements with various countries, including the US, UK, Germany, Russia, France, Italy and Jordan. For instance, the German-Egyptian Research Fund (GERF), started in 2011 and still active as of May 2016, amounts to a total of EUR 1 million per year from each side and provides grants up to EUR 200 000 each for joint projects. Finally, re-integration grants from the STDF have provided funding for Egyptian researchers who have obtained a PhD degree abroad to return and perform research in Egypt (maximum of EGP 1 500 000 for up to three years).

### Improving overall human resources and skills

Skills shortages, particularly in science, technology, engineering and mathematics (STEM), weaken the potential of Egypt's STI system. The National Strategic Plan for Pre-University Education 2014-2030 is introducing reforms to the higher education system to address these shortcomings. Moreover, the Higher Education Enhancement Programme (HEEP), financed by the World Bank and EU over 2013-2017, aims: to expand access to education, particularly for girls, through the construction of new schools; to improve the quality of student learning by increasing the quality of teaching and pre-service training; and to enhance the efficiency of the education system, in particular by introducing mechanisms to improve teacher motivation and accountability. To date, while participation in education, including higher education, has risen, educational quality remains weak throughout the system. At graduate level, recent initiatives, such as the ASRT grants and Scientists for New Generation (SNG) in particular, offer grants for training a new generation of graduates to master's degree, in order to bridge the gap between scientific research and the national labour market, which requires a high set of skills, getting good opportunities for cooperation with leading scientists and participating in research projects in scientific fields of national interest..



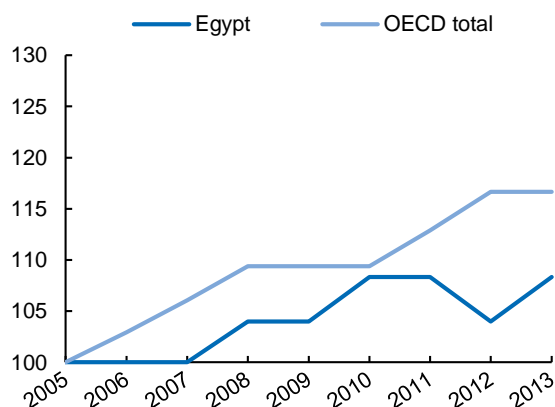
## Building a broad innovation culture

The government aims to promote a broad innovation culture to involve society at large, as outlined in the strategy of the Minister of Scientific Research. Some specific initiatives introduced include the establishment of science clubs, science museums and digital libraries and specific school programmes. The ASRT launched a Children University programme, to be implemented in cooperation with Egyptian universities, with a view to developing the Egyptian children's skills and raising participation in university studies in a variety of fields, such as health, energy, diversity, environmental humanities, Egyptology and art areas of age. It also aims to raise awareness among youth about universities' role, academic culture and educational perspectives. It also aims to help universities be more responsive and open to the society.

## Some key STI performance indicators

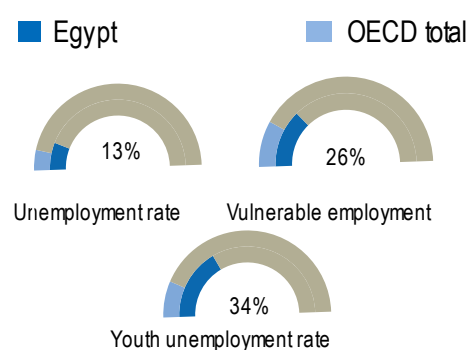
**Figure 2. Environmental performance**

Green productivity, GDP per unit of CO<sub>2</sub> emitted, index 2005=100



**Figure 3. Unemployment**

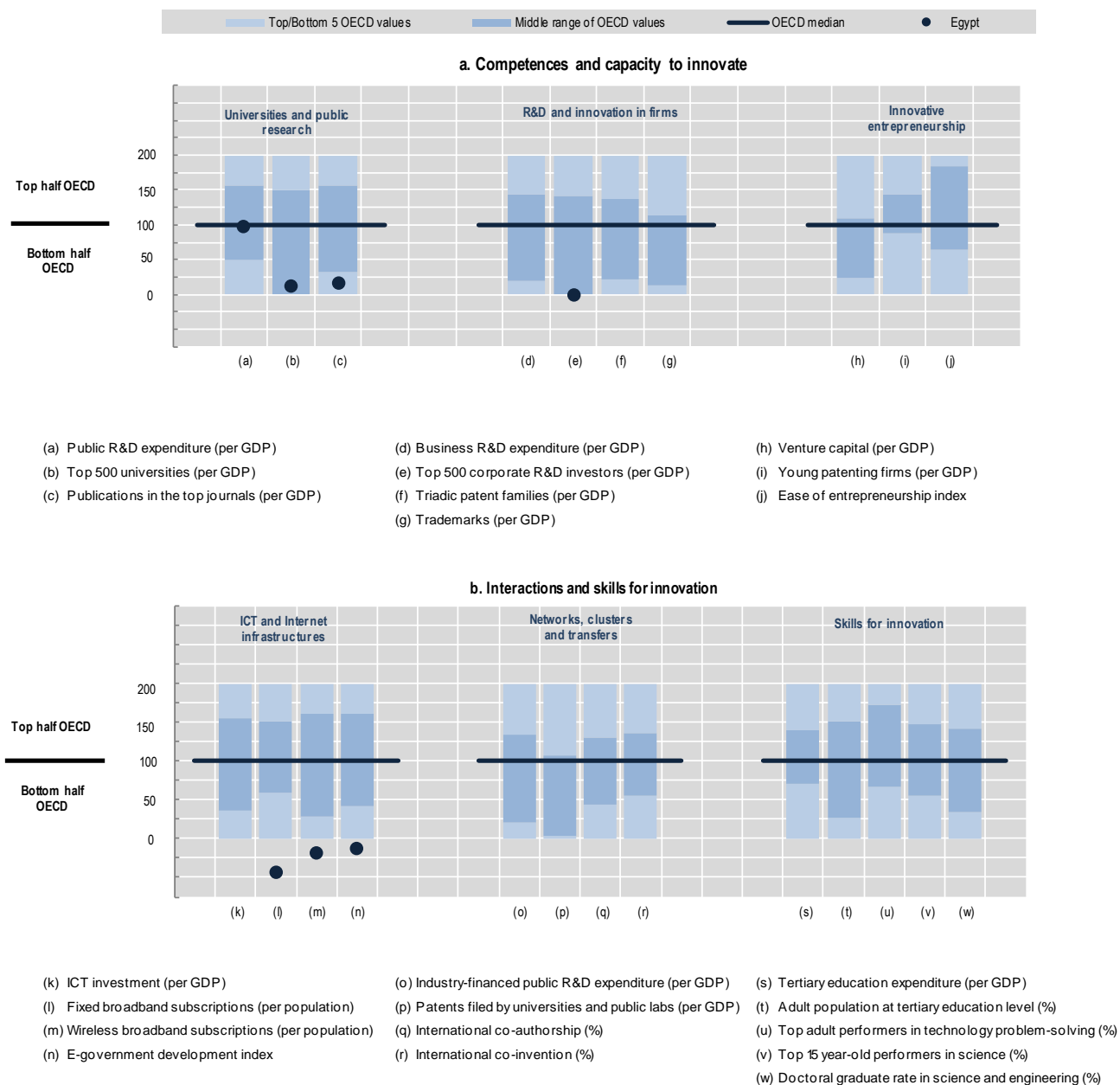
2015 or latest year available, percentages



## Benchmarking national STI systems

**Figure 4. Science and Innovation in Egypt**

Comparative performance of national science and innovation systems, 2016



Note: Normalised index of performance relative to the median values in the OECD area (Index median=100).





## Highlights of Egypt's STI system

### New challenges

Egypt suffers from water scarcity and desertification, and permanent soil damage threatens parts of its territory. The development of new and renewable energies and a shift away from its current oil dependency have consequently been identified as a national STI policy priority. Green innovation has also received wider attention: a strategy adopted in 2008 aimed to diversify the production of energy and increase the consumption of the renewable energy produced, especially from wind power. Recently, at the beginning of 2016, the new Sustainable Development Strategy: Egypt Vision 2030 (SDS -Egypt 2030) addresses the challenges raised by the development process in Egypt. These challenges include the scarcity of natural resources such as energy, land and water (in addition to environmental degradation); human resources development including population, health, and education; the inadequacy of the governance system; and the absence of systems that foster creativity and innovation. The strategy adopts a number of goals and targets, in order to transform these elements into incentives for development, instead of being major challenges. Public research was also oriented towards impelling social challenges in the area of health, food security and agriculture.

### STI policy governance

The Developing Higher Education and Scientific Research Plan 2015-30 was introduced to restructure S&T governance, to improve national S&T capabilities (investments and human resources), to develop a complete value chain from research to commercialisation, and to disseminate S&T culture across the society. Since 2007, STI policy governance has undergone major changes: the Ministry of Higher Education and Scientific Research and the Higher Council for Science and Technology (HCST), a consultative body for setting S&T strategy and priorities, were created, and the Academy of Scientific Research and Technology (ASRT) was restructured. The objective for the institution is to function as a policy advisor in charge of assessment and evaluation while previous funding competences now fall under the newly established Science and Technology Development Fund (STDF) and the Academy of Scientific Research and Technology (ASRT). In 2016, the Ministry of Higher Education and Scientific Research adapted its strategy (STI- Egypt 2030) to achieve the goals of knowledge, scientific research and innovation pillar. The strategic vision for knowledge, innovation, and scientific research focuses on accomplishing three main objectives within the next 15 years, i.e. creating a stimulating environment for the localisation and production of knowledge, activating and developing an integrated national innovation system and linking the knowledge applications and the innovation outputs with national priorities.

Egypt has also made efforts to improve the system of evaluation of research organisations, in particular through the HEEP, and of private sector innovation, with the Egyptian Science, Technology and Innovation Observatory (ESTIO) attached to ASRT. The ESTIO published evaluation reports in 2010, 2014 and 2015 that assess the performance of research centres, universities and private sector centres based on various STI indicators, including R&D expenditure and personnel, patents, publications, and indicators of students and personnel mobility.

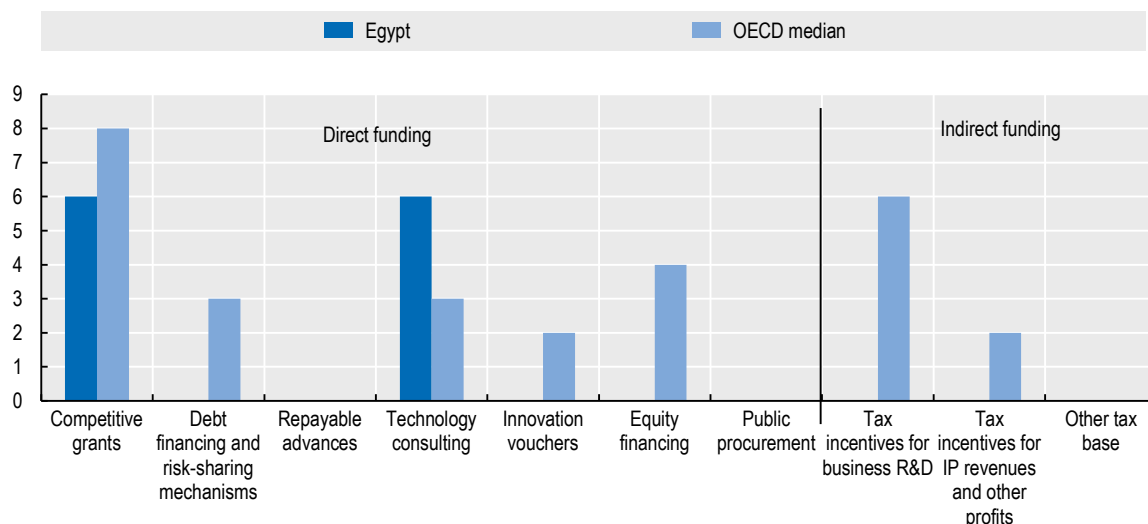
### Clusters and regional policy

The Research and Innovation programme (RDI) conducted with the EU also provided financial support for the establishment of innovation clusters. A corresponding call for proposals with funding of EUR 4 million was launched in the third trimester of 2013. A recent more nationally oriented cluster initiative (E- KTAs) with a budget of EGP 10 million aims to pool and network national competences in universities, research organisations, NGOs and industry. A national program of technological incubators also exists with STDF funding. Finally, the Information Technology Industry Development Agency supports innovation in ICT by funding incubators and incentives for start-ups.

## National STI policy mix

**Figure 5. Most relevant policy instruments of funding for business R&D, 2016**

Country self-assessment, index (9 = high and increasing relevance to 0 = not used)



*Note:* Policy information comes from country responses to the EC/OECD International Survey on STI Policies (STIP) 2016 and 2014. Egypt's responses are available in the EC/OECD International Database on STI Policies, edition 2016 at [http://qdd.oecd.org/DATA/STIPSurvey/EGY...STIO\\_2016](http://qdd.oecd.org/DATA/STIPSurvey/EGY...STIO_2016).



*Source:* See the reader's guide and methodological annex.

StatLink <http://dx.doi.org/10.1787/888933433776>

## References

### General references

- Dernis H., Dosso M., Hervás F., Millot V., Squicciarini M. and Vezzani A. (2015), World Corporate Top R&D Investors: Innovation and IP bundles, A JRC and OECD common report, Luxembourg, Publications Office of the European Union.
- EC (European Commission) (2015), EU R&D Scoreboard: The 2015 EU Industrial R&D Investment Scoreboard, European Commission, Luxembourg, <http://iri.jrc.ec.europa.eu/scoreboard.html>, accessed 4 October 2016.
- Flanagan, K., E. Uyarra and M. Laranja (2010), "The policy mix for innovation: rethinking innovation policy in a multilevel, multi-actor context", Munich Personal RePEc Archive (MPRA) No. 23567, July.
- IEA (2015), CO<sub>2</sub> Emissions from Fuel Combustion 2015, OECD Publishing, Paris, DOI: [http://dx.doi.org/10.1787/co2\\_fuel-2015-en](http://dx.doi.org/10.1787/co2_fuel-2015-en)

- 
- Kergroach, S. (2010), "Monitoring innovation and policies: developing indicators for analysing the innovation policy mix", internal working document of the Directorate for Science, Technology and Industry (DSTI), OECD, Paris.
- Kergroach, S., J. Chicot, C. Petroliti, J. Pruess, C. van Ooijen, N. Ono, I. Perianez-Forte, T. Watanabe, S. Fraccola and B. Serve, (forthcoming-a), "Mapping the policy mix for innovation: the OECD STI Outlook and the EC/OECD International STIP Database", *OECD Science, Technology and Industry Working Papers*.
- Kergroach, S., J. Pruess, S. Fraccola and B. Serve, (forthcoming-b), "Measuring some aspects of the policy mix: exploring the EC/OECD International STI Policy Database for policy indicators", *OECD Science, Technology and Industry Working Papers*.
- OECD (Organisation for Economic Co-operation and Development) (2016), Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2016-en>.
- OECD (2016), OECD Economic Outlook, Volume 2016 Issue 1, OECD Publishing, Paris, [http://dx.doi.org/10.1787/eco\\_outlook-v2016-1-en](http://dx.doi.org/10.1787/eco_outlook-v2016-1-en).
- OECD (2016), OECD Country Reviews of Innovation Policy, [www.oecd.org/sti/inno/oecdreviewsofinnovationpolicy.htm](http://www.oecd.org/sti/inno/oecdreviewsofinnovationpolicy.htm).
- OECD (2015), Pensions at a Glance 2015: OECD and G20 indicators, OECD Publishing, Paris, [http://dx.doi.org/10.1787/pension\\_glance-2015-en](http://dx.doi.org/10.1787/pension_glance-2015-en).
- OECD (2015), OECD Skills Outlook 2015: Youth, Skills and Employability, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264234178-en>.
- OECD (2015), OECD Science, Technology and Industry Scoreboard 2015: Innovation for growth and society, OECD Publishing, Paris, [http://dx.doi.org/10.1787/sti\\_scoreboard-2015-en](http://dx.doi.org/10.1787/sti_scoreboard-2015-en).
- OECD (2015), OECD Digital Economy Outlook 2015, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264232440-en>.
- OECD (2015), Entrepreneurship at a Glance 2015, OECD Publishing, Paris, [http://dx.doi.org/10.1787/entrepreneur\\_aag-2015-en](http://dx.doi.org/10.1787/entrepreneur_aag-2015-en).
- OECD (2015), National Accounts at a Glance 2015, OECD Publishing, Paris, [http://dx.doi.org/10.1787/na\\_glance-2015-en](http://dx.doi.org/10.1787/na_glance-2015-en).
- OECD (2015), The Innovation Imperative: Contributing to Productivity, Growth and Well-Being, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264239814-en>.
- OECD (2014), Measuring the Digital Economy: A New Perspective, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264221796-en>.
- OECD (2014), OECD Science, Technology and Industry Outlook 2014, OECD Publishing, Paris, [http://dx.doi.org/10.1787/sti\\_outlook-2014-en](http://dx.doi.org/10.1787/sti_outlook-2014-en).
- OECD (2011), Towards Green Growth: Monitoring Progress: OECD Indicators, OECD Green Growth Studies, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264111356-en>.
- OECD (2010), "The Innovation Policy Mix", in OECD Science, Technology and Industry Outlook 2010, OECD Publishing, Paris, [http://dx.doi.org/10.1787/sti\\_outlook-2010-48-en](http://dx.doi.org/10.1787/sti_outlook-2010-48-en).
- OECD (2010), Measuring Innovation: A New Perspective, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264059474-en>.
- OECD and SCImago Research Group (CSIC), (2014), Compendium of Bibliometric Science Indicators 2014, <http://oe.cd/scientometrics>.
- Van Steen, J. (2012), "Modes of public funding of R&D: Towards internationally comparable indicators", OECD Science, Technology and Industry Working Papers, No. 2012/4, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5k98ssns1qzs-en>.
- 





## Databases and data sources

- Academic Ranking of World Universities (2016), “Shanghai ranking academic ranking of World universities”, [www.shanghairanking.com](http://www.shanghairanking.com), accessed 4 October 2016.
- Bureau Van Dijk (2011), ORBIS Database, Bureau Van Dijk Electronic Publishing.
- EC/OECD (forthcoming), International Database on Science, Technology and Innovation Policies (STIP), edition 2016, [www.innovationpolicyplatform.org/ecoecd-stip-database](http://www.innovationpolicyplatform.org/ecoecd-stip-database).
- Elsevier B.V. (2014), Elsevier Research Intelligence, [www.elsevier.com/online-tools/research-intelligence/products-and-services/scival](http://www.elsevier.com/online-tools/research-intelligence/products-and-services/scival), accessed 4 October 2016.
- Eurostat (2016), Education and Training Databases, June, <http://ec.europa.eu/eurostat/web/education-and-training/data/database>, accessed 4 October 2016.
- Eurostat (2016), Total intramural R&D expenditure (GERD) by sectors of performance and source of funds, April, [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd\\_e\\_gerdfund&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd_e_gerdfund&lang=en), accessed 4 October 2016.
- Graham, S., G. Hancock, A. Marco and A. Myers (2013), “The USPTO Trademark Case Files Dataset: Descriptions, Lessons, and Insights”, SSRN Working Paper, <http://ssrn.com/abstract=2188621>.
- IEA (International Energy Agency) (2015), CO2 Emissions from Fuel Combustion Database, [/www.iea.org/publications/freepublications/publication/name\\_43840.en.html](http://www.iea.org/publications/freepublications/publication/name_43840.en.html).
- ILO (International Labour Organization) (2016), Key Indicators of the Labour Market database, [www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/lang--en/index.htm](http://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/lang--en/index.htm), accessed 4 October 2016.
- IMF (International Monetary Fund) (2016), World Economic Outlook (WEO) Databases, July, [www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx](http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx), accessed 4 October 2016.
- ITU (International Telecommunication Union) (2016), World Telecommunication/ICT Indicators 2016, [www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx](http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx), accessed 4 October 2016.
- OECD (2016), Activity of Multinational Enterprises (AMNE) Database, August, [www.oecd.org/industry/ind/amne.htm](http://www.oecd.org/industry/ind/amne.htm).
- OECD (2016), ANBERD Database, July, [www.oecd.org/sti/anberd](http://www.oecd.org/sti/anberd).
- OECD (2016), OECD Annual Labour Force Statistics Database, July, [www.oecd.org/employment/labour-stats/](http://www.oecd.org/employment/labour-stats/).
- OECD (2016), Broadband Portal, August, [www.oecd.org/sti/broadband/oecdbroadbandportal.htm](http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm).
- OECD (2016), OECD Education Databases, September, <http://gpseducation.oecd.org/>
- OECD (2016), Entrepreneurship Financing Database.
- OECD (2016), Educational Attainment and Labour Force Status Database, <https://data.oecd.org/education.htm>.
- OECD (2016), OECD Income Distribution Database, [www.oecd.org/social/income-distribution-database.htm](http://www.oecd.org/social/income-distribution-database.htm).
- OECD (2016), Main Science and Technology Indicators (MSTI) Database, June, [www.oecd.org/sti/msti](http://www.oecd.org/sti/msti).
- OECD (2016), OECD National Accounts Databases, September, [www.oecd.org/std/na/](http://www.oecd.org/std/na/).
- OECD (2016), OECD/NESTI data collection on R&D tax incentives, July, [www.oecd.org/sti/rd-tax-stats.htm](http://www.oecd.org/sti/rd-tax-stats.htm).
- OECD (2016), Patent Database, June, [www.oecd.org/sti/inno/oecdpatentdatabases.htm](http://www.oecd.org/sti/inno/oecdpatentdatabases.htm).
- OECD (2016), Productivity Database, September, [www.oecd.org/std/productivity-stats](http://www.oecd.org/std/productivity-stats).
- OECD (2016), Programme of International Students Assessment (PISA) Database, OECD Education Statistics, June, [www.pisa.oecd.org](http://www.pisa.oecd.org).







- OECD (2016) Programme for the International Assessment of Adult Competencies (PIAAC) Database, OECD Education Statistics, June [www.oecd.org/skills/piaac/surveyofadultskills.htm](http://www.oecd.org/skills/piaac/surveyofadultskills.htm).
- OECD (2016), Research and Development Statistics (RDS) Database, April, [www.oecd.org/sti/rds](http://www.oecd.org/sti/rds).
- OECD (2016), STI Micro-data Lab: Intellectual Property Database, June, <http://oe.cd/ipstats>.
- OECD (2014), Product Market Regulation (PMR) Database, March, [www.oecd.org/economy/pmr](http://www.oecd.org/economy/pmr).
- OECD (2013), “Modes of public funding of R&D: Interim results from the second round of data collection on GBAORD”, internal working document of the Working Party of National Experts on Science and Technology Indicators (NESTI), OECD, Paris.
- UIS (UNESCO Institute for Statistics) (2016), Education Database, June, [http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT\\_DS](http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT_DS), accessed 4 October 2016.
- UIS (2016), Science, Technology and Innovation Database, July, [http://data.uis.unesco.org/Index.aspx?DataSetCode=SCN\\_DS](http://data.uis.unesco.org/Index.aspx?DataSetCode=SCN_DS), accessed 4 October 2016.
- UN (United Nations) (2016), UN e-Government Survey, United Nations, NY. <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2016> (accessed 4 October 2016).
- World Bank (2016), World Development Indicators (WDI) Databank, <http://wdi.worldbank.org>

© 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](mailto: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](https://doi.org/10.1787/sti_in_outlook-2016-en)

### Please cite this chapter as:

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

DOI: [https://doi.org/10.1787/sti\\_in\\_outlook-2016-57-en](https://doi.org/10.1787/sti_in_outlook-2016-57-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](mailto: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](mailto:info@copyright.com) or the Centre français d'exploitation du droit de copie (CFC) at [contact@cfcopies.com](mailto:contact@cfcopies.com).