

The Top 25 Global Innovators: Government

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“We need to out-innovate, out-educate, and out-build the future... The first step in winning the future is encouraging American innovation.”

*President Barack Obama
2011 State of the Union Address*



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Innovation is most often associated with manufacturing companies that produce widgets or products. But it's not just the R&D centers of those large organizations that blaze the innovation trail. To the contrary, innovation happens in myriad places and by people with various roles and functions, including—and very importantly—by government organizations.

We've all heard government officials proclaim the importance of innovation.

From US President Barack Obama's famous 2011 State of the Union address when he said, "We need to out-innovate, out-educate, and out-build the future...The first step in winning the future is encouraging American innovation;" to South Africa Science and Technology Minister Naledi Pandor's 2015 Innovation Bridge statement: "Knowledge is the currency of the global economy. If South Africa wants to continue to compete in the 21st century,

we must support research and innovation that will generate growth and jobs now and in the future." From Australia to Antarctica and the Americas, the importance of innovation is loudly proclaimed.

The reason why is clear. Innovation leads to economic growth and prosperity. This is evidenced by the performance of the organizations comprising the Thomson Reuters Top 100 Global Innovators, which have

consistently outperformed the S&P 500 or MSCI World Index in year-over-year revenue, R&D spend and overall performance since the program's inception in 2011. The message here is simple: Countries that innovate, and protect their inventions with intellectual property rights, can compete more effectively in the global arena and attract new business, talent and opportunity.

Leading the Government Innovation Pack

To create the ranking of the world's Top 25 Global Innovators—Government, Reuters News relied on data compiled by Thomson Reuters Intellectual Property & Science via several of its research platforms: InCites, Web of Science, Derwent Innovations Index, Derwent World Patents Index and Patents Citation Index.

Table 1: The Top 25 Global Innovators - Government

Organization	Country/Region	Rank
CEA	France	1
Fraunhofer Gesellschaft	Germany	2
Japan Science & Technology Agency (JST)	Japan	3
Department of Health and Human Services (HHS)	US	4
Centre National de la Recherche Scientifique (CNRS)	France	5
Korea Institute of Science & Technology	South Korea	6
National Institute of Advanced Industrial Science & Technology (AIST)	Japan	7
United States Department of Energy (DOE)	US	8
Agency for Science Technology & Research (ASTAR)	Singapore	9
Institut National de la Sante et de la Recherche Medicale (Inserm)	France	10
Helmholtz Association	Germany	11
US Department of Veteran Affairs	US	12
RIKEN	Japan	13
National Research Council Canada	Canada	14
Max Planck Society	Germany	15
Chinese Academy of Sciences	China (Mainland)	16
Le Reseau International des Instituts Pasteur (RIIP)	France	17
National Institute of Materials Science (NIMS)	Japan	18
US Navy	US	19
Commonwealth Scientific & Industrial Research Organisation (CSIRO)	Australia	20
Consejo Superior de Investigaciones Cientificas (CSIC)	Spain	21
Academia Sinica	Taiwan	22
US Army	US	23
National Aeronautics & Space Administration (NASA)	US	24
Russian Academy of Sciences	Russia	25

Source: Thomson Reuters Derwent World Patents Index, InCites and Web of Science

Regional Breakouts

The Commissariat à l'Énergie Atomique et aux Énergies Alternatives, also known as the French Alternative Energies and Atomic Energy Commission (CEA), is the overall world leader in terms of government-related innovation. Also a recipient of the Thomson Reuters Top 100 Global Innovators designation multiple times, the CEA is a public body launched in October 1945 that fosters investment in research, development and innovation. It has two main objectives: to become

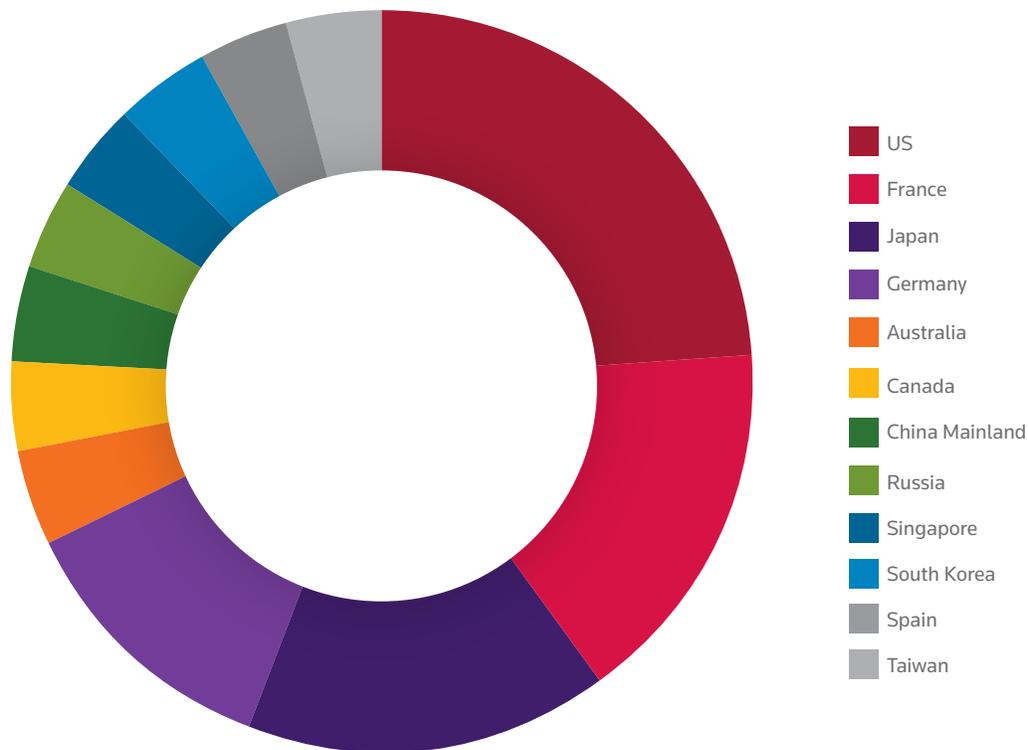
the leading technological research organization in Europe and to ensure that the nuclear deterrent remains effective in the future.¹ It is, at its core, a scientific research organization, with a focus on energy.

Thirty-two percent of the Top 25 hail from Europe, four of which are from France, three from Germany and one from Spain. Asia also has eight Top 25 global government innovators, four from Japan, and one each from China (mainland), Singapore, South Korea

and Taiwan. There are seven from North America, all of which are from the US except one from Canada, and one each from Australia and Russia.

While the United States has 24 percent (or six) of the world's most innovative government organizations in the Top 25, as shown in **Figure 1**, France is the leader in the Top 10, with 30 percent (three) of the top ten slots. Japan and the US each have 20 percent (two) such organizations in the Top 10.

Figure 1: Regional breakout of the most innovative government organizations



Sources: Thomson Reuters Web of Science, InCites, Derwent World Patents Index

¹ <http://www.cea.fr/english-portal/cea/identity/facts-and-figures>

Types of Organizations

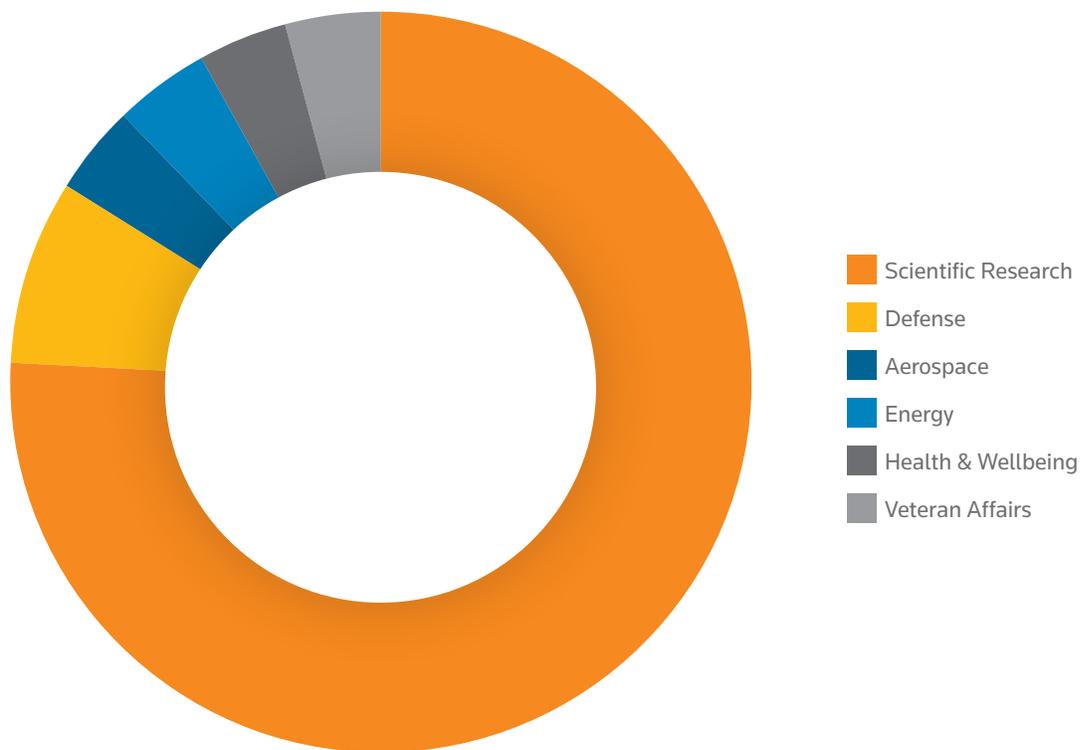
The majority of the Top 25 Global Innovators – Government fall within the category of Scientific Research organizations. In fact, 76 percent are that. Two are within the area of Defense (in the US) and the remaining four have one representative each in Aerospace, Energy, Health & Wellbeing and Veteran Affairs (see **Figure 2**).

It may not come as much of a surprise that there are so many scientific research organizations on the list.

This is to be expected given the methodology and parameters of this work. What is somewhat less expected, however, is the involvement of various US organizations in innovation activity. Institutions such as the National Aeronautics & Space Administration (NASA), the US Army and Navy, Department of Veteran Affairs, Department of Energy and Department of Health and Human Services are all actively engaged in scientific research and the commercialization

of inventions such that they place in the world's top 25 innovative government organizations. The US is the only country with such diverse commitment to innovation across its government agencies.

Figure 2: Top 25 global innovators – government organization type



Sources: Thomson Reuters Web of Science, InCites, Derwent World Patents Index

Methodology

To create the ranking of the world's Top 25 Global Innovators - Government, Reuters News relied on data compiled by Thomson Reuters Intellectual Property & Science via several of its research platforms: InCites, Web of Science, Derwent Innovations Index, Derwent World Patents Index and Patents Citation Index.

For purposes of this project, the term "government" refers to an agency or instrument of government with a reporting line or affiliation with a government department that is primarily taxpayer funded.

The first threshold an organization must pass requires it to have a large

number of scholarly journal articles from 2008–2013, as indexed in the Thomson Reuters Web of Science. The list is then cross referenced against the number of patents filed by each organization during the same time period in the Derwent World Patents Index and the Derwent Innovations Index. Patent equivalents, citing patents and citing articles were included up to July 2015. (This allows for the articles and patents to receive citations, thereby contributing to that portion of the methodology.)

The list was reduced to just those institutions that filed 70 or more world (WIPO) patents. Each candidate organization was then evaluated using

various indicators including how often its patent applications were granted; how many patents were filed with global patent offices and local authorities; and how often the organization's patents were cited by others. They were also evaluated in terms of how often their research papers were cited by patents; and the percentage of articles that featured a co-author from industry.

A composite score was developed from the above, which in turn determined the ranking of the organization according to innovative capacity and achievement.

Private/Public Sector Partnerships

In today's era of open innovation and collaboration, the time is right for government-based innovators to collaborate with the private sector to bring new solutions to life. The expertise of the respective teams can contribute to like-minded initiatives, expediting time to market while maximizing efficiencies and resources.

It's imperative that all nations understand their innovation footprint and benchmark against each other. This will help raise developing and emerging countries above their current state while also providing a potential partner list for the future. Such insights are easily identified in scholarly research and patent analytic systems.

As an example, China is active at innovating and has implemented a number of government incentives and tax breaks as part of its national innovation plans. However, the majority of Chinese innovators are only protecting their inventions on the mainland, versus looking abroad for protection and to open up market

opportunities. As China starts to expand the reach of its innovation, beyond the approximate 6 percent that is currently covered in non-domestic markets, it will find new opportunities, channels and partners to continue enhancing its GDP and GO (gross domestic product and gross output).



IP & Science Head Offices

Americas

Philadelphia +1 800 336 4474
+1 215 386 0100

Europe, Middle East and Africa

London +44 20 7433 4000

Asia Pacific

Singapore +65 6775 5088
Tokyo +81 3 4589 3100

For a complete office list visit:

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