



The 25 Top Global Innovators: Government

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we create millions
of jobs, we build
the companies that
lead the world, we
are healthier and
we make our lives
more productive.”**

— Bill Gates, 2016

Table of Contents

Introduction	4
Government Organizations Leading in Innovation	5
Regional Breakouts	7
Types of Organizations	9
Methodology & Partnerships for Innovation	10



Introduction

Last year, on his personal website, Microsoft founder Bill Gates recorded some observations that neatly encapsulate society's abiding imperative for innovation.

"When we innovate," he wrote, "we create millions of jobs, we build the companies that lead the world, we are healthier, and we make our lives more productive. And these benefits transcend borders, powering improvements in lives around the world."

Furthermore, as Gates noted, this particular moment in history brings a confluence of factors that favor innovation: "Our global culture of innovation has been most successful at those moments when science, technology, and great leadership come together to create miracles that improve modern life. I believe we are in one of those moments."

Innovation, of course, thrives in many settings. These include large commercial firms that produce consumer goods, and universities in which basic research is harnessed for practical ends. Meanwhile, key innovation also takes place in government organizations.

In 2016, Reuters News and Clarivate Analytics (formerly the IP & Science business of Thomson

Reuters) combined to present the Top 25 Global Innovators: Government. Those worldwide organizations, by virtue of their published research as well as their demonstrable success in claiming and defending their intellectual property in the form of patents, deservedly occupied the top rungs in international innovation among government agencies.

Now, a year later, with an updated time window of publication and patent data to consider, we return to see which government organizations continue to lead their peers in innovation.

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Government Organizations Leading in Innovation

To create the latest ranking of the world's Top 25 Global Innovators: Government, Reuters News relied on data compiled by Clarivate Analytics


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
US Department of Health and Human Services (HHS)	US	1
Commissariat a l'Energie Atomique et aux Energies Alternatives (CEA)	France	2
Fraunhofer Gesellschaft	Germany	3
Japan Science & Technology Agency (JST)	Japan	4
National Institute of Advanced Industrial Science & Technology (AIST)	Japan	5
Korea Institute of Science & Technology (KIST)	South Korea	6
Medical Research Council – UK	UK	7
Centre National de la Recherche Scientifique (CNRS)	France	8
Institut National de la Sante et de la Recherche Medicale (INSERM)	France	9
Agency for Science Technology & Research (ASTAR)	Singapore	10
Chinese Academy of Sciences	China	11
National Institute of Materials Science (NIMS)	Japan	12
RIKEN	Japan	13
National Research Council Canada	Canada	14
Le Reseau International des Instituts Pasteur (RIIP)	France	15
Max Planck Society	Germany	16
US Department of Veterans Affairs	US	17
Commonwealth Scientific & Industrial Research Organisation (CSIRO)	Australia	18
German Cancer Research Center	Germany	19
German Research Center for Environmental Health	Germany	20
Jülich Research Center	Germany	21
US Navy	US	22
Consejo Superior de Investagaciones Cientificas (CSIC)	Spain	23
Los Alamos National Laboratory	US	24
Lawrence Livermore National Laboratory	US	25

Sources: Clarivate Analytics Derwent World Patents Index, InCites and Web of Science

In addition to thriving at commercial firms and universities, key innovation also takes place in government organizations.

The background features a large, abstract splash of green paint on the left side, with a blue curved line sweeping across the bottom. A thin, light green curved line also arcs across the right side of the page. The overall aesthetic is modern and dynamic.

Regional Breakouts

In the current ranking, the US Department of Health and Human Services (HHS) – listed fourth in the previous Top 25 – rises to the top spot. A sprawling organization whose secretary occupies a cabinet-level position and reports directly to the US president, the HHS consists of 11 large agencies. These include the National Institutes of Health (NIH) and its various component entities, along with the Centers for Disease Control and Prevention, and the Food and Drug Administration (FDA).

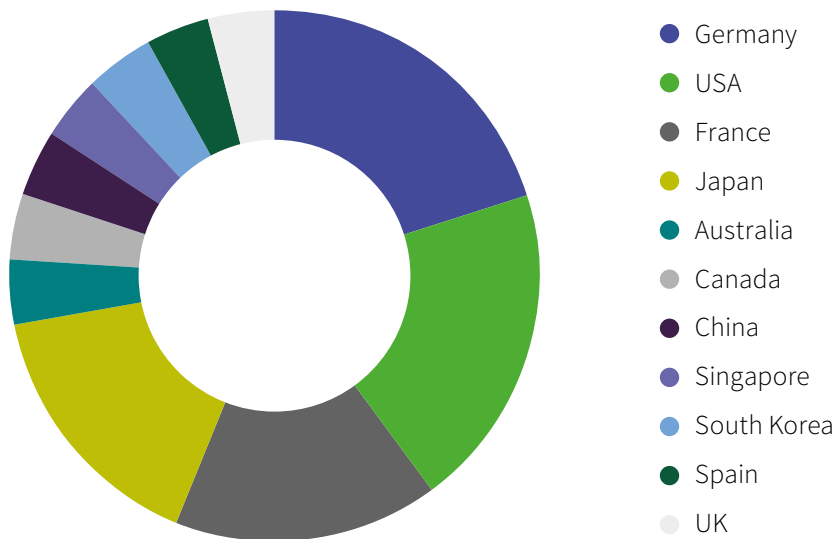
Because the HHS is the official assignee on all patents deriving from agencies within its large umbrella, it earns credit for all such inventions – rather than the patent being assigned to, say, an NIH agency such as the National Institute of Allergy and Infectious Diseases, or the FDA. (Read more in the “Methodology” section.)

Meanwhile, the organization that led the previous Top 25, France’s Commissariat a l’Energie Atomique et aux Energies Alternatives (CEA), still registers strongly in the #2 spot.

In terms of overall regional representation, 44 percent of the Top 25 organizations are based in Europe, with five from Germany, four from France, and one each from the UK and Spain. Asia accounts for seven of the Top 25, with four from Japan and one from China, Singapore, and South Korea. North America, meanwhile, fields six agencies: five in the US (matching Germany’s share) and one from Canada. Germany’s showing of five organizations is a notable improvement on its share of three in the previous Top 25. France, meanwhile, repeats its showing from the previous listing, accounting for three of the Top 10 slots.


Among organizations that repeat from the previous ranking, some markedly improve their positions. The Chinese Academy of Sciences, for example, rises from 16th to 11th, while Japan’s National Institute of Materials Science jumps from 18th to 12th. For both institutions, their respective gains derive, in part, from their improvement in performance relative to their peers, especially in regard to patent indicators.

Figure 1: Regional breakout of the most innovative government organizations



Sources: Clarivate Analytics Web of Science, Derwent World Patents Index

Innovation, always a reflection of the human creative urge, has more than ever emerged as an imperative.



Types of Organizations

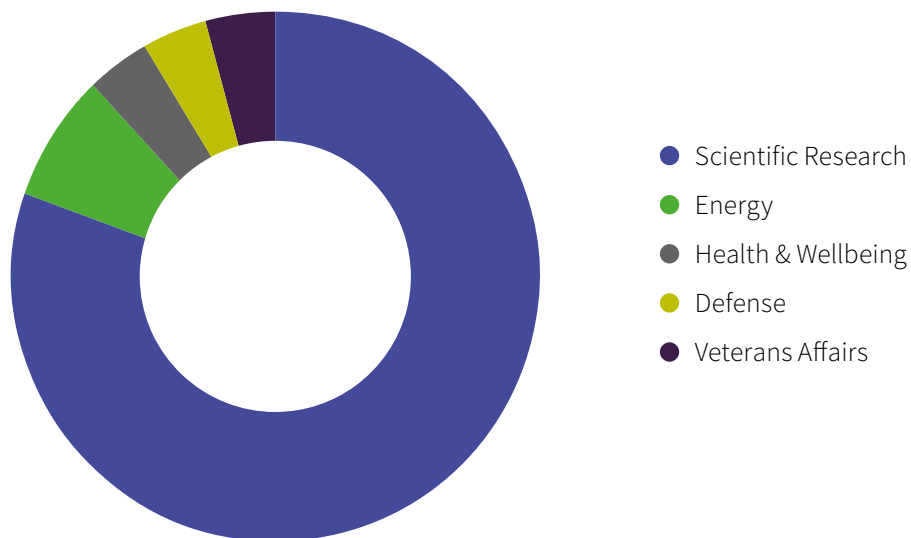
As was the case in the previous listing of Top 25 Global Innovators in the government sphere, most of the organizations fall under the heading of general Scientific Research. In fact, 80 percent, or all but five of the 25, represent the Scientific Research category. Among the remaining categories, the most represented is Energy, with two organizations (two US national laboratories), while the categories of Defense, Veterans Affairs, and Health & Wellbeing each feature one agency.

Also corresponding to last year's ranking is the distinction of US organizations in representing the categories other than Scientific Research. These entities include Los Alamos National Laboratory and Lawrence Livermore National Laboratory in the Energy grouping [Note: In the previous ranking, these two labs were included in a combined listing under the US Department of Energy, but the current

analysis employed a less-aggregated approach, dependent on formal patent assignees. Read more in the Methodology section, following.]

With the Department of Veterans Affairs, the US Navy, and the Department of Health and Human Services in their respective categories, the US again demonstrates the breadth of government organizations that foster invention and innovation and actively protect their intellectual property.


Figure 2: Top 25 Global Innovators: Government, organization types



Methodology

To create the latest ranking of the world's Top 25 Global Innovators: Government, Reuters News relied on data compiled by Clarivate Analytics 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.

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The first threshold for an organization was for its affiliated researchers to have published a large number of scholarly journal articles from 2009 to 2014, as indexed in Clarivate Analytics Web of Science. The list was then cross-referenced against the number of patents filed by each organization during the same time period in Derwent World Patents Index and the Derwent Innovations Index. Patent equivalents, citing patents and citing articles were included up to July 2016. (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 patents (as designated by the World Intellectual Property Organization). 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. Organizations were also evaluated in terms of how often their research papers were cited by patents, along with the percentage of articles that featured a co-author from industry.

From the above measures, a composite score was developed, which in turn determined

the ranking of organizations according to innovative capacity and achievement.

As noted at various points in the report, one slight shift in methodology in this latest ranking, for the sake of uniformity, concerned certain large organizations with many component institutions. This year, rather than grouping all such constituent agencies under the larger entity, analysts determined the breakdowns based on which agency is the official patent assignee. Thus, unlike in the previous ranking, Los Alamos National Laboratory and Lawrence Livermore National Laboratory were evaluated separately from the US Department of Energy, since the latter is not the patent assignee for filings by its various sub-branches.

Similarly, three organizations that were consolidated in the previous ranking under the Helmholtz Association – the German Cancer Research Center, the German Center for Environmental Health, and the Jülich Research Center – are broken out on the current list.

By contrast, the Department of Health and Human Services does serve as the patent assignee, rather than the NIH, CDC, and other component agencies, so the HHS was again considered as a whole.

Partnerships for Innovation

To echo the conclusion of last year's presentation (and as Bill Gates observed in the quotes that open this updated report), the present moment of openness and collaboration in science and technology favors partnerships between government-based innovators and those in the private sector. Indeed, given the problems the world confronts in resource scarcity, public health, and economic inequality, and the potential benefits that innovation holds, the need for such partnerships is pressing.

The key for organizations, as well as nations, is an understanding of their innovation footprint and the capacity to benchmark against one another to monitor their progress and identify potential partnerships. Tools that provide the necessary insights into performance in the journal literature and patenting provide the key to this understanding.

By accelerating innovation, an increase in partnerships between government and the private sector holds the promise not only of driving economic growth and prosperity, but of surmounting the many challenges we face as global citizens.



**The present moment
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Who we are

Clarivate Analytics accelerates the pace of innovation by providing trusted insights and analytics to customers around the world, enabling them to discover, protect and commercialize new ideas faster. Formerly the Intellectual Property and Science business of Thomson Reuters, we own and operate a collection of leading subscription-based services focused on scientific and academic research, patent analytics and regulatory standards, pharmaceutical and biotech intelligence, trademark protection, domain brand protection and intellectual property management. Clarivate Analytics is now an independent company with over 4,000 employees, operating in more than 100 countries and owns well-known brands that include Web of Science, Cortellis, Thomson Innovation, Derwent World Patents Index, CompuMark, MarkMonitor and Techstreet, among others.

More information on innovation, visit:

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