

News Release

Contacts: **Kiran Chauhan**
kiran.chauhan@ca.pwc.com
+1 416 890 8695

Asia Becomes the Top Region for Corporate R&D Spend as Europe Falls Behind and North America Remains Consistent according to the 2015 Global Innovation 1000 Study from Strategy&, PwC's Strategy Consulting Business

China and India lead dynamic R&D growth in Asia region, driven by imported R&D from the US

Europe suffers lag in domestic and imported R&D, and significant increase in exported R&D, particularly by France and Germany

US remains largest country location for the conduct of corporate R&D, representing the net of domestic, imported and exported R&D

NEW YORK, October 27, 2015 – Asia has become the top destination for corporate R&D spend in 2015, accounting for 35% of total in-region R&D, including both domestic and imported R&D. This places Asia ahead of North America and Europe, who dropped to third, in a complete reversal from 2007 when Europe was the previous leader. This is according to the newly released *2015 Global Innovation 1000 Study*, from Strategy &, PwC's strategy consulting business, which uniquely examined the R&D footprint of 207 of the world's largest corporate R&D spenders.

Robust growth in China and India drove Asia's growth, recording increases of 79% and 116%, between 2007 and 2015, in imported spend, respectively, as more R&D moves into these regions mainly from the US. Results find that China in particular has become the most popular destination, with 71% of R&D professional survey respondents indicating that the most important reason for moving R&D to China is proximity to high-growth markets. They state other benefits of moving R&D functions to China include: "proximity to key manufacturing sites," "proximity to key suppliers," and "lower development costs."

"Asia taking the lead as the top destination for corporate R&D is not surprising when you look at where companies are spending their R&D dollars to support their revenue growth goals – a prime indicator of how R&D is trending globally – and how much of R&D is headed to the Asia region," says Barry Jaruzelski, a US firm principal with Strategy& as well as the study's creator and lead-author.

Europe Falls Behind On Corporate R&D Spending; France & Germany Main Factors

The study finds that Europe's fall to the third largest region for corporate R&D spend is a result of low growth in domestic and imported R&D, coupled with a substantial rise in exported R&D – particularly from France and Germany. Comparatively, Europe's domestic R&D spend growth has risen just 2% between 2007 and 2015, compared to gains of 40% in North America and 60% in Asia. At the same time, European countries have increased their R&D allocation to high-cost offshore countries in North America and Asia, but not to nearshore Western Europe. In particular, France has decreased domestic R&D by 20%, has decreased imported R&D by 21% and has increased exported R&D by 46% between 2007 and 2015. Additionally, while Germany's domestic R&D has increased 48%, imported R&D has fallen 7% and exported R&D has increased 76% between 2007 and 2015.

“Europe went from being the largest region for the execution of corporate R&D to the third behind Asia and North America – it’s the hollowing out of Europe,” comments Barry Jaruzelski. “The high growth of exported R&D to other countries, particularly from France and Germany, are huge factors in this reversal.”

The US Remains The Largest Spender Of In-Country Corporate R&D, Whether Domestic, Imported Or Exported

According to this year’s results, the US remains the largest spender of in-country corporate R&D, with in-country (domestic & imported) R&D spend at \$145 billion in 2015, up 34% since 2007. Imported R&D spend to the US, mostly coming from Europe, in 2015 is \$53 billion, up 23% from 2007. Exported R&D spend in 2015 is \$121 billion, up 51% from 2007, predominantly going to Asia where previously in 2007 it was going to Europe. Despite these figures, the US lead over other countries is narrowing – in 2007, relative corporate R&D in China was 23% of the US total, while in 2015 it now amounts to 38% of the US total.

“While the US lead may be tapering, it still remains the biggest global market and despite the high cost of labor, it offers a more agile and sophisticated workforce. As such, companies look at the US as a desirable market with a capable workforce, an innovative culture and a more flexible business environment that cultivates top talent, all of which are conducive to R&D functions. The US also has accessibility to strategic markets, which is desirable to foreign companies when exporting their R&D functions, with Silicon Valley a particularly powerful draw,” comments Barry Jaruzelski.

Globalization Advantage

As globalization increasingly becomes the norm (94% of firms conduct R&D beyond just their home country), companies are reaping the benefits of conducting R&D outside of their home country. Companies with more global R&D footprints now perform as well or better than companies with a narrow footprint, the study finds, suggesting that there are material advantages to exporting R&D and that multinationals are able to coordinate successfully across many global sites.

Additionally, companies seem to derive benefits from a diverse global footprint as survey respondents say access to technical talent (71%), being close to customers (68%) and gaining insight into local market needs (64%) are important attributes in choosing where to conduct R&D.

In addition, Strategy&’s annual analysis of the world’s 1000 largest R&D spenders found:

- **R&D has returned to its long-term growth trend post-financial crisis:** In 2015, R&D spend by the Global Innovation 1000 has increased 5.1% to \$680 billion, the largest year-over-year increase within the last three years, moving it back to a long-term average growth rate post the financial crisis, with a 10-year CAGR of 5.4%.
- **Industry Breakdown:** The three largest industries for R&D Spend in 2015 are computing and electronics (C&E), healthcare and auto. In particular, healthcare is on track to pass C&E as the largest industry by R&D spend by 2019. Meanwhile, the software & Internet industry has the highest growth rate of all the industries between 2014 and 2015 (27%), pushing it past the industrials sector to become the fourth largest industry by R&D spend in 2015. “It is not surprising that the software & Internet industry surpassed the industrials sector as the fourth largest spender of R&D. However, it is a noteworthy milestone, marking how software, the new economy, is trading places with industrials, the older economy,” says Barry Jaruzelski.
- **Top 20 R&D Spenders:** Within the Top 20 R&D spenders of 2015, the top three companies have remained fairly consistent over the years – Volkswagen, Samsung, Intel. For the first time Apple has joined the Top 20 R&D spenders of 2015 list at #18.

- **Top three Most Innovative companies in the world for 2015:** Global innovation professionals have ranked Apple, Google, and Tesla as the three most innovative companies in the world, with Tesla jumping to third place from fifth in 2014.

Methodology

As it has in each of the past 10 editions of the Global Innovation 1000, this year Strategy&, PwC's strategy consulting business, identified the 1,000 public companies around the world that spent the most on R&D during the last fiscal year, as of June 30, 2015. To be included, companies had to make their R&D spending numbers public. Subsidiaries that were more than 50 percent owned by a single corporate parent during the period were excluded if their financial results were included in the parent company's financials. The Global Innovation 1000 companies collectively account for 40 percent of the entire world's R&D spending, from all sources, including corporate and government sources.

In 2013, Strategy& made some adjustments to the data collection process in order to gain a more accurate and complete picture of innovation spending. In prior years, both capitalized and amortized R&D expenditures were excluded. Starting in 2013, we included the most recent fiscal year's amortization of capitalized R&D expenditures for relevant companies in calculating the total R&D investment, while continuing to exclude any non-amortized capitalized costs. We have now applied this methodology to all previous years' data; as a result, historical data referenced in the studies from 2014 onward will not always align with previously published figures for the 2005 through 2012 studies.

For each of the top 1,000 companies, we obtained from Bloomberg and Capital IQ the key financial metrics for 2010 through 2015, including sales, gross profit, operating profit, net profit, historical R&D expenditures, and market capitalization. All sales and R&D expenditure figures in foreign currencies were translated into U.S. dollars according to an average of the exchange rate over the relevant period; for data on share prices, we used the exchange rate on the last day of the period.

All companies were coded into one of nine industry sectors (or "other") according to Bloomberg's industry designations, and into one of five regional designations, as determined by their reported headquarters locations. To enable meaningful comparisons across industries, the R&D spending levels and financial performance metrics of each company were indexed against the average values in its own industry.

To understand the global distribution of R&D spend, the drivers of that distribution, and how the distribution affects the performance of individual companies, we researched the global R&D footprint of the top 100 companies in terms of their 2015 R&D spend, plus the top 50 companies in the largest three industries (auto, healthcare, and computing and electronics) and the top 20 companies in the industrials and software and Internet sectors. The total number of companies for which we assessed the distribution of R&D spending across countries was 207, reflecting overlap in the top 100 and the five selected industries. These 207 companies are headquartered in 23 countries and conduct R&D activities at 2,041 R&D sites spanning more than 60 countries.

When geographic breakdowns were not publicly available, we collected data on the location of R&D facilities, the product segments each facility supports, the year each facility was established, the number of people it employs, its sales by product segment, and the global distribution of sales. This data was used to allocate total R&D dollars to the countries where facilities were located.

Finally, to understand how global R&D is and will be conducted at companies across multiple industries, Strategy& conducted a separate online survey of 369 innovation leaders around the world. The companies participating represented over US\$106 billion in R&D spending, or 16 percent of this year's total Global Innovation 1000 R&D spending, all nine of the industry sectors, and all five geographic regions.

About Strategy&

Strategy& is a global team of practical strategists committed to helping you seize essential advantage. We do that by working alongside you to solve your toughest problems and helping you capture your greatest opportunities. We bring 100 years of strategy consulting experience and the unrivaled industry and functional capabilities of the PwC network to the task. We are part of the PwC network of firms in 157 countries with more than 208,000 people committed to delivering quality in assurance, tax, and advisory services.

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