

Date: **Tuesday 25th October 2016**

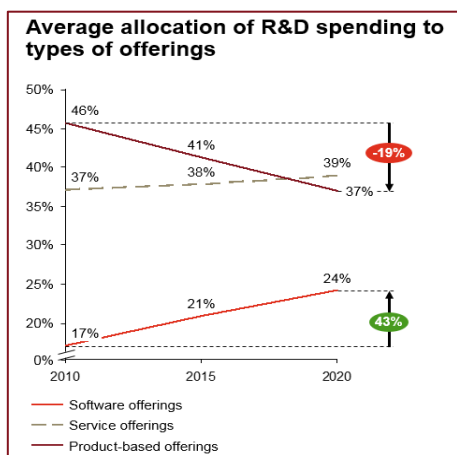
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Companies shifting more R&D spending away from physical products to software and services: 2016 Global Innovation 1000 Study

Companies who allocated more of their R&D budgets to software offerings reported significantly faster revenue growth than others according to PwC's Strategy&

London, 25 October 2016 -- By 2020, companies will have shifted the majority of their R&D spending away from product-based offerings to software and service offerings, according to the [2016 Global Innovation 1000 Study](#) from Strategy&, PwC's strategy consulting business. The need to stay competitive is the top reason why companies cited a shift in their R&D budgets towards software and services, and for good reason – according to the study, companies who reported faster revenue growth relative to key competitors allocated 25 percent more of their R&D budgets to software offerings than companies who reported slower revenue growth.



- The average allocation of R&D spending for software and services increased from 54% to 59% between 2010 and 2015 and is expected to grow to 63% by 2020.
- Meanwhile, the average allocation of R&D spending dedicated to product-based offerings fell to 41 percent (from 46% in 2010), and is expected to fall to 37% by 2020 (an overall decrease of 19% this decade).
- Average allocation of R&D spending on software offerings alone will increase by 43% by the end of this decade and R&D spending on services will gradually overtake investment in product-based innovation (39% vs. 37% by 2020).
- Global R&D spending on software offerings has increased by 65% between 2010-2015, from US \$86 billion to \$142 billion.

“Many of the world’s major innovators are in the midst of a transformational journey mostly driven by changing – and rising – customer expectations,” says [Barry Jaruzelski](#), innovation and R&D expert for Strategy& and principal with PwC US. “The shift is also being driven by the supercharged pace of improvement in what software can do, including the increasing use of embedded software and sensors in products, the ability to reliably and inexpensively connect products, customers and manufacturers via the Internet of Things (IoT), and the availability of cloud-based data storage.

Companies will recruit less mechanical engineers and more data and software engineers to build their capabilities

To support the development of software and services offerings, fewer companies will focus their R&D spending on the electrical and mechanical field. By 2020, the number of companies reporting that electrical engineers are their top employed engineering specialty will fall by 35 percent and the proportion of companies who expect that data engineers will represent their largest group of employed engineers will double from 8% to 16%.

Jaruzelski says, “An increase in software and services, even in more traditional industries has created a shift towards hiring talent that can develop software and provide platforms to collect and analyse product-related data. The shift is already changing the way business schools think about their course offerings, and will have profound effects both on education and, more generally, on the future of employment.”

Regionally, companies in North America are making the strongest shift to software offerings—from 15 percent of total R&D spending in 2010 to 24 percent in 2020. While Asia remains the most product-centric region, with 44 percent of R&D allocated to product offerings in 2010, only falling to 40 percent in 2020. The automotive and industrial sectors are making the most aggressive push towards developing new software offerings.

Among companies that made an acquisition during the past five years, the vast majority – 71 percent – were made to enhance capabilities in software (33%) or services (38%)

Strategy&’s annual analysis of the world’s 1000 largest R&D spenders also found the following:

- **By 2018, the healthcare sector will surpass computing and electronics to become the largest R&D spending industry globally** (US\$165 billion v. US\$159 billion), and the software and internet industry will leap ahead of the automotive sector (US\$129 billion v. US\$105 billion); Industrials rounds out the Top 5 R&D industries by spend.
- **For the first time in the study’s history, the number of Global Innovation 1000 companies headquartered in the US grew**, up 9.5% year over year.
- **Volkswagen, Samsung, Amazon, Alphabet (Google) and Intel round out the Top 5 R&D Spenders**, with Amazon and Google making bold moves up the list (+4 and +2 positions, respectively).
- **Global innovation professionals responding to a 2016 survey have ranked Apple, Alphabet (Google), and 3M as the three Most Innovative Companies** in the world.
- **The 10 Most Innovative Companies continue to outperform the Top 10 R&D Spenders** on key performance metrics, as has been the case for each of the past seven years.

2016 Ranking: The 10 Most Innovative Companies vs. Top 10 R&D spenders

Rank	10 Most * Innovative Companies	2016 R&D spend (US\$ Bn)	R&D intensity	Top 10 R&D Spenders	2016 R&D spend (US\$ Bn)	R&D intensity
1st	Apple Inc.	8.1	3.5%	Volkswagen AG	13.2	5.6%
2nd	Alphabet Inc.	12.3	16.4%	Samsung Electronics Co Ltd	12.7	7.2%
3rd	3M Co.	1.8	5.8%	Amazon.com Inc.	12.5	11.7%
4th	Tesla Motors Inc.	0.7	17.7%	Alphabet Inc.	12.3	16.4%
5th	Amazon.com Inc.	12.5	11.7%	Intel Corp	12.1	21.9%
6th	Samsung Electronics Co Ltd	12.7	7.2%	Microsoft Corp	12.0	12.9%
7th	Facebook Inc.	4.8	26.9%	Roche Holding AG	10.0	19.9%
8th	Microsoft Corp	12.0	12.9%	Novartis AG	9.5	19.2%
9th	General Electric Co	4.2	3.7%	Johnson & Johnson	9.0	12.9%
10th	International Business Machines Corp	5.2	6.4%	Toyota Motor Corp	8.8	3.7%

*The 10 Most Innovative Companies are named by respondents of a 2016 survey of global innovation experts.

To learn more about the 2016 Global Innovation 1000 Study, visit www.strategyand.pwc.com/innovation1000. A copy of the study findings by geography and industry are available from the media contact. Additional multi-media assets including infographics and video are also available.

About the 2016 Global Innovation 1000 Study

As it has in each of the past 11 editions of the Global Innovation 1000, this year Strategy& 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, 2016. To be included, companies had to make their R&D spending numbers public. 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. Strategy& also conducted an online survey of 466 innovation leaders around the world. The companies participating in the survey represent more than US\$91 billion in R&D spending, or 13.5 percent of this year's total Global Innovation 1000 R&D spending. For information about the methodology of the study, please contact the media representative.

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