HIGHLIGHTS FROM
The 2013 Global Innovation 1000 Study
NAVIGATING THE DIGITAL FUTURE

Download the full strategy+business article and view infographics, our past studies, and more at www.booz.com/innovation1000.
Booz & Company’s ninth annual study of innovation trends and spending shows that R&D investment at the public companies that were the 1,000 biggest spenders globally reached the highest level ever this year, US$638 billion. However, after two years of more than 9 percent growth post-recession, this year’s spending growth of 5.8 percent is a return to the long-term trend.

Apple, Google, and 3M have been at the top of the global “Most Innovative Companies” ranking for the last three years, but this year Samsung has overtaken 3M to claim the third spot. Amazon has also made a significant move, leaping six spots into fourth place this year. Tesla joins the list for the first time, and Facebook makes a return after a year’s hiatus, while Toyota and P&G have fallen farther down the list.

This year, we also surveyed the use of digital tools at 350 companies around the world. On average, we found that 8.1 percent of R&D spending is being allocated to digital enablers, from familiar project management software to the newest crowdsourcing and collaborative design tools. The tried-and-true productivity enablers are must-haves in the innovator’s digital tool kit. But many companies have started to also use digital enablers to develop market and customer insights. The benefits are measurable: The heaviest users of digital tools are 77 percent more likely to report that their companies financially outperform the competition.

### CHANGES IN THE 10 MOST INNOVATIVE COMPANIES

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Apple</td>
<td>Apple</td>
<td>Apple</td>
<td>Apple</td>
</tr>
<tr>
<td>2nd</td>
<td>Google</td>
<td>Google</td>
<td>Google</td>
<td>Google</td>
</tr>
<tr>
<td>3rd</td>
<td>3M</td>
<td>3M</td>
<td>3M</td>
<td>Samsung</td>
</tr>
<tr>
<td>4th</td>
<td>GE</td>
<td>GE</td>
<td>Samsung</td>
<td>Amazon</td>
</tr>
<tr>
<td>5th</td>
<td>Toyota</td>
<td>Microsoft</td>
<td>GE</td>
<td>3M</td>
</tr>
<tr>
<td>6th</td>
<td>Microsoft</td>
<td>IBM</td>
<td>Microsoft</td>
<td>GE</td>
</tr>
<tr>
<td>7th</td>
<td>P&amp;G</td>
<td>Samsung</td>
<td>Toyota</td>
<td>Microsoft</td>
</tr>
<tr>
<td>8th</td>
<td>IBM</td>
<td>P&amp;G</td>
<td>P&amp;G</td>
<td>IBM (Tie) (Tesla)</td>
</tr>
<tr>
<td>9th</td>
<td>Samsung</td>
<td>Toyota</td>
<td>IBM</td>
<td>Facebook</td>
</tr>
<tr>
<td>10th</td>
<td>Intel</td>
<td>Facebook</td>
<td>Amazon</td>
<td>Facebook</td>
</tr>
</tbody>
</table>
R&D Spending [read more]
- R&D spending among the top 1,000 spenders globally reached an all-time high of $638 billion in 2013, an increase of 5.8 percent from 2012, compared to 9 percent-plus growth in the two previous years.
- China’s R&D spending increase of 35.8 percent this year was the highest of any region, but it is the second lowest increase for China over the past five years, likely a reflection of the country’s slowing economic expansion.
- R&D spending was once again highest in dollar terms at North American companies ($248 billion, an 8.6 percent increase over last year). And Europe’s R&D spending ($189 billion, a 4.5 percent increase from 2012) continues to be the second-highest.
- The computing and electronics industry spent the most on R&D in dollar terms ($170 billion); the software and Internet sector saw the highest percentage increase in spending (22.1 percent, or $9.3 billion).

Performance Drivers [read more]
- For the ninth year in a row, we have found no correlation between how much companies spend on R&D and their financial performance.
- How companies spend their innovation dollars is much more important. Our studies have consistently shown that innovation investments in select capabilities, tools, talent, and culture which are tightly aligned with a business’s strategy are what drive sustained success.

Navigating the Digital Future [read more]
- Respondents to our survey say their companies are using a mix of digital tools: tried-and-true productivity enablers and newer market and customer insight enablers. The right mix, which many are still struggling to find, depends on a company’s industry, capabilities, and innovation model.
- On average, our survey respondents say their companies spend 8.1 percent of their R&D budgets on digital enablers.
- Less than half of respondents say they use digital enablers to a significant extent, but those that do are 77 percent more likely to report that they financially outperform competitors than are those who use them to a low or moderate extent.

Digital enabler: electronic tool, or process supported by an electronic tool, that improves speed, cost, quality and/or complexity. Examples relating to innovation: visual simulation, rapid prototyping/3D printing, computer-aided design, customer relationship management system.
Key Finding: R&D SPENDING HAS REACHED ITS HIGHEST LEVEL EVER, BUT SPENDING GROWTH HAS SLOWED COMPARED TO THE PREVIOUS TWO YEARS

- R&D spending by the Global Innovation 1000 companies reached $638 billion in 2013—the highest level ever. This represents nearly half of all private and public sector R&D spending in the world.
- After two consecutive years of high growth, this year’s growth rate of 5.8 percent (an increase of $35 billion over 2012) is a return to the long-term growth trend.

“R&D spending is at an all-time high, but the return to the long-term growth trend of 5 to 6 percent per year indicates sustainable investment and reflects overall stability in the market.”

—Barry Jaruzelski
Senior Partner, Booz & Company
Key Finding: THE COMPUTING AND ELECTRONICS INDUSTRY SPENT THE MOST ON R&D, BUT THE SOFTWARE AND INTERNET INDUSTRY SAW THE GREATEST INCREASE IN SPENDING

2013 R&D SPENDING BY INDUSTRY

- The three highest-spending industries in 2013 were computing and electronics, healthcare, and automotive, the same as in 2012.
- Healthcare as well as computing and electronics companies are together responsible for almost half of the R&D spending of the Global Innovation 1000.

"The 22 percent boost in R&D spending in software and Internet may be a sign that the tide is turning in favor of technologies that run our increasingly digitized world. In fact, software and Internet added the greatest number of companies to this year’s Global Innovation 1000 list.”

—Richard Holman
Partner, Booz & Company

CHANGE IN R&D SPENDING BY INDUSTRY
2012-2013; BILLIONS

- Fully 74 percent of the $35 billion spending increase this year came from the software and Internet (up $9.3 billion), healthcare (up $9.2 billion), and automotive (up $7.4 billion) sectors.
- Computing and electronics, though the largest R&D spender, increased its spending by only $3.4 billion, making up just 10 percent of the overall spending increase.
Key Finding: R&D SPENDING WAS STILL CONCENTRATED AT COMPANIES HEADQUARTERED IN NORTH AMERICA AND EUROPE, BUT GROWTH WAS ONCE AGAIN HIGHEST IN CHINA

2013 R&D SPENDING BY HEADQUARTER REGION

- Companies headquartered in North America and Europe continue to make up more than two-thirds of the R&D spending of the Global Innovation 1000.
- China-based companies, though spending only 3.2 percent of all Global Innovation 1000 funds, have been increasing R&D budgets far more rapidly than those in North America or Europe. Chinese companies’ share of global spending has risen from 0.4 percent to 3.2 percent of the total between 2008 and 2013—a sevenfold rise.
- China-based companies increased their share of revenue among the Global Innovation 1000 from 5.8 percent to 8.7 percent between 2008 and 2013, a slower rise than their share of R&D spending, but still a significant one.

CHANGE IN R&D SPENDING BY REGION 2012–2013

“Over the past year, only Japan reduced its total R&D spending, the first time any major country has decreased its year-over-year spending since the 2008 crash. Even Europe increased its R&D investment, despite being mired in recession.”

—John Loehr
Partner, Booz & Company
Key Finding: FOR THE FOURTH YEAR, THE MOST INNOVATIVE COMPANIES WEREN’T THE TOP SPENDERS

10 MOST INNOVATIVE COMPANIES IN 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Industry</th>
<th>R&amp;D Spending (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Apple</td>
<td>Computing and Electronics</td>
<td>$3.4</td>
</tr>
<tr>
<td>2nd</td>
<td>Google</td>
<td>Software and Internet</td>
<td>$6.8</td>
</tr>
<tr>
<td>3rd</td>
<td>Samsung</td>
<td>Computing and Electronics</td>
<td>$10.4</td>
</tr>
<tr>
<td>4th</td>
<td>Amazon</td>
<td>Software and Internet</td>
<td>$4.6</td>
</tr>
<tr>
<td>5th</td>
<td>3M</td>
<td>Industrials</td>
<td>$1.6</td>
</tr>
<tr>
<td>6th</td>
<td>GE</td>
<td>Industrials</td>
<td>$4.5</td>
</tr>
<tr>
<td>7th</td>
<td>Microsoft</td>
<td>Software and Internet</td>
<td>$9.8</td>
</tr>
<tr>
<td>8th</td>
<td>IBM</td>
<td>Computing and Electronics</td>
<td>$6.3</td>
</tr>
<tr>
<td>9th</td>
<td>Tesla</td>
<td>Automotive</td>
<td>$0.3</td>
</tr>
<tr>
<td>10th</td>
<td>Facebook</td>
<td>Software and Internet</td>
<td>$1.4</td>
</tr>
</tbody>
</table>

TOP 10 R&D SPENDERS IN 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Industry</th>
<th>R&amp;D Spending (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Volkswagen</td>
<td>Automotive</td>
<td>$11.4</td>
</tr>
<tr>
<td>2nd</td>
<td>Samsung</td>
<td>Computing and Electronics</td>
<td>$10.4</td>
</tr>
<tr>
<td>3rd</td>
<td>Roche</td>
<td>Healthcare</td>
<td>$10.2</td>
</tr>
<tr>
<td>4th</td>
<td>Intel</td>
<td>Computing and Electronics</td>
<td>$10.1</td>
</tr>
<tr>
<td>5th</td>
<td>Microsoft</td>
<td>Software and Internet</td>
<td>$9.8</td>
</tr>
<tr>
<td>6th</td>
<td>Toyota</td>
<td>Automotive</td>
<td>$9.8</td>
</tr>
<tr>
<td>7th</td>
<td>Novartis</td>
<td>Healthcare</td>
<td>$9.3</td>
</tr>
<tr>
<td>8th</td>
<td>Merck</td>
<td>Healthcare</td>
<td>$8.2</td>
</tr>
<tr>
<td>9th</td>
<td>Pfizer</td>
<td>Healthcare</td>
<td>$7.9</td>
</tr>
<tr>
<td>10th</td>
<td>Johnson &amp; Johnson</td>
<td>Healthcare</td>
<td>$7.7</td>
</tr>
</tbody>
</table>

• Healthcare companies have consistently been on the top spenders list but have never made it on the most innovative list.

• Only two companies, Samsung and Microsoft, have been on both the most innovative and the top spenders lists all four years.

“For the ninth straight year, our research has demonstrated that there is no correlation between how much you spend and how well you perform over the long term. It has been proven time and time again that you can’t buy your way to the top. When it comes to innovation, how you spend is much more important than how much you spend.”

—Barry Jaruzelski
Senior Partner, Booz & Company
**Key Finding:** IT’S NOT WHAT YOU SPEND, IT’S HOW YOU SPEND IT

**FINANCIAL PERFORMANCE OF THE 10 MOST INNOVATIVE COMPANIES’ VS. TOP 10 R&D SPENDERS**

<table>
<thead>
<tr>
<th>Metric</th>
<th>10 Most Innovative Companies</th>
<th>Top 10 R&amp;D Spenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Growth (5-yr. CAGR)</td>
<td>54%</td>
<td>45%</td>
</tr>
<tr>
<td>EBITDA as % of Revenue (5-yr. Avg.)</td>
<td>71%</td>
<td>69%</td>
</tr>
<tr>
<td>Market Cap Growth (5-yr. CAGR)</td>
<td>66%</td>
<td>45%</td>
</tr>
</tbody>
</table>

“Not only do the largest spenders fail to perform better than the most innovative companies, they also lag behind the average of their industry peers on the Global Innovation 1000 list on both revenue growth and market cap growth.”

—John Loehr
Partner, Booz & Company

* Only 8 of the 10 Most Innovative Companies were included in this analysis. Tesla and Facebook were removed as they did not have market cap data spanning back 5 years.
Key Finding: COMPANIES ARE USING A MIX OF TRIED-AND-TRUE DIGITAL PRODUCTIVITY ENABLERS AND NEWER MARKET AND CUSTOMER INSIGHT ENABLERS

THE DIGITAL TOOL LANDSCAPE

- Our survey results show that productivity enablers, used primarily in the development phase of innovation, have reached maturity; most are widely used and effective.
- In other phases, particularly the front end of the innovation process, companies are experimenting with new market and customer insight enablers that have transformative potential. But most tools aren’t widely used yet, and companies find their effectiveness varies wildly.
- Among the most effective tools is 3D printing for rapid prototyping in the ideation phase of the innovation process.

“There are many digital enablers out there. Productivity enablers have become must-haves in any innovator’s digital tool kit. More and more companies are starting to use newer market and customer insight enablers to create better and more inventive products. The right mix of tools will depend on a company’s industry, capabilities, and innovation model.”

—Barry Jaruzelski
Senior Partner, Booz & Company
Key Finding: **DIGITAL ENABLERS APPEAR TO BOOST PERFORMANCE WHEN USED SIGNIFICANTLY**

**USAGE OF DIGITAL ENABLERS AND FINANCIAL PERFORMANCE**

- Companies from our survey allocated an average of 8.1 percent of their R&D budgets to digital tools, which when extrapolated to the Global Innovation 1000 companies adds up to $52 billion of spending in 2013.
- Less than half of respondents say their companies use digital enablers to a significant extent, but those that do are 77 percent more likely to report that they financially outperform competitors than are those that use enablers to a low or moderate extent.
- Only 49 percent of respondents say their companies are spending on digital enablers that they rated as highly effective.

**ESTIMATED R&D SPENDING ON DIGITAL ENABLERS BY INDUSTRY**

- By industry, the percentage of R&D budgets spent on digital enablers by our respondents varied, as did the types of enablers used.
- Aerospace and defense respondents, relied heavily on CAD software and visual simulation, whereas respondents from the software and Internet sector made extensive use of social media—suitable choices given the high development costs and levels of complexity of the aerospace and defense industry and the business-to-consumer business model of the software and Internet sector.

---

"With all the talk out there about digital enablers, more companies should be making significant use of them. It’s good news for innovation that some companies have found the tools that contribute to higher performance—the rest should follow their lead."

—Richard Holman
Partner, Booz & Company
ABOUT THE AUTHORS

Barry Jaruzelski
barry.jaruzelski@booz.com

Barry Jaruzelski is a senior partner with Booz & Company in Florham Park, N.J., and the global leader of the firm’s engineered products and services practice. He created the Global Innovation 1000 study in 2005, and continues to lead the research. He works with high-tech and industrial clients on corporate and product strategy and the transformation of core innovation processes.

Richard Holman
richard.holman@booz.com

Richard Holman is a partner with Booz & Company based in Florham Park, N.J. As a senior leader of the firm’s innovation practice, he works with clients in highly engineered products sectors such as aerospace, industrials, high tech, and healthcare on innovation capability building, new product development efficiency and effectiveness, and product management.

John Loehr
john.loehr@booz.com

John Loehr is a partner with Booz & Company based in Chicago, and is the global leader of the firm’s innovation practice. He works with automotive, industrial, and technology companies to help them build competitive innovation capabilities and to resolve critical decisions in their product and market strategies.

“We’ve proven time and again that the amount you spend on R&D doesn’t matter; how you spend it does. This year, we’ve seen that spending on digital enablers matters.”

“Digital enablers are everywhere. Some have been around for a while, others are new. To stay competitive, you’ll have to invest in both. Your best competitors already have.”

“The front end of innovation is changing very quickly. Leading companies are using – and building – powerful digital tools to discover and validate what customers think, do, and need. Companies looking for an edge will need to invest in these to better identify and meet market demands.”
ABOUT THE GLOBAL INNOVATION 1000

As we have in each of the past eight editions of the Global Innovation 1000, this year Booz & Company 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, 2013. 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 just under half of the entire world’s R&D spending.

Methodology

In order to gain a more accurate and complete picture of innovation spending, Booz & Company made some adjustments to the data collection process this year. In past years, both capitalized and amortized R&D expenditures were excluded. This year, for companies with capitalized R&D expenditures, we included the most recent fiscal year’s amortization of those costs in calculating the total R&D investment, while continuing to exclude any non-amortized capitalized costs.

For each of the top 1,000 companies, we obtained from Bloomberg and Capital IQ the key financial metrics for 2008 through 2013, 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.

Booz & Company conducted a separate online survey of nearly 400 innovation leaders at 350 companies around the world to explore how their companies employ various digital enablers.

ABOUT BOOZ & COMPANY

Booz & Company (booz.com) is a leading global management consulting firm focused on serving and shaping the senior agenda of the world’s leading institutions. Drawing on the talents and insights of more than 3,000 people in 57 offices around the world, we help our clients achieve essential advantage by working with them to identify and build the differentiating capabilities they need to outperform.

Download the full strategy+business article and view infographics, our past studies, and more at www.booz.com/innovation1000.