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What Industry Spends The Most On Research And Development?

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Research and Development expense reflects a company's commitment to long-term growth through innovation. Companies sacrifice short-term earnings to develop innovative technologies to stay ahead of their peers. In this report, we analyzed the S&P 100 for their absolute and relative R&D spend. Of the S&P 100, 57 of the companies disclose R&D spend in their financial results.

The 57 companies operate in five different sectors, and we first took an average of R&D Expense as a percentage of Revenue in each sector.

Sector	Count	Average R&D Spend % of Revenue	Average Revenue CAGR (2014-2017)
Healthcare	15	16%	6%
Tech, Media and Telco	20	13%	10%
Consumer Discretionary	2	11%	20%
Industrial, Energy and Materials	14	3%	-5%
Consumer Staples	6	3%	-3%
Total	57	10%	6%

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The sector that spends the most on R&D is Healthcare, with a strong focus on developing and bringing to market new drugs.

On the other hand, Industrial, Energy, and Materials companies spend little on R&D - on average only 3% of Revenue. Their expenses include scientific research, technical support, and patent costs. For instance, oil companies Exxon Mobil and Chevron (ranked last and third last on the list) spend less than 1% on disclosed R&D. In fact, the only activity that Exxon listed is research on technologies to reduce greenhouse gas emission.

Next we ranked each company by R&D Spend as a % of Revenue, and showed its variance (positive or negative) from the average of its sector.

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Rank	Company	Sector	R&D Spend (\$M)	R&D % Revenue	Delta vs Sector	Revenue Growth (2014-2017)
1	Celgene Corporation	Healthcare	5,915	45%	30%	14%
2	Bristol-Myers Squibb	Healthcare	6,411	31%	15%	7%
3	Merck & Co.	Healthcare	10,208	25%	10%	-1%
4	Qualcomm	Tech, Media and Telco	5,485	25%	11%	-4%
5	Eli Lilly	Healthcare	5,282	23%	10%	4%
6	Intel	Tech, Media and Telco	13,098	21%	8%	3%
7	Facebook	Tech, Media and Telco	7,754	19%	6%	34%
8	Broadcom	Tech, Media and Telco	3,292	19%	5%	43%
9	Biogen	Healthcare	2,254	18%	3%	6%
10	AbbVie	Healthcare	4,982	18%	2%	9%
11	Adobe	Tech, Media and Telco	1,224	17%	3%	15%
12	Oracle	Tech, Media and Telco	6,159	16%	3%	0%
13	Amgen	Healthcare	3,562	16%	0%	3%
14	Activision Blizzard	Tech, Media and Telco	1,069	15%	2%	12%
15	NVIDIA	Tech, Media and Telco	1,463	15%	2%	20%
16	Alphabet	Tech, Media and Telco	16,625	15%	2%	14%
17	Pfizer	Healthcare	7,657	15%	-1%	1%
18	Microsoft	Tech, Media and Telco	13,037	14%	1%	1%
19	Salesforce	Tech, Media and Telco	1,208	14%	1%	20%
20	Gilead Sciences	Healthcare	3,734	14%	-1%	1%
21	Johnson & Johnson	Healthcare	10,554	14%	-2%	1%
22	Amazon	Consumer Discretionary	22,620	13%	2%	19%
23	Cisco	Tech, Media and Telco	6,059	13%	-1%	0%
24	Texas Instruments	Tech, Media and Telco	1,508	10%	-3%	3%
25	Netflix	Consumer Discretionary	1,053	9%	-2%	21%
26	Micron Technology	Tech, Media and Telco	1,824	9%	-4%	6%
27	Altria Group	Consumer Staples	2,100	8%	6%	1%
28	Abbott	Healthcare	2,235	8%	-7%	8%
29	Medtronic	Healthcare	2,193	7%	-8%	15%
30	PayPal	Tech, Media and Telco	953	7%	-6%	13%
31	Becton Dickinson	Healthcare	774	6%	-9%	9%
32	Stryker	Healthcare	787	6%	-9%	6%
33	Danaher Corporation	Healthcare	1,129	6%	-9%	-2%
34	3M Company	Industrial, Energy and Materials	1,850	6%	3%	0%
35	Automatic Data Processing	Tech, Media and Telco	628	5%	-8%	0%
36	Apple	Tech, Media and Telco	11,581	5%	-8%	6%
37	General Electric	Industrial, Energy and Materials	5,600	5%	2%	-5%
38	Thermo Fisher Scientific	Healthcare	888	4%	-11%	5%
39	Caterpillar	Industrial, Energy and Materials	1,905	4%	1%	-5%
40	United Technologies	Industrial, Energy and Materials	2,387	4%	1%	-2%
41	DowDuPont	Industrial, Energy and Materials	2,110	4%	1%	-1%
42	Boeing	Industrial, Energy and Materials	3,179	3%	1%	1%
43	Procter & Gamble	Consumer Staples	1,900	3%	0%	-6%
44	Raytheon	Industrial, Energy and Materials	734	3%	0%	3%
45	EOG Resources	Industrial, Energy and Materials	125	3%	0%	-11%
46	ConocoPhillips	Industrial, Energy and Materials	787	0%	-2%	-11%
47	Schlumberger	Industrial, Energy and Materials	1,200	3%	0%	3%
48	Lockheed Martin	Industrial, Energy and Materials	876	2%	0%	0%
49	Honeywell International	Industrial, Energy and Materials	704	2%	-1%	4%
50	Accenture	Tech, Media and Telco	285	2%	-11%	-3%
51	Colgate-Palmolive Company	Consumer Staples	366	2%	-1%	-7%
52	Mondelez International	Consumer Staples	737	1%	-1%	-1%
53	PepsiCo	Consumer Staples	1,503	1%	-2%	5%
54	AT&T	Tech, Media and Telco	453	1%	-12%	-1%
55	Chevron Corporation	Industrial, Energy and Materials	1,063	0%	-3%	-12%
56	Philip Morris International	Consumer Staples	116	1%	-2%	-12%
57	Exxon Mobil Corporation	Industrial, Energy and Materials	433	0%	-2%	-10%

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The top three companies on the list are all pharmaceutical companies: Celgene (<https://craft.co/celgene-corporation>), Bristol-Myers Squibb (<https://craft.co/bristol-myers-squibb>), and Merck & Co (<https://craft.co/merck-&-co>), spending 45%, 31% and 25% of Revenue on R&D, respectively, and each of them significantly above the sector average of 16%.

The second highest category was Technology, Media, and Telco. The top R&D spenders in TMT are chip-makers Qualcomm (<https://craft.co/qualcomm>), Intel (<https://craft.co/intel>) and Broadcom (<https://craft.co/broadcom>), and, in 7th place overall, Facebook (<https://craft.co/facebook>). Both Qualcomm (<https://craft.co/qualcomm>) and Broadcom (<https://craft.co/broadcom>) are semiconductor companies. In 2017, Qualcomm (<https://craft.co/qualcomm>) invested a large portion of sales in 4G and 5G-based technologies. Similarly, chipset giant Intel (<https://craft.co/intel>) spent 21% of its sales on developing emerging technologies, including 5G, artificial intelligence, and autonomous vehicles.

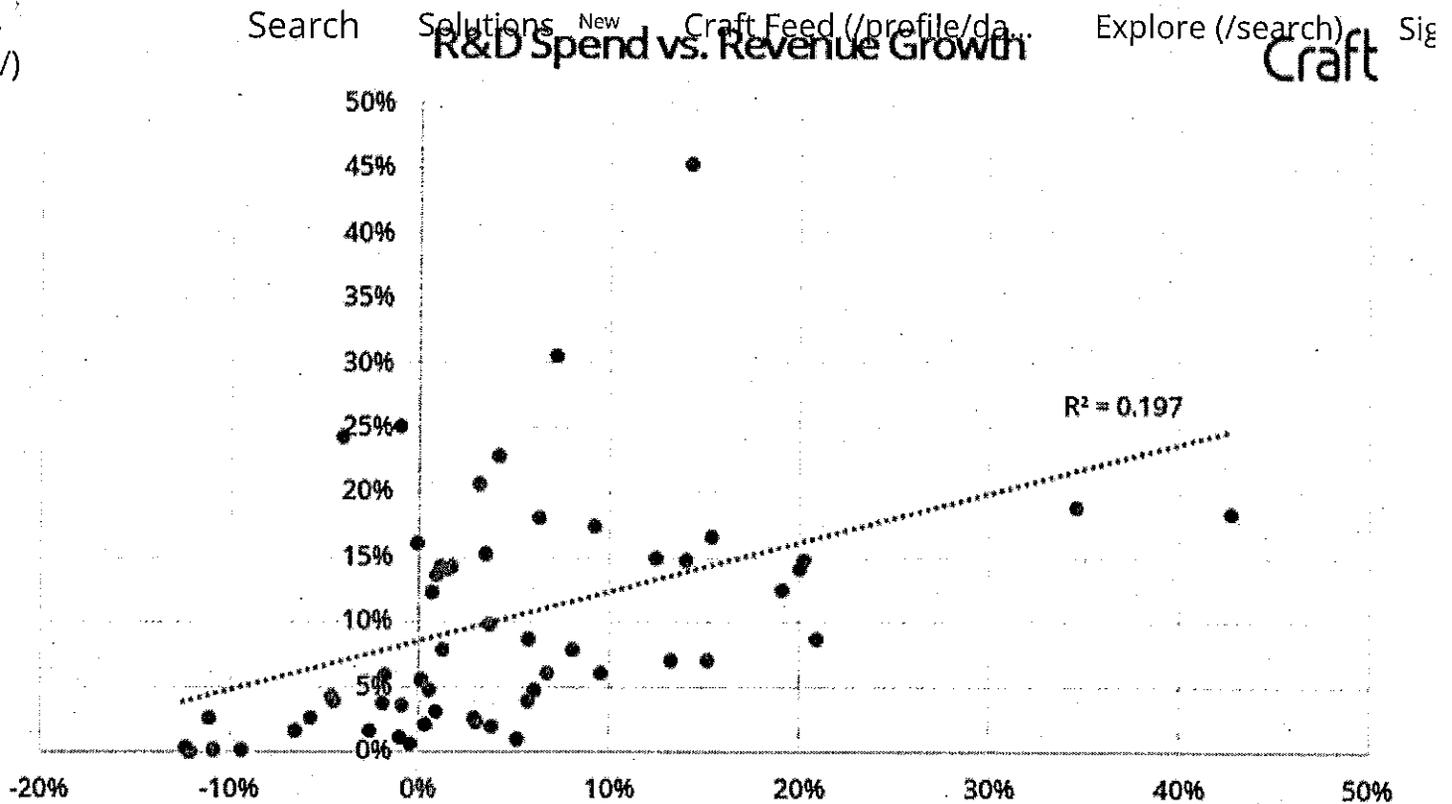
Note: Amazon (<https://craft.co/amazoncom>) (ranked #22) and Netflix (<https://craft.co/netflix>) (ranked #25) are categorized as Consumer Discretionary, rather than TMT.

Lastly, we look at the relationship between R&D spend and Revenue Growth, to see if companies who spend more on R&D grow revenue faster.

For the fourteen Oil and Gas companies, average revenue growth was -5%. Similarly, for low R&D spenders in Consumer Staples, average revenue growth was -3%.

On the other hand, the average revenue growth since 2014 for the two highest R&D spending sectors, Tech and Healthcare, was 10% and 6%, respectively.

In total across the 57 companies, we see a slight positive correlation between Revenue Growth and R&D spend (correlation coefficient of 0.197). However, R&D is a long-term investment and continuous effort and, therefore, there might not be immediate effects on the business.



Key Takeaways:

- The two industries that spend the most on Research and Development (as % of Revenue) are Healthcare and TMT, with an average of 16% and 13%, respectively.
- With lower Revenue growth, the Industrial, Energy, and Materials companies and Consumer Staples companies spend much less on R&D (3%).
- There is some correlation (correlation coefficient = 0.197) between R&D Spend and Revenue Growth.

Sources:

News articles, company announcements, social media, and Craft analysis

About Craft:

Craft (<https://craft.co/craft>) is a machine-learning powered data and analytics platform building the 'Source of Truth' on companies, and mapping the global economy. We organize data from