

Look Who's Driving R&D Now

In June the U.S. economic recovery turns six. That's old: The average expansion since World War II has lasted less than five years. Yet in some ways, this recovery never really launched. Growth remains weak, averaging around 2 percent since the recession ended. Wages are rising barely above the rate of inflation, and productivity, that magic ingredient that allows us to do more with less, is historically low, growing at less than half a percent a year over the life of the recovery. All this has fueled suspicions that the U.S. has slipped into permanently low growth—what economists call secular stagnation.

Yet there is hope on the horizon, if only a glimmer. Companies have been pouring money into research and development at the fastest pace in 50 years. From November through the end of March, U.S. companies funded R&D at an annual rate of \$316 billion, or about 1.8 percent of gross domestic product, the largest share ever for the private sector. That's up from 1.7 percent last year and 1.6 percent from 2007 to 2014. "If secular stagnation is a 'thing,' then U.S. companies are investing like crazy to make sure it doesn't happen," says Neil Dutta, senior U.S. economist at Renaissance Macro Research.

After years of spending cash on dividend boosts and share buybacks, U.S. companies may finally be realizing they need to start seeding real innovation. To some economists, this marks a turning point as companies make the transition from engineering short-term profits to devising products and more efficient methods of doing business. "In a way, this is what we've been waiting for," says Torsten Slok, chief international economist at Deutsche Bank. "It's not quite Godot arriving, but it's close."

Slok is optimistic that more R&D spending will lead to new technologies, which in turn will encourage businesses to finally start investing in new

equipment. That, he says, could have a domino effect by boosting worker productivity, which could raise wages and lead to higher growth rates. The process may already be under way. Orders for long-lasting goods such as equipment and machines rose in April, ending a recent downturn in capital spending.

Funding breakthrough technologies may be the last, best chance to get the U.S. out of its rut. If there are no breakthroughs, “then it’s case closed,” Dutta says. It can take decades for R&D spending to translate into inventions that make Americans better workers, if it happens at all. “The connection between R&D spending and the growth in productivity from one decade to another is very hard to see and unlikely to be significant,” says Robert Gordon, an economist at Northwestern University who believes that U.S. growth has slowed permanently.

The private sector is also missing its old partnership with government. After peaking 50 years ago during the Apollo-era space race, federal R&D spending has fallen as a share of GDP from almost 2 percent in the mid-1960s to 0.8 percent in the first quarter of this year, the lowest level since World War II. The public-private partnership worked brilliantly in the postwar years, when industry turned the most promising advances from government labs into products such as GPS and the Internet. “That technology transfer is crucial, and it’s not happening like it once did,” says Marc Kastner, a former dean of the School of Science at the Massachusetts Institute of Technology. He and other MIT faculty wrote an April report, *The Future Postponed*, about the decline of federal investment in basic research.

Big Spenders

U.S. companies with the highest R&D budgets, as a percentage of their revenue

Company	Sector	R&D/Revenue
1. Twitter	Info. technology	46%
2. Regeneron Pharmaceuticals	Health care	43%
3. Cadence Design Systems	Info. technology	38%
4. Synopsys	Info. technology	34%
5. Mentor Graphics	Info. technology	31%
6. Autodesk	Info. technology	29%
7. Bristol-Myers Squibb	Health care	29%
8. Celgene	Health care	28%
9. Broadcom	Info. technology	27%
10. Yahoo!	Info. technology	27%

GRAPHIC BY BLOOMBERG BUSINESSWEEK;
DATA: COMPILED BY BLOOMBERG

Companies have played down such research as well. Back when IBM and AT&T had virtual monopolies, they spent lavishly on it without worrying about upstart rivals pressuring their margins. Today, with a more competitive market and more focus on short-term shareholder value, basic research is a much harder sell to the average chief executive. As a result, companies spend more of their R&D budget on enhancing existing technologies rather than discovering new ones. “It’s the difference between coming up with evolutionary products instead of revolutionary ones,” says Robert Atkinson, president of the Information Technology and Innovation Foundation (ITIF), a Washington-based technology policy think tank.

Companies that do spend a large share of their revenue on R&D mostly break down into two industries: information technology and pharmaceuticals. Driven by the ruthless reality of Moore’s Law, which holds that the processing power of a chip doubles every two years, most tech companies have no choice but to keep spending; otherwise, they’ll be left behind. There is evidence that drug companies have slowed their R&D spending. According to Deloitte, the return on R&D investments by the 12 biggest biopharmaceutical companies fell from 10.5 percent in 2010 to 4.8 percent in 2013.

There is one thing the government could do besides spending more on R&D: make permanent the R&D tax credit, as the House of Representatives voted to do in May. Since its introduction in 1981, the tax credit has been copied and improved upon by a number of countries. According to a 2012 report by ITIF, the U.S. now ranks 27th in terms of the generosity of its R&D tax credit, behind such countries as Malaysia, India, and France. That's one reason U.S. companies have boosted their overseas R&D spending 2.7 times faster than what all companies have spent inside the U.S.

The bottom line: *From November through March, U.S. companies funded R&D at an annual rate of \$316 billion, a record.*

by Matthew Philips and Peter Coy