

SEPTEMBER 2016

EXECUTIVE SUMMARY

Federal Research and Development Contract Trends and the Supporting Industrial Base, 2000–2015

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A Report of the
CSIS DEFENSE-INDUSTRIAL INITIATIVES GROUP

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Executive Summary

Technological superiority has been a central pillar of U.S. strategy in the post–World War II era. It has allowed the United States to deter, and when necessary defeat, numerically superior forces of potential or actual adversaries. But with other nations building their capabilities and infrastructure at a rapid pace, it is not safe or wise to assume that U.S. technological superiority is a foregone conclusion. Furthermore, as the current budget drawdown has progressed, numerous analysts and policymakers have expressed concern regarding the ability of the U.S. to retain technological superiority, particularly given how research and development (R&D) contracting has been broadly understood to be in serious decline. Broadly speaking, the stated concerns can be summarized as a fear that the R&D necessary to drive future technological breakthroughs, in either the defense or civilian realms, would be jeopardized and would be particularly damaged if agencies disproportionately sacrificed longer-term R&D spending in order to preserve current programs and activities.

To examine what has happened within the federal R&D contracting portfolio, CSIS utilized its decade-plus of experience in analyzing trends in federal contracting. Using federal contract data from the publicly available Federal Procurement Data System (FPDS), the full report explains what has happened to federal R&D contracting, and the industrial base that supports those efforts, during the current budget drawdown.

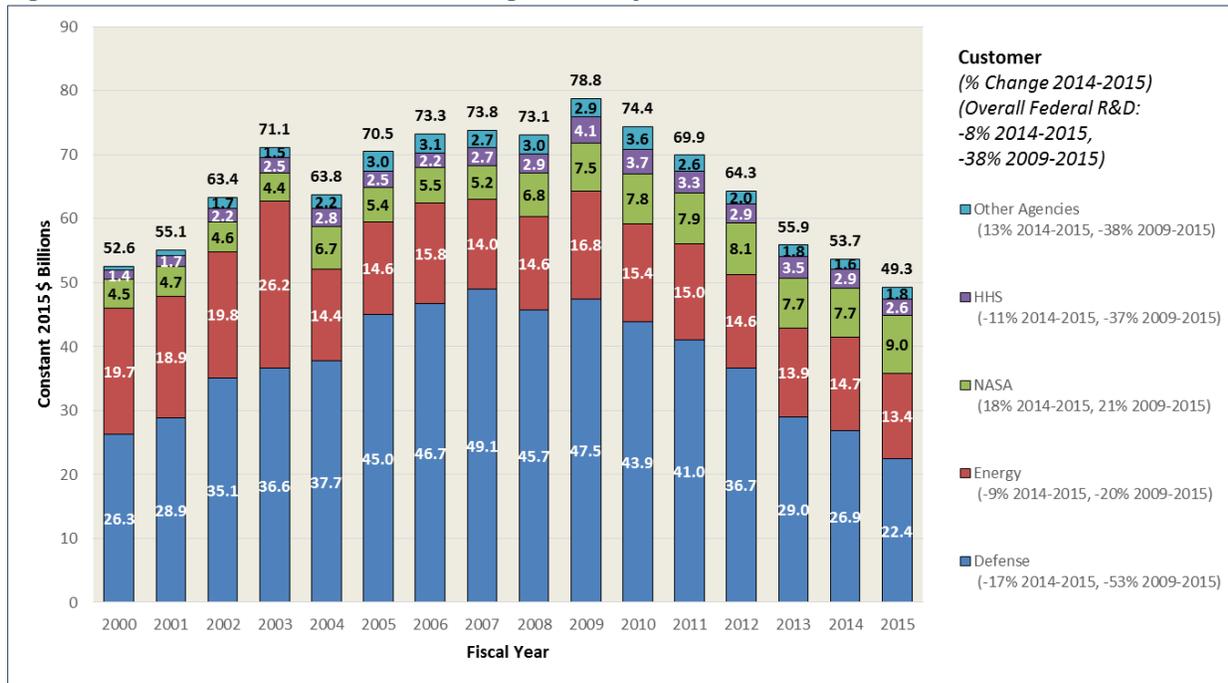
The full report is split into two main sections: In the first, the study team looks at the broader trends in federal R&D contracting within the major R&D contracting agencies and components, using a methodology that categorizes R&D contracts by stage of R&D (roughly corresponding to the Department of Defense’s (DoD’s) commonly used R&D Budget Activity Codes). In the second section, CSIS uses the data to test hypotheses, which were derived based on widely expressed concerns about the expected impact of the drawdown on the federal R&D contracting portfolio and the supporting industrial base.

The analysis in the report produced four key findings:

Federal R&D contracts have been disproportionately impacted by the budget drawdown

While federal contract obligations overall have declined precipitously during the current budget drawdown, the impact has fallen more harshly on the federal R&D contracting portfolio. This is particularly apparent within DoD and the Department of Health and Human Services (HHS), as can be seen in Figure 1:

Figure 1: Federal R&D Contract Obligations by Customer, 2000–2015



Source: FPDS; CSIS analysis.

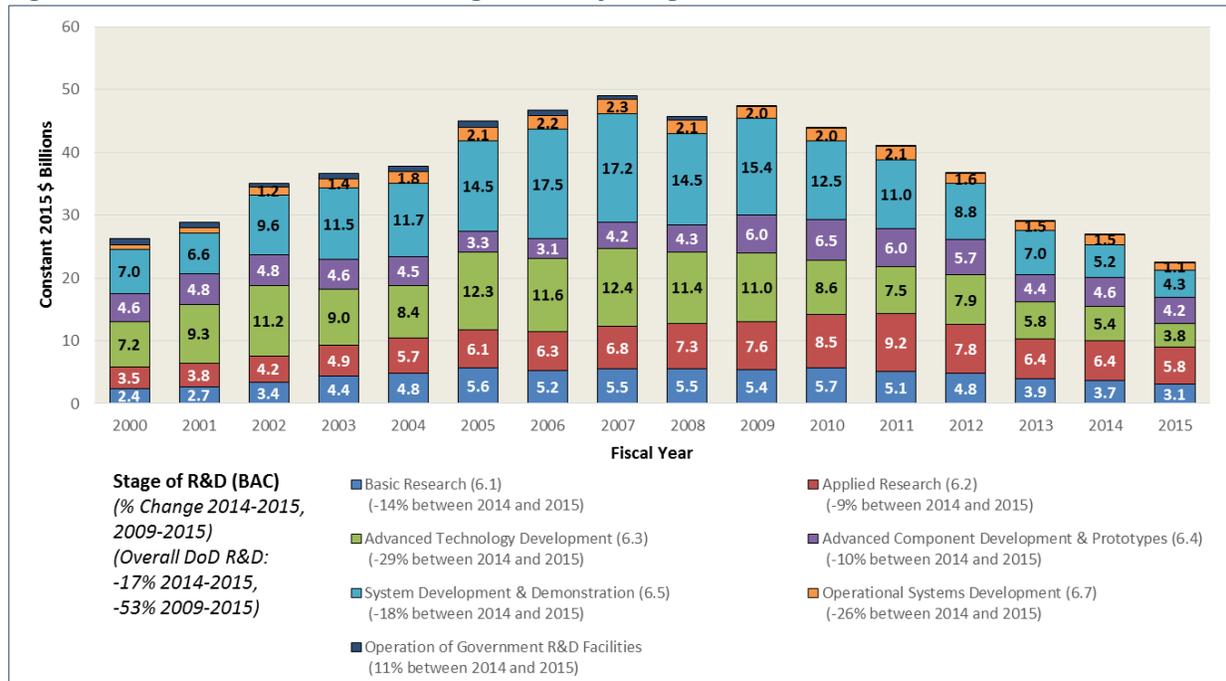
The study found that while overall DoD contract obligations fell by more than a third since 2009, DoD R&D contract obligations declined by more than half. The disparity was even more dramatic within HHS – as overall HHS contract obligations remained largely stable during the drawdown, HHS R&D declined by nearly two-fifths.

NASA represents a notable exception to this trend: as overall NASA contract obligations were virtually flat, NASA R&D contract obligations increased by 21 percent. The contrast to DoD was particularly stark: while NASA was able to grow its R&D contracting portfolio by finding savings in its services contracts, DoD services contracts were actually relatively preserved during the budget drawdown, at the expense of its R&D contracting portfolio.

DoD is in the midst of a six-year trough in its development pipeline for major weapons systems

One of the key conventional wisdom assumptions tested in this study is the idea that federal agencies, and particularly DoD, would seek to preserve mid-to-late-stage R&D projects, especially those tied to high-profile programs, by disproportionately targeting early stage, seed corn R&D for cuts. As can be seen in Figure 2, the data shows that the opposite has been true: early stage R&D has seen significant declines, but has been relatively preserved compared to the overall declines in R&D:

Figure 2: DoD R&D Contract Obligations by Stage of R&D, 2000–2015



Source: FPDS; CSIS analysis.

In fact, within DoD, two categories of mid-to-late-stage R&D, Advanced Technology Development (6.3) and System Development & Demonstration (6.5) have seen cuts of two-thirds or more between 2009 and 2015.

The two main drivers of the massive declines in those two stages of R&D are the cancellation of large R&D programs (such as the Army’s Future Combat Systems) and the maturation of R&D programs into procurement (such as the F-35 Joint Strike Fighter). During the budget drawdown period, however, there has been a dearth of new development programs for major weapons systems which replace those that have either graduated into production or been cancelled. As a result, DoD is facing a six-year trough in its development pipeline for major weapons systems.

This trough has manifested differently within the three military services. In the Air Force, significant work and funding for the B-21 bomber is likely to begin within the next couple of years. The Navy has the Ohio replacement ballistic missile submarine program on the horizon, but the start of the program has been pushed back into the early 2020s due to ongoing budget constraints. The Army is in the toughest position of the three, as since the failure of Future Combat Systems, the Army has been largely unable to start or sustain major development programs. With continuing uncertainty about future missions and capabilities, as well as significant budgetary challenges, the Army’s trough seems likely to persist for the foreseeable future.

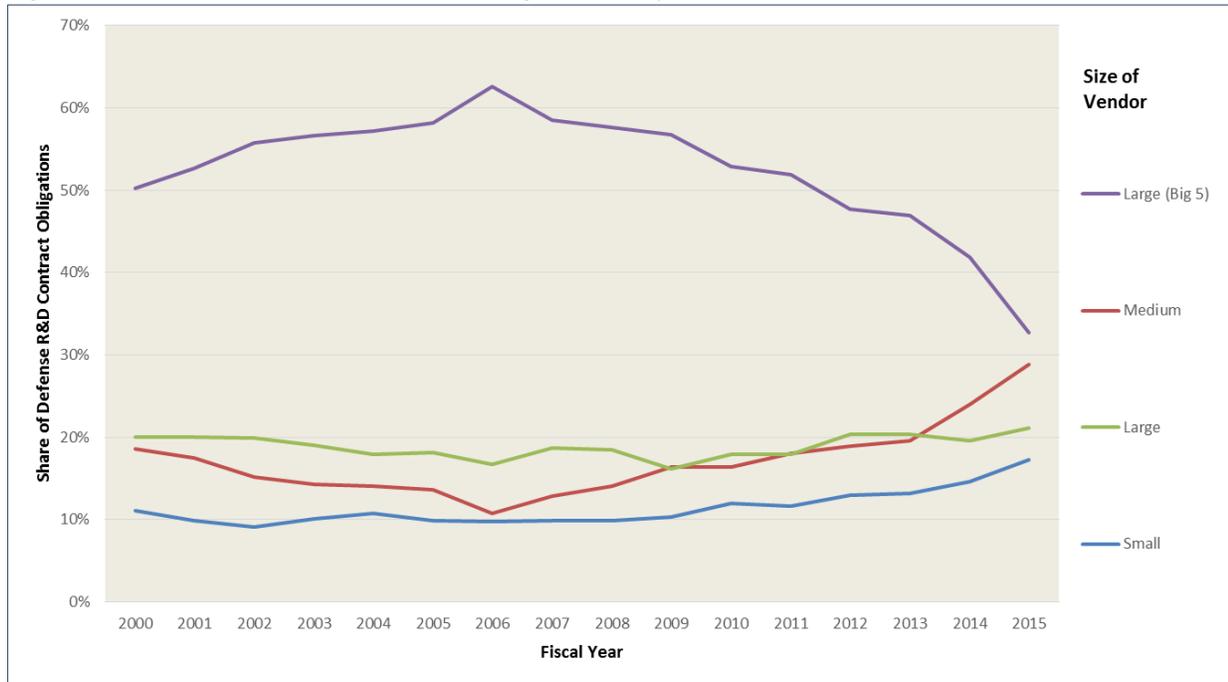
This is particularly worrisome because defense R&D has historically seen a cycle where investments made in growth periods show results during subsequent drawdown periods. For

the Army, more so than the other military services, this pattern appears to have been broken during the current budget drawdown.

The budget drawdown has caused profound changes to the DoD R&D contracting industrial base

In addition to examining the effects of the budget drawdown on the government customer, the study team also looked at the impact on the industrial base that supports federal R&D contracting. Under Hypothesis 4 in Chapter 3 of the report, CSIS tested the assertion that large prime vendors would fare better during the budget drawdown, expecting to see contract obligations to the largest vendors (which usually perform the largest, highest-profile development projects) relatively preserved compared to other vendor size categories. In fact, the data shows the exact opposite, as seen in Figure 3:

Figure 3: Defense R&D Contract Obligations, by Size of Vendor, 2000–2015



Source: FPDS; CSIS analysis.

Within DoD, the share of R&D contract obligations going to the Big 5 defense vendors (Lockheed Martin, Boeing, Northrop Grumman, Raytheon, and General Dynamics) has fallen from 57 percent in 2009 to 33 percent in 2015, largely as a result of the aforementioned six-year trough in DoD’s developmental pipeline for major weapons systems. Furthermore, that reduced share is in a DoD R&D contracting marketplace that is less than half as large as it was in 2009.

Over that same period, there has been a marked surge in the share of R&D contracts going to small vendors; that share has risen from 10 percent in 2009 to 17 percent in 2015, by far the highest share for small vendors in the 2000–2015 period. This rise has occurred not just for DoD overall, but also within the R&D contracting portfolios of all three military services. The

increasing share for small vendors is not the result of actual increases in obligations during the period; rather, DoD R&D contract obligations to small vendors have declined far less steeply than DoD R&D overall. Nonetheless, this can be seen as a victory for policies that promote small business participation—in an extremely challenging environment, small vendors have managed to largely hold their ground, even as the bigger players were facing sharp declines.

The data regarding small vendors is not all positive, however. As seen under Hypothesis 7 in Chapter 3, there has been a particularly sharp decline in the number of new small vendors entering the federal R&D marketplace in each year over the course of the budget drawdown. Interestingly, those vendors who were classified as small businesses for all of their contracts fared better than those for whom only some of their contracts fell under small business rules. The data also shows that, while contract obligations to new entrants that were “Sometimes Small” fell roughly in line with the declining numbers of new entrants, contract obligations to “Always Small” new entrants were actually preserved relative to the overall federal R&D marketplace. While more research is needed to make any definitive conclusions, this data may indicate that firms that are growing out of the small-business classification have faced particular difficulties during the budget drawdown.

Much of the conventional wisdom was incorrect

CSIS tested seven hypotheses reflecting the conventional wisdom or at least widely expressed concerns, regarding the impact of the budget drawdown on federal R&D contracting and the supporting industrial base. For six of those seven hypotheses, the data either did not provide significant support for the hypothesis or actually strongly pointed in the opposite direction. Only one hypothesis, Hypothesis 7, which looks at new entrants into the federal R&D marketplace, was even partly supported by the data. This result underscores the importance of relying on data for analysis of trends in federal contracting; while anecdotes and the conventional wisdom may tell stories that make intuitive sense, good data is the only way to understand what is really happening. This finding also suggests that management matters, as leaders were able to avoid some of the more commonly feared outcomes of sequestration and its aftermath through resource management and policy initiatives. However, the overall concern that R&D contracting would be disproportionately impacted by sequestration and its aftermath was proven correct, showing the limits of management alone in mitigating the impact of the budget drawdown on U.S. technological superiority in the face of sudden, massive funding reductions.

The full report can be found on the CSIS website here:

<https://www.csis.org/programs/international-security-program/defense-industrial-initiatives-group>.

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