Defense Contract Trends

U.S. Department of Defense Contract Spending and the Supporting Industrial Base

An Annotated Brief by the CSIS Defense-Industrial Initiatives Group

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May 2011

CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

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1. Introduction

This report analyzes contracting for products, services, and research and development (R&D) by the U.S. Department of Defense (DoD) overall and by its key components. It thereby seeks to provide an in-depth look at the trends currently driving more than 60 percent of all federal contract dollars and more than half of all federal contract actions. The report also presents findings on various elements of the industrial base supporting DoD in its missions. Amongst other issues, the report discusses implications for competition in providing defense products and services as well as for near-term spending by the individual military departments.

For this report, the Defense-Industrial Initiatives Group (DIIG) at CSIS uses the Federal Procurement Data System (FPDS) as its primary source of data on government contract spending. Note that since FPDS data are constantly being updated, including for back years, dollar totals for any given year can vary between charts from one report to the next. However, this difference is never greater than $10 billion from year to year. The report also employs the Department of Defense Form 350 (DD350) data for earlier years. The DD350 data have been incorporated into FPDS, but raw data for years prior to 2004 are only publicly available from the DD350s. For this report, all dollar figures are expressed in constant Fiscal Year 2010 dollars.

The timeframe analyzed in this report extends from 1990 to 2010. Additional depth of analysis is provided for the period 1999-2010 on contract spending by funding mechanism, contract vehicle, and Top 20 Contractors (1999 was selected as the starting point for these last three categories of analysis to capture contract spending on preparations for Y2K).

This report opens by presenting an overview of defense contract spending, then divides the data into three categories: products, services, and R&D. (Note that these categories were derived from the official Product and Service Codes and do not necessarily match DoD appropriations. In addition, FPDS includes R&D as spending on "services", but this report provides separate totals and analysis for R&D.) Next, the report presents data on contract spending by the three military departments. In addition, the report includes a category called "Other DoD", consisting of defense agencies and other entities within DoD (such as the Defense Logistics Agency, Missile Defense Agency, Defense Threat Reduction Agency, etc.). The report then analyzes trends by three key contract characteristics: level of competition, type of funding mechanism, and type of contract vehicle. Lastly, the report analyzes the industrial base supporting DoD. It examines the Top 20 contractors for 1999 and for 2009. Further detail is given via a Top 20 contractors list based solely on contracts for products, services and R&D. To show the larger picture, for 1999 and 2009 contract awards are broken down into three contractor size categories. For these looks at contractors, 2009 data are used for reliability and availability reasons.

Due to the fact that it relies almost exclusively on FPDS data, the analysis presented in this report incurs five notable restrictions. First, contracts awarded as part of supplemental packages are not separately classified in FPDS or this report. As a result, we do not distinguish between contracts funded by the DoD base budget and those funded by supplemental appropriations. Secondly, our analysis only covers contracts funded by and contracted through DoD. (In 2010, there were $4.7 billion worth of contract dollars funded by DoD and contracted through other agencies; almost 80 percent of these were contracted through GSA.) Third, FPDS includes only prime contracts, and there is, as of yet, no publicly available data to distinguish subcontracts as a separate category. Therefore, only prime contract data are included in this report. Fourth, reporting regulations only require that unclassified contracts be included in FPDS. We interpret this to mean that few, if any, classified contracts are in the data base. For DoD, this omits a substantial amount of total contract spending, perhaps as much as 10 per cent. Such omissions are probably most noticeable in R&D contracts. Finally, it should be noted that classifications of contracts differs between FPDS and individual companies. For example, some contracts that a company may consider as "services" are labeled as "products" in FPDS, and vice versa. This may cause some discrepancies between companies' reports and those of the federal government.

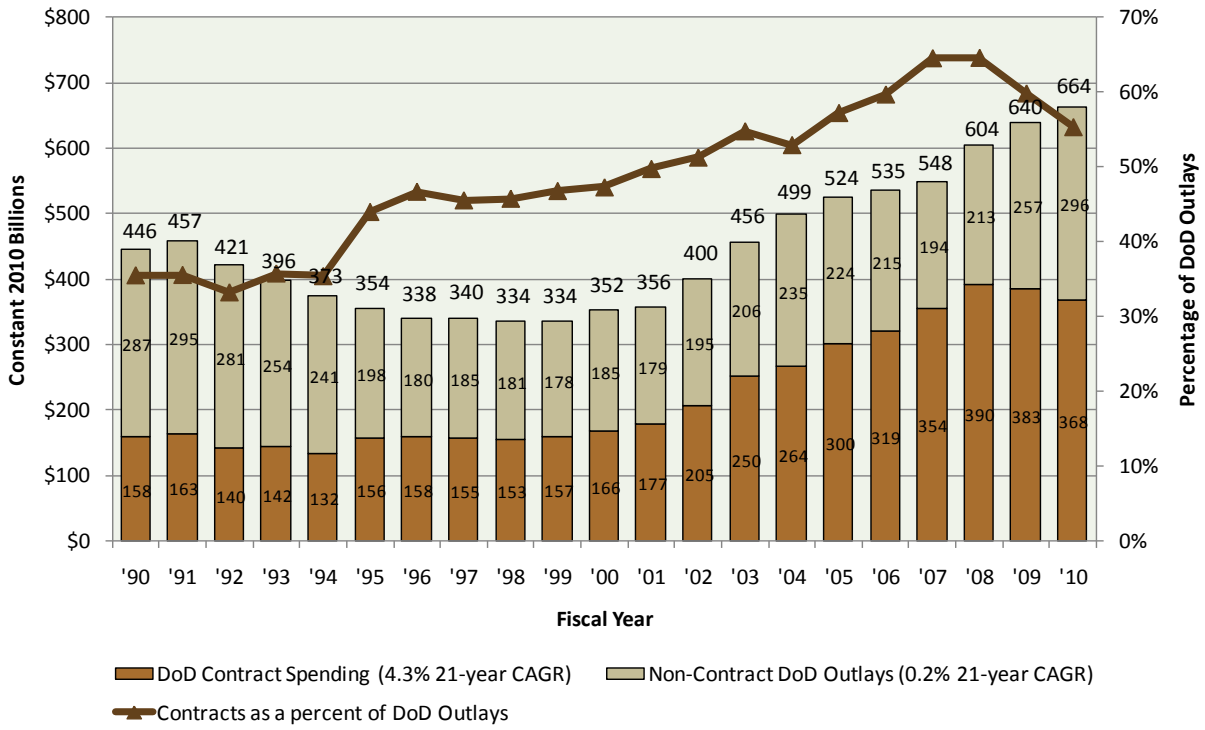
2. Overall DoD Contract Spending

Top Line DoD Contract Spending, 1990-2010

Figure 2-1 presents total DoD spending from 1990 to 2010 as well as total dollars spent on defense contracts. Contract spending is tracked in FY 2010 dollar amounts by the lower portions of the bars, corresponding with the left-hand y-axis, and as a percentage of total DoD outlays by the line at the top of the graph, corresponding with the right-hand y-axis. The upper portions of the bars represent non-contract DoD spending in FY 2010 dollar amounts, including funding for personnel, organic construction and maintenance, etc.

Between 2001 and 2010, dollars obligated by the DoD to contract awards more than doubled, and contract spending far outpaced growth in other DoD outlays.[1] This growth was concentrated in products and services, which experienced a compound annual growth rate (CAGR) of 8.4 percent and 9.4 percent, respectively, compared to the R&D category's 5.4 percent annual growth. Growth in overall DoD contract spending roughly kept pace with growth in the overall defense budget from 1995 until 2002, after which it climbed significantly to over 60 percent of DoD outlays. Contract spending relative to DoD outlays reversed sharply beginning in 2008, but largely as a result of other DoD outlays increasing rapidly rather than of the comparatively small but sustained decline in contract spending. In terms of average annual growth, the increase in DoD contract spending over the 21-year period far outpaced that of other DoD outlays. Throughout the 21-year period analyzed, non-contract outlays grew by only 0.2 percent per year, while contract spending grew by 4.3 percent. This difference was also striking during the post-9/11 period. Over the last 11 years, contract spending grew by 8.4 percent annually, while non-contract outlays increased at 5.8 percent per year.

Figure 2-1. Top Line DoD Contract Spending, 1990-2010



Disclaimer: This chart was originally printed with an error resulting in a higher percentage line. This error has been corrected.
Note: Dollar figures may not sum to total due to rounding.
Source: DD350 and FPDS; CSIS analysis

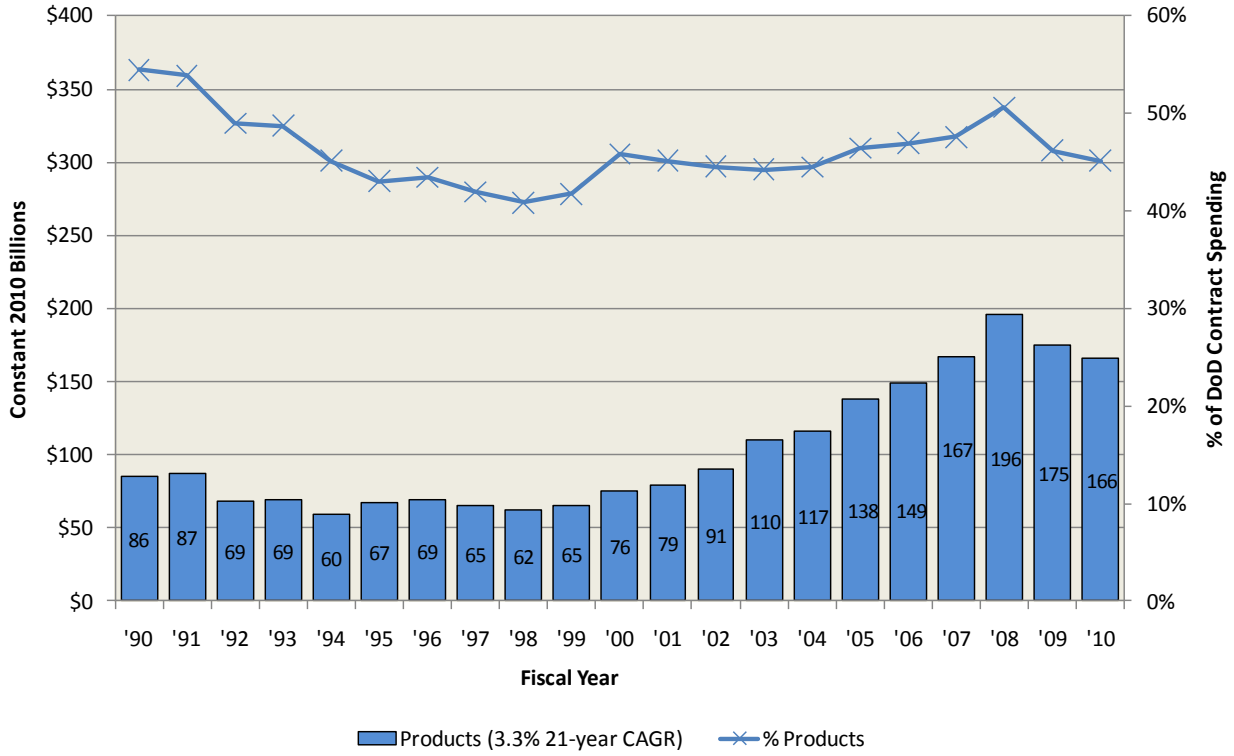
[1] Note that in 1991 (following the Persian Gulf War), the report counts only gross spending, rather than the smaller net spending number that is offset by foreign receipts.

DoD Contract Spending for Products, 1990-2010

Figure 2-2 presents DoD spending on product-related contracts, which is a subset of the DoD contract spending data from Figure 2-2. The bars linked to the data on the left-hand y-axis track the total FY 2010 dollars spent, while the line tracks this spending as a percentage of total DoD contract spending.

Prior to 2001, DoD spending on products as a percentage of other contract obligations had been declining steadily to a low of 42 percent. Then, after nearly a decade of stagnation following the Cold War, DoD spending on products began growing from slightly under $100 billion in 2002 to a peak of $200 billion by 2008. Despite this strong growth, however, DoD spending on products managed only to keep pace with the rate of growth in overall contract spending. Aside from its initial jump in 2001, and a spike in 2008, DoD spending on products has remained between 45 percent and 50 percent of total DoD contract spending. The past few years saw a drop in spending on products, averaging an 8 percent decrease per year between 2008 and 2010.

Figure 2-2. DoD Contract Spending for Products, 1990-2010



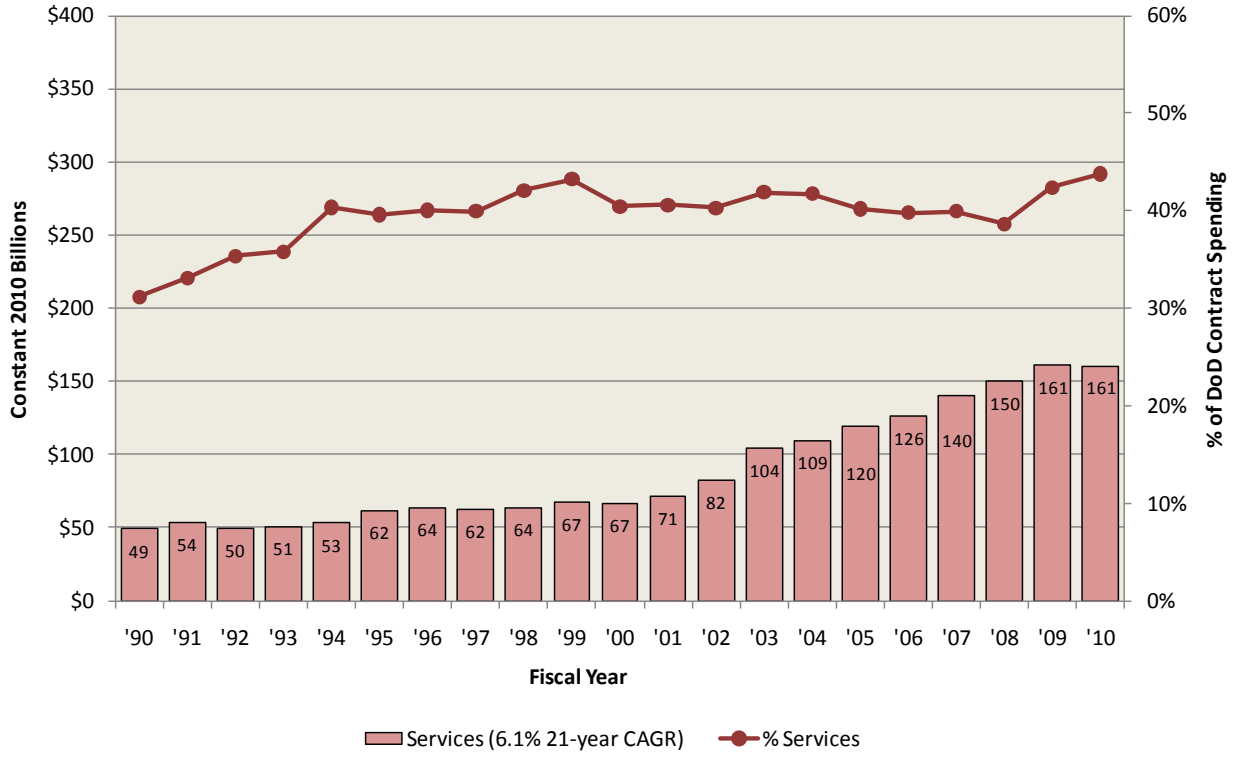
Source: DD350 and FPDS; CSIS analysis

DoD Contract Spending for Services, 1990-2010

Figure 2-3 presents the second subset of the total DoD contract spending data: spending on services contracts. Again, the bars present the data in FY 2010 dollars linked to the left-hand y-axis, while the line presents this spending as a percentage of total DoD spending on contracts, linked to the right-hand y-axis. (Note that category does not include R&D spending, other than spending on R&D management and support services. R&D contracts are in Figure 2-4.)

Dollars spent on services contracts grew steadily throughout the 1990s and remained at a level of 40 to 42 percent of total DoD contract spending, until dipping slightly in 2008. Since then, this category has been flat in absolute dollar terms, but service contract spending rose in relation to overall DoD expenditures as spending on products decreased. Out of the three categories of defense spending, services grew the fastest at 6.1 percent per year over the course of 21 years.

Figure 2-3. DoD Contract Spending for Services, 1990-2010



Source: DD350 and FPDS; CSIS analysis

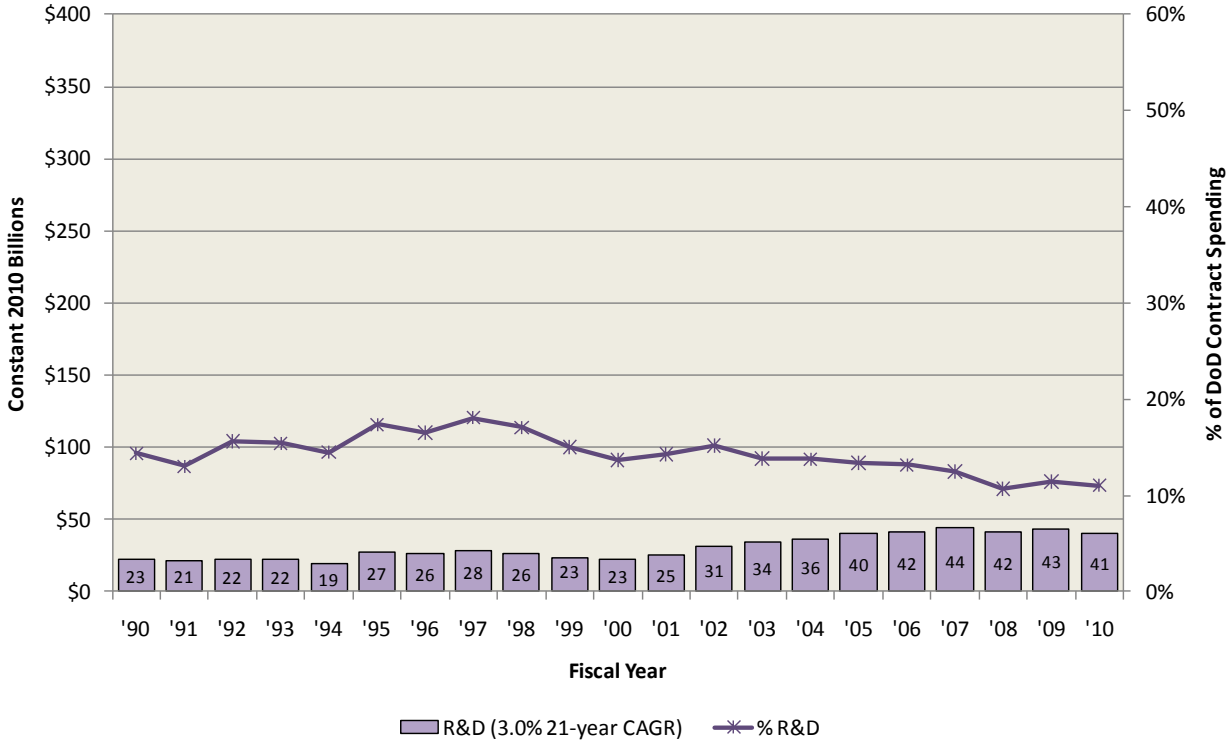
DoD Contract Spending for R&D, 1990-2010

In Figure 2-4, the third subset of total DoD contract spending – spending on R&D-related contracts – is presented, following the same conventions at the previous two figures. The R&D data presented in this report refer to contract dollars classified using an R&D product or service code rather than all funds from DoD's RDT&E account. In addition, much of DoD's R&D activities are classified, and since FPDS does not include classified contracts or in-house spending data, these efforts are not included in the data presented here. As a result, defense R&D spending represented here is much lower than overall spending on this category (which totaled approximately $80 billion in 2010). In the past decade, the proportion of DoD RDT&E spending on classified programs has risen, which may partially explain the relative drop.[2]

Contract spending on defense R&D fell relative to other categories of spending throughout the late 1990s and the 2000's. Historically, when the defense budget increased, the amount that was invested in R&D also increased. Consistent with this trend, between 1990 and 2002 the defense dollars obligated to R&D contracts remained steady-to-declining along with the total level of defense contract spending. However, it is surprising that R&D continued to shrink as a percentage of total defense contract dollars even as the defense budget increased after 2002.

The trend in defense R&D contract spending has potentially negative implications for product and process improvements in the wake of current contingency operations. Historically, the benefits of R&D are realized during a drawdown of forces, as the majority of R&D investment is made during build-ups. As the ratio of investment in R&D to the rest of defense contract spending has been lower over the past 20 years than in previous decades, the benefits that will be reaped from a drawdown in the coming years may be fewer.

Figure 2-4. DoD Contract Spending for R&D, 1990-2010



Source: DD350 and FPDS; CSIS analysis

[2] Todd Harrison. "Classified Funding in the FY 2010 Defense Budget Request". *Center for Strategic and Budgetary Assessments*. August 12, 2009. http://www.csbaonline.org/publications/2009/08/classified-funding-in-the-fy-2010-defense-budget-request/.

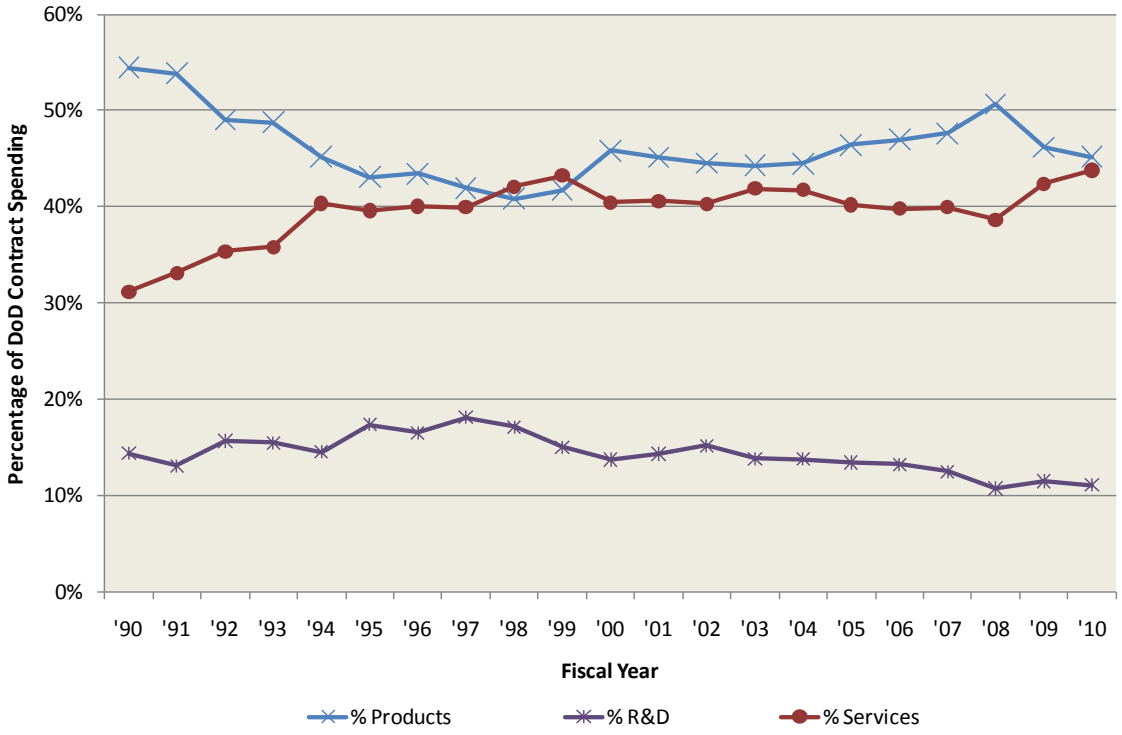
DoD Contract Spending by Category in Percentage Terms, 1990-2010

Assembled from the previous three figures, the lines in Figure 2-5 track the changes in the composition of DoD contract spending amongst products, services, and R&D contract dollars. Each line tracks the percentage of total DoD contract dollars awarded in each category in the period 1990-2010.

Comparing the relative levels of defense spending in each of the three categories, one sees a clear shift in priorities following the end of the Cold War. This is most pronounced in the case of products and services. Drawing down military and civilian personnel after the Cold War necessitated an increase in outsourcing to continue providing many services, while spending on products decreased with the numbers of active-duty military. The relative shares of product and services spending converged in 1998 and 1999, with the former decreasing and the latter increasing. After this point, products edged up over services, and the gap widened with the initiation of Operation Iraqi Freedom (OIF) in 2003. The relative shares of services and products appeared to begin converging again after 2008, as absolute spending levels declined sharply for products while spending on services remained relatively stable.

Two questions rise from the above observations in defense contract spending trends. First, had it not been for the operations in Afghanistan and Iraq beginning in 2001 and 2003, respectively, would the decrease in product spending have continued and would the spike in services spending have been as high? Second, will the trends since 2008 continue in the next few years given that the defense budget is expected to flatten or decline?

Figure 2-5. DoD Contract Spending by Category in Percentage Terms, 1990-2010



Source: DD350 and FPDS; CSIS analysis

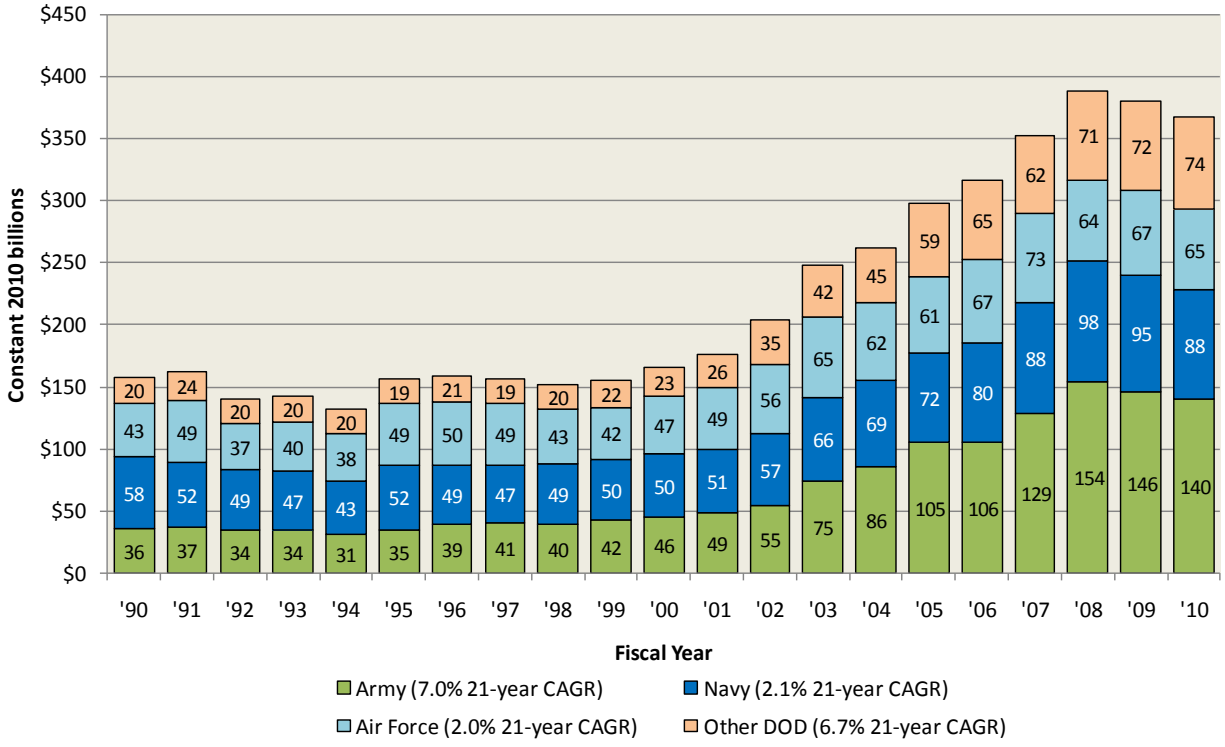
3. Contract Spending by DoD Component

DoD Contract Spending by Component, 1990-2010

In Figure 3-1, the total DoD contract spending for each year, presented in the aggregate in Figure 2-1, is broken down by each military department's share of the total. While the Army, Navy and Air Force are individually presented, the remainder of DoD components are combined into the category of "Other DoD" and their spending is aggregated accordingly.

Trends in spending by the key DoD components are visibly tied to operations in Iraq and Afghanistan. Until 2002, each of these components' expenditures on contracts was relatively flat. This changed rapidly after 9/11, with the greatest increases occurring in the Army (139 percent total growth from 2002 to 2010 at an annual rate of 7 percent). Growth in the "Other DoD" category (111 percent total increase from 2002 to 2010) was driven primarily by the Defense Logistics Agency (DLA) and, to a slightly lesser extent, by the Missile Defense Agency (MDA). Spending by the Navy grew somewhat slower, rising 54 percent from 2002 to 2010, followed by the Air Force at 14 percent growth during this period.

Figure 3-1. DoD Contract Spending by Component, 1990-2010



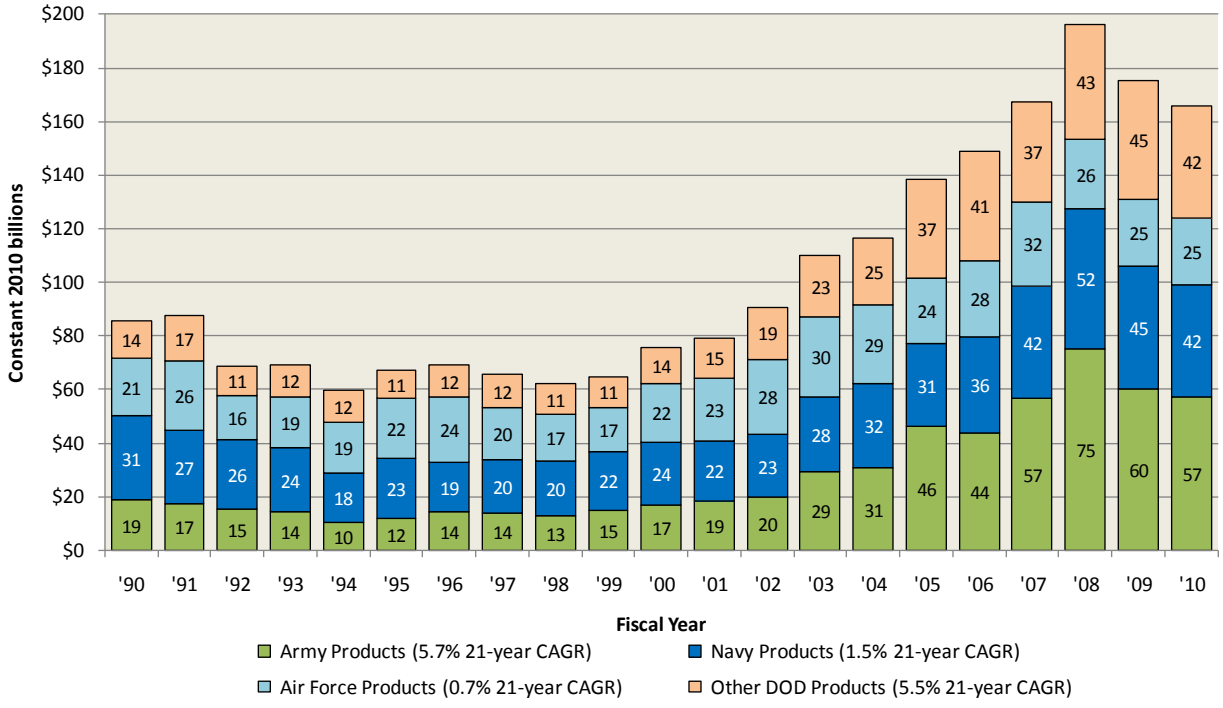
Source: DD350 and FPDS; CSIS analysis

DoD Contract Spending on Products by Component, 1990-2010

Breaking down the data on product-related spending (Figure 2-2) by individual DoD component yields the picture illustrated in Figure 3-2. Each bar segment represents a DoD component's spending on products.

After a decline between 1990 and 1999, spending on products in the last 11 years by all DoD entities combined increased by 10 percent annually, driven largely by the Army (13 percent CAGR over 12 years) and "other" DoD entities (with a CAGR of 12.5 percent). Spending on products contracts by the Army over the eight years of combat operations in Iraq and Afghanistan between 2002 and 2010 grew slightly faster at 14 percent per year, while the Navy grew at 7.6 percent annually and "Other DoD" entities increased their contract spending by 10 percent annually. Among the "Other DoD" entities, DLA was a particularly strong contributor to the rise in spending on products. The annual growth rate of DoD-wide spending on products over the longer 21-year term, by contrast, was much lower at 3.3 percent.

Figure 3-2. DoD Contract Spending on Products by Component, 1990-2010



Source: DD350 and FPDS; CSIS analysis

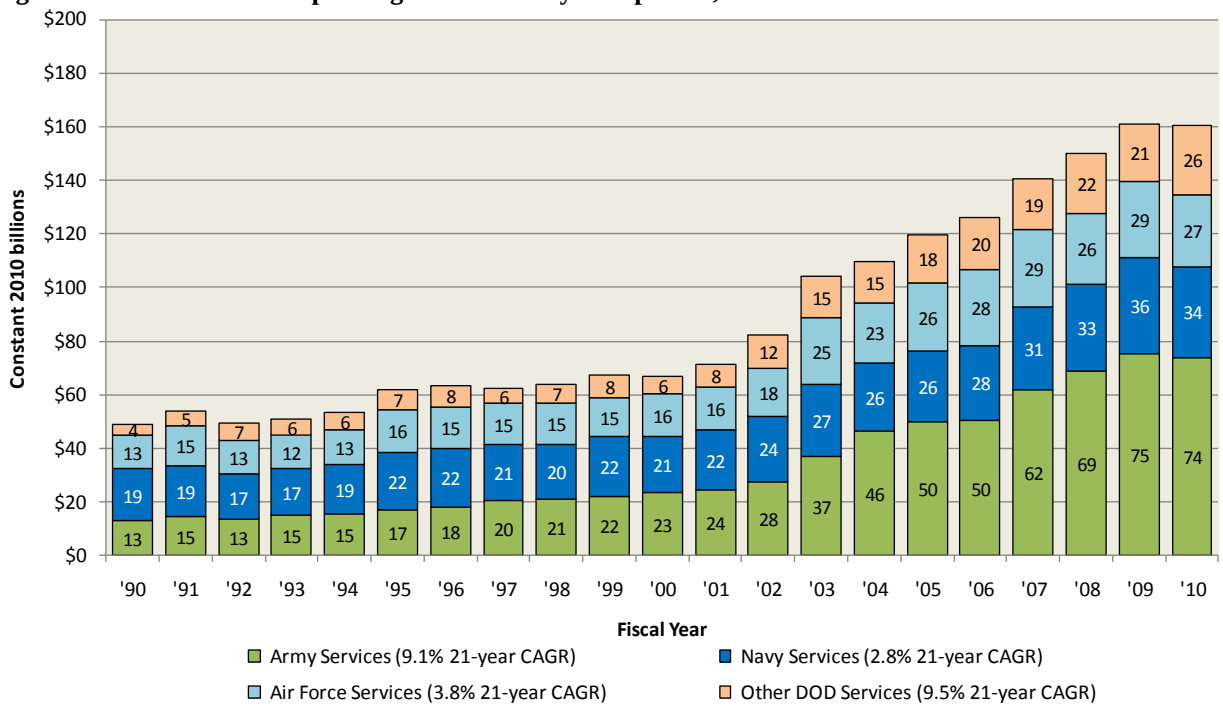
DoD Contract Spending on Services by Component, 1990-2010

In Figure 3-3, CSIS breaks down, by component, the data on DoD services-related contract spending that was presented for all of DoD in Figure 2-3.

Spending on services across the various DoD components grew faster than spending on products over the 21-year period analyzed, particularly over the past nine years. The primary areas for this growth were the same as for the growth in products spending: the Army and "Other DoD". The Army's spending on contracts for services grew at 13 percent per year between 2002 and 2010, compared to its 9.1 percent growth over the 21-year period analyzed. Spending on services in the category of "Other DoD" increased at a slightly slower 10 percent per year over nine years of combat operations in Iraq and Afghanistan, slightly exceeding their 21-year annual growth rate.

It is worth noting that spending on services contracts declined very slightly in 2010 compared to 2009, the first decline in services contract spending in DoD in a decade. Given the absence of growth in the overall DoD budget for FY 2011, this trend may well continue, but such a trend cannot be predicted from these data.

Figure 3-3. DoD Contract Spending on Services by Component, 1990-2010



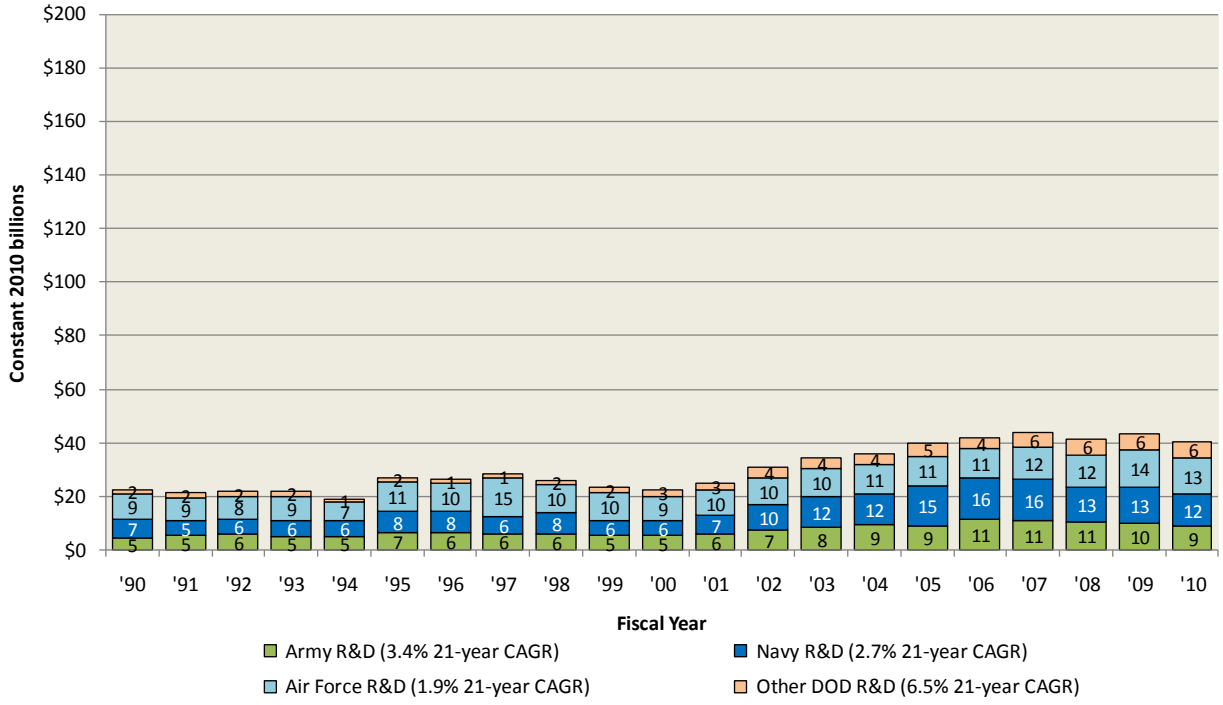
Source: DD350 and FPDS; CSIS analysis

DoD Contract Spending on R&D by Component, 1990-2010

Figure 3-4 breaks down DoD total spending, by component, on R&D-related contracts, which was presented for all of DoD in Figure 2-4.

Within the R&D category, there was little growth in dollars spent by each of the DoD entities between 1990 and 2010. The strongest growth rate during this period was for the category of "Other DoD" at 6.5 percent, followed by the Army at 3.4 percent, the Navy's 2.7 percent increase, and only 1.9 percent for the Air Force. Most of this growth occurred post-9/11, with DoD components other than the military departments increasing their R&D contract dollars by 6.2 percent per year from 2002 to 2010, the Air Force increasing spending by 3.7 percent annually, followed by the Navy at 2.8 percent and the Army trailing at 2.5 percent CAGR. Note that the Air Force had the majority of classified R&D programs (by value) in DoD budget documents, and accounted for approximately $12 billion of the $18 billion contracted for these programs in 2009. At the same time, Air Force has gone from spending 36 percent of their RDT&E budget on classified programs in 1999 to 45 percent in 2009.[3]

Figure 3-4. DoD Contract Spending on R&D by Component, 1990-2010



Source: DD350 and FPDS; CSIS analysis

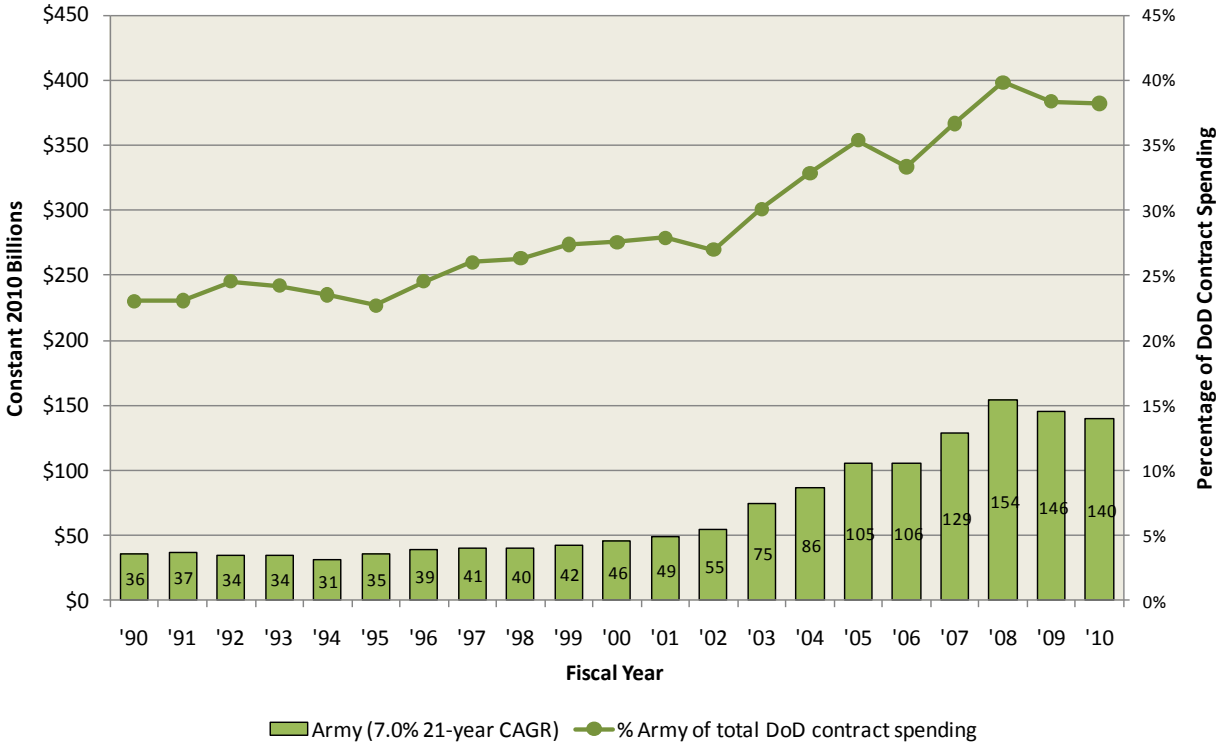
[3] Ibid.

Army Contract Spending, 1990-2010

The Army's total spending on contracts for the period 1990-2010 is displayed in FY 2010 dollar amounts in the bars and on the left-hand y-axis in Figure 3-5 below. The line above the bars tracks Army contract spending as a percentage of total DoD dollars spent on contracts and is linked to the data on the right-hand y-axis.

Army contract spending has skyrocketed over the past decade. During the 1990s, the Army accounted for only 23 to 25 percent of total DoD contract spending. Beginning in FY 2002, this share started to grow rapidly, reaching 40 percent of total DoD contract spending by 2008. Growth in Army contract spending averaged over 11.5 percent per year since 1999. This rapid growth is almost entirely attributable to Army operations in Afghanistan and Iraq.

Figure 3-5. Army Contract Spending, 1990-2010



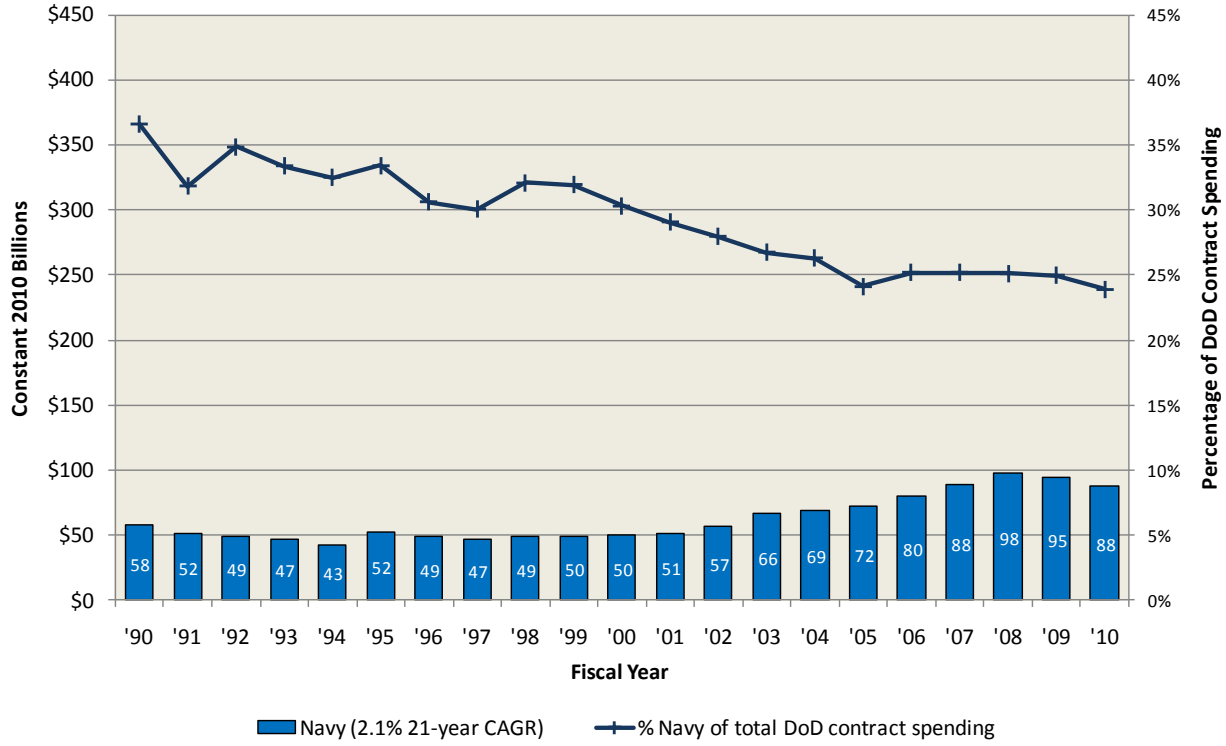
Source: DD350 and FPDS; CSIS analysis

Navy Contract Spending, 1990-2010

As was done for the Army in the previous figure, Figure 3-6 below displays the aggregate Navy contract spending for each year from 1990 to 2010. Again, the bars are tied to the FY 2010 dollar amounts in the left-hand y-axis and the line tracks the percentage of DoD contract spending accounted for by the Navy, as displayed in the right-hand y-axis.

Navy contract spending followed an opposite trend to that of the Army. Over a 20-year period, the Navy's contract spending as a percentage of DoD-wide spending fell from nearly 37 percent to only 25 percent, where it lingered until 2009, despite a considerable increase in dollars spent, and then started to decrease even further with a drop in dollars spent in 2010. This relative decline happened despite increased spending by the Marine Corps (which is included in the Navy budget) due to the wars in Iraq and Afghanistan. The departure of the Marine Corps from Iraq may explain the absolute drop in Navy contract spending in 2010.

Figure 3-6. Navy Contract Spending, 1990-2010



Source: DD350 and FPDS; CSIS analysis

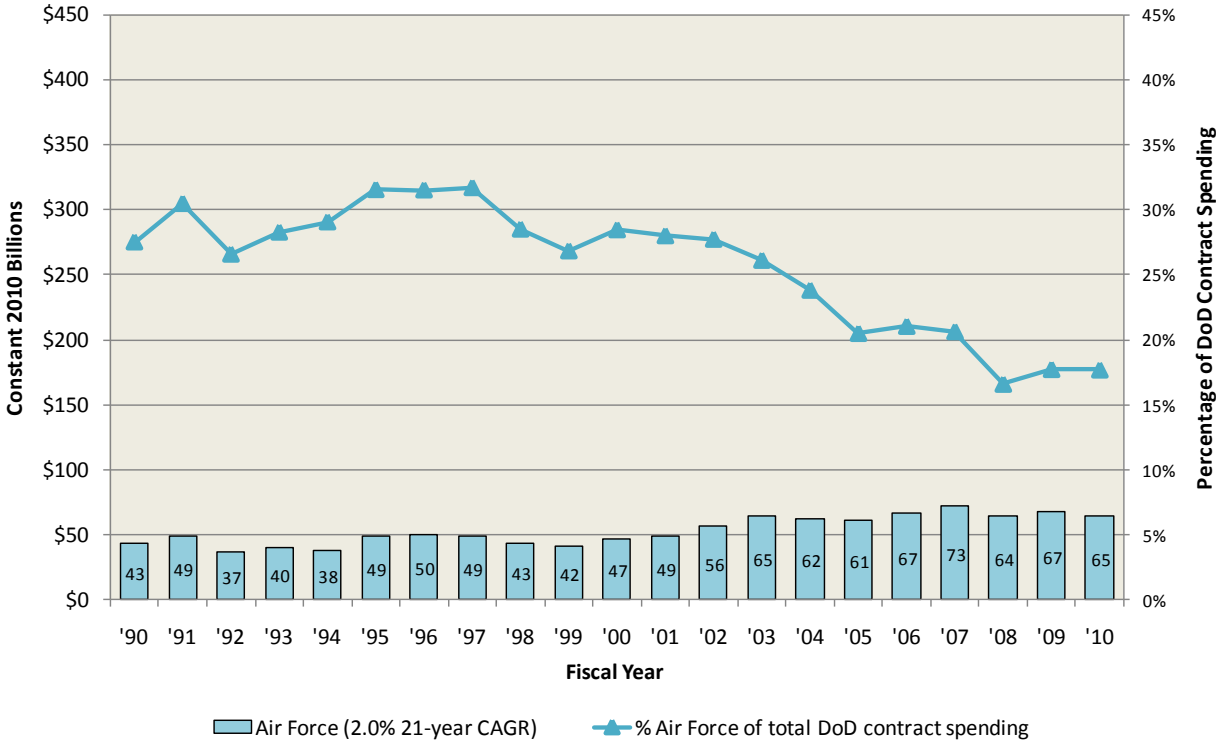
Air Force Contract Spending, 1990-2010

Total contract spending for the Air Force is presented in Figure 3-7 in both FY 2010 dollar amounts (represented by the bars tied to the data in the left-hand y-axis) and as a percentage of total DoD spending on contracts (represented by the line tied to the data in the right-hand y-axis).

The Air Force's share of DoD-wide contract spending declined steeply during the past decade, even as the number of contract dollars it awarded remained flat or increased. In fact, Air Force contract spending as a percentage of DoD obligations recently dropped to an all-time low since its founding in 1947, even though its absolute level of spending increased over 32 percent between 2001 and 2010 alone. Unprecedentedly, the Air Force fell behind even "Other DoD" in its relative share of DoD contract spending.

Air Force contract spending has historically included a disproportionate share of overall DoD classified contracts, largely because of the use of Air Force entities for such work. Classified projects explain a substantial portion of the Air Force's relative decline. In absolute terms, the Air Force was responsible for 95 percent of the $18 billion in DoD classified procurement account projects in 2010. As was earlier noted, classified spending has gone from 36 percent of the Air Force RDT&E budget in 1999 to 45 percent in 2009.[4] As a result, the chart below probably understates Air Force contract spending and that understatement may be increasing over time.

Figure 3-7. Air Force Contract Spending, 1990-2010



Source: DD350 and FPDS; CSIS analysis

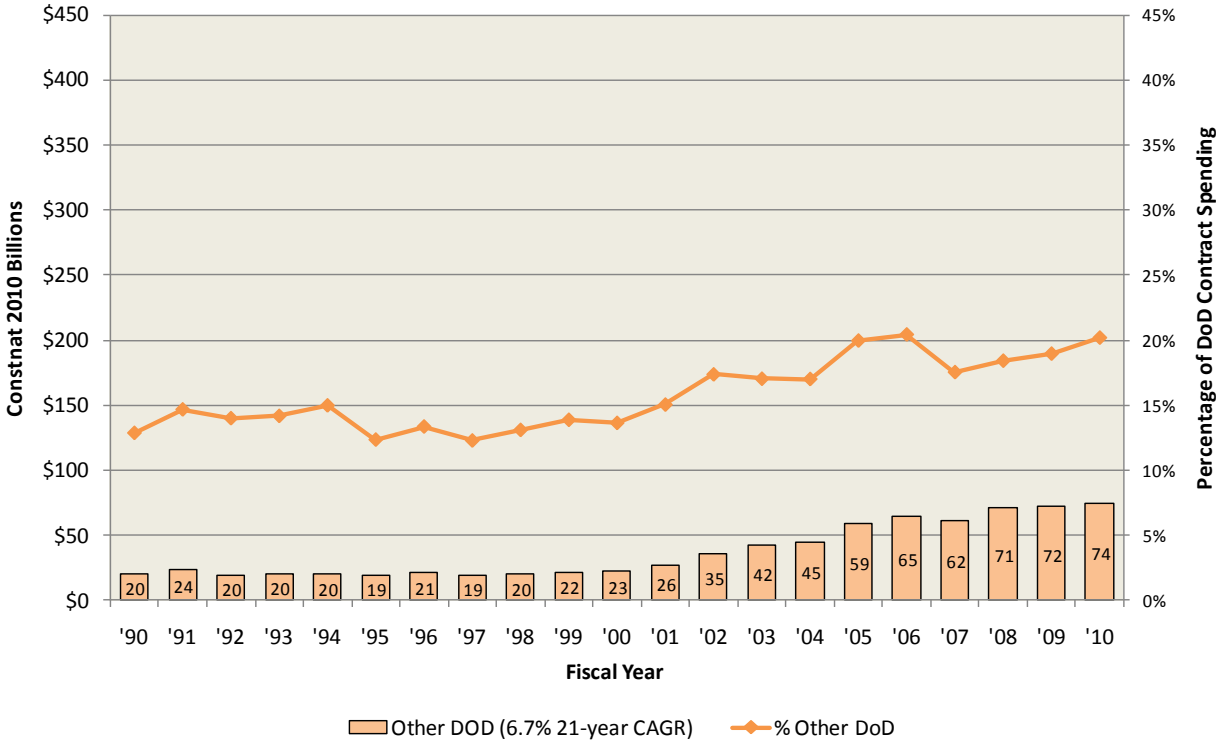
[4] Ibid.

Other DoD Components Contract Spending, 1990-2010

Total contract spending by all other DoD entities, aggregated in the "Other DoD" category, is presented in Figure 3-8. As in the previous three figures, the data are expressed in absolute dollar amounts, represented by the bars and the left-hand y-axis, and as a percentage of overall DoD contract spending, represented by the line and the right-hand y-axis.

As previously discussed, spending by these DoD components saw very little growth between 1990 and 2000, then increased substantially beginning in 2001. The sharp increase in contract spending by the Defense Logistics Agency in support of operations in Iraq and Afghanistan was the key factor in the growth in the "Other DoD" category after 9/11. As a result, total spending on contracts by DoD components other than the military departments more than tripled in value over the past decade.

Figure 3-8. Other DoD Components Contract Spending, 1990-2010



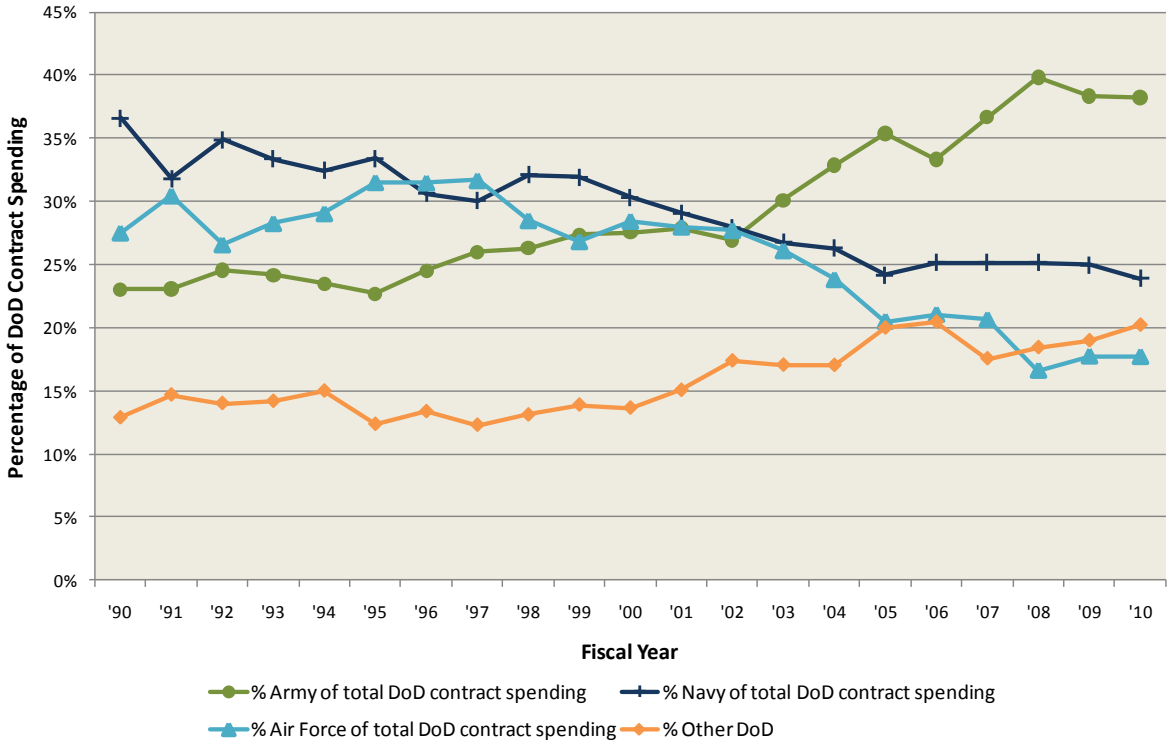
Source: DD350 and FPDS; CSIS analysis

Share of DoD Contract Spending by Component, 1990-2010

To show the relative shares of total DoD contract spending held by the individual DoD components from 1990 to 2010, the percentage lines from the previous four figures are grouped together in Figure 3-9. All values represented in the graph are expressed in percentage of total DoD contract spending for each year.

Driven by operations in Iraq and Afghanistan, the Army's contract spending grew rapidly post-2001 to claim the largest share of defense contract dollars (40 percent at its peak in 2008 compared to 27 percent in 2001). The Navy's share of defense contract dollars overall held mostly steady after 2004 at 25 percent, following a long decline from 1990 levels, but its share saw a decline in the last year analyzed. In an unprecedented occurrence, the Air Force dropped to the lowest share of defense contract spending in 2008 at nearly 17 percent. However, this low share does not reflect the Air Force's leading role in spending on classified projects. The category of "Other DoD" also includes substantial classified contract spending. Furthermore, the decline in Air Force and Navy shares of DoD spending was in parallel to absolute gains observed in both of these accounts over the past decade. Meanwhile, the collective share of all "Other DoD" entities is rising back to the peak levels observed in 2005 and 2006.

Figure 3-9. Share of DoD Contract Spending by Component, 1990-2010



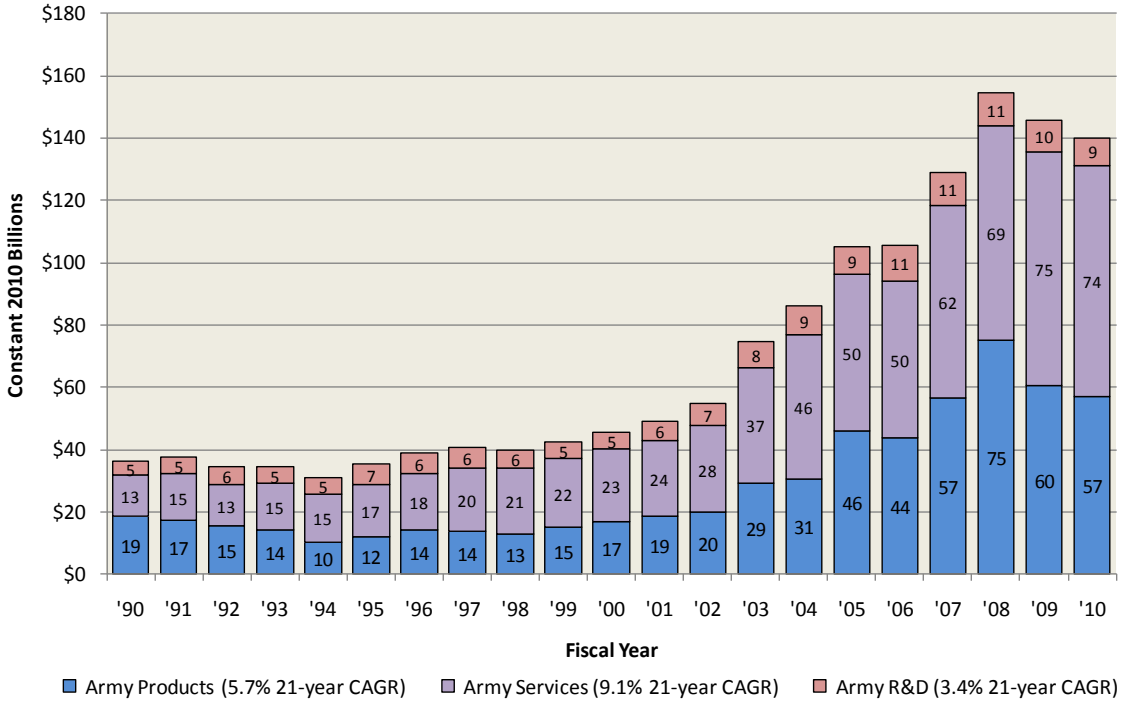
Source: DD350 and FPDS; CSIS analysis

Army Contract Spending by Category, 1990-2010

Figure 3-10 breaks down Army contract spending data, originally presented in aggregate form in Figure 3-5, into the three categories of products, services and R&D spending.

Between 1990 and 2010, Army spending on contracts for services increased far more rapidly year-on-year than its spending on products contracts. Since 1993, Army expenditures on services actually exceeded spending on products in every year except 2008, while accounting for between 45 and 53 percent of all Army contract spending every year in the post-9/11 timeframe. Nevertheless, over the past 12 years, the rate of increase in Army spending on products slightly exceeded that of services, with products spending increasing 13 percent per year and services spending growing by 12.6 percent annually during this period. This is possibly due to an increase in the need for spare parts and materiel to replace and replenish equipment lost or damaged during operations.

Figure 3-10. Army Contract Spending by Category, 1990-2010



Note: The "unlabelled" category, which totals less than 1 billion a year, was excluded from the figure.

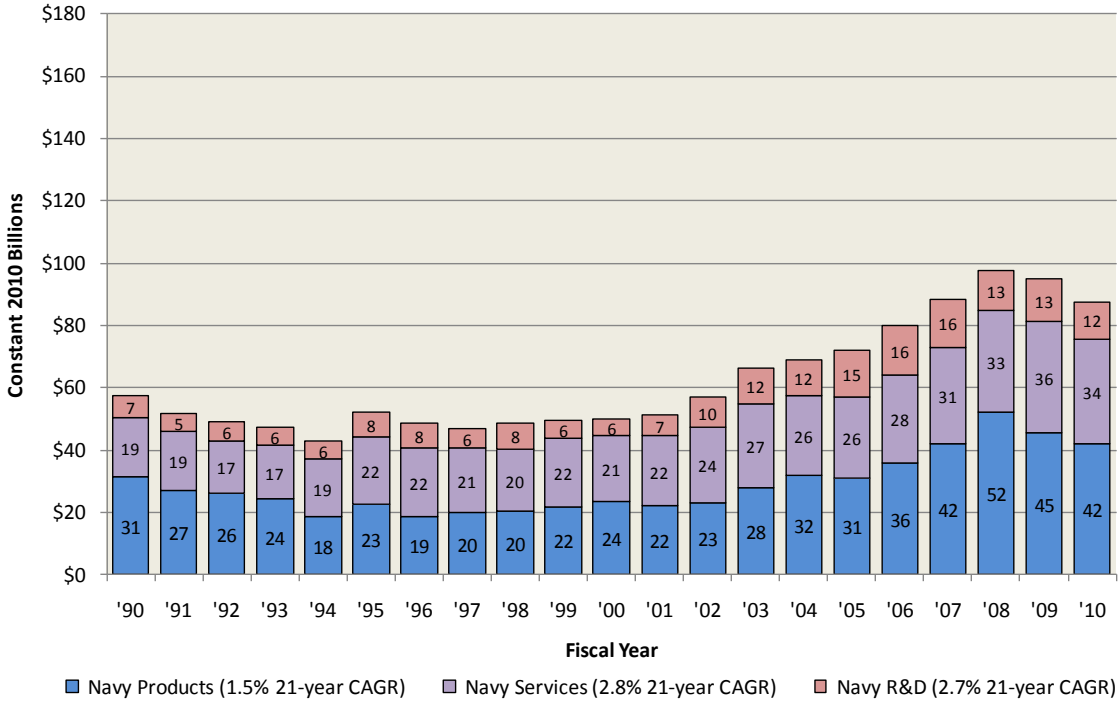
Source: DD350 and FPDS; CSIS analysis

Navy Contract Spending by Category, 1990-2010

In Figure 3-11, the data for total Navy contract spending, presented earlier in Figure 3-6, is broken down into products, services and R&D.

Trends in Navy contract spending from 1990 to 2010 moved in an opposite direction to those of the Army. For nearly every year in this time period, Navy spending on products contracts exceeded or matched its spending on services contracts. This gap is especially noticeable after the commencement of U.S. military operations in Iraq and Afghanistan, when Navy contract spending on services consistently remained below 40 percent of overall Navy contract spending. Navy spending on R&D accelerated significantly between 1999 and 2010 relative to the other military services, growing at an annual rate of 6.9 percent compared to the Army's 4.8 percent and the Air Force's 2.6 percent growth rates. One factor contributing to this growth was the use of R&D contracts for the F-35 and the DDG-1000 programs.

Figure 3-11. Navy Contract Spending by Category, 1990-2010



Note: The "unlabelled" category, which totals less than 1 billion a year, was excluded from the figure.

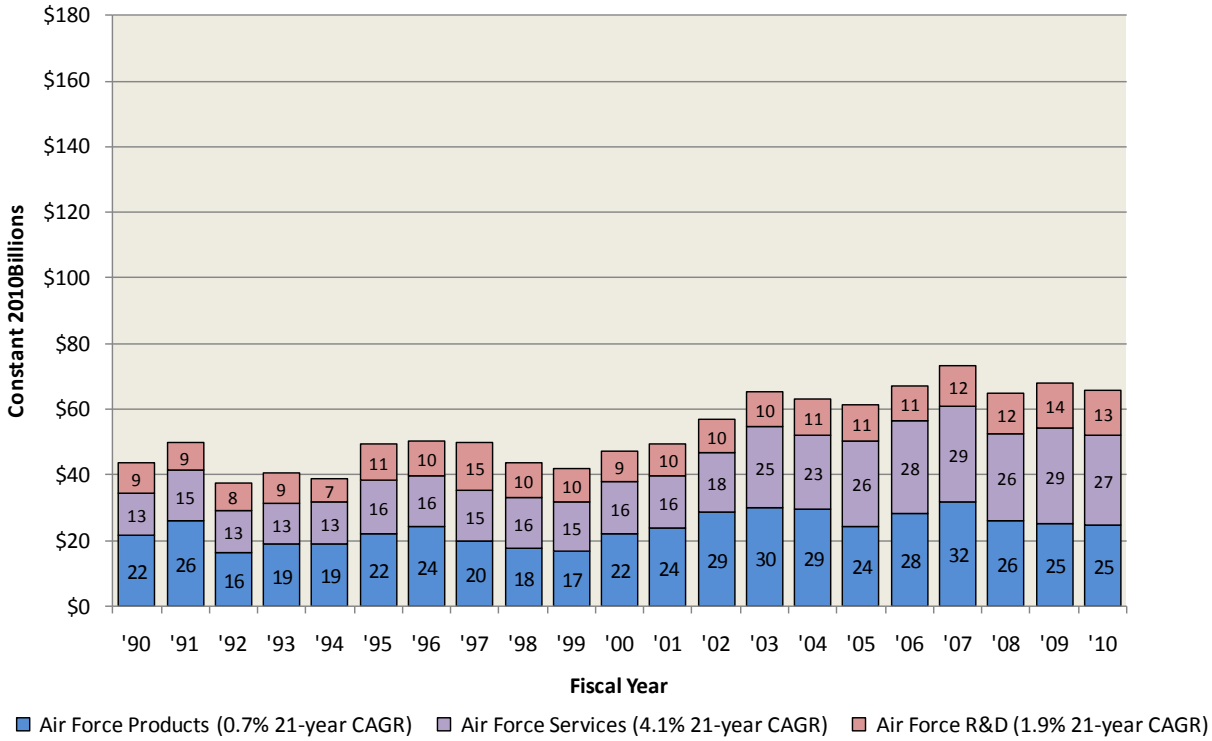
Source: DD350 and FPDS; CSIS analysis

Air Force Contract Spending by Category, 1990-2010

In the same manner as the last two figures, Figure 3-12 displays Air Force spending on contracts related to products, services and R&D.

In every category of spending, the Air Force experienced far lower growth than either the Army or the Navy over the last 20 years. In products, the USAF has seen less than 1 percent growth per year, and R&D has grown only at just under 2 percent annually since 1990. With the initiation of military operations in Iraq and Afghanistan, however, most Air Force contract spending categories increased slightly compared to the 20-year average; R&D grew 3.7 percent annually and services grew 5 percent, although products shrunk 1.6 percent year-on-year after 2001. However, these numbers would not reflect spending on classified projects. Other sources indicate that the Air Force is responsible for two-thirds of the $19 billion in classified R&D contracts as well as for 95 percent of the $18 billion of classified procurement contracts.[5]

Figure 3-12. Air Force Contract Spending by Category, 1990-2010



Note: The "unlabelled" category, which totals less than 1 billion a year, was excluded from the figure.

Source: DD350 and FPDS; CSIS analysis

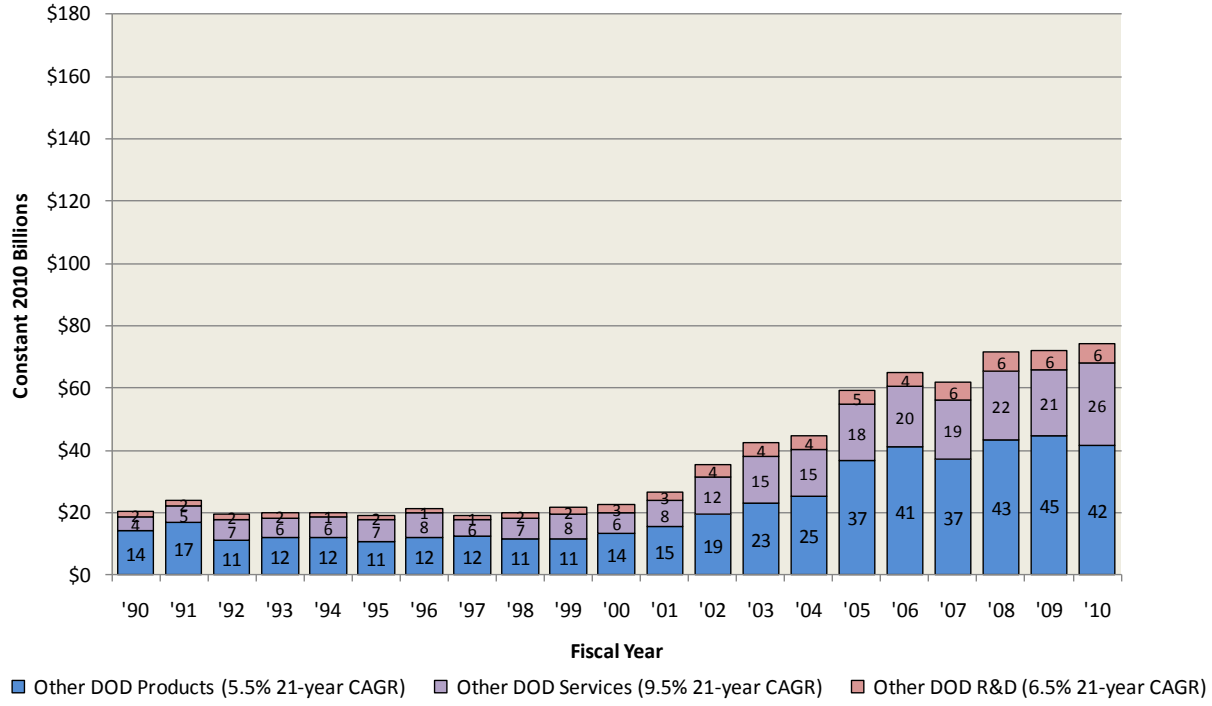
[5] Ibid.

"Other DoD" Contract Spending by Category, 1990-2010

Spending on contracts by all other DoD agencies, presented previously in Figure 3-8, is broken down into spending on products, services and R&D-related contracts in Figure 3-13 below.

The most significant trends within contract spending over the period analyzed were within the "Other DoD" category. With positive CAGRs for all years from 1990 to the present, "Other DoD" rose from being a small player in the DoD contracting field into a significant one. Products saw the least annual increase (5.5 percent) of contracts while services and R&D saw solid compound annual growth rates of close to 9.5 and 6.5 percent, respectively. These trends became more pronounced from 2001 onwards, though the most recent years saw a plateau in services and R&D contract spending.

Figure 3-13. Other DoD Contract Spending by Category, 1990-2010



Note: The "unlabelled" category, which totals less than 1 billion a year, was excluded from the figure.

Source: DD350 and FPDS; CSIS analysis

4. DoD Contract Characteristics

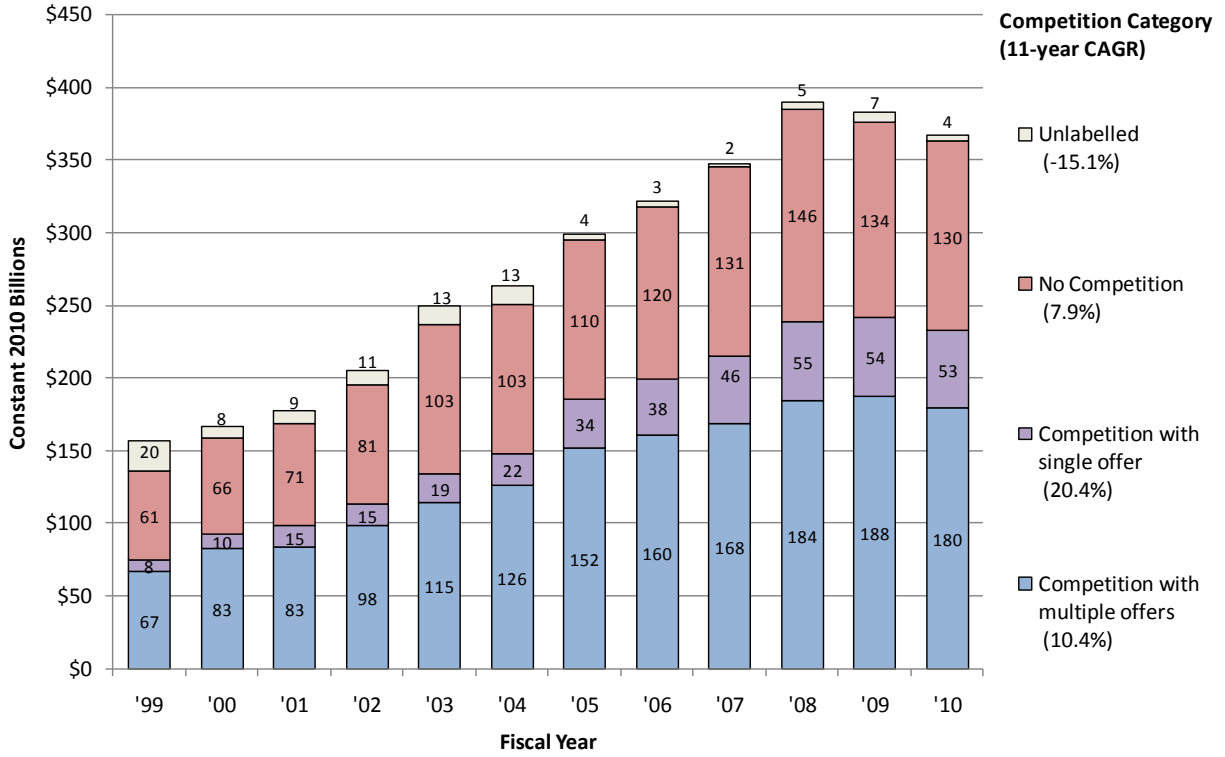
Defense Contract Spending by Competition, 1999-2010

To determine levels of competitiveness in contract awards, CSIS looked at the number of offers received from distinct entities before the award. Contracts awarded after receiving multiple offers are the most competitive, followed by those awarded after a single offer and contracts awarded under no competition. Note that in Figure 4-1 below, unlabeled contracts are those that are either unlabeled in FPDS or those which were determined by CSIS analysis to be erroneously labeled (for example, if the contract is designated as competed and there are zero bidders, or if it is designated as non-competed and there are five bidders).

In Figure 4-1 below, total DoD contract spending (presented earlier in Figure 1-1) is broken into the four categories of competition: no competition, competition with a single bidder, competition with multiple bidders, and unlabelled contracts. Unlike the previous figures, FPDS data for this figure exist only for contracts awarded between 1999 and 2010.

The data show that between 1999 and 2010, there was an increase in competition across DoD contract awards, with the share of defense contract dollars competitively awarded rising from 48 percent to 63 percent. This is a result of slowed growth in non-competed contract dollars (8 percent annual growth from 1999 to 2010) and a surge in competitively awarded contract dollars (20 percent annual growth in contract dollars awarded competitive with a single offer and 11 percent growth in contract dollars awarded competitively with multiple offers). Interestingly, the rise in competed contract actions predated the 2009 Presidential Memo and subsequent OMB guidance to government departments to increase competition in contract awards.[6]

Figure 4-1. Defense Contract Spending by Competition, 1999-2010



Source: DD350 and FPDS; CSIS analysis

[6] Barack Obama, *Memorandum for the Heads of Executive Departments and Agencies. Subject: Government Contracting*, White House, Washington DC, 2009.

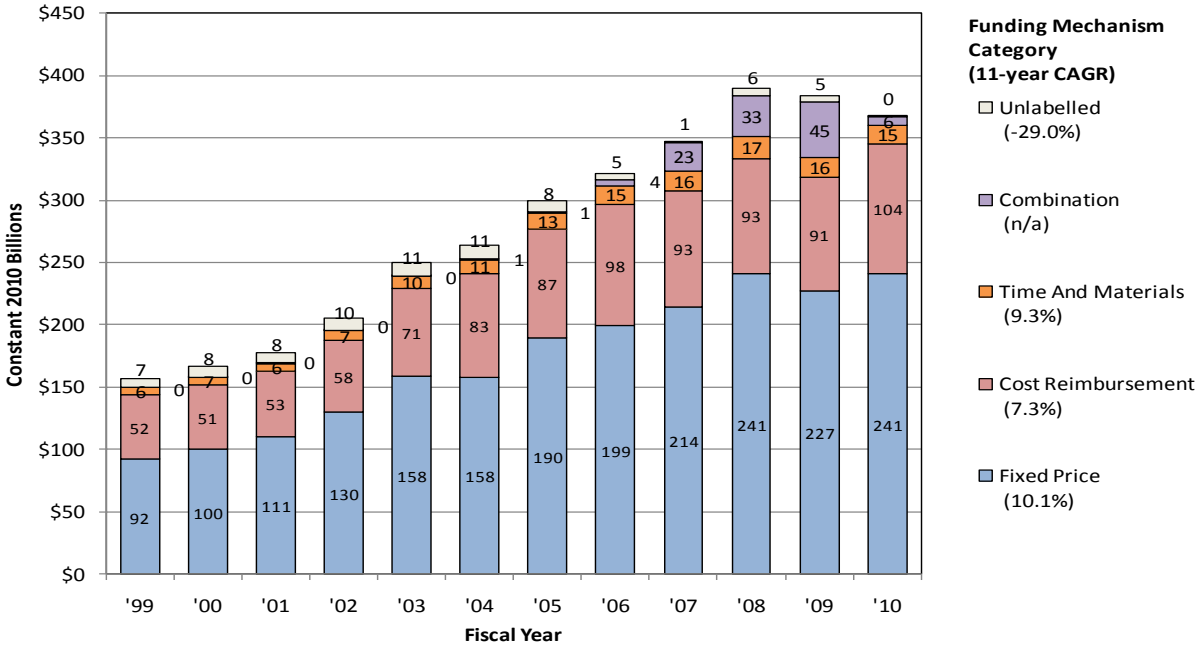
Defense Contract Spending by Funding Mechanism, 1999-2010

Figure 4-2 presents trends in the choice of funding mechanism for DoD contract dollars. Funding mechanisms, or the conditions under which the government pays its obligations, are divided here into cost reimbursement, fixed price, time and materials (a form of cost-based contract distinguishable from cost-reimbursement by the responsibilities assumed by the customer and the contractor), and "combination", (a mix of cost and fixed-price) categories. Contracts labeled as "Other" are accounted for as either Cost Reimbursement or Fixed Price contracts and are not treated as separate categories despite having their own bar segments in the graph. Only the years 1999-2010 are covered in this figure.

The data for 1999-2010 reveal two important trends. The first is a decrease (since 2008) in the number of unlabeled contracts, which indicates that more care is taken in entering data on competitiveness. The second is an increase in fixed-price contracting that is faster than cost-based contracting, including time and materials, which is in line with the 2009 Presidential Memo calling for more use of fixed-price contracting across government.[7]

It is noteworthy that combination contracts, those which include elements of both cost-based and fixed-price, emerged and grew substantially in both products and services contracting within a very short time. In fact, this category had a combined annual growth rate of 140 percent over a 5-year period ending in 2009. With this type of contracts, it is impossible to determine how many dollars are awarded on a fixed-price or cost basis. For example, in the $45 billion awarded in 2009, it is possible that $40 billion was awarded on a cost basis and $5 billion was awarded on fixed-price, thus undermining the observation that fixed-price contracting was significantly increasing. This degree of uncertainty made it difficult for government programs to evaluate the relationship between contractor performance and the mechanism of funding. Furthermore, data on combined contract awards complicated government compliance with President Obama's March 2009 guidance calling for greater competition and an increase in the use of fixed-price contracts. However, in 2010, FPDS reports far fewer dollars in combinedcontracts. This category bears watching in FY 2011.

Figure 4-2. Defense Contract Spending by Funding Mechanism, 1999-2010



Note: The "other" category, which totals less than 20 million a year, was excluded from the figure.

Source: DD350 and FPDS; CSIS analysis

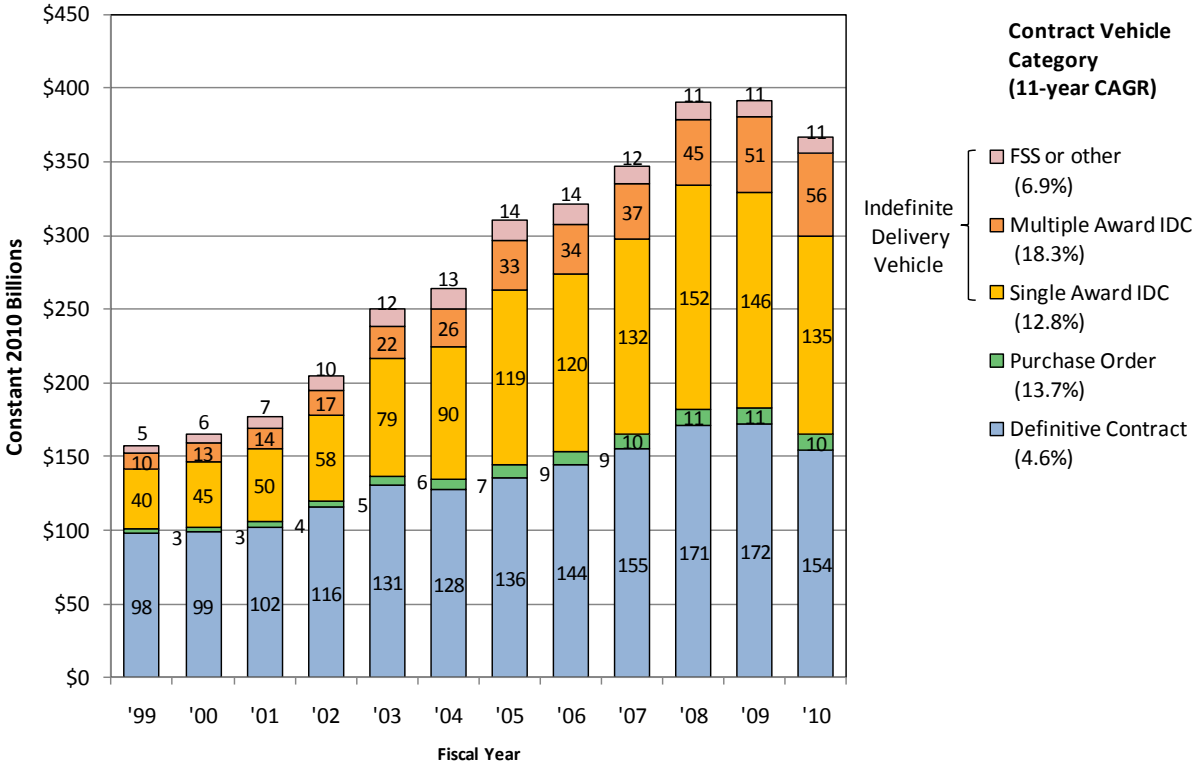
[7] Ibid.

Defense Contract Spending by Contract Vehicle, 1999-2010

In Figure 4-3 below, total DoD contract spending is broken out by contract vehicles. The Indefinite Delivery Vehicles (IDV) category is further broken out into Federal Supply Schedule (FSS), Multiple Award Independent Delivery Contracts (IDCs) and Single Award IDCs. Purchase Orders and Definitive Contracts form separate categories.

The data reveal that DoD has awarded contracts using primarily the definitive contract and single award IDC vehicles. However, the growth of all indefinite delivery vehicles combined outpaced that in the definitive contract categories, driven by single award contracts.

Figure 4-3. Defense Contract Spending by Contract Vehicle, 1999-2010



Note: The "unlabelled IDV" category, which totals less than 3 billion a year, was excluded from the figure.

Source: DD350 and FPDS; CSIS analysis

5. The Industrial Base Supporting DoD

Top 20 DoD Contractors, 1999 and 2009

Table 5-1 presents snapshots taken for 1999 and 2009 of the top 20 DoD contractors, i.e. those taking the largest shares of total DoD contract dollars. Out of this group, the top 5 contractors are identified in a separate cadre. Values are expressed in millions of FY 2010 dollars.

Though the top 5 DoD contractors between 1999 and 2009 did not change, there were some substantial shifts in the composition and market shares of contractors ranked 6 to 20. The share of defense contracts awarded to the top 5 declined from 29 percent of total defense contracts in 1999 to 27 percent in 2009.

The top 20 defense contractors overall, however, increased their share of the market from 41 percent in 1999 to 43 percent in 2009. The biggest change in the top 20 occurred in the number and market share of health care contractors, which increased their number from two in 1999 to three in 2009 and their market share from half a percent of total DoD contract awards to over 2 percent. If the top three health care firms in 2009 were combined, their dollar awards would total just under $9 billion and they would place sixth on the list. This highlights the sharp growth in DoD health care expenses from an industrial base perspective.

Interestingly, the data seem to refute that the same defense firms are gaining an ever-larger share of the market. The top 5 contractors actually lost market share, and of the firms in places 6 to 20, defense contract dollars went to different contractors over time. Therefore, the consolidation and vertical integration of the industry are not visible in the contract dollars awarded to top contractors.

Table 5-1. Top 20 DoD Contractors, 1999 and 2009

Rank	Top 20 Contractors in 1999	Contract Value in 2010 Millions		Top 20 Contractors in 2009	Contract Value in 2010 Millions
1	Lockheed Martin	15,980		Lockheed Martin	31,900
2	Boeing	12,180		Boeing	21,020
3	Raytheon	7,900		Northrop Grumman	19,180
4	General Dynamics	5,560		General Dynamics	16,000
5	Northrop Grumman	3,740		Raytheon	14,930
Subtotal for Top 5		45,360			103,040
6	United Technologies	2,910		BAE Systems	7,230
7	General Electric	1,930		L3 Communications	7,050
8	Textron	1,810		United Technologies	6,790
9	TRW	1,760		Oshkosh	6,210
10	SAIC	1,730		KBR	4,660
11	Litton	1,530		SAIC	4,540
12	United Defense Industries	1,190		ITT	3,800
13	Computer Sciences Corp.	1,140		Humana	3,460
14	ITT	860		General Electric	3,030
15	Halliburton	830		Computer Sciences Corp.	2,980
16	Humana	790		Health Net	2,860
17	Dyncorp	700		TriWest Healthcare	2,700
18	Bechtel	690		Bell-Boeing Joint Project Office*	2,570
19	Honeywell	680		MacAndrews & Forbes Holdings	2,460
20	Anthem	650		Bechtel	2,440
Total for Top 20		64,570			165,830
Total for DoD		156,520			383,420

*Joint Venture
Source: DD350 and FPDS; CSIS analysis

Top 20 DoD Contractors for Products, 1999 and 2009

Table 5-2 presents the top 20 contractors taking the largest shares of DoD dollars spent on product-related contracts in 1999 and 2009.

In the products category, there were few noticeable changes at the top level, as companies buoyed on mergers and acquisitions into higher positions. Between 1999 and 2009, Northrop Grumman acquired shipyards Litton (8th place in 1999), Avondale (13th place in 1999), and Newport News Shipbuilding (19th place, in 2001) helping to raise their rank from sixth in 1999 to fifth 10 years later. Having divested itself of its Avondale shipyard, it is possible that the company will drop down the list in the coming years. BAE Systems climbed into the top 20 in 2009, having acquired United Defense and Stewart & Stevenson (ranked 11 and 16 in 1999), amongst others. In terms of market share, the top 5 contractors together dropped 6 percent while the top 20 overall dropped only 1 percent. There appears to have been a trend in larger companies retaining their positions or rising in position primarily through their acquisitions of smaller companies. Without doing so, it is possible that the large mid-tier contractors would have risen closer to the top of the list while the top 5 may have dropped lower.

The possible effects of the conflicts in Iraq and Afghanistan are visible in the makeup of the top defense products contractors in 2009. Three oil companies are represented – Shell Oil, BP and Bahrain Petroleum – as well as new companies providing ground vehicles (BAE Systems and MacAndrews and Forbes Holdings that own AM General). These companies were helped into their 2009 position by contracts associated with the ground-based operations in Iraq and Afghanistan.

Table 5-2. Top 20 DoD Contractors for Products, 1999 and 2009

Rank	Top 20 Contractors in 1999	Contract Value in 2010 Millions		Top 20 Contractors in 2009	Contract Value in 2010 Millions
1	Boeing	7,080		Lockheed Martin	16,480
2	Lockheed Martin	6,930		Boeing	11,720
3	General Dynamics	4,330		General Dynamics	11,220
4	Raytheon	4,010		Raytheon	8,540
5	United Technologies	2,050		Northrop Grumman	8,360
Subtotal for Top 5		24,390			56,320
6	Northrop Grumman	1,990		Oshkosh	6,210
7	General Electric	1,750		United Technologies	5,000
8	Litton	1,440		BAE Systems	4,570
9	Textron	1,430		L3 Communications	2,580
10	Honeywell	680		General Electric	2,570
11	United Defense Industries	670		Bell-Boeing Joint Project Office*	2,570
12	Longbow LLC	540		MacAndrews & Forbes Holdings	2,460
13	Avondale Industries	530		Agility	1,980
14	Javelin Joint Venture*	500		Shell Oil	1,910
15	ATK	450		BP	1,900
16	Stewart & Stevenson	410		ITT	1,790
17	Westinghouse	380		Bahrain Petroleum Company	1,770
18	Motorola	340		ATK	1,620
19	Newport News Shipbuilding	340		Textron	1,470
20	Dell	330		Navistar	1,330
Total for Top 20		36,150			96,030
Total for Products		65,350			177,070

*Joint Venture
Source: DD350 and FPDS; CSIS analysis

Top 20 DoD Contractors for Services, 1999 and 2009

The top 20 contractors providing services to DoD in 1999 and 2009 are listed, in descending order of total service contract value expressed in millions of FY 2010 dollars, in Table 5-3

There have been significant changes in the structure and market share of the top defense service contractors. Health care service providers made huge gains between 1999 and 2009, as Humana made it into the top 5 and two other health care contractors rose into the eighth and eleventh highest positions in the top 20. The change in composition of the top 20 services contractors is fairly dramatic, as few contractors on the 1999 list carried over after 10 years (though one, TRW, was acquired by Northrop Grumman), and those that did generally increased their shares of the market. Furthermore, while the top 5 contractors' share of the market remained flat at 15 percent, the top 20's grew from 29 to 36 percent.

One critical caveat is that the FPDS does not necessarily classify services spending in the same manner that corporations do. For example, a close analysis by the study team found 2.7 billion in six maintenance, upgrade, and logistics support contracts awarded to one company that were classified in FPDS as products. This raises an important question: when acquisition policymakers discuss contracts using FPDS data, do they mean to include all operations and maintenance contracts as service contracts? If they do, then they are underestimating the total value of service contracts due to categorization issues.

Table 5-3. Top 20 DoD Contractors for Services, 1999 and 2009

Rank	Top 20 Contractors in 1999	Contract Value in 2010 Millions		Top 20 Contractors in 2009	Contract Value in 2010 Millions
1	Lockheed Martin	3,220		Lockheed Martin	7,040
2	Raytheon	2,930		Northrop Grumman	6,050
3	Boeing	2,090		KBR	4,660
4	SAIC	1,280		L3 Communications	3,710
5	Computer Sciences Corp.	1,000		Humana	3,460
Subtotal for Top 5		10,510			24,920
6	TRW	840		General Dynamics	3,370
7	Halliburton	830		Raytheon	3,130
8	Humana	790		Health Net	2,860
9	General Dynamics	750		SAIC	2,840
10	Dyncorp	700		Computer Sciences Corp.	2,800
11	Bechtel	690		TriWest Healthcare	2,700
12	Anthem	650		Boeing	2,650
13	Northrop Grumman	580		BAE Systems	2,120
14	TriWest Healthcare	530		URS	1,810
15	Foundation Health Federal Servic	500		ITT	1,670
16	Jacobs Engineering Group	470		Booz Allen Hamilton	1,540
17	ITT	450		Hensel Phelps	1,420
18	Fedex	440		Hewlett-Packard	1,410
19	Booz Allen Hamilton	420		CACI	1,390
20	Ocean Shipholdings	410		Bechtel	1,270
Total for Top 20		19,580			57,890
Total for Services		67,660			162,460

*Joint Venture
Source: DD350 and FPDS; CSIS analysis

Top 20 DoD Contractors for R&D, 1999 and 2009

The top 20 defense contractors for R&D are listed in Table 5-4. All conventions used in the previous three tables apply to this table, as well.

Just as defense R&D contract spending remained nearly static over the past 10 years, so did the composition of the contractor base. Not only were the top four contractors the same from 1999 to 2009, but they were in the same order. Interestingly, the fifth company in 1999 was acquired by the company in third position in 2009, thus changing very little in the market composition. On the other hand, shares of the top 5 and top 20 overall increased, with the former's share up from 50 to 56 percent and the latter growing from 71 to 76 percent. In other words, roughly the same 20 contractors have been doing research and development for DoD from 1999 to 2009 and are claiming three-quarters of the work (by value). It is worth noting, however, that 5 of the top 20 here are either nonprofit contractors, University-Affiliated Research Centers, or Federally-Funded R&D Centers (MIT, Aerospace Corp., Johns Hopkins Applied Physics Lab, MITRE and Battelle), and thus are not a part of the same corporate industrial complex reflected in other charts. It is also worth noting that classified contracts are particularly common for R&D work and are not included in FPDS. As a result, the contract value and relative ranking for organizations that do significant amounts of classified work are likely understated.

Table 5-4. Top 20 DoD Contractors for R&D, 1999 and 2009

Rank	Top 20 Contractors in 1999	Contract Value in 2010 Millions		Top 20 Contractors in 2009	Contract Value in 2010 Millions
1	Lockheed Martin	5,830		Lockheed Martin	8,380
2	Boeing	3,020		Boeing	6,650
3	Northrop Grumman	1,160		Northrop Grumman	4,710
4	Raytheon	960		Raytheon	3,270
5	TRW	750		MIT	1,760
Subtotal for Top 5		11,720			24,780
6	United Technologies	720		General Dynamics	1,410
7	MITRE	530		United Technologies	1,080
8	United Defense Industries	510		Aerospace Corp.	800
9	General Dynamics	480		SAIC	790
10	Aerospace Corp.	470		L3 Communications	760
11	SAIC	460		Booz Allen Hamilton	720
12	MIT	450		BAE Systems	530
13	Johns Hopkins APL	360		Johns Hopkins APL	420
14	ITT	180		GE Rolls-Royce Fighter Engine Team*	410
15	General Electric	180		MITRE	330
16	Computer Sciences Corp.	150		ITT	320
17	Nichols Research	140		JVYS*	290
18	Textron	120		Battelle	260
19	GenCorp	120		CACI	250
20	Orbital Sciences	120		Computer Sciences Corp.	180
Total for Top 20		16,700			33,340
Total for R&D		23,500			43,880

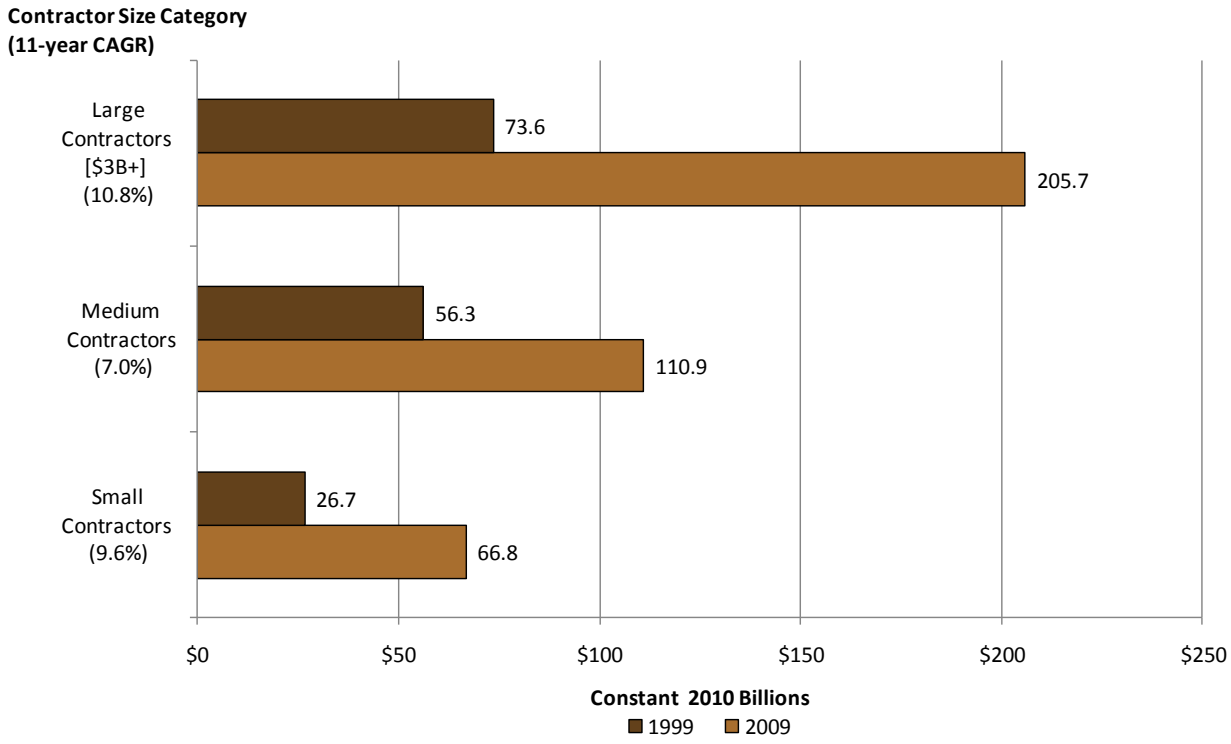
*Joint Venture
Source: 1999 data generated using the DD350 contracts database; 2009 data are from https://www.FPDS.gov.

DoD Contract Spending by Contractor Size, 1999 and 2009

Figure 5-1. illustrates the changes in distribution of all DoD contract dollars across contractors classified by their relative sizes: small, medium and large. For this report, the threshold for a company to be considered "large" is $3 billion in total annual revenue, which is significantly higher than the $1 billion threshold determined in previous CSIS reports. (It should be noted that there are only $17 billion in contract dollars awarded to contractors earning between $1 billion and $3 billion, and thus this change does not greatly affect the overall analysis.) In addition, contracts awarded to subsidiaries are rolled into their parent contractors' data, and thus those contractors are not distinguished separately in most cases.

There is a potential policy issue in the small, medium and large company dynamic, in which the combination of growth in the large contractors and small-business set-aside programs put pressure on the middle tier contractors. While the data show a visible squeeze of the mid-sized contractors in terms of market share, there was still considerable overall growth in this segment (7 percent CAGR in the past 11 years) as well as in the two others (close to 11 percent CAGR for large companies, and close to 10 percent CAGR for small companies).

Figure 5-1. DoD Contract Spending by Contractor Size, 1999 and 2009



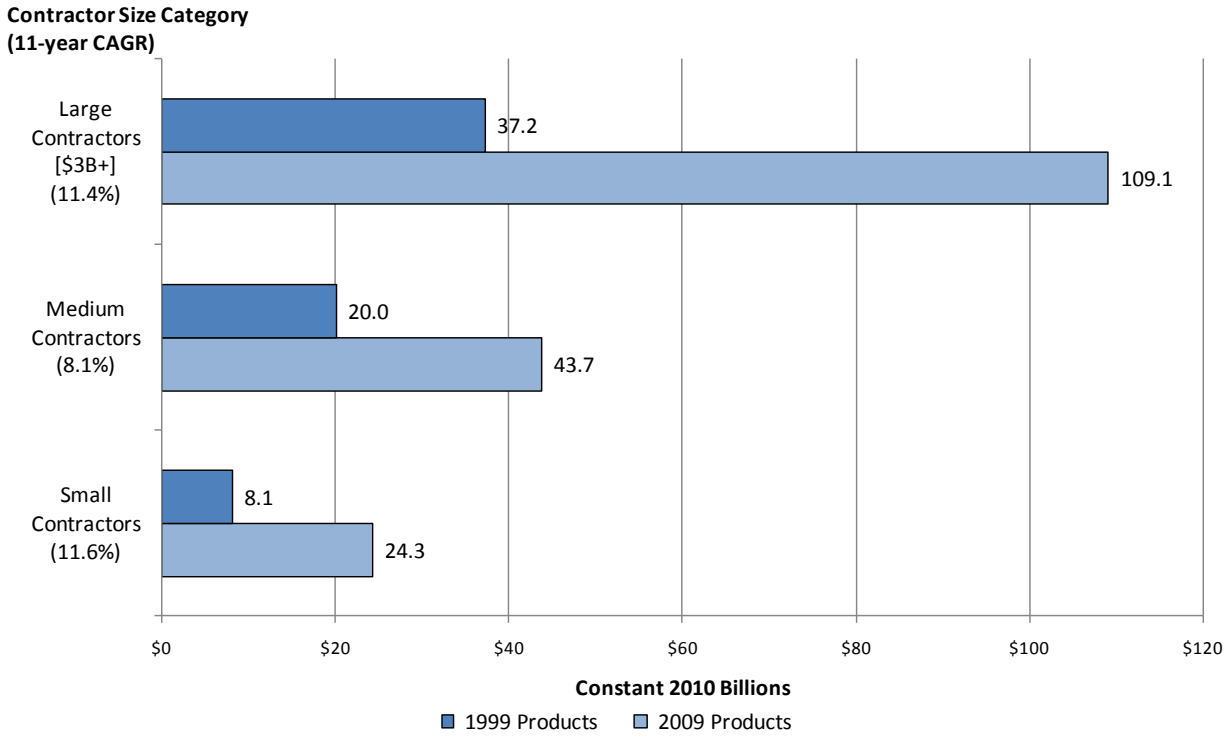
Source: DD350 and FPDS; CSIS analysis

DoD Contract Spending for Products by Contractor Size, 1999 and 2009

The distribution of DoD contract dollars across defense product providers in 1999 and 2009 is illustrated in Figure 5-2 This is a subset of the data presented in the previous Figure 5-1. Contractors are classified by the same conventions as the previous figure.

The squeeze in mid-sized contractors is seen particularly clearly in contract awards for products. Compared to large and small contractors, which averaged a respective 11 and 12 percent annual growth over 11 years, medium-sized contractors grew by a smaller, but still healthy, 8 percent CAGR.

Figure 5-2. DoD Contract Spending for Products by Contractor Size, 1999 and 2009



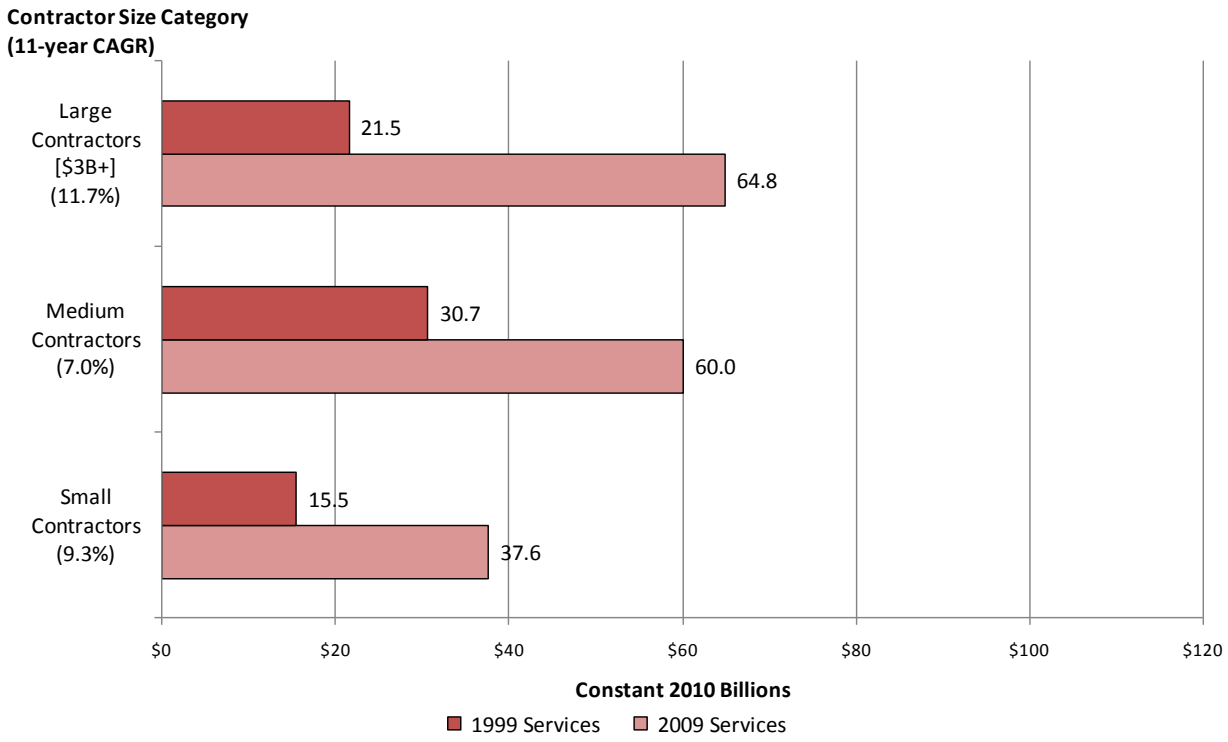
Source: DD350 and FPDS; CSIS analysis

DoD Contract Spending for Services by Contractor Size, 1999 and 2009

Figure 5-3. presents the change in distribution of service-providing defense contractors by size between 1999 and 2009, using the same conventions as the previous two figures.

In services, the squeeze on mid-sized contractors is less apparent, though these firms lost their lead in the market to large-sized firms. In 2009, mid-sized contractors held almost as large a share of the market as did large contractors ($60 billion versus $65 billion, respectively). However, they still held a smaller share of the overall market share than they did in 1999 when compared to small and large contractors.

Figure 5-3. DoD Contract Spending for Services by Contractor Size, 1999 and 2009



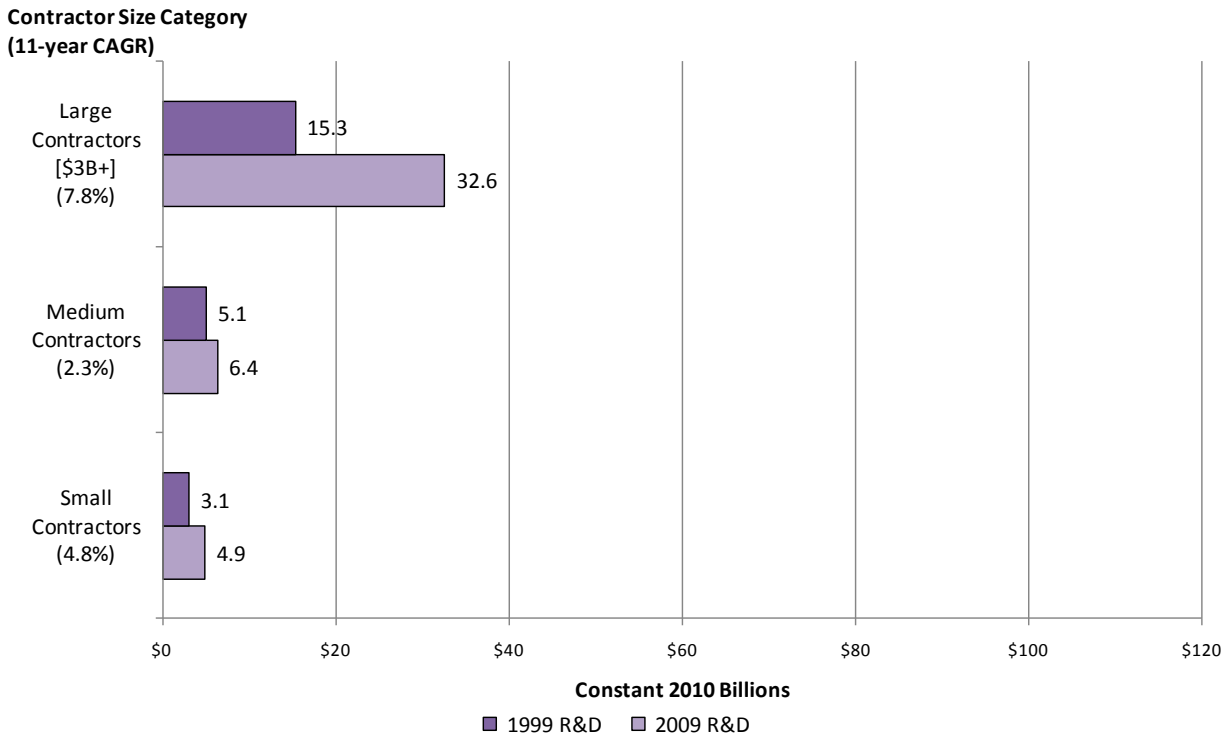
Source: DD350 and FPDS; CSIS analysis

DoD Contract Spending for R&D by Contractor Size, 1999 and 2009

The changes that took place between 1999 and 2009 in the spread of R&D-providing contractors for DoD are illustrated in Figure 5-4. Again, contractors are classified in the same manner as in the contractors in the aggregated contract categories in Figure 5-1.

While experiencing 7-8 percent annual growth in contract awards for products and services, mid-tier contractors grew by a mere 2 percent annually in R&D. In this they have been outpaced both by large contractors (nearly 8 percent in R&D) and small contractors (nearly 5 percent in R&D). In the R&D market, it is apparent that large contractors continued to dominate, with the same five contractors controlling three-fourths of DoD R&D contracting, as previously discussed. As in the earlier figures with R&D contract spending, classified contracts are not included in this analysis.

Figure 5-4. DoD Contract Spending for R&D by Contractor Size, 1999 and 2009



Source: DD350 and FPDS; CSIS analysis

6. Summary

In DoD contracting overall, services grew at a much faster pace in the past 20 years than did products and R&D, and were it not for combat operations in Iraq and Afghanistan would possibly have continued to receive the lion's share of DoD contract awards. Also as a result of these operations, Army and "other DoD" (primarily DLA) shares of total contracting grew while the Navy and Air Force shares declined. With U.S. forces set to withdraw from Iraq, the Army's contract spending started to decrease in 2008 while the Navy's spending also shrunk and continued its long decline after a short period of stagnation. In an unprecedented occurrence, the share of Air Force contract spending in the last few years declined to the lowest of all DoD components.

Trends in competition and funding mechanisms were mostly encouraging. Overall, the majority of DoD contract dollars were awarded on an increasingly competitive basis towards the end of the period analyzed, and dollars awarded competitively rose faster than those awarded without competition. The share of contract dollars awarded using fixed price contracts also grew, at a faster rate than cost-based contract awards. Up through 2009, there was a disturbing and sudden rise in "combination" contracts, which obfuscated the total distribution of cost and price-based contracts, but contract spending allocated to this category seems to have all but disappeared in 2010. Finally, in another trend viewed with concern in light of recent efficiency-promoting directives within DoD, the spending on indefinite delivery vehicles rose sharply in the past several years while definitive contracts and purchase orders stagnated and even declined in 2010.

Regarding the industrial base supporting DoD, there is little evidence in the data that the defense industry is consolidating into an oligopoly dominated by a small number of incumbent firms. While the top 5 defense contractors overall and in products and R&D retained their position from 1999 to 2009, there were dynamic changes in the composition of the top 20 contractors in the industry during this time. Health care contractors rose closer to the top within the services category, while energy companies and ground vehicle producers did the same in products. Furthermore, in the fastest growing sector – the services sector – the top 20 list from 1999 is very different than the top 20 list from 2009. This indicates that there is a healthy circulation of contractors in and out of the top positions by value of contracts awarded.

In terms of distribution of contract dollars according to the company size, it is clear that there was a "squeezing" of mid-sized contractors from both large and small contractors. This is particularly noticeable in spending on products, where medium-sized contractors lost their share in the market to both large and small contractors. These data indicate a positive development, however, as it appears that the government's small business set-aside program is succeeding. Finally, taking into account the numbers for R&D spending and the relatively static positions of top contractors within that industry, it appears that the same 4 large contractors dominated the R&D market for the last 10 years.

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