The End of the Military-Industrial Complex

How the Pentagon Is Adapting to Globalization

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In late 2013, Google announced that it had acquired Boston Dynamics, an engineering and robotics company best known for creating BigDog, a four-legged robot that can accompany soldiers into rough terrain. Much of the resulting hype focused on the Internet giant and when it might start making various types of robots. What was good news for Google, however, represented a major loss for the U.S. Department of Defense. Although Google agreed to honor Boston Dynamics' existing defense commitments, including its contracts with the U.S. Army, the U.S. Navy, and the U.S. Marine Corps, the company indicated that it might not pursue any additional work for the military. In practice, this means that the Department of Defense could lose its edge in the emerging field of autonomous robotics, which once fell almost exclusively under its domain.

It came as no surprise that Google had the money to buy Boston Dynamics; the technology star's growth potential and investments in research and development (R & D) far exceed those of any defense enterprise. Its market value, nearly $400 billion, is more than double that of General Dynamics, Northrop Grumman, Lockheed Martin, and Raytheon put together. And with the $60 billion it has on hand, Google could buy all the outstanding shares of any one of them.

Google may not need defense contracts, but the Pentagon needs more and better relationships with companies like Google. Only the private sector can provide the kind of cutting-edge technology that has given U.S. troops a distinct advantage for the past 70 years. And beyond courting commercial companies, the Pentagon must also adapt to an increasingly global defense industry, since critical defense technologies are no longer the sole province of U.S.-based companies.

Consider, for example, the F-35 Joint Strike Fighter, an aircraft developed, financed, and tested by nine countries: Australia, Canada, Denmark, Italy, the Netherlands, Norway, Turkey, the United Kingdom, and
the United States. Like Google’s acquisition of Boston Dynamics, the development of the F-35 poses both an opportunity and a challenge. On the one hand, Washington needs international and commercial partnerships to sustain its weapons development program, the largest in history.

According to a 2012 study by the consulting firm Booz & Company (now Strategy&), more than one-third of what the Pentagon spends on procurement and services goes to nontraditional companies such as Apple and Dell. On the other hand, the Defense Department’s outdated procurement process makes it difficult for new companies to enter the U.S. market. The Pentagon cannot afford to keep in place such barriers to entry, especially when the U.S. military relies so heavily on nontraditional suppliers to gain an edge over its potential adversaries.

Taken together, commercialization and globalization -- coupled with a decline in U.S. defense spending -- have ushered in a new era for the U.S. defense industry. In the past, the industry has adapted well to change, allowing the United States to maintain its military dominance. In weathering the current transition, however, the Pentagon is off to a slow start.

IN THE BEGINNING

Over the past two centuries, the U.S. defense industry experienced three distinct eras. In the first, which lasted from 1787 to 1941, the sector consisted largely of government-owned arsenals and shipyards, supplemented by commercial industry only in times of actual conflict (during World War I, for example).

The sheer scale of World War II and its abundance of new wartime technologies, however, required a dramatic change. In 1942, President Franklin Roosevelt established the War Production Board, a federal agency tasked with conscripting the largest U.S. industrial enterprises, most notably those in the automobile industry, into wartime service. At the start of the twentieth century, defense spending had averaged roughly one percent of GDP, growing to just three percent in the 1930s. During World War II, however, defense spending skyrocketed, to roughly 40 percent of GDP, and defense became the country’s largest industry. As a result, the United States overwhelmed its adversaries with its industrial capacity and power.

After the war ended, Washington did not dismantle the defense industry it had developed. Instead, the large, diversified industrial conglomerates that had produced defense equipment during the war, including Boeing and General Motors, maintained their defense divisions. These companies, joined in later years by AT&T, General Electric, and IBM, passed technology fluidly between markets. Backed financially by the Pentagon and benefiting from long production runs, they created technologies ranging from drones to night-vision goggles, some of which eventually trickled down into citizens’ daily lives. Today, for example, most cars come with GPS, and few Americans could live without the Internet -- innovations both initially funded by the Pentagon.

This second era -- the one marked by the emergence of what President Dwight Eisenhower famously called “the military-industrial complex” -- ended with the Cold War, when the fall of the Berlin Wall and the dissolution of the Warsaw Pact and the Soviet Union contributed to a rapid decline in U.S. military spending. In 1993, the Department of Defense invited industry leaders to the Pentagon for a “last supper,” at which then Deputy Secretary of Defense William Perry urged them to consolidate in light of
the shrinking budget. So began the third era, in which the industry shifted from diversified conglomerates, which could tap into their large reservoirs of commercial technology, to the handful of companies that focus exclusively on defense and still dominate the industry today. From 1992 to 1997, a total of $55 billion in industry mergers took place. With few exceptions, the large conglomerates moved out of the industry, selling off their defense operations. At the same time, the new cadre of defense-only firms began selling off their commercial operations and acquiring smaller defense companies, thinning the ranks of midtier defense suppliers.

Despite changing norms and shrinking budgets, the Defense Department has moved from era to era without incident. Through each transformation, the Pentagon protected key technologies and continued to support the U.S. military. Today, however, pressures from commercialization and globalization have exposed serious fault lines in the industry’s structure. If the United States does not adapt now to the fourth era, its defense industry will soon see its strength wither away.

PLAYING CATCH-UP

For more than a decade, U.S. defense companies have been lagging further and further behind large commercial companies in technology investment. Although the Pentagon historically exported many technologies to the commercial sector, it is now a net importer. Indeed, next-generation commercial technology has leapt far ahead of what the defense industry can produce in areas spanning 3-D printing, cloud computing, cybersecurity, nanotechnology, robotics, and more. In addition, commercial information technology dominates national security today as much as it does the private sector. Soldiers now use smartphones to gather real-time surveillance from drones and send messages to fellow soldiers.

Keeping up with commercial innovations will be difficult, if not impossible. The combined R & D budgets of five of the largest U.S. defense contractors (about $4 billion, according to the research firm Capital Alpha Partners) amount to less than half of what companies such as Microsoft or Toyota spend on R & D in a single year. Taken together, these five U.S. defense titans do not even rank among the top 20 individual industrial investors worldwide. Instead of funding R & D, defense companies have been returning the overwhelming majority of their available cash to shareholders in the form of dividends and stock buybacks. As a result, from 2000 to 2012, company-funded R & D spending at the top U.S. defense firms dropped from 3.5 percent to roughly two percent of sales, according to Capital Alpha Partners. The leading commercial companies, by contrast, invest an average of eight percent of their revenue in R & D.

Of course, the defense market is different from commercial markets in that the customer -- the Pentagon -- funds much of the R & D. But this budget has fallen as well. Defense companies are therefore reluctant to invest their own cash in research that, because of uncertainty in the Pentagon’s budget, may never yield viable products.

The Defense Department should be courting commercial companies, many of which will not seek out defense contracts themselves. Instead, the Pentagon has made it so difficult to bid on defense contracts that many companies shy away, finding the process unfamiliar and daunting. Some also avoid bidding because they have little interest in complying with what they see as unnecessary Pentagon requirements. For example, a number of software developers have refused defense work because they fear they would have to relinquish the intellectual property rights to whatever they produce. Others are driven away by
the U.S. government’s elaborate regulations for the acquisition of weapons. Audit and oversight regulations, for example, require companies to establish new and costly accounting systems, beyond what they need for their commercial business. This added expense is hard to justify for programs that often take a decade or longer to transition from development to production.

Officials have discussed overhauling the Pentagon’s Byzantine procurement system for decades and have instituted modest reforms, including relying more on independent cost estimates and weapons testing. But the gains have not kept pace with the rapid technological and industrial change in the commercial sector. Future reforms should move beyond improving costs and timeliness to lowering barriers to entry for commercial companies. The Pentagon can attract companies such as Google by loosening its stringent intellectual property rules, streamlining its audit and accounting requirements, and shortening development cycles. Sticking to the status quo will only put further distance between Washington and Silicon Valley.

MOVING BEYOND BORDERS

As technological innovations have grown more commercial, they have also become more global. In the private sector, a single product -- the iPhone, for example -- often contains technology from a worldwide network of suppliers. Similarly, some weapons systems, such as the F-35, now owe their existence to international collaboration. But the U.S. defense industry has not taken advantage of this shift, in part because some government officials fear that globalization will take jobs away from U.S. citizens and compromise critical defense technologies. These fears are shortsighted. A more global U.S. defense industry will be larger and stronger, and it will give the United States more, not less, access to leading technologies.

For comparison, consider the trajectory of the U.S. automobile industry. Japanese car companies began opening manufacturing plants in the United States in the 1980s; today, the number of auto plants operated by foreign companies on U.S. soil almost equals the number run by American automakers. Honda now exports more cars from the United States than it imports from Japan. And the definition of what constitutes an American or a foreign car has become blurred, creating an industry in which foreign manufacturers employ thousands of Americans and U.S. companies see robust sales overseas. Honda and Toyota, for example, now produce seven of the ten models with the highest percentage of U.S.-made parts, and the South Carolina BMW factory has become the largest exporter of American-made cars.

The U.S. defense industry has not opened itself up to globalization in quite the same way. On the battlefield, the U.S. military fights alongside its allies, with troops training together and sharing intelligence. But the Defense Department still often ignores technologies and products made overseas -- sometimes at significant cost to the American taxpayer. In the early years of this century, for example, the Pentagon sought to develop a new artillery system, called “the Crusader,” rather than adapt a robust German design that met most, if not all, U.S. requirements. The Defense Department ended up canceling the program in 2002 when the unit costs became unaffordable, wasting $2 billion and leaving the U.S. Army to rely on upgrades to a much older artillery model. To benefit from the investments and innovations of its allies, the Pentagon must be open to foreign sources for technology and design. The United States no longer has to be the source of all advances in military technology, and in fact, bringing
foreign companies into the fold will help distribute the burden of development costs, as it did with the F-35.

ADAPT TO SURVIVE

For all the changes outside the U.S. defense industry, there remains a glaring one within it: the shrinking defense budget. The drawdowns in Afghanistan and Iraq, as well as the global economic crisis, have contributed to a roughly 20 percent decline in U.S. defense spending over the past five years.

A spending decline alone would not drive a structural change in the industry; when combined with the commercialization and globalization of defense technology, however, change appears inescapable. That change will include a consolidation of the industry and a concurrent drop in competition among suppliers. Indeed, competition for defense contracts has reached a historic low, making it difficult for the Pentagon to get the best value for taxpayers’ money. Where the Pentagon once employed two or three competing companies for major weapons programs, it now often struggles to afford contracts with more than one supplier. As a result, in 2012, both the navy and the air force awarded more than half their contracts without any competition at all.

If the Pentagon makes it easier for commercial and foreign companies to enter the industry, it will go a long way toward increasing competition. For example, BAE Systems, a British defense company that has become one of the Pentagon’s largest suppliers, has already provided needed diversity in the field of combat vehicles. Similarly, in the search for a new airborne tanker, the European aircraft manufacturing company Airbus has offered a viable alternative to Boeing. Increased competition will ensure that the Pentagon receives the best technology at the lowest price and will allow the United States to demonstrate the openness of its market at a time when declining budgets have already sent U.S. defense companies seeking sales overseas.

As officials in Washington weigh reforms, there is little time to lose. In both the defense industry and the world at large, the pace of change has accelerated. The first era of the U.S. defense industry lasted more than 150 years, the second nearly 50, and the third just 20. The Pentagon must take a more active role in recruiting outside companies, keeping in mind that their futures are inextricably intertwined. The United States has the opportunity to look beyond its borders to turn this fourth era to its advantage. Since World War II, the country’s technological advantages have protected its national security. To maintain that advantage, the United States must adapt to -- and ultimately embrace -- the trends that will come to define its future.

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