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**U.S. DEFENSE INDUSTRIAL READINESS;  
GETTING IT RIGHT IN THE 21<sup>ST</sup> CENTURY**

**BY**

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USAWC STRATEGY RESEARCH PROJECT

**U.S. Defense Industrial Readiness; Getting it Right in the 21<sup>st</sup> Century**

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## ABSTRACT

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This project examines the current DOD and defense industrial base environments after ten years of downsizing. An analysis of the national security environment of the early 21<sup>st</sup> century is provided to determine tomorrow's industrial base requirements. Finally, the project outlines how America, specifically the DOD, will work within the framework of a new integrated defense industrial base to meet the challenges of the early 21<sup>st</sup> century.



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## **U.S. DEFENSE INDUSTRIAL READINESS; GETTING IT RIGHT IN THE 21<sup>ST</sup> CENTURY**

The security of the United States is clearly dependent on the health and well being of its defense industrial base (DIB), commercial industries that develop, build and supply the tools of our military machine. In turn the DIB is shaped by a great extent on the amount of money our nation is willing to spend on its defense. This paper examines the current DOD environment after a decade of downsizing, budgetary constraints and high operations tempo and how these events shaped the industrial base that will serve us in the 21<sup>st</sup> Century. Additionally, the paper describes the national security environment that will drive the requirements of tomorrow's industrial base and how DOD will work within the framework of a new integrated industrial base to meet tomorrow's security challenges.

### **TODAY'S DEPARTMENT OF DEFENSE**

To fully understand the current defense industrial environment we must first examine the environment of its customer, the DOD. Today's DIB was shaped by:

- DOD spending on equipment procurement, sustainment and modernization
- DOD operations tempo (OPSTEMPO), driven by national security objectives and executive decisions
- DOD acquisition and procurement policies

These same issues will drive the industrial requirements necessary to meet tomorrow's national security and military strategies and therefore shape America's future defense industrial base.

### **SPENDING FOR EQUIPMENT AND MODERNIZATION**

As a result of the end of the Cold War we have reduced our active military force structure by almost a third. This draw down in defense force structure and spending, although dramatic, is not unique. A General Accounting Office (GAO) report to Congress describing the impact of defense spending on industrial productivity and competition states, "...although this downward trend in budget outlays and particularly in procurement spending is sizable, it is one of four times in post-WWII history that the industrial base has had to adjust to changes in national security requirements."<sup>1</sup> The three previous reductions came at the ends of WWII, the Korean War and Vietnam.<sup>2</sup>

Our Navy has drawn down its ships by almost 38 percent to 354 ships. The Air Force has drawn down from 36 to 20 fighter wings. Ten active divisions are assigned to today's active Army, a reduction of 45 percent. At the same time our defense budget declined 40 percent in

real terms. We spend less on defense, approximately 3.2 percent of our national wealth, than before World War II.<sup>3</sup> More importantly, from an industrial readiness perspective, DOD's reductions in spending came disproportionately from procurement spending.<sup>4</sup> The Center for Strategic and International Studies (CSIS) reports, "Overall defense spending has declined from its Cold War high by approximately 40 percent and spending on procurement has declined by more than 65 percent."<sup>5</sup> CSIS also reported in 1999 that total annual DOD spending measured in total obligation authority has declined \$67 billion, from \$339 billion in FY92 to \$272 billion in FY 00, a reduction of 20 percent.<sup>6</sup> . Additionally, the GAO reports, "Today's weapons cost more than in the past, so fewer can be procured as defense budgets decline. DOD is buying and developing fewer types of military systems and purchasing smaller quantities of the systems it does buy."<sup>7</sup>

Reduced spending for procurement, sustainment and modernization, combined with heavy use of equipment over the past decade makes modernization a challenge for the DOD and its industrial partners in the early 21<sup>st</sup> Century. Chairman of the Joint Chiefs of Staff, General Hugh Shelton notes budget shortfalls and declines in military readiness were the result of a number of unanticipated factors since the 1997 Quadrennial Defense Review (QDR).

Unanticipated factors include:

- US military forces are far busier with continuing operations around the world than anticipated
- US military services are experiencing higher than anticipated wear on military equipment coupled with rising costs of repair.<sup>8</sup>

As a result, modernization accounts were driven down to support needed Operations and Maintenance (O & M) requirements due to unanticipated operations around the world. The Defense Department got away with this during the early years of the last decade for two reasons. First, as units were deactivated, large numbers of equipment became unnecessary and therefore excess to DOD. Second, DOD and military services made smart decisions to rid themselves of older equipment first.<sup>9</sup> However, the draw down is complete and we are left with a smaller force with aging equipment that must be modernized if we are to maintain our technological advantage.<sup>10</sup> According to CSIS, "Achieving even a measure of the aspirations for U.S. military power set forth in the QDR and Joint Vision 2020 (JV 2020) will require continuing and greater than at present levels of investment, in research, development and procurement of advanced military systems."<sup>11</sup> But there is no evidence fiscal pressures are going to disappear by 2020. Mandatory entitlement programs and interest on the national debt

will continue to take up a larger share of the federal budget. In 2000, while the Nation held elections to choose a new President, numerous opinion polls tried to determine what was going through the mind of the average American voter. National defense didn't even make the top 5 issues on the pollster's list. What did make the top five on most lists were mandatory entitlement programs such as Medicare and Medicaid, economy, education and a balanced budget. A report by Booz-Allen and Hamilton puts this issue in perspective, "...defense is losing visibility on the national agenda—it is politically more expedient to support expenditures for butter than guns."<sup>12</sup> Paul G. Kaminski, former DUSD A&T makes the point, "...these mandatory expenditures accounted for only 29.6 percent of the federal budget in 1963, in 2003, they will account for 72 percent of the budget."<sup>13</sup> Many in government speak of projected surpluses in the coming years. But few if any in America are calling for much of that surplus to go to defense modernization. That surplus will go to entitlement spending and paying the interest on the Nation's debt.

#### OPERATIONS TEMPO (OPSTEMPO)

The huge masses of tanks and aircraft ready to invade Western Europe are no more. Relationships with our strongest allies are solid. Even former adversaries like Russia and other members of the former Warsaw pact cooperate with the U.S. on a variety of security issues.<sup>14</sup> But, in reality, the operational tempo for U.S. military personnel has been at a level more appropriate to the larger forces of the Cold War war.<sup>15</sup> Actually, the U.S. military has operated at rates expected during the Cold War but at one-third the size of its Cold War structure. U.S. foreign policy emphasizes global leadership and demands military response to all manner of crisis around the world in traditional and non-traditional missions. The demanding OPSTEMPO of the past decade has negatively impacted military equipment in two ways. First, due to declining budgets and increased operations around the globe, DOD leadership took money from acquisition, sustainment, and modernization of equipment to fund O & M shortfalls. Second, due to downsizing, less equipment was available to meet mission requirements. Numerous unanticipated military operations increased wear and tear and essentially ate into the service life of whatever equipment remained in the inventory of a much smaller military machine. Not only have we reduced the service life of our equipment but due to budget shortfalls we are replacing our equipment at slower rates.

Critics of increased defense spending will argue that our technological lead and military effectiveness brought about by changes in doctrine and organization, combined with no peer competitor, will carry us securely into the next century. These critics claim only small increases

in defense spending are required to meet the Nation's security requirements in the 21<sup>st</sup> Century. But modest increases in procurement spending will not offset the wear and tear on military equipment wore out during ten years of high OPSTEMPO around the world. According to CSIS, America is faced with, "... the obsolescence of a large fraction of its stock of military equipment and a massive bill for the modernization of the armed forces if we are to maintain our foreign policy goal of global leadership and our defense strategy of military preeminence."<sup>16</sup> Despite the end of the Cold War and the so-called "Peace Dividend," there are no indications that the OPSTEMPO of the last decade is going to decline. Indeed, absent a major change in our defense strategy imposed by a new administration in 2001, our military will likely stay just as busy as it has in the most recent past.<sup>17</sup>

In sum, the challenge of the DOD and its industry partners in the early 21<sup>st</sup> Century is to modernize an aging force worn out by a higher than anticipated OPSTEMPO that will most likely continue into the next century. Any modernization however, will likely take place in the face of an increasingly limited defense budget.

#### ACQUISITION AND PROCUREMENT REFORM

Realizing it is impossible to maintain a technologically superior military in the 21<sup>st</sup> Century using acquisition and procurement policies of the past DOD is trying to transform the way it does business. DOD recognizes that government is no longer the driving force behind research and development efforts—the driving force today is business.<sup>18</sup> DOD goals in the area of acquisition and logistics are threefold. First, DOD must field high-quality products quickly and support them responsibly. Second, DOD is striving to lower the total ownership costs of defense products. Finally, DOD is working to reduce the overhead cost of its acquisition and logistics infrastructure.<sup>19</sup>

DOD reforms center on increased use of commercial practices, reducing military standards and specifications (MILSPEC), and acceptable trade-offs between cost and performance.<sup>20</sup> Additionally, DOD monitors developments within industry that could impact industrial and technological capability, capacity, efficiency, and innovation. For example, DOD participates in merger and acquisition reviews to determine the impact of transactions on competition, innovation, and costs. Just as important, DOD looks for ways to leverage commercial and dual use capabilities and products for defense applications. Finally, DOD conducts assessments to identify and address potential problems with defense critical commodities.<sup>21</sup>

## TODAY'S DEFENSE INDUSTRY

A smaller force combined with fewer dollars available for defense has reduced Defense Department demand for weapons systems, munitions and other military equipment. Therefore, top defense companies have taken action to either remain viable in the defense industry or to exit the industry all together. Reduced defense spending over the past decade has impacted the defense industry in two ways:

- Companies reorganized and restructured internally
- Companies attempted to gain market share through mergers and acquisitions.<sup>22</sup>

## REORGANIZATION AND RESTRUCTURING

Defense companies have restructured themselves to take advantage of internal economies of scale and moved into new, non-defense and even non-government markets. Many of these companies, while still largely defense related, moved into commercial telecommunications, satellite imagery, data systems, automotive and highway systems, medical equipment and air traffic control, technical areas critical to future military capabilities. Companies adopted leaner manufacturing processes to produce more cost effective systems.<sup>23</sup> Defense companies reduced infrastructure and workforce levels to match reduced demand, streamlined their processes, increased productivity and revamped relationships with their suppliers.<sup>24</sup> Additionally, the rise of the internet and other forms of communication have increased productivity and changed the ways corporations do business. Defense industries, in response to the downward trend in defense spending have undergone intensive personnel downsizing. DOD estimates showed a 39 percent decrease in defense related employment between 1989 and 1997 – almost 5 percent per year. Many companies had to pursue alternative strategies to remain viable, including leaving the industry all together or participating in a series of acquisition and mergers that have consolidated the defense industry.

## ACQUISITION AND MERGERS

Acquisition and mergers seemed like an attractive option for managers in the defense industry of the 90s. Executives saw mergers and acquisitions as tools for consolidating operations, eliminating excess capacity and improving productivity. In the early 90s six major shipyards competed for Navy ship construction contracts. Today, as a result of mergers and acquisitions, only three corporations, General Dynamics, Litton Industries, and Newport News Shipbuilding, own those six shipyards. The aerospace industry has undergone similar consolidation. The Northrop-Grumman and Boeing-McDonnell-Douglas mergers combined with

Lockheed's purchase of General Dynamic's jet fighter division have significantly reduced the number of major aerospace competitors.<sup>25</sup> The same has occurred throughout the defense industry including companies who specialize in armored vehicles, munitions and small arms.<sup>26</sup> The entire defense industry is working through a transition period in an attempt to adjust to the larger number of mergers and acquisitions of the past decade. Absorbing new firms is a complex process involving restructuring, rationalization of facilities and personnel and dealing with the chaos of reassigning operations.<sup>27</sup>

There are reports that show demand for defense hardware is recovering modestly from the 45 percent drop in spending over the last decade. These same reports predict stable or even some modest growth over the next five years. Although, merger and acquisition activity among first tier prime contractors, those who produce weapons platforms, missiles and engines, is slowing, consolidation among second and third tier suppliers has increased. Suppliers are following the lead of the prime contractors by improving core competencies to enhance effectiveness.<sup>28</sup>

Another result of the consolidation is an increase in the number of teaming agreements between defense companies. Teaming agreements are created when two or more companies agree to team together in pursuit of a DOD procurement program. The companies agree not to team with any other competitors for the program. DOD watches teaming agreements closely since these arrangements can impact competition in the industry.<sup>29</sup> The DOD keeps a watchful eye on another phenomenon of defense industry consolidation, vertical integration. Vertical integration occurs when major prime contractors get control of key components that make up the systems they produce and sell. Concentration through acquisition of second and third tier companies by prime contractors can give contractors the ability to "freeze-out" competitors that don't have access to these specific components.<sup>30</sup>

Simultaneously, our nation is moving away from the idea of two industrial bases, one military and one defense. We are seeing the integration of civil and military industrial sectors. Companies in the integrated industrial base have the unique competencies needed for defense related operations but also have what it takes to compete in commercially oriented activities.<sup>31</sup> Most experts in DOD believe this is good for defense since today's commercial industrial base leads in innovation in many of the technical areas necessary for our military in the 21<sup>st</sup> Century. In short, the United States is relying on technology from commercial and global sources to enhance military capability. Interestingly enough, so are our potential enemies.<sup>32</sup>

The downsizing, restructuring, reengineering and consolidation of the past decade has led defense companies to become integrated, broadly-capable corporations with the resources and

experience to compete across the spectrum of not only defense requirements but in the commercial marketplace as well. <sup>33</sup> All of the uncertainty associated with declining defense spending has actually forced the defense industry to become highly competitive. In 2000 DOD reported consolidation produced significant efficiencies and cost savings for DOD—\$3.5 billion projected through 2003. Industry adjusted to budgetary realities and rationalized its operations where appropriate to reduce over-capacity.” <sup>34</sup> The GAO reports, ”DOD’s industrial assessments indicate that companies have been profitable since the funding draw-down and that its needs can be met in the segments it has assessed. These assessments do not suggest that the trend toward more mergers and acquisitions and fewer contractors is a liability against maintaining current industrial capabilities.”<sup>35</sup>

## **CHALLENGES FACING AMERICA IN THE 21<sup>ST</sup> CENTURY**

The defense industrial base of the last 50 years met the needs of a national military strategy driven by the Cold War. To help determine future industrial readiness requirements we need to understand the national security challenges we will face in the next 20 years. What are America’s national security challenges in the 21<sup>st</sup> Century and what challenges will industry face as it meets America’s demands for technology and equipment?

### **NATIONAL SECURITY**

The *Concept for Future Joint Operations*, published by the Joint Warfighting Center (JWC) points out that the patterns of conflict we’ve seen since the late 1980s will probably continue into the 21<sup>st</sup> Century. Our nation will be involved in large-scale conflicts, foreign humanitarian assistance efforts, noncombatant evacuation operations, peace operations and a variety of other military assistance operations. Some operations will take place close to home but most will not. Even though a large-scale worldwide conflict is less likely than during the Cold War years, the possibility is still exists. Strategic nuclear deterrence is still a key part of our national military strategy, even in the 21<sup>st</sup> Century.<sup>36</sup> In other words, our military must be prepared to fight across the entire spectrum of conflict. One CSIS report agrees, stating:

...although the U.S. does not now face a threat of the magnitude and technological sophistication posed by the Soviet Union, it still faces a range of substantial threats to its national interest, physical security and economic well-being and to the safety and security of friends and allies. These threats require the maintenance of a broad set of military capabilities in order to deter, and if necessary to fight and win any future conflict.<sup>37</sup>

The end of the Cold War has not brought stability or even a greater prospect for peace in the 21<sup>st</sup> Century. Many new enemies have replaced the old Warsaw Pact. James Adams, in his book, *The Next World War*, explains:

The developed world is now in a state of permanent war with organized crime, drug barons, terrorists and economic spies. But that is only the beginning. Across the world, ancient ethnic tensions that once were held in check by the overarching geopolitical imperative of the superpower rivalry are now causing conflicts in countries as diverse as Somalia and Bosnia. Such tensions are certain to get worse in the years ahead.<sup>38</sup>

Former Chairman of the Joint Chiefs of Staff, General John M. Shalikashvili, said it best, "It is sad but probably true that in the next 15 years, disorder, conflict and war, especially on the low end of the spectrum, will likely remain a growth industry."<sup>39</sup>

## INDUSTRIAL READINESS

The large stockpiles of equipment and spare parts of the Cold War are no more. America can no longer afford an "arsenal" style industrial base. America has moved from a "Just in Case" concept of inventory to a "Just Enough/Just In Time" concept. Although it looks different, the new DIB of the 21<sup>st</sup> Century will face many of the same challenges that faced its Cold War cousin;

- Supplying and equipping the force to meet national security objectives, policy guidance issued by the SECDEF and the future years defense programs
- Sustaining production, maintenance, repair and logistics for military operations of various duration and intensities
- Maintaining advanced R & D to ensure technology superiority
- Reconstituting within a reasonable period the capabilities to develop and produce supplies and equipment to prepare fully for a war, national emergency, or mobilization<sup>40</sup>

What kinds of weapons must a resource constrained DOD and its industrial partners develop, produce, and sustain to meet the challenges of the 21<sup>st</sup> Century? In 1997, the National Defense Panel published a report recommending areas the U.S. military should place greater emphasis during the years 2010 – 2020. Recommendations included;

- Systems architectures that enable highly distributed, network-based operations
- Information systems protection that protects against and identifies the origin of cyber attacks

- Information operations that provide the capabilities to insert viruses, implant logic bombs, conduct electromagnetic-pulse and directed-energy strikes and other offensive electronic operations
- Automation operations that speed mission-planning activities and military operations
- A small logistics footprint that lowers the target signature of forces, lessens the strain on indigenous infrastructures, and reduces the demands on strategic airlift and sea lift
- Stealth to avoid detection
- Speed that increases the rate at which U.S. forces can mobilize, deploy, set, act, and reset for any action
- Increased operational strike ranges that ensure the safety of U.S. forces and their ability to achieve desired effects from disparate locations
- Precision strike that enables the use of fewer platforms with no loss in force capabilities and that limits collateral damage<sup>41</sup>

Given these circumstances, the challenges our future industrial base will face are similar to those faced the Cold War DIB—but with a twist, driven by an uncertain world and scarce resources, specifically time and money. America's industrial challenge in the 21<sup>st</sup> Century is to provide modern, high performance weapons systems and support to its military in less time, at lower cost, and with higher performance than ever before.<sup>42</sup>

### **DEFENSE INDUSTRIAL READINESS IN THE 21<sup>ST</sup> CENTURY**

Is the U.S. industrial complex capable of meeting the nation's defense requirements in the 21<sup>st</sup> Century? The answer—yes. Despite the events of the last ten years, U.S. industry is capable of developing, producing, supplying and sustaining a technologically superior military in what promises to be an uncertain, volatile and challenging early 21<sup>st</sup> Century. Today's industrial base may not look like the one that took us through the Cold War years. But in reality, today's industrial base is as capable, if not more so, than the industrial base of old. Because today's industrial base is different, America will employ new techniques to tap into a robust, integrated industrial base to meet the requirements of tomorrow's national military strategy. DOD must;

- Take advantage of integrated commercial and defense industrial sectors
- Continue its acquisition reform to behave more like a commercial buyer
- Ensure vigorous competition,
- Stabilize defense procurement funding

## CIVIL-MILITARY INTEGRATION

DOD must pursue strategies to take advantage of an integrated national industrial base to obtain low cost, high performance, cutting-edge systems to meet the nation's security needs in the 21<sup>st</sup> Century. Leveraging commercial technological advances is essential if we are to sustain a technologically superior military at an affordable price in the 21<sup>st</sup> Century. Commercial industry offers products at lower prices since it is subject to less restrictive industrial practices and economies of scale.<sup>43</sup> Commercial sector R & D has outpaced that of the government since 1981. Therefore, the source of innovation for military capabilities of the 21<sup>st</sup> Century will most likely reside in the larger, broader commercial sector than in a smaller, unique defense sector.<sup>44</sup> Taking advantage of an integrated national industrial base will allow access to the enormous commercial electronics and computer sectors, leaders in high technology innovation. Access to these sectors is essential for development of high performance intelligence, reconnaissance, surveillance and target-acquisition systems as well as command, control, communications and computing (C4) capabilities necessary in a technologically superior military.<sup>45</sup>

Using Commercial Off The Shelf (COTS) products and dual use technologies allows DOD to take advantage of the same competitive pressures and market driven processes that have led to speedier development and greater cost savings in commercial industry over the last decade. In effect, using COTS products and dual-use technology allows DOD access to the best industry has to offer at the lowest cost. Programs similar to the Dual Use Science & Technology program instituted by DOD in 1997 help to leverage limited S & T dollars by partnering with industry to increase the use of dual-use technologies in new weapons systems.

## ACQUISITION REFORM

If the DOD is to rely on an integrated national industrial base to meet its industrial readiness requirements in the 21<sup>st</sup> Century, it must adapt its business practices and systems to those proven in the commercial world. This is actually the reverse of the Cold War years when we expected industry to adapt itself to the DOD. A CSIS report on the future of the defense industrial base explains:

Over the decades of the Cold War, the federal government imposed standards, specifications, and regulations on defense industries that increased the divergence between the behaviors of companies performing defense-related work and those able to employ standard commercial practices. This resulted in segregation of defense and commercial operations. The cost associated with conforming to acquisition regulations and contracting requirements were factored into the price of the firms' products and passed on to the government.<sup>46</sup>

America can no longer afford a segregated defense industry. DOD must eliminate unproductive restrictions imposed on contractors and behave more like a commercial buyer. DOD should continue to reduce the cost, in resources and time, imposed by the old Cold War acquisition system and whenever possible, lower the barriers facing commercial firms who want to enter the defense market. To gain access to America's integrated industrial base in the 21<sup>st</sup> Century, DOD will:

- Continue to eliminate unique acquisition procedures and contracting requirements that do not contribute to achieving best value
- Simplify contracting procedures
- Adopt performance based oversight processes by focusing on contract performance, allowing contractors to apply commercially-proven manufacturing and management systems to defense contracts
- Privatize, whenever possible, the standards and specifications process
- Eliminate needless standards
- Expand COTS buying practices<sup>47</sup>

The 2000 Annual Industrial Capabilities Report to Congress states, "Civil-military integration, eliminating the distinction between doing business with the government and other buyers, is critical to meeting future military, economic, and policy objectives. DOD must adopt the business practices of world-class customers and suppliers and to the maximum extent practicable, not apply government-unique terms and conditions to its contracts."<sup>48</sup>

## COMPETITION

Few argue against the notion that competition within the defense industry is the best way to ensure access to superior equipment at affordable prices. Yes, there are fewer competitors in some sectors today than we enjoyed during the Cold War but, the integrated industrial base of tomorrow doesn't look like the industrial base of the past—it includes commercial as well as traditional defense companies, domestic and international. Ensuring competition within the integrated industrial base requires a different approach from the one we used in the old, expensive and inefficient Cold War industrial base. First, DOD will live with selected monopolies in the 21<sup>st</sup> Century integrated industrial base. Second, when possible, DOD will rely on offshore suppliers to ensure competition and best value. Third, DOD will continue to participate in future merger and acquisition reviews to ensure these transactions do not adversely affect competition within the defense industry. Finally, within reason, the U.S.

government will relax or streamline some export control laws so our defense industry can stay viable in the next century.

### **Living with Monopolies**

What happens when there isn't enough demand to keep two or more competitors busy? After all, for some low rate production items like atomic clocks, large control moment gyros, radiation hardened parts and components for some special weapons there just isn't enough demand to support more than one or two sources.<sup>49</sup> A similar situation exists with certain strategic materials. As equipment becomes more reliable and mean time between failure rates climb, demand will drop even more. Additionally, as weapons become more precise, fewer are required to destroy objectives. America can't afford to buy large quantities of weapons and store them like it did in the Cold War so production capability for these systems can't die away. Therefore, expect the DOD to form long-term strategic partnerships with selected sole source suppliers. These suppliers will be regulated by policies that ensure best value to the DOD, innovation, and a fair rate of return for the companies involved.<sup>50</sup> Additionally, for highly unique and critical components, that can't be found elsewhere, the DOD may choose to use its organic depot production capacity to meet its needs. Finally, the U.S. government will look beyond its shores for additional suppliers thereby improving competition in low demand but necessary sectors of the defense industry.

### **Off Shore Suppliers**

In the next century, the integrated defense industrial base will include commercial as well as traditional defense resources lying inside our borders and beyond our shores. In its report on the health of the defense industry published earlier this year, Booze-Allen and Hamilton reports:

Consolidation within the United States and Europe is well advanced in most segments of aerospace and defense. However, global consolidation is just beginning. The most viable end game will consist of global players rather than continent champions since the markets within Europe and the U.S. are not large enough to support competing indigenous programs.<sup>51</sup>

According to its' 2000 Annual Industrial Capabilities Report to Congress, "DOD wants to will take full advantage of the competitive benefits offered by access to the best global suppliers."<sup>52</sup> But DOD also notes that it is not willing to risk national security when doing business with foreign suppliers. There are three broad circumstances that will exclude foreign suppliers. First, when there is unacceptable risk that DOD would not be able to access the products its needs when it needs them. Second, when DOD must be able to deny access to capabilities to preserve national security. In other words, it is difficult (but not impossible) to

deny capability to an enemy when the capability lies in another country. Third, when classified information and important technologies can't be protected.<sup>53</sup>

Considering foreign suppliers will ensure competition in each sector, keeping costs as low as possible, increasing variety, and taking advantage of innovation worldwide. But there is another advantage to doing business with our allies around the world—it facilitates interoperability. Future conflicts will mostly likely be fought with coalitions. Naturally the weakest link in any coalition will leave everyone vulnerable.<sup>54</sup> Sharing technology with coalition partners enhances capability and promotes interoperability since members are using like equipment. Foreign suppliers, especially those in allied countries, provide components for U.S. weapon systems today.

### **Merger and Acquisition Review**

Although some claim consolidation hurts industrial readiness, many believe the consolidation has made the defense industry leaner and meaner and DOD will reap the benefits in the form of lower cost and better value. But, while the DOD, "... supports the process of supplier rationalization that enables firms to eliminate excess capacity, reduce costs, sustain critical mass in research and development to foster innovation, and provide better valued for DOD and the U.S. taxpayer,"<sup>55</sup> it does not support mergers and acquisitions that adversely impact DOD interest. DOD formally reviewed 46 transactions in 1999. Of the 46 cases, DOD filed opposition with Department of Justice and the Federal Trade Commission on just two of the cases. Four other cases required consent agreements to ensure continued competition.<sup>56</sup> DOD's acquisition and merger review process will focus on four key areas.

- Does the transaction threaten future competition and innovation for any defense program?
- Does the proposed merger or acquisition foster vertical integration that may have a negative impact on competition?
- Does the transaction present any organizational concepts like anti-competitive teaming agreements?
- What cost savings or other efficiencies will DOD enjoy as a result of the transaction?<sup>57</sup>

A report published by the National Defense Panel notes, "It is in the government's best interest to support a process of consolidation that results in the creation of a small number of financially stable prime contractors...the most desirable situation would have two, and where possible three, robust competitors in each major military market."<sup>58</sup>

## **Export Control**

When there isn't enough U.S. demand for a product to keep companies viable, production capability could disappear with adverse impact on defense industrial readiness. One option to prevent reduced capability despite low demand, is to allow defense-related companies to stay strong by relaxing export controls, especially when critical military technologies are not involved. Immediately critics will charge that loose export controls will allow militarily sensitive and unique technologies to get into the wrong hands. Certainly no one argues against export control of militarily critical technologies, especially if we are to maintain our technologically superior status. However, many argue that today's export controls on non-critical military technology are overly bureaucratic and inefficient.<sup>59</sup> Today's controls detract from U.S. competitiveness in international and aerospace and defense markets, adversely impacting the financial viability of many corporations who want to do defense business but see themselves as penalized by overly bureaucratic and inefficient export controls. Therefore many companies pass up defense business for strictly commercial applications to remain viable—resulting in fewer corporations to instill competition in the defense market at home.

The U.S. government must strike a balance between technology protection and industrial competitiveness and revise its license review process.<sup>60</sup> Currently, every technology transfer transaction is reviewed, whether a military critical or unique capability is involved or not. However, it is possible to identify and describe sensitive technologies or engineering knowledge that have military application. A new system must be developed to process transactions that do not deal with military capabilities or those that deal with the transfer of capabilities to our allies much quicker thereby removing barriers to companies that want to compete in the integrated industrial base. Naturally, proposed transfers of critical military technology, capabilities and engineering know-how, or transactions involving nations that could transship these technologies, will be dealt with in greater detail and under more strict guidelines. Under this system, penalties associated with overseas business will be reduced, making it lucrative for more businesses to compete in the global market place. The more businesses that remain in the integrated defense industrial base the more competition. More competition means lower costs and better value for the American taxpayer.

## **STABILIZING DEFENSE SPENDING**

One of the greatest challenges for any contractor doing business with DOD is dealing with funding instability. If DOD is to do business within the integrated defense industrial base, it must encourage congress to stabilize defense spending. Over the past two decades many new

programs, after considerable industry investment, were either cancelled or stretched out due to DOD budget cuts. It has been reported that 60 percent of the cost growth in the defense procurement budget was driven by budget adjustments, not technical factors.<sup>61</sup> One defense-consulting firm put it like this:

It is highly irregular to find a large program that has not been restructured multiple times before it goes through the complete life cycle of the program. It is difficult for a contractor to manage their assets effectively with a customer who changes the funding profile with each new annual budget, forcing companies to make sub-optimal economic decisions based on political negotiations.<sup>62</sup>

At a conference on strategic responsiveness in November, 1999, Deputy Secretary of Defense John Hamre stated, "...the government must provide steady, stable defense budgets that allow defense companies to plan work, costs and personnel"<sup>63</sup> One method of achieving stable program funding is use of multi-year contracts. Congress has been reluctant to grant multi-year programming (MYP) status in the past because it decreases congressional flexibility during review and approval of the President's budget. This practice costs U.S. taxpayers billions of dollars and reduces defense industrial readiness. Not every program is a candidate for MYP. Naturally, MYP selections will be based on sound estimates of the total buy, efficient production rates, and anticipated savings. But one example of success is the Air Force's C-17 transport program. Defense experts highlight the C-17 as a stable, very well executed MYP resulting in savings of several billion dollars.<sup>64</sup> Other stabilizing tools include:

- Progress payments
- Automated payment practices to reduce transaction time
- Authorizing life time buys in select cases when industrial base maintenance is not an issue with the supplier
- Legislation to authorize advance payments<sup>65</sup>

Stable funding reduces uncertainty and cost. As Dr. Hamre said in 1999, "We have to eliminate policies that put all the risk on our partners in the private sector."<sup>66</sup> Any contractor that elects to compete in the integrated defense industrial base will pass the cost associated with risk due to program instability on to the customer—the American taxpayer.

## **CONCLUSION**

This project outlined the requirements of an industrial base capable of meeting tomorrow's national security challenges. Is the U.S. industrial base capable of meeting the requirements of the DOD as it sets out to achieve our national security and military strategies of the 21<sup>st</sup> Century? Yes it is. DOD will work within the framework of a new integrated industrial base,

leaving behind many of the practices used to get the most from the old Cold War industrial base.

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## ENDNOTES

<sup>1</sup> General Accounting Office, Trends in DOD Spending, Industrial Productivity, and Competition (Washington, D.C.: U.S. General Accounting Office, January 97), 3.

<sup>2</sup> *Ibid.*, 8.

<sup>3</sup> John Shalikashvili, "America's Armed Forces: A Perspective," 7 November 1996; available from <http://www.defenselink.mil/speeches/1996/t19961107-shali.html>; Internet; accessed 31 October 2000.

<sup>4</sup> Department of Defense, Annual Industrial Capabilities Report to Congress, (Washington, D.C.: U.S. Department of Defense, February 2000), 6.

<sup>5</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>6</sup> Daniel Goure and Jeffrey M. Ranney, Averting the Defense Train Wreck in the New Millennium (Center for Strategic and International Studies, 1999), 80.

<sup>7</sup> General Accounting Office, Trends in DOD Spending, Industrial Productivity, and Competition (Washington, D.C.: U.S. General Accounting Office, January 97), 3.

<sup>8</sup> Goure and Ranney, 6.

<sup>9</sup> William Perry, "Squaring DOD's Circle", 23 October 1996; available from <http://www.defenselink.mil/speeches/1996/1996s1996-1023-perry.html> ;Internet;31 October 2000.

<sup>10</sup> Under Secretary of Defense for Acquisition and Technology, Jacques s. Gansler, describes the situation like this, "We are trapped in a "death spiral." The requirement to maintain our aging equipment is costing us more each year: in repair costs, down time, and maintenance tempo. But we must keep this equipment in repair to maintain readiness. It drains our resources—resources we should be applying to modernization of the traditional systems and development and deployment of the new systems. So, we stretch out our replacement schedules to ridiculous lengths and reduce the quantities of the new equipment we purchase—raising their costs and still further delaying modernization. Compounding this problem is the increased operational tempo required by our worldwide role as the sole remaining superpower, which more rapidly wears out the old equipment." Goure and Ranney, 5.

<sup>11</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>12</sup> John Harbison and Thomas Moorman, "U.S. Defense Industry Under Siege-An Agenda for Change," May 2000: available from <http://www.bah.com.html>: Internet: accessed 25 September, 2000.

<sup>13</sup> Paul Kaminski, Paul, "Defense Industry Challenges and Opportunities," 11 July, 1996; available from <<http://www.defenselink.mil/speeches/1996/s19960711-kaminski.html>> ;Internet; accessed 24 October, 2000.

<sup>14</sup> Department of Defense, Annual Industrial Capabilities Report to Congress, (Washington, D.C.: U.S. Department of Defense, February 2000),5.

<sup>15</sup>Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>16</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>17</sup> ...the United States faces significant and asymmetric security challenges. In the near term, the multiplicity of threats include: risks of regional conflict in which the United States has significant interests; possible internal conflicts that threaten U.S. interest (including civil wars, internal aggression and armed uprisings); the spread of weapons of mass destruction; state sponsored and transnational terrorism; and organized crime, illegal drug trade, and other violent threats to U.S. institutions and citizens. Additionally, U.S. forces may be called upon to provide stability, disaster relief and other forms of emergency assistance in response to a wide range of circumstances, including failed states, famines, floods, hurricanes, and other natural or man-made disasters Department of Defense, Annual Industrial Capabilities Report to Congress, (Washington, D.C.: U.S. Department of Defense, February 2000), 5.

<sup>18</sup> The U.S. Government at large, are no longer the driving forces behind the development of most new technology, including many critical new technologies required by the Department to meet its mission. That technology, including both functional technology and technology designed to support optimal business operations and support, is now led by the commercial world, where research and development has increased steadily at a rate of 5 percent per year for more than 20 years. Government spending on research and development has dropped some 2.5 percent per year during the same period. It is clear that this trend is NOT going to be reversed, and that the DOD must improve its ability to be a "player" in the development of new technology in the commercial world. Statement of the Honorable Jacques S. Gansler, Under Secretary of Defense Acquisition, Technology and Logistics: Hearing on Acquisition Issues, 26 April, 2000,

<sup>19</sup>Congress, Senate, Senate Armed Services Committee, Subcommittee on Readiness and Management Support: Statement of the Honorable Jacques S. Gansler, Under Secretary of Defense Acquisition, Technology and Logistics: Hearing on Acquisition Issues, 26 April, 2000, available from <http://www.acq.osd.mil/ousda/testimonies/acqissues.htm>; Internet: accessed 7 December, 2000.

<sup>20</sup> *ibid.*

<sup>21</sup>Department of Defense, Annual Industrial Capabilities Report to Congress, (Washington, D.C.: U.S. Department of Defense, February 2000),61.

<sup>22</sup> General Accounting Office, Trends in DOD Spending, Industrial Productivity, and Competition (Washington, D.C.: U.S. General Accounting Office, January 97), 5.

<sup>23</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>24</sup> Annual Industrial Capabilities Report to Congress, Feb 2000,2.

<sup>25</sup> Michael Robert, "Defense Consolidation Has Disappointed Shareholders," available from <http://nationaldefense.ndia.org/article.cfm?id=314.html> accessed 25 October 2000.

<sup>26</sup> The whole industry combined is valued at 14 percent of Microsoft, 17 percent of Intel, 50 percent of AOL and 76 percent of Yahoo. On February 23, 2000 you could buy the defense and space parts of Boeing, Lockheed Martin, Raytheon, General Dynamics, Hughes, TRW, Northrop-Grumman Loral and Litton all for \$47 billion, which was less than one day's market value appreciation of Cisco (\$50 billion) the day before. See "U.S. Defense Industry Under Siege-An Agenda for Change," May 2000: available from <http://www.bah.com.html>: Internet: accessed 25 September, 2000.

<sup>27</sup> Annual Industrial Capabilities Report to Congress, Feb 2000,9.

<sup>28</sup> *ibid*, 2.

<sup>29</sup> *Ibid*, 21.

<sup>30</sup> General Accounting Office, Trends in DOD Spending, Industrial Productivity, and Competition (Washington, D.C.: U.S. General Accounting Office, January 97),26.

<sup>31</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>32</sup> Annual Industrial Capabilities Report to Congress, Feb 2000,5.

<sup>33</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>34</sup> Annual Industrial Capabilities Report to Congress, Feb 2000,9.

<sup>35</sup> General Accounting Office, Trends in DOD Spending, Industrial Productivity, and Competition (Washington, D.C.: U.S. General Accounting Office, January 97),6.

<sup>36</sup> Joint Warfighting Center, Concept for Joint Operations,(Ft Monroe, VA: Joint Warfighting Center, May 1997),7.

<sup>37</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>38</sup> James Adams, The Next World War (New York, NY:Simon and Schuster, 1998)309.

<sup>39</sup> John Shalikashvili, "America's Armed Forces: A Perspective," 7 November 1996; available from <http://www.defenselink.mil/speeches/1996/t19961107-shali.html>; Internet; accessed 31 October 2000.

<sup>40</sup> Ivars Gutmanis and John Starks, "Whatever Happened to Defense Industrial Preparedness?" Joint Forces Quarterly, (Summer 1997): 27-33.

<sup>41</sup> National Defense Panel, Transforming Defense, National Security in the 21<sup>st</sup> Century, (National Defense Panel, Dec 1997),44-45.

<sup>42</sup> Congress, Senate, Senate Armed Services Committee, Subcommittee on Readiness and Management Support: Statement of the Honorable Jacques S. Gansler, Under Secretary of Defense Acquisition, Technology and Logistics: Hearing on Acquisition Issues, 26 April, 2000, available from <http://www.acq.osd.mil/ousda/testimonies/acqissues.htm>; Internet: accessed 7 December,2000.

<sup>43</sup> Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; available from <http://www.csis.org/polmil/dibreport.html>; Internet. Accessed 25 September, 2000.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

<sup>48</sup> Annual Industrial Capabilities Report to Congress, Feb 2000, 15.

<sup>49</sup> John Harbison, and Thomas Moorman, "U.S. Defense Industry Under Siege-An Agenda for Change," May 2000: available from <http://www.bah.com.html>: Internet: accessed 25 September, 2000.

<sup>50</sup> Ibid.

<sup>51</sup> Ibid.

<sup>52</sup> Annual Industrial Capabilities Report to Congress, Feb 2000, 20.

<sup>53</sup> Ibid, 20.

<sup>54</sup> Ibid, 16.

<sup>55</sup> *ibid*, 12.

<sup>56</sup> *ibid*, 13

<sup>57</sup> *ibid*, 12.

<sup>58</sup> *ibid*, 13.

<sup>59</sup> John Harbison and Thomas Moorman, "U.S. Defense Industry Under Siege-An Agenda for Change," May 2000: available from <http://www.bah.com.html>: Internet: accessed 25 September, 2000.

<sup>60</sup> *ibid*.

<sup>61</sup> *ibid*.

<sup>62</sup> *ibid*.

<sup>63</sup> Jim Garamone, "DOD Concerned About Defense Industrial Base," 11 November 1999; available from <http://www.defenselink.mil/news/Nov1999/n11081999-9911084.html> ;Internet; accessed 24 October, 2000.

<sup>64</sup> John Harbison, and Thomas Moorman, "U.S. Defense Industry Under Siege-An Agenda for Change," May 2000: available from <http://www.bah.com.html>: Internet: accessed 25 September, 2000.

<sup>65</sup> *ibid*.

<sup>66</sup> Jim Garamone, "DOD Concerned About Defense Industrial Base," 11 November 1999; available from <http://www.defenselink.mil/news/Nov1999/n11081999-9911084.html> ;Internet; accessed 24 October, 2000.



## BIBLIOGRAPHY

Adams, James, The Next World War New York, NY:Simon and Schuster, 1998.

Center for Strategic and International Studies, "Defense Restructuring and the Future of the US Defense Industrial Base," March 1998; Available from <http://www.csis.org/polmil/dibreport.html>. Internet. Accessed 25 September 2000.

Garamone, Jim, "DOD Concerned About Defense Industrial Base," 11 November 1999; Available from <http://www.defenselink.mil/news/Nov1999/n11081999-9911084.html> ;Internet. Accessed 24 October 2000.

Goure, Daniel and Jeffrey M. Ranney, Averting the Defense Train Wreck in the New Millennium Center for Strategic and International Studies, 1999

Gutmanis, Ivars and John Starks, "Whatever Happened to Defense Industrial Preparedness?" Joint Forces Quarterly, (Summer 1997).

Harbison, John and Moorman, Thomas, "U.S. Defense Industry Under Siege-An Agenda for Change," May 2000: Available from <http://www.bah.com.html>. Internet. Accessed 25 September 2000.

Joint Warfighting Center, Concept for Joint Operations, Ft Monroe, VA: Joint Warfighting Center, May 1997.

Kaminski, Paul, "Defense Industry Challenges and Opportunities," 11 July, 1996; Available from <<http://www.defenselink.mil/speeches/1996/s19960711-kaminski.html>>. Internet. Accessed 24 October 2000.

National Defense Panel, Transforming Defense, National Security in the 21<sup>st</sup> Century, National Defense Panel, Dec 1997.

Perry, William, "Squaring DOD's Circle", 23 October 1996; Available from <http://www.defenselink.mil/speeches/1996/1996s1996-1023-perry.html>. Internet. Accessed 31 October 2000.

Roberto, Michael, "Defense Consolidation Has Disappointed Shareholders," Available from <http://nationaldefense.ndia.org/article.cfm?id=314.html> Internet. Accessed 25 October 2000.

Shalikashvili, John, "America's Armed Forces: A Perspective," 7 November 1996; Available from <http://www.defenselink.mil/speeches/1996/t19961107-shali.html>.; Internet. Accessed 31 October 2000.

U.S. Congress, Senate, Senate Armed Services Committee, Subcommittee on Readiness and Management Support: Statement of the Honorable Jacques S. Gansler, Under Secretary of Defense Acquisition, Technology and Logistics: Hearing on Acquisition Issues, 26 April, 2000, Available from <http://www.acq.osd.mil/ousda/testimonies/acqissues.htm>; Internet. Accessed 7 December 2000.

U.S. Department of Defense, Annual Industrial Capabilities Report to Congress, Washington, D.C.: U.S. Department of Defense, February 2000.

U.S. General Accounting Office, Trends in DOD Spending, Industrial Productivity, and Competition Washington, D.C.: U.S. General Accounting Office, January 97.