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U.S. DEFENSE INDUSTRIAL BASE PREPAREDNESS

by

Colonel John W. McDonald, USA Ret.

The severity of cuts in the Defense Department budget for 1993 and beyond jeopardizes the long-term viability of the defense industrial base to support the president's national strategy. Production capacity created in the early 1980s during the defense buildup has already been attrited by spending cutbacks begun in 1985. This impact is evident throughout the country in the more than 78,000 defense subcontractors and vendors who have either closed their doors or converted their businesses to purely commercial activities over the past six years. Earlier cutbacks in defense spending achieved greater efficiencies in some sectors and were clearly justified in the light of the reduced threat to the nation. However, continued downward trends greatly increase the risk that the technology and industrial base capabilities that produced our overwhelmingly successful military forces for Desert Storm will not be available to respond to equally unpredictable crises in the future.

Industrial Base and National Strategy

Army forces today are well equipped, and force reductions will generate excess modern equipment for both distribution to our reserve forces and stockpiling for future war reserves and reconstitution. However, the president's strategy requires the continuing capability to develop and field technologically superior systems to support a small, high-quality military force. This strategy implies three principal functions for the industrial base:

- maintenance of technological superiority to any potential enemy on the future battlefield;
- replenishment of materiel consumed in support of regional contingencies;
- and, generation of "wholly new forces" as a hedge against reemergence of a global threat to the United States.

The strategy for maintaining a defense industrial base focuses on maintaining world leadership in critical technologies and the requisite manufacturing processes needed to develop

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and produce advanced weapon systems, but delays producing them until necessary. Criteria for deciding when it is necessary to upgrade older systems and/or field new ones are the availability of leap-ahead technology and the cost effectiveness of introducing a new system with this particular technology. The consequence of this approach is greater contraction of the existing industrial base.

Deputy Secretary of Defense Donald J. Atwood asserts the prudence of this course of action because future wars will be deterred, end quickly, or be preceded by so much warning that there will be plenty of time for reconstitution. Further, the department does not plan, in any deliberate way, to influence preservation of critical sectors of the defense industry. Mr. Atwood states, "The philosophy of the department is not to interfere with the operation of the free market. We will not attempt to determine the appropriate size of the defense market."

The hope is that defense companies will become commercially viable and thereby be available when and as needed for future defense business without direct DoD investment when production is not required. The reality is that key sectors of the industry will disappear through market forces when their existing backlogs of both domestic and foreign orders for defense goods are completed and until such time as DoD determines that a requirement for production of new weapon systems exists. The complex defense industries that produced the M1A1, Patriot and Apache may cease to exist during this hiatus.

Consequently, industry may be unable to support modernization of our armed forces through upgrades or new production in a timely, responsive manner. Assumptions implicit in current DoD decisions—that whatever remaining capability survives during the drawdown will be sufficient, that whenever funds become available industry can quickly respond, or that our defense industries can become commercially viable—do not reflect past experience of either the U.S. or other developed nations. And without modernization upgrades or periodic new production, U.S. weapons will not remain superior to those of potential enemies ten years from now. Indeed, superior land systems already exist in the international market for those nations with the cash to buy them.

Future U.S. ability to surge to meet demands of regional contingencies will, as for Desert Storm, be limited principally to consumables and spares and repair parts. War reserves from presently excess equipment can potentially meet demands for replacement of end items damaged or destroyed in a future conflict, but these will become technologically inferior the longer they remain in storage.

Finally, the ability to reconstitute forces to existing levels, or beyond, with modern systems cannot be accomplished without preserving some specific existing production capabilities. Let us assume, for example, that current tank production facilities were placed in total layaway for six years after the final production run of the M1A1 in April 1993. Further, let us assume optimistically that materials and long lead items from subcontractors and vendors would be available. Under these favorable circumstances, it would still take 60 months under peacetime conditions and 26 months under mobilization conditions to reach low-level production rates, at a cost of about \$740 million in 1992 dollars. And this would be a tank with 20-year-old technology!

Building the capacity over the past 10 years to produce modern weapon systems at economic rates of production required large investments of capital, both human and financial.

Defense industries expected to amortize these investments over a long period of time. However, as early as 1985, the government began sending industry signals that the defense buildup was costing more than it was willing to pay. With capital investment costs already sunk, major defense companies adapted their business practices, seeking to recover sunk costs by assuming production of components in their own plants rather than contracting with vendors, cancelling modernization of manufacturing processes and seeking higher per-unit prices for defense articles. Combined with other changes to defense policies which negatively influenced their financial health, companies faced staggering debt, decreasing profits and lower investor confidence. Uncertainty about the future of DoD funding has affected the market value of defense companies and their ability to finance needed restructuring to meet changing DoD demands.

Export of U.S. defense products, one of the existing means to keep production lines—and U.S. modernization options—open, faces two major hurdles: increasing competition from consortiums in Europe and the Pacific Rim and reluctance of both the administration and Congress to support overseas arms sales, whether foreign military or direct commercial. U.S. defense industries continue to operate at a disadvantage in the international market. The Department of Commerce explains that "... higher interest rates, cultural practices, and tax laws combine to make the effective cost of capital funds for US firms more than twice as high as for their Japanese competitors and substantially higher than for European firms." The net effect is higher costs for U.S. systems.

As well, an institutional bias against arms sales, manifest in the cumbersome approval process for arms exports, operates in tandem with higher costs to make U.S. sales increasingly difficult against foreign competition with qualitatively comparable arms. Recent positive measures at the State Department have helped. But no systematic government-wide policy has been established to reduce internal barriers and assist U.S. industry.

DoD Approach to Industrial Base Problems

While trying to achieve a balance between force structure, readiness and modernization, DoD has terminated major system programs prior to projected completion in order to maintain a robust research and development capability for future-generation weapon systems. Funding has been shifted to research and development and production of advanced technology transition demonstrations, with series production delayed until necessary. Risk of significant deterioration of the industrial base that may accrue in the intervening years does not appear to have been a critical factor in DoD's decisionmaking process. Distortion of the ratio of research and development to procurement funding inherent in this new approach costs manufacturers who historically recoup their research and development costs in production. Without additional procurement, there is a question whether industry can sustain current levels of R&D investment or whether DoD can fund the shortfall.

Meanwhile, the administration has determined that it will let free market forces determine the future health of the defense industry. However, the U.S. defense market is not free. It is a monopsony, a market where there are several suppliers and only one buyer. As a consequence, government regulation pervades all aspects of the defense market, seriously limiting the ability of industry to operate freely in either the domestic or international marketplaces. The U.S. Congressional Office of Technology Assessment affirmed that, "To a great extent, U.S. government policy already shapes and controls the structure of the defense industries, the international arrangements they may engage in, and their access both to domestic and foreign markets."

In the post-World War II era, the private sector assumed the principal responsibility for defense production formerly held by U.S. arsenals and depots. The private sector is now our arsenal, and it must be viewed in that context in the difficult years ahead. Without proactive policies to support the defense industries, they will not survive in any recognizable form—nor will they be available to meet future national security needs. Even with proactive policies, consolidation within sectors will be necessary to survive in the lean years ahead.

Defense Industry at Risk

Industry has responded in many ways to the shrinking defense budget—by teaming for specific programs to share development risks and costs, by downsizing to achieve a lower economically sustainable production rate, by diversifying both within sectors of the defense industry and the commercial sector, and by seeking larger markets, primarily international.

Restructuring, however, faces serious problems. Capital to retool, reconfigure plants and train skilled workers is lacking. Uncertainty over both domestic markets and the potential for foreign sales, declining profitability in the late 1980s and excessive losses from failure to recoup R&D and facilitation expenditures have made banks and investors wary. Companies cannot generate capital internally because of depressed values and cannot borrow. A “death spiral” results, placing many companies at risk. The Defense Systems Management College recently warned that “... without serious attention, the decline of the defense industrial base may reach an unacceptable and irreversible rate.”

One of the options for survival, consolidation and diversification in defense-related sectors may result in quasi-monopolistic practices within these sectors, while diversification into purely commercial sectors has not historically succeeded. Business practices differ so greatly between the defense and private sectors that even companies producing the same product for both markets usually do so in separate facilities with separate organizations. U.S. defense industries, hobbled by overregulation, adherence to uneconomic specifications and standards for materials and equipment, arcane cost accounting and auditing standards and destructive competitive practices, are not viable commercial entities today. Estimates of the cost of overregulation of defense companies vary from 10 percent to 45 percent of the value of each contract. And past and ongoing efforts to reform the procurement system have met with only limited success.

Increasing exports of defense articles, another possible option for critical sectors of the industrial base, faces barriers established by policy, legislation and regulation that impede competitiveness. No official U.S. policy supporting defense exports has been promulgated. Assistance for U.S. defense trade from administration officials overseas varies markedly from country to country. Endless congressional debate on the merits of sales to countries who are both friends and allies stymies profitable sales. Interminable bureaucratic procedures to obtain export licenses and/or technology transfer approval further aggravate marketing of U.S. products. The result is frequently loss of the sale to U.S. companies and purchase of foreign competitors' products, often products with equal technological sophistication. Unilateral U.S. technology transfer restrictions, adopted once to protect the U.S. technological edge, now act as export controls on U.S. products, giving our foreign competitors an unfair advantage in the marketplace. U.S. companies who specialize in dual-use technologies have avoided defense contracts, even when their technologically superior products could enhance U.S. weapon systems, in order to sell their products more freely both domestically and abroad.

Other problems affecting the defense industry are equally worrisome. A skilled but aging work force will leave the defense sector over the next 10 years with or without plant closings. With no new money for production, old equipment will not be replaced when plants close. The challenges of developing new technologies concurrently with new technology processes will tax the skills of depleted manufacturing and engineering teams.

Fixing the Problems

Solutions require, first, identification by sector of the critical technologies and manufacturing limitations that will affect the ability of each sector to produce modernized systems for the future. For each system within a sector, production of certain components or unique materials will normally pace the rate at which production can proceed. These "long poles in the tent" must be protected to insure our ability to design, develop and produce future systems.

Within each sector, production capabilities can further be identified as military-unique, commercial and military combined, and commercial. Solutions should focus on adopting deliberate policies to encourage commercial and commercial-military research and development and production and actions to protect critical defense-unique capabilities. Importantly, in each sector, at least one full-service prime contractor must remain in business to continue research and development of both systems and manufacturing technologies. Loss of the critical professional skills and facilities resident in full-service contractors could irreparably damage the nation's ability to restart production of older systems to either reconstitute forces or introduce new generations of systems without exceedingly long start-up times.

Three actions can help. First, improve the competitiveness of the U.S. defense industry through greater efficiency from existing capabilities. This will allow DoD to buy more with its limited dollars, as well as improve the ability of U.S. arms to compete on a cost basis with foreign manufacturers in the international marketplace. Second, fund research and development and limited production at rates sufficiently high to preserve essential engineering and manufacturing skills in at least one full-service contractor in each sector. Finally, support defense trade, consistent with national security interests, as a means to further strengthen the defense technology and industrial base.

Measures to improve the competitiveness of U.S. industry have been documented thoroughly over the past 15 years. The difficulty resides in the inability or unwillingness of government bureaucracy and Congress to enact essential changes. President Bush articulated clearly in his State of the Union address on January 28 the need to eliminate overregulation in all departments of the government. Nowhere is that more pressing than in the defense procurement arena.

The government must develop more consistent programs and stable long-range forecasts of projected funding to permit contractors to invest prudently in research and development and manufacturing capabilities within acceptable levels of risk. A restructured defense industry cannot afford to gamble on programs. Stability and increased dialog between industry and government will be essential to insuring the long-term health of a minimum industrial base.

As sectors of industry consolidate in response to the decline in opportunity for defense contracts, both the administration and Congress will need to change their thinking about the lack

of competition in industry for defense funds and perhaps accept monopolistic practices as a norm. This may be the price of doing business in a fiscally austere environment.

DoD and Army must identify and develop strategies to protect key military-unique sectors of industry, ones that have no alternative to the defense market and which would be difficult to rebuild for future demands. As technology demonstrators are developed, so must the manufacturing technologies to guarantee producibility at affordable rates. Costs to develop and maintain such a capability will seem exceptionally high as industry produces very small numbers of highly sophisticated equipment. But the alternative of developing advanced technology prototype systems with no production will lead to lengthy, expensive and initially unsatisfactory results when series production is required. Novel approaches from industry to DoD on capitalizing the restructuring for low-volume production, perhaps in conjunction with existing arsenals and depots, should receive careful attention.

Change to U.S. policy on the support of expanded defense trade would complement a renewed competitiveness of U.S. defense industries. A declaration of support for defense trade and the active intervention of U.S. officials overseas could generate opportunities for U.S. industry that have heretofore been denied. Revision to existing trade restrictions and regulations to enable responsive action by U.S. suppliers to requests from foreign buyers should accompany this policy shift.

Costs of not supporting defense exports can be significant in both economic and political terms. A recent case study on the impact of projected arms transfers to Saudi Arabia defined clearly the scope of the problem. Using conservative multipliers to compute both employment and income effects of the sales, the study compiled the projected arms transfers contained in the presidential determination of August 26, 1990, the congressional notification of September 27, 1990, direct commercial sales, and prospective sales based on a Saudi intent to purchase. Total input to the U.S. economy from both direct and indirect costs to the Saudis of the initial sales would be \$44.6 billion; the 20-year life cycle costs to the Saudis would be an additional \$80 billion input to the U.S. economy. Employment figures were projected as 832,000 man-years of effort for the initial sales and another 1,555,000 over the 20-year period. Of interest is the fact that the man-years involved in just the initial sale is 0.7 percent of the U.S. work force.

Time for Decisions

At this critical juncture in our history, key policy decisions and reforms of the bureaucracy can help protect our nation's security in an era of fiscal austerity. The solutions discussed above cannot be treated in isolation. A complex issue, it will demand consistent action in all areas concurrently from both government and industry to build a future industrial base that matches our national strategy. The guideposts are clear; the challenge is recognizing that opportunities exist now to resolve our problems. We must do more than wring our hands!

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(Col. McDonald prepared this essay while serving as a consultant in support of the AUSA Institute of Land Warfare seminar series on the defense industrial base, conducted in January and February 1992.)