CONVERTING THE MILITARY-INDUSTRIAL COMPLEX:

Why It's Difficult

Peter Horton

An examination of the unique characteristics of the management structure and modus operandi of the defense industry shows that these characteristics complicate the industry's conversion to commercial markets. This article argues that the present government initiatives to facilitate conversion through federally funded and managed technology development projects are less likely to succeed than would the infusion of venture capital for entrepreneurial investment in potential commercial projects.

INTRODUCTION

The term "military-industrial complex" was first used by President Eisenhower in his farewell radio and television address to the American people on January 17, 1961. Eisenhower acknowledged that until World War II (WWII) "the United States had no armaments industry. American makers of plowshares could, with time and as required, make swords as well. But now we can no longer

Mr. Horton has devoted his entire professional career to national defense. He served as a combat pilot in World War II and in the U.S. Air Force Office of Research and Development during the Korean War. He has held a variety of managerial positions in the Douglas Company and McDonnell-Douglas, all in the defense sector. He holds a bachelor of science degree in aeronautical engineering from the Massachusetts Institute of Technology, and an MBA from Pepperdine University. He is an alumnus of the University of Southern California Executive Program.

trust emergency improvisation of national defense; we have been compelled to create a permanent armaments industry of vast proportions...."

However, the most often quoted excerpt is one expressing his concern regarding the "military-industrial complex" and the possibility of "misplaced power." The President's words bear repeating today:

> In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist.

Eisenhower recognized the importance of a strong military establishment, but he also realized a major transition had been made during the mid-1950s from a policy of mobilization, to one of forces-in-being. The new policy called for a large standing military establishment supported by a new industrial entity — the defense industry. The Cold War impact on the defense budget was profound (Figure 1). Now there are about 5 million men and women in the military-industrial complex (down from 6.7 million in 1987), essentially equally divided between the military forces (uniformed and civilian) and the defense industry.

Since the peak spending for weapons in 1986, our military-industrial complex has been undergoing a major transition in response to markedly new world conditions. Industry was asked to beat swords back into plowshares: the buzzword now is "conversion." Severe domestic economic pressures complicated the issue. Concern for the health of the economy and unemployment in particular has brought considerable political attention to the conversion of the human skills and physical resources of the defense industry to commercial markets.

However, it is clear from recent events here and abroad that there remains a critically important role for our armed forces and the industry that supports them. This transition must be managed so as to protect the required industrial base. Additionally, the performance of the military-industrial complex in terms of missed cost, schedule, and technical goals has been unsatisfactory, requiring continued attention. Nonetheless, conversion is now a top priority issue, and we must come to grips with it.

Conversion to non-defense markets was shown to be inherently very difficult during the cutbacks of the early 1970s. Note, on Figure 2, that the 1970s cutback was, in real terms, more severe, 44 percent reduction from 1968 to 1974, than the present one, 17 percent from 1986 to 1992. However, the defense buildup of the 1980s cut short that conversion experiment. Now, while the long term outlook is typically uncertain, signs point to a substantial and more permanent downsizing.

The difficulties with conversion are inherent in the nature of the government-industry relationship. Government manages the defense industry so as to render

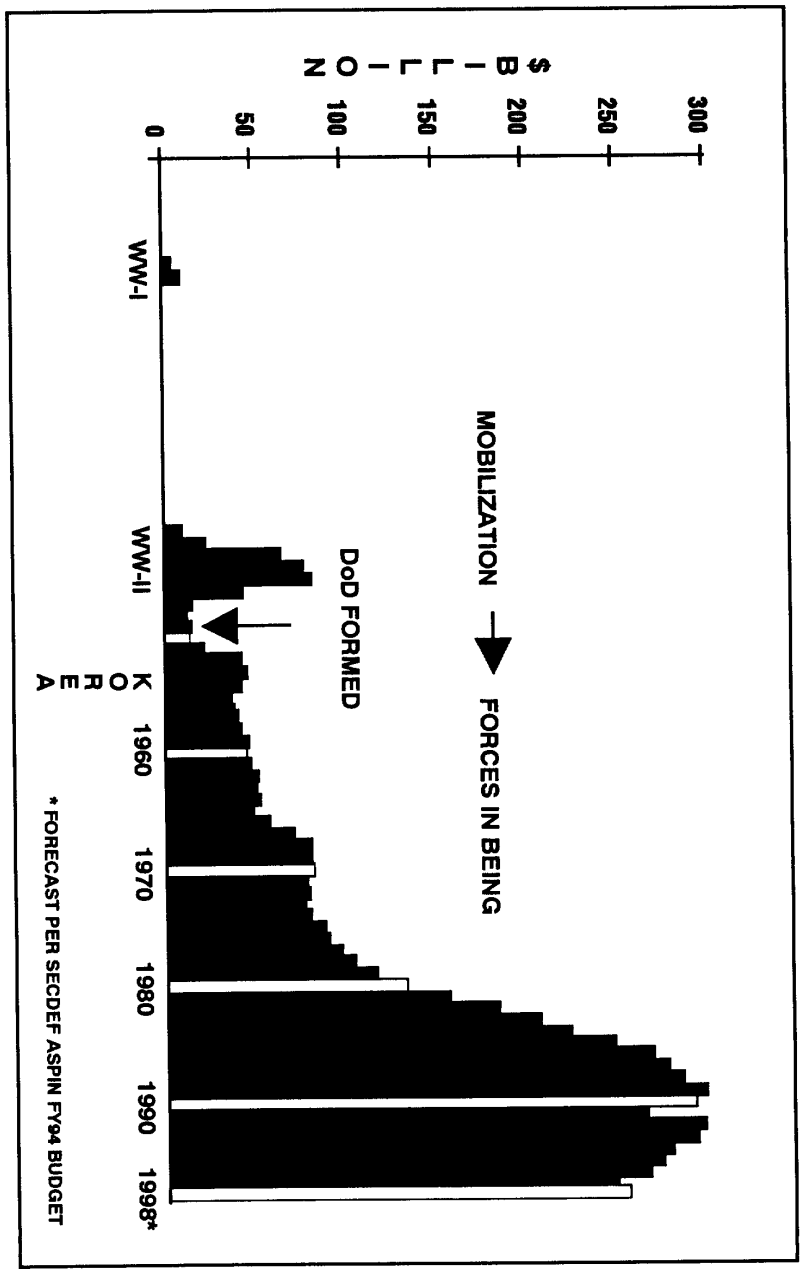

Figure 1. **Defense Outlays**

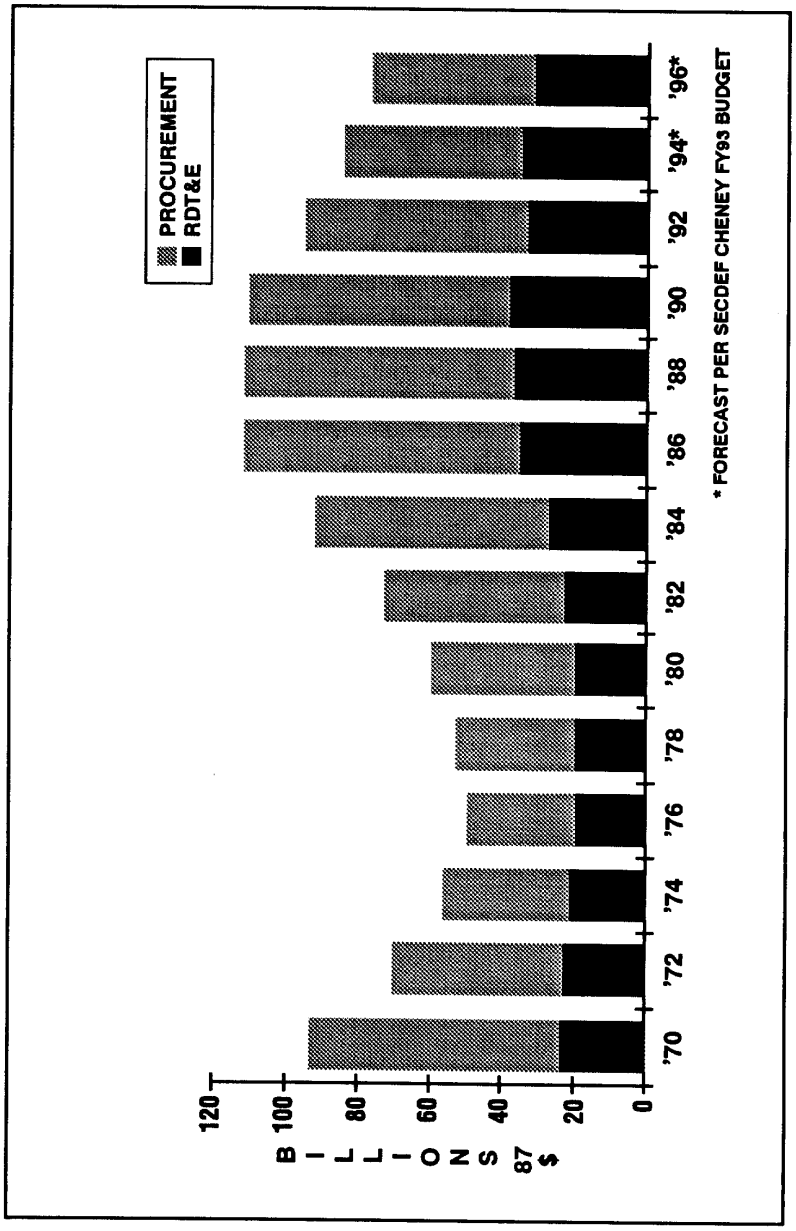

Figure 2. **DoD Weapons Outlays**

it unsuited to compete in nondefense markets without major restructuring. Effective conversion requires more than a stable of advanced technologies supported by sound design and production capabilities.

The genesis of the defense business has, as one would expect, an important bearing on its present management structure and *modus operandi.* During the mobilization buildups for WWII and the Korean War, as Eisenhower noted, the government turned to existing industrial management organizations for war production. In many cases the government provided production facilities. In some cases the government directed noncompetitive contracts to produce existing weapon designs, especially for second sources, which were typically cost-plus-a-management-fee. Generous progress payments eliminated cash flow concerns. Clearly the defense industry was not formed in the entrepreneurial style; it was formed by the government as a national security necessity. The choice of this quasi-free enterprise form instead of a nationalized arsenal system was apparently a deliberate decision, but the long term implications of the choice were not fully thought through.

During the years of the forces-in-being policy the government increasingly treated the defense industry as though it were truly investor-owned free enterprise operating in a market economy. (See Figure 3.) This misperception has contributed to many of the difficulties in the defense acquisition process, and is particularly relevant to the conversion issue.

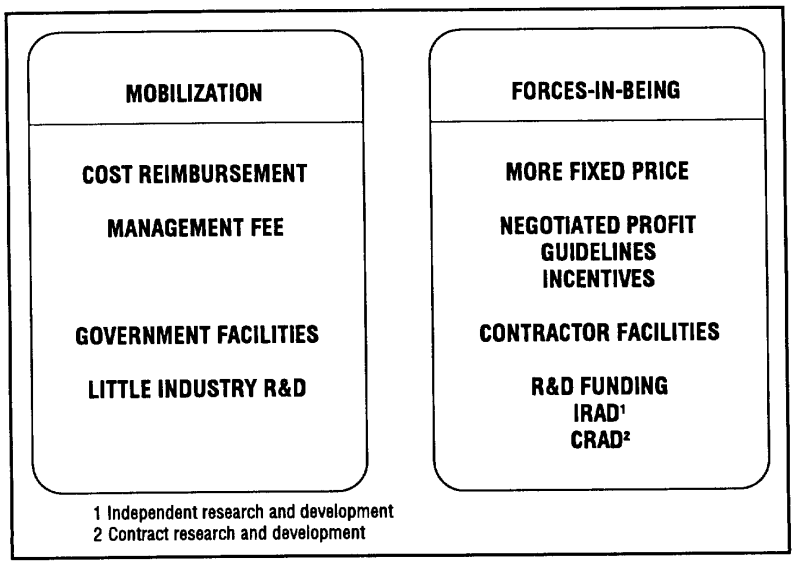

Figure 3. **Changes in Contracting and Funding Methods**

The specialized characteristics of the defense business have been pointed out by several observers over the past thirty years or so. The most significant of these characteristics are:

- One buyer, the government, rather than many;
- Few suppliers for a given system rather than many;
- Market entry difficult;
- Market exit difficult (the government is directed by law, 10 U.S.C. 148) to protect the defense industrial base;
- Prices set primarily by cost rather than by supply and demand — a holdover from the cost reimbursement policy;
- Profits controlled by the customer — a holdover from the management fee policy;
- Competition, particularly at the system level, on an "all or nothing" basis rather than market share; and, of increasing significance,
- The customer is the specifier, banker, judge of claims, and manager of all programs in all respects from start to finish.

In this atypical business, customer (government) involvement directly impacts the three major aspects of industrial activity:

- Business development
- Operational management
- Financial management

BUSINESS DEVELOPMENT

In reality, for the "big ticket" systems that have caused the most concern, the defense industry does not sell products. It contracts to provide a management service — the management of the human and physical resources required to design, develop, and produce defense systems to meet government performance specifications and in accordance with government program budgets, schedules, and management systems. The contract is a promise to deliver. The business development process is successful when a contract is awarded.

The major system contractors are continuously involved in preparing for the

next competition. This business development process requires identifying potential new program starts, and developing and demonstrating the needed technologies and other required resources and capabilities. The elapsed time from official recognition of a new military requirement to award of the first phase of a major new system start can be five years or much longer. During this time industry must perform appropriate preliminary system studies, develop the new technologies required, ensure the availability of the needed plant and equipment, and organize industry teams.

Contractors are selected competitively using a formal source selection procedure based on evaluation of detailed and voluminous written proposals. The competing contractors are primarily concerned with convincing the evaluators that they understand what the government wants done and that they have the capabilities and resources to do it — and do it the way the government wants it done.

An important ingredient in developing a strong, responsive competitive position is market intelligence. This requires knowing and understanding the customer. For the defense contractor, the customer is very complex. Industry cannot develop the required market intelligence effectively through direct contact only with the Military Service buying commands: the proximate customer. Industry also must maintain meaningful two-way communication with all elements of the Services (the using commands, the acquisition agencies, and the planners and programmers), the Office of the President, and Congress. In this context the role of Congress is critically important. Through its control of funding, Congress has direct control of the acquisition process. In the final analysis, Congress determines which programs are started or stopped, where they will be carried out, and at what pace they will proceed.

Industry has an important role in the acquisition planning process. It has a major responsibility for the estimates of technical feasibility, cost, and schedule for new programs, and has the ultimate responsibility to carry out the selected programs. Industry by necessity is a long term partner with government.

Unfortunately, the partnership is stressed because the business relationship between government and industry is adversarial. Industry must compete for new business, not only with other members of industry, but with conflicting priorities and values among the various factions within the government, the customer.

An adversarial relationship between buyer and seller is not at all unusual. Buyers in a free market are always trying to get the maximum possible for the lowest possible price. However, the commercial customer is (usually) buying an off-the-shelf product that can be seen and tested before agreeing to a price. In the case of the defense acquisition process, however, the government is (usually) buying a promise to deliver something that has not been built before. This is especially the case with new, big ticket weapon system development programs.

In short, the defense industry has designed its new business development management system to meet the very unusual demands of defense business. Such a system is not at all suited to non-defense business.

OPERATIONAL MANAGEMENT

Operational management refers to the basic industrial functions of engineering, production, accounting, and personnel. The major departures from commercial practices involve the layering on by the government of many specialized administrative and procedural controls. These are designed to ensure proper program planning and control, and ensure satisfaction of stated requirements and product quality. There are, additionally, special administrative requirements associated with security. All of these special requirements are imposed on top of all the other governmental requirements imposed by, for example, the Internal Revenue Service, the Securities and Exchange Commission, etc. They require the maintenance of many specialized management systems and procedures not required in commercial work.

Much of the "excess" cost of defense industry products has been attributed to these special requirements. Although it can certainly be argued that they are justifiable in the interest of protecting the expenditure of public funds and ensuring the availability of fully effective and reliable defense systems, they do not mix well with commercial business. Most defense contractors segregate their defense from their commercial business, either totally or in part.

A recent Center for Strategic and International Studies report found that most companies that operate in both the commercial and federal markets alter their business procedures in order to sell to the Federal Government and that the cost premium to the government can be substantial; they either physically separate some portion of their operations, or set up a separate data management system to do business with the government. Conceivably, converting defense industrial units to commercial business would require significant realignment and cultural changes.

FINANCIAL MANAGEMENT

Defense industry financial management differs in several major respects from conventional commercial practices. Three of the most significant departures from normal commercial practice are business development, profit and cash flow.

Business Development Costs

A large portion of business development costs is covered by the government in the current period. These costs are covered in two ways:

- Certain costs are allowable as items of indirect expense on current defense contracts. Included are:

— Economic Planning: This includes the costs of generalized long-range management planning concerned with the overall development of the business.

— Independent Research and Development (IRAD): This covers the costs of the contractor's R&D efforts that are not required in support of a contractually covered program.

— Bid and Proposal (B&P): This covers the costs incurred in preparing and submitting bids and proposals, whether solicited or not, on potential Government or non-Government work.

- The research, development, and test and evaluation (RDT&E) portion of the defense budget, currently at a level of about $38 Billion per year, makes Contract Research and Development (CRAD) available on a competitive basis. The CRAD contracts are available in all relevant technical disciplines and range from basic research to advanced system development.

Profit
When price negotiations are based on cost analysis, profit rates are established as part of each contract negotiation in accordance with a structured analysis.

Cash Flow
Positive cash flow is aided by certain special financing provisions:

- Progress Payments amounting to 80 percent (85 percent for small business) of the costs incurred during the period can be paid if requested.

- The Facilities Capital Cost Of Money provision establishes criteria for measuring and allocating, as an element of contract cost, the cost of capital committed to facilities assigned to the contract. (Interest payments are not allowable as contract charges.)

In summary, all of these special characteristics of defense industry structure and *modus operandi* have their origins in the policies applied during the WWII and Korean War mobilizations when it was assumed the undertaking would be relatively short-lived and no thought was given to long-term implications. The realities of the defense industry are still not well understood as evidenced by the major government initiatives to facilitate conversion.

The FY-1993 Conference Report on Defense Appropriations identifies $1,767.01 million in Title VIII — Defense Reinvestment for Economic Growth.

The Conference Report breaks this down to explain where it is contained in the Appropriations Act (PL 102-396 — October 6, 1992) as follows:

Title I -	Military Personnel ..... $	294.21 million
Title II-	Operation and Maintenance.....	120.00
Title IV-	RDT&E	880.80
TitleVIII-	Reinvestment For Economic Growth	472.00
	TOTAL ..... $	1,767.01 million

About one-half of the funds provided by this legislation is to benefit displaced military and civilian employees of the Department of Defense (DoD); Of that, the majority is for various forms of jobs training and rehabilitation. Given the current national unemployment rate it is not clear for what sorts of jobs these displaced persons would be trained.

The $880.8 million of Title IV funds are for RDT&E line items considered by Congress to have potential commercial applicability. To facilitate this part of the reinvestment program the Technology Reinvestment Project (TRP) has been established as an interagency program involving: the Advanced Research Projects Agency (ARPA), the Department of Energy/Defense Programs (DOE/DP), the Department of Commerce's National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the National Aeronautics and Space Administration (NASA). The TRP is administered by the Defense Technology Conversion Council (DTCC), chaired by ARPA. The TRP Program Information Package indicates that $471.6 million of the $880.8 million FY-1993 Title IV Appropriations (RDT&E) are available for TRP projects. There is a 1.5 percent set-aside for the Small Business Innovative Research (SBIR) program. Three statutory requirements are common: (1) all programs require competitive awards, (2) all contain certain participation and organizational requirements, and (3) all anticipate cost sharing of at least 50 percent.

On February 23, 1994, the Director of Defense Research and Engineering announced the final 50 proposals selected under the FY-1993 Technology Reinvestment Project (TRP). This brought the competition totals to 212 proposals involving 1,631 organizations for a total of $650 million in Federal funds. The announcement noted that all funding will be at least matched by the participants. More than 2,800 proposals were submitted and subjected to an "exhaustive review process."

The Administration plans to continue the TRP in FY-1994-95, investing $150-$175 million of the FY-1994 appropriation on five to seven focused technology areas to be announced in March. The balance of the FY-1994 appropriation and a portion of the expected FY-1995 appropriation will be allocated to a competition to be announced this summer.

In reality, there is not much new here. The RDT&E budgets of prior years have

contained very similar, if not identical line items, available for industry to bid on. The SBIR program has also been in place for some years. Congress has painted old programs with a new brush to give the appearance of responding to the conversion challenge. More money will be spent on bureaucratic oversight.

President Clinton's Economic Plan proposed spending $20 billion over the next five years to facilitate conversion. Whether such outlays will produce the desired results is certainly open to question.

In a November 1991 "Report to Congress on the Defense Industrial Base," DoD indicated the intent to rely on free market forces to guide the restructuring of the industrial base. The DoD stated that the ability to meet national security needs would depend on the ability of industry to switch back and forth from defense to commercial production as required.

In commenting on this intended DoD approach, the General Accounting Office (GAO), in a March 1993 report, "The Defense Industrial Base" (GAO/NSIAD-93-68), strongly questioned its viability. The GAO noted that many defense companies "lack the experience and specialized knowledge to shift to commercial production and compete successfully in commercial markets." They noted further, that to the extent companies did not make the transition and failed they could be lost from the defense industrial base.

More recently, the Los Angeles Economic Roundtable report "Technology and Jobs, Defense Conversion in the Los Angeles Area," dated February 28, 1994, reported on the results of an industry survey. The thrust of the survey was to determine how the aerospace/defense firms in the region evaluated their dependence on defense contracts, how they saw the role of government in responding to the economic impacts of defense cutbacks, and what sorts of programs were needed. From the 358 respondents there were seven major findings:

- Share of revenue from defense business grew from 59 percent in 1991 to 65 percent in 1993. This was attributed in large measure to decline in civil aircraft sales — the significant nondefense portion of sales for this group. Conversion efforts had not opened up significant new commercial markets.

- Defense conversion is important to the region's future.

- The business community is "overwhelmingly critical of efforts by every level of government to respond to defense cutbacks."

- The majority of respondents is luke-warm about collaborating with government or other firms .

- Most firms want a stable regulatory environment, availability of financing, and information about new markets.

- The respondents showed the greatest interest in strategies involving independent growth and diversification.

- The firms were generally optimistic about their future but acknowledged that they had not had a good record in predicting their own growth or decline.

The technical and managerial capabilities in the defense industry are without question. The industry also owns impressive laboratory and production facilities, indeed an impressive and valuable national resource. If it is no longer needed at full strength, what should be done?

The answer is: It should, in part, be replaced — not converted. We should not try to put commercial work in General Dynamic's Electric Boat Division or in FMC's Ground Systems Division. These are representative of the many highly specialized operations now responsible for defense programs. They, and others like them, are still required in the defense industrial base that, because of inadequate government policy planning, has already been badly eroded in some critical specialties.

The preferred role of government is to continue the effort to ensure a generally healthy, expanding economy, and, as noted above, simplify and stabilize the regulatory environment.

In such an economic environment the provision of venture capital is much more likely to produce viable new commercial business enterprises, and expand the economy, than is a federally funded and bureaucratically planned technology development program. Some ventures will fail; some will succeed — that is fundamental to the strength of the free market system. The history of our economic development vis a vis that of the former Soviet Union should remove all doubt about that principle.

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