

Challenges Confronting the Defense Industry Today

To Become More Competitive
Often Requires Painful Changes

BARRY G. CAMPBELL

Similar to many other industries, rapid changes have been the common denominator during the past decade in the defense industry, which is significantly smaller today than it was during the mid-eighties. I would suggest that two events were the primary causes for the radical “roller coaster” effect that we have seen and are continuing to experience in the defense industry.

First — Competition in Contracting Act (CICA)

The first of these two events was the enactment of the Competition and Contracting Act (CICA) in 1984. Most large aerospace companies began to experience real challenges for follow-on procurements, which had often been awarded on a sole-source basis prior to CICA. At Vitro, we saw our sole-source awards during the past decade almost entirely dissipate from more than 80 percent of our business. Competition caused us to reexamine how we did business and to begin implementing changes in our organizations, which in many instances were painful, to become more competitive. This, more than anything, has brought about a cultural change within our company.

Campbell is President and Chief Executive Officer of Vitro Corporation and Corporate Vice President of Vitro's parent company, Tracor, Inc. Vitro is a diversified systems and software engineering company that provides engineering services for major weapons, space, and intelligence programs for U.S. and international governments. Vitro, with headquarters in Rockville, Md., is the largest subsidiary of Tracor, Inc., of Austin, Texas.



Second — Demise of Soviet Union

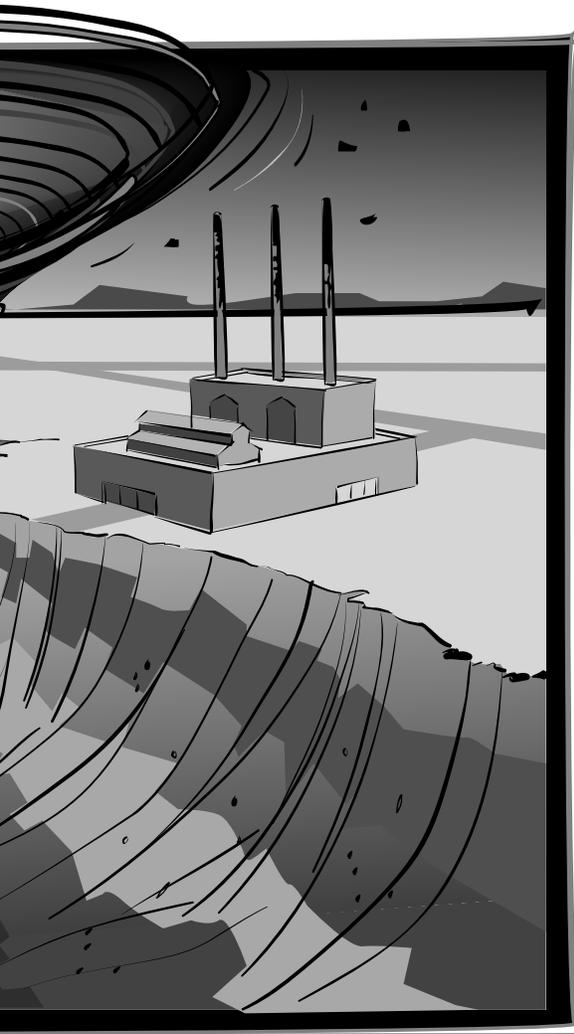
The second most significant event of the past decade has been the demise of the Soviet Union. Ten years ago, I would submit that very few of us would have expected the Soviet Union to dissolve and the Iron Curtain to come down as rapidly as it did. With the end of the Cold War came a new world order. We had:

- new national security challenges with a radically different threat that caused the reassessment of our entire Defense Strategy;
- a threat that is more tactical and less strategic;
- the need to more rapidly respond to localized threats;
- no need for as large a military force; and

- an opportunity to significantly reduce the Defense budget.

Declining DoD Budgets

While the total defense budget has declined more than 35 percent since 1985, the Procurement-related portion of the budget has dropped more than 74 percent, resulting in the need for far fewer ships, aircraft, tanks, and missiles than we were geared to provide. With readiness gaining in relative importance, the reductions in the Operation & Maintenance



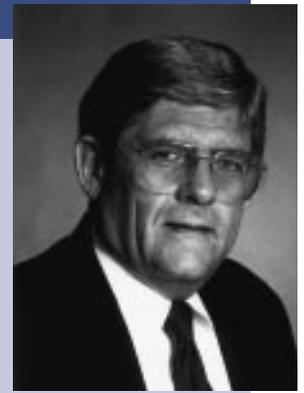
portion of the budget were less severe. It now appears that if President Clinton's budget is accepted, we won't see an increase in the Procurement portion until FY98 at the earliest.

Today, we have an environment in the acquisition process where there will be a few well-chosen new systems rather than many new systems; new systems

BARRY G. CAMPBELL

President and CEO Vitro Corporation

Barry G. Campbell is President and Chief Executive Officer of Vitro Corporation and Corporate Vice President of Vitro's parent company, Tracor, Inc. Vitro is a diversified systems and software engineering company that provides engineering services for major weapons, space, and intelligence programs for U.S. and international governments. Vitro, with headquarters in Rockville, Md., is the largest subsidiary of Tracor, Inc., of Austin, Texas. Previously, Campbell was Executive Vice President (EVP) and Chief Operating Officer and had served as EVP for Corporate Technology and Development.



Campbell joined Vitro in 1970 as a systems engineer in the Fleet Ballistic Missile program, supporting the POLARIS and POSEIDON mechanical interface control projects. A year later he was promoted to the first of a series of supervisory positions, and his role was expanded to include engineering work on the [then] new TRIDENT strategic weapon system. Beginning in 1974, he also supervised a project for the Postal Service that involved the development of design specifications, design disclosure packages, and operation and maintenance documentation of mail processing equipment.

From 1979 until 1986, Campbell held management positions at the department level. He was initially responsible for the management of systems engineering tasks for the Federal Aviation Administration and for clients in the Navy's systems commands, laboratories, and field activities. He later led projects involving comprehensive engineering and program management support for the Navy Command and Control System, its communications links and intelligence nodes, as well as for an array of other strategic and tactical communications systems.

As a branch Vice President from 1986 to 1988, Campbell managed all Vitro systems engineering, systems integration, and integrated logistics support to the Navy Fleet Ballistic Missile and Strategic Weapon Systems programs. Following his promotion to Senior Vice President in 1988, he had responsibility for anti-submarine warfare/undersea warfare and Army signals intelligence/electronic warfare contracts as well as Navy strategic systems programs for four years.

Before starting his Vitro career, Campbell earned a B.S. in Mechanical Engineering from Drexel University and worked for the Naval Nuclear Power Department of the New York Shipbuilding Corporation. He also spent several years as a project engineer and program manager with the Central Intelligence Agency.

Campbell is a director and member of the Board of Directors of the American Electronics Association. He also serves as the Chairman of the Software Productivity Consortium; a director of the American Defense Preparedness Association; the Armed Forces Communications and Electronics Association; the Professional Services Council; and the Software Productivity Consortium. Campbell is on the Board of Governors of the National Space Club, serves on the Advisory Council of the Chancellor of the University of Maryland Systems, and is a member of the Drexel University General Alumni Association's Board of Governors. His leisure interests include golf, snow skiing, and sailing.

Originally from Atlantic City, N.J., Campbell now makes his home in Bowie, Md., with his wife, Margaretanne. They have four grown children.

will be affordability-driven rather than technology-driven; more Joint programs rather than single-Service programs; more dual-use technologies with Commercial Off-The-Shelf/Nondevelopmental Items (COTS/NDI) rather than military-unique technologies; and systems where technology will be inserted rather than invented.

The result of these budget reductions and acquisition process changes is that industry had to diversify and convert to the new ways of doing business. The problem for many of us was that we were unable to diversify as quickly as we would have liked to have done. It also resulted in a significant overcapacity of the Defense Industrial Base.

Overcapacity "Death Spiral"

The overcapacity of the industrial base created a "death spiral" for many businesses. DoD budget reductions started the "death spiral" in companies by initially causing declines in revenue. Declining revenue in turn led to an overcapacity in companies' fixed assets (buildings and equipment), which meant higher overheads despite actions taken by companies to reduce their indirect costs. These higher overheads caused companies' competitive positions to quickly erode. In this death spiral, earnings decline, and companies are less able to invest in future initiatives because they are less attractive to the financial community (e.g., banks and venture capitalists). When a company gets caught in this spiral, something needs to be done; otherwise, the company will simply be forced to go out of business because it loses its lines of credit and can no longer service its mounting debt.

There were many solutions recommended to resolve these problems confronting in-

dustry. Some thought that there should be a national policy to preserve the defense industrial base. Many said that those in the defense industry should commercialize their operations. The former is not a very good idea when one thinks about the bureaucratic nightmare that would engulf these companies, and the latter is extremely difficult to achieve without a huge investment in resources and people or in acquisition. How then did industry deal with the overcapacity problems that eroded earnings and made competing more difficult?

Industrial Base Consolidation

The natural forces of the marketplace provided the solution to the overcapacity problem of the industrial base by causing a rationalization of the industrial base to begin. This rationalization manifested itself in the many corporate mergers and acquisitions we've seen in recent years in the aerospace and defense industry. Rationalization has enabled companies to reduce their excess capacity and build a critical mass within their newly structured organization that would allow it to compete more effectively. Almost all of the big aerospace companies have been and continue to be active in both mergers and acquisition to resize industry to match the defense portion of the federal budget.

Undoubtedly, Lockheed Martin leads the defense industry in acquiring companies in recent years. Prior to merging with Lockheed, Martin Marietta acquired GE Aerospace which itself had earlier acquired RCA's aerospace operations. Lockheed had acquired GD Convair and Sanders before it merged with Martin Marietta. Even Loral, which was acquired by Lockheed Martin this past April, was very active with relatively recent acquisitions of Ford Aerospace, IBM Federal, and Unisys Defense and Aerospace units. As a result of these mergers and acquisitions, Lockheed Martin is reducing its overcapacity and has emerged as a highly competitive and powerful force in the defense industry today.

But Lockheed Martin hasn't been the only large aerospace company involved in acquisitions in recent years. Litton, Grumman, Northrup, Hughes, Raytheon, to name a few of the larger aerospace companies, have all acquired or merged to form a more solid foundation to compete effectively in the dwindling defense market.

General Dynamics, on the other hand, reduced its overcapacity while adding shareholder value by divesting itself of many of its defense assets to its former aerospace competitors, such as Lockheed.

Burdened Acquisition System



Tracor's Experiences

Even smaller defense companies, such as Tracor, which acquired Vitro in 1993, have used acquisitions as their primary strategy to grow their base of operations. Five years ago, Tracor was rebounding from bankruptcy and had annual sales of approximately \$250 million. Today with its acquisition of Vitro, and subsequently GDE Systems and AEL Industries, Tracor's 1996 revenue is expected to exceed

\$1 billion, and the company has emerged as the fastest growing major defense electronics firm in the United States.

In this process of acquiring companies, Tracor restructured itself and the companies it acquired to improve the synergy among its various operations. I spent the better part of a year during the time prior and subsequent to Tracor's acquisition of Vitro ensuring that the acquisition was successful. Facilities were consolidated, and excessive space was eliminated wherever possible. At Vitro alone, we eliminated more than 400,000 square feet in the past three years as we have consolidated many of our operations with other Tracor operations to reduce our costs and improve our operational efficiency. Administrative operations were reengineered and consolidated resulting in significant reductions to overheads. Almost 50 percent of our overhead staffing has been reduced to help us get our indirect rates into a highly competitive position. At Vitro alone, we reduced \$40 million annually from overhead resulting in savings to the government and making Vitro more competitive and profitable, which are the objectives of Tracor's shareholders.

Although Tracor has been successful in implementing its strategy of protecting core business, and expanding and diversifying into other businesses, its acquisitions of other companies during the last three years have been the major contributor to its impressive rate of growth and increased competitiveness.

Survival of the Fittest

The overcapacity of the industrial base problem is being alleviated in large part by the consolidation of companies. There are more than a million fewer employees working in the defense industry today than there were during the mid-eighties as a result of the significant reductions in the defense budget, especially in the Procurement Budget. Mergers and acquisitions will continue for the foreseeable future because it is a proven way to grow a business and to succeed in today's defense environment. Chief Executive Officers are spending considerable amounts of their time conducting due

diligence in the merger and acquisition process, and in downsizing and consolidating operations than ever before. The defense industrial base is vastly different today than it was a decade ago. You can bet that it will be significantly different a decade from now. We are in an environment where only the fittest and most competitive will survive.

Industry Challenges

What does industry need to do to not just survive, but to grow its businesses in a profitable manner? To be successful, companies must have the foresight to stay ahead of the pack in a marketplace that frequently puts too high a premium on low price. Companies in our business must have the agility to deal with "unpredictable unknowns" such as the uncertainties we face today due to Base Realignment and Closure (BRAC), National Performance Review, downsizing, and program reductions and cancellations. Companies must aggressively expand and diversify into non-DoD markets, be they other federal agencies, state and local governments, commercial, or international markets.

Companies must also strive to maintain excellent customer relations, by putting their customers as their first priority. From my point of view, this means that we must provide quality products and services on time and at reasonable prices. Prior to CICA, good work resulted in more work. In today's environment, good work enables companies to re-compete for their own work every three to five years depending on the period of performance of their incumbent contract. To stay ahead of their competition, it is essential that companies strive for continuous process improvement in order to provide products and services faster, better, and cheaper to their customers.

Although there has been an erosion in the compensation and benefits provided to employees in our industry in order to survive during these difficult times, companies must find ways to not just attract superbly qualified employees into our industry, but also to retain these employees in order to be successful well into the next century. I submit that this

has become a major challenge since new graduates do not consider today's aerospace and defense companies to be attractive employers. The reduced demand for scientists and engineers will undoubtedly result in a reduction in the number of students who will be pursuing these disciplines in our colleges and universities in years to come.

Need For Alliances

Another very important element in successfully protecting core business, and expanding and diversifying into new marketplaces, is to form strategically important alliances with companies already well positioned in the marketplace. With the onslaught of competition, the reduction in defense spending necessitating the need to streamline operations by our customers, and the continual changes in customer organizations caused by BRAC and other downsizing initiatives, industry, especially companies in the professional services industry, has seen more of its efforts consolidated into larger omnibus-type contracts in order for the government to cut back on the costly and time-consuming effort involved in competing, awarding, and administering contracts.

In order to retain its core business, Vitro enters into key teaming agreements or joint ventures to pursue contract awards, which is a key reason why Vitro has increased the amount it has subcontracted to other companies by tenfold during the past decade. In addition, the swell in the amount subcontracted to other companies resulted from a noticeable increase in recent years in the amount of small, small-disadvantaged, and women-owned businesses subcontracting required in government solicitations, which creates the need for large businesses to form key alliances with various small businesses that have strong credentials in the marketplace or with the customer being pursued. Undoubtedly, the trend toward more teaming will continue as companies attempt to forge the strongest teams to pursue highly competitive opportunities.

Acquisition Reform Initiatives

The end of the Cold War and the declining defense budgets caused federal

government agencies to relook at how they acquire goods and services from industry. Indeed these reforms have been essential in order to fulfill necessary requirements with fewer resources than in the past.

The use of commercial products and practices rather than military-unique products and services is undoubtedly one of the most significant changes in our defense environment. It used to be that the government knew best how to purchase the items and services needed to fulfill its requirements, but it is now relying more on the use of commercial best practices for its procurements.

To take advantage of new technologies and to extend their service life, COTS hardware and software are being introduced into mature systems. This new approach defers the development and implementation costs associated with bringing new systems online. This is all being done at lower costs and, frankly, is significantly impacting the way the defense industry operates today.

Is The Acquisition Process Really Getting Better?

During the past few years, Congress and Executive Agencies have spent considerable time attempting to improve the acquisition process. With many of the changes only recently being incorporated into Federal Acquisition Regulations, only time will tell whether or not the changes will yield the desired results. It is clear, however, that the process needed to be overhauled to meet future requirements in an environment with fewer and continually dwindling resources. The goal is for DoD to become a world-class buyer using the techniques similar to those being employed by today's most successful commercial companies.

Emphasis on Past Performance

One area receiving a great deal of attention has been the source-selection process, which is where industry and government usually interface with each other for the first time on a specific acquisition. We already have begun to see the increased emphasis on past performance in the source-selection evaluation criteria, which is a good, common sense measure to implement. At this point, some agencies have evolved a more effective past performance evaluation process than others, but clearly all government seems to be moving in this direction.

Of concern to industry, however, is the database that government agencies are attempting to develop on contractors' past performance for use in future proposal evaluations. There still seems to be a great deal of uncertainty in contracting activities on exactly who will furnish the data that will be implemented into this database. We find that it is difficult to accurately maintain a database on all of the tasks under all of the contracts we perform for the federal government. Maintaining an accurate, up-to-date database on contractors' performance under complex contracts is going to be a great challenge to the military agencies. While industry is supposed to have an opportunity to review this database, how will

information in the database contested by industry be handled? Will disputed data in this database still be used in source selections? Will the database lead to more protests? I believe that if this is not managed well, it could become a more contentious issue in time with the increased emphasis on past performance.

Improving The RFP Process

Technology is playing a bigger role in this phase of the acquisition process. Electronic Data Interchange is helping to streamline the Request for Proposal (RFP) process, especially in small purchases. So too is the use of oral technical proposals helping to streamline the process. We have had several experiences with oral technical proposals and found that oral proposals can be a very effective way to reduce the amount of Bid & Proposal cost incurred in pursuing an opportunity, if the oral proposal requirements are properly structured. On the other hand, we have encountered requirements for oral proposals that significantly increased our Bid & Proposal expense due to the requirement to conduct inordinately long oral presentations.

In the future, more use of teleconferencing should be considered as a way to improve the discussion process by having more face-to-face discussions through the use of teleconferencing. More discussions should lead to a better understanding on the part of all parties in the pre-award phase, which should benefit both parties subsequent to contract award. Teleconferencing can also save expensive travel costs that are often incurred during discussions.

More Reform is Needed

Although much has been done recently to enact legislation to improve the acquisition process with passage of the Federal Acquisition Streamlining Act

Changing Acquisition System



DEFENSE SYSTEMS ACQUISITION MANAGEMENT PROCESS CHART

Paul McIlvaine

of 1994 and the FARA, the implementation and cultural shifts necessary for these changes to really take hold will take more time to occur. But those improvements legislated thus far were needed, and the process to streamline the acquisition must continue. Source selections still take too long and need to be improved. Pre-qualifying bidders would appear to be a valuable step to save both government and industry precious resources. The Federal Aviation Administration (FAA) is implementing a new acquisition process intended to significantly improve FAA contracting. It is important to closely monitor the FAA experiences with this new acquisition process and find ways to implement similar practices into the Federal Acquisition Regulations where improvements are achieved.

I believe that Congress will keep looking for ways to make bureaucracy more efficient after the upcoming elections in November. Acquisition reform will continue to be an attractive candidate for reform, so it's likely that Congress will remain intimately involved in acquisition-related matters. The key to the success in empowering individuals in buying agencies to make the process better is whether or not Congress will trust these individuals in the Executive Branch of government to make acquisition decisions. There is always going to be a need for accountability when federal, state, or local tax funds are involved, but will the risktaker who fails be publicly humiliated by Congress and the media? The new system provides for more latitude and risktaking, but success will depend on the reactions when things go wrong.

Conclusion

In summary, the problems, issues, and challenges confronting industry are the same as the problems confronting the military agencies. It is essential that DoD and industry continue to forge a solid partnership to deal with the various acquisition-related issues and not address these issues in an adversarial manner. Only when there is mutual trust, cooperation, and even collaboration between all levels of DoD and industry will the process truly succeed.

The DSMC Defense Systems Acquisition Management Process Chart has been recently updated, based on the March 15, 1996 promulgation of DoDD 5000.1 and DoDR 5000.2-R. This marks the fifth evolution of this highly successful chart that has been distributed to over 40,000 students and members of the acquisition community to date. First published in the January-February 1986 issue of *Program Manager Magazine*, the chart is used as an integration aid in many of our DSMC Courses. It has also been used by the Air Force Institute of Technology; Army Logistics Management College; Army Engineer School; Air Force Operational Test and Evaluation Center; University of Maryland; Computer Science School at Fort Gordon; University of Southern California; and the Industrial College of the Armed Forces (Senior Acquisition Course).

The chart is designed to serve as a convenient roadmap of acquisition functions throughout the systems life cycle. Based on policies and current best practices, the chart summarizes (in time sequence) the key events, activities, players, and documents used throughout the systems life cycle.

A DSMC Process Action Team, representing the government acquisition disciplines, completed this effort and consisted of the following:

Paul McIlvaine — Team Leader

Bill Bahmaier	Don Fuji	Bill Motley	Barry Eller
Chuck Cochrane	Paul McMahan	Frances Valore	George Prosnik
John Claxton	John Horn	Art Dehnz	Paul Sabina

Shortly, the College plans to put the chart online as part of its DSMC Home Page on the Internet (<http://www.dsmc.dsmc.mil>). Government personnel interested in obtaining a copy of this chart may send a written request to the following address:

DEFENSE SYS MGMT COLLEGE
ATTN AS PR
9820 BELVOIR RD
SUITE G38
FT BELVOIR VA 22060-5565

Government personnel may also telefax their requests on official stationery to (703)805-3726.

Nongovernment organizations and employees may order the chart by contacting the Government Printing Office (GPO) at (202) 512-1800. Request GPO Stock No. 008-020-01402-8. Telephone credit card orders can be made 8 a.m. to 4 p.m. eastern time, to (202) 512-1800. Orders can be telefaxed 24 hours a day to (202) 5612-2250.

Should you have any questions regarding the chart or how to obtain a copy, please call the DSMC Press (703) 805-3065 or DSN: 655-3056.