
EXECUTIVE SUMMARY

Civil-military integration (CMI) lies at the core of current DoD efforts to reduce the costs of procuring and maintaining modern weapon systems. Results from this new and controversial approach are beginning to appear for several programs. This in-depth analysis, based on extensive interviews within government and industry, concludes that:

- Trends in DoD market shares for military-relevant avionics parts, together with supplier base shrinkage and obsolescence issues, indicate that the use of commercial-grade parts will increase dramatically whether or not a comprehensive CMI strategy is already in place. This conclusion is strengthened by the observation that many improvements in military avionics capabilities are being driven by the information revolution. Commercial firms are at the forefront of advances in information technology, making effective utilization of the civilian industrial base an important national security priority.
- Evidence from a case study of radio-frequency/microwave military avionics systems suggests that often commercial-grade parts, components, processes, and design elements can be successfully inserted without degrading system performance. Systematic insertion of commercial parts and technologies, combined with dual-use automated manufacturing processes, is also likely to reduce research and development (R&D) schedules and significantly reduce the costs of at least some types of military avionics modules. However, concerns remain about their long-term reliability and durability.

- A CMI strategy for military avionics cannot simply involve substitution of a few electronic components. Experience indicates that successful CMI may require that contractors be granted greater configuration control and change authority not only during the R&D phase but throughout the life-cycle of the weapon system. This raises the potential for a fundamental change in the role of the contractor and the current military depot system. More analysis is needed.
- Current DoD policy on procurement of “commercial items” does not reflect the true variety and complexity of commercial contract arrangements. What constitutes “commercial business practice” differs depending on the characteristics of the product and product market considered. In markets for complex, customized products, the most innovative commercial buyers and suppliers are increasingly establishing long-term partnerships (strategic supplier alliances) that involve extensive information sharing (including cost data) and flexible adjustment of price targets rather than strict firm-fixed-price contracts.
- Analysis of the commercial transport aircraft industry suggests a set of mechanisms relevant to the Department of Defense (DoD) that can lead to lower costs, reduced cycle times, and higher-quality items. These include the “must cost” approach to contracting, supplier base reduction, increased sharing of information and risk between buyers and suppliers, and greater outsourcing of life-cycle system support services to original equipment manufacturers. An important caveat remains the desirability of military programs to incorporate less mature, higher-risk technologies, which are largely avoided in the commercial market.
- Case studies of several military pilot programs that use key elements of the commercial approach reveal that a commercial-like acquisition strategy can be applied to military-unique items and that significant benefits, particularly in terms of production price, can be achieved. In three munitions programs examined that used CMI, the likely acquisition prices appear to be considerably less than half of what they would be in a traditional military procurement program, and operational performance capabilities appear to be meeting or exceeding original

requirements. Most of the savings are the result of requirements reform, commercial parts insertion, and contractor ownership of and responsibility for design, technical content, performance, reliability, and price. These encouraging results indicate that similar reforms should be pursued aggressively in other DoD programs.