

LEAD SYSTEMS INTEGRATORS: A POST-ACQUISITION REFORM RETROSPECTIVE

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This article explores concerns about the mid-1990s Acquisition Reform notion of partnering with industry. Design Agent, Lead Systems Integrator, and Total System Performance Responsibility roles were conveyed to companies charged with system design, technology development, and funds allocation, while balancing cost, schedule, and performance goals for program success. Although these arrangements arose from noble intentions, recent critics have posited that they have driven cost growth and have weakened DoD's ability to coordinate and control acquisition programs. The author infused real-world phenomena with elements of economic transaction cost theory and network theory to make recommendations about future optimization of roles.

Keywords: *Acquisition Reform, Cost Growth, Industry, Design Agent, Lead Systems Integrator (LSI), Total System Performance Responsibility (TSPR)*

balancing

Funding Allocation

Acquisition Reform

design agent

balancing
cost
technology
development
system design

INDUSTRY

cost
growth

Funding Allocations

technology development

Schedule
Performance

system design

Goals

LEAD SYSTEMS INTEGRATOR

system performance capability

design agent



LEAD SYSTEMS INTEGRATORS

Multibillion-dollar acquisition challenges, such as those confronted by the Navy's Littoral Combat Ship program and the Army's Future Combat System, have sharpened public focus on the Department of Defense (DoD)'s ability to manage programs and control costs. This has triggered concerns about initiatives brought into vogue more than 10 years ago, prompted by mid-1990s Acquisition Reform-type thinking about fresh environments in which efficiency and effectiveness can flourish.

One such notion from that era embraced the philosophy of "partnering with industry." Titles such as Design Agent, Lead Systems Integrator, and Total System Performance Responsibility were bestowed upon private companies entrusted with broader, more influential roles than ever before. These involved system design, technology development, acquisition, and funds allocation—all the while balancing cost, schedule, and performance goals to ensure program success.

Acquisition Reform in Retrospect

Acquisition is among the most "reviled, reviewed, and reformed" activities of government (Besselman, Arora, & Larkey, 2000, p. 423). With more than \$314 billion at stake annually (GAO, 2008), DoD programs understandably attract scrutiny. Ideological changes come with new Presidential administrations and prompt policy swings, often from one extreme to another. Under the Obama Administration, the recently signed Weapon Systems Acquisition Report Act of 2009 aims to bolster DoD's workforce, increasing systems engineering and program oversight.

In contrast, the mid-1990s vision of Acquisition Reform aimed at achieving efficiencies. Diminishing post-Cold War budget realities led to the Federal Acquisition Streamlining Act of 1994; this was advanced by subsequent legislation. DoD implemented the Clinger-Cohen Act of 1996, the Federal Acquisition Reform Act of 1995, and the Government Results and Performance Act of 1993 in accordance with Office of Management and Budget (OMB) Circulars A-130 and A-11. One key assumption of these reforms was that cost efficiency could be improved by using contractors more effectively—sometimes in more powerful roles than ever before.

Background

Within the military services, different terms are used to describe this business arrangement. "Lead Systems Integrator" (LSI) appears across the Services, but is most heavily used by the Army. The LSI concept was first manifested in a 1997 contract with Boeing for National Missile Defense, a complex system of systems. Boeing's scope transcended that of a typical prime contractor. It involved concept definition, overall

systems engineering and integration, and leadership of Integrated Product Teams (IPTs). According to Gholz (2004), subsequent LSI contracts were awarded to Boeing for essentially masterminding equipment vital to future operational capability. Similarly great expectations were conveyed to the Boeing-Science Applications International Corporation (SAIC) team on Future Combat Systems (FCS).

Within the Navy, “Design Agent” connotes responsibility for systems design and development. This entails generating requirements, developing technology, leading systems integration, allocating resources on behalf of the customer, managing supply chains, and conducting testing and validation—sometimes all the way through Low Rate Initial Production (LRIP). The Navy sometimes uses “Design Agent” and “LSI” interchangeably.

Within the Air Force, “Total System Performance Responsibility” (TSPR) emerged in contract clauses in the 1970s. In 1999, the Air Force chartered a TSPR working group, whose recommendations led to certain contractors taking responsibility for design, configuration, and requirements solutions, as well as accountability for fielded systems. White (2001) characterizes TSPR as encompassing: (1) integration of the aircraft, its subsystems, and all components (hardware, software, data), whether provided as Government Furnished Property (GFP) or acquired commercially, and (2) assurance that the system will meet specifications. Example programs include the F-117 and the Space-Based Infrared System High.

Irrespective of nomenclature differences, by the late 1990s, the Services had begun to shift more development and systems engineering work to the private sector. Under traditional acquisition strategies, DoD procured various weapons, components, and platforms, and then combined and refined them, eventually achieving operational capability. Influenced heavily by the post-Cold War “peace dividend” aimed at reducing spending on procurements, facilities, and people, however, new strategies called for DoD’s issuance of a Statement of Objectives (SOO). Then qualified industry partners could derive technical specifications and determine how to allocate Research and Development (R&D) and procurement funds. This was predicated on the notion that industry possessed the broad technical and programmatic knowledge needed to meet cost, schedule, and performance objectives—and was strongly motivated to do just that.

Although this model was favored for its consistency with business transformation efforts, it drew criticism. For instance, the Defense Science Board (2002) assessed systemic causes of cost overruns, schedule slippages, and capability shortfalls, and pointed to a “hollowing out” of organic systems engineering capability within DoD. Others voiced concerns over the increasingly blurred lines between government and industry.

Blurring the Lines: Partners and Primes

When contractors are enlisted to work in ways that depart from tradition, organizational roles require redefinition. Rainey (2003) extended the typology by categorizing different economic sectors not merely as public or private, but as mixed, intermediate, or hybrid, noting that many private, for-profit companies work with government in ways that transcend normal boundaries. For example, early news releases for the FCS team touted Boeing and SAIC not as contractors, but as full-fledged government partners.

While the idea of productive public-private partnerships is appealing, lines of demarcation between “inherently governmental” and “commercial” activities need to be thoroughly understood. Circular A-76, published by the Office of Management and Budget (OMB, 2003), states:

An inherently governmental activity involves: (1) Binding the United States to take or not to take some action by contract, policy, regulation, authorization, order, or otherwise; (2) Determining, protecting, and advancing economic, political, territorial, property, or other interests by military or diplomatic action, civil or criminal judicial proceedings, contract management, or otherwise; (3) Significantly affecting the life, liberty, or property of private persons; or (4) Exerting ultimate control over the acquisition, use, or disposition of United States property, [including] collection, control, or disbursement of appropriated and other federal funds. (p. A-2)

OMB Circular A-76 does permit private firms to engage in activities involving discretion, provided that the firm holds no decision-making authority, but instead develops options and implements actions under government supervision. Similarly, under the 2008 National Defense Authorization Act (NDAA), DoD may contract for acquisition support on major systems development and production, provided that the contractor performs no inherently governmental functions and makes no decisions on technical performance. The 2009 NDAA calls for policy standardization on inherently governmental functions and potential conflicts of interest.

Therein lies the challenge, of course: Consistent policy implementation is difficult under the best of conditions. It is daunting in highly complex, high-dollar acquisitions involving systems of systems. Numerous analysts have sounded alarms over the “hollow state,” or its inability to convey sound technical direction to contractors (Crawford & Krahn, 1998; Kettl, 1988; Milward, 1996). This often culminates in cost overruns, performance problems, and recurring ambiguity regarding responsibilities.

Concern over casting contractors in non-traditional, influential roles had escalated by 2007. Then-Secretary of the Navy Donald Winter voiced

discontent with current business practices, stressing the erosion of engineering expertise within the Navy and over reliance upon contractors. He also criticized the Pentagon for its failure to understand competitive pressures and Wall Street expectations. Winter's speech, delivered while the Navy was renegotiating its Littoral Combat Ship contract with Lockheed Martin, stressed that the LSI should be a DoD entity, not a contractor (Castelli, 2007).

The 2008 NDAA contained language barring the award of new LSI contracts after FY 2010; with few exceptions, it prohibited such arrangements for programs beyond LRIP. The NDAA for 2009 specifically forbids the award of an LSI contract for LRIP or full-rate production of major elements of the FCS program. Given these stipulations, it is clear that partnerships with industry, once believed to boost efficiency and effectiveness, are now destined for the history books.

Review of the Literature

The author found few quantitative analyses of Design Agent, LSI, or TSPR arrangements; most were qualitative in nature. White (2001), for example, assessed the value of TSPR in Air Force acquisition strategies using multiple case studies and self-reported data. White reported that one program office realized \$1.2 billion in cost savings over a 10-year period; they cited manpower reductions, competition, and contractor innovations, but provided no substantiation. Still, White concluded that TSPR arrangements could produce cost savings, but stated that TSPR impact on program performance remained unclear.

Flood and Richard (2005) authored a qualitative study of the LSI experience of the Army FCS program. They compared the LSI model to DoD's traditional program office model, weighed the pros and the cons of each arrangement, and suggested strengthening processes, clearly defining program objectives, and instituting a success-oriented culture. Similarly, Gholz (2004) presented a qualitative assessment of LSI arrangements, cautioning governments against over-centralization of acquisition activities. Gholz also warned against possible abdication of leadership responsibility and the atrophying of the government's technical competency.

Considering alternative DoD acquisition arrangements more broadly, other studies have endeavored to augment qualitative data with numbers. In an examination of Defense Acquisition Pilot Programs (DAPPs), Reig (2000) baselined the initial state, identified changes, and measured their impact. Reig combined cost and schedule metrics from Selected Acquisition Reports (SARs) with performance data from test reports of Acquisition Category (ACAT) I programs prior to Acquisition Reform. He

contended that DAPPs could not be meaningfully compared to “standard” programs unless they were developed contemporaneously.

Literature on the general contracting-out debate was abundant; some of it delved into the quantitative. Globerman & Vining (1996) attempted to calculate the cost of contracting out. The Government Accountability Office (GAO) has conducted numerous cost comparisons, but reported in 2008 that data are generally inconclusive. GAO (2007) reported that, although DoD maintains data from competitive sourcing (i.e., A-76) efforts, the number of competitions is small, and results may not be generalizable. Other studies include Smith & Smyth (1996), who addressed accountability in contracting, and Miles and Snow (1992), who identified drawbacks to contracting out. Goodsell (2007) referred to the Constitution’s preamble for determining what is inherently governmental. Kelman (2007), formerly head of Office of Federal Procurement Policy, published a treatise on astute contract management to combat cost overruns and performance failures.

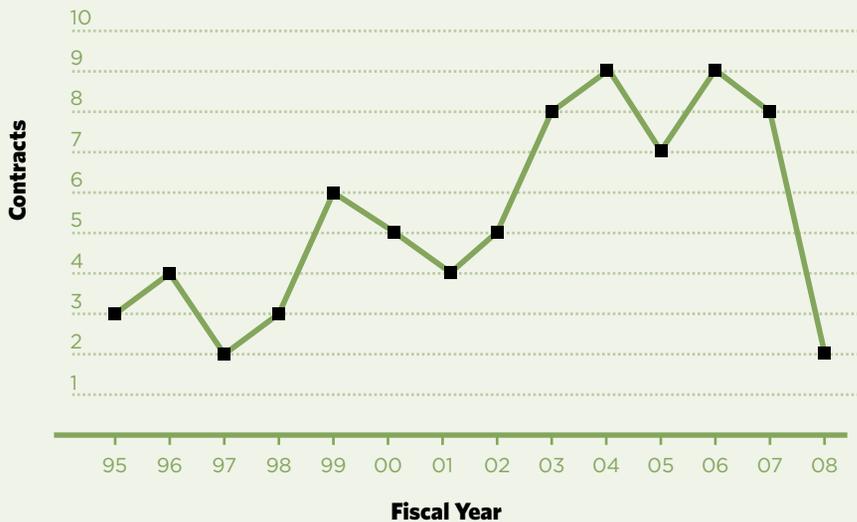
Finally, literature on the “demanding customer” and the implications of “hollow” organizations (Crawford & Krahn, 1998) tied empirical data to theory. Frederickson and Frederickson (2000) contributed to network theory by articulating an array of engagements among entities, including formal contracts, grants, regulations, and other transactions; their work was qualitative in nature. The preponderance of qualitative work is not surprising, given problems with gathering, normalizing, and interpreting quantitative data, particularly public-domain data.

METHODOLOGY 1: QUANTITATIVE ANALYSIS

To gauge the prevalence and dollar value of LSI-like contracts, the author conducted a keyword search within DoD’s public archives (DoD, 2009b) to find all contracting actions valued at more than \$5 million between October 1994 through March 2008. Keywords used were “Design Agent” or “Lead System(s) Integrator” or “Lead System(s) Integration.” Dozens of contracting actions were found: Their values ranged from \$5 million to \$2.879 billion.

The figure shown here reflects trends that can be detected from the data. First, soon after Acquisition Reform, the number of LSI-like contracting actions ascended, reflecting an initial burst of activity consistent with new policies. With the turn of the century came a leveling off; this could indicate a time of policy analysis and program evaluation. Then during 2002–2004, the number of actions reached a new peak. Their dollar values increased, as well. The Navy contracted for billions of dollars of support to then-DD(X) and nuclear submarine programs. After 2004, the purity of LSI-like contracts became increasingly suspect, as hybrid contracts for design and maintenance emerged. By 2007, the popularity of LSI-like efforts declined; this is consistent with DoD’s changing stance

FIGURE. PREVALENCE OF LSI-TYPE CONTRACTS OVER TIME, 1994-2008



on acquisition strategies. (The 2008 legislation on phasing out contractor-as-LSI arrangements was preceded by several years of intense scrutiny by the GAO, the Congressional Research Service, and others.)

The author acknowledges limitations to the data. First, nomenclature used in contract announcements was inconsistent. Several news items indicated that “Design Agents” were being used for maintenance on an aging class of ships. Other contracts that were clearly LSI in nature lacked those keywords. Therefore, some work is counted too heavily and some is not counted at all: It is difficult to gauge the extent to which these factors offset one another. Secondly, attempts to assign values to actions were complicated by the fact that only Contract Line Item Number (CLIN) ceiling amounts were reported. In cost-plus contracting, CLIN ceilings may or may not have been fully funded. Valuation of LSI-type scope as a subset of the overall contract value was problematical as well, given limited public information.

Still, having traced the general build-up and demise of non-traditional arrangements, the author attempted to compare the acquisition costs and performance effectiveness of contractor-led acquisition programs to those of government-led acquisition programs of similar scope. This was complicated by issues identified by Reig (2000): Contractor-led programs came into vogue during a period of time when few comparable government-led programs were at the same stage of development. Organizational culture and interorganizational relationships—both time-sensitive—can also influence cost savings and performance. Thus, it is unfair to pit a pre-1990s government-led effort against a post-1990s

contractor-led effort. Moreover, other aspects of post-Acquisition Reform culture converged during this timeframe. The government adopted more commercial-like practices, and other innovations such as Prime Vendor Support strategies were tested.

For these reasons and others, it is difficult to isolate the LSI variable and gauge its impact on cost and performance. Other issues include: (a) lack of commonality in contractor cost estimating and contractor cost reporting requirements, (b) lack of completeness in cost and pricing data, (c) the dynamic nature of government cost estimates, and (d) limitations inherent to public-domain data.

In complex system-of-systems efforts involving numerous entities, cost and performance data are clouded by commonality issues. First, firms differ in their accounting systems; cost categorizations vary. Although major DoD contractors must obtain approval of their accounting systems from the Defense Contract Management Agency (DCMA), there is no single “right way” to report subcontractor labor and material costs, to differentiate direct from indirect costs, or to draw the line between recurring and non-recurring costs. Secondly, cost-reporting requirements vary by contract: Lower-tier vendors tend to provide basic components and services, often via fixed-price contracts. Subcontractors higher in the chain tend to deliver more complex services; these are often contracted via cost-plus vehicles. Cost-plus contracts generally call for more cost-reporting detail than do fixed-price contracts.

Data-completeness issues arise when costs are captured and reported via multiple contracts. When programs extend over years or decades, the clarity and completeness of cost data are clouded when performing entities change, whether via corporate reorganization or recompetition. Additionally, valid comparisons of contractor-led efforts to DoD-led efforts require the inclusion of government costs that are not often quantified. For instance, DoD “overhead” costs, such as the contracting office, are commonly overlooked in make-or-buy decisions. (Since overhead functions are reflected in an agency’s cost structure whether or not services are used, they are often viewed as cost-neutral.) This tendency may be changing, however, since the Accountability in Contracting Act of 2007 calls for fully burdened costs when comparing internal sourcing to contracting out (Lumsden, 2007).

Other obstacles to the quantitative analysis of alternative strategies stem from the temporal nature of cost estimates and budgets for complex, long-duration efforts. Cost estimates for major programs reflect production quantities, schedules, and efficiencies ostensibly gained with experience. Over time, these tend to change. Over long periods of time, they change markedly. The researcher also found differences among budget figures (DoD, 2009b). When comparing budget exhibits for the Navy’s Cooperative Engagement Capability system, figures differed

sharply among programs. This is likely due to differing assumptions and cost-sharing arrangements negotiated by the various program offices.

Further research is needed to illuminate the public-domain data. Personal interviews with program staff, as well as with DCMA, can provide insight for DoD in managing acquisition more astutely.

GAO (2005) confirmed that, while differences in magnitude and sources of cost growth exist, all shipbuilding programs experienced cost growth (Table 1). Programmatic (e.g., design challenges, schedule delays, business projections, and workforce issues) triggered the growth. Of the programs studied, the Virginia class of submarines was most closely aligned with the LSI model. GAO concluded that its cost growth was greater than that for some Navy-led programs, but less than that for other Navy-led programs. It can be inferred that LSI-like strategies, taken alone, are not good predictors of cost growth. Interrelated rival causes are detailed throughout GAO's analysis (Table 2).

TABLE 1. MAGNITUDE OF COST GROWTH, BY SHIP OR SUB, AND PRIME CONTRACTOR

	DDG-91	DDG-92	CVN-76	CVN-77	LPD-17	LPD-18	SSN-774	SSN-775
% of Cost Growth	10%	20%	14%	13%	139%	95%	27%	37%
\$ of Cost Growth	\$35M	\$71M	\$424M	\$434M	\$896M	\$373M	\$273M	\$404M
Prime Contractor	Ingalls	Bath Iron Works	Newport News	Newport News	Avondale	Avondale	Electric Boat	Newport News

Source: GAO-05-183 (February 2005)

Identified as a lower cost-growth program, the Arleigh Burke class was built by Ingalls and Bath Iron Works (BIW), while the Navy retained design control. Ingalls reported growth in labor costs, linked to inexperienced workers and design upgrades. When assimilated into Northrop Grumman, Ingalls realized some economies on material costs, but overhead costs rose due to pension plans, medical benefits, and workload delays driven by new programs. BIW's labor costs were also driven up by design upgrades; its overhead costs increased due to medical-benefits costs and workload delays. Also noted as a lower cost-growth program, the Nimitz class was produced by Newport News Shipbuilding. Labor costs rose due to talent

TABLE 2: SHIPBUILDER COST CATEGORIES AS PERCENTAGE OF OVERALL COST GROWTH

	DDG-91	DDG-92	CVN-76	CVN-77	LPD-17	LPD-18	SSN-774	SSN-775
Labor	105	66	35	42	33	48	55	42
Direct Labor								
Indirect Labor Costs								
Materials	-49	23	46	31	47	24	49	49
Steel, copper, titanium								
Tooling & misc. parts								
Subcontractors								
Overhead	44	11	19	26	20	28	-3	9
Insurance								
Pensions								
Holiday pay								
Facilities & utilities								
Taxes								
Navy-Furnished	not cited		not cited		not cited		not cited	
Equipment								
Weapons								
Electronics								
Propulsion equip.								
Total	100	100	100	99	100	100	101	100

Source: GAO-05-183 (February 2005)

shortages, overtime, design changes, and late material deliveries. Material cost increases were tied to specialty materials and subcontracting. Overhead costs grew due to accounting changes, medical-care costs, capital investments, pension plans, and workload changes.

The highest cost-growth program was the San Antonio class of ships, built by Northrop Grumman. Labor costs increased due to design difficulties, schedule delays, and labor shortages. Material costs were increased by subcontractor efforts and tool development costs. Overhead costs were driven up by pension plans, workload losses, and schedule changes.

For the Virginia class, on which Electric Boat was Design Agent, the drivers of cost growth were similar to those on Navy-led programs: design issues, schedule volatility, material cost increases, overhead-rate changes, and workload fluctuations. These sources of cost growth are obviously not unique to LSI-type arrangements.

RAND (2006), which also assessed cost escalation for naval ships, corroborated GAO on root causes. RAND attributed cost growth to economy-driven factors (pension plans, labor rates) and customer-driven factors (design changes, schedule changes). Both RAND and GAO highlight the notion that cost growth is exacerbated by lack of “perfect information” (from traditional economic theory), particularly at program inception (Downs, 1964).

METHODOLOGY 2: QUALITATIVE ANALYSIS INTEGRATED WITH NETWORK THEORY

Many analysts believe that expertise comes from the private sector, but power resides in the public sector. This logic is sound from a pure, follow-the-money perspective: Public organizations exert power by funding private companies to carry out their missions. However, when private firms act as government agents, spearheading efforts involving a diverse cast of players, this view is oversimplified. The author drew from network and complexity theory (Goldsmith & Eggers, 2004; Agranoff, 2007) to explore relationships among entities in LSI-like arrangements.

Within the social sciences, complexity theory presents organizations as learning organisms that launch agents on non-linear feedback loops, acting interdependently with little intervention from controlling entities. Such networks of agents engage in cooperative behavior, eventually flattening hierarchies. These ideas counter the command-and-control mentality so integral to DoD culture. Still, this positive self-direction is motivated by feedback from other actors, as well as the environment. The more involved agents become in challenging work, the stronger connections become, making the (decidedly non-linear) process easier the next time.

While the network construct highlights the enduring nature of human intelligence and ambition, it fails to address some interactions among private and public organizations. Underlying all business arrangements are profit motivations, information asymmetry, and power. Synthesizing the literature, the following arguments can be made for Design Agent, LSI, and TSPR relationships:

- **Brainpower.** Private-sector talent can compensate for shortfalls in the DoD workforce.
- **Streamlining and agility.** Contractors can organize more efficiently to coordinate complex programs. Less bound by rules and traditions, they can adroitly assemble the required mix of talent.

On the other hand, contracting out vital functions has downsides, such as clashes over data rights and friction among LSI subcontractors and

customers. While some information exchanges move fluidly through the LSI hierarchy, each company is subject to financial and legal barriers that cannot be crossed.

1. **Erosion of government expertise.** Long-term programmatic knowledge may be sacrificed when contractors provide technical leadership.
2. **Checks and balances.** Communications protocol and decision-making processes are seldom adequately articulated in contractual terms and enacted via daily interaction (e.g., if the government has statutory rights to do independent testing, how does this mesh with the contractor's test plans?).
3. **Interpretation problems.** Prime contract requirements are not always conveyed accurately to subcontractors; this becomes progressively more difficult at each lower level on the supply chain.
4. **Culture change.** Ongoing education on roles and responsibilities in non-traditional arrangements is needed, and can obstruct open dialogue.
5. **National team concept.** With geographically dispersed industry teams, causes of technical problems are sometimes hard to pinpoint. Internal strife associated with jockeying for future scope and funding is another risk.
6. **Increased scrutiny.** In Congressional budgets, LSI-like arrangements appear as a single program element, rather than dozens of smaller ones. More scrutiny, albeit with less detailed understanding, is applied at the top level.
7. **Organizational conflicts of interest.** As members of an LSI team with common program objectives, individuals must share a great deal of information. Today's collaborators may be competing against one another for follow-on work, so firewalls are often erected within and among entities.
8. **Profit pressures.** Minor problems are sometimes downplayed until design and development efforts are complete (Baron, 2007). Over time, minor issues can lead to protracted delays, cost overruns, and program failure (Ratnam, 2001).
9. **Concentration of power.** The limited pool of LSI-capable companies may negatively impact innovation, diversity of subcontractors, and fair business practices.

Both theory and experience suggest that mid-1990s Acquisition Reform initiatives have compromised DoD's ability to coordinate and control its programs. The outsourcing of key management and technical functions may lead to a long-term loss of institutional knowledge. Moreover, outsourcing without strong oversight seems to have diminished

the degree of meaningful cost and performance data from the actual performers (i.e., subcontractors and suppliers to the LSI), negatively impacting DoD's leverage in negotiating and executing its acquisition programs. Of course, all nine of the preceding delineated disadvantages can be overcome by strengthening the government program office. Conversely, the espoused advantages of contractor-led efforts can also be maximized by a smarter, more efficient, less rule-bound DoD organization, particularly in the interrelated areas of program, business, and human resources management.

PROGRAM MANAGEMENT

In contracting relationships, DoD expects commitment and competence from private firms. However, DoD must possess enough capability internally to ascertain whether those expectations are being met. As Goodsell states, "in-house mission control" is needed to: (1) interact responsibly with contractors, and (2) exercise due diligence. Crawford and Krahn (1998) corroborate the need for a solid, balanced relationship: Key ingredients are: (1) a competent government customer, and (2) consistent oversight. This requires not just the technical proficiency to formulate a vision (Prencipe, Davies, & Hobday, 2003), but also the energy to enforce the terms of the contract. In other words, the government must not only have high standards; it must also remain steadfast in holding contractors to those standards.

Certainly standards and steadfastness are both hard to maintain, but mustering the strength to hold contractors accountable is the more difficult. In light of the author's experience in both hemispheres of the DoD acquisition world, this rings especially true. DoD employees are generally entrusted with greater responsibilities; yet they are confronted with more obstacles, such as cumbersome procurement processes, antiquated office equipment, inadequate staffing, ineffective personnel systems, and more compressed pay scales than those found in industry. Rainey and Steinbauer (1999) echo that: Public organizations are noted for lethargy precipitated by red tape. Much can be overcome, though, if key employees are committed to making a positive difference.

HUMAN RESOURCES MANAGEMENT

Success is often stymied by efforts to balance effective operations with control using democratic processes. Government managers can be discouraged by constraints, engaging less than vigorously in motivating subordinates and support contractors, in optimizing workflow and communication, and in carrying out their missions. Reasons for this are myriad: inexperience, relatively short terms in their positions, complicated

laws and regulations, diffusion of responsibility, and limited incentives (Rainey, 2003).

Crawford and Krahn suggest that government does poorly with acquiring, retaining, organizing, and channeling technical competence. To attract and retain technical talent, Asch (2005, pp. 309-342) advocates pay-for-performance systems with a base-plus-incentive-pay plan, and individual plus group incentives. Public-sector longevity can also be encouraged via pay structures that differentiate more with each successive pay band: Simply put, extra responsibility should carry more compensation.

BUSINESS MANAGEMENT

The right incentives, coupled with human energy, sacrifice, teamwork, accountability, and a healthy work environment, lead to program success (Baron, 2007). These factors emanate, at least partially, from competitive zeal. People want to be successful, and will try to attain their goals rationally (Downs, 1964). Extending notions of rationality and utility maximization from the individual to the collective, organizations must compete for work within their competencies, and identify others for work that does not fit. For example, Gholz (2004) suggests that smaller organizations, with lower overhead costs and financial pressures, are well positioned to conduct analyses and small-scale experiments (Ratnam, 2001). Likewise, free of future production and profit interests, Federally Funded Research and Development Centers (FFRDCs) and DoD laboratories could capably serve as LSIs.

Contracting, whether with FFRDCs, small businesses, or large corporations, is integral to the way DoD carries out its mission. As such, efforts should be made to recruit and retain professionals capable of: (a) setting goals and developing strategy; (b) inspiring those doing the work with commitment, enthusiasm, and a sense of public purpose; (c) monitoring technical work and financial data; (d) managing interfaces between contractor and end-users, as well as the external environment; (e) identifying and mitigating risk; (f) instituting a rigorous award fee process; (g) finding ways to back-load contractual incentives, so that performance will be rewarded at the end of the effort; and (h) conducting meaningful analysis to support negotiations.

Conclusions

Clearly, change is imminent. The Weapon Systems Acquisition Reform Act of 2009, coupled with recent legislation on LSI-type contracts, was stimulated by rhetoric on runaway costs, schedule disruptions, and contractor performance issues, as well as the ever-present scarcity of

resources. A full-scale rebalancing of risks and rewards is needed for DoD to improve the way it does business. Proposals include stronger government roles throughout development, more time between the development and production phases, fewer design changes, and standardization of engineering plans. These ideas call for wholehearted investment in program, business, and human resources management—all key competencies, regardless of the acquisition strategies currently in vogue. DoD must attract, develop, reward, and retain motivated, experienced, reflective practitioners.

Author Biography



Professor Kathlyn Hopkins Loudin joined the Defense Acquisition University faculty in October 2008. Previously, she led an acclaimed group of cost engineers at the Naval Surface Warfare Center, supporting Navy, Marine Corps, and other Defense programs. Professor Loudin has acquisition experience within both DoD and industry, having held leadership positions at Northrop Grumman. She holds an MPA, and is working toward her PhD at Virginia Polytechnic Institute and State University. Professor Loudin has written for *Contract Management* and *Defense AT&L* magazines.

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