

“Up and Running”

NMD Integrated System — More Than Just Another DoD Procurement Effort

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“There is one NMD Program and one NMD Team. That was my philosophy when I stood up the Joint Program Office for the National Missile Defense Program, within the Ballistic Missile Defense Organization and assumed the leadership position of “Program Manager.” That is the only philosophy that will pull together all of the diverse parties, Services, and Agencies required to successfully develop and field a National Missile Defense.”

—Maj. Gen. Joe Cosumano, Jr.,
U.S. Army

Political and intelligence analysts normally agree that when it comes to a “National Missile Defense” (NMD), there is a genuine level of uncertainty as to the need for, or timing of, an “active” defense capability to protect the United States. Defense analysts now believe that the United States of America possesses the technical capability to provide the national homeland, including all 50 states, with limited protection against ballistic missile attack.

This defensive capability stems from DoD’s heritage of past and current technology programs that support the present-day defense analyses and conclusions. The most stressing question in the whole NMD equation is how long would it take to build and deploy an ef-

fective Anti Ballistic Missile (ABM) capability. This crucial question, along with unknown technical challenges and limits of an *undefined* threat, launched at an *imprecise time and date* in the future, makes the NMD System a relatively high-risk program.

Categorizing and Countering the Threat

The Ballistic Missile Defense Organization (BMDO), in coordination with the User (U.S. Space Command), categorized the threat of ballistic missile attack against the United States and examined available national resources (Service-led BMDO technology programs) to not only counter the threat of ballistic missile attack, but also address known risk factors.

When that analysis was complete, BMDO documented ABM performance requirements (the required technology) over time that could counter the entire range of expected threats. These needs or requirements became NMD program benchmarks.

As a result of this analytic effort, an NMD strategy and accompanying plans emerged, which focused on achieving the appropriate national defensive capability, with the required ABM performance, at the time needed in the future.

As an output from this effort, we developed three sets (Capability 1 through 3)

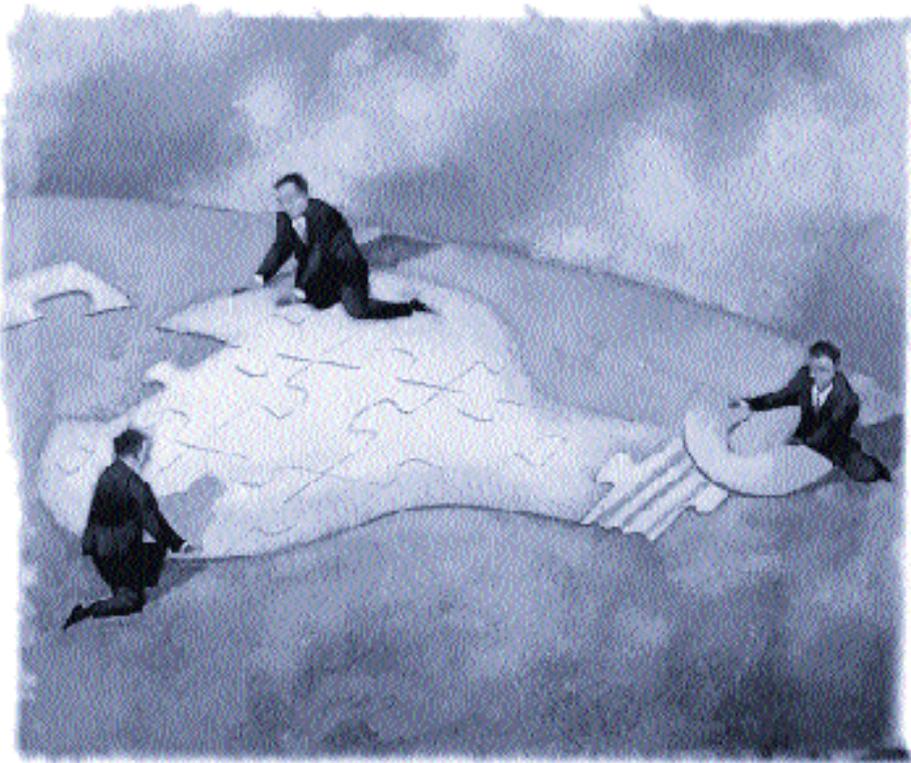
of performance specifications (with virtually hundreds of possibilities for potential upgrade) in a non-traditional approach. This unique approach suspended the traditional DoD milestones for production and deployment until “the threat” triggered a need. Only after a “threat-based need” arose would Congress and DoD provide the resources to proceed with an accelerated, yet traditional production and fielding program.

Integrated “Single System” And JPO

Given this concept, we then focused on transitioning to an acquisition infrastructure that would accommodate the NMD’s program objectives from a “systems” approach. Using several lessons regarding performance benchmarks from NMD’s Technology Program (program status before designation as an MDAP – Major Defense Acquisition Program), we clearly discerned the government’s historical weakness in effectively and efficiently integrating materiel systems.

In addition, at the invitation of Air Force Lt. Gen. Lester Lyles, Director, BMDO, we received several recommendations from defense industry Chief Executive Officers on how to accomplish an integrated “single system.” Their unanimous responses and recommendations convinced BMDO that American industry had the expertise to accomplish the systems integration tasks that lay ahead,

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and the organizational resources necessary to pull together the various suppliers.

After carefully analyzing all our integration options, we responded to industry with a formal procurement action for an NMD "Lead System Integrator" (LSI). A draft Request for Proposal (RFP) for an LSI contractor for the National Missile Defense program went public on Feb. 13, 1997.

Our acquisition strategy included a solicitation for Concept Definition contractors. From these, in a second competition, we would later select a sin-

gle NMD LSI contractor that would use current Acquisition Reform measures to streamline the procurement process.

On April 1, 1997, DoD authorized and directed establishment of the NMD Joint Program Office (JPO) to manage the program. This included oversight for the LSI source selection and all efforts to develop, integrate, and potentially field an NMD System.

Competitive RFP For LSI

DoD's process to solicit vendors and contractors is a lengthy, detailed exercise, even with Acquisition Reform. To ensure

"best value" procurement, it includes necessary checks and balances to ensure equitable competition on a level playing field.

The requirement for performance-based contracting and streamlining solicitation activities was a new experience for BMDO. These changes in process and culture took time to understand and exploit.

At the time DoD directed BMDO to go forward with the LSI solicitation, only two full-time personnel from the NMD Program Office were available to work on the LSI RFP – the Contracting Officer and Task Leader. Unlike Major Service Acquisition Centers, BMDO has no overhead personnel in reserve, working as full-time functional experts in an RFP Service Center.

Our dilemma then, was program start-up and how to form a strong acquisition team comprised of tri-Service acquisition expertise, matrixed BMDO functional personnel, and our Scientific, Engineering, and Task Assistance (SETA) support contractors.

The Director, BMDO, prior to the standup of the JPO, directed the NMD Program to use an LSI contractor. As a result of that direction, the provisional NMD Program Manager, Air Force Col. D. McNierney, tasked NMD's SETA contractor to organize an interdisciplinary contractor "team" to support the soon-to-be-expanded government source selection team.

Col. McNierney's directions were clear: They were to "implement all provisions of the Federal Acquisition Regulation (administrative, logistics, functional area specialists) to support the LSI solicitation through source selection completion."

Additionally, he required that they recommend how, and identify which Acquisition Reform initiatives to implement, along with appropriate statutory, regulatory, and DoD procedural guidance. Major considerations included:

- Using new Federal Acquisition Regulations (FAR)
- Considering revised thresholds for certified cost and pricing data
- Increasing paperless contracting through electronic commerce
- Simplifying acquisition procedures
- Calling for use of Integrated Product Teams (IPT)
- Relying on specifications and standards reform (performance specification)
- Encouraging use of commercial practices and equipment
- Embracing the single process initiative
- Reducing requirements for government oversight
- Streamlining review processes
- Implementing procurement process reengineering initiative throughout the program
- Expanding reliance on modeling and simulation
- Using open systems approach
- Ensuring the LSI uses the earned value management system
- Using CAIV (Cost as an Independent Variable) (both government and LSI)
- Encouraging more parametric cost estimates
- Shifting acquisition culture from past non-value added processes to reinvention of processes that work for NMD Systems.

The government desired a source selection team effort that would result in the integration and alignment of appropriate government Acquisition Reform initiatives and lay a solid foundation for the upcoming LSI solicitation. Likewise, the NMD JPO also wanted their acquisition team to follow through on process improvement ideas suggested by the government's workforce and industry.

Time management, or the lack of enough calendar days, turned most SETA effort and resulting paradigm changes into a "learn as you go" or reinvention basis. Yet, JPO's overall objective was achieved because of the dedication and unselfish work of a small group of highly skilled government personnel and their SETA contractor counterparts who were committed to our "One Team, One Program" philosophy.

Making Acquisition Reform Work
NMD management's directions to "make Acquisition Reform work" for the benefit of the NMD Program meant filtering out many of the old ways of acquisition while incorporating the "best practices" being learned throughout DoD and industry. If a process did not fit with the NMD acquisition strategy, we did not give it a priority for NMD.

At times, such screening ruffled feathers, especially when it caused changes in the [then] NMD element organizational infrastructure. Most of these ongoing Service-managed research and development projects were run very well and making progress. The problem was their separate goals and destinations did not converge upon an "NMD system." Thus, to do its job and perform it with any measure of success, our LSI support team first had to objectively analyze the total gamut of acquisition streamlining opportunities.

This exercise in rethinking required our team to engage in a continuous "Acquisition Reform mode of operation." Our consensus objective, then, for the self-learning task (learn as you go) was to focus on the NMD's and LSI's bottom line: the development and potential fielding of a cost-effective, operationally suitable NMD.

Finding The Right Tools

Toward that end, our team took each Acquisition Reform initiative and tailored it to the NMD Program's needs by focusing on what worked well (cost effectively and operationally suitable) on similar programs. After we identified these results, they yielded potential tools to execute the LSI program and integrate the NMD elements into a cohesive system.

During the development of the LSI RFP, our team discovered that the formal database for lessons learned for Acquisition Reform/streamlining was very small. However, our analysts were looking for quality data and not quantity. Analyzing appropriate aspects of DoD's initial seven Defense Acquisition Pilot Programs

(DAPP), they then applied these lessons to the LSI procurement. These 1994 pilot programs, conducted under the Federal Acquisition Streamlining Act, functioned to develop metrics and baseline issues for modernizing the defense acquisition process.

The DAPP's initial influence on our LSI strategy was to partner with industry to get the best RFP, to encourage Commercial-Off-The-Shelf (COTS) solutions to the maximum extent possible, and to use performance-based contracting. The latter meant minimal government oversight of the LSI's internal processes, and much less specification of the "how to do it." To accomplish all of these goals meant that the NMD LSI team had to overcome paradigms of the past principle and recognize that future defense products must use "best business practices."

In addition, the team adjusted the LSI solicitation to satisfy the principles set down by Secretary of Defense William S. Cohen in his November 1997 "Defense Reform Initiative Report." At that time, Secretary Cohen envisioned paperless contracting, logistics and support, dissemination of DoD-wide regulations and instructions by electronic media or the Internet, and replacing the "just in case" mindset with "just in time" in logistics.

An example of a "best business practice" was our preference for early government and industry participation in the LSI procurement program. After the government decided what the draft RFP was to contain, the SETA support team, using the capabilities of the Internet, placed all relevant bidder information on the World Wide Web, including several updated versions of the draft RFP.

Industry provided us [government] near real-time comments and valuable insight on the draft RFPs. Using the Internet, all of us coordinated, communicated, and commented through our restricted-access Web site. Estimates are that our LSI Web site routinely contained more than a gigabyte of constantly updated data for the contractors and the extended NMD Team.

In addition, the Web site provided us confidence that all bidders were on equal competitive footing, and the Service Components had an opportunity for continual review and buy-in to the "One Team, One Program" philosophy.

We conducted the LSI source selection electronically in a secure environment. Using support contractor facilities and equipment for government evaluators, we managed a computer-based source selection. All in all, significant timesavings resulted from compiling evaluator's comments, evaluations and re-evaluations, decision briefs, and proposal analysis reports, on over 50 personal computers, in 30 separate rooms, on two secure networks.

Additionally, all briefings provided to the Source Selection Evaluation Board (SSEB), Source Selection Advisory Council (SSAC), and Source Selection Authority (SSA) were computer-based. They showed the documented strengths, weaknesses, and minimized confusion and fumbling through reams of paper to answer simple questions. The complete record of source selection data for the contractor proposals and government evaluation now exists as a comprehensive electronic data package.

Program Execution

The execution of the NMD Program did not start with its designation as an MDAP, the LSI solicitation, or even the source selection. These separate events were all part of the vision and planning processes that will lead to the eventual NMD element integration into a single cohesive system. Execution can only start when the "One Team, One Program" carries out the plans and gets the job done right.

The title of this article, "Up and Running," best describes NMD's complete and comprehensive processes. The NMD JPO is "up," and Boeing North American Inc., which was selected as the LSI contractor on April 30 of this year, is "running" to get the job done.

Choosing Boeing as the contractor to execute NMD's LSI Program represented a



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significant milestone. To do so without protest in a fair and almost record time for so complex a source selection was a validation of our procedures.

Central to Boeing's planning process is their preparation of an Integrated Management Plan (IMP) and Integrated Master Schedule (IMS). These documents reflect Boeing's commitment to the NMD mission and acquisition streamlining.

Importance of IMP/IMS

As the LSI program execution phase begins, the contract's IMP/IMS are essential tools NMD Team management will use to monitor the program's performance, cost, and schedule objectives.

A very important management event that occurred early in the new NMD LSI con-

tract was a formal review of Boeing's Performance Measurement Baseline (PMB). The review, called an Integrated Baseline Review (IBR), took the form of an extensive and intensive analysis of Boeing's planning data at a level of detail that discloses the essential integration of cost, schedule, and technical performance.

Its purpose is to comprehensively examine the products Boeing plans to produce in order to verify that Boeing's PMB actually contains all technical work the contract requires. In addition, the IBR process ensures that related resources and schedules are accurate and adequate to accomplish the work, and that an overall understanding of the Earned Value Management (EVM) process exists.

More Than Just Another Procurement Effort

The process to get an integrated NMD System "up and running" turned out to be more than just another DoD procurement effort. It clearly forged a cooperative spirit of "One Team, One Program" between the participating Military Services, their support contractors, Users, and the defense industry. The 14-month effort to get the NMD's LSI contract "up and running" facilitated the essential bonding process so vital and necessary for a "One Team, One Program" philosophy.

Now program execution is up to these same people. Program execution is even more critical for the NMD now that its newest team member, Boeing, has been identified. Ultimately, Boeing will be responsible for designing, developing, testing, and integrating all NMD elements into a viable system that will provide all 50 states with limited ABM protection.

Although the NMD Team has no direction to field or deploy an ABM capability at this time, we will execute the planning to do so in as short a span of time as possible. Success breeds success, and for that reason we are optimistic the program execution will be done on time and within budget with the team we now have.