Buying the B-3
Procurement Reform and the Long Range Strike Bomber

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Executive Summary

The United States Air Force needs a new bomber. Its current fleet, comprised of B-52 bombers designed in the 1950s, B-1 bombers from the 1970s, and a small stable of B-2 bombers bought in the 1990s, is both undersized and too old. Fortunately, it will soon select a prime contractor to build the new Long Range Strike Bomber (LRS-B), which we shall refer to as the B-3.

Though the need may be evident, the air force must diligently execute this procurement process and not fall into the same pitfalls that befell recent aircraft acquisitions, including the B-1, B-2, F-22, and F-35. This paper provides a model for how to think about doing just that. Beginning with a study of the current acquisitions environment and informed by a review of past reform efforts, we examine the aforementioned aircraft programs, identifying the key lessons from each. Finally, considering what we know now about the B-3, we consider how those conclusions can inform the coming acquisition.

With a stated goal of procuring 80–100 aircraft at a unit cost of $550 million in 2010 dollars, the air force must carefully control costs while ensuring the bomber arrives both on schedule and with the necessary capabilities to reach and strike targets across the globe. The service appears to have a reasonable understanding of the necessary technological and financial considerations, but it must remain attentive to the numerous hurdles this program will face. Setting such as public cost cap is a risky bet; failure to stay below the cap, or even the appearance of ancillary costs, will open the program to the sticker-shock phenomenon that plagued past programs.

Moreover, successfully procuring the B-3 will depend on the air force’s freedom to manage the program independently. The service should focus on delivering the program on time—that is, by the mid-2020s—to avoid outside meddling with the specific, narrow set of capabilities the air force needs. Buying the B-3 the right way will require the US Air Force to buck generations of centralization in the procurement process.
Buying the B-3: Procurement Reform and the Long Range Strike Bomber

The United States Air Force will soon select a prime contractor to develop and build a new long-range bomber. It has been several decades since the service last made such an important choice, and the need for the aircraft is plain: America’s bomber fleet is small and old, made up mostly of 1950s-era B-52 bombers and 1970s-design B-1 bombers, with just 20 B-2 stealth bombers capable of the most demanding missions. But while the need is clear, the procurement path is perilous.

The air force must be zealous in controlling the cost of the program—indeed, perhaps the principal design feature of the Long Range Strike Bomber (LRS-B) project is its price tag of $550 million per plane—while ensuring that the bomber has the capabilities needed to penetrate modern, front-line air defenses at intercontinental distances. Further, the service must navigate the project through a complex and congested defense-acquisition system that has, over several generations, taken management authority away from the services and centralized it in the Office of the Secretary of Defense. Finally, the defense-spending restrictions imposed by the 2011 Budget Control Act, a law enacted after the LRS-B’s parameters were set, make the challenge even greater. For the moment, the program has a consensus of support, but it is unclear whether that consensus will endure. The recent history of aircraft procurements is a checkered one—but one that offers lessons for this project.

The stealthy LRS-B is crucial to ensuring the nation’s capability to project military power at any time and place. Thus far, the competition between two teams of major defense contractors has been shielded from public view, as the bomber program has been kept highly classified. But after the winner is chosen, the aircraft’s desired capabilities and the budgetary and programmatic path to develop and field the new bomber will become more apparent. In sum, this is about to get very interesting.

Given the tortured path of their recent aircraft acquisitions, from the B-1B and B-2 to the F-22 and F-35, the air force and the Department of Defense are under considerable pressure to make this procurement a success. However, the goal of the program—to produce 80–100 aircraft (called, let us imagine, the B-3) at a unit cost of $550 million in 2010 dollars—is an ambitious one. Given the prominence of the advertised price tag, the question of unit cost will be a subject of constant scrutiny. This is particularly true in the current defense budget environment, shaped by the Budget Control Act’s financial constraints and the uncertainties of its sequestration provision. Moreover, the air force and the Defense Department are anxious to employ a plethora of acquisition initiatives, some old but some new, to reform or improve the weapons system acquisition process. The LRS-B will be seen as a test case for those measures, and indeed the program’s ultimate fate could depend on these initiatives, some of which are likely to come as a surprise to Congress.

This paper first describes and explains the environment in which the B-3 bomber will be acquired. To accomplish this, we will summarize the major acquisition reform efforts affecting the acquisition of the LRS-B. Secondly, we will briefly examine some lessons from major combat-aircraft acquisitions in the past, including the B-1, B-2, F-22, and F-35. Finally, we will describe what we know about the B-3 acquisition and, based on those case studies, suggest how to think about acquiring the bomber.
Acquisition “Reform” and Its Unintended Consequences

The singular purpose of the new bomber acquisition has been presented as averting a programmatic “death spiral”—that is, a fatal combination of technological snafus, unpredictable funding, and schedule delays—of the sort which has plagued many weapons projects of the last generation. Therein lies the B-3 dilemma. The recent acquisition experiences of the B-2, F-22, and F-35 provide little direction toward an effective procurement path; indeed, these programs illustrate the way not to go about it. Further, these problems are hardly unique to the air force acquisition community; they have been encouraged by both internal Pentagon and congressional actions, and other services have suffered similar problems.

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However, the process of weapons acquisition reform has been underway for decades—with little to show for it. A detailed recounting of those efforts is well beyond the scope of this paper, but to sketch a B-3 acquisition primer, a brief review is needed to map the landscape in which the LRS-B will live or die.² As will be seen, there is a striking correlation between compounded reforms and program failures. Moreover, the acquisitions environment is now an increasingly austere one.

This environment has also been evolving for six decades. Perhaps the first major study critical of the weapons acquisition process was the 1962 Harvard Weapons Acquisition Research Project. The project examined 12 major defense programs and found that costs averaged seven times more than originally estimated and that development took 36 percent longer than initially scheduled.³ According to the project, such schedule slippage and cost growth resulted from unrealistic requirements, a lack of qualified acquisition personnel in government, the high turnover of acquisition personnel, faulty cost estimates, and inadequate training in the measurement and control of contractor performance. Recommendations from that study included prioritizing cost equally to performance and schedule, eliminating performance requirements well beyond those needed for mission accomplishment (“gold plating”), increasing competition at the start of the project, and reducing the number of cost-related contracts, particularly cost-plus-fixed-fee contracts.

That 1962 study and its recommendations influenced the agenda and reforms put forward by Robert McNamara when he became secretary of defense. Two of his “whiz kids,” Alain Enthoven and Wayne Smith, when recording the shaping of US defense programs in the 1960s, argued for an increased role for the secretary and his staff in the weapons systems acquisition process; they stressed that the complex challenges of military strategy and force requirements could be “grasped, analyzed and understood,” and, as McNamara wished, centrally managed.⁴

The development of the Planning-Programming-Budgeting System became the organizing vehicle for strengthening the secretary’s role in weapons acquisition. An analytical staff, centered in the Office of Systems Analysis, actively sought to reduce the role of the separate military services in weapons system acquisition and strengthen that of their civilian leaders. Critics of that office saw the change as a source of bureaucratic delay and red tape, while its defenders pointed out that such a systematic approach helped innovators think strategically before plunging into new, expensive, and perhaps redundant weapons programs.

In other words, the friction between a weapons acquisition system led by centralized civilian authorities and one directed by separate service chiefs dates back a half century. Although the second part of this paper focuses on case studies in weapons acquisition, it is useful to begin by considering the Tactical Fighter Experimental (TFX), which ultimately became the Air Force F-111. This was perhaps the first attempt by the newly powerful Office of the Secretary of Defense (OSD) to develop and field a weapons system over the objections
of the armed services, while both streamlining acquisition and lowering costs. Although the B-3 will not be a joint-service aircraft, the basic framework of the program, and most especially the cost cap, was similarly set by the diktat of the defense secretary—in this case, Robert Gates in 2011.

When McNamara took office in 1961, the air force was seeking a new fighter aircraft to replace the F-105 Thunderchief, which was principally a low-level tactical nuclear bomber, and the US Navy needed a replacement fighter for its F4H Phantom, an air-to-air interceptor. Despite these different missions, the defense secretary became convinced that one tactical fighter could meet the needs of both services and directed the development of what we would now term a joint fighter program.\(^5\)

Unfortunately, although the programs were combined, the separate services were allowed to continue to generate their own requirements for their variant of the aircraft. As a result of this poorly designed development specification, both the navy and air force pursued separate objectives in a common program. The TFX was supposed to save $1 billion in development costs by using a common airframe to fulfill the navy’s fleet air-defense fighter requirement and the air force’s long-range nuclear and conventional tactical fighter specifications. However, priority was placed on the air force version, forcing the Pentagon to adapt a heavy aircraft designed for land basing to carrier operations. Ultimately, the aircraft performance requirements that the separate services recommended led to high costs, failure to meet operational objectives, and weight growth in the navy’s carrier-based version, causing the navy to abandon the program by 1968.

From the perspective of OSD’s systems analysts in the Pentagon, the fundamental mistake in the TFX program was not that their attempt at central management was overly ambitious, but that it had not been directive enough: they had been too lax in allowing the services to pursue their individual requirements for the airplane despite major differences in specified mission and planned basing. Even with the newfound OSD authority, it was impossible to get the services to do something they did not want to do and, in particular, to force the navy to buy an air force aircraft.

After 1968, the air force was left with a TFX design that had been compromised by McNamara’s original commonality requirement. The cost of the F-111, as the TFX was christened by the air force, increased from the 1962 unit cost estimate of $2.8 million to roughly $14.7 million in 1970. The “procurement death spiral” of the F-111 caused the air force to reduce the number of aircraft it planned to buy from 1,726 to 563, while never developing all the performance capabilities proposed in the original program. This was an outcome no one wanted, but it was the residue of McNamara’s design.

A further irony was that the TFX program had seemingly ignored the advice of a major study on improving weapons system acquisitions. That did not prevent the Pentagon from similar subsequent recommendations though, including those of the Fitzhugh Commission published in 1971, the Carter-era “Circular A-109” of 1976, Deputy Defense Secretary Frank Carlucci’s “31 Initiatives” of 1981, the 1986 Packard Commission, and those made by William Perry’s (who later became secretary of defense in the Clinton administration) acquisition task force in 1986.\(^6\) Two decades after the Perry task force submitted its report, the Government Accountability Office (GAO) reported that the Pentagon’s major acquisition programs were a combined $296 billion over budget. It is no surprise that the recommendations of the Harvard study, made more than a half century ago, have an air of familiarity today; the weapons system acquisition process has proved largely immune to proposed improvements.

Plus Ça Change

Further investigations into the weapons acquisition system have been extensive if not exhaustive and replete with new recommendations to address old problems. For example, the 2005 Defense Acquisition Performance Assessment (DAPA) panel “reviewed more than 1500 documents on acquisition reform, heard from 107 defense experts, received more than 170 hours of briefings, and conducted a detailed survey of over 130 government and industry acquisition professionals.”\(^7\) In effect, the assessment was a brutal critique of the unintended consequences of the kind of centralization
and "rationalization" introduced by McNamara. Among the study’s findings:

- The acquisition system did not account for external instability, a changing security environment, and challenging national security issues.
- Absent the single Soviet threat, the Defense Department had failed to respond quickly to urgent operational needs from across the spectrum of potential conflicts.
- The finances of the acquisition system—a process that requires extended planning horizons—and the Pentagon budget-making system were out of synch. The department’s financial model was based on short-term decision making in which long-term cost increases were accepted to achieve short-term budget savings or “budget-year flexibility,” with the inevitable result that overall costs rose.
- The Department of Defense compounded the chaotic nature of its budgeting process with a program-oversight philosophy based on lack of trust. “Oversight”—in other words, second guessing—trumped accountability.
- The oversight was complex, focused on programs not process; each program to some degree invented its own procurement process.
- Quantity of program reviews had replaced quality, and the tortuous review processes had obliterated clean lines of responsibility, authority, and accountability.
- In the absence of management accountability, staffs assumed de facto program authority, stopped progress, and increased program scope. Because oversight was focused on individual programs, not on improving and standardizing the process of acquisition, it inhibited rather than promoted steady improvement in achieving program success.
- Centralized and complex acquisition processes did not promote program success. They increased costs, added to schedules, and obfuscated accountability.

In sum, the experiment in Pentagon procurement reform McNamara began has created the very conditions—increased costs and delayed fielding times—it was intended to cure. The OSD is too strong to be ignored by the services but too weak to do more than gum up the works. When it finally comes time to stop schedule and cost overruns, strong secretaries too often terminate programs; aside from Secretary McNamara’s troubles with the TFX, he made his mark by canceling the B-70 bomber, the Skybolt air-launched ballistic missile, the Dynasoar nuclear-powered aircraft, and the Nike X antiballistic missile system. Similarly, in May 2009, in response to the DAPA findings and in addressing cost and schedule growth in weapons systems, Secretary of Defense Gates canceled or curtailed the VH-71 presidential helicopter, the ground components of the army’s Future Combat System, the F-22, and the Air Force Combat Search and Rescue platform.

The Current Environment

Waiting until a program is in deep budget and schedule trouble, or determining after years of investment that a platform’s capabilities no longer match a military need, is hardly an efficient way of deciding whether or not to buy a major weapons systems. Over the last five years, the Obama administration has tried again to have it both ways: centrally managing procurement and controlling costs while spurring industrial competition.

The effort began in September 2010 when Ashton Carter, then undersecretary for acquisition, technology, and logistics and now secretary of defense, announced his Better Buying Power (BBP) initiative. Under the overarching goal to “do more without more,” the new initiative had seven main objectives: delivering the war-fighting capability needed at the projected, reduced defense budget levels; getting better “buying power” for the Pentagon and the taxpayer; restoring
“affordability” to defense goods and services; improving defense industry “productivity”; removing bureaucratic impediments to more efficient “lean” organizational structures; avoiding program and budgetary “turbulence”; and maintaining a “vibrant and financially healthy defense industry.” While the rhetoric employed many of the buzzwords of modern business school theory, the underlying structure of centralized management remained intact.

This “beta” version of BBP has been updated twice, in 2012 and 2014, to “implement practices and policies designed to improve the productivity of the Department of Defense and the industrial base that provides the products and services” to war fighters by reducing the frequency of program reviews while improving requirements and market research. The latest “BBP 3.0” aims at strengthening the professionalism of the acquisition corps and developing better relations with industry to control lifecycle costs. These are really no more than marginal improvements on the basic McNamara framework—an updated form of centralization.

Thus the buying of the B-3 will occur under a scheme wherein the air force will, at best, be a junior partner under OSD direction; the air force will be responsible for day-to-day management of the program, but the central secretariat will continue to have the final say within the department on the large-scale issues—particularly budgetary issues—that will likely have the greatest impact on the success or failure of the program. Indeed, the contradiction between predictable procurement processes and tumultuous, every-program-is-unique management has been enshrined in the formal regulations. The 2013 revision of Department of Defense Instruction 5000.02, “Operation of the Defense Acquisition System” states that “the structure of a DoD acquisition program and the procedures used should be tailored as much as possible to the characteristics of the product being acquired.” If the B-3 is to be built and fielded in a timely manner, as the moment demands, it is likely to be a success despite the current procurement system, not as a result of it.

**Congress as Coconspirator**

The second major institution pushing for improvement in the process of major weapons system acquisition has been the US Congress. Until the early 1960s, its participation in systems acquisition matters was primarily after the fact. But as the McNamara Pentagon began to scrutinize programs more deliberately and analytically, and as those programs grew in cost, Congress acted on acquisition reform, generally through its power of the purse. Through several generations of reform legislation, Congress has accelerated and deepened the drive toward centralized management and diminished service autonomy. It has been active on several fronts, inquiring not only into questions of reasonable cost but also into matters of requirements, system alternatives, and force structure.

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From 1969 to 1972, Congress undertook to define processes and procedures for weapons systems acquisition through the Commission on Government Procurement. The 1974 establishment of the Congressional Budget Office was also intended to give the legislative branch an analytic and evaluative capability analogous to the Office of Systems Analysis in the Pentagon. Without such a capability, Congress reasoned, it could not deal adequately with the increasingly complex issues that arose in weapon system acquisition.

Traditionally, Congress had been a champion of service privilege and power; the navy and marine corps “lobbies” had long been active. Rep. Carl Vinson (D-GA) served in the House for 50 years and in 1940 forced through the Two-Ocean Navy Act, authorizing the pre–World War II expansion of the fleet. One of the act’s provisions was for a force of 18 aircraft carriers, and it is hardly coincidence that one of the Nimitz-class carriers bears Vinson’s name. But as Congress became more engaged in the defense procurement process...
through the 1970s, it also came to share the concern that the defense secretary’s authority was being usurped by the separate armed services.

The 1986 Goldwater-Nichols Department of Defense Reorganization Act focused on strengthening the role of the secretary by establishing very clear lines of command, authority, and responsibility. It also moved acquisition authority away from the armed forces’ military staffs in the Pentagon to the civilian service secretariats and, more importantly, to a strengthened and further centralized office in OSD. This created a new disconnect between military-controlled requirements development and a civilian-directed acquisition process. One unintended but unfortunate result “was to create a generation of line officers who had little or no understanding of or appreciation for the acquisition process.”

Congress has also pursued acquisition reform by legislating constant changes through the annual national defense authorization acts and with stand-alone legislation aimed at implementing recommendations of the Packard and Perry reports. One particularly consequential factor was the so-called Nunn-McCurdy law—sponsored by Sen. Sam Nunn (D-GA) and Rep. Dave McCurdy (D-OK)—enacted in 1982 near the peak of the Reagan-era buildup. The law requires notification to Congress if a program’s costs surpass the baseline estimate by 15 percent; should costs exceed the baseline by 25 percent, the law orders the defense secretary to either certify that a program is essential or terminate it. In an era of budgetary uncertainty and stretched-out programs, an increasing number of programs have breached those ceilings. At the same time, obtaining certification has proved easier over the years than killing a program in which the military had already heavily invested. Thus, the provision is now seen as outdated and irrelevant to current circumstance: a bureaucratic necessity but not a useful program-management tool, a measure honored more in the breach than in the strict observance.

The Nunn-McCurdy law is but one example of legislative-branch initiative in building the modern procurement system. Other major acquisition changes within the Department of Defense as a result of these efforts include:

- Creating the mammoth and complex Federal Acquisition Regulation to develop uniform acquisition regulations across the Defense Department and the federal government;

- Establishing the Defense Acquisition University to train and improve the performance of the acquisition workforce;

- Instituting a “streamlined” management chain—consisting of frontline “program managers,” supervisory “program executive officer,” and separate-service “acquisition executives” all reporting to an undersecretary of defense, who also can call on the OSD analytic staffs to reckon operational, budgetary, and other matters—to foster “accountability and authority”;

- Setting up a system of formal program “milestones” to judge progress and foster centralized oversight;

- Requiring independent cost estimates to improve budget forecasting;

- Establishing a joint requirements board to monitor service requirements development and eliminate “duplicative” programs;

- Moving away from the use of customized military standards and specifications to promote the use of commercial technologies; and

- Applying multiyear procurements to promote cost efficiency.

In 2009, Congress, in collusion with the Pentagon, tried yet again to solve the problem with major legislation. The Weapons System Acquisition Reform Act strove to curtail time and cost overruns of the major weapon systems. In signing the bill, President Obama said, “The purpose of this law will be to limit cost overruns before they spiral out of control. It will strengthen oversight and accountability by appointing officials who will be charged with closely monitoring the
weapons systems we’re purchasing to ensure that costs are controlled.”

The act again strengthened the power of OSD, creating several new posts and newly empowering others, including a director of cost assessment and program evaluation, a deputy assistant secretary of defense for developmental test and evaluation—previous reforms had created a director of operational testing—and a director for performance and root cause analysis—in other words, to figure out why program costs increase, but after the fact. Other notable acquisition process changes included requiring competitive acquisition strategies at both the prime and subcontract levels; allowing combatant commanders the opportunity to provide inputs on joint requirements; considering cost, schedule, and performance tradeoffs at the requirements generation stage of acquisition process; and improving cost estimation.

At last, seemingly chastened by two generations of experience in centralization and industrial-age “rationalization,” Congress is beginning to reverse course. Both the House and Senate armed services committees in their respective versions of the 2016 defense authorization acts have proposed changes to the process that might amount to real reforms. The Senate bill, for example, includes the following, which are all likely to be retained in some form as the legislation is reconciled, since the House committee is very much in accord philosophically:

- Move away from the use of customized military standards and specifications to promote the use of commercial technologies;
- Again elevate the role of the service chiefs, in an effort to decentralize program-management authority;
- Account for the costs of time by seeking alternative acquisition pathways to allow for accelerated prototyping and field testing within five years;
- Give more acquisition authority to the US Cyber Command;
- Improve access for nontraditional and commercial contractors;
- Reduce unnecessary requirements, reports, and certifications to streamline purchasing of weapons, services, and information technology; and
- Improve the quality of the acquisition workforce by renewing its development fund and establishing direct-hire authorities for employees with science, technology, engineering, and math skills.

Naturally, these proposals have met resistance from OSD and the White House. The proposal to return acquisition authority to the service chiefs and take it away from the Defense Department’s acquisition executive is a frontal assault on the fundamental premise of the current procurement regimen. The rationale for this move “is that the services are the customers of the acquisition system and should have a greater say.”

Ironically, the genesis for this swing in the pendulum can be found in the “Beyond Goldwater-Nichols” work conducted by the Center for Strategic and International Studies (CSIS)—the Washington think tank that had a large hand in the 1985 law that did so much to cement the current system. In a July 2005 report, CSIS called for a return to the time when the Pentagon director of defense research and engineering “focused on how new technology could be used to address future challenges, and how it should be procured.” But the authors of the report argued that while OSD should guide the modernization process, it should not directly manage it but instead return power to the military service chiefs.

In sum, the air force will be buying its new bomber through a procurement system that has seen half a century of centralizing and “rationalizing” reforms creating a very powerful—and self-interested—OSD bureaucracy. In turn, that bureaucracy is a powerful tool for defense secretaries who want or are directed to make last-minute program and budget changes in response to guidance from the White House or the Office of Management and Budget. Looked at in the best light, the procurement process has become more responsive to political direction. But the costs have been staggering when measured in the longer term, in terms of wasted
It is fair to say that the defense system of acquisition has suffered from a surfeit of reform efforts from both the Pentagon and Congress. Indeed simply the pace of changes in legislation and regulation is stunning; one set of reforms can barely be implemented before another is introduced. But measured by outputs, such as weapons fielded, cost, or the time to procure a new platform or system, the era of centralizing reforms has been an unmitigated disaster. Despite decades of well-intentioned reform measures, the pesky problems pointed out again and again appear impervious to change. And the closer one looks at what “reforms” have meant in practice, the uglier the picture becomes.

The Many Lives of the B-1B

The B-1 Lancer was a product conceived at the height of the raging nuclear competition between the United States and the Soviet Union, when the Russians had achieved parity in overall nuclear forces; built a massive fleet of intercontinental ballistic missiles; and made significant investments in long-range, high-altitude air defenses, even beyond those that had proved effective against US B-52 bombers in Vietnam. In response, the air force imagined the B-1 as a very fast, low-flying, and maneuverable bomber that would be able to penetrate Soviet airspace and thus bolster the bomber leg of the nuclear triad, strengthening deterrence. In sum, this hugely ambitious effort pushed the edge of aerospace technology and programmatic complexity, and the perhaps predictable development snafus created delays and cost overruns.

When Jimmy Carter, a former submarine officer and a politician devoted to arms control, became president with the backing of a huge Democratic majority in Congress in the wake of the Watergate scandal, one of his first acts was to terminate the program. Reinvented as the B1-B, the bomber was revived in 1981—a less ambitious aircraft and smaller program but a symbol of Ronald Reagan’s commitment to rearmament. However, the “B” version lacked the performance intended for the original aircraft, and its ability to fulfill the role of supersonic nuclear strike has always been in question. For most of its service life—which is nearing its end—it has taken a back seat to the lumbering but still effective B-52 in large-scale conventional operations and to the B-2 stealth bomber in the nuclear role or when penetrating sophisticated enemy air defenses.

In many ways, the B-1 project was an accident waiting to happen. The air force approached the B-1 bomber program as if it had learned little from previous attempts at acquisition reform or the failures of the B-58 and B-70 acquisitions. Both of those programs, which emphasized technological innovation to achieve supersonic speed, fell victim to technical failures, high costs, and an inability to perform the mission for which they were designed. The B-1 replicated many of the requirements of those two systems; a 1963 air force study had called for supersonic speed, a 40-ton payload, rapid takeoff from relatively short runways, the maneuverability needed to penetrate Soviet air defenses, and aircrew protection in the form of a capsule, rather than conventional ejection seats. If that did not quite defy the laws of physics, it did give engineers a very tough task.

The contract to build the B-1 was awarded to North American Rockwell on June 5, 1970. Included in that contract was $1.35 billion to construct five experimental airplanes to help assess the technical capability needed to achieve these requirements. The air force initially estimated a total program cost of $8–10 billion dollars for 240 B-1 bombers, a ludicrously low amount. Rockwell predicted a cost of $20–25 billion, while the Pentagon’s principal development engineer guessed that the total program cost was more likely to be $37–40 billion.

The first B-1 prototype rolled out of a hangar in Palmdale, California, in October 1974. Although accurate cost data was closely guarded, the GAO estimated that the total program cost was now about $19 billion. Defense Secretary James Schlesinger warned the air force that if the cost topped $100 million per bomber, the program would lose Pentagon and congressional support. To remain under that ceiling, the air force cut back on some requirements, including deleting the crew escape capsule and lowering its supersonic speed objective from Mach 2.2 to Mach 1.6. To shore
up congressional support, the air force and Rockwell awarded subcontracts to more than 5,000 companies in 48 states. To win Sen. John Glenn’s (D-OH) vote, the air force agreed that at some point it would arm the B-1 with conventional weapons as well as nuclear bombs. Nonetheless, the project was on thin ice. A 1975 Senate effort to kill the program was defeated, but the production decision for a 244 B-1 fleet was delayed, allowing time for a new administration to review the program and make a production decision in June 1977.

President Jimmy Carter canceled the B-1 on June 30, 1977. Carter argued that the very expensive program had been conceived without consideration of the strategic value of a long-range nuclear cruise missile and the promise of future stealth technology. By early 1978, funding for the first two production B-1 bombers had been rescinded. However, owing to the president’s reference to the value of cruise missiles in his decision to terminate the bomber, Congress kept the B-1 design team alive through appropriations for a modified B-1 that might become a strategic weapons launcher. The air force envisioned a so-called long-range combat aircraft (LRCA), similar to the B-1, that might carry out multiple roles and missions rather than be solely a nuclear bomber. Congress dedicated $350 million and stipulated a deadline of March 15, 1981, for the Department of Defense to come up with a new bomber, which might be a stretched FB-111, a LRCA variant of the B-1, or a third candidate—a new, stealthy aircraft dubbed the advanced technology bomber, or ATB, which would later become the B-2.

This B-1 LRCA variant would soon become the B-1B, stripped of most of its supersonic speed but made heavier to allow for increased fuel and range and equipped with sophisticated electronics and surface features designed to penetrate Soviet defenses. Through the late Carter years, a political and budgetary rivalry developed between the B-1B and the ATB—with the B-1B regarded as the Republican bomber and the ATB as the Democratic bomber. In October 1981, President Ronald Reagan announced his strategic modernization program. It was a “both-and” compromise: he would begin by building 100 B-1B bombers then follow with 132 stealth bombers. The fixed-price cost for 100 B-1 aircraft was agreed at $20.5 billion, with GAO estimates running upward of $35 billion. Rockwell, having learned the painful lessons of B-1 development and now able to capitalize on technologies they well understood, delivered 100 aircraft on schedule for $20.5 billion in inflation-adjusted dollars.

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Why did the B-1B project succeed where the original B-1 failed? The B-1B was designed within the limits of reasonably well-known production technologies; the “B” was a product of the B-1 and its prototype aircraft. This meant that Rockwell could accept and deliver upon a fixed-price contract and bring 100 aircraft in on time and on budget. However, while this approach was generally successful, corners were cut during B-1B development that ultimately increased costs and caused problems.

The original B-1 prototypes were for similar, yet substantially different, aircraft, and the failure to build test models of the B-1B before the production run negated a fly-before-buy approach. The result was considerable concurrency—meaning that the time between design and procurement was truncated and that modifications had to be made during manufacture. This resulted in system-integration problems and different production runs of the aircraft having differing capabilities. Concurrency is not per se a bad thing—it can shorten the time between design and fielding—and the Reagan administration, for sound geopolitical and strategic reasons, was anxious to have a demonstrable capability that reinforced its message of renewed American strength. But in some ways, the Pentagon was in a rush to build an older airplane that would have limited utility.

This combination created other opportunity costs. The fixed-price contract, with its rigid cost controls, prevented the program from incorporating state-of-the-art
technology, such as a new inertial navigation system; the air force believed it could better manage a program that employed mature technologies. Seeking to save money, the service also elected to act as its own general contractor instead of having a prime defense contractor. The GAO later faulted the air force for this decision, arguing that it could not adequately supervise the various enterprises and technologies of Rockwell; engine-maker General Electric; avionics-supplier Boeing; and AIL, which built the electronic countermeasures.

From the first, the B-2 gave the Defense Department and Capitol Hill a bad case of sticker shock.

The B-2: Stealth, Secrecy, and Sticker Shock

As mentioned, B-2 bomber research began as the ATB in the Carter administration and received further support during the Reagan administration. On October 20, 1981, Northrop Corporation was selected as the prime contractor for the B-2 after a secret design competition against a Lockheed-Rockwell team. In 1986, when estimated costs to acquire and maintain the 132 aircraft were first made public, the price tag for the B-2 program was revealed to have increased from $58.2 billion to $77 billion. Ultimately, the air force purchased just 21 B-2 bombers at a total cost of $44 billion, with roughly half of that sum dedicated to research and development of the stealthy aircraft. From the first, the B-2 gave the Defense Department and Capitol Hill a bad case of sticker shock.

As with the original B-1, ambitious operational requirements pushed the limits of technology and thus the price and program schedule. This first attempt to create radar-evading and other low-observable characteristics—to build a bomber that defeated enemy air defenses by stealth rather than speed or altitude—in a plane with sufficient range and payload to conduct large conventional or nuclear strikes anywhere in the world was certainly an ambitious goal. But the blending of these technologies made the aircraft complex and costly to develop, produce, and—just as important—maintain.

B-2 development started in 1981. Northrop began building long lead-time aircraft components in 1986, and flight tests got underway in 1989. Like the B-1 before it, the B-2 ran into concurrency troubles. The lengthy development and test portion of the program ran concurrently with the production program for more than a decade, and so the air force had to devise a mechanism for accepting partially capable aircraft until their full capability could be demonstrated in the test program. Therefore, the air force agreed to accept 15 production aircraft in 3 different configurations. Only the third, known as Block 30, was fully mission capable with the technologies of stealth, precision attack, electronic countermeasures, and mission-planning systems seen as essential to penetrate Soviet airspace successfully.

Thus, figuring costs estimates for the B-2 was always a challenge for the air force. Funding restrictions from Congress confounded the management of an inherently complex project, and overlapping research and procurement schemes—again, justified by the strategic urgency of fielding a new bomber rapidly—multiplied every problem. Building the B-2 was something like building the original B-1—that is, an airplane that pushed the limits of technology—but on the schedule of the simpler B-1B. The fact that low-observable technologies were so new, as opposed to the better-understood challenges of supersonic flight and low-altitude maneuverability, only made matters more difficult.

The B-2 development program was a complexity within a larger complexity. It included the cost of the original design, manufacturing six aircraft and two test articles, reworking five of these aircraft to a baseline production configuration, and planning and executing the test program. In some ways, it was remarkable that the cost of development only rose by 10 percent. Nonetheless, there were substantial delays and technological and engineering challenges.

The B-2 was also one of the first aircraft designs to rely heavily on advanced computing, and naturally, integrating the software took more time than planned. As was typical in highly concurrent projects, it was necessary to redesign components to correct problems discovered in flight tests and to rework development
aircraft to bring them up to the production configuration. The test schedule slipped, and manufacturing costs proved higher than expected.23

The biggest change was a new requirement, introduced in 1983, to give the B-2 a low-level, high-subsonic flight profile—even a stealthy platform could not be expected to simply cruise slowly and steadily through well-defended airspace. But this change required a major redesign of the aircraft to add additional flight control surfaces and to beef up its structure to meet the atmospheric conditions at low altitude and high speed. Altogether, this redesign delayed the B-2 bomber’s first flight by two years and added as much as $2 billion to the program cost. Although the redesign may have been necessary—it certainly yielded an airplane better equipped to adopt multiple flight profiles—it was also an important lesson about the high costs of locking in a new bomber design before conducting a full technology and risk assessment.

The B-2 also paid a high price for secrecy. A “black” program from its inception, the effort to shroud the bomber continued through both development and early production phases. The need to develop a highly competent work force, submit them to extensive background checks and polygraph tests, and use highly restricted facilities was expensive. Security procedures and processes were estimated to add between 10 and 20 percent to the overall B-2 program cost. Another cost driver for the B-2 was its principal mission of nuclear deterrence, as the only penetrating bomber that could hold mobile targets deep in the USSR at risk. Making the B-2 survivable meant that designers had to learn how to harden stealth coatings against radioactive effects—another costly and time-consuming process.

Eventually time caught up with the B-2. It was planned in the late phases of the Cold War as a nuclear weapons delivery system, designed to hunt for mobile ballistic missile targets deep inside Soviet territory. The rationale for the bomber collapsed as rapidly and completely as the Soviet Union itself. In April 1990, then Secretary of Defense Richard Cheney, following a major aircraft review, announced a reduction in the B-2 program from 132 bombers to 75, reducing the program cost to $64.8 billion. In his 1992 State of the Union address, President George H. W. Bush reduced the program to 20 operational aircraft. The air force estimated the cost of the 20 aircraft program to be $45.3 billion in then-year dollars.

Ironically, the post–Cold War era has given the B-2 a new lease on life, not only as the sole bomber in the nuclear triad but also as a stealthy conventional strike platform. The aircraft has been used to dramatic effect, employing large numbers of satellite-guided bombs in the early phases of wars from the Balkans to Iraq and Afghanistan. Terminating the B-2 has proved to be a penny-wise but extremely pound-foolish decision.

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The F-22: The Trouble with Transformation

The air force’s procurement woes have not been confined to the world of long-range bombers. Although low-observable technologies are now required for any aircraft that seeks to penetrate modern air defenses, their importance has yet to translate into a requirement for a sizable fleet of stealth aircraft. The air force’s front-line fighter, the F-22 Raptor, has in many ways turned out to be the B-2 of the fighter world: a very fine aircraft, but too costly for defense secretaries and too rich a target to avoid congressional flak.

The story is a familiar one: F-22 development and acquisition coincided with a sustained decline in the air force fighter inventory. Originally the air force intended to buy 750 F-22 aircraft, primarily as replacements for air-superiority F-15 fighters acquired during the 1980s. The first statement of need was written in 1981, with funding authorized in 1983, and the air force organized the initial program for the advanced tactical fighter (ATF) that year. Seven companies were granted $1 million fixed-price contracts for conceptual designs for the fighter; these vehicles highlighted technologies to be developed in later phases of the program.
The ATF design was meant to push the limits of technology. The performance characteristics valued most highly were supersonic cruise without afterburner—in other words, making the fighter very fast and very fuel efficient—increased combat radius, and improved maneuverability. Harvesting the best ideas from the concept-exploration phase, the air force then went forward to a “demonstration/validation” phase with two contractors building full-scale aircraft prototypes that would compete in a “fly-off” test. The prototypes flew in 1990 and 1991, and after a 54-month trial, Air Force Secretary Don Rice announced that Lockheed Martin’s F-22 had bested Northrop’s F-23, based on “better capability at lower cost.” The Northrop design was stealthier and faster, but the F-22 was more maneuverable.

Alas, the subsequent engineering and manufacturing development phase of the F-22 also saw the program enter what would turn out to be a fatal tailspin. Even at the beginning of this phase, in 1991, the projected production run was cut from 750 to 648 planes. The F-22 was supposed to enter service in 2001, and the total cost of the program was estimated at $99.1 billion, of which roughly $20 billion was dedicated to development. Like the B-2, the F-22 suffered because of the end of the Cold War; its mission was to achieve air superiority over Russian fighters such as the MiG-29. The 1993 Bottom-Up Review, the framework for the major defense cuts of the Clinton administration, dealt an even harsher blow: the review reduced the intended F-22 force to just 442 jets and extended the first fielding to 2003.

Despite these decrements, the F-22 was considered early in the procurement process to be a model acquisition program. In 1986, Air Force Chief of Staff General Larry Welch declared the ATF program as an opportunity to improve the acquisition process. The leadership of the F-22 program sought to manage risk through requirements control; technology control; and the use of management techniques, such as integrated product development, integrated product teams, and lean manufacturing. Indeed, the air force was remarkably in tune with what were considered the advanced industrial techniques of the time.

But clever management could not make up for the overall lack of funding; the F-22 project could not escape the consequences of across-the-board defense cuts. As early as 1993, congressional accounting and budget experts, and even the Pentagon’s own Defense Science Board, expressed concern that the air force’s budget could not support the planned program. The combination of unstable and inadequate funding and technological challenges—problems that, as ever, proved mutually reinforcing—forced the air force to restructure the program three times in four years, in 1994, 1996, and 1997. Not surprisingly, overall development costs increased another $5 billion.

The situation quickly went from bad to worse. The May 1997 Quadrennial Defense Review cut planned production of the F-22 to 339 aircraft. This had nothing to do with diminished threats or the service’s needs; such a fleet would be almost too small to support the air force’s worldwide missions, inevitably making the F-22 a precious national asset only to be used in the most dire circumstances, not an everyday aircraft as the F-15 had been. Indeed, these reductions were made simply as a matter of budgetary necessity. The development phase was stretched further, driving up costs yet again: this time to $18.7 billion. Not to be outdone, Congress imposed a $43.4 billion limit for production—in essence agreeing with the Pentagon that the F-22 had morphed from a requirements-driven program into a budget-driven one.

The F-22 project now became a replay of the B-1B acquisition, though at double the price. But while the B-1B at least could be structured around stable requirements and relatively well-understood technologies, the F-22 employed cutting-edge technologies and suffered from “requirements creep” of the worst sort. The air force’s overseers in OSD and on Capitol Hill decided that the lack of an air-to-ground capability was a major shortcoming for an air-superiority fighter. In a desperate attempt to defend the F-22 as a multi-mission platform without compromising its basic concept, the air force argued that the baseline aircraft could perform other missions, such as a “strategic electronic intelligence collection capability,” or that the airplane would reduce territory lost and lower ground casualties in a major contingency. None of these arguments were persuasive enough to prevail over increasing pressure against the F-22 program’s acquisition failures and
operational shortcomings, such as range and maintenance requirements. The tailspin was nearly complete; all that remained was the crash.

In 2004, Defense Secretary Donald Rumsfeld concluded that the F-22 “did not fit his transformation vision.” A presidential budget memo removed production funding for the F-22 after 2008, ending production at 183, versus the original plan to buy 750. Massive cost and schedule overruns, combined with a high-profile scandal involving senior air force acquisition officials, undermined any air force defense of the F-22. Ultimately OSD stepped in—a fateful step that could be said to have completed the McNamara initiative toward centralization—to take program management away from the air force. The F-22 was finally fielded in 2005, but by 2007 the total cost of research, development, test, and evaluation had grown to approximately $30 billion—36 percent more than the 1998 congressionally imposed limit and 56 percent more than planned at the beginning of development.

The program continued a zombie half life for two more years as the air force held to a requirement of 381 F-22 aircraft to meet operational requirements—again, this was simply arithmetic, the smallest number of planes needed to meet worldwide commitments. However, in 2009 Secretary of Defense Gates snuffed this out, terminating the program at 187 aircraft and a total program cost of $79 billion.

Ironically, the F-22 program’s cost overruns, although substantial, remained roughly consistent with other cutting-edge, high-technology aircraft programs; it was not a historical anomaly. Ultimately, like the B-2, the F-22 suffered from the perception that it was an outdated and inappropriate “Cold War weapon” in the post–Cold War era. In combination with two decades of budgetary turmoil, this ended up killing a very capable fighter—despite revived threats and operational needs.

The F-35: Triumph of Centralization

The massive F-35 program—almost the lone survivor among the current generation of procurement programs—owes many of its nine lives to the process of centralized procurement management put in place five decades ago by McNamara. It is an aircraft conceived by the OSD to meet not only three services’ needs but also the needs of America’s allies. Perhaps not surprisingly, it is a bit of a horse designed by a committee, beloved by none of the services—with the exception of the marine corps, which is thus acquiring an aircraft with capabilities far beyond what it could afford on its own. In fact, the marine corps has embraced the F-35 to such an extent as to create a whole new class of amphibious ships, which really are nothing more than aircraft carriers. And they are small only in comparison to the navy’s supercarriers; the America-class amphibious assault ships are actually a bit larger than the French carrier Charles de Gaulle. In other words, managing the F-35 project is as politically complex as it is technologically challenging; the program is not only too big to fail as an American effort, but also as an international one. It is a greater surprise, perhaps, that the F-35 has gotten as far as it has so speedily.

The Joint Strike Fighter (JSF) program originated in the early 1990s and owed much to the restructuring and integration of several defense programs—not just tactical aircraft programs—in response to the cuts of the Clinton years. The 1993 Bottom-Up Review canceled and curtailed a variety of programs and, with the particular attention of future Defense Secretary Perry, put in their place the Joint Advanced Strike Technology (JAST) program intended to develop a common family of aircraft to meet joint-service needs. The director of the JAST program worked closely with the F-22 management and looked at that program for lessons learned. According to one source, those lessons included a focus on the effectiveness of the weapons system (as opposed to obtaining a certain performance parameter), the use of integrated product teams, and the use of modeling and performance tracking. In other words, the latest techniques for centralized program management were again wheeled into place.

The JAST initiative became the JSF program in 1996, with competitive contracts awarded to Lockheed and Boeing to produce an aircraft capable of conventional takeoff and landing for the air force, large-deck carrier takeoff and landing for the navy, and short takeoff and vertical landing for the marine corps. The JSF was to be the stealth version of a Swiss army knife, but
these requirements were fundamentally at odds. The air force model would be the simplest to build, and the air force would stress performance in flight. So would the navy, but carrier operations required a much more rugged, robust, and heavy airplane, capable of withstanding repeated carrier landings and catapults; the navy was also very skeptical of a single-engine aircraft. The marines had the most desperate need; they needed a new jump jet to replace their aging fleet of AV-8B Harriers, and the F-35 was the only alternative. As the Clinton administration gave way to the Bush administration, the total acquisition cost for 2,866 aircraft was estimated at $233 billion. By 2012 the cost had nearly doubled from original estimates: almost $400 billion for 2,457 F-35 aircraft.

The F-35 was in some ways a reprise of McNamara’s TFX program. Each service had very different requirements. The air force wanted 1,763 relatively inexpensive tactical bombers to replace F-16 and A-10 aircraft. The navy wanted 480 deep-strike stealth bombers capable of hitting targets in contested air environments—and had suffered its own single-service program disaster with the A-12 Avenger, the navy’s first attempt to get into the stealth game, an effort terminated in 1991. And the marines wanted to replace aging Harriers and conventional F/A-18 air craft with 609 short-takeoff, vertical-landing attack aircraft that would operate from big-deck amphibious assault ships and unimproved, close-in airstrips to support ground forces.

The concept development and prototyping phases of the F-35 project also followed the script laid out by the F-22 program, and in November 1996 two contracts of $750 million each were awarded to Lockheed and Boeing to develop prototypes in a head-to-head competition. Jump-jet variants of the JSF were also planned to replace Royal Air Force and Royal Navy Harriers in the British military. Because of the domestic and international importance and priority of this fighter program, the Pentagon designated it as a “flagship program for acquisition reform.” According to one early study, changes to traditional acquisition practices focused on six broad areas, all reflecting increased centralization: service commonality, the acquisition cycle, the requirements determination process, technical risk reduction, extended design and subsystem competition, and foreign participation.32

Each competing contractor duly built and flight tested two demonstrators, and each flew in the second half of 2000. The competition focused on three areas: commonality and modularity for the three variants, short takeoff and vertical landing, and low-speed flying operation around a carrier. Notably, air force desires took a back seat to those of the sea services, even though their planned buy of F-35 fighters accounted for two-thirds of the total purchase.33 The award to Lockheed in 2001 was based principally on its success with the jump-jet variant.

However, notwithstanding declarations that they would not fall into the early developmental traps of the F-22 in the F-35 program, the air force repeated many of the same mistakes, despite the similarity of the aircraft and, indeed, the same prime contractor. Concurrency was essential for the marine corps; the need to replace the old Harriers was urgent and echoed by OSD. But there seemed to be little recognition that this was a programmatic risk. Yet when things began to unravel—technological hurdles caused schedule delays and drove up costs in a repetition of the F-22 tailspin—OSD distanced itself from past decisions for which it bore primary responsibility. Thus the current undersecretary for acquisition recently described the decision to procure 289 F-35 fighters for $58 billion before completing development flight testing as an example of “acquisition malpractice.”

In particular, OSD wanted the JSF to be a relatively inexpensive airplane, reprising the traditional idea of a high-low mix in fighter fleets, as had worked so well with the F-15 and F-16. Thus affordability drove several basic design decisions, including that the JSF be a single-engine, single-seat aircraft and that there be as much commonality among the three variants as possible. Indeed, this was regarded as a flagship program for the implementation of an initiative known as “Cost as an Independent Variable”—that is, the price tag would be fixed and adjustments in the design and level of capabilities would be made to remain within a set cost. Further, a life-cycle cost model—one that attempted to capture the expense of designing, building, operating, upgrading, and repairing the JSF over the many
decades of its expected service—was adopted during the first few months of the program.

This predictive model was in some ways fundamentally absurd; long-serving aircraft such as the F-16 go through profound technological changes and frequently take on missions never foreseen. But this process of trading off cost and operational performance was a group effort. The services, industry, and OSD—indeed other government agencies as well—played roles in the guise of “affordability.”

Despite the commitment to doing business in a different and efficient way, the story remained depressingly the same. By 2010, F-35 cost overruns led Defense Secretary Gates to remove the program director, withhold $514 million in bonuses to Lockheed, and delay the program one year. Aircraft unit cost rose from $50 million in 2002 to $69 million in 2007 to more than $75 million in 2012, all measured in 2002 dollars. Current estimates to procure and maintain the F-35 fleet—still driven by a supposed 56-year life-cycle model—run to $1.5 trillion. While this number is nearly meaningless, it has again created a sense of sticker shock about the program. The F-35 survives, but it is doubtful that the planned buy will ever be fulfilled.

Buying the B-3: What to Do and What Not to Do

Reviewing the unhappy histories of recent aircraft acquisitions, it is hard to avoid a sense of dread about the prospects for buying a new bomber in a way that is programmatically efficient and provides an effective capability within the required timeframe. It is also hard to avoid the conclusion that the current centralized and sclerotic acquisition system is simply incapable of fielding a large fleet of anything. The OSD is a most inconstant moon, monthly changing in her circled orb.

The case studies we have presented also stand in stark contrast to the major aircraft acquisitions of the Reagan buildup—the “teen” series of fourth-generation fighters. The US Navy bought 712 F-14 planes, which were in service from 1974 to 2006. The navy, marine corps, and various allied air forces have fielded more than 600 F/A-18 aircraft in a variety of configurations. Six countries operate versions of the F-15; more than 1,600 have been built. And more than 4,500 F-16 fighters have been built; 25 countries outside the United States fly Falcons. Each of these aircraft designs faced technological and programmatic challenges, yet by today’s standards they were models of stability.

The F-35 was in some ways a reprise of McNamara’s TFX program.

Here is what we know about the B-3 plan. The air force initially wants to buy 100 aircraft, at a unit price of $550 million, as measured in 2010 dollars. To keep the price down and to field the bomber by the mid-2020s, the design will employ well-understood, current technologies—the kinds of low-maintenance materials that make everyday stealth performance possible on the F-35, for example—and an open architecture to allow future upgrades. The air force also wants to begin with a manned bomber but is considering a future unmanned version. Initial procurements will be done in 5 segments of 20 aircraft each, with a fixed-price-plus-incentive contract to give the builder a bonus for delivering aircraft under budget.

The program is highly classified, but the very short time for “down-select” between the two competing industry teams and the aggressive funding plan—which ramps up to several billion dollars per year in very short order—suggests to many observers not only that the technological hurdles are well understood but also that the competing contractors have built prototypes. That and the projected funding profile suggest that the LRS-B project has made more progress at this stage than the programs highlighted above. At the same time, there could be risks ahead in incorporating more exotic weaponry—for example, semiautonomous strike weapons such as a new long-range standoff cruise missile—or related subsystems, such as electronic countermeasures allowing the aircraft to penetrate modern air defenses with fewer complex onboard sensors and systems.

In sum, the air force seems to have a reasonable approach to technology and cost. At the same time, this increases the likelihood of political, bureaucratic, and
budgetary mischief. While the LRS-B appears to have widespread support, it is not necessarily deep—if nothing else, the level of classification has kept the air force from saying much about the program or familiarizing Congress, the press, or the public with it. In the era of the Budget Control Act and with the Pentagon annually held under the threat of the law’s sequestration provision, the program’s funding profile is also optimistic, to put it gently.

As crucial as the new bomber may be for retaining and improving long-range strike, it will also be competing for resources with other expensive and crucial needs, such as the nuclear submarine force.

In a time marked by increasing geopolitical uncertainty and conflict, there is fierce competition and pressure to retain currently existing weapons, forces, and capabilities and to postpone expensive modernization plans—for example, to keep A-10 aircraft and wait to buy many F-35 fighters or the LRS-B. Moreover, as crucial as the new bomber may be for retaining and improving long-range strike, it will also be competing for resources with other expensive and crucial needs, such as the nuclear submarine force. Further, the cost cap of $550 million per plane is a very public and risky bet. That figure excludes many things; opponents of the program will almost certainly be able to argue that B-3 costs are actually much greater, and the program will not be immune to the sticker-shock phenomenon.

Finally, the prospects for successful B-3 procurement rest on the air force’s ability to be left alone to manage the program—and the service fulfilling that trust. The best way to do that is to focus on the need to field the B-3 within that “mid-2020s” timeframe; program urgency without program concurrency ought to stand as the B-3 creed. As the case studies make plain, a drawn-out development period is an irresistible temptation to meddle: for OSD, for Congress, for all. The case studies also suggest that not even prototype fly-offs forestall this temptation—if OSD can discover a need to add a close air-support requirement to a supercruising, stealthy air-superiority fighter, anything might be possible.

In sum, the United States’ ability to supply itself with the long-range bomber it needs demands that it set aside two generations of centralizing management habits. This approach has been “improved” with “innovative” management techniques repeatedly, but none of them can make up for the original sin of misunderstanding that the best weapon is one that does a few things well, creating a capability that an adversary cannot match. Conversely, jointness is a quality that comes from a total force, not a single element. It comes from bringing a mix of overpowering capabilities together artfully to provide a robust deterrent or to inflict a decisive defeat. The B-3 should be thought of more as a Swiss pikeman—an extremely lethal element in a combined-arms force—than a Swiss army knife. It needs a purchasing plan built around that recognition.
Notes


28. Ibid., 61.

29. Ibid., 63.

30. Ibid., 54.


33. Ibid., 16


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