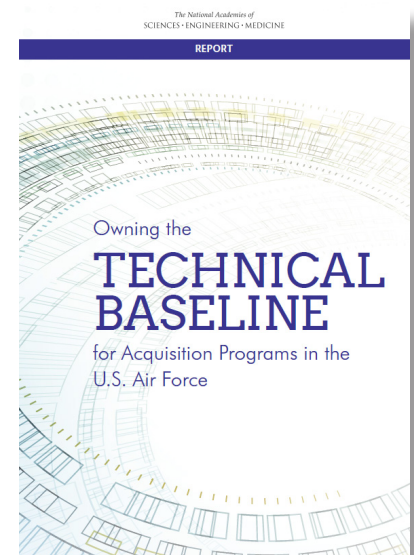


## Owning the Technical Baseline for Acquisition Programs in the U.S. Air Force

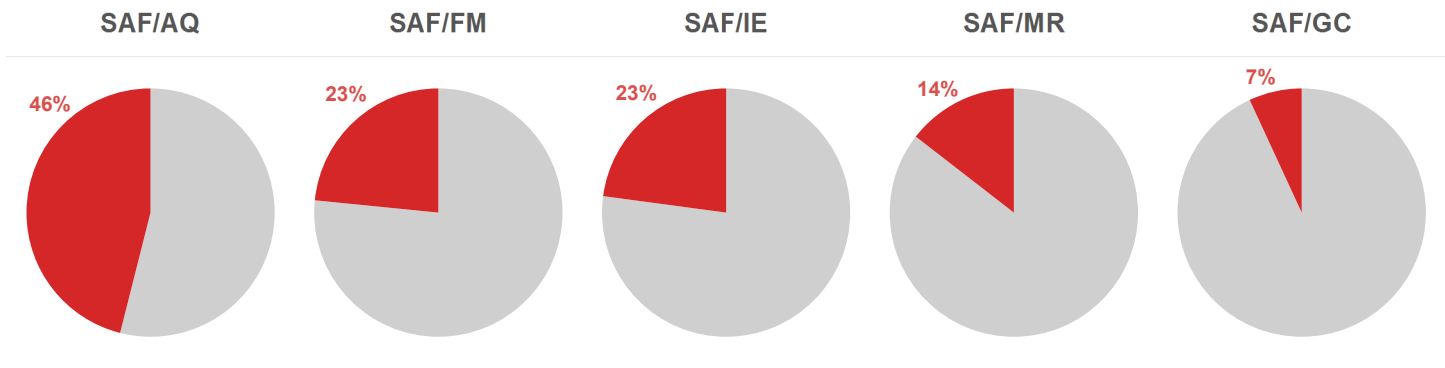
New and advanced weapons systems require major investments in technology, people, and procedures in order to effectively fulfill their mission in defending U.S. interests. Entering the 1990s the U.S. Air Force (USAF) was widely recognized as a premier technical acquisition enterprise. During this time period, the USAF possessed a cadre of technical experts who were well respected by industry due to their extensive weapon system development experience, knowledge of how the product would integrate with existing systems, and authority to make adjustments in order to optimize the product within cost and schedule constraints. During the post-Cold War restructuring of military services that began in the mid-1990s, the USAF reacted to shifts in the strategic and budgetary environment by reducing the number of staff with extensive technical backgrounds and using contract price as the dominant discriminator for determining contract awards. These choices have resulted in the loss of “the technical baseline” - USAF’s close technical oversight over contractors - and have contributed to many of the cost and schedule overruns in USAF acquisition programs. The problem has been exacerbated by the lack of consistent leadership for acquisition programs, the development of a risk-adverse culture and constraining oversight, and a loss of accountability across the greater acquisition team. At the request of the USAF, the National Academies of Sciences, Engineering, and Medicine organized a data-gathering workshop followed by a study to identify how the USAF can take ownership of the technical baseline and regain its reputation for excellence across its acquisition programs. The subsequent report, *Owning the Technical Baseline for Acquisition Programs in the U.S. Air Force*, finds the USAF lacks consistent leadership for acquisition programs and is hampered by a risk-adverse culture and constraining oversight. The report recommends the USAF improve acquisition leadership, cultivate a knowledgeable workforce, and increase accountability across the greater acquisition team.

### PROVIDING CONSISTENT LEADERSHIP FOR ACQUISITIONS

A strong sense of shared mission ownership, down the chain of command, is critical to fostering quality program management and successful program outcomes. Consistent tenancy in the Assistant Secretary of the Air Force for Acquisition position will help to revitalize, focus, and provide visible support for the acquisition community’s critical role in program development and execution.



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Percentage of time (in red) from Jan. 2000 to Jan. 2016 when Air Force Assistant Secretary Positions were at Acting or Vacant status. Data was taken from “Key Personnel” updated by Major Laura E. Cox, published by the Headquarters United States Air Force in January 2013.

**RECOMMENDATION:** The Secretary of the Air Force should investigate why the position of Assistant Secretary of the Air Force for Acquisition is in an acting or vacant status more frequently than other Air Force Assistant Secretary positions. This investigation should consider how the Air Force, along with other Services and government agencies, fill similar critical positions and should focus on identifying best practices for implementation. The Assistant Secretary of the Air Force for Acquisition position should not be vacant for any extended period of time and the use of an acting individual should be minimized. Furthermore, in order to attract competitive talent, the Air Force should ensure that it does not impose any additional restrictions beyond those required by law, especially relative to the post-employment period, for the position of Assistant Secretary of the Air Force for Acquisition.

## STRUCTURING ACQUISITION PROGRAMS FOR INNOVATION AND EFFICIENCY

A risk-averse culture coupled with a high level of oversight hinders program managers from making informed, timely, and independent decisions. This culture has a negative impact on programs and is a major driver of rising costs and protracted schedules.

**RECOMMENDATION:** Air Force senior leaders should define, develop, and execute a strategy that balances risk and reward from a program implementation viewpoint, fosters a learning environment characterized by healthy tension and debate, and actively rewards acquisition personnel that regularly find a “pathway to yes.” A risk-tolerant acquisition culture, in concert with a sense of urgency, is critical to agile and timely acquisition for the Air Force to maintain its advantage against rapidly evolving threats. Significant attention should be given to the proliferation and acceptance of this crucial change. The strategy should include the following at a minimum:

- Establishing an education and training program to promote and develop a risk-tolerant culture that includes the use of current and former experienced acquisition professionals to provide guidance and mentorship.
- Encouraging the pursuit of more reasonable interpretations of policy and process flexibility to more efficiently accomplish program goals while maintaining compliance.
- Assuring that logical and reasonable deviations from policy or requirements can be expeditiously pursued by empowered acquisition personnel.

**RECOMMENDATION:** The Air Force should continue and complete its efforts to determine which current programs should own the technical baseline and develop staffing standards to determine the proper mix and number of military and civilian engineers required to own the technical baseline for those programs. Criteria should be established for when the Air Force should own the technical baseline as opposed to having knowledge of the baseline as technical integrator or interface systems reviewer. The decision to own the technical baseline for future programs should be included in the acquisition milestone protocol as gated decision points. Additionally, the Air Force should develop methods to measure whether or not selected programs have successfully achieved, and are maintaining, ownership of the technical baseline. Cost overruns, schedule delays, and unidentified, or incorrectly identified, key performance parameters (KPPs) are potential measurement points.

In a constrained budgetary atmosphere, the efficient use of available funds to support weapons systems is paramount to meeting mission requirements. Air Force leaders have recognized this need and have already begun to employ more flexible means of funding its acquisition staff.

**RECOMMENDATION:** The Air Force should complete the shift from operations and maintenance (O&M) funds to research, development, test and evaluation (RDT&E) funds for funding acquisition staff. Additionally, the Assistant Secretary of the Air Force for Acquisition should require PMs to include in their program financial plan such a budget, as necessary, to fully fund the in-house technical effort.

## **STRENGTHENING THE AIR FORCE ACQUISITION WORKFORCE**

The USAF has gradually reduced its technical workforce through a combination of service downsizing, devaluing technically trained personnel, cost-cutting measures, and attrition. This gradual loss led, in some cases, to the USAF assigning personnel who lack the necessary technical education or expertise to program management positions, resulting in a choice to yield control of the technical baseline to prime defense contractors. The USAF needs to take immediate steps to emphasize the value of its acquisition professionals and expand the technical expertise of the acquisition workforce.

**RECOMMENDATION:** The Air Force should review, and make appropriate changes to, current assignment policies and practices for the acquisition workforce to reduce turnover and attrition and increase succession and transition planning; should invest in a more structured mentoring program across the acquisition workforce to increase the sharing of best practices; and should ensure that the career management system for the acquisition workforce be charged with providing appropriate educational opportunities, training, and industrial experiences to acquisition personnel. The intent of the review should be to create strong career paths for acquisition personnel reflecting the critical value of acquisition to future Air Force operations.

**RECOMMENDATION:** Air Force leadership should, in concert with its current activities, ensure that there is necessary guidance and governance for the currency of appropriate skills of the acquisition workforce at all levels. This must include, but is not limited to, emphasis on the criticality to program success of technically educated and technically experienced program managers. Additionally, the Air Force should prioritize education and experience in industry, recognize its importance to the development of competent acquisition personnel, and increase the opportunities for members of the acquisition workforce to gain this education and experience.

**RECOMMENDATION:** The Air Force should establish, select, and equip a dedicated line of program acquisition officers, selected from a defined science, technology, engineering, and mathematics (STEM)-intensive career path in the uniformed services. This dedicated line of program acquisi-

tion officers would be similar in intent, education and experience to the Navy's engineering and aeronautical engineering duty officers. Additionally, a robust career path for USAF civilian engineers and program managers should be established that supports their critical importance to the successful execution of acquisition programs through ownership of the technical baseline. Program managers should generally be selected from the engineering and technical workforce.

## **IMPROVING ACCOUNTABILITY FOR TECHNICAL ACQUISITION**

The U.S. Air Force supplements its technical workforce via on-site contractors that are not employed under the main contractor of an acquisition program. The technical capabilities of the personnel received through standard labor pools do not always align with the requirements defined by the program manager.

**RECOMMENDATION:** Air Force Life Cycle Management Center (AFLCMC) leaders should work with the Engineering, Professional, and Administrative Support Services (EP-ASS) program management office to put in place a rigorous requirements definition process such that specific technical requirements and criteria are approved by the program manager and that contractor personnel align with those requirements to meet the needs of the program. Application of AFLCMC's technically acceptable, lowest evaluated price (TA/LEP) approach should be a secondary consideration to meeting the requirement and delivering customer value.

The authorities and accountabilities of program managers as they relate to the authorities and accountabilities of contracting officers are currently causing tension and often negatively impacting acquisition team effectiveness in the Air Force. Contracting support is a key element to owning the technical baseline and changes are needed for future success in Air Force acquisition programs.

**RECOMMENDATION:** The Air Force should issue a guidance memorandum that clearly specifies the lines of authority and accountability for all members of the government acquisition team. This memorandum should clarify and reinforce PM authorities and responsibilities as well as specify CO responsibilities, as part of the government acquisition team, in relation to the PM. Specifically, all functional entities should provide the PM with the support necessary to attain program success. All members of the government acquisition team should be measured based on program success while complying with the law. Additionally, the Air Force should revise the Air Force Federal Acquisition Regulation Supplement (AFFARS) to make it clear that Air Force program executive officers (PEOs) and PMs, or their designated representatives, are mandatory participants in business clearance and contract clearance sessions. Program

management and contracting personnel should be trained in implementation of the guidance.

**RECOMMENDATION:** Contracting professionals' appraisals should have appropriate objectives and metrics tied directly to the program office or organization's mission success. The PEO or the PM or their designee should be required to provide written performance input to the contracting professionals' annual appraisals. Contracting professionals should engage with the program office and be well trained and experienced with their accountability and responsibility for delivering support to the assigned Air Force organization and mission.

Indiscriminate use of the Lowest Priced Technically Acceptable (LPTA) as a proposal evaluation and contractor selection methodology has resulted in poor outcomes and frustrated program managers who do not receive the technical support that is required for understanding and owning the technical baseline. When not used properly, LPTA can result

in a lack of technical and engineering expertise, cause long delays, and create excessive turnover in the workforce due to low wages.

**RECOMMENDATION:** The Assistant Secretary of the Air Force for Acquisition should clarify the criteria for use of the lowest priced technically acceptable (LPTA) methodology and ensure there are avenues for the Government acquisition team to discuss its appropriateness for meeting mission requirements. LPTA should not be applied to complex, multiyear, multidiscipline programs or knowledge-based service contracts that require high-end acquisition and technical talent. A decision to use LPTA should depend on clear and unambiguous requirements, underlying market research, and relevant information acquired during Government and contractor interactions, such as "industry days." If there is a requirement that demands special treatment, the case should be made in the requirements definition, acquisition strategy, and pre-request for proposal (RFP) activity.

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