



## Systems Engineering and Integration Services

Today's program managers struggle to acquire large systems based on changing requirements, sophisticated technologies, and complex interfaces. As a result, many government programs have suffered severe cost overruns and delays.

Booz Allen Hamilton's Systems Engineering and Integration (SE&I) services address these problems with expertise, tools, and processes that can help government program executives more effectively direct development contractors and shepherd large programs through all phases of design and acquisition.

### Risks in Large, Complex System Acquisitions

The rise of system-of-system programs and network-centric solutions is increasing the complexity and risk of big-ticket defense, intelligence, and civilian system acquisitions. Managing such programs requires a broad range of leadership, acquisition, management, and technical skills to effectively articulate requirements and respond to the designs proposed by development contractors, who historically have also been the original equipment manufacturers (OEMs) of system components. Although systems are being built, they often fall short of achieving expected mission performance in the timeframe and budget originally provided. As the Government Accountability Office has noted, in the Department of Defense (DoD), nearly

half of its major programs run at least 25 percent over budget and are delayed an average of nearly 2 years.

Many organizations are weighing in to remedy these shortfalls in delivery. Proposed solutions range from new acquisition reform legislation to address organizational conflict of interest (OCI), to revamping policies and initiatives that would require interjection of systems engineering in the early concept exploration and solution analysis phases of the acquisition life cycle. The common thread in all of these options is the need for enhanced program management and systems engineering capabilities that are fully integrated in a leadership environment that is focused on achieving desired acquisition outcomes.

### An Objective "Integration Agent" for Assisting Program Managers

Drawing on decades of experience supporting large system acquisition programs, Booz Allen's SE&I professionals provide fully integrated acquisition, project management, and systems engineering expertise to government programs. We combine the "art and science" of management and engineering to ensure that complex systems are developed and acquired on time and within budget while providing expected performance.

With trained engineers and systems experts on staff and a robust supporting infrastructure (including

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delivering results that endure

in-house organizational standard processes, a Program Management Environment (PME), and strong modeling, simulation, prototyping, and laboratory capabilities), we offer the full suite of systems engineering functions over the life cycle of concept through testing activities.

We serve as an objective partner or integration agent, free from organizational conflicts of interest, to help government officials manage their development contractors and to ensure the alignment of all program components—from creating preliminary architectural designs to developing a system baseline, and from overseeing integrated master plans and schedules to managing security issues and other risks.

### Helping US Government Leaders Be Ready for What's Next

We help clients improve their overall system engineering and integration processes by tailoring best practices to repeatable methodologies for application on their programs. For example, we provide our Total Baseline Integration (TBI) methodology to enable program executives to make informed decisions quickly by identifying the trade-offs—in cost, schedule, performance, and risk—associated with any programmatic action. We offer our Mission Engineering® capabilities to ensure that end systems actually meet users' needs. We provide our Integrated Acquisition Capability™ framework to stand-up new program offices and get troubled programs back on track. To address program affordability challenges,

our tailored Cost As an Independent Variable (CAIV) process and toolset offers a way for stakeholders to come to agreement on changes by showing them how cost-performance trade-offs are made. Our CAIV approach proved to be so successful that the Air Force Space and Missile Systems Center is now using it as part of the requirements process for other major programs. Booz Allen is providing similar assistance to NASA's Constellation Program, the nation's comprehensive initiative to send humans back to the moon and onward to Mars.

### Ready to Help You

Booz Allen's Systems Engineering and Integration services can help government leaders effectively manage large-scale acquisition programs and achieve their mission goals. We draw from the firm's wide range of capabilities—from sophisticated engineering and technologies to complex program management—to assemble a set of experts, processes, and tools tailored for individual programs. We bring both operational and engineering experience to every engagement, and our independent perspective and collaborative approach enables us to deliver customized solutions that address each customer's unique challenges. To learn more about Booz Allen's Systems Engineering and Integration capabilities and how they can help your team be ready for what's next, visit [www.boozallen.com](http://www.boozallen.com).

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