Ensuring Satellite Communication Program Success Through Polaris™

The Polaris™ probabilistic critical path played a crucial role in identifying tasks that were currently not critical, but could be—depending on risk realization and impact.

MISSION *

A major DoD satellite constellation that provides worldwide communications to US Armed Forces was beginning to decay past its useful life and the US Navy was tasked to ensure the next generation system was operational before this critical infrastructure was lost. The Navy turned to Booz Allen Hamilton to help estimate the cost and schedule baselines. Using Booz Allen's Polaris™ software allowed the Navy program office to create and manage the baseline execution of the development and operational test which is on track to meet critical warfighter needs.

Utilizing Polaris™ to Assess Program Estimates

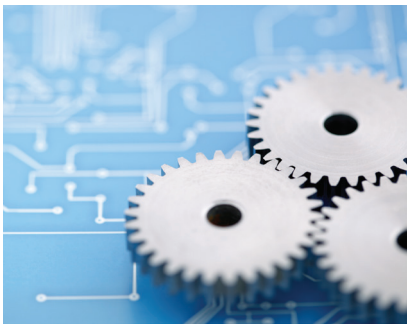
Polaris™ was utilized on the major satellite communications system that provides worldwide secure UHF communications to mobile warfighters with enhanced capacity and interference mitigation using the latest 3G commercial technology.

As it neared completion of its baseline program, the program office was levied a new requirement by the Office of the Secretary of Defense (OSD), making it responsible for delivering not only the space and ground infrastructure, but also testing the capability—which includes waveform integration and provisioning of a certified terminal, all relevant Information Assurance (IA) accreditations, and Authority to Operate (ATO) worldwide ground stations broadcasting classified and sensitive data. Polaris™ allowed the program office to incorporate schedule and risk inputs from programs across DoD and intelligence agencies and inform a schedule commitment date to DoD leadership and operational forces.

Developing New Estimates Due to Unexpected Program Requirements

As part of the new requirement, the program office must update the program's cost and schedule estimates to identify additional resources needed for completion. The end-to-end (E2E) level testing required assets and services from the US Navy, Army, Defense Information Systems Agency (DISA), and the National Security Agency (NSA) which would test the system in operational simulations, and vice test cases that were a part of the baseline program. This required an update to the systems engineering plan (SEP) with the technical test cases which would be undertaken along with the additional schedule and resources required to complete the tasking.

The program's cost, schedule, and risk team gathered schedule inputs to form a multi-program Integrated Master Schedule (IMS) to be used as the basis of the Polaris™ estimate. Since this



was a first-in-class system performing first-in-lifecycle testing, risks were captured from each program and utilized to provide a risk-adjusted schedule that would serve as the basis of the SEP report to OSD and the cost estimate.

Integrating Program Variables Through Polaris™

The Booz Allen team implemented Polaris™ to integrate the schedule and risk components of all external programs and perform a schedule risk analysis (SRA) using the Polaris™ Monte Carlo Simulation methodology. This methodology was long desired by the program's risk/schedule manager, however, before Booz Allen's Polaris™, it would have been broken down into smaller pieces and never integrated.

By integrating the schedule and risk elements, the project manager was able to visualize all risks that impacted his cost and schedule. In running the Polaris™ Monte Carlo simulation, the program was able to select a confidence level (80 percent) that could be used in the SEP as schedule commitments to OSD and the user community. In review of the SEP by the Deputy Assistant Secretary of Defense for Systems Engineering [DASD(SE)], the program was praised for the professional methodology, as one of the best SEPs the group had seen.

Helping Create Effective Program Solutions

The SRA methodology added credibility to the estimate that reviewers/stakeholders could confidently approve the SEP and have reliable schedule estimates for tracking. The risk-adjusted schedule is not only a benchmark/budgeting tool, but it also has become a program tracking tool used to continually assess contractor performance to date and most likely schedule outcomes. As work is completed, risks are realized and incorporated into the baseline schedule, or mitigated. The program's schedule assessment then can be quickly adjusted and new confidence levels can be used to inform the project manager and the stakeholders of the revised probability of completing requirements. Furthermore, the sensitivity analysis embedded in the Polaris™ capability set allowed program leadership to identify those risks driving the greatest schedule increases and target those for mitigation efforts. This led to the mitigation of two major risks and has allowed the program office to continue to execute with no deviations from the baseline. The Polaris™ probabilistic critical path played a crucial role in identifying tasks that were currently not critical, but could be—depending on risk realization and impact. This analysis allowed the program to accelerate operator training to ensure it would not impact the critical path and delay delivery of capability to the warfighter.

Ready to Help You

Our work with the Navy is just one example of how Booz Allen's Analytical Program Management through Polaris™ can help government and industry organizations improve processes and achieve mission goals.

About Booz Allen

Booz Allen Hamilton is a leading provider of management consulting, technology, and engineering services to the US government in defense, intelligence, and civil markets, and to major corporations, institutions, and not-for-profit organizations. Booz Allen is headquartered in McLean, Virginia, employs more than 23,000 people, and had revenue of $5.76 billion for the 12 months ended March 31, 2013. To learn more visit **www.boozallen.com**. (NYSE: BAH)

For more information contact:

David Harris
Associate
harris_david_g@bah.com
619-725-6532

Eric Druker
Senior Associate
druker_eric@bah.com
314-368-5850