Abstract The Advanced Processing Build (APB) process is a tactical software development program intended to improve US Submarine acoustic performance by taking full advantage of the latest state of the art COTS processing hardware. Lockheed Martin Maritime Systems and Sensors is the lead systems integrator for the ARCI APB program. The APB Program developed the APB process, which provides an economical and rapid method of verifying and validating new signal processing and display algorithms for use in combat system upgrades. The APB process couples advanced algorithms developed in academia, small businesses, and Navy laboratories with Prime Contractor engineering integration and test, resulting in early algorithm testing, software reuse, and reduced lead time from algorithm concept to fleet introduction. The APB process does not fit conveniently into a traditional Systems Engineering Process. The APB program is unique in that the program achieves aggressive software development through competitive teaming, use of open source material, and peer review vice rigid management oversight. The APB program differs from typical defense programs in that it evolves existing software year to year rather than designing a completely new system. Key differences between traditional System Engineering and the APB process are that the APB does not have a proposal phase, APB stakeholder requirements begin at a system level, considerable effort is required to gather, formalize, and validate APB requirements, and annual budget/schedule changes year to year. This presentation will provide an overview of the innovative System Engineering process used at Lockheed Martin MS2 Manassas to execute the APB program for the U.S. Navy. This presentation will also compare and contrast this process to the traditional System Engineering approach from which it was adapted and discuss Lessons Learned within the APB program.

Primary Author:
Gary L Tissandier
Lockheed Martin