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COLLABORATIVE CROSS-ORGANIZATIONAL SINGLE REQUIREMENTS DATABASE IMPACTS ON A PROGRAM AS DEMONSTRATED ON THE NASA IMAP PROGRAM

Abstract

Every organization that has worked on a NASA mission involving multiple organizations knows the difficulties associated with the exchange of requirements between organizations and across levels. These efforts are becoming increasingly extensive as NASA moves more towards cross-organizational collaborations, such as the Europa Clipper and Europa Lander missions. With the current approach, dedicated requirements management personnel, schedule, and cost have to be factored into contracts, which cause overarching impacts across the program. Additionally, with the multi-organizational exchange of requirements data and documents, configuration management (CM) and configuration control boards (CCBs) have added stresses that increase schedule and cost. Legacy tools designed for requirements management of single-organization development efforts do nothing to alleviate these additional stresses.

This paper presents some modifications to conventional approaches with the aim of creating a truly centralized collaborative requirements management environment. Programmatic impacts, including cost and schedule, are discussed. The NASA IMAP program is currently implementing this methodology, which provides real world examples of the propagated efficiencies this approach provides. The time, schedule, and cost savings are quantified to provide enabling information for future programs to implement this solution. The impacts on CM and CCBs are considered in this paper, but since the IMAP program is still early in its development, quantitative analysis is not available.