

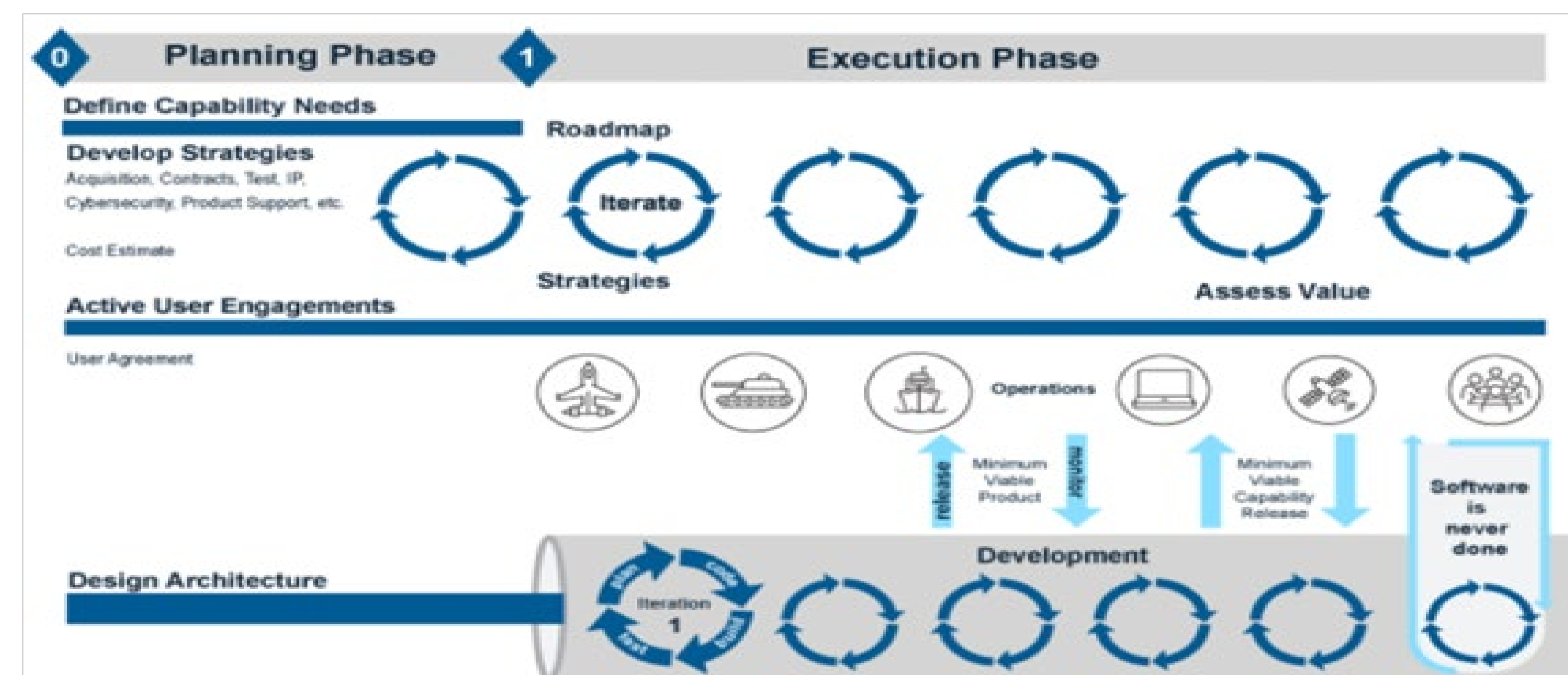
COST EFFECTIVENESS ANALYSIS OF THE USE OF COLORLESS APPROPRIATIONS IN NAVY AND DOD SOFTWARE DEVELOPMENT PILOT PROGRAMS



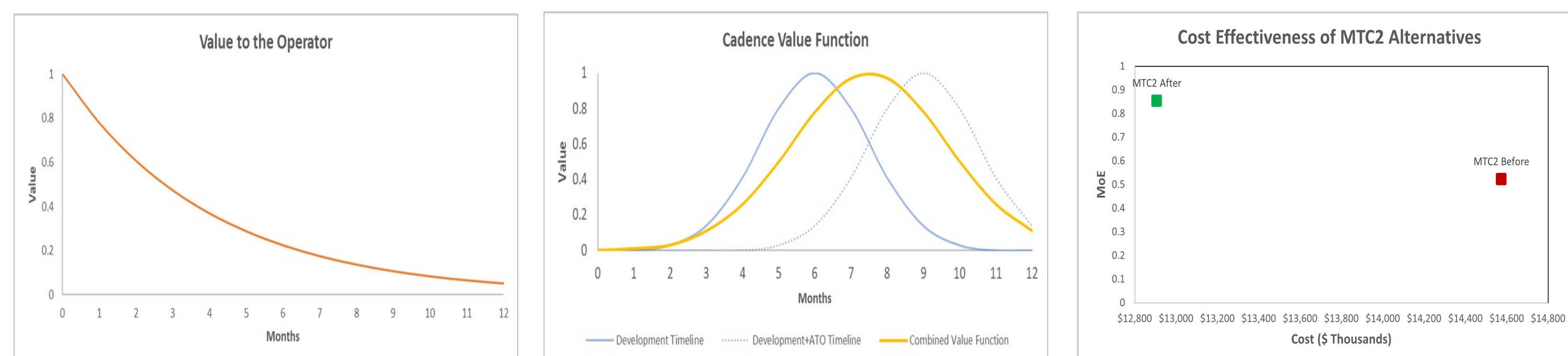
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Abstract

Modernization of the Defense Acquisition Management and federal budget appropriation systems is necessary to ensure technological warfighting advantage, particularly in support of the Department of Defense's software and cyber transition to a Development Operations (DEVOPS)/Development Security Operations (DEVSECOPS) environment. In appropriations, one modernization effort has been reform initiatives utilizing "colorless" appropriations for software-intensive defense acquisition programs. This paper examines a sample of these pilot efforts through a combination of cost-effectiveness analysis and qualitative reflection to evaluate for efficiencies gained. While quantitative assessment identifies improved effectiveness at lower costs, sparsity of available data and program-specific external variables limit the statistical significance. However, qualitative insights in combination with commercial industry best practices may enhance the efficacy of this and other future reform efforts. These recommendations include additional selection criteria for pilot programs, additional metrics for quantitative and qualitative data collection, and further policy updates to enable a more effective transition from traditional appropriations. These conclusions derive from Defense Acquisition Management; federal budgeting and financial management; defense Planning, Programming, Budgeting, and Execution processes; DEVOPS/DEVSECOPS practices; and Agile and Lean principles.



Software Pathway Phase View. Source: OUSD, DoDI 5000.87



Value to the Operator

Cadence Value Function

Cost Effectiveness

Recommendations

- Additional quantitative and qualitative metrics to improve future analysis
- Additional pilot selection criteria for established programs with demonstrated cadence to enable more effective comparative analysis
- Methods for identification of programs that would quantifiably benefit from increased budgetary flexibility
- Policy and guidance updates to minimize transitional challenges faced by BA-8 pilots

Method

- MOE Determination
- Identification of relevant and measurable objectives
- Value function development
- Objective weighting
- Aggregate MOE calculation
- Cost versus MOE comparison
- Qualitative analysis and reflection

Results & Impact

- Improved effectiveness at lower costs however:
 - Results driven by target cadence, not direct comparison improvement
 - Statistical significance of results due to uncontrolled external variables and drivers
- Efficacy of analysis is reduced due to limited availability of BA-8 Pilot Program delivery history
- Qualitative challenges reducing the effectiveness of BA-8 pilots include:
 - Significant unforeseen delays in transitioning during a four-month continuing resolution, reduced time-savings and created delays for program execution
 - Ambiguity in policies for execution of single appropriation funding created additional challenges, particularly in contracting

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