Improving Software Sustainment Cost Estimation: Addressing the Uncertainty, Risks, and Constraints in the Current Environment

Practical Software and Systems Measurement
User's Group Workshop
14 June 2017

Workshop Overview

Premise

Better cost estimates will drive more efficient operational software resource allocations across the defined enterprise(s), eventually resulting in more effective mission performance

Objective

Identify and prioritize those factors in the software sustainment environment that need to be addressed to inform accurate cost and schedule estimates

Projected Outcome

A consensus understanding and prioritization of the key issues that impact accurate software sustainment estimation

Participants

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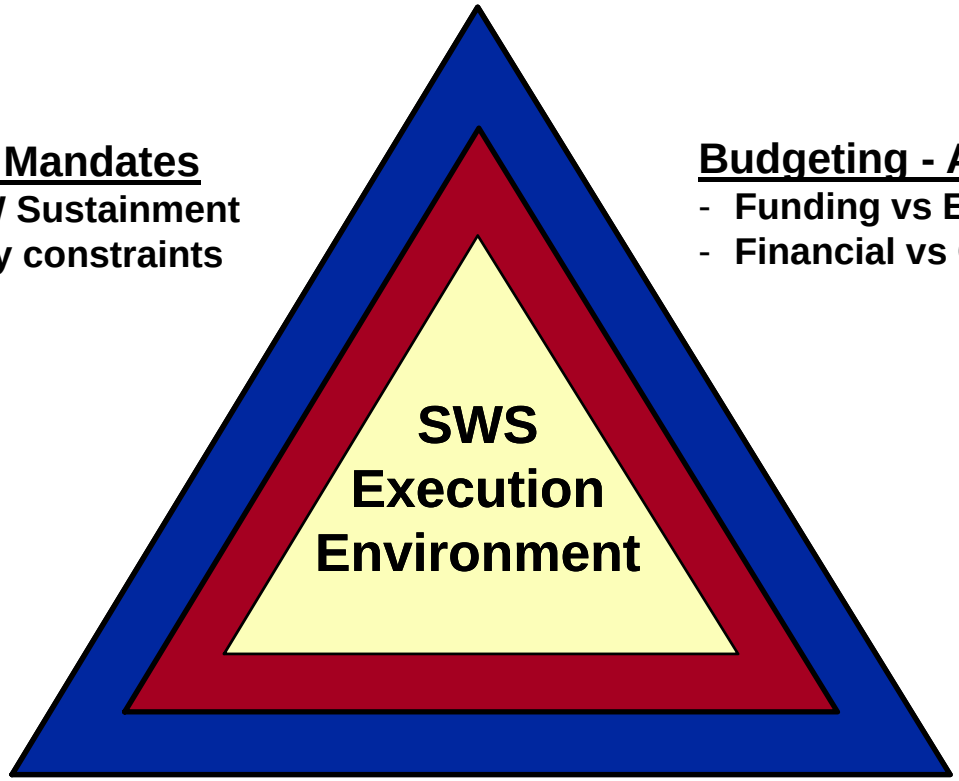
Army Software Sustainment Environment

Statute - Policy Mandates
- Definition of SW Sustainment
- Colors of money constraints

Budgeting - Accounting Process
- Funding vs Execution disconnects
- Financial vs Cost accounting models



Software Engineering - Life-Cycle Process
- Continuous system software life cycle development and update - sustainment delineation
- Inconsistent acquisition - sustainment governance

Observed Factors

General

SWS “In the Shadows” - focus in on development
Non-Alignment of Policy - Funding - Software Processes
Autonomous program/system authority
Focus on funds procurement - not funds execution
No SWS information communications infrastructure
Proliferation of systems to be sustained
Limited execution performance data
Lack of consolidated/aggregated portfolio data

Policy

Lack of SWS governance
Title 10 - Split responsibility/Software ownership
“Organic” capability mandates
“Separation” of funds management
Hard separations of acquisition and sustainment
Poor data rights policy/management

Observed Factors

Funding - Cost Management

Inconsistent cost accounting accrual structures (system, functional, organizational, etc.)
Financial accounting - not cost accounting
LOE finding and management structures - fund people - not products
Executed resources ($) not tied to SWS output products
Multiple funding streams supporting outputs (effort)
Lack of contractor SWM performance data (cost/schedule/product output) (if they have it)
Limited accountability for organic government SWM labor expenditures
Accounting defined at a high level of aggregation
Stakeholders reluctant to share performance data (if they have it)
15 years of significant war-time funds availability - obligation emphasis

Software Technical - Life Cycle Processes

Continuous software development
System software process capability limitations
Disjointed requirements management
Software instantiated mission capability debt
Change requirements volatility

Sustainment Relationships We Need To Quantify

Mission Capability	———	System Contribution
System Contribution	———	Software Requirements
Software Requirements	———	Software Change Cost
Software Change Cost	———	Change Product Cost Infrastructure Cost
Change Product Cost Infrastructure Cost	———	Risk - Uncertainty

Projected Actions

- Systemic SWS data collection
- Multi-level stakeholder data analysis capabilities
- Project management based SWS
- Tie funding and expenditures to outputs not people
- Continuous predictive cost model improvements
- Change archaic and limiting sustainment statutes and policy
- Enterprise level system SWS portfolio management
- Map mission capability/requirements to sustainment products
- Overtly improve processes and capability

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