

Conference Paper

A New Cost Management Policy for Your Organization: An Integrated Approach

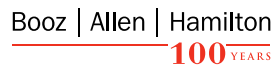
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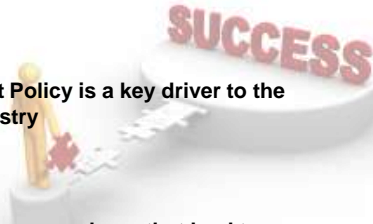
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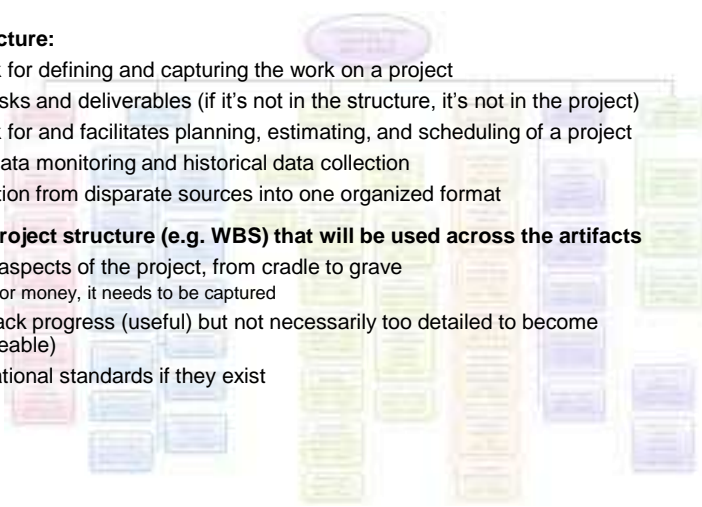
Introduction

- ▶ **Developing and adhering to a robust Cost Management Policy is a key driver to the success of any organization, regardless of size or industry**
- ▶ **Institutionalizing is not daunting or difficult**
 - Can be implemented to existing or new organizations
- ▶ **Integrating stove-piped disciplines drives towards better procedures that lead to more successful program outcomes**
 - Ensures cost control measures are valid and effective, risk are identified and mitigated, solutions are delivered on time, and profits/ROIs are maximized
 - Systematic cost management approach applies cost engineering and cost management principles
- ▶ **Incentives to all Levels of the Organizations**
 - Rewards include cost containment, continuous improvement and efficiencies
- ▶ **Three simple principles**
 - Common stable program/project structure
 - Institutional and enforced process
 - Applied throughout the lifecycle, from cradle to grave

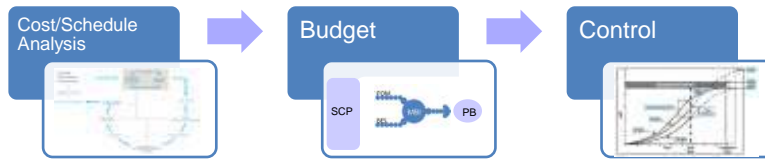


Common Stable Program/Project Structure

- ▶ **A common stable structure:**
 - Provides a framework for defining and capturing the work on a project
 - Identify contractual tasks and deliverables (if it's not in the structure, it's not in the project)
 - Provides a framework for and facilitates planning, estimating, and scheduling of a project
 - Provides a basis for data monitoring and historical data collection
 - Consolidates information from disparate sources into one organized format
- ▶ **Start with a program/project structure (e.g. WBS) that will be used across the artifacts**
 - Encompasses all the aspects of the project, from cradle to grave
 - If it takes time and/or money, it needs to be captured
 - Detailed enough to track progress (useful) but not necessarily too detailed to become cumbersome (manageable)
 - Compliant to organizational standards if they exist



Institutional And Enforced Process



► Planning (Cost/Schedule Analysis)

- Developing a robust cost estimate with uncertainty
- Developing a robust, detailed schedule with critical paths, predecessors and successors, and uncertainty
- Identified and quantified risks in terms of time and costs, linked to tasks with probabilities of occurrence

► Programming (Budget)

- Schedule and risk-adjusted cost estimate become the program budget or program of record
- Phased over the the life cycle

► Control (Earned Value)

- Effort expended, both time and costs, tracked against plan
- Metrics applied to gauge program progress, health, and potential areas of focus
- Actual costs and time required collected

Process Steps

1. Start with the common structure
2. Iteratively build schedule and costs against all life cycle tasks
 - Schedule against the structure with tasks, durations, and linkages
 - Estimate costs against each element of the structure, to as low a detail as possible or feasible
3. Determine uncertainties and risks against tasks
 - Establish budgets for elements of the structure based on cost/schedule/risk analysis
4. Build budget profile against the structure
5. Report progress against schedule and costs
6. Update risks (realized, mitigated, didn't happen)
7. Update schedule to reflect progress
8. Feed actuals costs to next iteration of estimate
9. Repeat

Planning

▶ Planning Team

- Cost Analysts/Estimators
- Schedulers/Schedule Analysts
- Risk Analysts

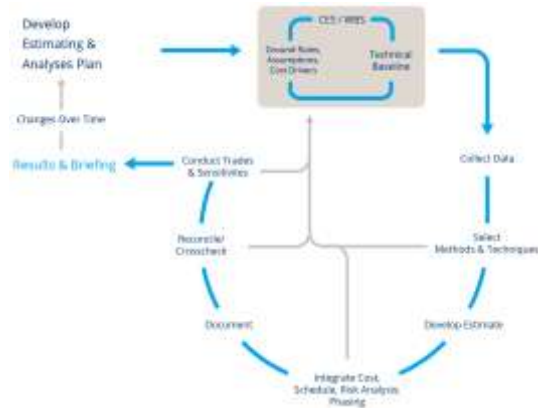
▶ Conducted in the early stages of a program life and throughout

▶ Robust, credible, accurate, defensible, and repeatable

▶ Updated to reflect any progress and changes

▶ Serves as the baseline for the budget and control

▶ Integrates cost, schedule, and risks



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Integrated Cost Schedule Risk Analysis

▶ New – Integrated Disciplines and Organizations

- Systematic approach to managing cost, schedule, and risk through-out the life cycle
- Integrating cost estimates, schedule, budgets and risk registers
 - Increase the quality of each artifact and ensure compatibility
 - Open the lines of communication between these disciplines
- Provides data driven solutions to key management issues (budget cuts, UFRs, technical issues)
- Cost Estimating/Analysis
 - Apply guiding principles and processes to meet the 5 key tenets of a sound cost estimate
 - Detailed analyses helps identify variances from planned cost and benefits
- Schedule/EVM
 - Schedule risk analysis, critical path insights, program performance tracking
 - Use risks to establish suitable and sufficient management reserves to handle high probability of risks
- Risk Register
 - Insight into cost and schedule impacts of risks and opportunities
 - Risks are quantified and mapped to a task in the schedule which will reveal where risks may not have been sufficiently identified



UNTIL RECENTLY, THIS
COULD NOT BE
ACCURATELY AND EASILY
ACCOMPLISHED

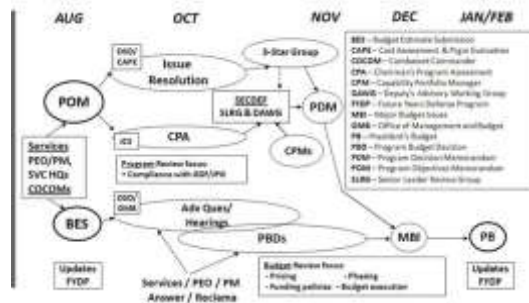


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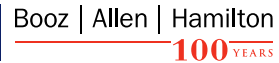
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Programming

- ▶ **Programming Team**
 - Budget Analysts
 - Financial Analysts
 - Contract Specialists
- ▶ **Based on the schedule and estimate from Planning**
- ▶ **Budgets developed to determine funding needs by appropriation and by fiscal year**
- ▶ **Annual budget submission, funding constraints, and execution realities can affect the cost estimate**
- ▶ **Updated to reflect progress and changes**



WEAPONS SYSTEM REFORM ACT OF 2009 CHANGES
PA&E TO CAPE (COST ASSESSMENT & PROGRAM
EVALUATION)



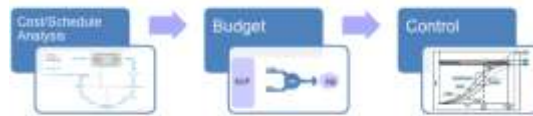
Control

- ▶ **Control Team**
 - Integrated Master Schedulers
 - Earned Value Management Analysts
 - Risk Management Analysts
- ▶ **Mechanisms to track and analyze actual program performance**
 - Integrated Master Schedule
 - Used to actively maintain and manage to ensure timely completion
 - Attention to critical path and risk items to manage potential cost and schedule growth effectively
 - Earned Value Management
 - Calculates cost and schedule variances, EACs and provides earned schedule metrics
 - Validates that the program baseline is adequate and realistically portrays all authorized work
 - Risk Management
 - Risks are identified, prioritized and tracked
 - Ensure the program baseline adequately plans for and manages risk and opportunities



Potential Pitfalls

- ▶ **Separate individual processes performed by separate organizations with limited interactions**
- ▶ **Inconsistency of work mapping between work artifacts even with shared data resources**
- ▶ **Inconsistency of work product maturity**
- ▶ **Assumed mutual understanding of all requirements, technical parameters and risks**
- ▶ **Information is passed on sequentially when activities are completed (system engineering to cost estimating to the budget process and finally to the PM)**
- ▶ **Cost Analysts may update the estimate without fully understanding what the earned value represents**
- ▶ **Control team tends to start monitoring programs without adequate knowledge of risks**



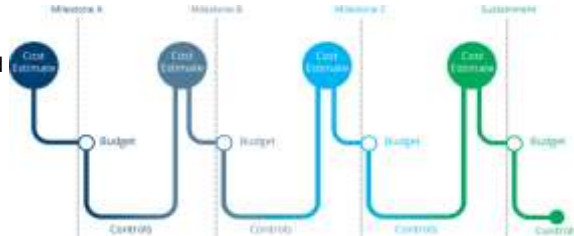
Organizational Structure

- ▶ **Roles and perspectives at various levels of an organization differ**
 - Program Office (Optimistic)
 - Responsible for day to day program management and execution
 - Program advocate responding to technical, budgetary, and schedule challenges while meeting mission needs
 - Corporate/Enterprise (Realistic)
 - Consists of internal groups of the organization
 - Challenged with balancing priorities across the entire portfolio of programs
 - Oversight (Pessimistic)
 - Governing body charged with balancing priorities within available resources across a group of organizations
- ▶ **Key to success is clear definition of program costs, schedules, budgets, and risks, coupled with ability to communicate effectively among stakeholders**
- ▶ **Advocate or non-advocate, goals and objectives are the same – Mission Success**
 - Produce and validate a sound estimate and schedule with identified risks
 - Ensure decision-makers' project surveillance controls are optimized
 - Impacts of near-term decisions are understood in the long run
 - All entities involved in all phases of the acquisition cycle



Periodicity

- ▶ **Cost Management is iterative; when underlying assumptions change the artifacts should be refined and updated to reflect those changes**
- ▶ **Project Plan is a living document so cost estimates, schedules, and risks change**
 - Updates occur through-out the program life cycle based on critical review points
 - Refinement of program definition, milestone/annual reviews, contract negotiations, program maturation
 - Budget realities or incorporation of actual program performance data part of management
 - Continuous updates enable rapid and data-driven defense of the program over time and determine cost/schedule/risk impacts quickly
- ▶ **Refreshed program artifacts are easily defensible**
 - As project matures and moves through the life cycle phases, estimated costs, schedules, and risks are replaced with actuals
 - Updates to artifacts (estimate, schedule, risks) should be prepared with the process described in the previous sections and should be documented as thoroughly as the original artifacts



Incentives

- ▶ **Total Ownership Model**
 - Program managers, organization, and program success all linked
 - Shared success, shared failure
- ▶ **Monetary awards**
 - Team bonus ensures program success by incentivizing team effort versus individual contributions
 - Deferred bonus for PM/Management
 - Deferring bonuses/compensation until after a successful program milestone
 - Clear entrance and exit program criteria will eliminate the common practice of executing program success for only near term decisions
- ▶ **Non-Monetary Incentives**
 - PM's participation in an oversight capacity (enterprise level) as a condition of a job role
 - Corporate board of current and future PM's to review programs
 - Encourages ownership at the enterprise level
 - Eliminate PMs focusing on success for his/her tenure only
 - Future PMs have a vested interest in the successful of the acquisition, because they may be the successor to the current PM
 - This team approach or collaboration at both the program and enterprise level will enhance the success of all program



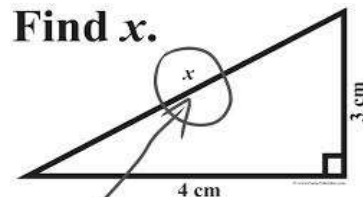
Benefits

- ▶ An integrated cost management policy controls cost and schedule growth, and provides clear insight into impacts and tradeoffs
- ▶ Can't eliminate cost and schedule growth, but an integrated cost management approach gives the highest probability of success
- ▶ Actively working from the beginning of a program to track potential risks mitigates and avoids potential problems and surprises
- ▶ Decision makers have clearer insight into the impact of near term decisions
 - Able to see the potential for cost and schedule growth and take corrective actions
 - Program/budget accordingly
- ▶ Tradeoffs can be made in line with program and organization goals in mind



Conclusion

- ▶ It's Not That Difficult to Implement
 - Apply the three principles
 - Common structure
 - Process
 - Repeat throughout the life cycle
 - Make it policy
 - Integrate the teams
 - Establish organizational buy-in/total ownership
- ▶ It's not rocket science, requires investigating and understanding the technology, collecting data methodically and as a normal way of doing business, math and statistics
- ▶ The benefit of saving thousands/millions far outweighs the cost and effort
- ▶ Significant amount of training and resources available, including open source data on factors, rules of thumb, etc.



Here it is



For further information . . .

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