

Value Engineering Success In DoD

**Presented For
Creating Value Workshop
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Outline

- **Systems engineering emphasis areas in OSD**
- **DoD value engineering policy thrusts**
- **Principal value engineering activities**

Current AT&L Thrusts

What We Need To Do Better

Requirements

- Adapting to changing conditions
- Matching operational needs with systems solutions
- Overcoming biases of Services and others
- Moving to transform military
- Setting capability-based requirements

PPBS

- Laying analytical foundation for DPG and program review
- Aligning budgets with acquisition decisions

Acquisition

- Making system decisions in a joint, mission context
- Transitioning technology
- Assessing complexity of new work and ability to perform it
- Controlling schedule and cost
- Passing operational tests
- Delivering fully integrated and interoperable systems-of-systems

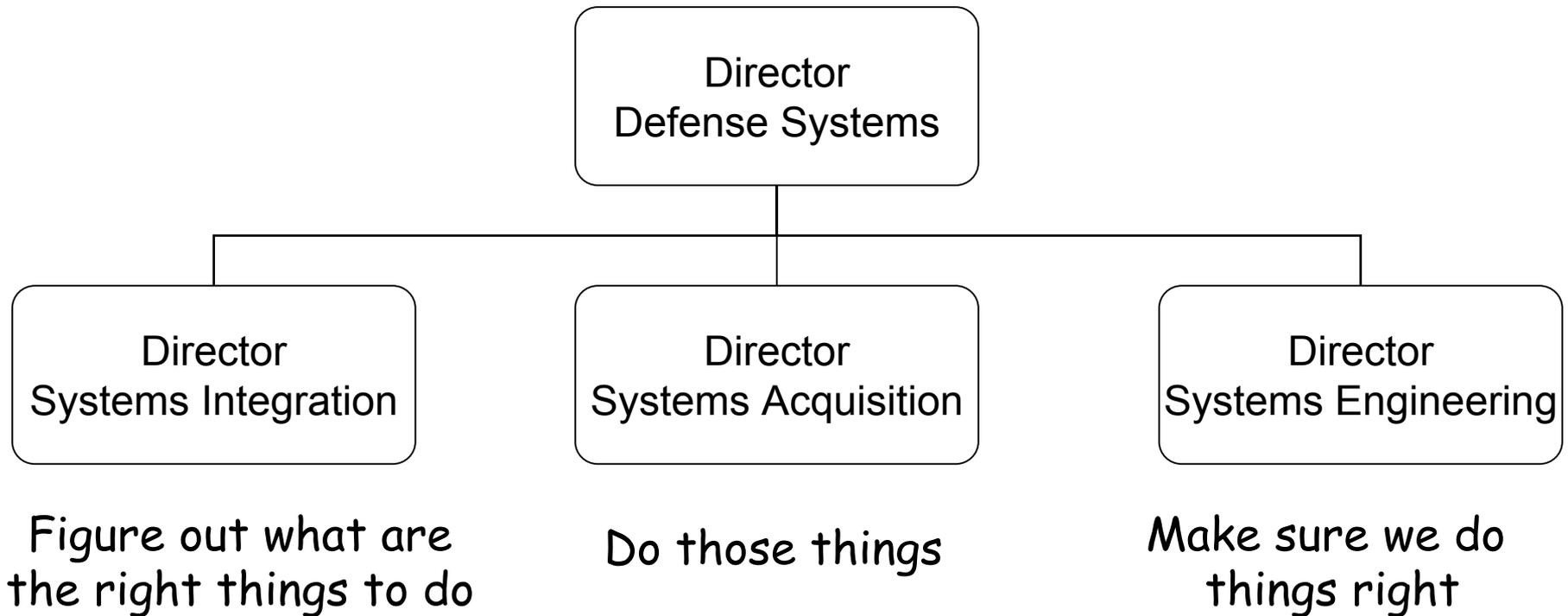
Sustainment

- Controlling O&S costs
- Reducing logistics tails

Improved mission capabilities at reduced cost



Defense Systems Organized To Pursue Goals



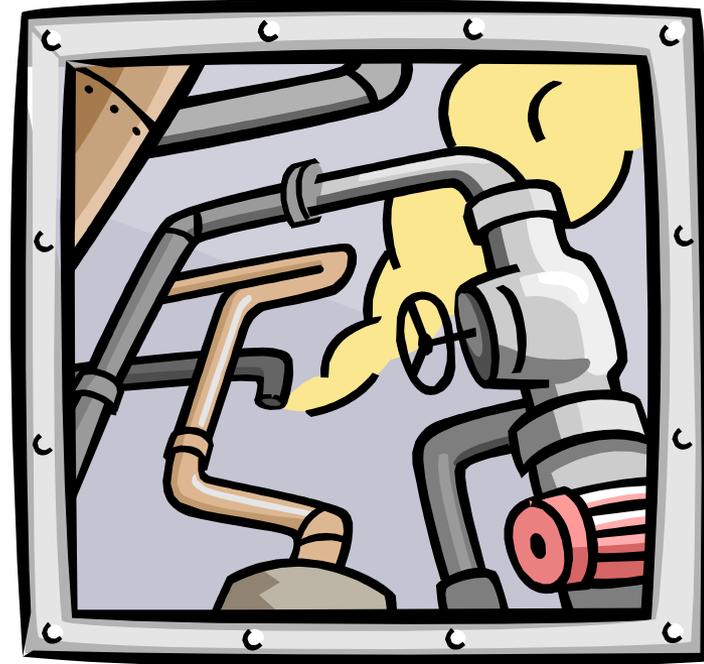
Systems Engineering Directorate

- Draft mission

- To facilitate the timely and affordable fielding of effective warfighting capabilities by promoting the application of a sound **Engineering** Management approach to the weapon systems acquisition and support processes within the Department

- Draft goals

- Develop and promulgate Department-wide systems **engineering** policies, practices, procedures, and tools that facilitate the effective implementation of systems **engineering** on acquisition programs
- Ensure seamless integration of test and evaluation throughout the development process
- Ensure the application of best systems **engineering** practices in design, development, production and support
- Promote systems **engineering** acquisition learning in the government and private sector in the development of a highly skilled technical acquisition workforce



Systems Engineering Objectives in Support of Mission Success

- **Improve the systems engineering environment**
- **Provide effective SE policies, practices, procedures, methods, and tools**

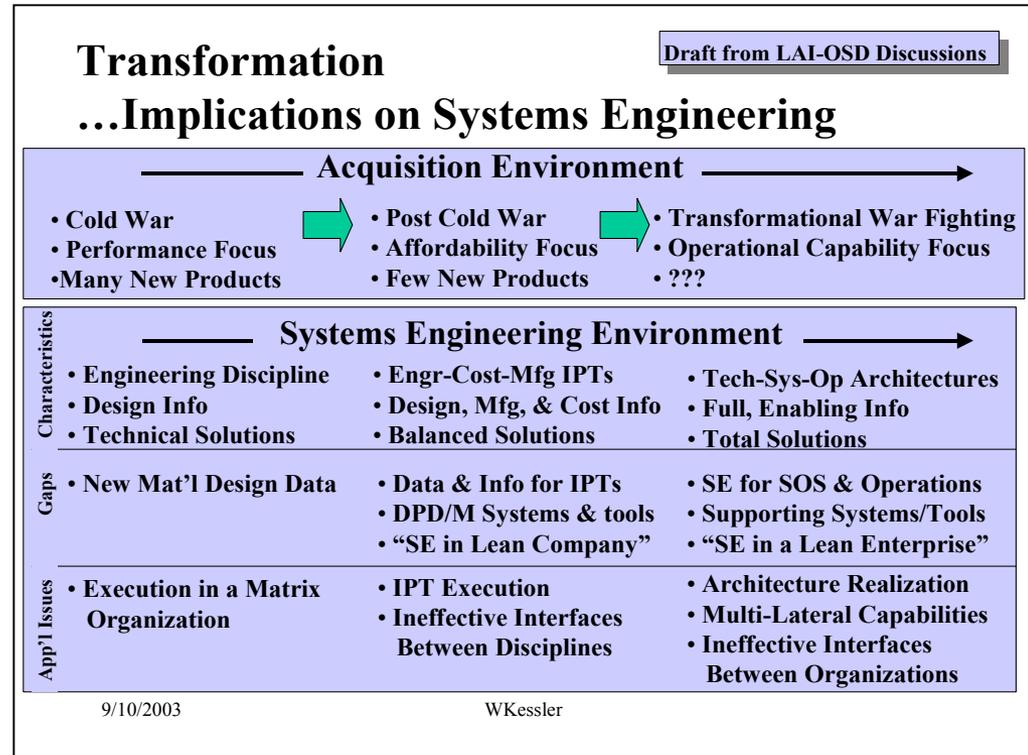


- **Provide for a professional SE workforce**
- **Conduct systems assessments to improve balance of cost, schedule, performance, and risk in programs**

- **Reduce the life cycle cost of defense systems**
- **Assess system technical maturity and readiness for operational test, based on developmental test results**

Joint OSD-LAI Initiative to Establish Lean Systems Engineering Value Proposition for Transformational Acquisition Environment

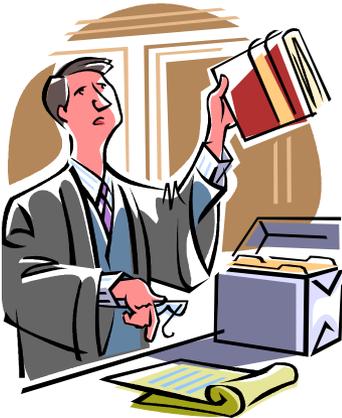
- **OSD-LAI Mutual Value (Step 1)**
 - Frame the Challenges/Gaps
 - Outline Approach/Considerations for Closing Gaps
- **“Boundary Conditions”**
 - Sense of Urgency
 - Requires Full LAI “Vertical Capability”
 - Executive Knowledge/Experience
 - Knowledge/Collaboration Teams
 - Interdisciplinary Research Skills
 - Leverage EdNet and Champions
 - No 1 Org (LAI, AIA, INCOSE, NDIA...) Has all the Capability to do the Task
- **Proposed Approach**
 - LAI Lead the Step 1 Process
 - Use LAI “Lean Now” Method
 - Facilitate with LAI SME
 - Structure Needed Team from LAI Membership; Including Key Stakeholders



Draft

Value Engineering Defined

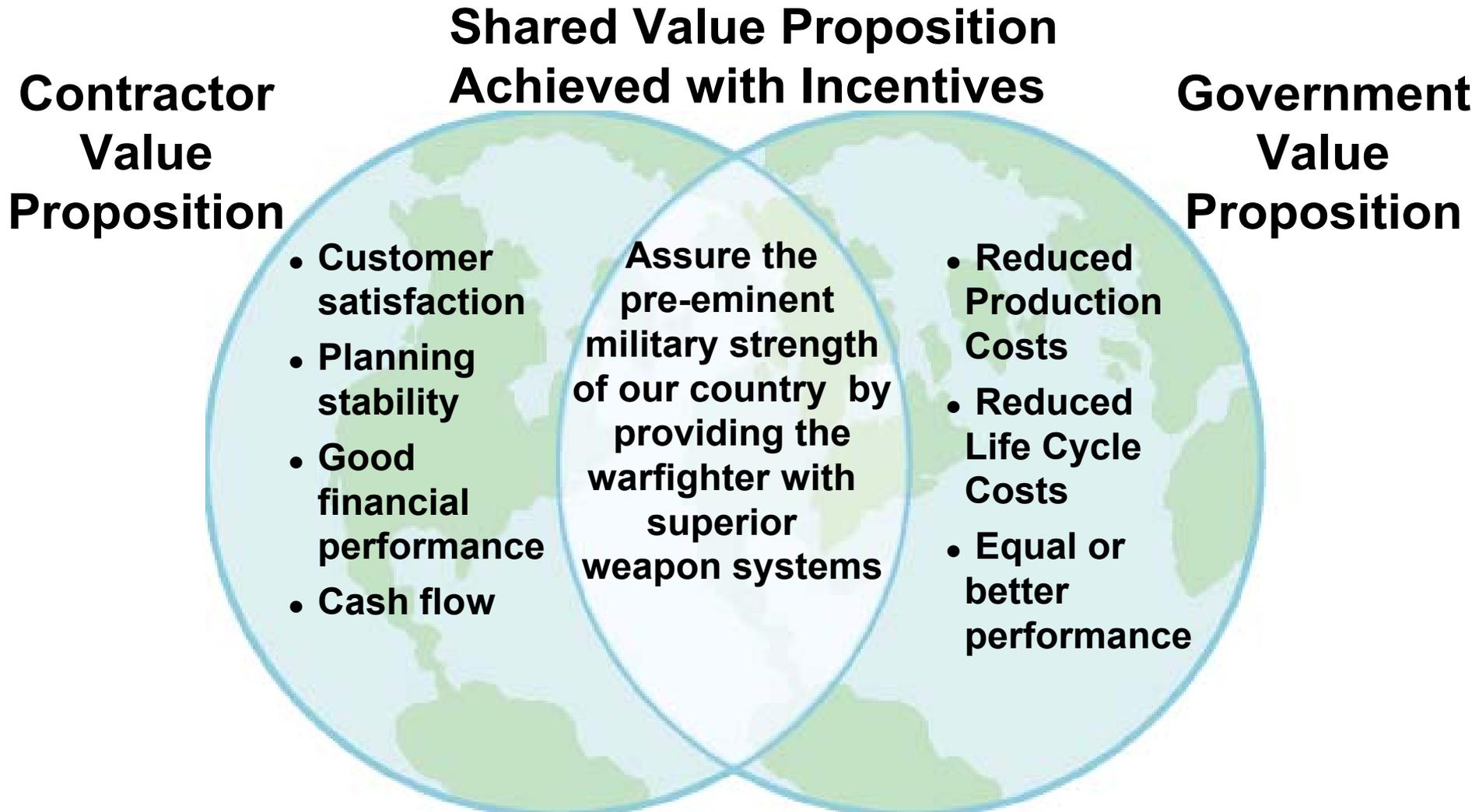
Value Engineering - An organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life-cycle cost consistent with required performance, reliability, quality, and safety. *OMB Circular A-131*



Each executive agency shall establish & maintain cost-effective VE procedures & processes (41 US Code 432)

VE is a key component of reducing the life cycle costs of defense systems

Contractor and Government Depend Upon Each Other To Improve Their Joint Value Propositions



DoD's Value Engineering Program Is Designed to Create "Win-Win" Situations

- **“The Department of Defense’s (DoD’s) value engineering (VE) program reduces cost, increases quality, and improves mission capabilities across the entire spectrum of DoD systems, processes, and organizations.**
- **It employs a simple, flexible and structured set of tools, techniques and procedures that challenge the status quo by promoting innovation and creativity.**
- **Furthermore, it incentivizes government participants and their industry counterparts to increase their joint value proposition in achieving best value solutions as part of a successful business relationship.”**

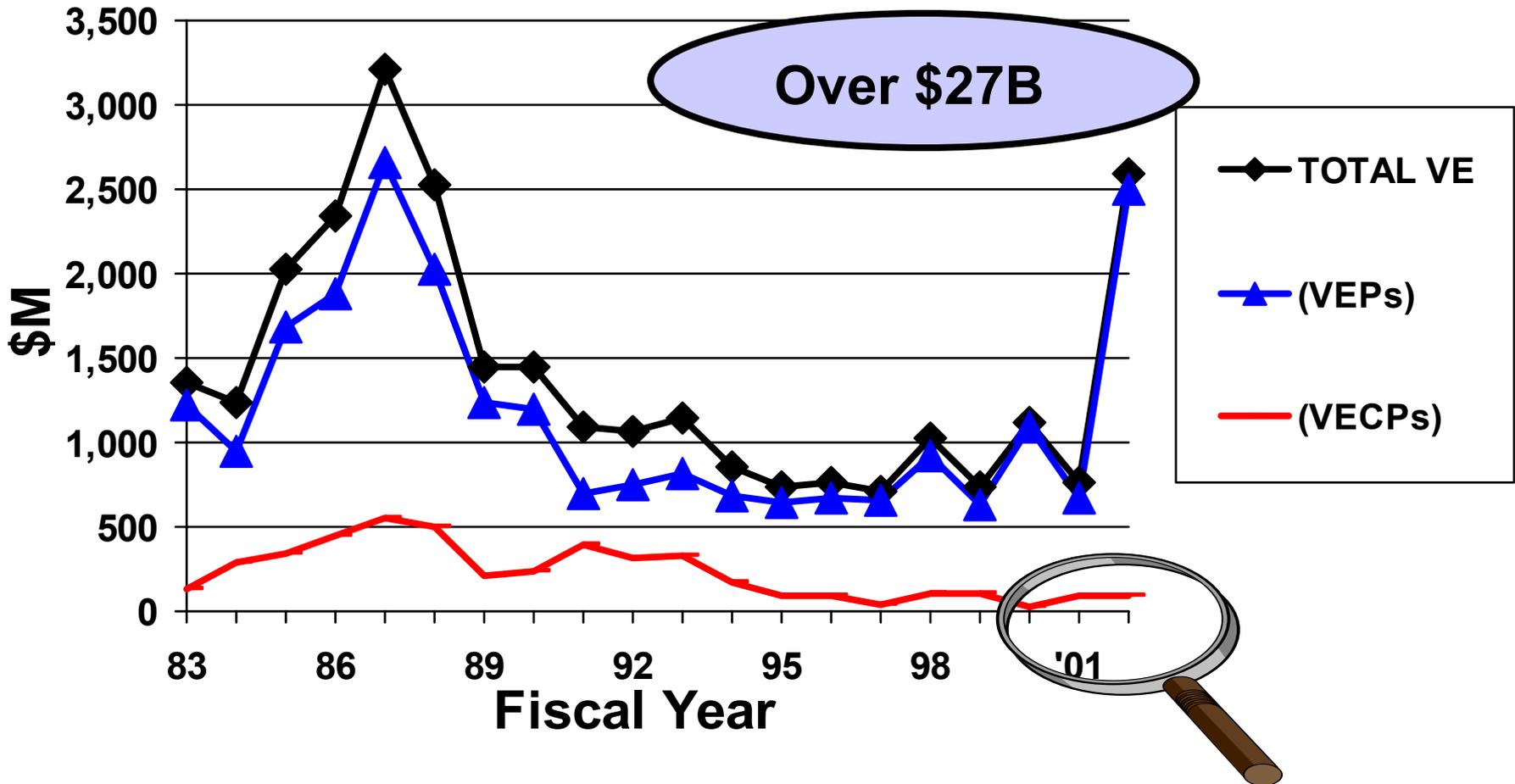


Industry Benefits From Using the Value Engineering Program

- **Shares in the cost savings that accrue from implementation**
 - Provides a source of profit not available under other provisions of the contract and excluded from profit limitations on government contracts
- **Establishes a reputation as a cost-conscious supplier**
 - DoD's presents VE Achievement Awards to contractors
- **Improves communication with the customer**
- **Reimbursement of development cost on approved VECs**
- **May provide usable technology on other product lines**
- **May provide a competitive edge on items in production**
- **Promotes retention and growth of technical expertise**
 - Advanced technology insertion
 - Positive working environment



DoD VE Savings & Cost Avoidance



Principal VE Activities

- Encouraging Use of Value Engineering Principles
- Developing Introductory VE Continuous Learning Course
- Legislative Proposal to Create Revolving Fund for Start-up Costs
- Published Contractor's Guide to Value Engineering
- Outreach to Reduction of Total Ownership Costs (R-TOC) Pilot Programs
- Building a VE Community of Practice to Link Knowledge Seekers with Knowledge Sources
- Planning New Guidebook Containing Innovative Contracting Solutions for VECs
- Education and Training
- Highlight Successes

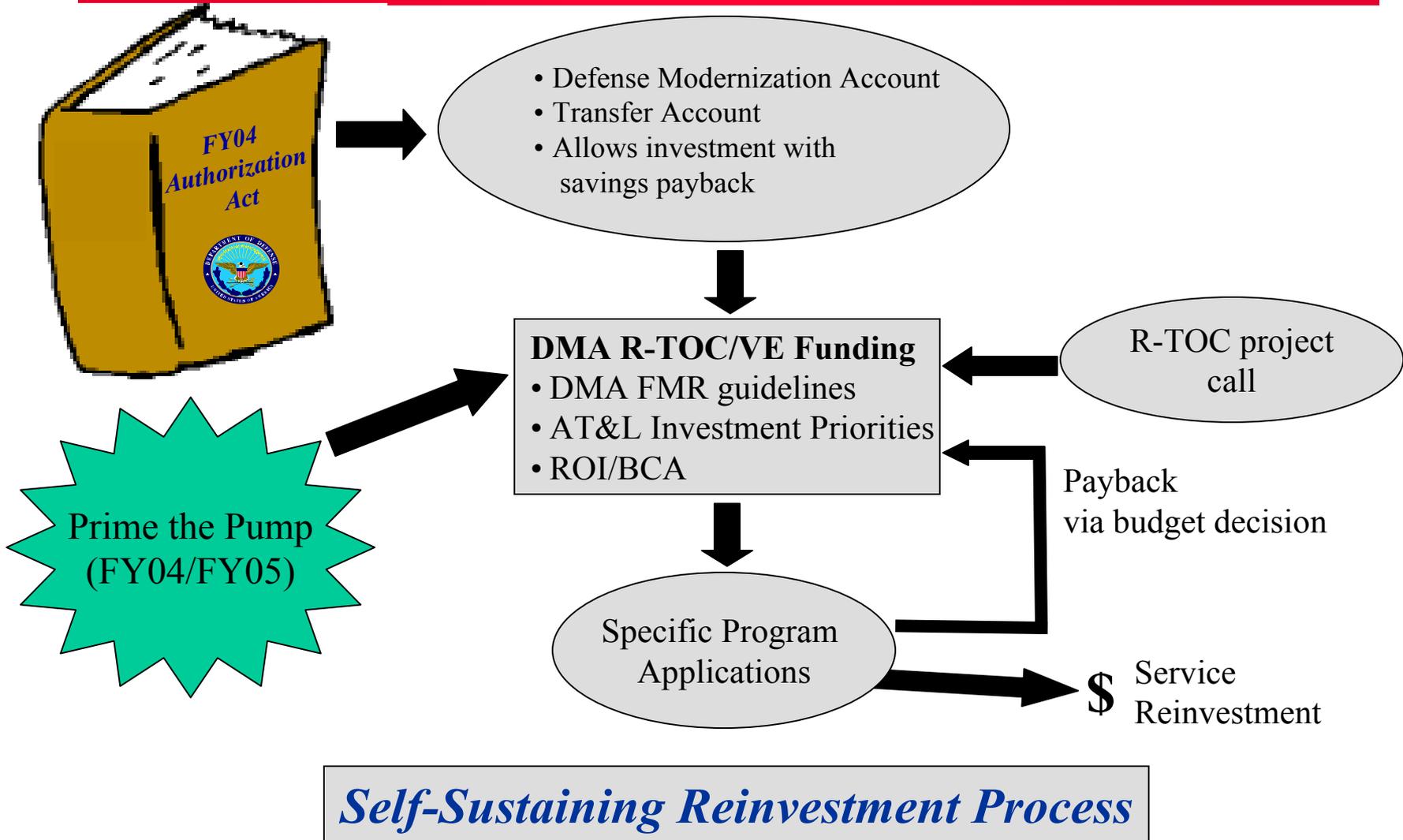
DMA Legislative Proposal

- **Modifies Defense Modernization Account (DMA)**
 - Extends authority of existing fund
 - Removes limitations on sources of funds
 - Expands usage for broader reduction of total ownership cost/value engineering initiatives
 - Potential for dramatic increase in R-TOC funds and resultant increase in savings



- *SASC* made minor modifications to our language
- Anticipate *HASC/SASC* committee action will accept the *SASC* version

Operationalizing the DMA



Developing Introductory VE Continuous Learning Course

- **Housed on Defense Acquisition University's (DAU's) continuous learning website**
- **Lesson 1: Introduction to VE**
- **Lesson 2: VE Application Areas**
- **Lesson 3: Understanding and applying the VE methodology**
- **Lesson 4: VE Workshops**
- **Lesson 5: Using VECs**



Course will be available in October

Outreach to R-TOC Pilot Programs

- **VE workshop achieved significant benefits for the CH-47; an Army R-TOC pilot program**
- **Results to be briefed to R-TOC Forum**
- **Seeking funds for additional workshops for other pilot programs**



Seeking endorsement from Service Secretaries

CH-47 Problem Areas Studied

- **Windshield**
 - Replacement of helicopter windshields was a source of complaint from soldiers in the field—it took too long and it happened too often
 - Iraqi operations apparently exacerbated the problem
- **Swashplate Bearing**
 - Safety of flight directives, following an October 2002 mishap caused by a swashplate bearing failure, established maintenance intensive invasive procedures that more than likely increased rather than decreased risk
 - There were a number of active and overlapping efforts pursuing options including an accident investigation team, contractor engineering studies, and Army aviation engineering flight safety analysis

CH-47 Workshop Results

- **Windshield**
 - The CH-47 program office will demonstrate, test, and then adopt the use of protective windshield coatings, the use of a flexible gasket in lieu of sealant, and a replacement helicopter nose cover
 - Preliminary data indicate that the implementation of these changes will reduce costs by more than \$620,000 annually and while saving in excess of 2800 maintenance manhours
- **Swashplate Bearing**
 - A simple tool will be designed and developed to test for bearing cage popup in a non-invasive way
 - That tool will be used every 50 flight hours in conjunction with a glass slide analysis of purged grease looking for metallic particles symptomatic of many bearing problems
 - The invasive inspections will be discontinued
 - Implementation of these changes will save approximately 19,000 maintenance manhours annually. In addition, the current 10 percent false failure rate is expected to be reduced significantly

Questions

