



Earned Value

A Manager's Tool for Integrated Cost, Schedule and Technical Performance Management

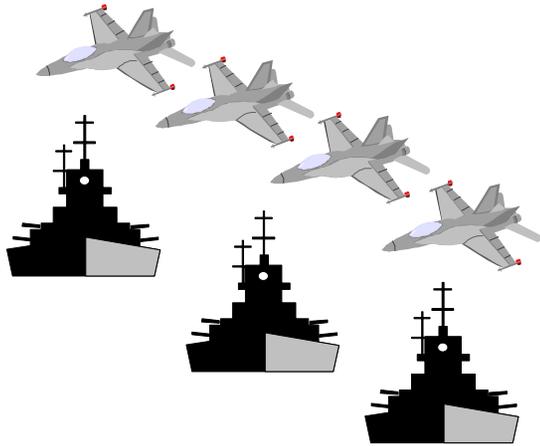
***Mr. Wayne Abba
OUSD(A&T)API/PM***

Earned Value Management

- ◆ **The acquisition environment**
 - Flat budgets - \$60B acquisition goal
 - Industrial base consolidation
- ◆ **Earned Value “Reengineered”**
 - From Cost/Schedule Control Systems Criteria (C/SCSC) to Earned Value Management Systems (EVMS) Criteria



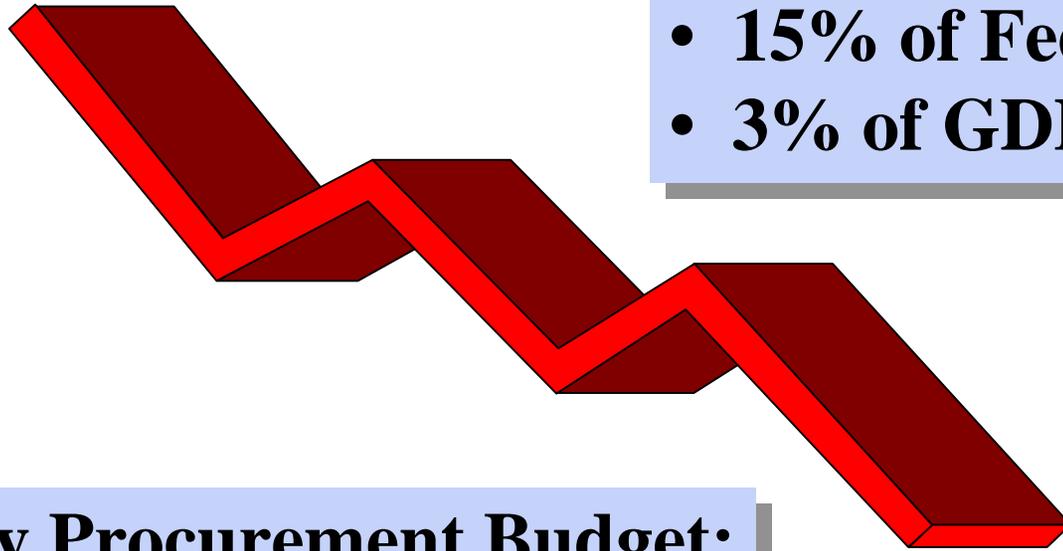
EVM Web Site - www.acq.osd.mil/pm



1961 Pentagon Spending:

- 40% of Federal Budget
- 8% of GDP

\$\$\$



1997 Pentagon Spending:

- 15% of Federal Budget
- 3% of GDP

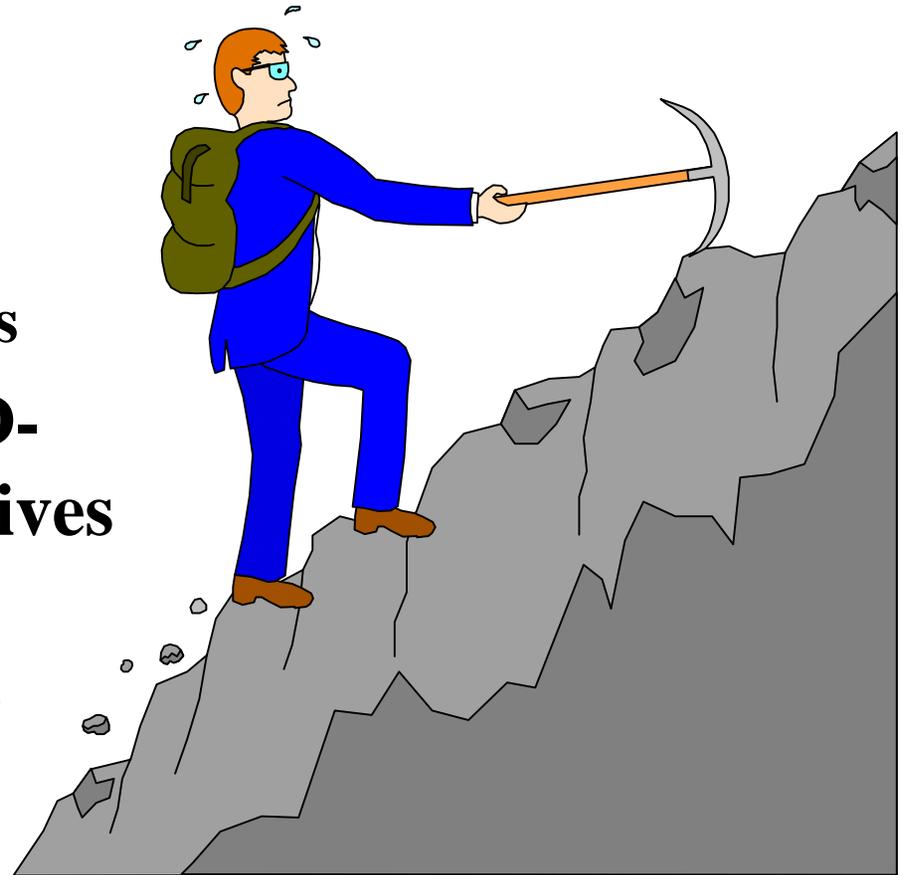
Military Procurement Budget:

- Down 67% since 1985 peak
- \$60 Billion goal



DoD Responses

- ◆ **Acquisition Reform**
- ◆ **“The Last Supper”**
 - 1993 DepSecDef dinner
 - Fewer, larger companies
- ◆ **Followed previous OSD-led management initiatives**
 - Better integrate cost, schedule, technical perf. using Earned Value
 - Ongoing since 1980s



“And then there were 3”

Lockheed
GD Mil. Jets
Sanders Assoc.

Lockheed

Martin Marietta
GD Rockets
GE Aerospace

Martin Marietta

Loral
Unisys Defense
IBM Fed. Systems
LTV Missiles
Ford Aerospace
Goodyear Aerospace

Loral

Lockheed Martin

Northrop
LTV Aircraft
Grumman
Westinghouse Def

Northrop Grumman

Northrop Grumman

Boeing
Rockwell Def & Space
McDonnell Douglas

Boeing
Rockwell Def & Space
McDonnell Douglas

Boeing

Raytheon
E-Systems

Raytheon

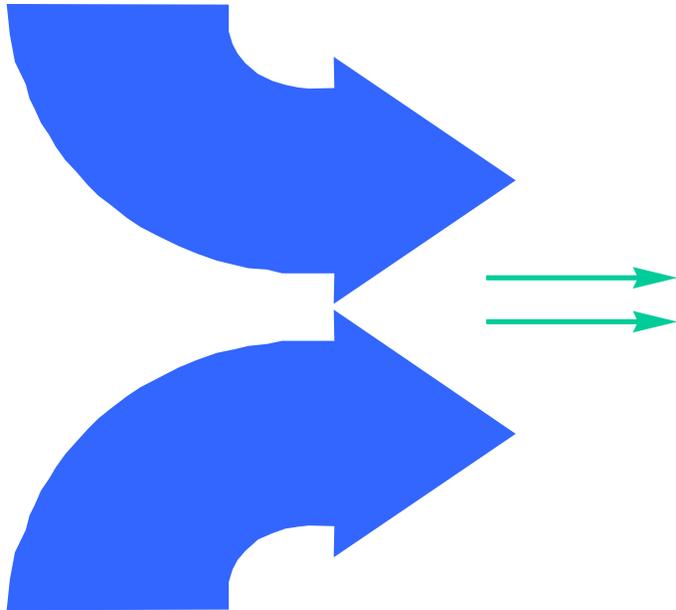
Texas Instruments Def
Hughes Aircraft
Magnavox Def
CAE Link
GD Missiles

Texas Instruments Def
Hughes Aircraft

Raytheon

Earned Value Management: Origins

Industry Best
Practices



1967: DoD Instruction 7000.2
**35 Cost/Schedule Control
Systems Criteria (C/SCSC)**

Criterion-based Management

- Brief statements of attributes
- Not “how-to manage”
- Not a system
- Minimum acceptable standard

1997: DoD Regulation 5000.2-R
**32 Earned Value Management
Systems (EVMS) Criteria**

Government
Requirements

Earned Value Management: Implementation Problems

- ◆ “Financial Management”
- ◆ Audit-like reviews
- ◆ Government-required reporting
- ◆ Too many “surprises”
 - A-12 (Navy)
 - AAWS-M (Army)
 - C-17 (Air Force)
- ◆ Challenge: keep good principles, stop bad practices



Lesson of the A-12

The “Beach” Report, A-12 Administrative Inquiry, 28 Nov 1990

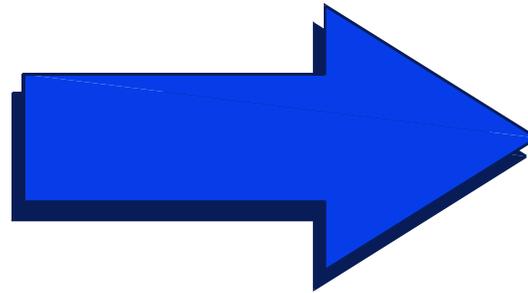
- ◆ Too often, earned value insights remain the sole province of the supporting program control staff of both contractors and the government:
- ◆ Earned value must be an **integral** part of the performing design and manufacturing organizations;
 - Only when **program technical staffs** are held accountable for earned value analysis, will they begin to understand its implications.

Reengineering EVMS

October 1993 - A Vision



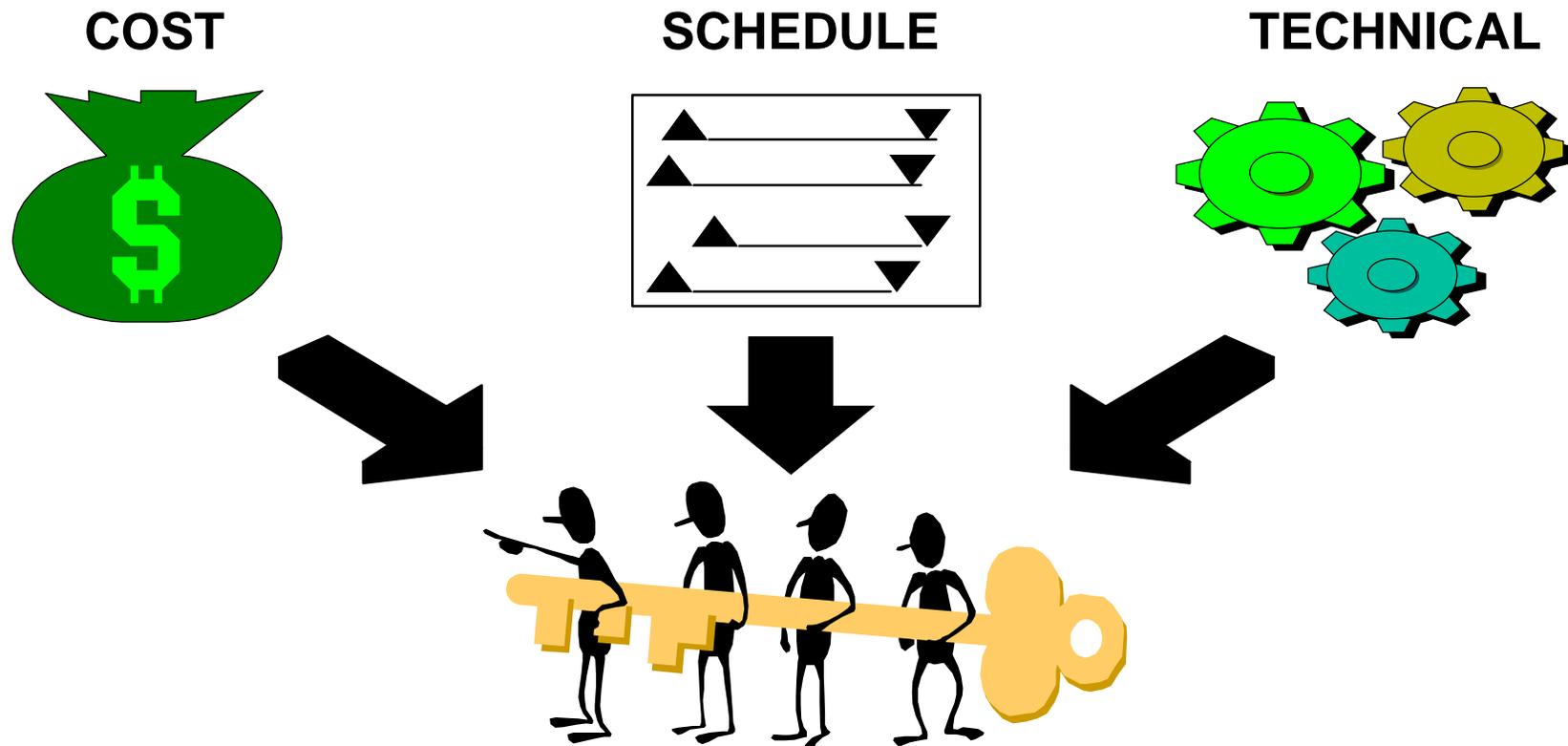
Inspection



Management



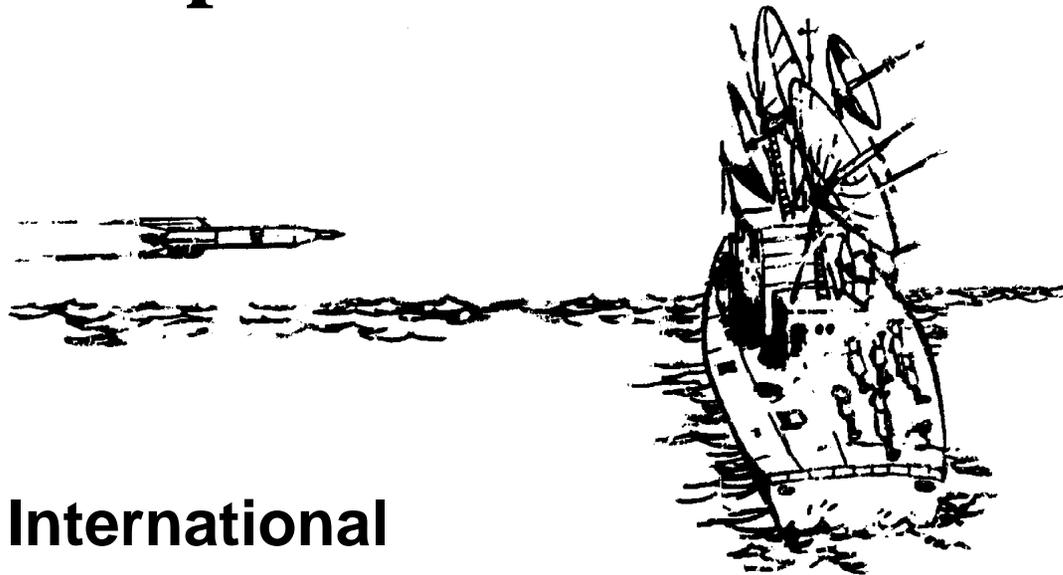
Integrated Product Teams: The Key to Success



**Management systems don't manage - people do!
EVM is used to identify, communicate and *manage*
the resource effect of technical and schedule problems**

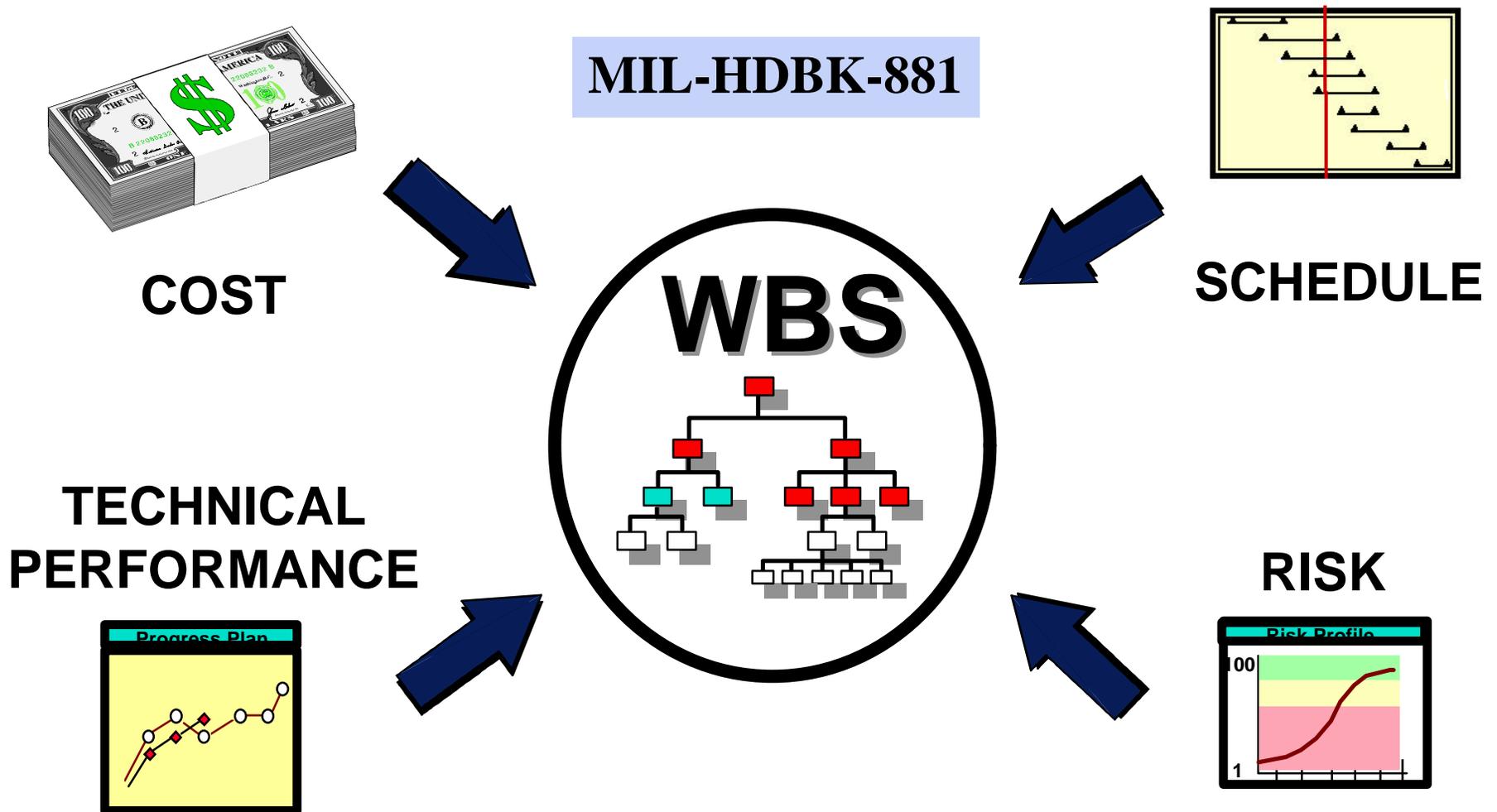
The Really Nice Thing About Not **Planning**

**Failure comes as a complete surprise
and is not preceded by long periods
of worry and depression!***



***Micro Planning International**

Work Breakdown Structure: The Key to Integration



Reengineering EVM: DoD Improvements

- ◆ **Redefined Earned Value Ownership**
 - Financial reporting to management
 - Government to industry
 - PMs “assume” data integrity
- ◆ **Better management tools**
- ◆ **Integrated Baseline Reviews**
 - Improved planning process
 - Better technical/risk management
- ◆ **Revised DoD 5000.2-R**
 - Defense Acquisition Deskbook



Reengineering EVM: Integrated Baseline Reviews

- ◆ **Within 6 months of award**
- ◆ **Mutually understand plan**
 - Scope
 - Schedule
 - Resources

} **Risk**
- ◆ **Planning process vs. event**
- ◆ **PM leads**
 - EVM staff supports
 - Management system reviews effectively eliminated



DoD Earned Value Policy

◆ Examined & Reaffirmed

1984 - Arthur D. Little Study

1991 - DoD Instruction 5000.2

1993 - Inspector General Report

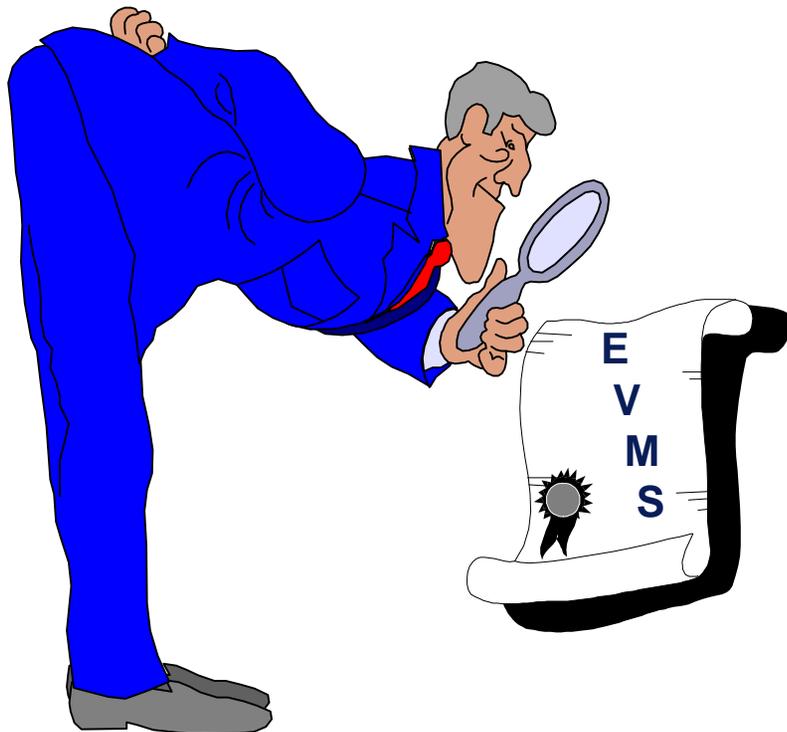
1994 - Coopers & Lybrand Study

1996 - DoD Regulation 5000.2-R

1996 - OMB Circular A-11 Part 3

1997 - GAO Report

1997 - Capital Programming Guide



Australia, Canada, New Zealand, Sweden, United Kingdom

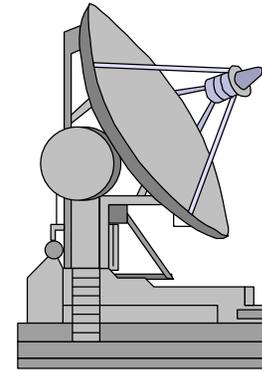
Growing Consensus: Gov't/Industry Best Practice

- ◆ **Dec. 1996 USD(A&T) accepted EVMS guidelines as C/SCSC replacement**
- ◆ **Reserved right for government reviews**
 - As determined by project manager
 - “Self-certification” not in public interest
- ◆ **Encourage “true” standard**
 - ANSI/EIA 748-98 Earned Value Management Systems
 - For now, DoD and industry EVMS criteria are equal
 - International discussions ongoing



Who Uses Earned Value (without a customer requirement)?

- ◆ **Boeing Information, Space & Defense Systems Group**
- ◆ **Northrop Grumman**
- ◆ **Lockheed Martin Missiles & Space**
- ◆ **Raytheon Systems Company**
- ◆ **Motorola IRIDIUM™, Rolls-Royce, Disneyland, Levi Strauss, Delta Airlines**
- ◆ **and many more...**



Integrated Program Management

$IPT + IBR + EVM = IPM$

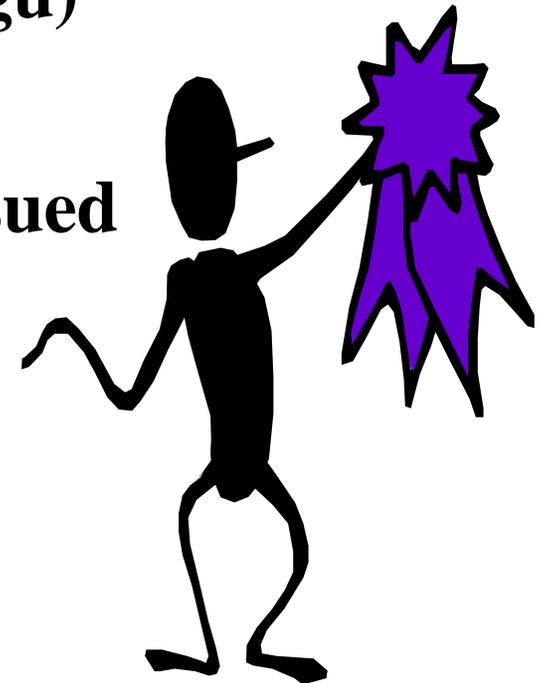
- ◆ **Involve earned value specialists and cost estimators on program IPTs--and, when appropriate, contractors**
- ◆ **Use MIL-HDBK-881 for WBS guidance**
- ◆ **Tailor reports - limit levels and analysis**
- ◆ **Do Integrated Baseline Reviews**
- ◆ **Encourage forward-looking management**

“IPTs must control all the project, technical and functional elements needed for the product or process.”

Highlights:

EVM in the Past Year

- ◆ **In-house EVM initiative (Jax, Pt. Mugu)**
- ◆ **GAO Report issued**
- ◆ **OMB Capital Programming Guide issued**
- ◆ **Sweden, Australia, United Kingdom Government/Industry conferences**
- ◆ **ANSI EVMS Standard issued**
- ◆ **EVM Satellite broadcast**
- ◆ **DCMC EVM Center established**
- ◆ **MIL-HDBK-881 issued**



Packard Award

EVM in '98

- ◆ **Expand implementation**
 - **Other organic activities (all Services)**
 - **Army Corps of Engineers**
- ◆ **Other initiatives**
 - **Total Ownership Cost**
 - **ABC/M**
- ◆ **Interagency working group**

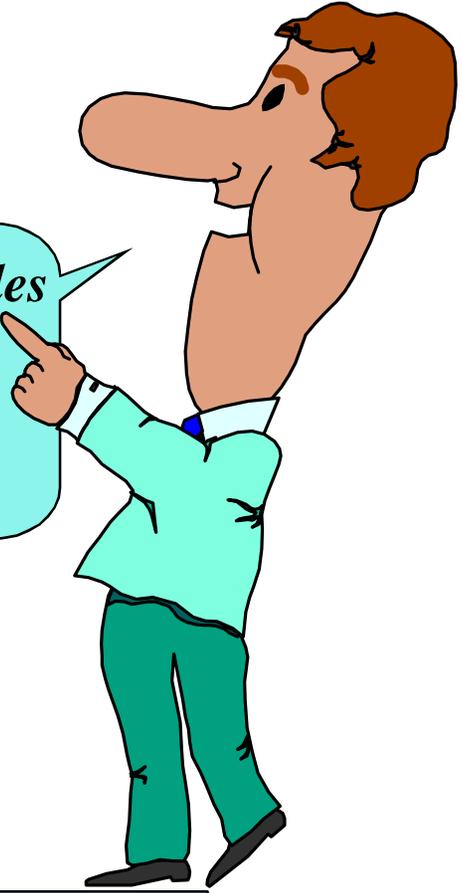
Earned Value Management: The Future

- ◆ **Office of Management & Budget Guidance**
 - 1996 - Circular A-11 Part 3
 - 1997 - Principles of Budgeting for Capital Asset Acquisitions (FY98 Budget)
 - 1997 - Capital Programming Guide (Supplement to A-11 Part 3)
- ◆ **Government-wide management principles**

***American Project Management Forum
Global Standards Discussion Group***

Earned Value Management: The Future

- ◆ **A-11 Part 3 and CPG extend DoD-pioneered performance measurement to all agencies**
- ◆ **Effectively requires Earned Value Management for all contractor performance-based management systems**
- ◆ **Agency budget approvals will depend on *performance* measured by EVM**



The principles are not new to the Dept. of Defense!

EVM: A 30-year old idea is today's best practice!

Will Earned Value Work for Me?

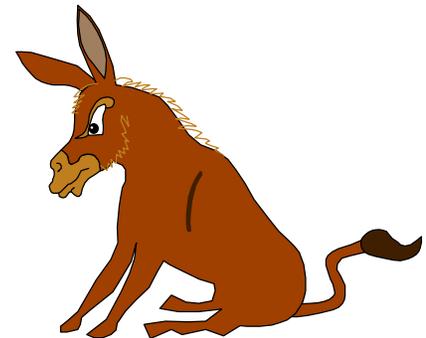
◆ Are you concerned about resources?

◆ Can you identify-

– Work objectives?

– Schedules?

– Resources?



◆ Then earned value is the right choice!

◆ But only if you want to do it...