Earned Value Management System
A Manager's Tool

Integrated
(Cost, Schedule and Technical Performance)
Management

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Earned Value Management
Topics

- **Earned Value**
  - What is EVM?
  - Management vs. Reporting
  - Why?
  - Key Building Blocks
  - Results

Keynote Themes

- **Industry (Private Sector)**
  - ◆ **EVM has a cost factor**
  - ◆ **Pays "big time"**
  - ◆ **Improves bottom line**
  - ◆ **Customer satisfaction**
  - ◆ **More bang for buck**

- **Government**
  - ◆ **Contract control**
  - ◆ **"No surprises"**
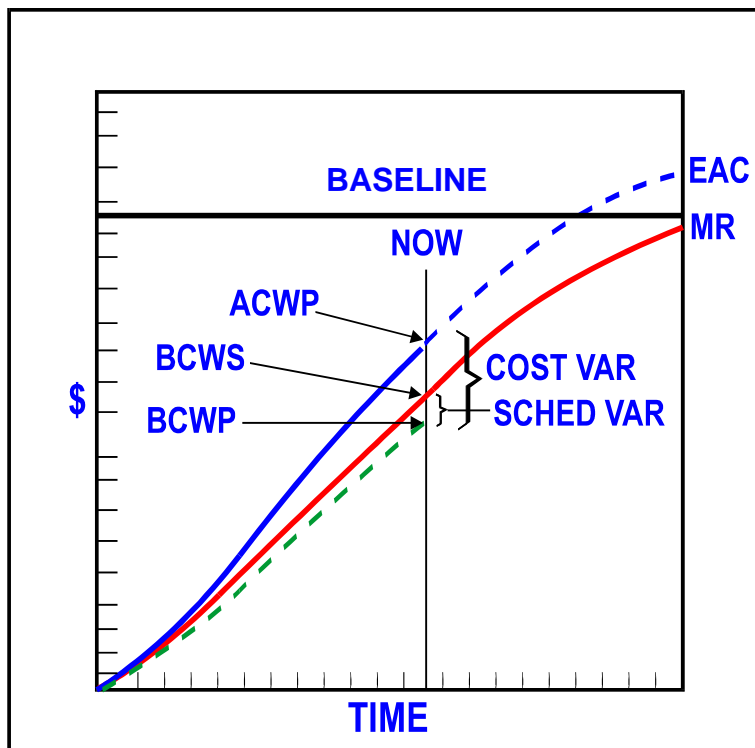 - ◆ **Fully obligate funding**

Industry Standard
ANSI/EIA 748-98 EVMS, 1998

- **What is EVMS:**

  - **Objective structured approach:**

    - 32 management systems/process attributes
    - Grouped by five process groups
      - Organization (5)
      - Planning (10)
      - Accounting (6)
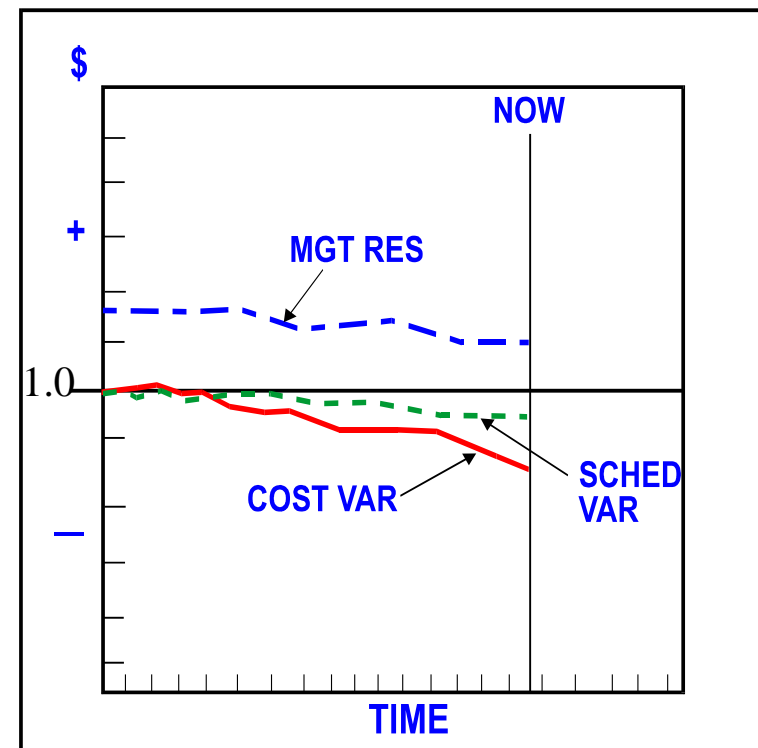   - Analysis (6)
      - Changes (5)

Graphic Analysis
Key Data Elements (cont'd)

Performance Measurement Baseline

Cost & Schedule Index

EVMS - What's the Objective?

- **Comprehensive planning process**
  - ◆ Covers entire statement of work (Use WBS)
  - ◆ Schedules activities (Critical Path)
  - ◆ Allocates resources
- **Fully integrated management systems**
  - ◆ Scheduling system, accounting system, procurement system, work authorization system, work measurement system, etc. For example:
    - – Interdependencies between department, functional, and/or team schedules (horizontal integration)
    - – Interdependencies from lowest level to master schedule (vertical integration)

Earned Value Management: Implementation Problems

- **Seems like "financial management"**
- **Audit-like reviews**
- **Government-required reporting**
- **Incorrect focuses**
  - ◆ **Inaccurate data**
  - ◆ **Under utilized**
- **Challenge: - Keep good principles**
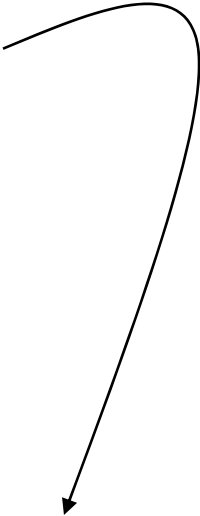 **- Stop bad practices**
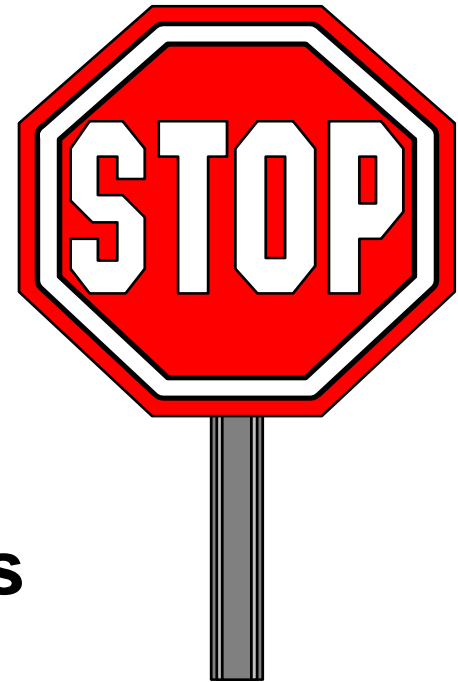
How much is it going to cost?
(One way to do it)

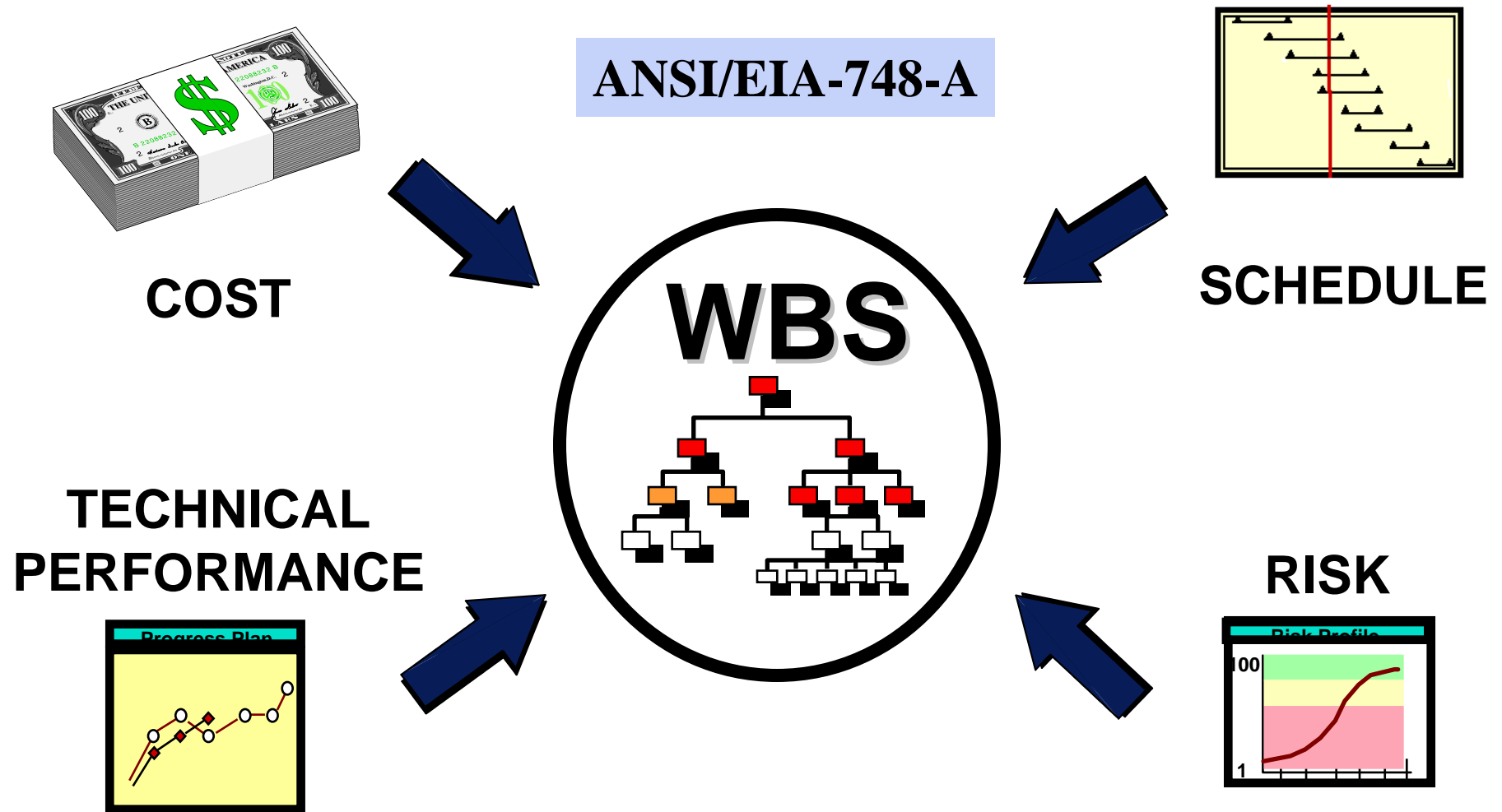- ## Cost Performance Index

$$\frac{BCWP}{ACWP} = \frac{\$\,33}{\$\,37} = 0.89$$

- ## Estimate at Completion

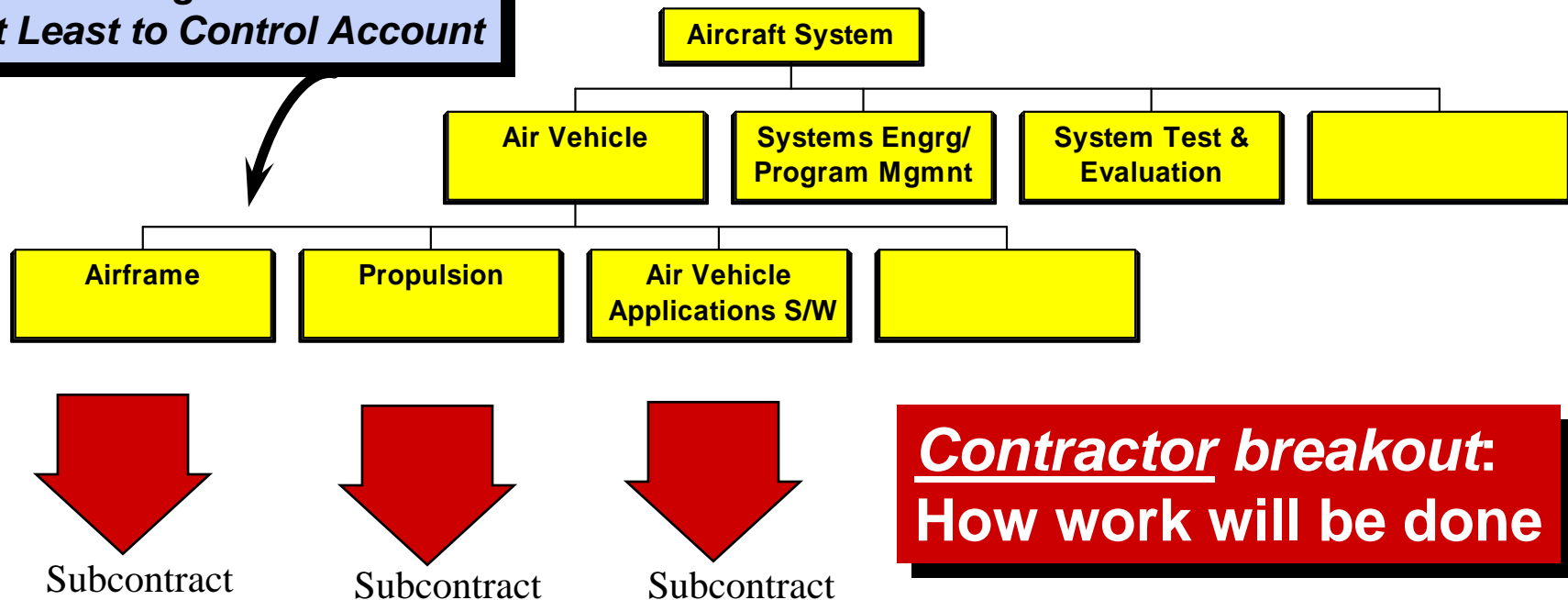$$EAC = \frac{Target\ Cost}{CPI\ Index} = \frac{\$\,100}{0.89} = \$112\ forecast$$

Work Breakdown Structure:
The Key to EVMS Integration

ANSI/EIA-748-A

COST

SCHEDULE
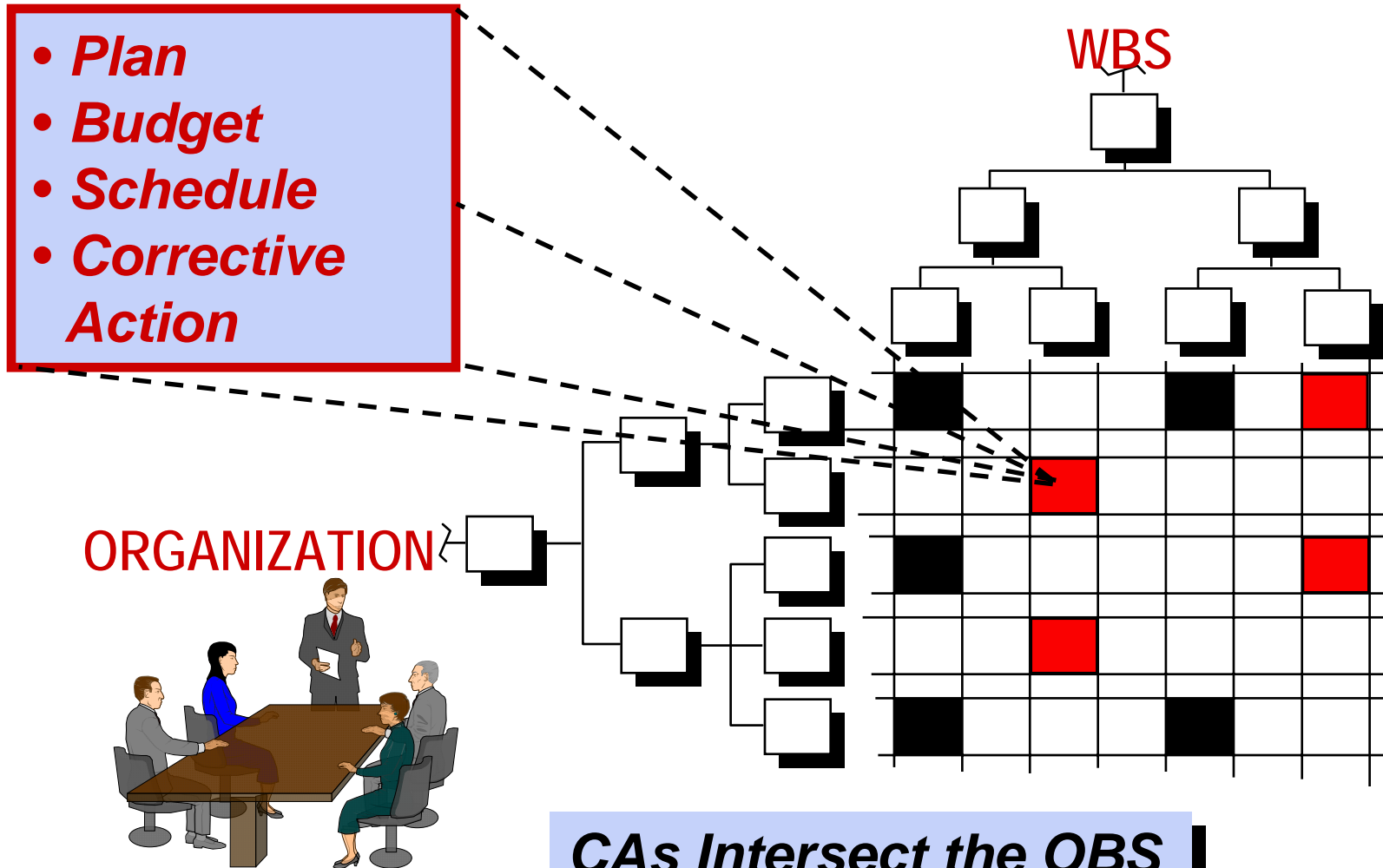
WBS

TECHNICAL PERFORMANCE

RISK

Integrated Management:
Work Breakdown Structure

WBS "Dictionary" (defines the program)
Product-Oriented

ANSI guidelines:
At Least to Control Account

```
                        Aircraft System
        ┌───────────────┬───────────────┬───────────────┐
    Air Vehicle    Systems Engrg/   System Test &
                   Program Mgmnt     Evaluation
    ┌──────┬──────┬──────┐
 Airframe  Propulsion  Air Vehicle
                       Applications S/W
```

Subcontract   Subcontract   Subcontract

Contractor breakout:
How work will be done

The Control Account:
Where the Action is

- *Plan*
- *Budget*
- *Schedule*
- *Corrective Action*

WBS

ORGANIZATION

CAs Intersect the OBS

Integrated Project Teams:
The Key to Success

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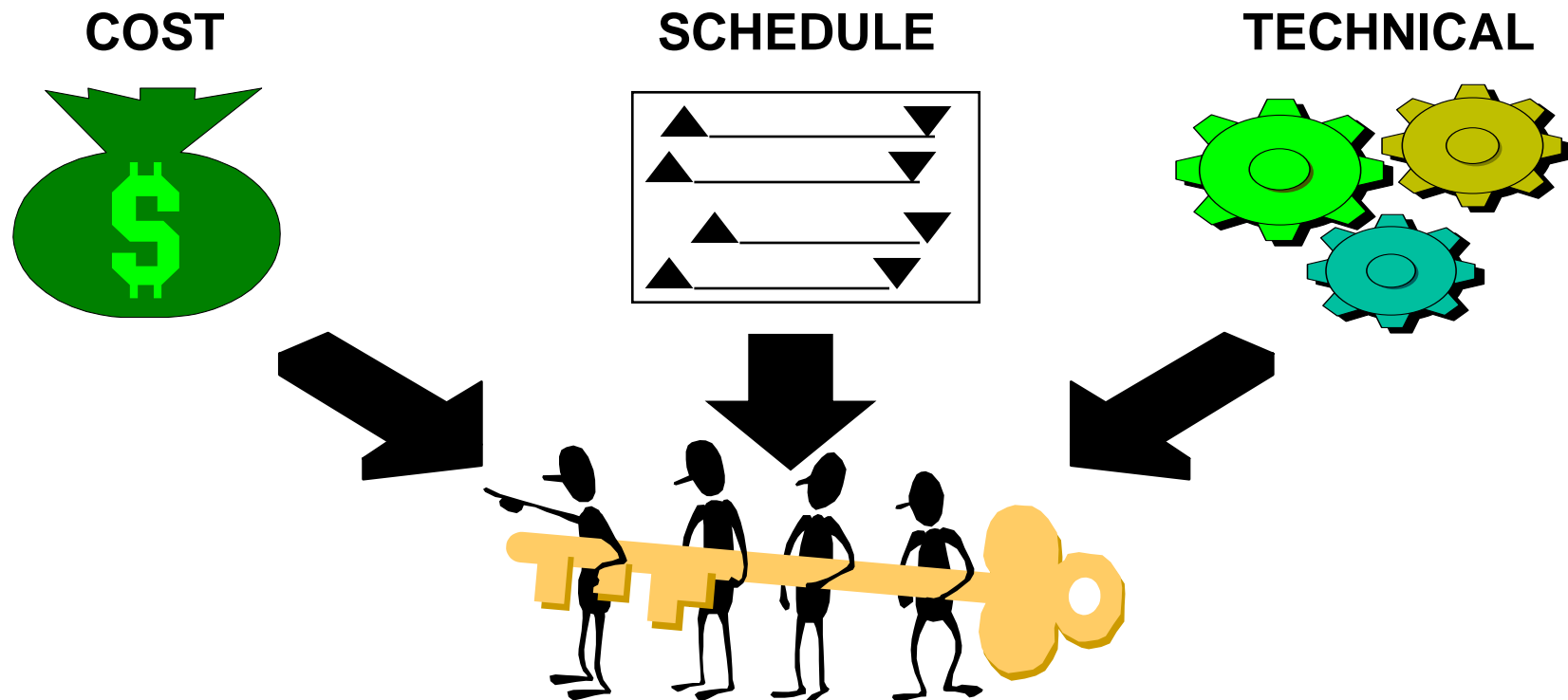
**Management systems don't manage - people do!
EVM is used to identify, communicate and *manage*
the resource effect of technical and schedule problems**

Today's EVMS:

- **Earned value ownership**
  - ◆ **Project team owns the data**
  - ◆ **Government provides direction**
  - ◆ **PMs ensure data integrity**
- **Better EVMS tools**
  - ◆ **Software and graphics**
- **Integrated Baseline Reviews**
  - ◆ **Improved planning process**
  - ◆ **Better technical/risk management**

PMP!

EVM
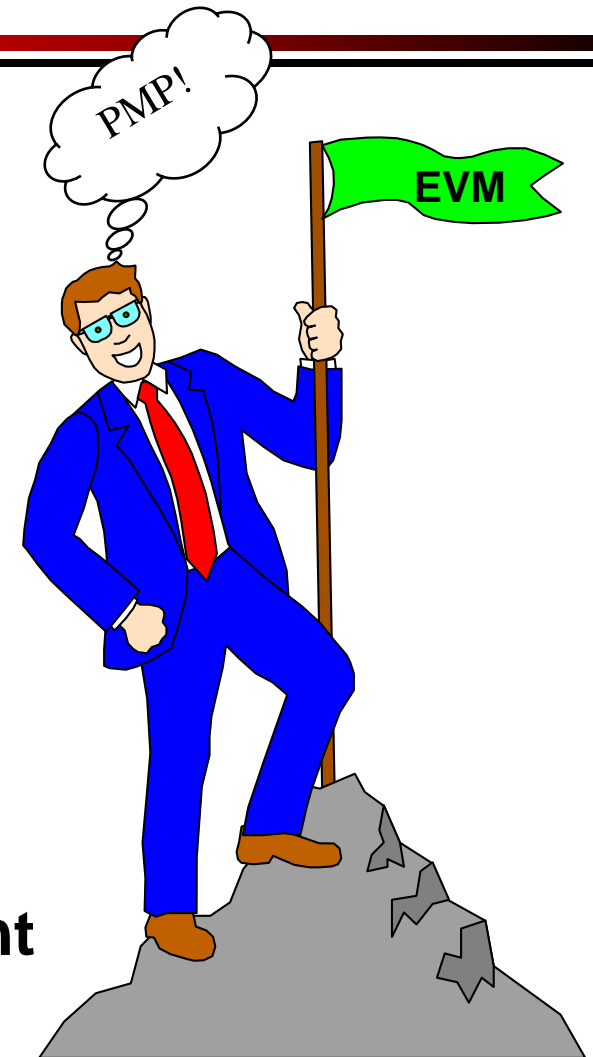
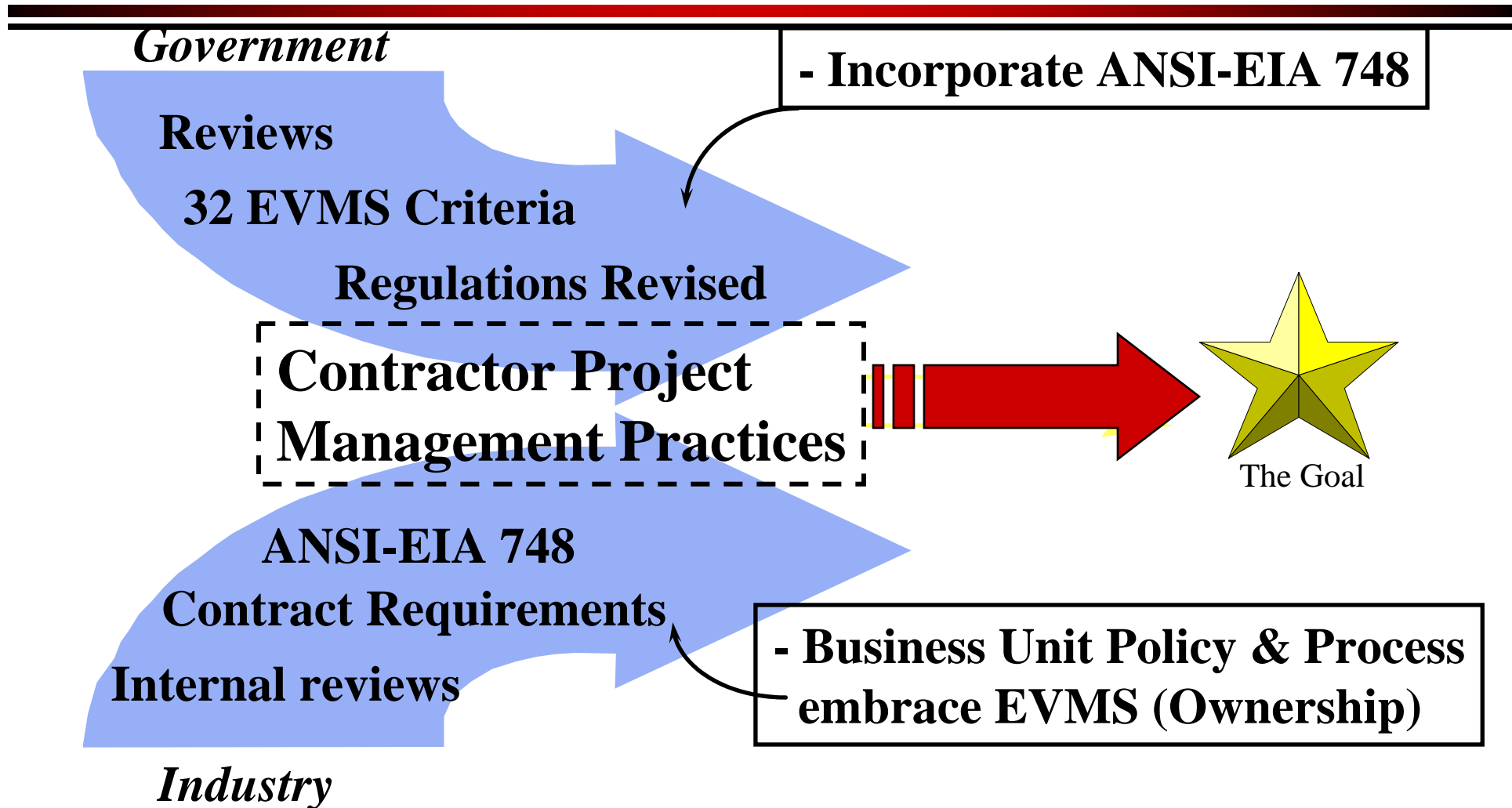# Roadmap - Requirements to Competitive Advantage

- Private Sector Industry
  - **Grow business (new contracts)**
  - **Achieve customer expectations (contract performance)**
  - **Achieve stockholder expectations (improve financial results)**

- Government
  - **Reduce project costs**
  - **Reduce schedule risk**
  - **Program success: improve predictability**

Roadmap - Requirements to Competitive Advantage

- **Common EV business processes give the program manager the tools to avoid reinventing the wheel for each program.**

- **EV is a tool integrating technical, schedule and cost performance measurement and analysis data for management.**

- **Cost savings and competitive advantage come from a broad business application**
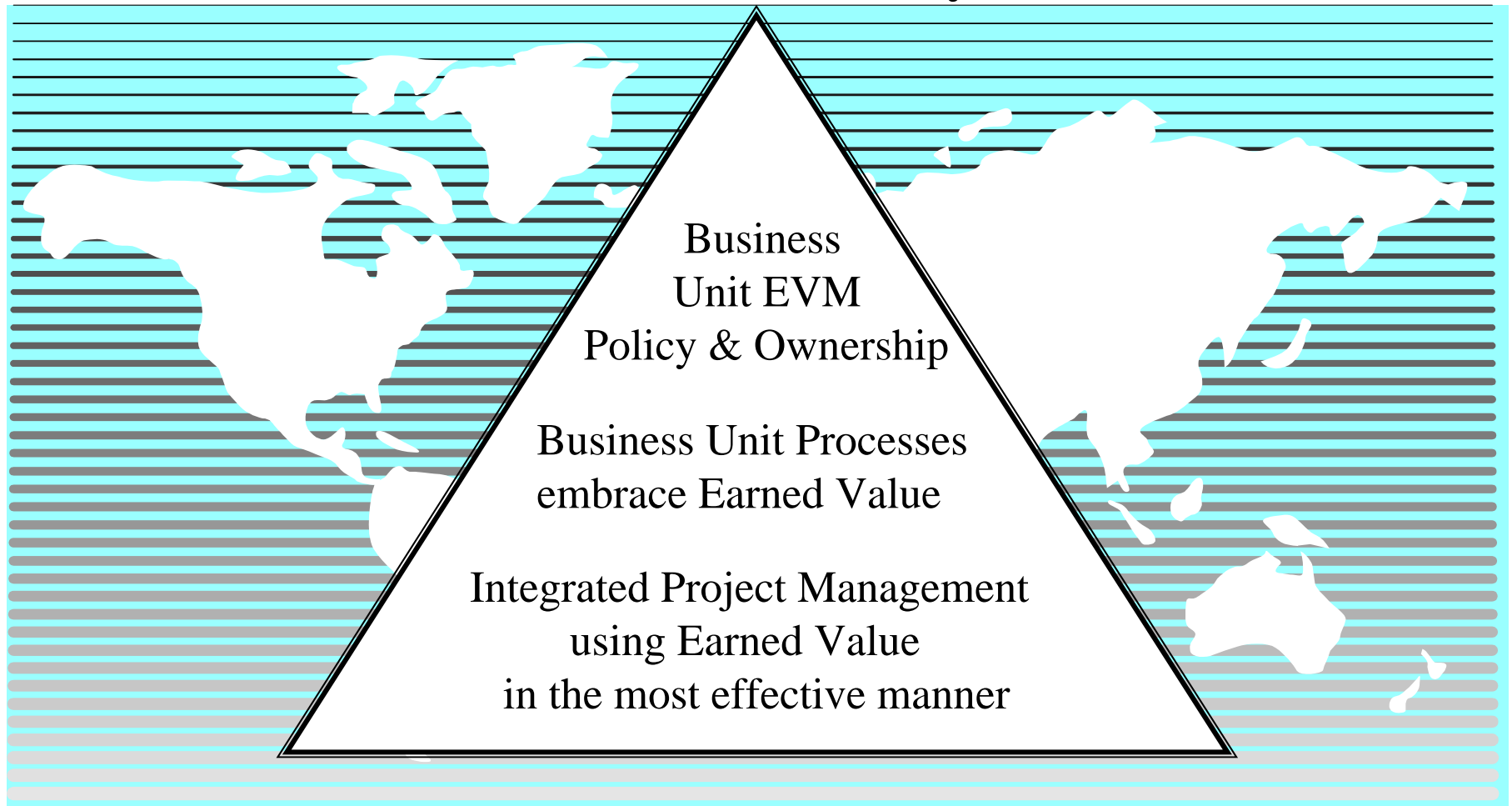 - ◆ **Company-Wide**

Project by project application isn't good enough.

Roadmap From Requirements to Competitive Advantage

Government

Reviews

32 EVMS Criteria

Regulations Revised

- Incorporate ANSI-EIA 748

Contractor Project Management Practices

ANSI-EIA 748

Contract Requirements

Internal reviews

- Business Unit Policy & Process embrace EVMS (Ownership)

The Goal

Industry

Integrated Project Management - Competitive Advantage
(ALL non-value added activity eliminated)

Business
Unit EVM
Policy & Ownership

Business Unit Processes
embrace Earned Value

Integrated Project Management
using Earned Value
in the most effective manner

Sustaining the Progress - Industry

- **Project Management Institute (PMI®)**
  - ◆ **EVMS is part of the PMP® curriculum**
  - ◆ **Annual symposium**
- **Performance Measurement Association (PMA®)**
  - ◆ **Society dedicated to performance measurement**
    - – **Annual symposium**

Sustaining the Progress - Government

- **Interagency cooperation**
  - ◆ **Office of Management and Budget (OMB)**
  - ◆ **"One Government" approach**
    - – **Coordination between major agencies**
      - **DOE/DoD via:**
        - ◆ **Defense Contracting Management Agency (DCMA)**
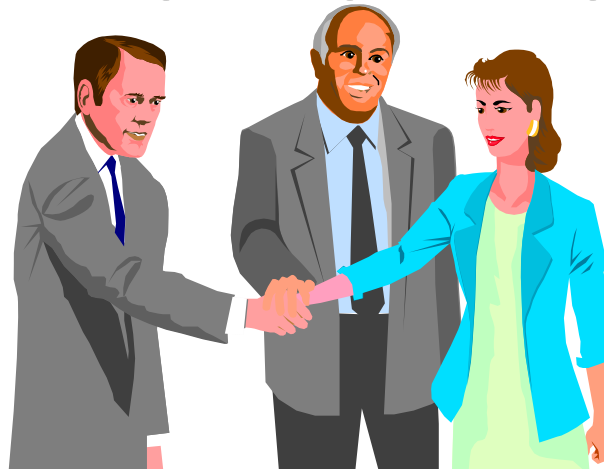
Sustaining the Progress (PMs)
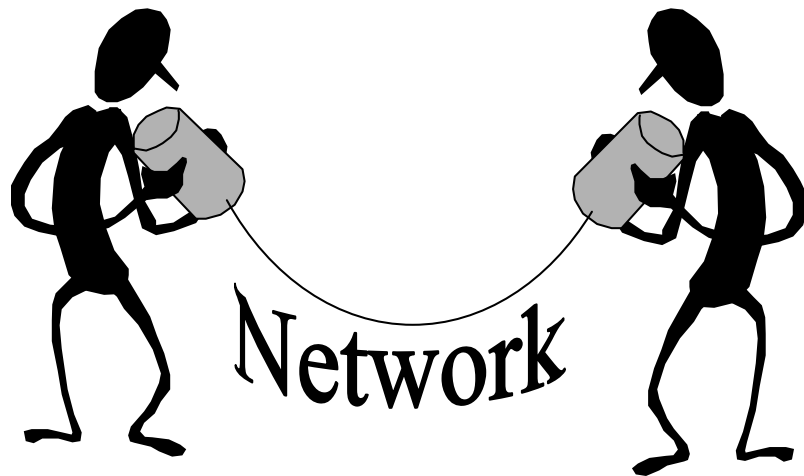
Network

- ● **Establish your network**
- ● **Use professional society meetings (like this one :-)**
- ● **Use the internet (research)**
- ● **Share information:**
  - ◆ <u>Observing confidentiality and security requirements</u>
- ● **Become a change agent**
- ● **Write a paper … get published**