Increased Development Cost
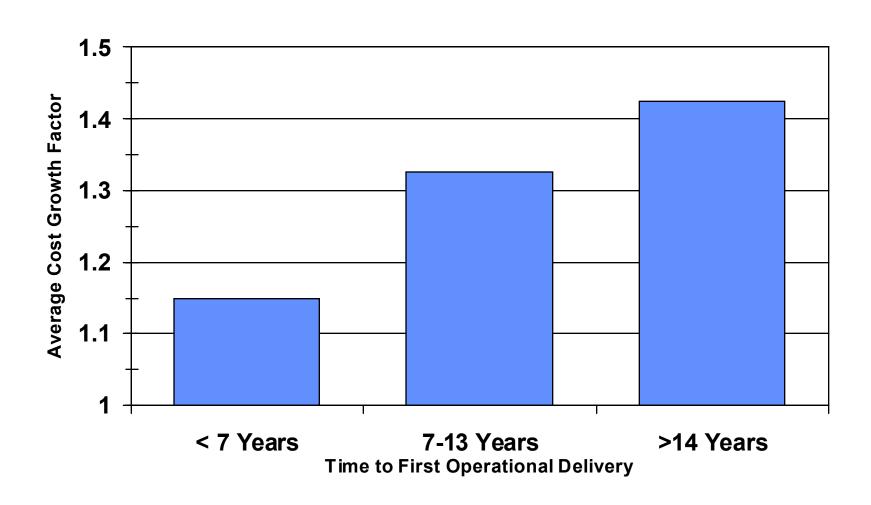
$$\text{Dev Cost (\$M)} \sim (1.36 + 0.03 \times \text{Dev Time(months)})^4$$

Model Predicts

Time	Dev Cost
24	$18.7 M
48	$61.5 M
96	$323.2 M
144	$1.04 B
192	$2.57 B

Development Cost (y-axis): $0, $16 M, $256 M, $1,296 M, $4,096 M, $10 B, $20 B, $38 B

Development Time (Months) (x-axis): 0, 24, 48, 72, 96, 120, 144, 168, 192, 216, 240

— Observed

— Model

Likelihood of Cost Growth

Rand SAR Database - ACAT I Programs - From Program Initiation to First Operational Delivery
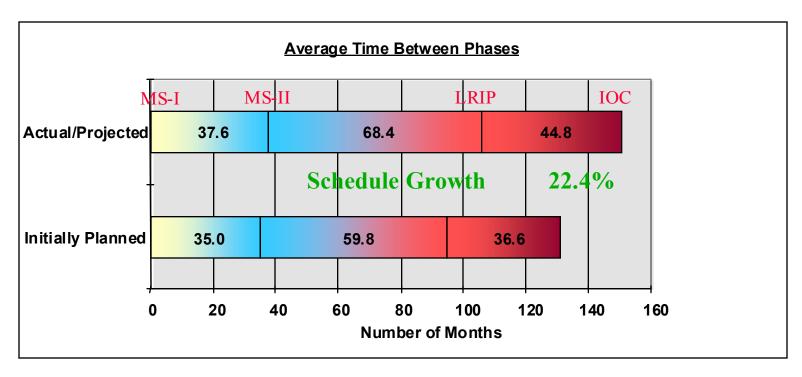
Packard Commission Conclusions (1986)

"An unreasonably long acquisition cycle - ten to fifteen years for our major weapon systems ... is a central problem from which most other acquisition problems stem:

- It leads to unnecessarily high cost of development...
- It leads to obsolete technology in our fielded equipment...
- And it aggravates the very gold plating that is one of its causes..."

"We believe it is possible to cut this cycle in half"

Packard Commission: "A Formula For Action"

Cycle Time Analysis of Current Acquisition Process

Average Time Between Phases

	MS-I	MS-II		LRIP	IOC
Actual/Projected	37.6	68.4		44.8	

Schedule Growth   **22.4%**

Initially Planned	35.0	59.8	36.6

Number of Months
(0, 20, 40, 60, 80, 100, 120, 140, 160)

Program schedule growth have taken place during the later phases of development. Thus, the later in a program

– It is much more difficult to isolate causes of technical problems
– The cost of resolving the problems is much higher
– Unresolved problems will carry over into production

DoD Cycle Time Goals

Federal Acquisition Streamlining Act (FASA) (1994)

– "Deliver emerging technology to troops in 50% less time"

DoD's National Performance Review (NPR) Goal (1996)

– **25% cycle time reduction target** for MDAPs by Year 2000

– Compares MDAPs begun before 1992 and after 1991

DSAC Direction (1997)

– Aim for 50% reduction in acquisition cycle time

• Set Commodity Specific Goals

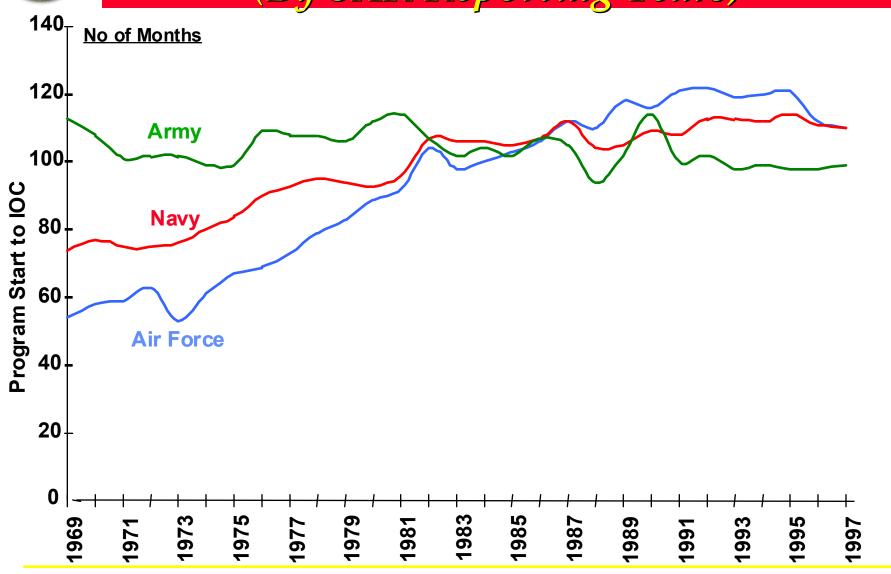– Institutionalize changes in 5000.2-R policy

Benefits of Reduced Cycle Times

- **Development and production benefits using metrics common to both commercial and military sectors:**
  - **50% reduction in cycle time associated with:**
    - **A 30% reduction in engineering hours (averaged over multiple studies)**
    - **A 20-25% reduction in cost of goods sold (35-50% for "service intensive" products)**
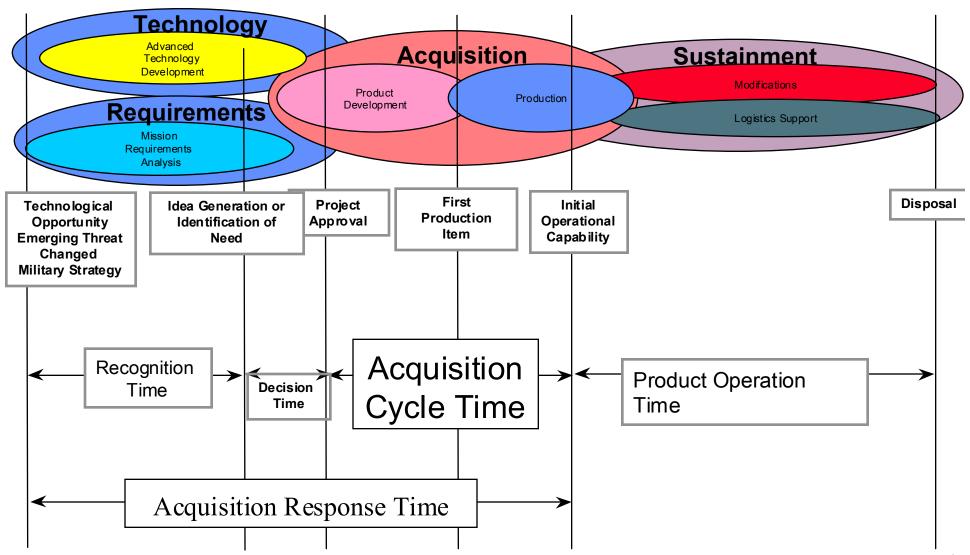   - **2X Net Asset turns, 2-4X inventory turns, 50% higher sales to plant and equipment ratios**

Average Cycle Times
(By SAR Reporting Years)

Source: DSB Briefing, Dan Czelusniak, 12 June 1998

7

Acquisition Cycle Time

Technology

Advanced Technology Development

Acquisition

Product Development

Production

Sustainment

Modifications

Requirements

Mission Requirements Analysis

Logistics Support

Technological Opportunity Emerging Threat Changed Military Strategy

Idea Generation or Identification of Need

Project Approval

First Production Item

Initial Operational Capability

Disposal

Recognition Time

Decision Time

Acquisition Cycle Time

Product Operation Time

Acquisition Response Time

What has to change
Looks a lot like an ACTD

Technology
Mature technology
User validated technology

Acquisition
Single phase
Schedule driven - Fully funded
Plan for Evolution
IPPD

Sustainment
Get users envolved early

Requirements
Focus on near term needs
Matched to technology

PPBS
Reduced programming lead times