Acquisition Strategies

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Topics

- ***Information Technology Acquisition Environment***
- DoD IT Acquisition Challenges
- DoD IT Acquisition Context
- DoD IT Acquisition Process
- Observations

The Emerging Intelligence Enterprise

- The processes are evolving
  - Systems are less stove-piped and more data centric
  - Moving away from proprietary systems
  - Service Oriented Architecture are providing access to data stores
  - Moving toward a more responsive, agile acquisition process

- But the fog of war is lifting slowly and unevenly
  - Iraq's experience has validated the view that network operations aren't just about the technology
    - While new technology is an enabler …
    - Real transformation is "relevant technology," responsive acquisition processes, leadership optimizing change and rapid CONOPS development

Current Generation of C4I War Fighters

Today's leaders & soldiers are digital natives and use IT technologies to their advantage for situational awareness and collaborative, agile decision making

The Environment:*

- **Lack of information and services that are visible, accessible and understandable**
- **Information "silos"-- capability needed to move information from one stove-pipe to another**
- **Hard-wire interfaces aimed at predetermined needs unresponsive to dynamic environment**
- **Continue to not leverage the latest information technology solutions available commercially**

"Digital Natives" trapped in industrial-era institution

*** Source: DSB Summer Study 2006**

Information Technology Style

- **Digital Native**
  - A person who has grown up with digital technology such as computers, the Internet, mobile phones, and MP3
    - Typically born after 1980
- **Digital Immigrant**
  - A person not born into the digital world:
    - has adopted many aspects of the technology, but just like those who learn another language later in life, retains an *accent* because they still have one foot in the past
    - challenged to communicate effectively with digital natives
- **Analog**
  - A person who chose to not adopt emerging technology

Source: Prensky, Mark; *Learning in the Digital Age*; Educational Leadership, December 2005/January 2006; Volume 63; Number 4 Pages 8-13

Recent Legislation (10 U.S.C. Chapter 144A)

- Defines Major Automated Information System (MAIS) in statute
- Requires an MAIS annual report to Congressional defense committees (analogous to a Selected Acquisition Report)
- Designates USD(AT&L) and Service Acquisition Executives as Senior Officials responsible for programs
- Requires Program Managers to report quarterly to the Senior Official any variance from the original baseline
- Imposes a time-certain development requirement of 5 years from Milestone A to Initial Operational Capability (IOC)
- Defines 2 new MAIS program deviation reports to Congress
  - Significant program change
  - Critical program change

Need to Change -- Congress Demanding It

- FY07 National Defense Authorization Act
  - Section 816. Major Automated Information System (MAIS) programs codified in statute
    - Requires annual reports to Congress for IT (FY 09)
    - Nunn-McCurdy-like reporting when breaches occur
  - Section 811. Time-certain development for DoD IT business systems
    - Milestone Decision Authority (MDA) must certify that system will achieve IOC in
      5 years or less before granting Milestone A approval
- FY09 National Defense Authorization Act
  - Section 811. MAIS programs
    - Defines “5 years to IOC” requirements

Need to Change -- Others Highlighting It

- May 19-20, 2008 DSB Meeting
  - Hon John Grimes (ASD(NII)/DoD(CIO))

    "Hardware development processes ill-suited to IT acquisition"
  - LTG Jeff Sorenson (Army CIO/G-6)

    "How we can make it better…. Policy – Acquiring IT not like tanks"
- Defense Acquisition Performance Assessment (3/2006)
- Beyond Goldwater Nichols Reports (2003/2004)
- GAO Assessment on "Information Technology: DOD's Acquisition Policies and Guidance Need To Incorporate Additional Best Practices And Controls" (July/2004)*
  - "*As you know, the way in which DOD has historically acquired information technology (IT) systems has been cited as a root cause of these systems failing to deliver promised capabilities and benefits on time and within budget*"

Need to Change -- New Leadership

- The Federal Government has an overriding obligation to American taxpayers… Since 2001, spending on Government contracts has more than doubled, reaching over $500 billion in 2008. During this same period, there has been a significant increase in the dollars awarded without full and open competition and an increase in the dollars obligated through cost-reimbursement contracts. *President Obama, March 04, 2009*

- Members of a special congressional panel will meet this week to begin charting an ambitious agenda: finding the underlying causes of failures in the defense acquisition process and recommending how to fix them. *Washington Post March 09,2009*

- It takes longer to declare a new [program] start than the lifecycle of the software package… It's not technology. This is culture. This is the imperative to change and be convinced that that imperative is real and will advantage us… Getting "the inertia going to get the system changed is the challenge that's in front of us." *Joint Chiefs Vice Chairman Gen. James Cartwright, March 04, 2009*

- Better Weapon System Outcomes Require Discipline, Accountability and Fundamental Changes in Acquisition Environment
  - *GAO Report (June 3, 2008)Testimony Before Committee on Armed Services, U.S. Senate*

Leveraging Previous Work

- Beyond Goldwater-Nichols Reform, Center for Strategic & International Studies (CSIS), March 2004/July 2005
  - Many organizational structures and processes initially constructed to contain a Cold War superpower in the Industrial Age are inappropriate for 21st century missions
- 2006 DSB Summer Study on Net Centric Capabilities
  - Information "silos"-- capability needed to move information from one stove-pipe to another via ad hoc solutions
  - Hard-wire interfaces aimed at predetermined needs
  - Much of IT in theater has been supplemental funded and not part of a "planned" capability putting in question the long term viability
- Transitioning Defense Organizational Initiatives, *An Assessment of Key 2001-2008 Defense Reforms*, CSIS, November, 2008
  - Study effort aimed at informing the next Secretary of Defense's transition decisions
- Other ongoing DSB and National Academies studies

Topics

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- ***DoD IT Acquisition Challenges***
- DoD IT Acquisition Context
- DoD IT Acquisition Process
- Observations

*Information Technology (IT)**

<u>Information Technology</u>: Any equipment or interconnected system …of equipment that is used in automatic :

- acquisition
- storage
- manipulation
- management
- movement
- control
- switching
- interchange
- transmission
- reception

of data or information by the executive agency

* Title 40 USC (formerly known as the Clinger Cohen Act of 1996)

Program Definitions/Thresholds

- **Major Defense Acquisition Program (MDAP) (10 USC 2430)**
  - Dollar value as estimated by USD(AT&L) to require an eventual total expenditure
    - RDT&E of more than $365 million in FY 2000 dollars or
    - Procurement of more than $2.190 billion in FY 2000 dollars
  - MDA designation as special interest
- **Major Automated Information System (MAIS) (10 USC 2445)**
  - Dollar value of AIS estimated by the DoD Component Head
    - Program costs (all appropriations) in any single year in the excess of $32 million in fiscal year (FY) 2000 dollars,
    - Total program costs in excess of $126 million in FY 2000 dollars
    - Total life-cycle costs in excess of $378 million in FY 2000 dollars
  - MDA designation as special interest
- **Major System Acquisition (41USC 403(9))**
  - A system shall be considered a major system if:
    - Total expenditures for the system are estimated to exceed $750,000 (based on fiscal year 1980 constant dollars)
    - Designated by the head of the agency responsible for the system

DoD past attempts to adapt IT acquisition

Initiatives

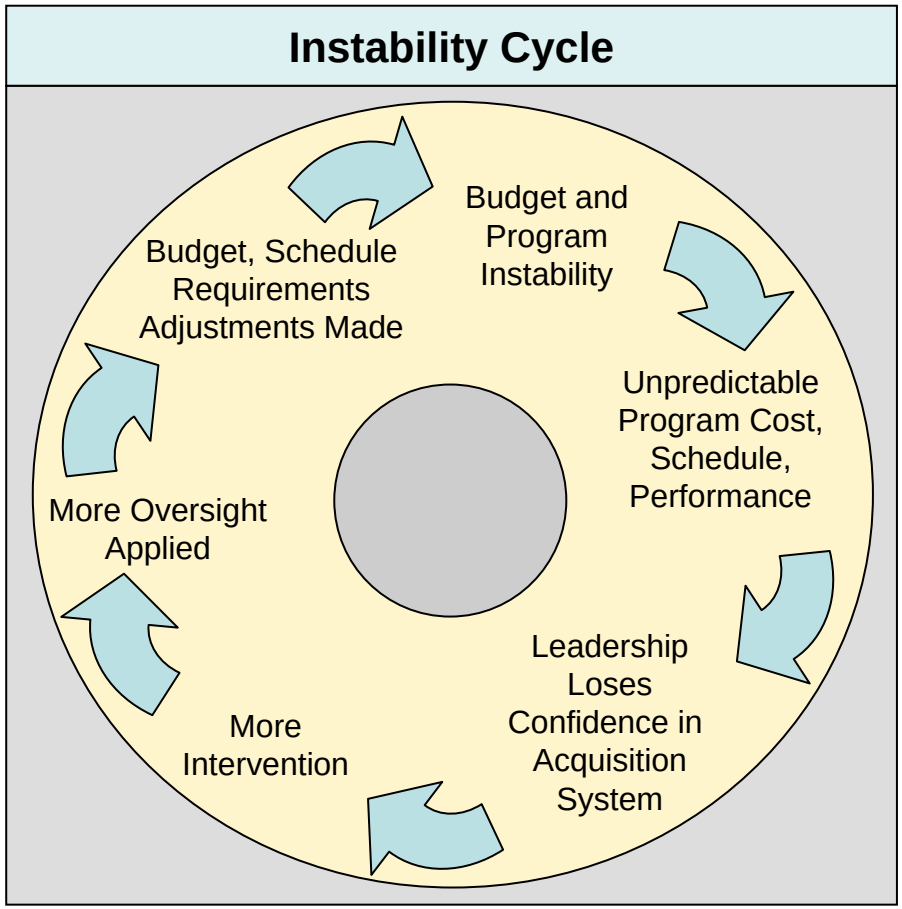
- CIM - Corporate Information Management
- CCA - Clinger Cohen Act
- RIT- Rapid Improvement Team
- BMMP – Business Management Modernization Program
- BTA/ERAM – Business Transformation Agency/ Enterprise Risk Assessment Model

Lessons

- Need requirements and Funding stability
- IT acquisition needs to be aligned with mission sponsor
- Most effective if limited to 50,000 to 75,000 ESLOC
  - 5-10 people and 12 month increments
- Change management is key to success – its not about the system

The Government-Induced Cycle of Instability

- Because our major processes are not well integrated,
  - we have an unrecognized , government-induced and long-standing cycle of instability
  - which causes unpredictability in costs, schedule, and performance
  - that ultimately results in development programs that span 15-20 years with substantial unit cost increases
  - leading to loss of confidence in DoD acquisition systems.



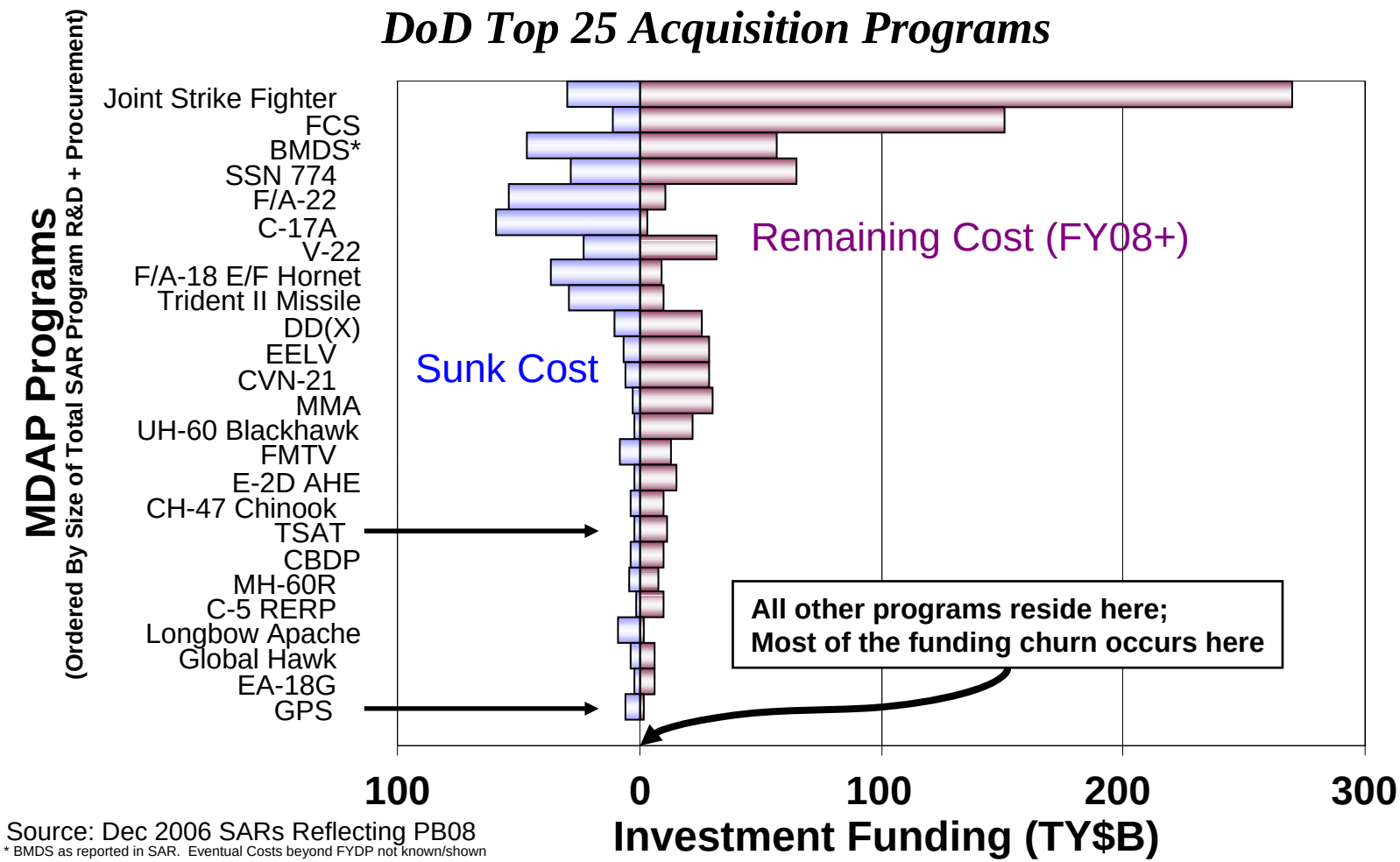
Major contributing factors to program instability are funding and requirements instability

IT Requirements Challenges

- *Considerable trade space for IT requirements*
- *Moore's Law drives the IT development environment*
  - Technology changes faster than the PPBS
  - Technology changes faster then the Acquisition cycle
  - Many Traditional S&T functions now performed by industry
    - COTS vs GOTS
    - Independent of DoD programs
    - Constant pressure to adopt "better" solution
  - Technology Readiness Assessments no longer as relevant
    - Technology is largely matured commercially
- *Evolving warfighting concepts drive requirements change*
  - JUONS drive ACTD/JCTD/other rapid acquisition efforts
    - Compete with programs of record

IT requirements instability occurs at levels below those tracked by JCIDS and DAB processes

Funding Perspective



Source: Dec 2006 SARs Reflecting PB08

* BMDS as reported in SAR. Eventual Costs beyond FYDP not known/shown

IT programs are at the tip of the tornado – more turbulent

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Net Centric Environment: Context

Strategic Challenge – UNCERTAINTY

"Uncertainty is the defining characteristic of today's strategic environment." *(National Defense Strategy)*

–Leave behind the reasonable predictability of the past

–Adjust to an era of surprise and uncertainty

Strategic Response – AGILITY

"We have set about making US forces more AGILE and more expeditionary." *(Quadrennial Defense Review)*

–Enterprise-wide: Battlefield Applications; Defense Operations; Intelligence Functions; Business Processes

–Capabilities Based: Access, Share, Collaborate

–Fundamental Changes: Process, Policy, Culture

–Emphasis Shift: From moving the user to the data – to moving data to the user

Net Centricity Confronts Uncertainty with Agility

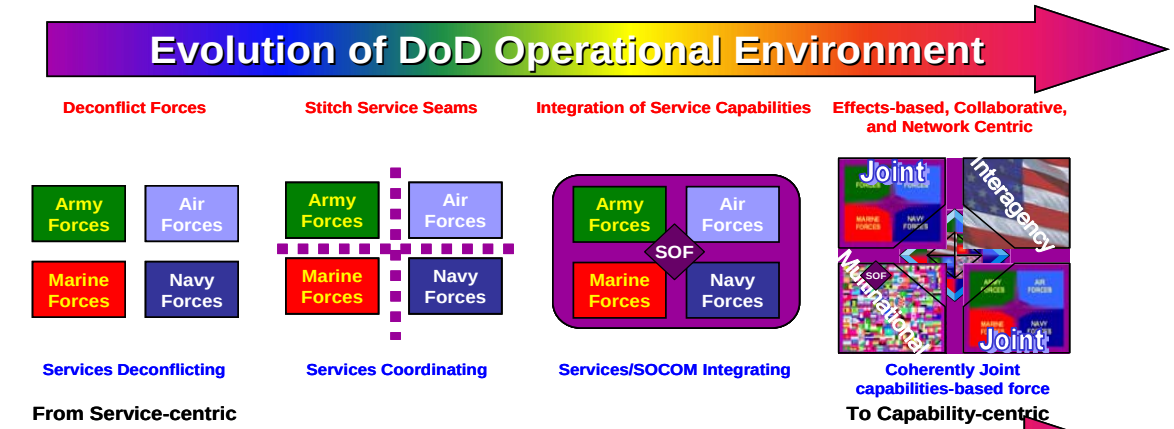
IT Evolution

Pre-1990's	Today
• GOTS Hardware & Software	• COTS Hardware & Software
• Functional code development	• Interface and integration code
• Back room non-combat	• Ubiquitous, embedded
• Stovepipe independent systems	• Net-centric
• Centralized	• Distributed
• Unique data definition	• Authoritative data sources
• Dedicated interface design	• Net-enabled
• System security	• Information Assurance
• Big Bang Operational test	• Integrated, dynamic DT/OT
• Service-oriented warfare	• Joint Warfare
• Packard Commission	• Clinger-Cohen

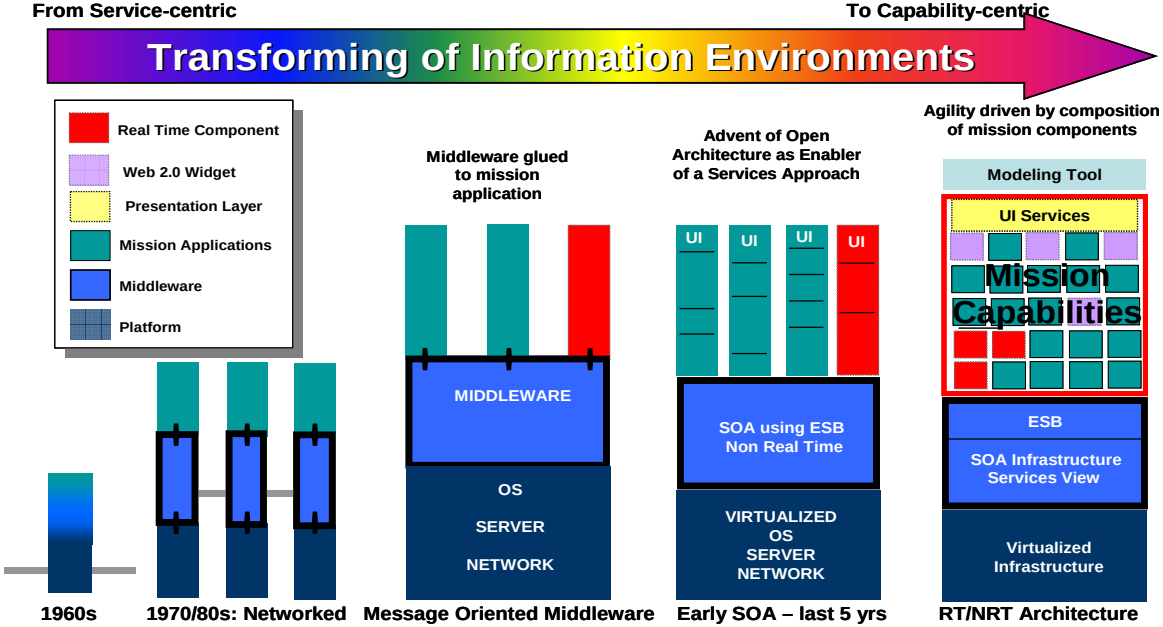
IT system development characteristics - no longer weapon system-like

The Co-Evolution

Leveraging IT to Support Mission Operations



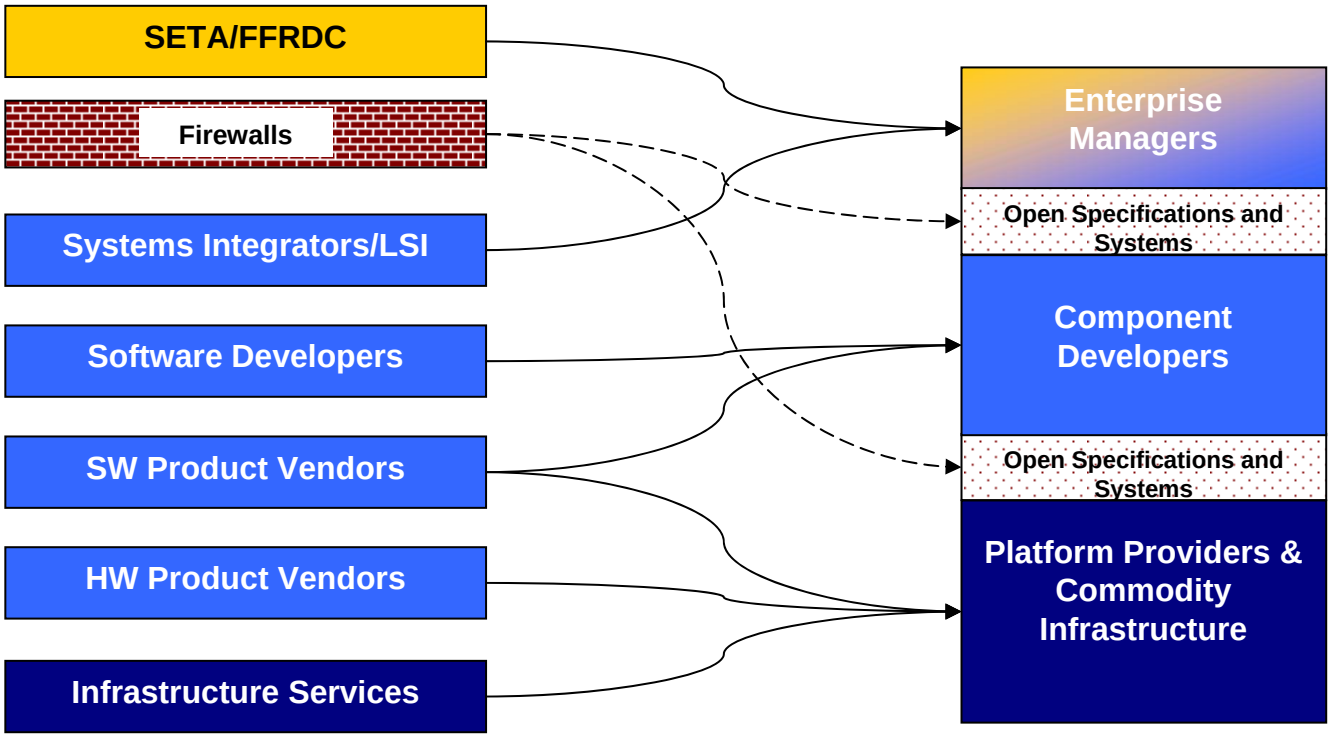
Mission needs drive this transformation



Commercial IT trends drive transformation

DoD is behind industry – now at early SOA phase

Changing Roles



Current Capability-based Taxonomy **Proposed Role-based Taxonomy**

As the market evolves, the roles and how contractors interact must evolve as well. Traditional firewalls become published open system specifications.

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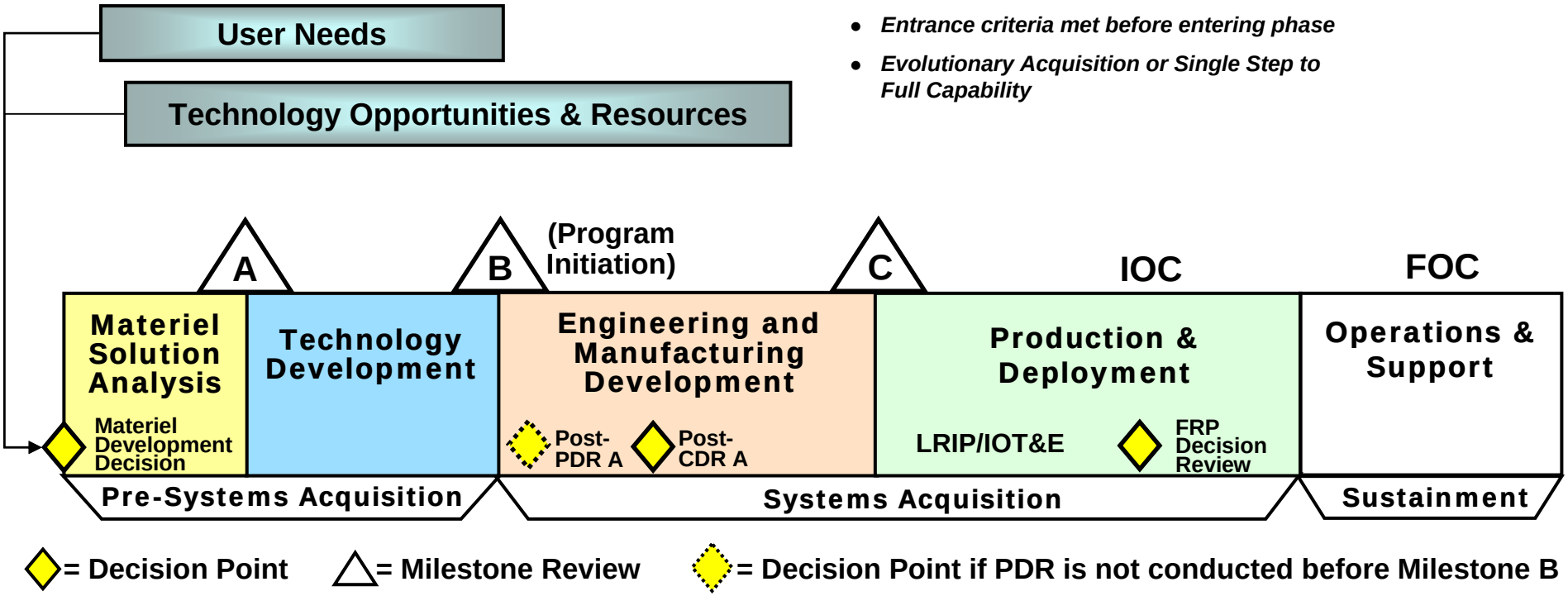
Latest Acquisition Process (Dec 2008)

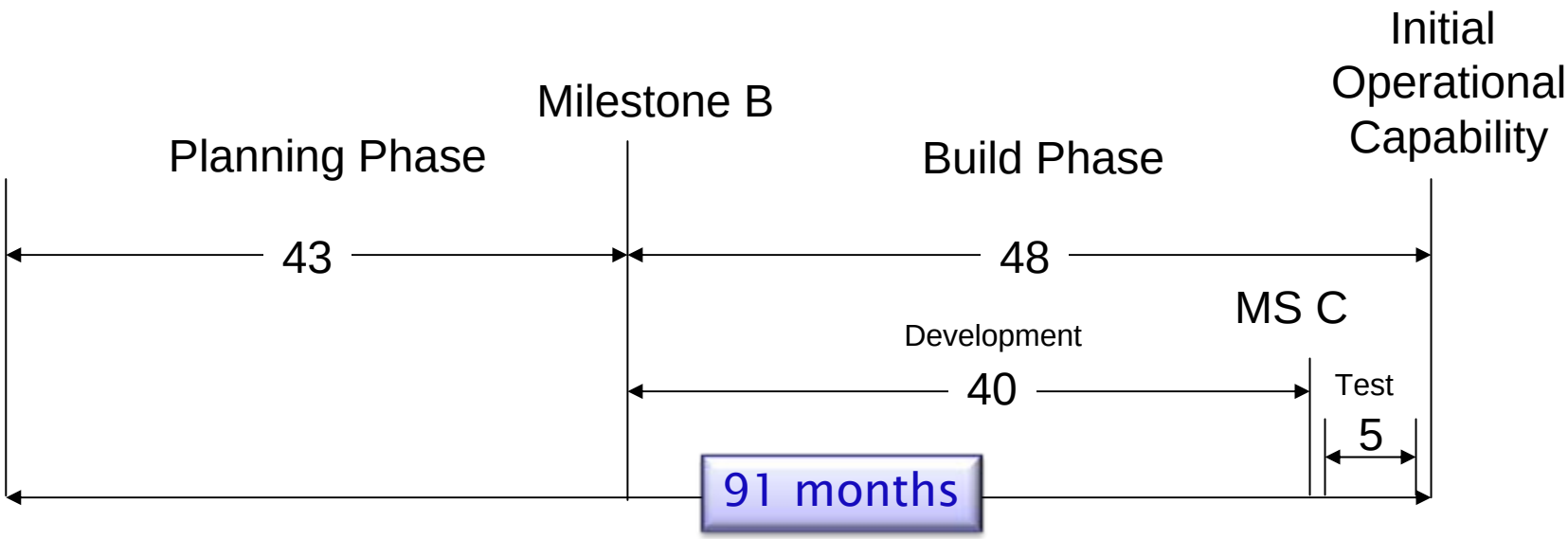
- *The Materiel Development Decision precedes entry into any phase of the acquisition management system*
- *Entrance criteria met before entering phase*
- *Evolutionary Acquisition or Single Step to Full Capability*



Deliberate toll gate decision process fundamentally unchanged for over thirty years – Analog

DoD IT Acquisition Cycle-Time

Average for all 32 MAIS reaching IOC in 2004-9

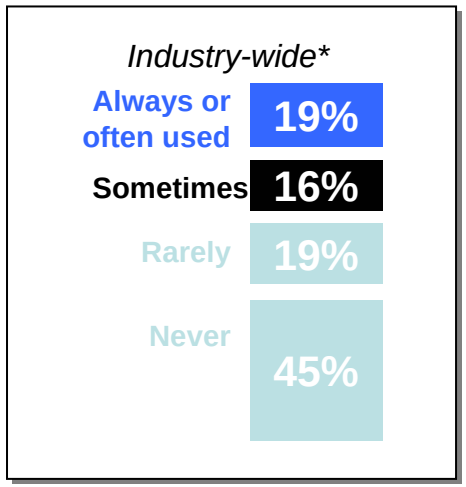


Note: Equivalent non-MAIS Average is 8.5-16 years

Counterbalance to Speed of IT Innovation

Eliciting the "Right" Technology – IT programs

- Challenge of bringing most relevant technology



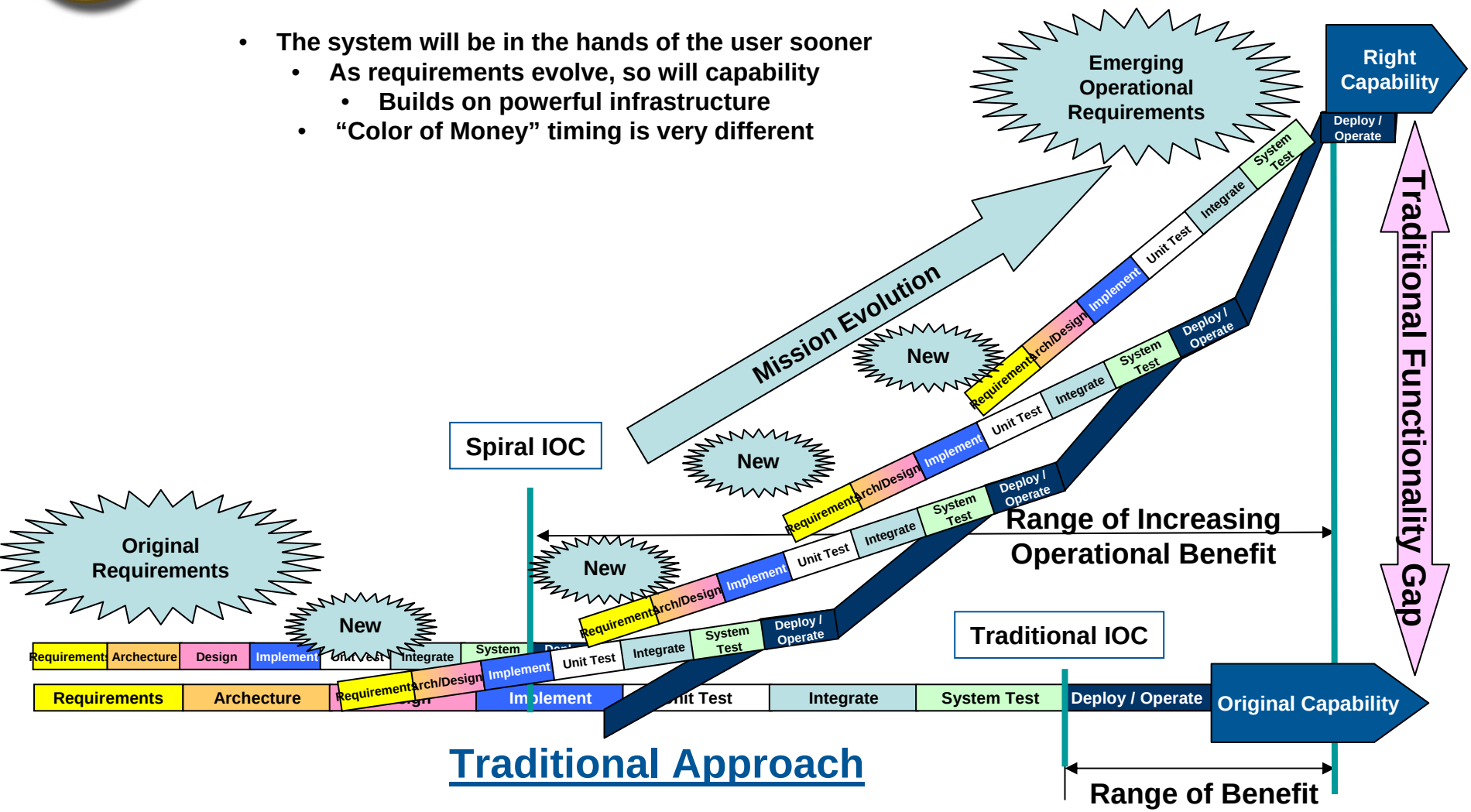
*Source: "The Chaos Chronicles," The Standish Group, 2003.

- Independent research organization (Standish Group) report nearly two-thirds of the features built into technology solutions represent waste
- 2 of top 3 reasons for program failure due to lack of user involvement and incomplete - misunderstood requirements

- Spiral acquisition model offers multiple opportunities
  - Prioritize requirements based upon
    - User feedback
    - Realized risk (knowledge based decisions)

Spiral Approach Adds Value

- The system will be in the hands of the user sooner
  - As requirements evolve, so will capability
    - Builds on powerful infrastructure
  - "Color of Money" timing is very different



Requires strong enterprise governance

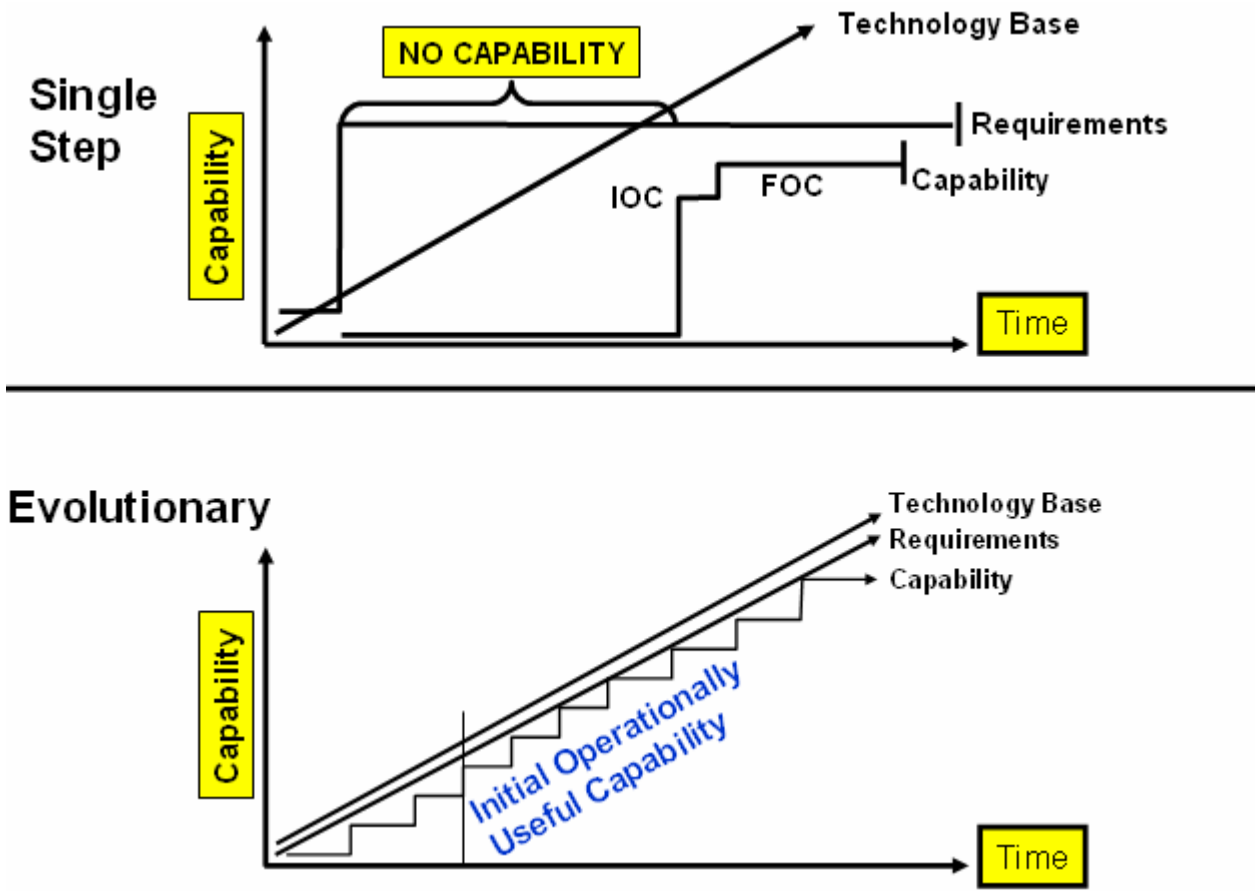
Balancing Extremes in Acquisition

	"Classic Waterfall"	"Spiral"	"Extreme"
	Deterministic		*Evolutionary*
Project Management	• Detailed plan for entire project • **Scope-boxed phases** • Track progress by milestones completed	• Plan for entire project; varying granularity • **Time-boxed phases** • Track progress also by **value delivered**	• **No plan for entire project** • Limited concept of phases • Track progress for only current deliverable
	Big up front design		*Just in time, quality*
Development Process	• Design all before in complete detail • End-to-End Enterprise Architecture • **Integrate only once** • **One big testing phase**	• Design to support risk and value-driven design • Executable enterprise architecture planning • **Multiple deliveries** • **Combined DT/OT (Early & continuous testing)**	• **Design all just-in-time – nothing up front** • Minimal design documentation • Continuous integration • **No dedicated test**
	Low		*High*
Collaboration	• **User involvement only at project start and completion** • **"Throw it over the wall" requirements communication model** • Communication via periodic status meetings (quarterly or greater)	• **Frequent, regular User involvement** • Cross-group collaboration via frequent checkpoints • **Strong governance with cross-functional teams**	• Continuous face-to-face User involvement • Daily standup meetings • **Self organizing collaboration & teams**

Where Do You Start ?

- Stable requirements
  - Smaller programs, loosely coupled based on commercial standards
- Stable funding
  - Shorter duration, parallel efforts
  - 5-5-5
- Competition
  - Design to match market capabilities
  - Know your supplier

Appropriate Acquisition Models
Balancing Extremes



Picking the Right Metrics

- Earned Value Management
- Headcount
- Software – DRs, Code Production
- Critical Path/Integrated Master Schedule
- Risk Cubes/Risk Management
- Critical Events: SRR, SDR, PDR, CDR

Picking the Right Acquisition Model

- Experimentation
  - Advanced Concept Technology Demonstration
- Quick Reaction Capability
  - Immediate Operational Need
- Spiral Model
  - Information Technology
- Traditional Model
  - Platforms

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My Observations
Creating World Class Acquisition Environment

- Trained and Experienced PM's critical for success
- Before program enters development, performance criteria must be finalized
- Technology maturity before committing to program
- Stable funding a pre-requisite for program success
- **Apply correct acquisition model**
- Partnering with proven (competent & motivated) contractor
- Follow deliberate and disciplined process; **select & use appropriate management metrics**