The New DoD Systems Acquisition Process

Acquisition Resources & Analysis

June 12, 2001

OVERVIEW

- Major Objectives
- Old Process/Model
- New Process/Model
- Reactions/Support
- Implementation Challenges

Major Objectives

- **Deliver advanced technology to warfighters faster**
  - Rapid acquisition with demonstrated technology
  - Full system demonstration before commitment to production
- **Reduce total ownership costs and improve affordability**
  - Cost as a requirement that drives design, procurement, and support
  - Increased competition
- **Deploy interoperable and supportable systems**
  - Interoperability demonstrated prior to production
  - Integration of acquisition and logistics
  - Improved software management

Improved performance (including quality) at lower cost.

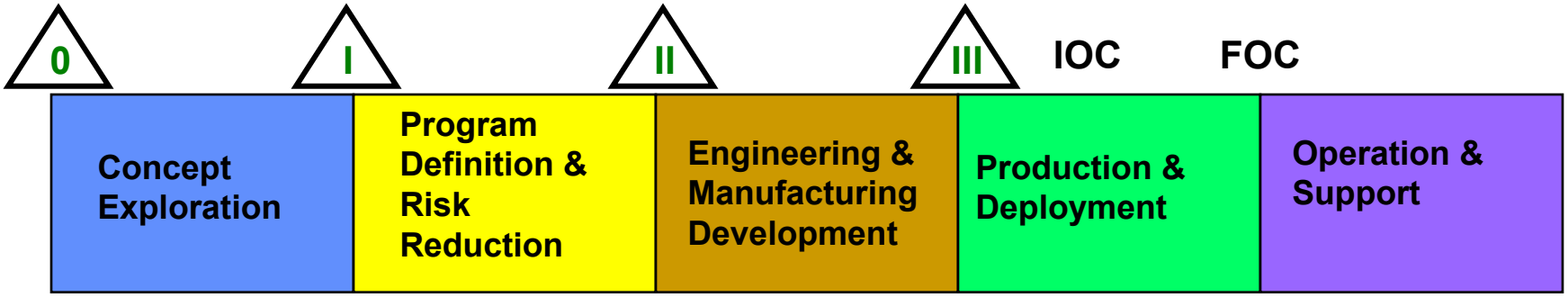
THE OLD 5000 PROCESS

- Only addressed systems acquisition - not total acquisition system
- Treated evolutionary approaches and innovations as "non-traditional" excursions
- Endorsed "tailoring" but provided no amplifying guidance to assist acquisition strategy development
- Provided no firm decision criteria

<u>The old process and practices</u>:

- Took too long and cost too much
- Were incompatible with modern technology cycles

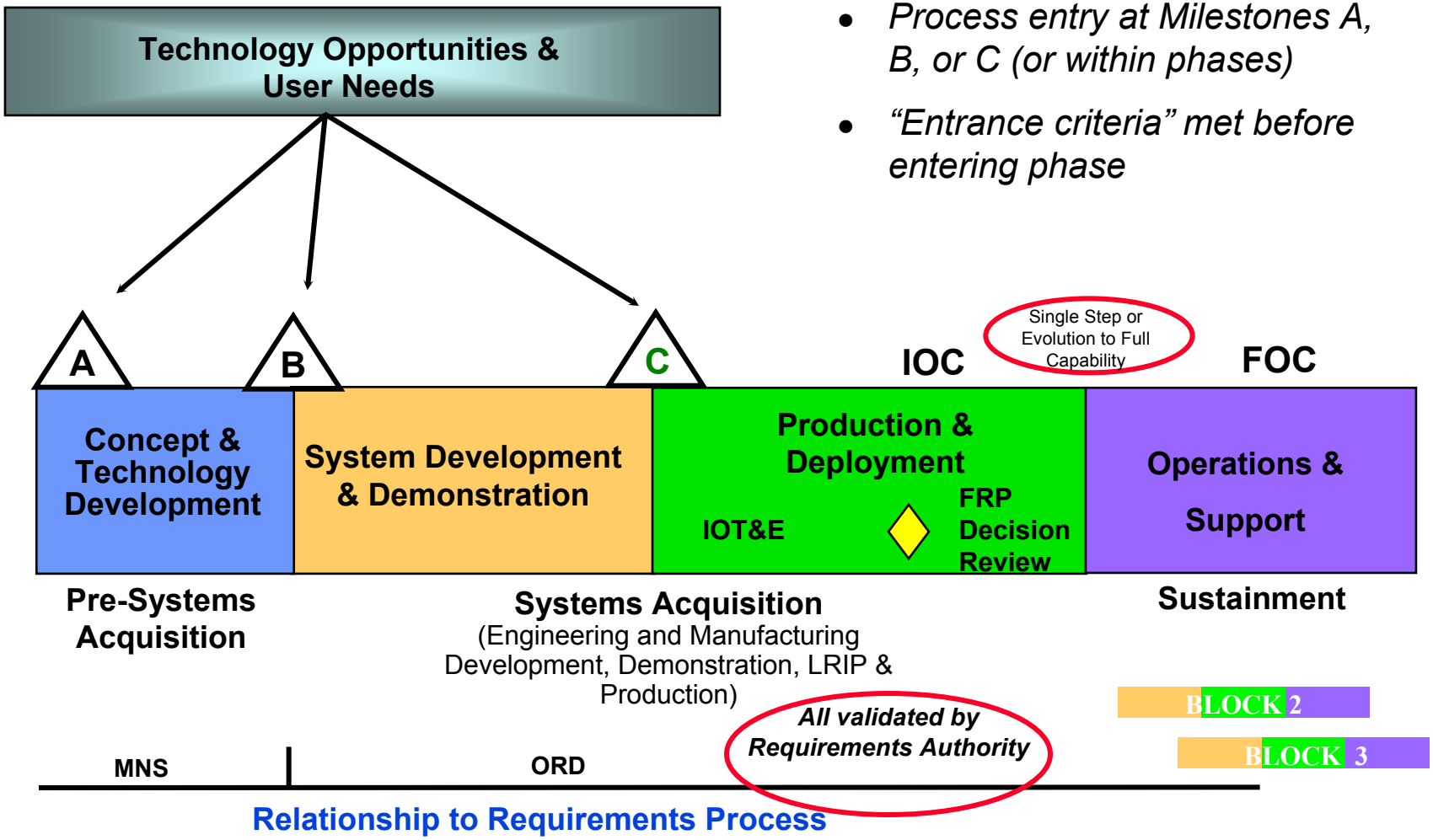
The Old 5000 Model



The New 5000 Process

- ***Technology opportunity*** **and** ***mission need present*** - before entering acquisition process
- ***Multiple process paths*** - not just one way of entering systems acquisition and commercial products allow later entry
- ***Evolutionary acquisition*** - based on *time-phased requirements* - preferred (but not only) approach
- **Technology development *separated* from systems integration -** achieve proven technology before beginning systems-level work at Milestone B
- **"LRIP"** ***more important*** **Departmental** ***commitment*** - than "Full Rate"
- ***"Entrance criteria"*** **met** -- before entering next phase
- ***Operations, Support, and Disposal*** - part of acquisition process

The New 5000 Model



- *Process entry at Milestones A, B, or C (or within phases)*
- *"Entrance criteria" met before entering phase*

Total Ownership Costs

- **Use *market research* and *commercial products* --** to increase competition
- **Use *Open Systems* Architecture -** to reduce cost of technology insertions
- **Use *Dissimilar Competition* -** non-head-to-head alternatives to meet capability need
- **Increase use of *Simulation Based Acquisition* -** to reduce costs for hardware prototype
- ***Reprocurement reform*** -- based on business case analysis of predicted life, tech insertion opportunities, and cost reduction potential

Affordability

- **Value *addressed*** - in the ORD by user
- ***Minimum* number of *mission-oriented Key Performance Parameters* -** to facilitate cost-performance trades
- ***Affordability analysis*** -- at each milestone decision point

Funding

Full Funding

- *No later* than Milestone B
- Earlier if a follow-on system

Adequate Funding

- Need more funding for demonstrations and experiments
- Funding available for technology risk

Funding Alignment

- Financial Management Regulation needs to be updated to match funding "colors" with work in each phase

Transition Funding

- Funding source for programs entering at later milestones

Interoperability

- **Interoperability requirements identified as Key Performance Parameters (KPP)**
- **Use of a C4I Support Plan to discuss how to meet Interoperability KPP**
- **"System-of-systems" management approach**
  - **Capstone Requirements Documents**
  - **MDAs & Testers will ensure thorough understanding of critical system interfaces and flow of consistent/reliable data/information between systems in the battlefield**
  - **Mutual understanding of key systems in a mission area**

Supportability

- Total life-cycle view, including operations, support, and disposal
- Increased emphasis on human factors and manpower
- Emphasis on reliability built into design
- Requirement for supportability to be addressed in acquisition strategy

Test and Evaluation

- **Test & Evaluation will be *integrated* throughout the acquisition process -** early, up-front involvement of T&E community in requirements process and design of an integrated test strategy and early operational assessments

- **Adapt T&E approaches for *Evolutionary* developments**

- **Test & Evaluation is conducted for two purposes- *discovery*** during system development and ***confirmation*** of system performance after development

Software

- **Requirement for use of a capability maturity assessment -** achieve level 3 or PM must approve risk mitigation plan and schedule

- **Emphasis on evolutionary (or "spiral") development**

- **Recognition that software development may not use the same model as hardware development**

- **Recognition that software must be mature before deployment** - once maturity proven, software baselined and methodical and synchronized deployment plan implemented

- **Requirement for registration and Clinger-Cohen compliance**

Statutory Changes

The new approach will require:

- Changes to conform current statutes to new milestone names and phases (e.g., 10 USC 2366, 2399, 2400, 2434, 2435)
- Changes to align statutory requirements with work content (e.g., 10 USC 2399, 2434) - DOT&E and CAIG support
- Change in Acquisition Program Baseline timing

No Substantive Changes to Current Law

New Leadership Reaction

- **New USD(AT&L) and New Service Secretaries have been briefed on the new process.**

- **They have endorsed the new process and are enthusiastic about the evolutionary acquisition.**

Congressional Concerns

Visibility, Accountability, Flexibility oversight mechanisms

- **No Change in Congress's current control over funds, especially for reprogramming and new starts**
- **No Change in major oversight and reporting mechanisms (SAR's, detailed budget justifications, Beyond LRIP Report)**

Outyear Funding

- **Full funding at System Development (or earlier) vice Program Definition and Risk Reduction**
- **DoD commitment still maintained in FYDP**

Getting the Most out of Demonstrations

- **Firm Exit Criteria and Well Defined Deliverables Now Required**

Congressional Reaction

- **Staff on the SASC, HASC, and HAC have been briefed on the new process; briefing material sent to the SAC.**

- **All the staffers briefed have said that the changes are in line with the reform discussions of the last several years.**

- **Also -- the SASC report on the FY01 Authorization Bill endorsed the idea of evolutionary development.**

Implementation Challenges

- Getting agreement on terminology
- Employing new product support strategies
- Accepting a militarily useful capability early, based on demonstrated technology, and obtaining objective capability when technology matures
- Ensuring adequate funding, funding alignment, and “transition funding”
- Integrating the test and evaluation community into the new acquisition approach
- Ensuring that the workforce (including industry) is adequately trained to successfully implement the new approach
- Assuring Congress that the new approach will maintain their visibility into DoD programs and continue their ability to verify DoD’s accountability for program success

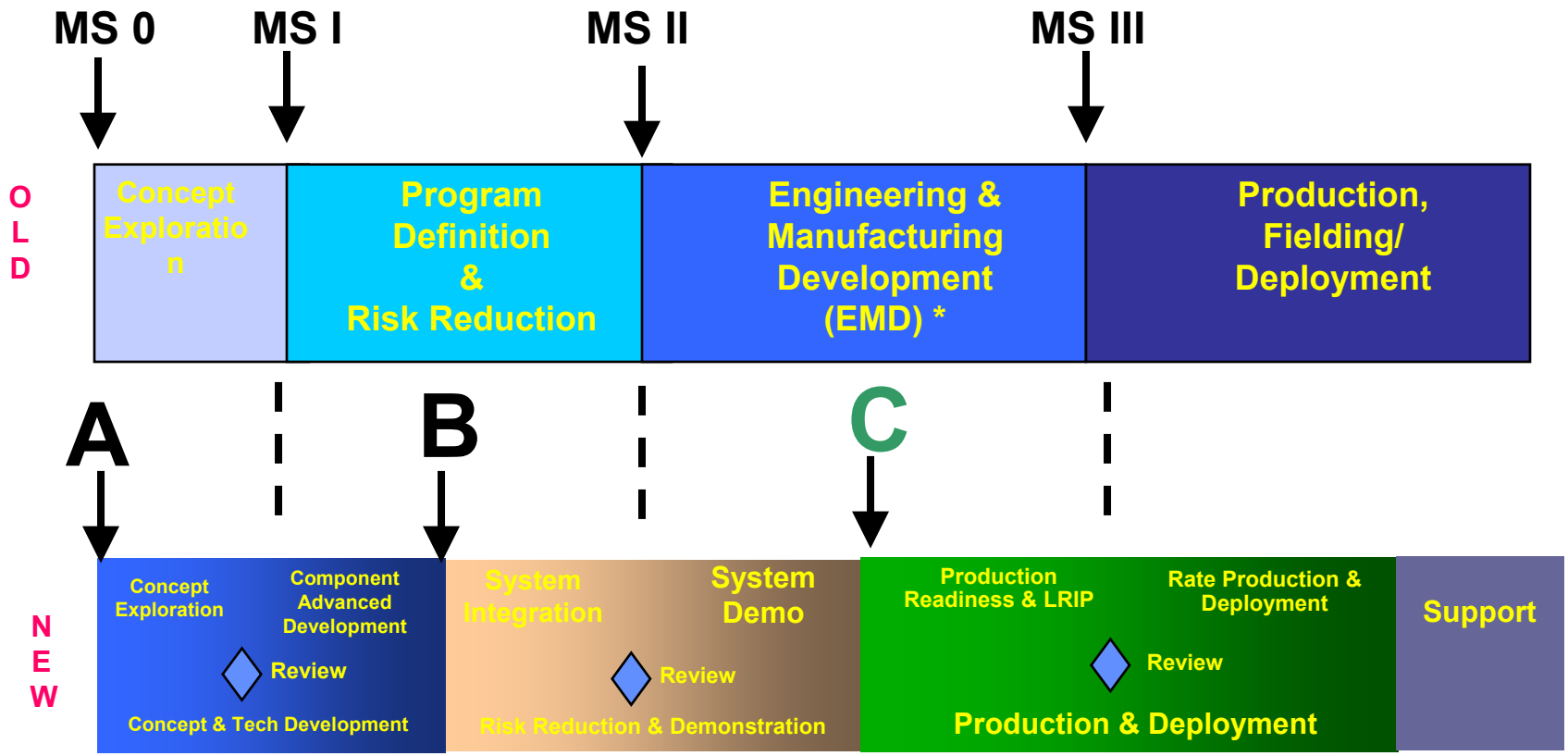
Backup Slides

Evolutionary Acquisition Approaches

- **The Operational Requirements Document includes a firm definition of *full capability* as well as the requirements to be satisfied by each block of additional capability**
  - **Example: CV-X**

- **The Operational Requirements Document includes a firm definition of the *first block*, but does not allocate requirements to subsequent blocks. Subsequent blocks defined based on user understanding of system capability, threat, and available technology**
  - **Example: Global Broadcasting System**

MODEL COMPARISON



Concept Exploration -- look at paper studies of alternative ways of attack

Component Advanced Development -- mature component technologies

System Integration -- development integration of components to meet system requirements

System Demo -- demonstrate product maturity through simulation and test

LRIP -- mature manufacturing capability and operationally test

Full-Rate -- produce system in quantity

Support -- sustain system

“Phase A” - Work Content

Concept Exploration

- Paper studies of alternative concepts for meeting a mission
- Exit criteria: Specific concept to be pursued & technology exists.

Component Advanced Development

- Development of subsystems/components that must be demonstrated before integration into a system
- Concept/tech demonstration of new system concepts
- Exit criteria: System architecture & technology maturity

“Phase A” - Examples

Enter at Concept Exploration

Joint Maritime Command & control Capability
- A command platform for the Joint Tactical Forces Commander
- Need to explore various concepts

Hard & Deeply Buried Target Capability
- Need to penetrate buried target
- No specific system concept

Advanced Narrowband System
- Global narrowband communication system composed of multiples segments
- Need to explore various concepts

Enter at Component Advanced Development

Airborne Laser
- Airplane Concept, but laser technology not yet mature
- Component work on laser before integration into plane.

JAST
- Airplane Concept but working on technologies used in plane

DD21 -- 21st Century Destroyer
- Ship Concept but component level technology not yet mature.
- Propulsion system, weapon and radar systems in development

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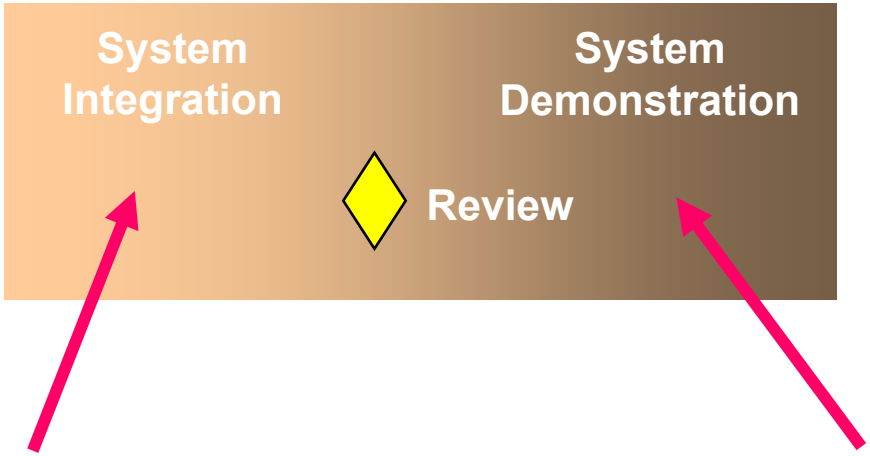
“Phase B” - Work Content



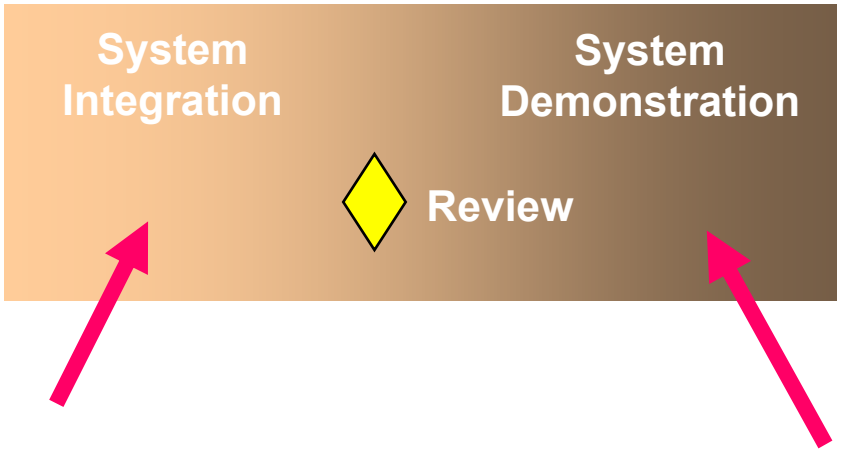
System Integration

- System Integration of demonstrated subsystems and components
- Reduction of integration risk
- Exit criteria: System demonstration in a relevant environment (e., first flight)

System Demonstration

- Complete development
- Demonstrate engineering development models
- Combined DT/OT testing
- Exit criteria: System demonstration in an operational environment

“Phase B” - Examples



Enter at System Integration

F16 Upgrade
- Upgrade to existing plane
- System architecture in place (mud -fighter)
- Mature technology; work focused on integration

Joint Direct Attack Ammunition (JDAM)
- Strap-on guidance kit to enhance accuracy
- System architecture in place (kit on dumb bomb)
- Work focused on integrating kit with smart bomb and reducing risk

CVN 77
- Construction of new Nimitz-class carrier incorporating lessons learned from previous versions

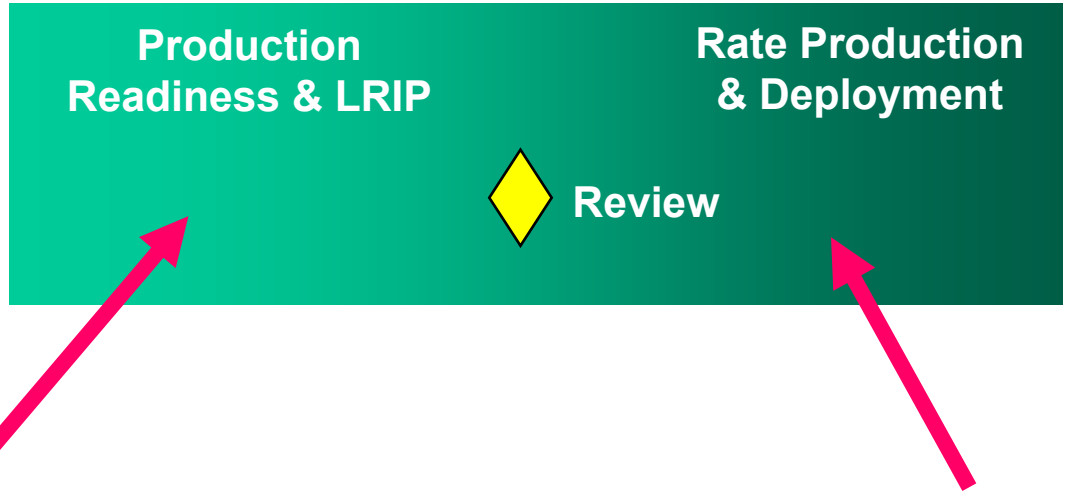
Enter at System Demonstration

Fast Sea Lift Ships
- Commercial ships modified to meet military needs

Joint Primary Aircraft Training System
- Brazilian model selected
- Work focused on integration of subsystems
- (ejection seats) and demonstration

Global Hawk Transition
- UAV program previously an ACTD
- Work focused on upgrading tested system to meet ORD
- Flight test demonstrations continuing

“Phase C” - Work Content



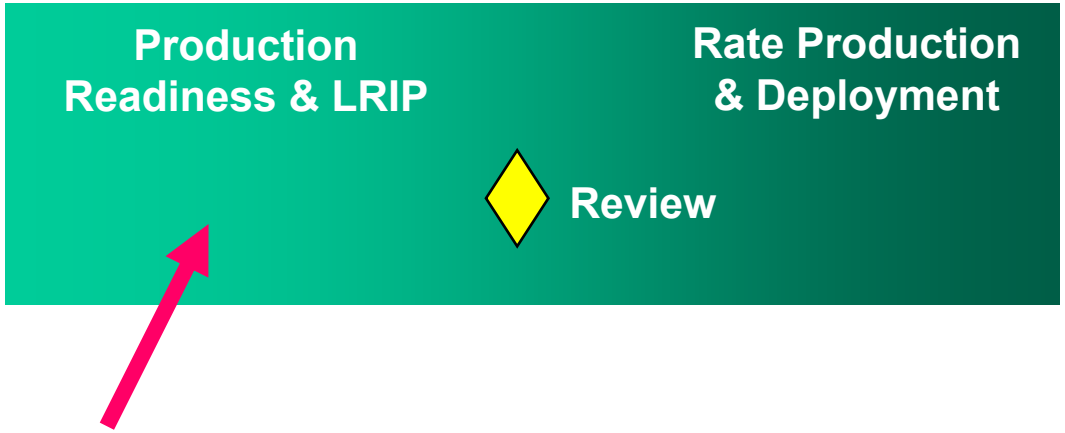
Production Readiness & LRIP

- IOT&E, LFT&E of production-representative articles
- Establish manufacturing capability
- Execute low-rate production
- Exit criterion: Favorable Beyond-LRIP Report

Rate Production & Deployment

- Execute full rate production
- Deploy system

“Phase C” - Examples



Enter at Milestone C

Non-Development Airlift Aircraft
- Procurement of modified commercial Boeing 747
- IOT&E needed to move beyond LRIP

C-9
- Procurement of DC-9 aircraft
- IOT&E needed to move beyond LRIP

Administrative Use Vehicles:
- Buy commercial vehicles for use at post/camps/stations