



Cost Estimating for Major Defense Programs: Status and Challenges

Dr. Richard P. Burke
Director, OAPPD
Cost Analysis Improvement Group

Outline

- Why have cost estimates?
- Cost Estimating in the Acquisition Process
 - New DoD 5000.2R
 - Moving to Evolutionary Acquisition
- Controlling Cost Growth
 - Nunn-McCurdy Breaches and Certifications
 - Cost Data Reporting
 - Meaningful Metrics for Managing Costs
- Cost estimates in PPBS
 - Combined Program/Budget Review
 - Full Funding of Major Defense Acquisition Programs (MDAPs)

Why Have Cost Estimates?

- To compare alternative solutions or programs
 - Life-cycle costs compared in Analyses of Alternatives
- To inform milestone reviews of acquisition programs
 - Is the cost estimate reasonable? Are all costs considered?
 - Are adequate FYDP resources programmed for execution?
 - Are cost reduction or cost/capability trades possible?
- To inform preparation of the President's Budget
 - Estimates used for POM/BES submissions for programs
 - Estimates used in program/budget review process

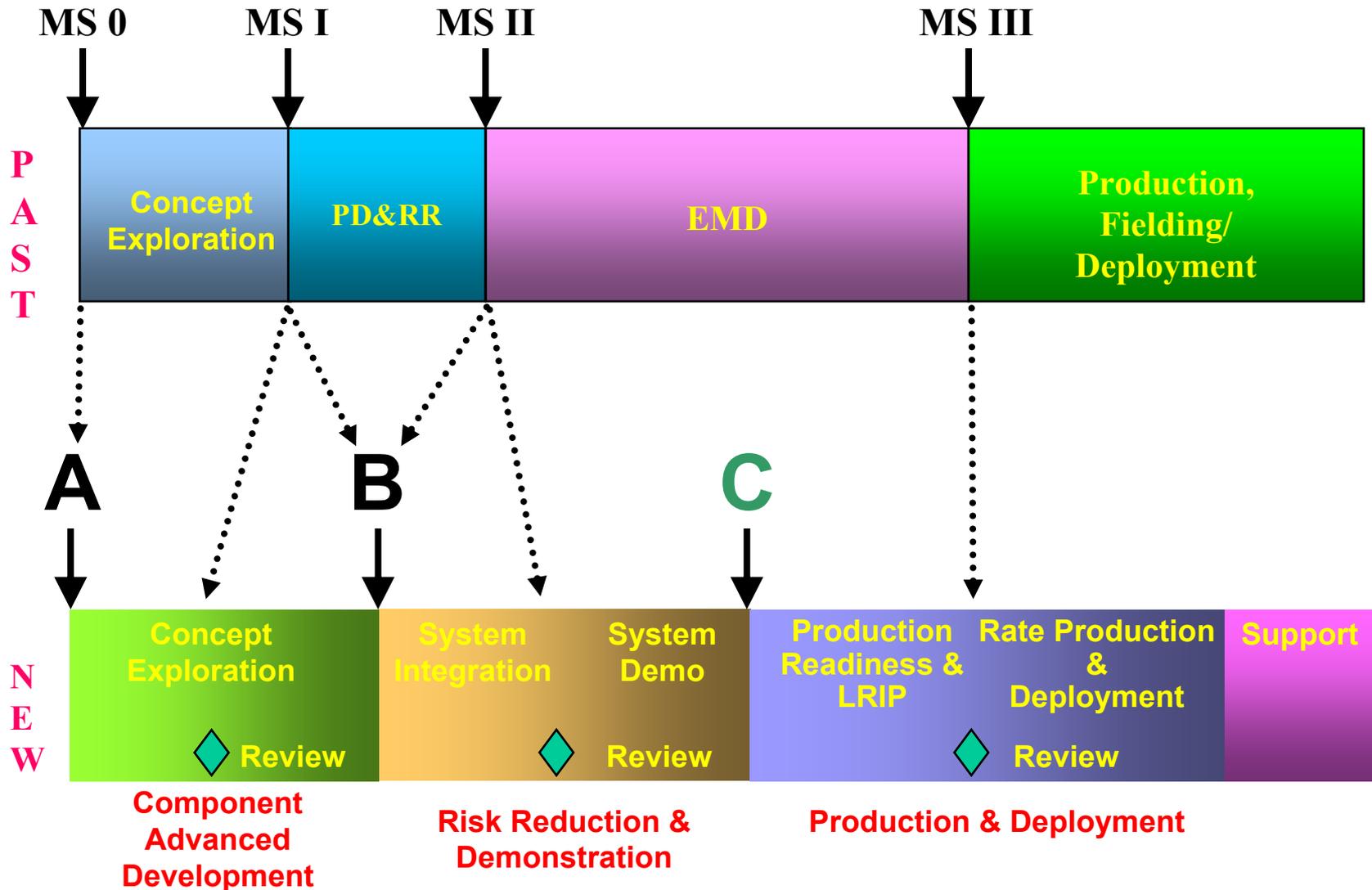
Cost Estimating in the Acquisition Process

- Previously
 - Life-cycle estimates (i.e., SCP) prepared at MS I, II, and III
 - Statute requires independent cost estimate for MS II & III
 - Independent cost estimate prepared for MS 0/I as needed
 - Program defined in CARD; 180-day process
 - Episodic reviews tied to milestones
- Now
 - Life-cycle and independent cost estimates prepared at MS A, B, and C as for MS 0/I, II, and III
 - Program defined in CARD; 180-day process
 - More frequent reviews, with updates of cost estimates

More continuous updates of cost estimates required

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Revised Acquisition Process in 5002.R



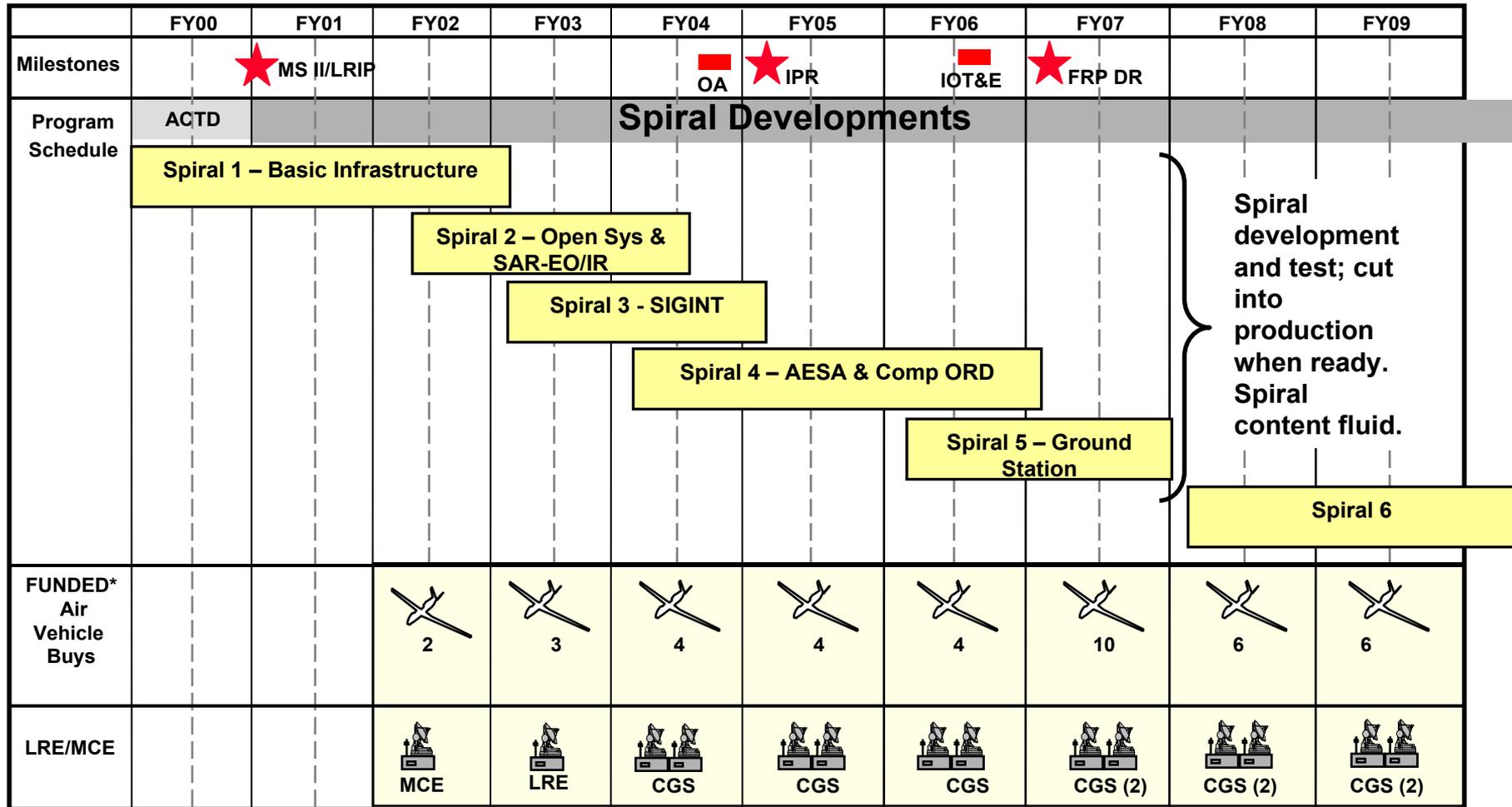
Evolutionary Acquisition: Definition

- No precise, universally-accepted definition exists
 - General convergence on key attributes
- Several working definitions proposed:
 - ***An acquisition and sustainment strategy to rapidly acquire and sustain a supportable core capability with the ability to incrementally insert new technology or additional capability.***
 - Draft Air Force Evolutionary Acquisition Guide (Sept 1999)
 - *Evolutionary acquisition is an approach that fields an operationally useful and supportable capability in as short a time as possible. ... Evolutionary acquisition delivers an initial capability with the explicit intent of delivering improved or updated capability in the future.*
 - **DoDI 5000.2; Operation of the Defense Acquisition System; (Including Change 1); 4 January 2001 Section 4.7.3.2.3.3.1.**

Challenges in Costing Evolutionary Acquisition

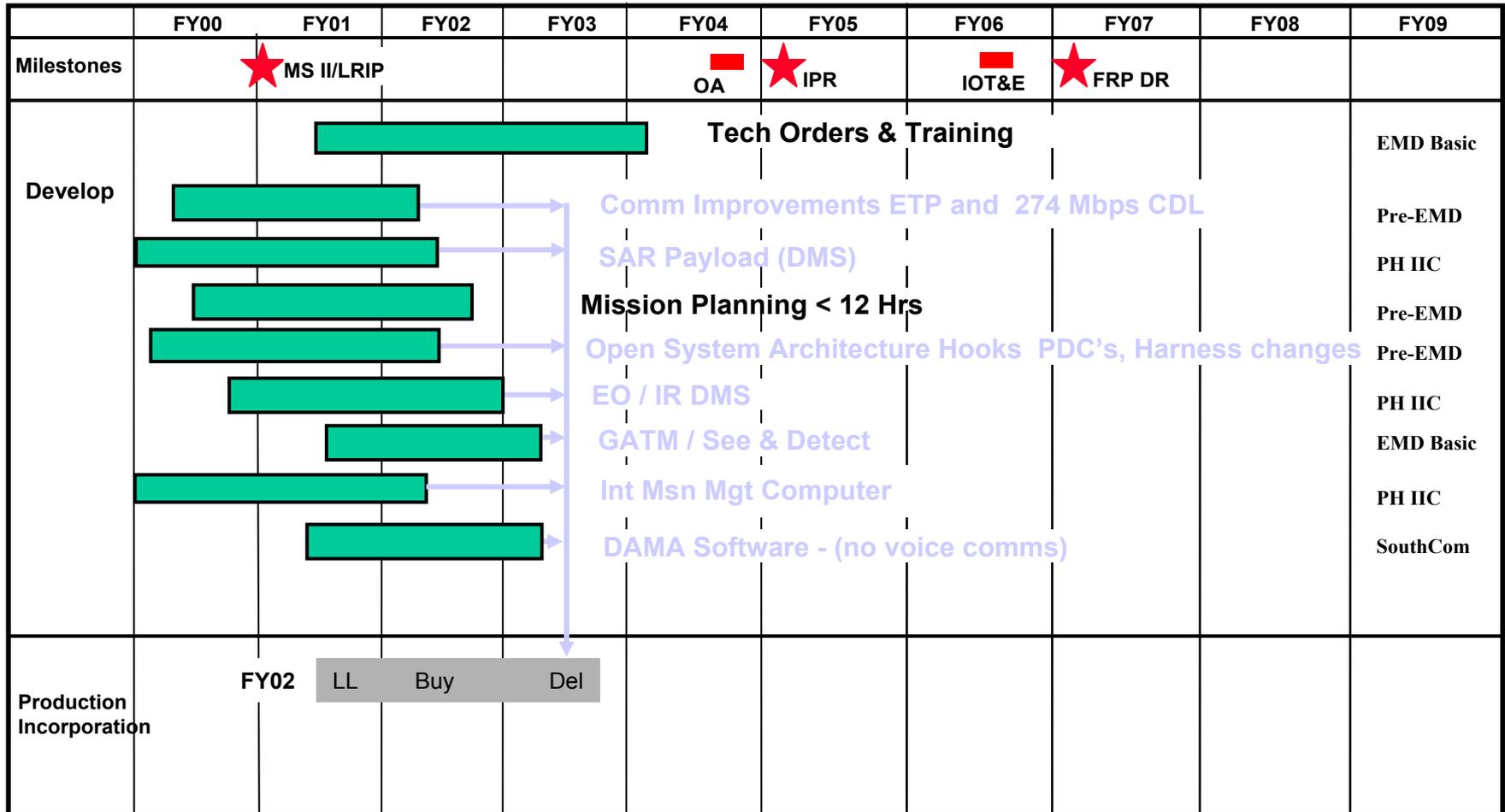
- Program definition and plans are not static
 - Must define program content and schedules for spirals or blocks
 - Field experience used to revise to program plans and content
- Concurrent development and production
 - Simultaneous non-recurring and recurring activities
- Fielding of multiple configurations
 - Operating and support plans and costs more complicated
 - Technology refreshed more frequently
 - Parts obsolescence a concern
- DoD experience to date
 - Predator, Global Hawk, DD-21/DD(X), Patriot PAC-3, GPS IIF
 - Challenges to work: MDA, space programs

Evolutionary Acquisition Example: Global Hawk



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Example: GH Spiral 1 Plan



Controlling Cost Growth: Nunn-McCurdy

- **Restoring credibility of DoD cost estimates is a key goal**
 - Nunn-McCurdy certification issues take on new significance
- **Nunn-McCurdy programs have significant cost problems**
 - Certification begins with review of actual costs (i.e., CCDRs)
 - Key question: “**What caused growth?**”
 - Particular emphasis placed on *where* and *why* cost estimates failed; **what issues did we fail to address?**
- **Actual cost information forms basis for new cost estimate to certify program (i.e., CCDRs)**

Information on actual costs is absolutely essential

Contractor Cost Data Reporting (CCDR)

- Means of collecting cost data used to develop program office and independent estimates
- Segregated into recurring and non-recurring costs
 - Only source of this breakout
- Required by DoD 5000.2R
 - For all contracts and subcontracts valued at more than \$40M
 - Regardless of contract type
 - Discretionary for other high interest, high risk contracts of \$6M or more

Meaningful Metrics in Managing Costs

- **Comparison of actual costs to initial estimates**
 - During program execution
 - At completion
 - Identification of root causes of differences
 - Overly optimistic assumptions, estimating errors
 - Department decisions, changes in requirements
- **Other indicators**
 - EVMS should provide early warning of cost problems
 - Defense Acquisition Summary (DAES) reports, Selected Acquisition Reports (SARS)
 - Actual schedule performance vs. projected schedule milestones

Cost Estimates for the PPBS

- **Combination of two processes *is* the baseline**
 - FY04-09 combined program/budget review this fall
- **Features of the process still under discussion**
 - Details of the decision-making calendar
 - Specific points of responsibility
 - Major thrust: ensure that the FY04 President's Budget and FY04-09 FYDP reflect the Administration's transformation priorities
- **Concrete guidance on the FY04-09 process forthcoming shortly**
 - Deliberations will be on demanding schedules

Full Funding of MDAPs

- **Instructions to Services with FY03 Fiscal Guidance:**
“In order to achieve program stability and avoid costly stretch-out, [the Services shall] properly price programs at not less than levels estimated by the Cost Analysis Improvement Group”
- **Review of service program/budget submissions for MDAPs will occur to ensure FYDP funding is consistent with CAIG estimates**
- **Must account for proposed changes to program content (e.g., development schedules, procurement quantities)**

MDAPs must be fully funded to realistic cost estimates

Useful Advice

- **Develop and document solid program plans**
 - Definition of program content is essential (i.e., CARD)
- **Ensure cost estimates are based on realistic assumptions**
- **Collect actual costs (i.e., CCDRs) for comparison with cost estimates**
- **Move to evolutionary acquisition in sensible ways**

Realistic estimates essential for successful management

Backup Slides

Contractor Cost Data Reporting (CCDR)

Problems with Reporting of Recurring and Non-Recurring Costs

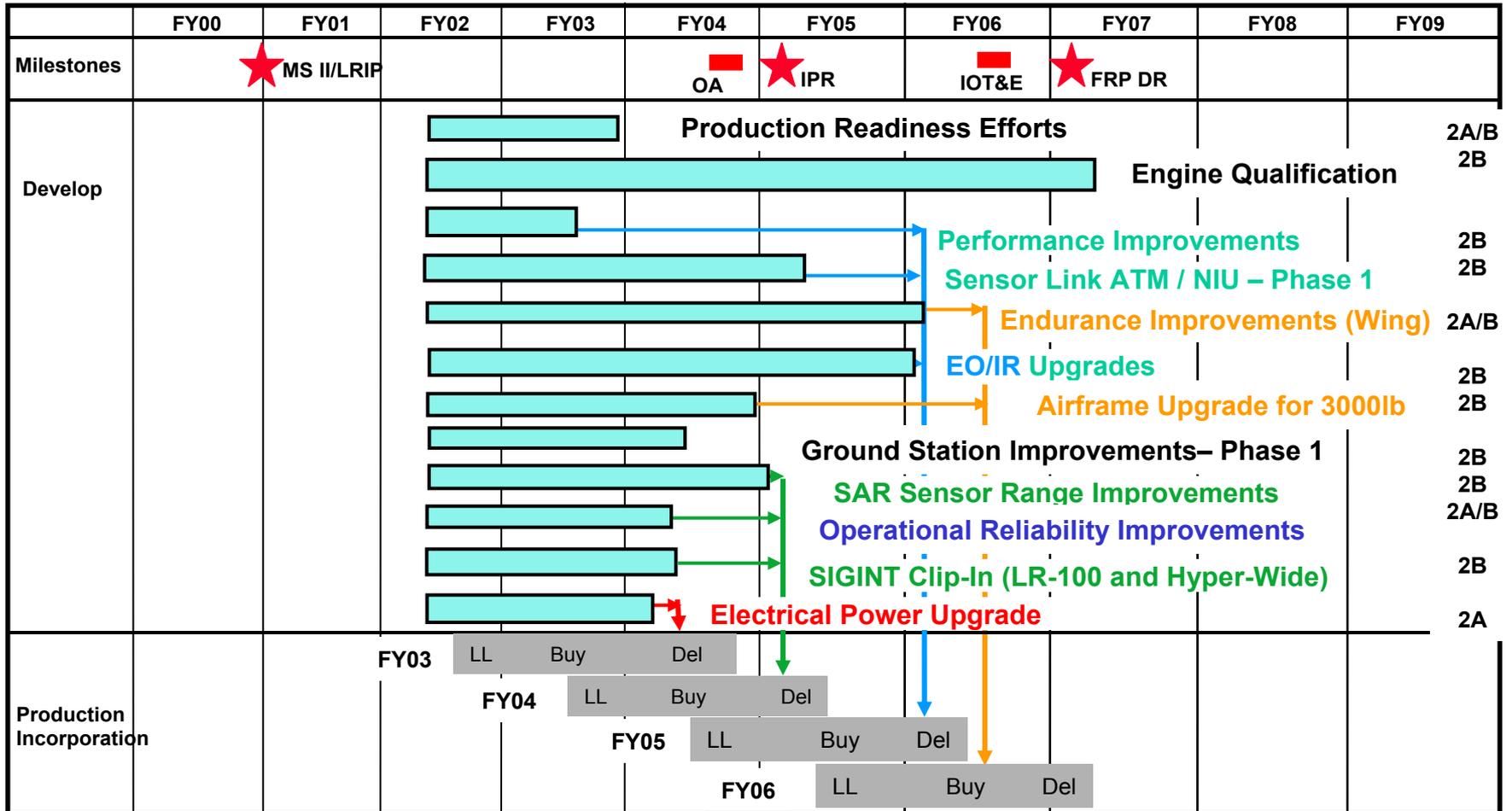
Problem

- Splits between design and manufacturing activities determined by specified date or “ex-post”
- Technical management generally aggregated and reported as non-recurring
- Test activities viewed as non-recurring; some test activities continue during production
- Little or no insight into subcontractor and/or vendor recurring/non-recurring costs

Solution

- Time spent on recurring and non-recurring tasks should be reported as work performed
- Technical management tasks should be reported as recurring and non-recurring
- Test activities that will continue in production should be recorded as recurring
- Effort required to understand recurring and non-recurring costs for subcontractors/vendors

Example: Spiral 2 Plan



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Program Office will look for opportunities to drop upgrades into production as soon as optimal