**TITLE AND SUBTITLE**
DSMC Program Managers Took Kit
Eighth Edition

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**SUPPLEMENTARY NOTES**
Approved for public release; distribution unlimited.

**ABSTRACT (Maximum 200 words)**
The 8th Edition of the "Tool Kit" contains a graphic summary of acquisition policies and managerial skills frequently required by DoD program managers.

**SUBJECT TERMS**
Acquisition Management; Managerial Skills; Time Management; Contracting; Software Management; Reprogramming.
DSMC PROGRAM MANAGERS TOOL KIT
PREFACE

This 8th Edition of the "Tool Kit" contains a graphic summary of acquisition policies and managerial skills frequently required by DoD program managers. It is an updated version of a "Tool Box" that was first developed by Mr. Charles F. Schied of PMC 92-1. For convenience, it is sized for insertion into a 3-hole, 5-1/2" x 8-1/2" "Day Runner." The information was extracted from material presented by the Defense Systems Management College (DSMC) in the Intermediate Systems Acquisition Course (ISAC) and Advanced Program Management Course (APMC). It reflects Change 3 to DoD 5000.2-R. Material from the DSMC Learning Resource Center was also used.

Users of the "Tool Kit" are reminded that this summary is a guide only and should not be used as a substitute for official policy guidance. Periodic review of official policy guidance is recommended.
ACKNOWLEDGMENTS

As Sponsor of this "Tool Kit" Project, I wish to recognize the following members of the DSMC faculty and staff for their input to this 8th Edition: Mr. Bill Bahnmaier, who coordinated the input and editing of material from various departments; Ms. Johnnie Kennedy of the Principles of Program Management Department for typing, formatting and editing support; Mr. Chuck Cochrane of the Acquisition Policy Department for his significant input and editing support; Mr. Eduard Boyd of the Visual Arts Department for his support in preparing and editing drafts for Lionheart printing; Mr. Frank Scavotto, Mr. Mike King, and LT1 Andy Stowell, USN, of the Defense Automated Printing Service (DAPS) for their excellent "Lionheart" printing support. Other significant contributors were Dr. Don Fujii, MD Department; Mr. Frank Meneely, CM Department; Mr. Paul Alfieri, TE Department; Dr. John Snoderly and Mr. Randy Zittle, SE Department; Dr. Ben Rush, CF Department; Mr. Walt Weedman, formerly of the EV Department; Mr. John Riffe, LS Department; Mr. Gerry Land and Ms. Siobhan Tack, FM Department; Lt Col Russ Barbero, MM Department; and Mr. Richard Kwatnoski of the Executive and International Course Department. I also want to thank Mr. Richard Reed, Provost, who provided both encouragement and command support for the project.

John T. Shannon  
Dean Faculty Division
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ACQUISITION MANAGEMENT

• Things that make you go "Hmmm?..."

  "The only thing most auditors fix is the blame."

  "Experience is something you got just after you needed it."

  "People are smarter than they look; listen to them."

  "The last 10 percent of the performance sought generates one-third of the cost and two-thirds of the problems."

  "Never open a can of worms unless you want to go fishing."

  "Those who believe it cannot be done will please get out of the way of those who are busy doing it."

• Things we should always remember.

  "Be honest in everything you say, write and do."

  "Be good to your people, and they will be good to you."

  "Forgiveness is easier to obtain than permission."

  "Keep everyone informed; when in doubt, coordinate."

  "Be the first to deliver bad news."

• "If you are sitting at your desk, you are not managing your program."
DSMC PROGRAM MANAGERS TOOL KIT

THE PROGRAM MANAGER'S BILL OF RIGHTS
AND RESPONSIBILITIES

RIGHTS:

Program Managers have the RIGHT to:
• A single, clear line of authority from the Defense Acquisition
  Executive.
• Authority commensurate with their responsibilities.
• Timely decisions by senior leadership.
• Be candid and forthcoming without fear of personal conse-
  quences.
• Speak for their program and have their judgments respected.
• The best available training and experience for the job.
• Adequate financial and personnel resources.

RESPONSIBILITIES:

Program Managers have the RESPONSIBILITY to:
• Accept program direction from acquisition executives and
  implement it expeditiously and conscientiously.
• Manage their programs to the best of their abilities within
  approved resources.
• Be customer focused and provide the user with the best, most
  cost-effective systems or capabilities.
• Innovate, strive for optimal solutions, seek better ways to manage,
  and provide lessons-learned to those who follow.
• Be candid about program status, including risks and problems as
  well as potential solutions and likely outcomes.
• Prepare thorough estimates of financial and personnel resources
  that will be required to manage the program.
• Identify weaknesses in the acquisition process and propose
  solutions.
### Defense Acquisition Milestones & Phases

<table>
<thead>
<tr>
<th>PHASE 0</th>
<th>PHASE I</th>
<th>PHASE II</th>
<th>PHASE III</th>
<th>DEMILITARIZATION &amp; DISPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCEPT EXPLORATION</td>
<td>PROGRAM DEFINITION &amp; RISK REDUCTION</td>
<td>ENGINEERING &amp; MANUFACTURING DEVELOPMENT</td>
<td>PRODUCTION, FIELDING/DEPLOYMENT, &amp; OPERATIONAL SUPPORT</td>
<td>Control material for demilitarization/ensure disposal complies with environmental requirements</td>
</tr>
</tbody>
</table>

#### PHASE 0
- **MS 0** Approval to Conduct Concept Studies
  - Approval of:
    - Short-term concept studies
    - Phase 0 exit criteria

#### PHASE I
- **MS 1** Approval to Begin a New Acquisition Program
  - Approval of:
    - Acquisition Strategy
    - Cost As an Independent Variable (CAIV) objectives
    - Initial Acquisition Program Baseline (APB)
    - Phase I exit criteria
    - TEMP (by D&I E & DTSE&E)*

#### PHASE II
- **MS II** Approval to Enter Engineering & Manufacturing Development
  - Approval of:
    - Acquisition Strategy
    - CAIV objectives
    - Updated APB
    - LRIP quantities
    - Live Fire T&E waiver (if applicable)
    - Phase II exit criteria
    - TEMP (by D&I E & DTSE&E)*

#### PHASE III
- **MS III** Production or Fielding/Deployment Approval
  - Approval of:
    - Acquisition Strategy
    - Production (weapon systems), or deployment (information systems)
    - Updated APB
    - Phase III exit criteria (if applicable)

*OSD T&E Oversight Programs only
## DSMC Program Managers Tool Kit

### Acquisition Categories (ACAT)

<table>
<thead>
<tr>
<th>ACAT ID: Major Defense Acq Prgms</th>
<th>$355M RDT&amp;E or $2.135B Procurement (FY96 Constant $)</th>
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<tr>
<td><strong>ACAT IC:</strong> Component Review</td>
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<tr>
<td>• Designated by DAE</td>
<td></td>
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<tr>
<td>• Decision by DAE</td>
<td></td>
</tr>
<tr>
<td>• Decision by Svc Sec/CAE</td>
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</table>

<table>
<thead>
<tr>
<th>ACAT IAM: Major AIS Acq Prgms</th>
<th>$360M Life Cycle Cost or $120M Total Prog. Cost or $30M Prog. Cost in any single year (FY96 Constant $)</th>
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</thead>
<tbody>
<tr>
<td><strong>ACAT IAC:</strong> Component Review</td>
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</tr>
<tr>
<td>• Designated by ASD(C3I)</td>
<td></td>
</tr>
<tr>
<td>• Decision by ASD(C3I)</td>
<td></td>
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<tr>
<td>• Decision made by Comp.</td>
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<td>Chief Information Officer</td>
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<table>
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<tr>
<th>Major Systems</th>
<th>$140M RDT&amp;E or $645M Procurement (FY96 Constant $)</th>
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<td><strong>ACAT II:</strong> Does Not Meet ACAT I Criteria</td>
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<td>• Designated by Svc Sec/CAE</td>
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<td>• Decision by Svc Sec/CAE</td>
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</table>

<table>
<thead>
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<th>ACAT III: All others (except for Army Navy, USMC)</th>
<th>No Fiscal Criteria</th>
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<tbody>
<tr>
<td><strong>ACAT III:</strong> Does Not Meet ACAT I, IA or II Criteria</td>
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</tr>
<tr>
<td>• Designated IAW Component policy</td>
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</tr>
<tr>
<td>• Decision at lowest appropriate Level</td>
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</table>

<table>
<thead>
<tr>
<th>ACAT IV: Army Navy USMC</th>
<th>See AR 70-1 (Army) &amp; SECNAVINST 5000.2B (Navy and Marine Corps)</th>
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<tbody>
<tr>
<td><strong>ACAT IV:</strong> Not otherwise designated ACAT I, IA, II or III</td>
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<tr>
<td>• Designated IAW Component Policy</td>
<td></td>
</tr>
<tr>
<td>• Navy/USMC ACAT IV/I/VM</td>
<td></td>
</tr>
<tr>
<td>• Decision at lowest appropriate level</td>
<td></td>
</tr>
</tbody>
</table>

*Army has an ACAT II/A category for AIS reviewed at Army CIO level.*
ACQUISITION STRATEGY ELEMENTS
(ACAT I & IA PROGRAMS)

- Open Systems Objectives
- Sources
  - Commercial & NDI
  - Dual Use Technologies & Use of Commercial Plants
  - Critical Product & Technology Competition
  - Industrial Capability
  - Leasing (10 USC 2401a)
- Cost, Schedule, and Performance Risk Management
- Cost As an Independent Variable
  - Cost Performance Trade-offs
  - Cost Management Incentives
- Contract Approach
  - Competition
  - CALS Integrated Data Environment
  - Best Practices
  - Advance Procurement *
  - Integrated Baseline Reviews

- Management Approach
  - Streamlining
  - Information Sharing & Oversight
  - International Cooperation (10 USC 2350) *
  - Assignment of PEO
  - Use of DCMC Tech. Support
  - Joint Program Management
- Environmental, Safety, & Health Evaluation (42 USC 4321-47)
- Source of Support
- Warranties *

* normally not applicable to AIS programs
ACQUISITION REFORM INITIATIVES

- Integrated Product and Process Development and Integrated Product Teams
- Movement from Detailed Design Specifications and Process Standards to Performance and/or Commercial Specifications
- Single Process Initiative
- DoD Cost/Schedule Control System Criteria Replaced by Industry Standard Guidelines for Earned Value Management System (EVMS)
- Commercial and Non-Developmental Item Acquisition and Practices
- Cost As an Independent Variable (CAIV)
- Open Systems Design and Interoperability
- Rewrite of DoDD 5000.1 and DoD 5000.2-R to streamline policies and procedures
- Defense Acquisition Deskbook
- Defense Acquisition Pilot Programs
- Implementation of Federal Acquisition Streamlining Act (FASA), Federal Acquisition Reform Act (FARA) and Information Technology Management Reform Act (ITMRA); (latter two are now known as Clinger-Cohen Act)
- Electronic Commerce/Electronic Data Interchange
- Collection and Use of Past Performance Information
- Advanced Concept Technology Demonstrations (ACTD)
- Acquisition Reform Benchmarking Initiative
- Acquisition Workforce Personnel Demonstration Program
- Contract Administration Reform
- Procurement Process Reform
- Performance Based Service Contracting
- Defense Reinvention Impact Center (RIC) -- Goals by Year 2000
- Total Ownership Costs (TOC)
PLANNING TO SUPPORT ACQUISITION PROCESS

- Planning to support the acquisition process is accomplished within the Integrated Product and Process Development (IPPD) environment.

- Program plans are for use by the PM and the integrated product teams (IPTs) that support the PM and are discretionary.

- There are three exceptions where specific plans are required: The Acquisition Plan required by the FAR/DFARS; the Command, Control Communications, Computers and Intelligence, (C4I) Support Plan and the TEMP -- the latter two are both required by DoD 5000.2-R.

- Typically, the following areas will require some level of program office planning:
  - Acquisition Strategy (see page 5)
  - Risk Management
  - Systems Engineering
  - Computer/Software Devel/PDSS
  - Logistics Support/Post Prod Spt
  - Human Systems Integration
  - Program Protection
  - Deployment/Fielding
  - Training Development
  - Manufacturing
  - Technology Assessment & Control
  - Integrated Testing
DAB Timeline (Milestones I-III)

OVERARCHING INTEGRATED PRODUCT TEAM (OIPT) MEETINGS

- Acq Strategy approval/ RFP release
- CARD to CAIG
- Draft LCCE to CAIG
- JROC Review
- JRB Review
- TEMP to DTS & E/ DOT&E
- CAIG Review of LCCE
- Final LCCE to CAIG
- DAB Readiness Meeting
- OIPT Review
- DAB
- ADM

- 48 HRS
- 2 WEEKS
- 1 WEEK
- 10 DAYS
- 21 DAYS
- 3-4 WEEKS
- 30 DAYS
- 45 DAYS
- 180 DAYS

- CARD - Cost Analysis Requirements Description
- LCCE - Life Cycle Cost Estimate(s)
- CAIG - Cost Analysis Improvements Group
- JRB - JROC Review Board
- JROC - Joint Requirements Oversight Council
- DRM - DAB Readiness Meeting
- DAB - Defense Acquisition Board
- ADM - Acquisition Decision Memorandum
### DSMC Program Managers Tool Kit

#### Information for Milestone Reviews

**ACAT I and ACAT IA Programs**

<table>
<thead>
<tr>
<th>Information</th>
<th>Milestone</th>
<th>Reference</th>
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<td>NOTE: MDA may waive non-statutory requirements</td>
<td>I I I</td>
<td>DoD 5000.2-R Other</td>
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<td>Acquisition Program Baseline (APB) ¹</td>
<td>X X X</td>
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<td>Acquisition Strategy (9 elements - see next chart)</td>
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<td>Part 3.3</td>
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<td>Analysis of Alternatives (AOA) ²</td>
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<td>Part 4</td>
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<td>Acquisition Decision Memorandum (ADM)</td>
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<td>Part 5.2.1</td>
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<td>Affordability Assessment</td>
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<td>Part 5.2.2  DoDD 5000.1</td>
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<td>Beyond Low Rate Initial Production (LRIP) Report³</td>
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<td>Part 6.3.3 10 USC 2399</td>
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<tr>
<td>Component Cost Analysis (CCA)</td>
<td>X X X</td>
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<td>Consideration of Technological Issues</td>
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<td>Cost Analysis Requirements Description (CARD)</td>
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<td>Manpower Estimate ²</td>
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<td>Mission Need Statement (MNS)</td>
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<tr>
<td>Operational Requirements Document (ORD)</td>
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<td>CJCSI 3170.01</td>
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<td>Overarching IPT (OiPT) Leader's Report</td>
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<td>OiPT Staff Assessments ²</td>
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<td>Program Office Estimate (POE) (life cycle costs)</td>
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<td>Provisions for Evaluation of Post Deployment Support</td>
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<td>Requirement for Program Under DoD Strategic Plan</td>
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<td>Test &amp; Evaluation Master Plan (TEMP)</td>
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<td>Test Results (DT&amp;E, ODT&amp;E, LFT&amp;E, etc...)</td>
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<tr>
<td>System Threat Assessment ²</td>
<td>X X X</td>
<td>Part 6.3.1 10 USC 139</td>
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¹ Including CAIV based objectives.
² MS 0 for ACAT IA; MS 1 for ACAT I. May be useful if updated for MS II; unlikely to be required at Milestone III.
³ Normally not applicable to ACAT IA.
⁴ ACAT ID and ACAT IA AN programs only.
## Information For Milestone Reviews
### ACAT II and III* Programs

<table>
<thead>
<tr>
<th>Information Element</th>
<th>Milestone</th>
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<td>Test Results (DT/ OT/LFT&amp;E)</td>
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<td>10 USC 139</td>
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</table>

**MDA's for ACAT II & III* programs have wide latitude and broad authority over the content and format of many (but not all) of these information elements**

**Notes:**
1. Including Cost as An Independent Variable (CAIV) based objectives.
2. May be included in PM's acquisition strategy.
3. Normally not required for AIS programs.
4. Programs subject to live fire T&E legislation.
5. ACAT II only; how ever, it is DoD Policy to limit LRIP quantities for all ACATs.
6. Programs on OSD T&E Oversight List.

*Army, Navy and Marine Corps also have an ACAT IV category. The information on this chart may also be tailored for those programs.*
S&T LINKAGE TO DEFENSE ACQUISITION PROCESS

DETERMINATION OF MISSION NEED

PHASE 0
- CONCEPT EXPLORATION

MS 0 Approval to Conduct Concept Studies

Warfighting Needs & R&D Objectives

PHASE I
- PROGRAM DEFINITION & RISK REDUCTION

MS 1 Approval to Begin a New Acquisition Program

PHASE II
- ENGINEERING & MANUFACTURING DEVELOPMENT

MS II Approval to Enter Engineering & Manufacturing Development

PHASE III
- PRODUCTION, FIELDING/DEPLOYMENT, & OPERATIONAL SUPPORT

MS III Production or Fielding/Deployment Approval

DEMILITARIZATION & DISPOSAL

Options
(1) Concepts for new systems/upgrade systems out of production.
(2) Insert into ongoing systems development, or complete ACTD development.
(3) Upgrade system in production/fielded systems or produce mature ACTD.
(4) Use of new technology for demilitarization/disposal.

MDA DECISION

overhaul panel

Adv Tech Dev (6.3a)
- ACTD
- Lab/field demo
- ATD

Tech Base (6.1/6.2)
- Basic Research
- Applied Research

STOP

overhaul panel

STOP

STOP
ACTD INITIATION PROCESS

Pressing Need (Users) → Teaming → Acquisition User Team + **AT/Staff → 1 Hour Briefing → DUSD/AT Review → 1/2 Hour Briefing → CDDR & AT/Breakfast Club Review & Discuss

Joint Staff/JROC Recommendation → DUSD/AT Decision → Approve

User/Acquisition Team Kick-off & Development → PROCEED

JROC/JWCA Review

*AT staff will assist, if necessary, to arrange user/developer team
**Defense Reform Initiative proposes moving AT mission to DDR&E
## ACQUISITION PROGRAM VS. ATD & ACTD

<table>
<thead>
<tr>
<th></th>
<th>Acquisition Program</th>
<th>Advanced Technology Demonstration (ADT)</th>
<th>Advanced Concept Tech Demonstration (ACTD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation</strong></td>
<td>• Develop, produce and field system</td>
<td>• Demonstrate feasibility and maturity</td>
<td>• Gain understanding of and evaluate utility prior to acquisition decision</td>
</tr>
<tr>
<td></td>
<td>• Cost, schedule, performance</td>
<td>• Reduce technical risks and uncertainties at relatively low cost</td>
<td>• Develop concepts of operation and doctrine</td>
</tr>
<tr>
<td><strong>Requirement</strong></td>
<td>MNS/CRD</td>
<td>not required</td>
<td>not required</td>
</tr>
<tr>
<td><strong>Oversight</strong></td>
<td>milestone decision authority</td>
<td>labs/R&amp;D centers</td>
<td>DUSD(AT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oversight Panel</td>
<td>Oversight Panel</td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td>fully FYDP funded</td>
<td>RDT&amp;E</td>
<td>RDT&amp;E (2yrs in field)</td>
</tr>
<tr>
<td><strong>ACAT</strong></td>
<td>I, II, III</td>
<td>not ACAT effort</td>
<td>not ACAT effort</td>
</tr>
<tr>
<td><strong>Configuration &amp; Testing</strong></td>
<td>system/subsystem prototypes DT/OT</td>
<td>technology demonstrations</td>
<td>tech demonstrations in field environment with users ACTD</td>
</tr>
<tr>
<td><strong>Rules</strong></td>
<td>DoD 5000series/FAR</td>
<td>informal/FAR</td>
<td>Mgmt Plan/FAR</td>
</tr>
<tr>
<td><strong>Role of User</strong></td>
<td>max involvement</td>
<td>some involvement</td>
<td>max involvement</td>
</tr>
</tbody>
</table>

FAR: Federal Acquisition Regulation  
MNS: Mission Need Statement  
ORD: Operational Requirements Document  
DUSD(AT): Deputy Under Sec Def (Advanced Technology)  
FYDP: Future Years Defense Program  
RDT&E: Research, Dev, Test & Eval (appropriation)  
ACAT: Acquisition Category  
DT/OT: Developmental/Operational Testing
PLANNING RELATIONSHIPS
Program Definition & Risk Reduction Phase

1. Requirements Generation
   - MS I
     - Update ORD
       - Update analysis of alternatives
         - Cost/schedule/performance trade-off analysis
       - Demonstrate critical processes & technologies
     - JROC-OIPT-DAB-ADM
       - Technical Review
       - Contracting
         - Draft RFP
         - Final RFP
         - Proposal/Award
     - Draft RFP
     - Final RFP
     - Proposal Award
     - Update POM
     - Budget
     - Appropriation
     - Budget Authority (for EMD)

2. Acquisition Management
   - Life Cycle
     - JROC-OIPT-DAB-ADM
     - EMD
     - Design system/conduct prototyping
       - Update acquisition strategy
       - Update CARD
     - Update Life Cycle
       - Resource Est.
     - Technical Review
       - Final System Spec
       - Draft Dev Spec
       - Update MOE/NOP
       - TEMP
       - Sys Threat Assess
       - APB
       - DT&E Report
       - EOA Report
       - LFT&E Waiver
       - LRIP Qtrs
       - Acq Strat (6 mos advance of MS II)
       - Affordability
       - CCA
       - POE
       - Manpower Est.
       - ICE

3. PPBS
   - MS II
     - ORD
     - Preparer
     - Input
     - Prepared by
     - Hard Link
DoD INTERNATIONAL ARMAMENTS
COOPERATION POLICY

SECDEF Memorandum 23 March 1997

“It is DoD policy that we utilize International Armaments Coop-
eration to the maximum extent feasible, consistent with sound
business practice and with overall political, economic, techno-
logical, and national security goals of the United States.”

DEFENSE SALES VS. COOPERATIVE ACQUISITION

They are Different

- Defense Sales
  - Any nation
  - U.S. Contracts (FMS)
  - U.S. Manages
  - Production & Support
  - DoS or DoC
  + DoD - USD (Policy)
  - Foreign Initiated
  - Foreign Funds (or U.S. Credit/Grants)

- Cooperative Acquisition
  - Allied or Friendly
  - U.S., Ally or NATO
  - Jointly Managed
  - All Acquisition
  - DoD - USD (A&T)
  + DoS and DoC
  - U.S. and/or Foreign
  - U.S. + Foreign Funds
INTERNATIONAL ACTIVITIES ASSOCIATED WITH DEFENSE ACQUISITION PHASES

- Cooperative Production
- Coproduction
- Licensed Production
- Production Sharing
- Foreign Military Sales

Production, Fielding/Deployment, and Operational Support

Engineering and Manufacturing Development

Program Definition and Risk Reduction

Cooperative Development

Intl. Testing

NATO Forums
DEAs/IEPs
Staff Talks
S&E Exchanges

Determining Mission Need and Identifying Deficiencies

Concept Exploration
THE SCOPE OF DEFENSE COOPERATION

**RDT&E**
- Information Exchanges
- Engineer & Scientist Exchanges
- Cooperative R&D
- Comparative or Joint Testing
- Standardization

**Production & Procurement**
- Foreign Military Sales
- Direct Commercial Sales
- Cooperative Production (Joint Funds)
- Coproduction/Licensing (Foreign Funds)
- Reciprocal Procurement

**Follow-on Support**
- Cooperative Logistics
- Supply Support
- Mutual Support Exchanges
- Logistics Support
- Host Nation Support
- Defense Industrial Base

*The Program Manager's Focus*
Resource Allocation Process - Overlap

<table>
<thead>
<tr>
<th>FY98</th>
<th>CY99</th>
<th>CY00</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFMAMJJASONDD</td>
<td>JFMAMJJASONDD</td>
<td>JFMAMJJASONND</td>
</tr>
<tr>
<td>Execution</td>
<td>Enactment</td>
<td>Execution</td>
</tr>
<tr>
<td>FY98 and prior</td>
<td>FY99</td>
<td>FY99 and prior</td>
</tr>
<tr>
<td>FY00</td>
<td>Programming</td>
<td>Budgeting</td>
</tr>
<tr>
<td>POM 00-05</td>
<td>FY00-01</td>
<td>FY00</td>
</tr>
<tr>
<td>FY01</td>
<td>Planning/Programming</td>
<td>Budgeting</td>
</tr>
<tr>
<td>DPG 01-05</td>
<td>POM 01-05</td>
<td>FY01</td>
</tr>
<tr>
<td>FY02</td>
<td>Planning/Programming</td>
<td>Budgeting</td>
</tr>
<tr>
<td>DPG 02-07</td>
<td>POM 02-07</td>
<td>FY02-03</td>
</tr>
</tbody>
</table>
PPBS - Programming & Budgeting Phases

MAY  JUL  AUG  SEP  OCT  NOV  DEC  JAN  FEB

PROGRAMMING  BUDGETING

WHITE HOUSE

OSD: Office of the Secretary of Defense
POM: Program Objectives Memorandum
PRG: Program Review Group
CPA: Chairman's Program Assessment
PDM: Program Decision Memorandum

DRB: Defense Resources Board
FYDP: Future Years Defense Program
OBS: Program Budget Decision(s)
OMB: Office of Management and Budget
MBI: Major Budget Issues

President's Budget To Congress

OMB

FYDP updated

DoD Budget

FYDP updated

POM Submit

OSD POM Review

Budget Submit

PDM(s)

Budget Estimates

Budget Finalized

Joint Strategy Review

POM Finalized

Joint Staff

Military DEPTS

DSMC PROGRAM MANAGERS TOOL KIT
Resource Allocation Process

Enactment

Congress

Budget Committees → Authorization Committees → Appropriation Committees → Authorization/ Appropriation Acts Passed

President & OMB

President's Budget

Phase I:
PPBS

Testimony → Appeals

Phase III:
Apportionment

Phase IV:
Allocation/ Execution

DoD
## PROCUREMENT APPROPRIATIONS
### (ACCOUNT NUMBERS AND BUDGET ACTIVITIES)

<table>
<thead>
<tr>
<th>Appropriation</th>
<th>Budget Activity</th>
</tr>
</thead>
</table>

25
## PROCUREMENT APPROPRIATIONS
(Account Numbers and Budget Activities)
(Continued)

<table>
<thead>
<tr>
<th>Appropriation</th>
<th>Budget Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Force (57-)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Defense (97-)</strong></td>
<td></td>
</tr>
<tr>
<td>National Guard &amp; Reserve Equipment</td>
<td>- 0350  1. Reserve Equipment  2. National Guard Equipment</td>
</tr>
<tr>
<td>Defense Production Activity Purchase</td>
<td>- 0360   1. Defense Production Activity Purchases</td>
</tr>
</tbody>
</table>
### DSMC PROGRAM MANAGERS TOOL KIT

#### RDT&E APPROPRIATIONS
(ACCOUNT NUMBERS)

<table>
<thead>
<tr>
<th>Appropriation</th>
<th>Account Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDT&amp;E, Army 21</td>
<td>2040</td>
</tr>
<tr>
<td>RDT&amp;E, Navy 17</td>
<td>1319</td>
</tr>
<tr>
<td>RDT&amp;E, Air Force 57</td>
<td>3600</td>
</tr>
<tr>
<td>RDT&amp;E, Defense Wide 97</td>
<td>0400</td>
</tr>
<tr>
<td>Development T&amp;E 97</td>
<td>0450</td>
</tr>
<tr>
<td>Operational, T&amp;E 97</td>
<td>0460</td>
</tr>
</tbody>
</table>

#### RDT&E APPROPRIATIONS
(RELATIONSHIP BETWEEN BUDGET ACTIVITIES AND RESEARCH CATEGORIES)

<table>
<thead>
<tr>
<th>Budget Activity</th>
<th>Research Category</th>
<th>Category</th>
<th>Program Element #s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6 . 1</td>
<td>Basic Research</td>
<td>0601xxx</td>
</tr>
<tr>
<td>2</td>
<td>6 . 2</td>
<td>Applied Research</td>
<td>0602xxx</td>
</tr>
<tr>
<td>3</td>
<td>6 . 3 a</td>
<td>Advanced Technology Devel</td>
<td>0603xxx</td>
</tr>
<tr>
<td>4</td>
<td>6 . 3 b</td>
<td>Dem/ Val</td>
<td>0603xxx</td>
</tr>
<tr>
<td>5</td>
<td>6 . 4</td>
<td>Engineer and Mfg Devel (EMD)</td>
<td>0604xxx</td>
</tr>
<tr>
<td>6</td>
<td>6 . 5</td>
<td>RDT&amp;E Management Support</td>
<td>0605xxx</td>
</tr>
<tr>
<td>7</td>
<td>6 . 6</td>
<td>Operational System Devel</td>
<td>010xxx; 020xxx; 030xxx; etc.</td>
</tr>
</tbody>
</table>

**NOTES:**

1. The relationships among Budget Activities; Research Categories; and Categories Nomenclatures were effective with the President's FY 97 Budget.

2. While the title of the Acquisition Life Cycle phase preceding EMD is now called Program Definition and Risk Reduction (PDRR) in Acquisition directives, Resource Management Directives still refer to Research Category associated with this acquisition phase as Dem Val.

* POM + $s OVERSIGHT BY DDR&E
## SAMPLE
### NAVY APPROPRIATIONS AND BUDGET ACTIVITIES

<table>
<thead>
<tr>
<th>APPRN/ BUDGET ACTIVITY</th>
<th>RESEARCH CATEGORY NUMBER / NOMENCLATURE</th>
<th>BELOW THRESHOLD REPROGRAM RULES</th>
<th>YEARS AVAILABLE FOR OBLIG PURPOSES</th>
<th>FUNDING POLICY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>[At Program Element Level]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RDT&amp;E, N</td>
<td></td>
<td>[At Program Element Level]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6.1 Basic Research</td>
<td>$4M Greater</td>
<td>2 Incremental</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6.2 Applied Research</td>
<td>of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6.3a Advanced Tech. Devel.</td>
<td>$4M Greater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6.3b Dcom/ Val</td>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>6.4 EMD</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6.5 RDT&amp;E Mgmt Supp (T&amp;E Ranges)</td>
<td>(Civilian Salaries)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>6.6 Oper. Systems Devel.</td>
<td>(Post-Production)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>APPRN/ BUDGET ACTIVITY</th>
<th>BUDGET ACTIVITY DESCRIPTION</th>
<th>BELOW THRESHOLD REPROGRAM RULES</th>
<th>YEARS AVAILABLE FOR OBLIG PURPOSES</th>
<th>FUNDING POLICY</th>
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</thead>
<tbody>
<tr>
<td>PROCUREMENT</td>
<td>[At Line Item Level]</td>
<td>[At Line Item Level]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCN-1</td>
<td>Ship Conv - FBM Ships</td>
<td>$10M Greater</td>
<td>5 Full</td>
<td></td>
</tr>
<tr>
<td>SCN-2</td>
<td>Ship Conv - Other Warships</td>
<td>of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCN-3</td>
<td>Ship Conv - Afloat Ships</td>
<td>$10M Greater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCN-4</td>
<td>Ship Conv - Mine &amp; Pat Ships</td>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCN-5</td>
<td>Ship Conv - Aux, Craft &amp; FY Costs</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPN-1</td>
<td>Weapons Proc. - Bal. Msl</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>WPN-2</td>
<td>Weapons Proc. - Other Msl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPN-3</td>
<td>Weapons Proc. - Torp &amp; Eq</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPN-4</td>
<td>Weapons Proc. - Other Wpn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPN-5</td>
<td>Weapons Proc. - Other Ord.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPN-6</td>
<td>Weapons Proc. - Spares &amp; Repair Parts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPN-1</td>
<td>Other Proc. - Ship SE</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>OPN-2</td>
<td>Other Proc. - Comm/Elec Eq</td>
<td></td>
<td></td>
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<tr>
<td>OPN-3</td>
<td>Other Proc. - Aviation SE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPN-4</td>
<td>Other Proc. - Ordnance SE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPN-5</td>
<td>Other Proc. - Civil Engr SE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPN-6</td>
<td>Other Proc. - Supply SE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPN-7</td>
<td>Other Proc. - Pers &amp; Com SE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPN-8</td>
<td>Other Proc. - Spares &amp; Rep Parts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APN-1</td>
<td>Aircraft Proc. - Combat</td>
<td></td>
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</tr>
<tr>
<td>APN-2</td>
<td>Aircraft Proc. - Airlift</td>
<td></td>
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<td></td>
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<tr>
<td>APN-3</td>
<td>Aircraft Proc. - Trainer</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>APN-4</td>
<td>Aircraft Proc. - Other</td>
<td></td>
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</tr>
<tr>
<td>APN-5</td>
<td>Aircraft Proc. - Mods</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APN-6</td>
<td>Aircraft Proc. - Spares</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APN-7</td>
<td>Aircraft Proc. - SE &amp; Fac.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>O&amp;M, N</td>
<td>Operations &amp; Maintenance</td>
<td>$20M No Restriction</td>
<td>1 Annual</td>
<td></td>
</tr>
<tr>
<td>MILPER, N</td>
<td>Military Personnel</td>
<td>$10M No Restriction</td>
<td>1 Annual</td>
<td></td>
</tr>
<tr>
<td>MILCON, N</td>
<td>Military Construction</td>
<td>Lesser of $1M or 25%</td>
<td>5 Full</td>
<td></td>
</tr>
</tbody>
</table>

* Below Threshold Reprogramming for RDT&E (for PEs) allowed for each year funds avail for obligation.
APPROPRIATIONS
(Continued)

DECISION CHART FOR FUNDING PRODUCT IMPROVEMENTS

IF . . . .

THEN . . . .
FUND DEV AND TEST OF MODS WITH . . . .

AND . . . .
ACQUIRE AND INSTALL MOD KITS WITH . . . .

BELOW THRESHOLD REPROGRAMMING LEVELS

<table>
<thead>
<tr>
<th>APPN</th>
<th>MAX INTO</th>
<th>MAX OUT</th>
<th>LEVEL OF CONTROL</th>
<th>OBL AVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDT &amp; E</td>
<td>+ $ 4M</td>
<td>GREATER OF $4M OR 20% OF PROGRAM ELEMENT</td>
<td>PROGRAM ELEMENT</td>
<td>2 YEARS</td>
</tr>
<tr>
<td>PROC (Incl SCN)</td>
<td>+ $ 10M</td>
<td>GREATER OF $10M OR 20% OF LINE ITEM</td>
<td>LINE ITEM</td>
<td>3 YEARS (SCN: 5 YEARS)</td>
</tr>
<tr>
<td>O &amp; M</td>
<td>+ $ 20M</td>
<td>NO CONGRESSIONAL RESTRICTION</td>
<td>BUDGET ACTIVITY</td>
<td>1 YEAR</td>
</tr>
<tr>
<td>MILPERS</td>
<td>+ $ 10M*</td>
<td>NO CONGRESSIONAL RESTRICTION</td>
<td>BUDGET ACTIVITY</td>
<td>1 YEAR</td>
</tr>
<tr>
<td>MILCON</td>
<td>LESSOR OF + $ 2M OR 25% OF PROJECT</td>
<td>NO CONGRESSIONAL RESTRICTION</td>
<td>PROJECT</td>
<td>5 YEARS</td>
</tr>
</tbody>
</table>

Notes: Reprogramming thresholds apply to each appropriation during entire "active" life of that appropriation.
CONTRACTING

COMPONENTS OF CONTRACT PRICE

Contract Price = Cost + Product/Fee

Direct Cost
- Direct Labor
- Direct Material
- Other Direct Cost (ODC)
  - Engrg Labor
  - Mfg Labor
  - Raw Material
  - Std Comm Items
  - Purchased Parts
  - Subcontracts

Indirect Cost
- Overhead
- FCCM
- G&A
- Engrg Spt
- Mfg Spt
- Mat'l Handling
- Inter-divisional Transfers

TYPICAL CONTRACT TYPE BY PHASE

<table>
<thead>
<tr>
<th>CE</th>
<th>PDDR</th>
<th>EMD</th>
<th>PROD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPFF,FFP</td>
<td>CPFF, CPIF</td>
<td>CPIF, CPAF</td>
<td>FPI(F), FFP</td>
</tr>
</tbody>
</table>

TYPES OF CONTRACTS

Cost Type: Product not well defined; high risk; buy Best Effort; Government pays all allowable costs.

Cost Plus Fixed Fee (CPFF) - Fee same regardless of actual cost.

Cost Plus Incentive Fee (CPIF) - Fee adjusted based on actual cost (share ratio). Limit to min/max fee.

Fixed Price Type: Product well defined, low risk; buy defined deliverable.

Firm Fixed Price (FFP) - Price fixed regardless of actual cost.

Fixed Price Incentive Firm (FPI(F)) - Price adjusted based on actual cost and share ratio.

Award Fee (AF) - Can be stand alone Cost Plus Award Fee (CPAF) or combined with other cost or fixed price types. AF unilaterally determined by government based on subjective evaluation of performance.

Profit/Fee Limits: Cost type - Fee limited to 15% for R&D; 10% for Prod. Fixed price type - No statutory limitation on profit.
CONTRACT TYPE FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>FIXED PRICE</th>
<th>COST REIMBURSEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promise</td>
<td></td>
<td>Best Efforts</td>
</tr>
<tr>
<td>Contract or Risk</td>
<td>Delivery</td>
<td>Low</td>
</tr>
<tr>
<td>Cash Flow</td>
<td>High</td>
<td>As Incurred</td>
</tr>
<tr>
<td>Progress Payments %</td>
<td>Delivery</td>
<td>N/A</td>
</tr>
<tr>
<td>Administration</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Profit/Fee Limit %</td>
<td>None</td>
<td>15/10/6</td>
</tr>
</tbody>
</table>

**CPFF**

\[
\text{PRICE} = \text{COST} + \text{FIXED FEE}
\]

Risk Highest To The Government
Obtains Fee Regardless of Cost

**CPIF**

\[
(\text{Target}) \ \text{PRICE} = (\text{Target}) \ \text{COST} + (\text{Target}) \ \text{FEE}
\]

All Reasonable Cost Paid
Shared Risk Between Min/Max Fee
CONTRACT TYPE FEATURES
(Continued)

\( (\text{Target}) \text{ PRICE} = (\text{Target}) \text{ COST} + (\text{Target}) \text{ Profit} \)

Point of Total Assumption
\( (\text{PTA}) = \frac{\text{Ceiling Price} \times \text{Target Price}}{\text{Government Share}} + \text{Target Cost} \)

\[ \text{PRICE} = \text{COST} + \text{PROFIT} \]
CONTRACTOR PROFITABILITY RATIOS

The basic concept of profitability ratios is to measure income against revenue or against the investment required to produce it. There are three principal profitability ratios with which you should be familiar. They are:

\[
\text{Return on Sales} = \frac{\text{Net Income}}{\text{Sales}}
\]

1. Return on Sales which shows what percentage of dollars are left after the company has paid for all costs, interest, and taxes. It is expressed as:

\[
\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}
\]

2. Return on Total Assets which looks at the efficiency with which management has used its resources, the company’s assets, to generate income. It is computed as:

\[
\text{ROA} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}}
\]

As noted, ROA addresses how well management utilizes the assets of the firm in generating income. The ROA formula reflects the combined result of Return on Sales and the total asset turnover ratio (sales/total assets), broken down as follows:

\[
\text{ROE} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Common Stockholders' Equity}}
\]

3. Return on Common Stockholder's Equity measures the rate of return on the owners’ investment—their equity in the company. This is also known as Return on Equity (ROE).

\[
\text{ROE} = \frac{\text{Net Inc. - Pref. Div.}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Common Stockholder's Equity}}
\]

ROE can also be broken into two components: these being return on assets adjusted for preferred dividends and financial leverage (a ratio reflecting the relationship of creditor to owner financing—expressed as total assets/common stockholders equity). This is shown by:

\[
\text{Earnings Per Share} = \frac{\text{Net Income Minus Preferred Dividends}}{\text{Number of Shares of Common Stock Outstanding}}
\]

These profitability ratios give three different viewpoints concerning the “bottom line” on the income statement—how much net profit is being made on each sale, how much is being made for the assets that are employed, and how much is being made for the company owners. From an owner’s perspective, another profitability ratio you may be aware of is Earnings Per Share (EPS):
# DSMC PROGRAM MANAGERS TOOL KIT

## FINANCIAL ANALYSIS SHEET

(Example)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Company</th>
<th>Fiscal Year</th>
<th>ROE</th>
<th>ROA</th>
<th>Financial Leverage</th>
<th>ROS (%) (In Millions)</th>
<th>Asset Turnover (sales/TA)</th>
<th>Operating Income</th>
<th>Net Income</th>
<th>EPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>MD</td>
<td>FY1</td>
<td>1.02</td>
<td>2.00</td>
<td>3.00</td>
<td>1.23</td>
<td>2.56</td>
<td>3.54</td>
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<tr>
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<td>MD</td>
<td>FY2</td>
<td>1.01</td>
<td>2.52</td>
<td>3.01</td>
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<td>MD</td>
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<td>FY3</td>
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<td>MD</td>
<td>MD</td>
<td>FY5</td>
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<td>3.07</td>
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<td>3.57</td>
<td>4.57</td>
<td>5.07</td>
<td>6.07</td>
</tr>
</tbody>
</table>

### Notes
- ROE: Return on Equity
- ROA: Return on Assets
- Financial Leverage: Total Debt to Total Assets
- ROS (%): Return on Sales
- Asset Turnover: Sales to Total Assets
- Operating Income: Net Income
- ROA (%): Return on Net Assets
- ROE (%): Return on Equity
- EPS: Earnings Per Share
- % of Net Income to Net Sales: Percentage of Net Income to Net Sales

### Graphs
- Graphs showing changes in financial ratios over time.

---

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DSMC PROGRAM MANAGERS TOOL KIT

CASH CYCLE

Cash received → Accounts receivable

Sale (DD 250) → Finished goods inventory → Accounts payable → Wages payable → Cash disbursed

Cash disbursed → Work in process inventory → Accounts payable → Raw material inventory → Contract award

CONTRACTOR FINANCING AND PAYMENTS

FINANCING (External*)

Commercial
- Govt specified
- Offer or proposed
- Interim
- Advance

Non-Commercial
- Private
  - Trade Credit
  - Bank Credit
    - Revolving Credit
    - Term Loan
  - Government
    - For Non-Commercial
      - Progress Payments
        - Performance Based
        - Cost Incurred Based
        - % Complete
      - Unusual Progress Payments
        - Assignment of Claims
        - Guaranteed Loans
        - Advance Payments

PAYMENTS

Commercial
- Delivery

Non-Commercial
- Periodic
  - Partial

* Internal Contractor Financing
  - Retained Earnings

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SUPPORTABILITY ANALYSES

Anything analytical that has something to do with logistics

- SUPPORTABILITY ANALYSIS (SA)
  The tailored application of engineering efforts during acquisition, to identify/solve logistics issues through an iterative SE process of definition, synthesis, tradeoff, T&E.

- LOGISTICS MANAGEMENT INFORMATION (LMI):
  The documentation associated with SA.

BEST PRACTICE:
Supportability Analyses

- Tailored!
- Part of iterative SE process
- Assists in
  - Defining support
  - Influencing design
- Uses (not duplicates) other data & analyses
- Documented and communicated
## BEST PRACTICE: SUPPORTABILITY ANALYSIS ACTIVITIES

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
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<tr>
<td>Analysis Strategy</td>
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<tr>
<td>SA Planning and SA Plan</td>
<td></td>
<td></td>
<td></td>
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<td>SA Reviews and Control</td>
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<tr>
<td>O&amp;S Requirements</td>
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<tr>
<td>Definition of Intended Use / O&amp;S Environment of System</td>
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<tr>
<td>Analysis of Comparative Systems</td>
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<tr>
<td>Evaluation of Technology Approaches / Opportunities</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Determination of Supportability Requirements / Constraints</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of Emerging Designs</td>
<td>Operations &amp; Sustainment Support Requirements</td>
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<td></td>
<td></td>
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<tr>
<td>O&amp;S Support Planning</td>
<td>Operations &amp; Maintenance Support Resources</td>
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<tr>
<td>Operations and Sustainment Support Alternatives</td>
<td>Operations and Sustainment Support Tradeoff Analyses</td>
<td></td>
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<td></td>
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</tbody>
</table>
ACQUISITION LOGISTICS


2. *Manpower & Personnel* - identification of personnel skills and grades required to support operation and maintenance of system.

3. *Supply Support* - determine requirements to acquire and manage spare and repair parts.

4. *Technical Data* - scientific and technical information used to support systems acquisition.

5. *Training & Training Support* - determine requirements to acquire training devices and conduct training of operators and maintenance personnel.

6. *Computer Resources Support* - identification of facilities, hardware, software and support tools to operate and support embedded computer systems.

7. *Facilities* - identify real property required to support system.

8. *Packaging, Handling, Storage and Transportation* - identify designs and methods to ensure the system is preserved, packed, stored, handled and transported properly.

9. *Support Equipment* - identify all equipment required to support operation and maintenance of the system.

10. *Design Interface* - relationships of logistics related design parameters to readiness and support resource requirements; influence design for supportability.
DSMC PROGRAM MANAGERS TOOL KIT

PROGRAM OFFICE ORGANIZATION STRUCTURES

- **Functional Structure**

  PM  
  └── STAFF
      ├── ENGRNG
      ├── BUSINESS
      ├── PRODUCTION
      └── LOGISTICS

- **Product Structure**

  PM  
  ├── PM SYSTEM A  
  │    └── STAFF  
  │        └── FUNCTIONAL DIVISIONS
  ├── PM SYSTEM B  
  │    └── STAFF  
  │        └── FUNCTIONAL DIVISIONS
  └── PM SYSTEM C  
      └── STAFF  
          └── FUNCTIONAL DIVISIONS
INTEGRATED PRODUCT TEAMS

SYSTEM PROGRAM DIRECTOR

<table>
<thead>
<tr>
<th>DIR OF LOG</th>
<th>DIR OF ENG</th>
<th>DIR OF TEST</th>
<th>DIR OF CONTRACTS</th>
<th>DIR OF FIN MGT</th>
<th>DIR OF PROJECTS</th>
</tr>
</thead>
</table>

Note 1

AIR VEHICLE IPT | ENGINE IPT | SUPPORT SYS IPT | TRAINING SYS IPT

IPT = Integrated Product Team
PIT = Program Integration Team

Note 1: IPTs mirror Work Breakdown Structure
ROLE OF MANUFACTURING MANAGEMENT WITHIN THE INTEGRATED PRODUCT TEAM

**DEVELOPMENT**
- Influence the design process
- Prepare for production

**PRODUCTION**
- Execute the manufacturing plan
- Reflect design intent
- Repeatable processes
- Process improvement

80% ——  20%

*UNIFORM, DEFECT-FREE PRODUCT*
- Consistent performance
- Lower cost
VARIABILITY CONTROL

• GOAL: Minimize and control manufacturing variation on key product characteristics

• WHY: Direct correlation between deviation from nominal value on key characteristics and product quality and functionality

• TOOLS: QFD, DOE, Process control chart (Statistical Process Control, see below)

![X (Control Chart) Diagram]

![R (Control Chart) Diagram]

*Note: No lower control limit for R Chart for sample size below 7.
MANUFACTURING PROCESS ELEMENTS

THE FIVE M's

MANPOWER MEASUREMENT

RELEASED DESIGN PROCESS TRANSFORMATION PRODUCED PRODUCT

METHOD MACHINERY MATERIALS

ENVIRONMENTAL CONSIDERATIONS
KEY MANUFACTURING QUESTIONS
TO ASK Ktr REGARDING QUALITY

1. What engineering design tools are being used during development
to integrate manufacturing processes and affordability into the
design?

Answer should include:
• Integrated Product Teams
• Quality Function Deployment (QFD)
  -- Disciplined process employing multifunctional processes.
  (What? and How to do it?)
  -- IPTs to get voice of customer into design
  -- Matches customer desires with technical solutions
  -- Technical solutions rated
• Design for Manufacturing and Assembly (DFMA)
  -- Focuses on defining product design options for ease of
    fabrication and assembly

2. How will management determine that equitable requirements
tradeoffs are made between design and manufacturing processes
during development?

Answer should include:
• Perform producibility analysis during design of development
  hardware
  -- Tradeoff design requirements against manufacturing risk, cost,
    production volume and existing process capability/availability

3. Of those manufacturing processes which do not exist or are
unproved, what is plan to prove them out?

Answer should include:
• Compare program needs to work being done under DoDs
  Manufacturing Science and Technology Programs or individual
  service laboratory technology measurement program
  -- Avoid "reinventing the wheel" syndrome
KEY MANUFACTURING QUESTIONS
TO ASK Ktr REGARDING QUALITY
(Continued)

• Milestone driven process development schedule which yields
demonstrated process capability in factory representation
environment before rate production begins

-- Alternatives for key process considered as risk reduction if
affordable

4. How does the contractor plan to insure I receive a quality product?
Answer should include:

• ISO 9000 or equivalent quality system (basic quality system) in
place and consistently followed

• Advanced Quality System (AQS) encouraged
  -- Key product characteristic identification
  -- Process/product variability control (SPC)
  -- Process capability assessment (Cp, Cpk)
  -- AQS flowdown to suppliers
  -- Integrated product development
  -- Process fool proofing (Poka-Yoke)
  -- Closed loop root cause corrective action (five whys)

5. What is your cost of quality (% if gross unit price spent on failure,
appraisal, prevention)?

World Class Company = 5-10%
(Further breakout of 10% shown below)
DSMC PROGRAM MANAGERS TOOL KIT

TEST & EVALUATION

DT&E/OT&E COMPARISONS:

**DT&E**
- Tech. perf. measurement
- Dev. agency resp. (PM)
- Technical Personnel
- Ltd. test articles/each test
- Controlled environment
- All types of Test Articles
- Contract or involved

**OT&E**
- Operational effective/suitable
- Operational Test Agency (OTA) resp.
- 'Typical' User Personnel
- Many test articles/each test
- 'Combat' environment
- 'Production Rep' Test Articles
- Contractor may not be allowed

**T&E Required before going Beyond Low Rate Initial Production**

Production Qualification T&E - Verify Production Article meets Spec/PM responsible/Performed by Contractor &/or Government/DPRO assistance valuable.

Live Fire T&E (LFT&E) - Vulnerability and Lethality/Dev'l Agency fund and execute. DOTE oversight, approval, and congressional reporting for selected programs.

Initial Operational T&E - Operational Effectiveness and Suitability/Independent Svc OTA plan and manage. DOTE oversight, approval, and Congressional reporting for selected systems.

**T&E TASKS & EVENTS**

- Test Rqmts
- Test Interfaces
- Test Strategy
- Sys. Engineering
- Design for Test
- S/W Human T&E
- Subsystem T&E
- Software Only T&E
- System DT&E
- CSCI T&E
- R. A. M.
- Supportability
- Survivability
- Interoperability
- Production Qual.
- Live Fire T&E
- Cert of Readiness for IOT&E

- Acceptance Test
- Manuf. Test
- Data Collection
- Reporting

**Models and Simulations used throughout the Acq Process**

- REQUIREMENTS DEVELOPMENT
- ENGINEERING DESIGN
- FABRICATION & TEST (BENCH, LAB)
- INTEGRATION & TEST (H/W IN THE LOOP)
- DT&E (EOA, OT-I, OT-II)
- OT&E (OP EVAL)
- DT-I, DT-II, TECH EVAL (LFT&E)
- PRODUCTION (PAT&E, FOT&E)
- DEPLOY & OPERATIONAL SUPPORT

Use Combined DT/OT - single integrated DT and OT Team; combined testing; independent data analysis & reporting.

ACAT I & II Programs - require an independent, dedicated IOT&E to proceed beyond Low Rate Initial Production.

**AGONIZE OVER THRESHOLDS!**

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Modeling & Simulation Planning Process

Establish a Program-level Simulation Working Group

PMO monitor, update, & continuously explore new opportunities

Earlier the better - M & S Planning

Include all Service activities with M&S expertise.
Determine opportunities for M&S throughout the program lifecycle.

Immediately consider complete digital integrated database operation; examples:
- Boeing 777
- NSSN Attack Submarine
- Comanche.

Integral part of program planning

Consider:
- Fidelity
- Re-use
- Balance
- Integration
- Verification
- Validation
- Accreditation
- Scheduling
- Budgets

Identify VV&A activities for all M&S.
Coordinate & document in a simulation support plan and the TEMP. Get ALL T&E organizations to support your M&S usage via formal TEMP agreement.
The Hierarchical Aggregation of Models reduces Fidelity significantly & must be evaluated. - (PM, DIS & DMSO)
The Evolution of Modeling & Simulation

**Simulation Based Acquisition** is the process by which simulation is incorporated and integrated throughout the functions of the acquisition of a weapon system; from concept exploration, through prototyping and design, test and evaluation, fabrication and production, to deployment and finally operations and sustainment using an integrated database for seamless use between & by functional areas.

---

**Simulation Based Acquisition**

Virtual prototyping examples of different size, complexity & capability

---

DSMC PROGRAM MANAGERS TOOL KIT
PLANNING AND CONTROL

TYPICAL TIMES FOR PROGRAM ACTIVITIES

<table>
<thead>
<tr>
<th>Event</th>
<th>Time (months)</th>
</tr>
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<tbody>
<tr>
<td>Procurement Request Development Time</td>
<td>6 - 9</td>
</tr>
<tr>
<td>Contract Lead-time</td>
<td>9 - 12</td>
</tr>
<tr>
<td>DAB Lead-time</td>
<td>6 - 8</td>
</tr>
<tr>
<td>PDRR Design, Fab and Test</td>
<td>24 - 30</td>
</tr>
<tr>
<td>EMD Design, Fab and Qual</td>
<td>30 - 36</td>
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<tr>
<td>Test Readiness Review Lead-time</td>
<td>2 - 3</td>
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<tr>
<td>DT&amp;E</td>
<td>9 - 12</td>
</tr>
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<td>OT Readiness Review Lead-time</td>
<td>2 - 3</td>
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<tr>
<td>OT&amp;E</td>
<td>6 - 12</td>
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<tr>
<td>OT Report Preparation</td>
<td>3</td>
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<tr>
<td>Production Lead-time</td>
<td>18 - 30</td>
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</tbody>
</table>

TYPES OF PLANNING CHARTS

MILESTONE CHART (Gantt)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time Period</th>
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<tbody>
<tr>
<td>Design</td>
<td>J F M A M J J A S O N D J F M A M</td>
</tr>
<tr>
<td>Fab</td>
<td></td>
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<tr>
<td>Integrate</td>
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<tr>
<td>Gnd. Test</td>
<td></td>
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<tr>
<td>Qual</td>
<td></td>
</tr>
<tr>
<td>Flt. Test</td>
<td></td>
</tr>
<tr>
<td>Produce</td>
<td></td>
</tr>
</tbody>
</table>

- Advantages: Simple

- Disadvantages: Difficult to show dependencies between activities unless computer constructed chart.

(ADD'L TYPES OF PLANNING CHARTS ON NEXT 5 PAGES)
DSMC PROGRAM MANAGERS TOOL KIT

PLANNING AND CONTROL
(Continued)

NETWORK CHART

![Network Chart Diagram]

<table>
<thead>
<tr>
<th>TASK</th>
<th>TASK #</th>
<th>TIME</th>
<th>COST</th>
<th>ACCELERATE</th>
<th>COST</th>
<th>TIME</th>
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<tbody>
<tr>
<td>Brief</td>
<td>1-2</td>
<td>5</td>
<td>2,200</td>
<td>-</td>
<td>5</td>
<td></td>
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<tr>
<td>Transport</td>
<td>2-3</td>
<td>4</td>
<td>15,000</td>
<td>500</td>
<td>3</td>
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<tr>
<td>Ship GFE</td>
<td>2-6</td>
<td>7</td>
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<td>600</td>
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<td>Inspect</td>
<td>4-6</td>
<td>5</td>
<td>0</td>
<td>-</td>
<td>5</td>
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<td>Train maint.</td>
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<td>28,000</td>
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<td>800</td>
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<td>13,500</td>
<td>-</td>
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<td>Dry Run</td>
<td>7-8</td>
<td>7</td>
<td>9,000</td>
<td>400</td>
<td>5</td>
<td></td>
</tr>
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</table>

- Advantages: Shows dependencies; computes critical path
- Disadvantages: Complex; computerized support required to maintain
  Does not provide any chronology

SWAN CHART

![Swan Chart Diagram]

- Advantages: Shows chronology and dependencies
- Disadvantages: Complex; computerized support required to maintain

USE TASKS & TIMES FROM CHART ABOVE

0 5 9 12 14 26 30 36 43 DAYS
LINE OF BALANCE TECHNIQUE

MONTHS

CONTROL POINTS

PRODUCTION LEAD TIME CHART

22 WORK DAYS/MONTH

Snapshot in time: 1 May
This chart illustrates the concept of threshold, objective, exit criteria, and a breach based on PM's current estimate.

* Here the current estimate falls below the threshold. If probability of survivability is a KPP in the APB, this would be a performance threshold breach.
RISK & TRADE-OFF ANALYSIS

Risk Planning
Risk Mgmt Plan (The Process)

Risk ID
Technical
Cost
Schedule
Lessons learned
WBS

Risk Analysis
Networks
Simulation
Watch lists
Templates

Risk Handling
Avoidance
Control
Assumption
Transfer
Research

RISK MANAGEMENT

1. Develop program plans to the work package level.
2. Assess risk at the lowest work package/WBS level.
3. Manage the highest risk work packages; most others will work out.

TRADE-OFF ANALYSIS

1. Identify alternative solutions
2. Select evaluation criteria/factors & MOEs;
   i.e. cost, schedule, performance criteria
3. Weight evaluation criteria
4. Develop utility functions for each factor
5. Conduct evaluation (weighted utility summary table where
   weight is multiplied by utility function value)
6. Perform sensitivity check
7. Select highest scored alternative

*With Cost As an Independent Variable (CAIV), aggressive cost objectives are
established as a result of trading performance and schedule for cost.
COST ESTIMATING

Types of Estimates

Analogy -
Comparison to existing system
Little or no data available; judgmental
Quick, easy, flexible
Used early in CE phase

Parametric -
Analogy based on historical data
Similar parameters are compared
Used in CE and PDRR phases

Engineering or -
Bottoms-Up
Sums very detailed analogy and
parametric estimates
Uses WBS structure
Used mid-to-late EMD

Extrapolation -
Applies learning curve theory
Based on prior actuals
Used for follow-on production

Guidelines
1. Make sure cost data is relevant and homogeneous. Caution: Watch out for historical data in times of change. Prior actuals may include uncompensated overtime or were priced as a "buy-in."
2. Focus on cost drivers
3. Test sensitivities and data relationships.

Cost Estimating Relationships (CER) - (Parametric)
PERFORMANCE MEASUREMENT
COST & SCHEDULE PERFORMANCE MEASUREMENT

1. Define the work (WBS)
2. Schedule the work
3. Allocate budgets

Defining, Planning and Budgeting

Element/Cost Account - 300

Task A $10
Task B $3
Task C $4

Tasks D-X $45

Work Packages (6 month coverage) Planning Packages (remainder of effort)

4. Prepare and monitor performance profiles

TERMINOLOGY
BCWS - Budgeted Cost of Work Scheduled
BCWP - Budgeted Cost of Work Performed
ACWP - Actual Cost of Work Performed
MR - Management Reserve
EAC - Estimate at Completion (Govt)
LRE - Latest Revised Estimate (Contractor)
BAC - Budget at Completion
CBB - Contract Budget Base (CTC+AUW)
CTC - Contract Target Cost
PMB - Performance Measurement Baseline
AUW - Aud Unpriced Work

VARIANCES
Cost Variance CV = BCWP - ACWP
Schedule Variance SV = BCWP - BCWS
Cost Variance % CV% = BCWP - ACWP
Schedule Variance % SV% = BCWP - BCWS

TIME
COST

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PERFORMANCE MEASUREMENT (Continued)

**PERFORMANCE INDICES**

Cost Performance Index CPI = \( \frac{BCWP}{ACWP} \)

Schedule Performance Index SPI = \( \frac{BCWP}{BCWS} \)

Percent Complete = \( \frac{BCWP (cum)}{BAC} \)

Percent Spent = \( \frac{ACWP (cum)}{BAC} \)

**ESTIMATE AT COMPLETION**

EAC (Lowest Est.) = \( \frac{BAC}{CPI(cum)} \)

EAC (Highest Est.) = \( \frac{ACWP(cum) + \frac{BAC - BCWP(cum)}{[CPI(cum) * SPI(cum)]}}{BAC - ACWP(cum)} \)

TO COMP PERFORMANCE INDICES

TCPI(EAC) = \( \frac{BAC - BCWP(cum)}{BAC - ACWP(cum)} \)

---

TECHNICAL PERFORMANCE MEASUREMENT

THE CONCEPT

![Diagram showing technical performance measurement concepts](image)

- **Objective**
  - Achievement to date
  - Variation
  - Planned Profile
  - Planned Value
  - Variation

- **Technical Parameter Values**
  - e.g., MTBF

- **Milestones**

**Time**

---

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DSMC PROGRAM MANAGERS TOOL KIT

REQUIREMENTS ANALYSIS QUESTIONS

- What are the reasons behind the system development?
- What are the customer expectations?
- Who are the users and how do they intend to use the product?
- What do the users expect of the product?
- What are their level of expertise?
- What environmental characteristics does the system have to comply with?
Functional Analysis/Allocation

- Allocate Functions
- Decompose Higher Functions
- Allocate Performance
- From Higher to Lower Functions
- Functional Descriptions
- Functional Flow Block Diagrams
- Time Line Analysis
- Functional Architecture
HELP!

HOW DO I MAKE DECISIONS? → TRADE STUDIES
WILL IT DO JOB/WORTH THE $$? → EFFECTIVENESS ANALYSIS
(Cost As an Independent Variable (CAIV))
ARE WE DOING THE RIGHT THING? → RISK MGMT
DO WE KNOW WHAT WE HAVE? → CONFIG MGMT
WILL IT ALL WORK TOGETHER? → TECH PERF MEAS
WHAT SHOULD THE CONTRACTOR BE DOING? → STATEMENT OF WORK
ARE WE READY TO GO ON? → TECH REVIEWS
HOW DO I RUN THIS PROGRAM? → SYS ENGR PLANNING
New Science & Technology (S&T) Strategy

- DDRE "BREAKFAST CLUB"
- DIRECT TRANSFER
- Advanced Technology Demonstrator
- Adv Concept Technology Demonstrator
- TECH BASE
- (6.1,6.2,6.3a $$$)
- DUAL USE, COMMERCIAL APPLICATIONS

PRINCIPLES:
1. WARRIOR NEEDS
2. LOWER COSTS
3. SPT MIL-COMM IND BASE
4. PROMO RESEARCH
5. QUALITY

DOD CAP'BTY

DSMC PROGRAM MANAGERS TOOL KIT
SPECIFICATIONS AND STANDARDS
A New Way of Doing Business (Acquisition Reform)
(Sec Def Memo of 29 June 1994)

1. Use Performance-Based Specifications
2. Cancel/Convert Manufacturing and Management Standards to Performance or Nongovernment Standards (NGSs)
3. Encourage Contractors to Submit Alternative Solutions to Military Standards/Specifications
4. Prohibit Use of Military or commercial Specifications/Standards in Contract Except when Authorized by SAE or Designee
DSMC PROGRAM MANAGERS TOOL KIT

SPECIFICATIONS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>WHEN</th>
<th>APPR</th>
<th>BASELINE</th>
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<tbody>
<tr>
<td>System</td>
<td>PDRR</td>
<td>SFR</td>
<td>Functional</td>
</tr>
<tr>
<td>Item Perf</td>
<td>PDRR</td>
<td>PDR (HW)</td>
<td>Allocated</td>
</tr>
<tr>
<td></td>
<td>SSR (S/W)</td>
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<td></td>
</tr>
<tr>
<td>Item Detail</td>
<td>EMD</td>
<td>PCA</td>
<td>Product</td>
</tr>
<tr>
<td>Process</td>
<td>EMD</td>
<td>PCA</td>
<td>Product</td>
</tr>
<tr>
<td>Material</td>
<td>EMD</td>
<td>PCA</td>
<td>Product</td>
</tr>
</tbody>
</table>

REVIEWs, SPECs, BASELINES AND AUDITS

SYSTEM REVIEW DEFINITIONS (Based on EIA Interim Std (IS) 632)

ASR - Alternative Systems Review - Preferred System Solution meets needs
SRR - Systems Requirements Review - Preliminary functional requirements
SFR - Systems Functional Review - Approve functional requirements
- Preliminary allocated requirements reviewed
SSR - Software Specification Review - Approve S/W allocated requirements
- Establish S/W allocated baseline

Note: EIA Interim Std (IS) 632 deletes use of "A", "B", "C", "D", and "E" designators
SPECs, REVIEWS, AUDITS & CM (Continued)

**DEFINITIONS (Continued)**

- PDR - Preliminary Design Review
  - Approve H/W allocated requirements
  - Establish H/W allocated baselines

- CDR - Critical Design Review
  - Preliminary product requirements
  - Ready for fabrication

- PRR - Production Readiness Review
  - Assess producibility/manuf. readiness
  - Assess test readiness

- TRR - Test Readiness Reviews
  - Approve test plans

- FCA - Functional Configuration Audits
  - Verify CIs perform to spec

- SVR - System Verification Review
  - Verify CIs perform as "system"

- PCA - Physical Configuration Audit
  - Verify CIs "as built" documentation

**CONFIGURATION MANAGEMENT**

Four functions:

1. Configuration Identification - family of specs and drawings that describes the system or configuration item (CI)

2. Configuration Control - management of changes to a CI via the configuration control board (CCB)

3. Configuration Status Accounting - management information system that provides traceability of configuration ID and changes thereto

4. Configuration Audits - validate development requirements are achieved and tech documentation is complete and accurate

*Engineering change* - alteration in the approved configuration ID of a CI

Two types - Class I: proposed change affecting established CI baselines, supportability, interoperability or contractual factors.

- Class II: All other engineering changes
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SOFTWARE MANAGEMENT

- Nine Principle Best Practices to Improve Software Development, Reduce Costs, and Increase User Satisfaction*
  - Formal Risk Management
  - Agreement Interfaces
  - Peer Reviews/Inspections/Walk-throughs
  - Metric-Based Scheduling and Management
  - Binary Quality Gate, at Inch-Pebble Level
  - Program-wide Visibility of Project Progress vs. Plan
  - Defect Tracking Against Quality Targets
  - Configuration Management
  - People-Aware Management Accountability

- Nine Project "Breathalyzer " Questions to provide "Quick Look" at Software Project Health**
  - Do you have a current, credible activity network supported by a work breakdown structure (WBS)?
  - Do you have a current, credible schedule and budget?
  - Do you know what software you are responsible for delivering?
  - Can you list the current top 10 project risks?
  - Do you know your schedule compression percentage?
  - What is the estimated size of your software deliverable? How was it derived?
  - Do you know the percentage of external interfaces that are not under your control?
  - Does your staff have sufficient expertise in the project domains?
  - Have you identified adequate staff to allocate to the scheduled tasks at the right time?

**"Little Yellow Book of Software Management Questions" (Software Program Managers Network)
***"Project Breathalyzer Questionnaire Software Health"; Software Program Managers Council
**WORKING GROUPS**

**TEAM DEVELOPMENT WHEEL**

- Performing: Creative, Trusting, Effective, Confident
- Forming: Milling, Confusion, Polite, Purposeless
- Norming: Cohesion, Purpose, Feedback, Relevancy
- Storming: Conflict, Frustration, Resistance, Cliques

**RECOGNIZE WHICH PHASE OF TEAM DEVELOPMENT YOU ARE IN AND TAKE POSITIVE ACTION TO WORK THROUGH**

**TYPICAL WORKING GROUPS**

- Logistics Support Management Team (LSMT)
- Test & Evaluation Working Group (TEWG)
- Computer Resources Working Group (CRWG)
- Requirement Interface Working Group
- Interface Control Working Group (ICWG)
- Technology Assessment Working Group
- "Tiger" Team
- Process Action Team
- Integrated Product & Process Teams
WORKING GROUPS
(Continued)

*Group Consensus* - all group members must accept a solution and live with the consequences. Until you have this agreement, you don't have consensus. Guidelines for achieving:

1. Avoid arguing for your own opinion.
2. Go for "win-win" solutions.
3. Do not change mind to avoid conflict.
4. Avoid majority vote, coin-flipping, horse-trading.
5. Expect differences of opinion.

---

MANAGEMENT TRADE-OFFS
FOR WORKING GROUPS

**Advantages**
- More ideas & solutions
- Consensus positions
- Strong commitments

**Disadvantages**
- Takes more time
- Hard to terminate
- Paralysis by analysis
MANAGERIAL SKILLS

- More things that make you go "Hmmm?... 

"An authority is a person who just happens to know the source."

"A conservative is a person who believes nothing should be done the first time."

"Diplomacy is the art of hearing all parties arguing in a dispute and nodding to all of them without ever agreeing with any of them."

"The meeting raised our confidence that the contractor can actually accomplish the task and that it will occur in our lifetime."

"This is the earliest I've been late."

"The world would be a much better place if people weren't allowed to have children until they've proven they can successfully manage a DoD program."
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DELEGATION

REASONS FOR DELEGATING

1. Improve manager's time management
   a. Increase manager's span of control
   b. Increase time allocated to long range planning
   c. Increased management efficiency
2. Assure tasks performed by most qualified
3. Build organizational depth
4. Improve employee motivation
5. Increased teamwork (IPTs/TQM)
6. Maximize resources
7. Appropriate organizational responsibility

12 STEPS FOR DELEGATING

1. Set clear objectives and task statements
2. Select "Delegate"; check qualifications
3. Provide training, if necessary
4. Solicit input from Delegate
5. Assign task and deadline
6. Provide any relevant guidance
   a. Critical information required to do tasks right
   b. Potential approaches - only as suggestions!
   c. Describe results desired
7. Makes a delegation "contract" (see next page)
8. Establish controls
9. Maintain controls
10. Provide feedback
11. Identify lessons learned
12. Evaluate performance

DELEGATION STATUS FILE

3 File Sections to hold all delegation records

I. Current Month
   - Sectioned for 31 calendar days
   - File delegation records by suspense month

II. Remaining 11 months
   - Section for each month
   - File delegation records by suspense month

III. Completed Records
   - File alphabetically by Delegate name
   - Use data for performance evaluations
# DELEGATION

(Continued)

<table>
<thead>
<tr>
<th>DELEGATION RECORD</th>
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<tbody>
<tr>
<td>Description of Action:</td>
</tr>
<tr>
<td>Person Assigned:</td>
</tr>
<tr>
<td>Authority Level (specify):</td>
</tr>
<tr>
<td>1 - Take action; do not report back</td>
</tr>
<tr>
<td>2 - Take action; report back (see Frequency)</td>
</tr>
<tr>
<td>3 - Prepare plan; proceed upon approval</td>
</tr>
<tr>
<td>4 - Do only as directed below</td>
</tr>
<tr>
<td>Delegation Guidance/Agreements:</td>
</tr>
<tr>
<td>Suspense Action:</td>
</tr>
<tr>
<td>Performance Assessment:</td>
</tr>
</tbody>
</table>
EFFECTIVE MEETINGS

PRE-MEETING
A. Establish type of meeting
   1. Information (quick, crisp)
   2. Planning/Strategizing (slow, deliberate)
   3. Problem solving (divergent/convergent)
   4. Decision (deliberate)
   5. Staff/Conference (repetitive, short)
   6. Feedback/Evaluation (slow, contemplative)
   7. Training (smooth, flowing)
   8. Social (rambling)
B. Select participants
   1. Based on purpose; relevant; decision auth.
   2. Size: 4-7 ideal; 10-12 tolerable; >13 unsat.
C. Circulate agenda (3-5 days in advance)
   1. Type, purpose, date, place, start/finish times
   2. Topics, time allocated (minutes), speakers
   3. Assign recorder

CONDUCTING MEETING
A. Opening
   1. Start on time
   2. Repeat type and purpose of meeting
B. During
   1. Facilitate the meeting
   2. Encourage openness and communication
   3. Develop cohesion
   4. Use active listening
   5. Stick to agenda
C. Closing
   1. Set time and date of next meeting
   2. Summarize agreements, actions, decisions
   3. Close on time or before

AFTER MEETING
A. Review minutes with recorder
B. Publish minutes
TOTAL QUALITY MANAGEMENT

Quality: consistent conformance to customer expectations

Seven Elements of Total Quality
1. Customer Focus - who they are and what they expect
2. Systems Perspective - the org. is a system with technical and social aspects
3. Process Management - understand processes to provide needs of the customer
4. Continuous Improvement - if it ain't perfect yet, improve it!
5. Individual Involvement - people who do and understand work must be involved
6. Teamwork - coordination of effort to produce timely, quality product
7. Leadership Commitment - leaders at all levels focused on total quality

Deming’s Fourteen Obligations of Top Management
1. Create constancy of purpose for improvement of product and service.
2. Adopt the new philosophy.
3. Cease dependence on inspection to achieve quality.
4. End the practice of awarding business on the basis of price tag alone. Instead, minimize total cost by working with a single supplier.
5. Improve constantly and forever every process for planning, production, and service.
6. Institute training on the job.
7. Adopt and institute leadership.
8. Drive out fear.
9. Break down barriers between staff areas.
10. Eliminate slogans, exhortations, and targets for the work force.
11. Eliminate numerical quotas for the work force and numerical goals of management.
12. Remove barriers that rob people of pride of workmanship.
13. Institute a vigorous program of education and self-improvement for everyone.
14. Put everybody in the company to work to accomplish the transformation.
PERSONAL COMMUNICATIONS

DIRECTIVE
• Give advice
• Evaluate
• Motivate
• Explain
• Reassure

Advantages
• Effective with inexperienced personnel
• Quick
• Take charge attitude

Disadvantages
• Perceived insulting
• Does not support delegation
• Manager keeps responsibility

NON-DIRECTIVE
• Don't display authority
• Listen carefully
• Don't advise
• Facts only; no opinions
• Employee find solution

Advantages
• Develops commitment
• Good training
• Employee responsible
• Supports delegation

Disadvantages
• Takes time
• Skill/patience required
• Ineffective with inexperienced personnel

COUNSELING PROCESS
1. Set up interview - private, confidential, unhurried
2. Encourage discussion - open questions, active listening
3. Help employee think it through - deal with facts, no opinions or own views
4. Let them find the solution - their solution to their problem
PERSONAL COMMUNICATIONS
(Continued)

**WIN-WIN NEGOTIATIONS**

FOCUS: Defeat the problem; not the person

APPROACH:
- Resolve conflict
- Reach agreement
- Normalize relationships
- Combine efforts

GOAL:
- Acceptable gains by both parties

**INTER-PERSONAL NEGOTIATIONS**

1. Separate people and emotions from the problem
2. Focus on interests, not positions
3. Generate options for mutual gain
4. Insist on objective criteria
PROBLEM SOLVING

CREATIVE PROBLEM SOLVING
1. List perceived problems
2. Gather relevant data
3. Define actual problem
4. Determine alternative solutions
5. Analyze and evaluate alternatives
6. Select solution
7. Validate solution

DIVERGENT THINKING*
1. Accept all ideas and alternatives
2. Defer judgment or evaluation
3. Discuss, combine, hitchhike, improve ideas
4. When exhausted, move to converge

CONVERGENT THINKING*
1. Establish categories of alternatives
2. Develop evaluation criteria
3. Avoid premature closure
4. Keep eye on objective
5. List strengths and weaknesses
6. Select best alternative or idea

*Used sequentially during all problem-solving steps
PROBLEM SOLVING
(Continued)

QUALITATIVE PROBLEM SOLVING
(Kepner - Tregoe)1/

<table>
<thead>
<tr>
<th>Specifying Question</th>
<th>Is</th>
<th>Is Not</th>
<th>What is distinctive about &quot;Is&quot; vs &quot;Is Not&quot;?</th>
<th>Does the distinction suggest a change?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What? (Identify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where? (Location)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When? (Timing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extent? (Magnitude)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Possible Causes:

Most Likely Cause:

1. Define deviation.
2. Describe what deviation IS and IS NOT.
3. List distinctions between what deviation IS and IS NOT.
4. Do distinctions indicate or suggest a change?
5. Determine possible causes based on distinctions and changes.

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TIME MANAGEMENT

TIME ROBBERS AND AVOIDANCE TECHNIQUES

1. Incoming telephone calls
   - screen for importance
   - limit to 2 minutes

2. Outgoing telephone calls
   - do all at one time
   - itemize topics before calling
   - don’t socialize

3. Unscheduled visitors
   - screen for importance
   - do not invite into office
   - remain standing

4. Improper delegation
   - re-delegate

5. Poorly conducted meetings
   - stay focused on subject
   - area and on schedule
TIME MANAGEMENT

(Continued)

1. List all tasks.
2. Categorize tasks using matrix.
3. Review quadrant 3 items; re-assign as 1, 2, or 4 as appropriate.
4. Do quadrant 1 tasks first; consider delegating!
5. Strive to maximize time for quadrant 2 tasks (be proactive!).
6. When all 1 and 2 tasks are complete, do quadrant 4 tasks.

**KEEP A "TO DO" LIST**

1. List all goals and tasks.
2. Categorize as A - High value  
   B - Medium value  
   C - Low value
3. Prioritize within each category (e.g. A-1, A-2, etc.).
4. Accomplish all A tasks, then all B. Do C if time permits.
5. Review list and priorities daily.
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BRAINSTORMING

PURPOSE: To stimulate the free flow of ideas.

METHOD: Group members take turns generating ideas. One idea stimulates another and then another. Freewheeling of ideas is encouraged. Brainstorming stops when all group members run out of ideas. See the back of this page for questions that may suggest new ideas for you.

GROUND RULES:

Put judgment aside. Remember, all ideas can be thought of as starters.

No criticism allowed. This is not the time to judge an idea. Don't criticize other ideas no matter how ridiculous they may seem. The ideas can be discussed in detail later; now, the objective is to generate more ideas.

Welcome free-wheeling or blue-skying. Let those wild ideas come out—otherwise you may conceal your creative process. The impractical ideas may trigger other ideas that are possible to use.

Strive for quantity, not quality. The more ideas brought out, the better the chance of a great solution.

Combine and rearrange ideas. Single ideas aren't the only way to make a suggestion. You can make additions or combinations of previously suggested ideas to create still better ideas.

Record all ideas exactly as expressed. This keeps the mind free of remembering what was said and allows you to build on previous ideas.
BRAINSTORMING
(Continued)

Why does it work?

Some of the reasons why brainstorming enhances a group's creativity are that it:

- Increases involvement and participation.
- Produces the most ideas in the shortest time.
- Reduces the need to give the "right" answer.
- Frees up the group; allows the members to have fun and is interesting.
- Reduces the possibility of negative thinking.

QUESTIONS TO STIMULATE YOUR BRAIN CELLS:

1. Can we use this idea elsewhere? As is? With changes?
2. If we change it, Is there anything else like it? Any related issues?
6. Substitute? Who, what, when, where?
7. Reverse? Opposite, backwards, upside down, inside out?
DSMC PROGRAM MANAGERS TOOL KIT

DECISION BRIEFING

Elements of a Decision Briefing

• Purpose - Issues
• Outline - Agenda
• Background
• Assumptions
• Alternatives Identified
• Evaluation Criteria
• Analysis of Alternatives
• Recommendation
• Implementation Plan

Things to Expect (from Briefee)

• Challenges to assumptions, definitions, methodology
• Does it comply with or change policy?
• Is the situation sensitive to change?
• Issues with analysis, tradeoffs, recommendations, implementation
• Open/closed questions