Innovations and Improvements in DoD Cost Information Management

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June 12, 2002

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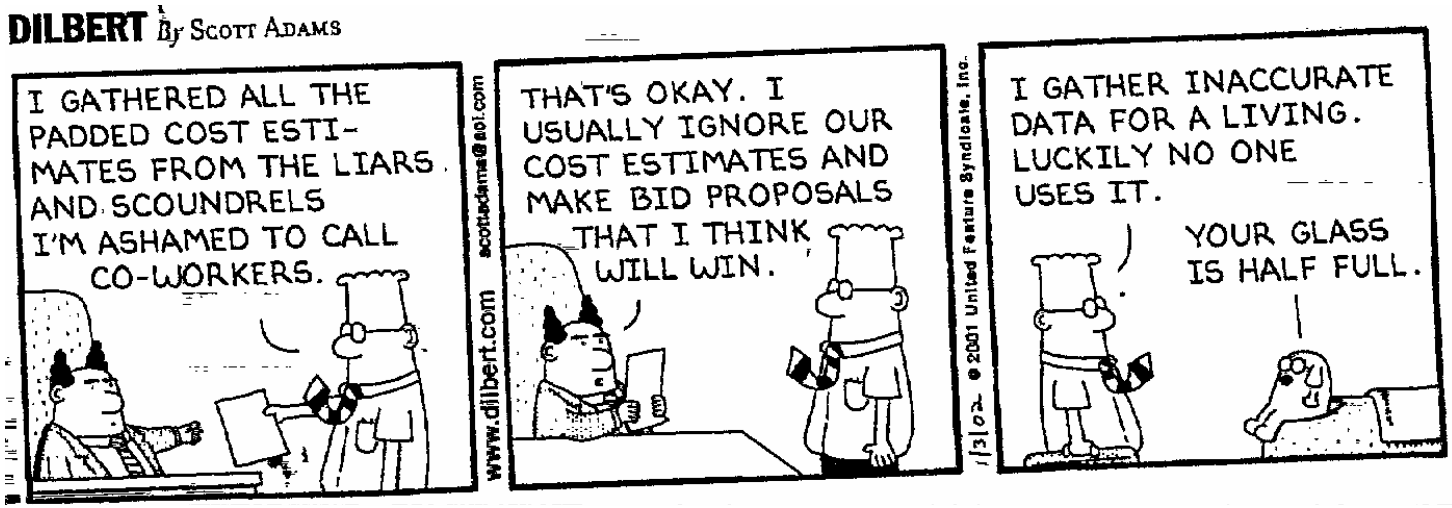
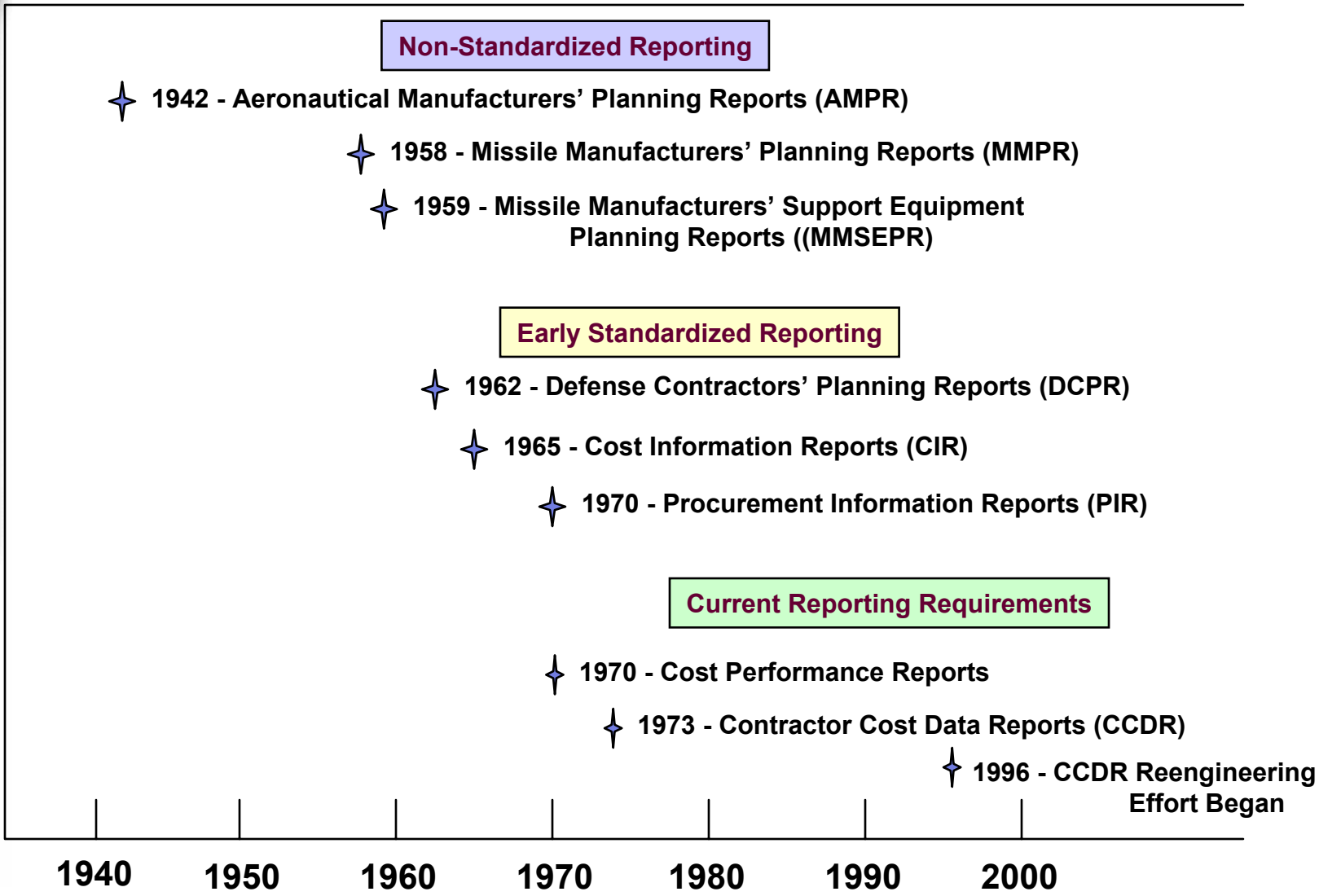
Why do we need good cost reporting?



So that Acquisition Executives can make decisions based on actual cost experience instead of exaggerated anecdotal information.

History of DoD Cost Reporting

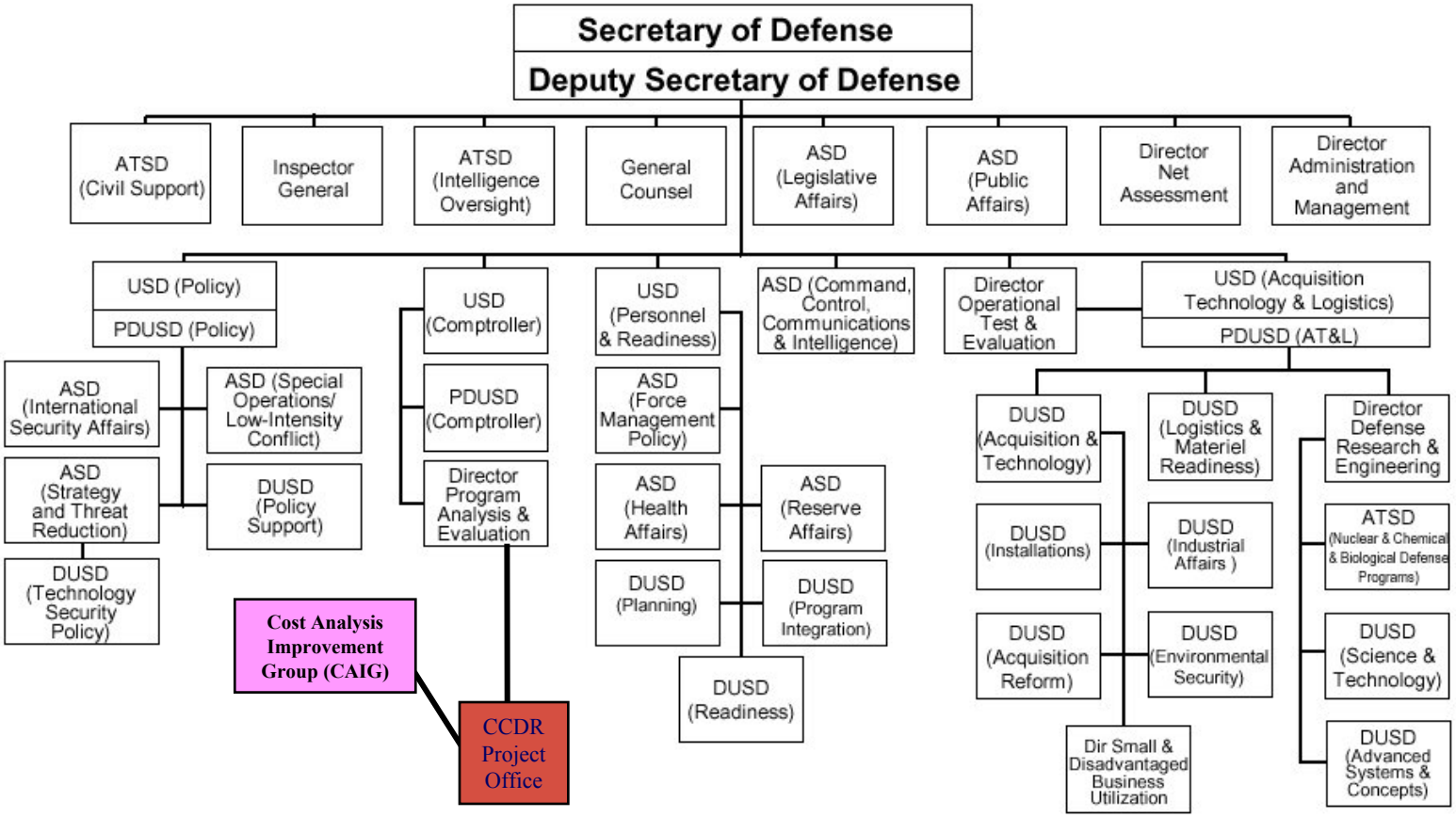


Contractor Cost Data Reports (CCDR)

- Early 1970s - The Promise
  - Standardized independent source of data for OSD cost estimates
- Early 1990s - The Squalor
  - 30,000 CCDR reports moldering in file cabinets in the basement of the Pentagon
  - Hard to use, and little used
- 1996 - Reengineering
  - CCDR Project Office established
  - Provide old data electronically over the web
  - Collect and disseminate new CCDRs over the Internet
  - Streamline and reduce burden where possible

Where are we?

Office of the Secretary of Defense



CCDR-PO Mission & Objectives

- Mission
  - To collect historical Major Defense Acquisition Program cost data in a joint service environment and make those data available for use by authorized government analysts to estimate the cost of ongoing and future government programs, particularly DoD weapon systems.
- Objectives
  - Make CCDR reporting as inexpensive and least disruptive as possible for contractors.
  - Provide wide availability of CCDR data to legitimate government users.
  - Maintain integrity and accuracy of data collected.

Primary Objective:
Ensure that DoD cost estimates provided to senior management reflect as accurately as possible DoD's cost experience.

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Before and After Re-engineering

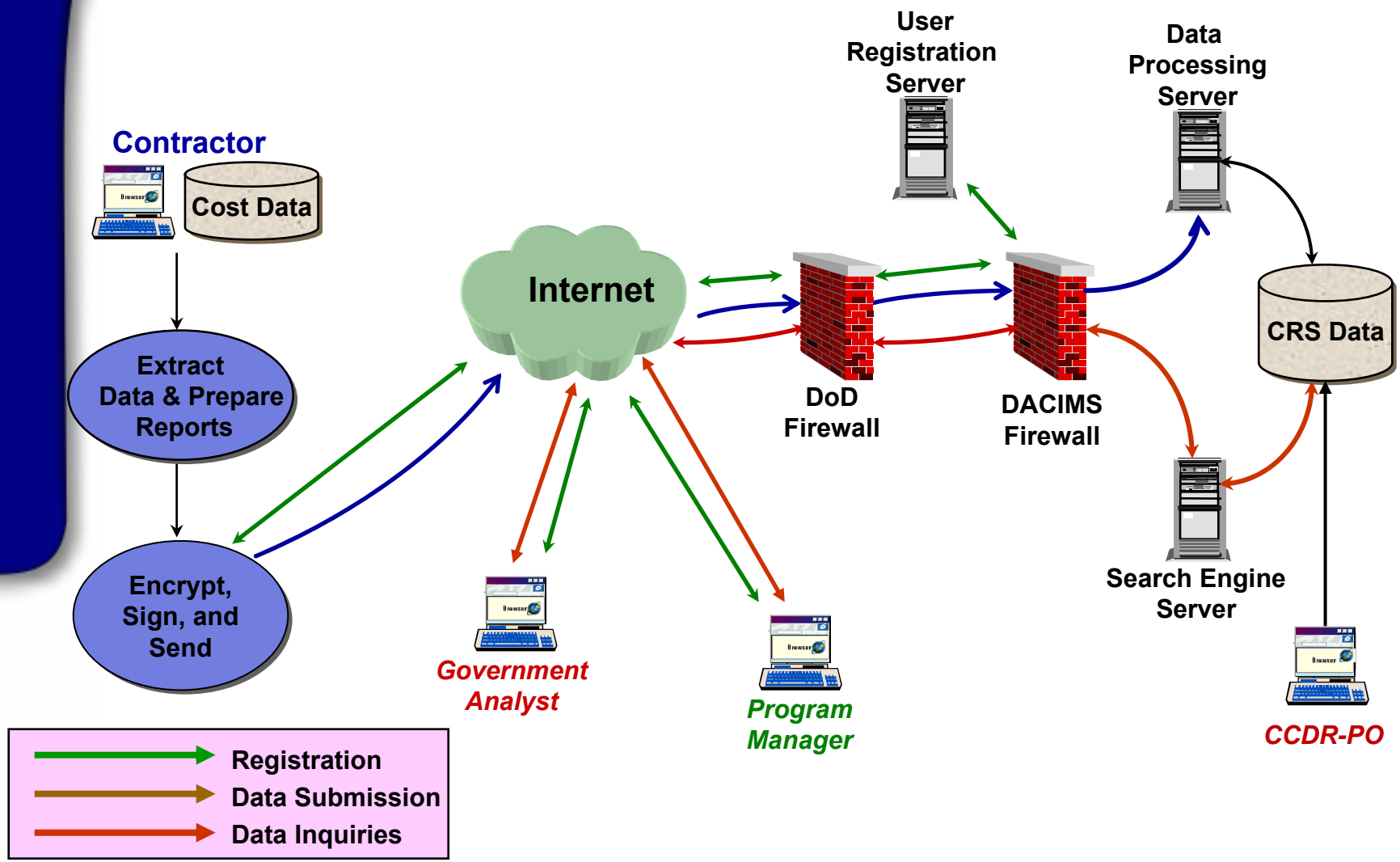
36,000 Paper Records

Fully Automated, Content Searchable Database

CCDR's Available

Category	Reports in System	# of Systems
Aircraft Systems	15694	116
Missile Systems	13177	84
Electrical/Automatic Software Systems	4500	104
Space Systems	875	22
Ordnance Systems	522	17
Surface Vehicle Systems	369	4
Ship Systems	92	5
Other reports being processed	1520	-
Grand Total	36749	352

CCDR Repository System Data Flow



Success Story?

- Developed and implemented Internet-based system making cost data widely available
  - Historical cost records…"actuals"…improve estimating accuracy & reduce research time
  - Partnership with industry ensures both security of propriety information and their continued participation
- Streamlined data collection process benefits stakeholders
  - Electronic submission enhances usability of data to gov't analysts
  - Elimination of duplicate reporting reduces burden to industry
- Quality assurance efforts improve data accuracy
  - Validation of reports have eliminated 85% of cost reporting errors
- Off-site training program cultivates system usage and improves industry data submission

Value of Contractor Cost Data

- Provides cost estimators with actual historical data
  - Useful in developing cost estimating relationships (CERs), databases, etc.
- Standardized information across program types
  - Recurring/non-recurring split by Work Breakdown Structure Element
- Data from contractors is only source for actual cost data
- Allows the CWIPT to monitor, forecast, and estimate future program and contract costs
- Different uses than EVM reports

DoD Acquisition Policy

- DoDD 5000.1 “Defense Acquisition System”
- DoDI 5000.2 “Operation of the Defense Acquisition System”
- DoD 5000.2-R “Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS)”
- DoD 5000.4 “OSD Cost Analysis Improvement Group (CAIG)”

CCDR Requirements

- Required on all ACAT I Programs
- Required on high-risk or high interest contracts between $6.5M-$42M (FY00)
- 1921-2 (Progress Curve Report) – Required only for high quantity or high risk from Phase A (Concept and Technology Development) through LRIP in Phase C
- Waived for Firm Fixed Price contracts if awarded competitively and competitive conditions continue to exist

CCDR Reporting

- Cost Data Reporting Plan (DD Form 2794)
  - Specifies the type and level of reporting by WBS element, the specific reports to be submitted, and reporting frequency.
- DD Form 1921, "Cost Data Summary Report."
  - Captures all contract costs--including both a recurring and nonrecurring breakout.
- DD Form 1921-1, "Functional Cost-Hour Report."
  - Functional categories such as engineering and manufacturing.
  - Cost element breakout (e.g., direct labor and material) within the functional categories.
- DD Form 1921-2, "Progress Curve Report."
  - Recurring costs on the lot or unit

Forward Pricing Rate Data

- Replaces Plant-Wide Data Report (DD Form 1921-3)
- Data will be provided by Defense Contract Management Agency (DCMA) resident offices or the responsible contractor and collected by CCDR-PO
  - Format is similar to the DD 1921-3
- CCDR-PO will map it into summary categories for inclusion in an Excel spreadsheet that will be available for secure electronic downloading from the CCDR Repository System (CRS)
- FPR proposal and FPR agreement data will be available for all ACAT I and II programs that exceed $200 Million in government sales

Guidance - Implementing Policy

- DoD 5000.4-M-1 – The CCDR Manual
- MIL-HDBK-881 – Work Breakdown Structures

Major Players

- CCDR-PO
- CCDR Focus Group
- Cost Analysis Improvement Group (CAIG)
- Cost Working-Level Integrated Product Team (CWIPT)
- *Defense Contracting Officials*
- Defense Contractors/Materiel Developers
- Service cost centers and cost analysis organizations
  - includes major systems commands

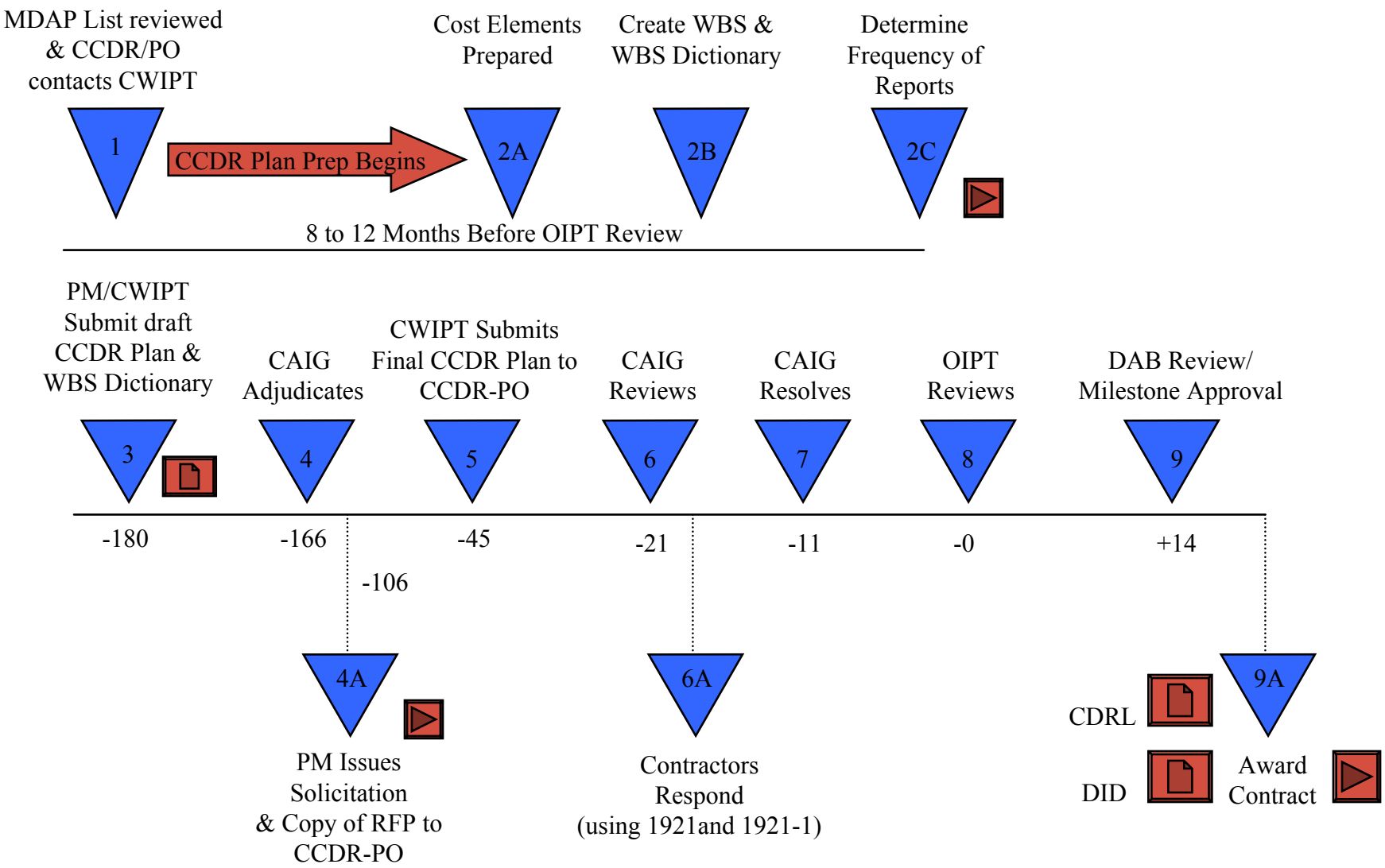
To achieve success, all parties must work together toward common goals.

The CWIPT

- Consists, at a minimum, of cost analysts from:
  - the CAIG;
  - the CCDR-PO;
  - the Service cost center/agency analyst;
  - the DoD Component commodity command/center;
  - the Program Office; and,
  - the representative contractors, as appropriate.
- Generally includes participation by the PM's earned value management system (EVMS) and systems engineering (SE) representatives to assist in building the WBS.

Advises the program manager (PM) on cost analysis requirements for programs and contracts to facilitate the preparation of timely, high-quality cost estimates.

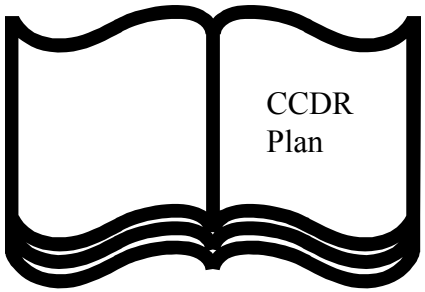
Developing the CCDR Plan

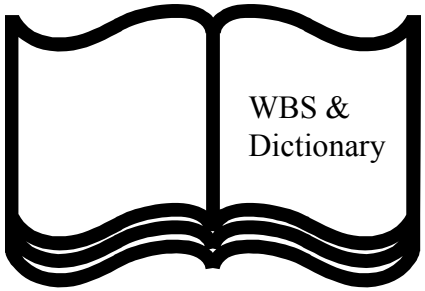


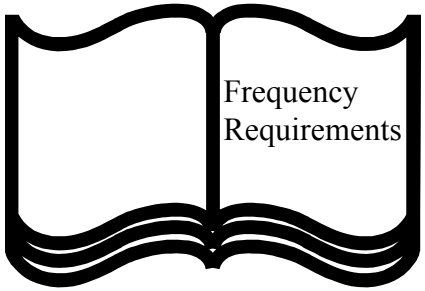
Frequency of Reports

- All reports due 180 Days after contract award to ensure consistency with CCDR Plan and CDRLs
- Phase A: Only required on advanced prototype development
- Phase A&B Frequency
  - DD1921, DD1921-1, and DD1921-2 tied to significant events
  - Forward Pricing Rate Data due annually
- Phase C Frequency
  - One report after each fiscal year buy
  - CWIPT, with CAIG approval, can request interim reports

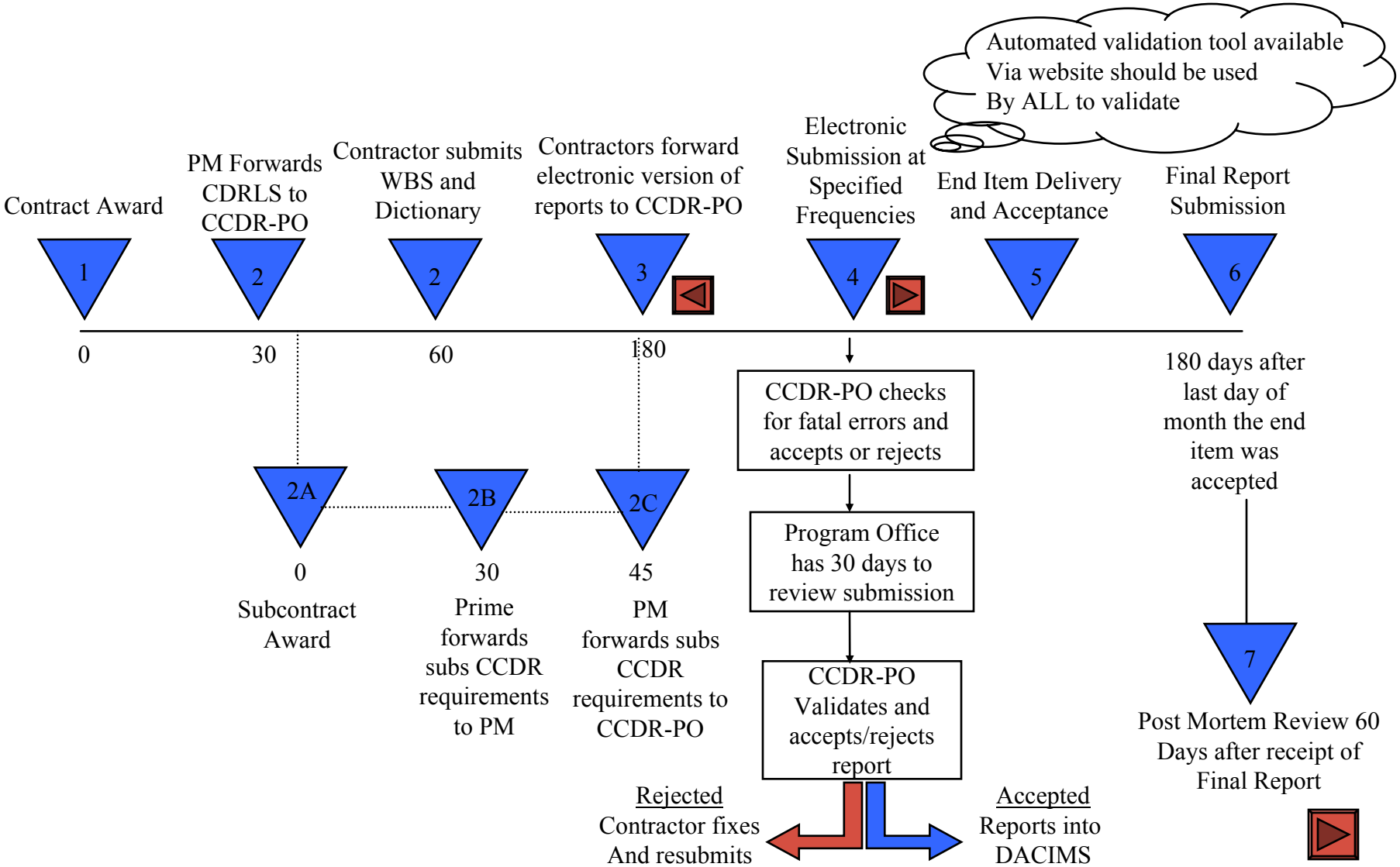
RFP Requirements







Executing the CCDR Plan



Report Submission

- Report frequencies specified in the contract
- Criteria used for prime contractor's reporting will also be applicable to subcontractors
- Prime's responsibility to incorporate requirements into affected subcontracts
  - CCDR-PO encourages, but does not require, subcontractor reporting directly to the CCDR-PO to facilitate processing
  - A subcontractor who is subject to CCDR requirements should follow the instructions in the CCDR Manual

Current Data Collection Efforts

- Currently 107 programs being tracked

ACTIVE PROGRAMS	PLANS IN PROGRESS	APPROVED PLANS NO DATA COLLECT	PROGRAMS WITH NO PLANS	PROGRAMS WITH WAIVERS
ATACMS BAT	ABRAMS UPGRADE	AAAV	ABL	C-130J
ATACMS P3I	BLACKHAWK UH-60L	AEHF	AIM-9X	C-17A
AV-8B	BRADLEY FVS	BLACKHAWK UH-60M	ALAM	CHEM DEMIL
B-1 CMUP	E-2C RMP	CRUSADER	AMRAAM	EELV
B-2 MSIP	F135 ENGINE	F405 ENGINE	ANS/MOUS	JASSM
C-130 AMP	F136 ENGINE	GLOBAL HAWK	ATIRCM	JDAM
C-5 RERP	F414 ENGINE	IAV	AWS	JPATS
CEC	JTRS	JPALS	C-5 RERP PROPULSION	MIDS-LVT
CH-47F	MH-60S	LONGBOW APACHE AH-64D	CGS	
COMANCHE	MLRS UPGRADE	LONGBOW FC RADAR	DMSP	
DDX	T-45 TS	MCS	EELV	
E-2C AIRCRAFT	T700-GE-701C ENGINE	MINUTEMAN III GRP	F120 ENGINE	
F/A-18 ASEA	WIN-T	NAS	F402 ENGINE	
F/A-18 E/F		SQQ-89	F404 ENGINE	
F119 ENGINE		T406 ENGINE (V-22)	FSCS	
F-22		TACTICAL TOMAHAWK	GBS	
FBCB2		V-22	GPS OCS	
FMTV		SBIRS-HIGH	JSIMS	
GPS IIF			JSOW UNITARY	
GPS IIR			MEADS	
HARPOON			MH-60 COCKPIT	
JAVELIN			MH-60R	
JSF			MILSTAR	
JSOW BLU-108			MINUTEMAN III PRP	
JSTARS			MMA	
LONGBOW HELLFIRE			MPF	
NMD			RTIP	
NPOESS			SMMD	
PATRIOT PAC-3			T55 ENGINE	
SBIRS-LO			T56-A-427 ENGINE	
T-800 ENGINE			T701 ENGINE	
THAAD			TITAN IV	
USMC H-1 UPGRADE			TRIDENT II	
			UHF	
			WGS	
33	13	18	35	8

Steps Taken to Provide Quality Data

- Developing New Tools
  - Cost Information Resource Tracking System (CIRTS) – ***May***
    - Relational database architecture complete
    - Reports capability forthcoming
  - Validation Tool
    - Version 1.0 ready to distribute Beta version – ***April***
    - Version 2.0 to handle new DD Form 1921-1– ***October***
- Revising Forms and Manuals
  - New DD-Form 1921-1
    - Coordination complete (March 4th)
  - New DD-Form 2630 – Software
    - Coordination in progress
    - Expect completion in Summer 2002
  - CCDR Manual
  - MIL-HDBK-881

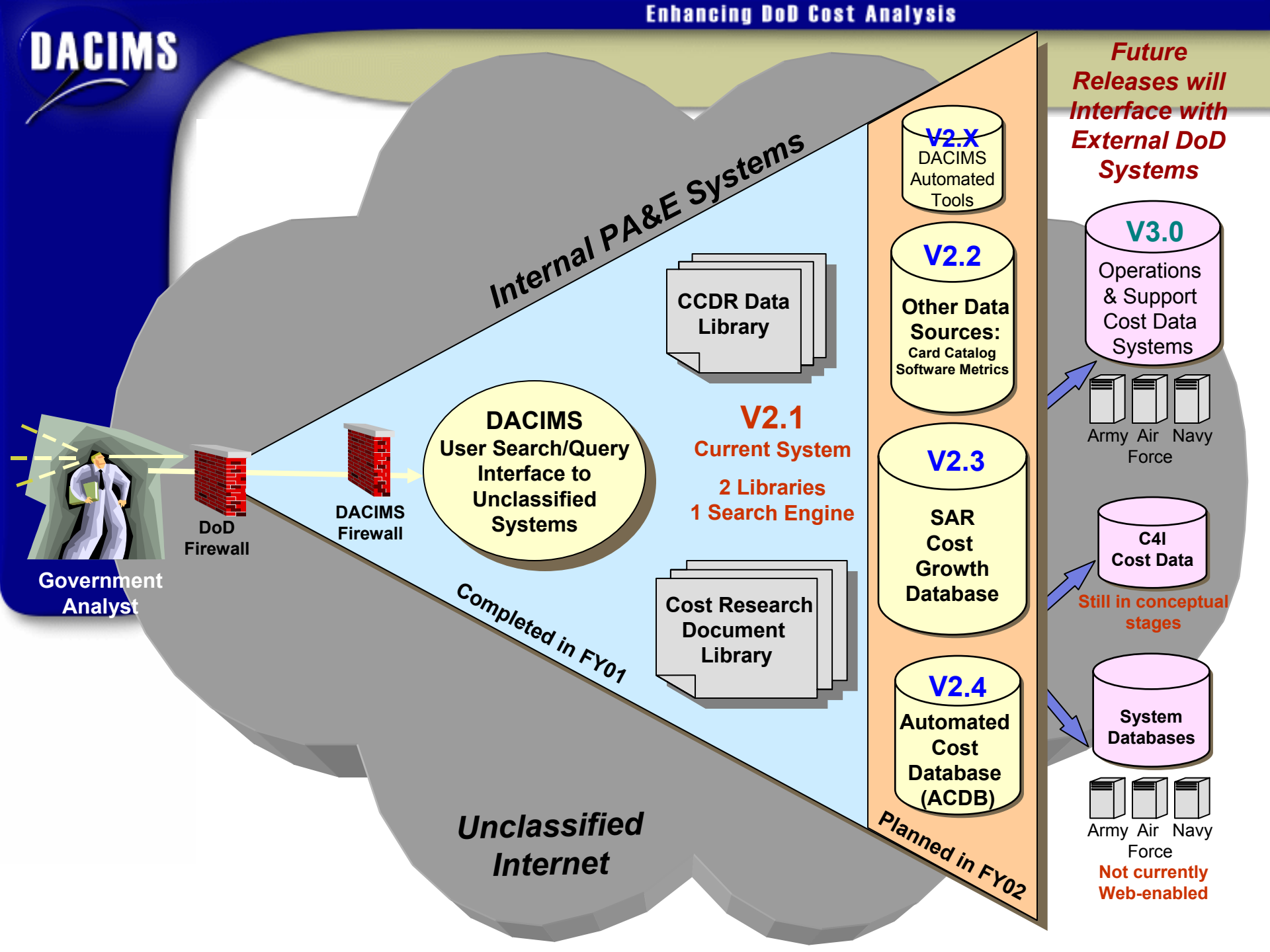
Enhancing Office Capabilities

- Cost Information Resource Tracking System (CIRTS)
- Help Desk Software - ***May***
- Business Process Review - ***May***
  - Reviewing current process and roles
  - Reviewing organizational structure
  - Recommendations to follow
- Automated CCDR Work Flow - ***October***
  - Business process review will feed the development

Our Vision

Become **THE** comprehensive,
readily usable, secure,
high quality source of
weapon system cost information
for DoD analysts

One-stop shop for cost analysts


DACIMS
Internal PA&E Systems
Government Analyst
DoD Firewall
DACIMS Firewall
DACIMS User Search/Query Interface to Unclassified Systems
CCDR Data Library
V2.1
Current System
2 Libraries
1 Search Engine
Cost Research Document Library
Completed in FY01
Unclassified Internet
V2.X
DACIMS Automated Tools
V2.2
Other Data Sources:
Card Catalog
Software Metrics
V2.3
SAR Cost Growth Database
V2.4
Automated Cost Database (ACDB)
Planned in FY02
Future Releases will Interface with External DoD Systems
V3.0
Operations & Support Cost Data Systems
Army Air Force Navy
C4I Cost Data
Still in conceptual stages
System Databases
Army Air Force Navy
Not currently Web-enabled

DACIMS Versions

- Unclassified CAIG Documents (Version 2.1) - ***completed***
  - Working on Meta-data
- Other Data Source Capability (Version 2.2) – ***April***
  - "Card Catalog" of Weapons System Information
    - Meta-data bibliography type of information
- SAR Cost Growth Database (Version 2.3) – ***June***
- Automated Cost Database (ACDB) information (Version 2.4) – ***October***
  - CEAC in process of web-enabling their databases
- External data (Version 3) – ***FY2003***
  - Reviewing and evaluating technologies
  - Looking at small scale prototypes - ***July***
  - Procurement / Implementation Plan – ***October***
  - Navy VAMOSC Snapshot Data

Software Resource Data

- Cost community needs historical data on software intensive systems to develop credible estimates of future similar systems
- No way to compare estimated software cost and size with actual program results
  - Data are not routinely collected
  - Cost centers and individual analysts have spent millions attempting to collect software driver data
    - Efforts are expensive, duplicative, and collected data are not centralized for sharing
- CAIG Chair directed CCDR-PO to research how community can obtain data to estimate software systems (embedded in weapon systems & Major Automated Information Systems (MAISs) – ACAT IA programs)

Summary of Proposed Approach

- Required on all contracts within Acquisition Category (ACAT I) IA, IC and ID with software content that is expected to exceed $25 million (FY 2002$)
- Government CWIPT determines elements within WBS for which software measures are desired. Tailors requirement
  - Results documented in a "Software Resources Data Collection Plan" approved by the CAIG Chair
- Software resource data contained on two pages
  - Revised existing 4-page DD Form 2630 (part of CARD) to two pages
  - Contains four basic metrics: size, labor resources, schedule, and quality
- Reports submitted at three points to PMs and CAIG:
  - By PM with the CARD (DD Form 2630-1)
  - By contractor 60 days after contract award and start of new release (DD Form 2630-2)
  - By contractor 120 days after each release and final product (DD Form 2630-3)

Software Reporting Status

- Developed proposal and planning process
- Coordinated with government (cost centers and various PMs) and industry (NDIA, AIAA, & PSM)
- Conducted pilot tests and modified proposal
- Developed proposed change to DoD 5000, contracting language, DD Forms, DID and CDRL
- Presented proposal to Defense Acquisition Policy Working Group (OSD organization that controls content of DoD regulations) and received approval
- Proposal and proposed DoD 5000.2-R language being staffed among components
- Expect requirement to be included in Fall release of DoD 5000.2-R
- Effective on all applicable ACAT I contracts (or contract mods) after December 1, 2002

Other Related Initiatives

- Defense Information Technology Security Certification and Accreditation Process (DITSCAP)
  - Drafting the System Security Authorization Agreement (SSAA)
  - Reviewing proposals for Network Configuration
    - Identify production and development environments
    - Conduct configuration review of ALL devices on the DACIMS Automated Information System (AIS)
    - Set DACIMS baseline
  - Developing a Systems Migration Plan to satisfy all requirements

Current Users

User Type	Number	
Cost Analyst		**210**
US Air Force AFCAA	13	
US Air Force ASC	13	
US Air Force Other	17	
US Army CEAC	23	
US Army TACOM	14	
US Army Other	19	
US Navy NCCA	11	
US Navy NAVAIR	47	
OSD PA&E CAIG	8	
OSD Other	15	
FFRDC	13	
Other	17	
Material Developer		**28**
CCDR Staff		**20**
Program Manager		**4**
DCMA Data Provider		**2**
Total Users		**264**

CCDR and DACIMS Awareness

- Training
  - Re-designed curriculum
  - Investigating various computer-based options
- Industry Relations
  - NDIA Program Management Systems Sub-committee
    - Briefed group this past February
    - Next meeting scheduled for May
  - Focus Group meeting tentatively scheduled for May
  - Requests for help from Raytheon and General Dynamics
- Systems Commands, Program Office, and Contract Agency Relations
  - Still in infancy
  - Need CIRTS to be completed
  - Needed training curriculum completed
  - Developing game plan

Where We Are Today

- Launched in directions that are beneficial and consistent with our core mission and our vision
  - Entire team is committed to both our mission and vision; also committed to continuous re-engineering
- Some weaknesses in current execution
  - Business process and roles not well defined
  - Developing CCDR plans and monitoring compliance
  - Visibility to systems commands and program offices
- Other challenges
  - Resource constraints
    - Primarily people
  - Technical risk

System Demonstration

For additional information contact:

Contractor Cost Data Reporting Project Office

dacims.pae.osd.mil

703-602-3301

DACIMS - Enhancing DoD Cost Analysis