OWN THE DATA

DATA CONFIGURED: IPMDAR IN 2020: PART 2
A PRESENTATION TO THE VIRTUAL CPM WDC
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Agenda

• Changes from IPMR to IPMDAR
• Advantages to IPMDAR
  • For Program Offices
  • For DCMA DECM
  • Additional Analysis and Dataset Integration
• Overview of Contract Performance Dataset (CPD) and Schedule Performance Dataset (SPD) Tables
DiD Evolution

CPR & IMS
- Human Readable Formats
- Focused on Reports
- ANSI X12 839

IPMR
- Digitalized and Modernized CPR Reports
- Digitalized and Standardized IMS
- XML

IPMDAR
- Data Focused for both Cost & Schedule
- BI Centric
- JSON encoded files Zipped
IPMR Overview

- IPMR leveraged Extensible Markup Language (XML) using the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) schema for CostSchedule data
  - Intent of the government was to use an international standard for the schema
  - Data Exchange Instruction (DEI) are thorough and stringent to fit this wide schema for OSD’s stakeholder needs across the formats
  - Format 7 was under utilized but set the potential for data analysis leading to the IPMDAR Contract Performance Dataset
    - High level (same as reporting level in Format 1 oftentimes)
    - Frequency was yearly
  - Format 6 proven out to normalize schedule data, evolving into IPMDAR Schedule Performance Dataset
IPMDAR Overview

• IPMDAR leverages JavaScript Object Notation (JSON) utilizing a specific schema defined by OSD
  • The schema mostly enforces the data exchange instructions (DEI)
  • Several .json files are packaged in a .zip for each dataset
    • CPD has up to 25 files
    • SPD has up to 19 files
  • Smaller files due to less tagging and internal relationships
  • Structured to be more BI driven
  • Focus on future period BCWS and ETC
Submittal Set

IPMR
- XML Files
  - Format 1-4
  - Format 6
  - Format 7
- Native Schedule File(s)
  - MPP, XER, BK3, etc.
- Format 5 Narrative

IPMDAR
- ZIP archives
  - Contract Performance Dataset
  - Schedule Performance Dataset
  - Native Schedule File(s)
  - MPP, XER, BK3, etc.
  - Program Narrative Report
Notable Improvements with IPMDAR

**CPD**
- Lower level of detail (CA or WP level) default
  - Can also vary levels by requested detail and contractor EVMS system description (e.g., WP Level for BCWS, BCWP and ETC but CA Level for ACWP)
- Frequency Monthly
- Highly configurable options on cost detail to support PMO, DCMA and other Govt/Project Stakeholders
  - Element of Cost, burdened, direct, indirect time phased by CA/WP and/or total project, Reprogramming Adjustments
- Configurable user defined fields at CA and WP for better analysis (e.g., by Satellite Vehicle, Ship Hull, CLIN, Recurring/Non-Recurring, etc.)
- Support of more EV Technique's

**SPD**
- More Task Sub Type Codes (SVT, Margin, Contract Milestone, Risk Mitigation)
- Configurable User Defined Fields at Project, Task and Resource
- Support of more EV Technique’s and Constraint Types
What About Formats 1-4 Reports and Legacy Analysis

• All Reports and Datasets can be calculated from IPMDAR with additional analysis and some caveats

• Format 1 & 2
  + WBS and OBS down to Control Account (and even Work Package) level
  + Dollars, Hours and EQP units
  + Element of Cost breakouts
  - For current period values you’ll need two cumulative to date submissions or one with time phased to date detail

• Format 3
  + Monthly baseline changes for each month to contract complete
  + Down to Control Account level for visibility
  - Traceability is lost by Baseline Change but gained by CA impact

• Format 4
  + Can generate in Hours or EQP by either WBS or OBS structure by either budgets or forecast

• Other Artifacts
  • Generation of Control Account Plans (CAP), Generation of Responsibility Assignment Matrix (RAM), Verification of Work Authorization Documents (WAD), Baseline Changes (BCR), Retroactive Changes, Other
IPMDAR to Formats 1-4
IPMDAR and Program Offices

• Maintain current state analysis of EV and Schedule data metrics and reporting
• Better fiscal budget planning
• Pivot analysis from rear looking to forward looking
  • More insight into estimate to/at complete realism
  • Insight into contract make vs buy decisions by analyzing element of cost changes
  • Additional insight into engineering change orders (ECO)
• Improved integration of cost/schedule analysis for Project Officers
IPMDAR and Program Performance
IPMDAR and DCMA DECM

- IPMDAR offers the schema and details needed to capture the data to calculate the DECM Test Metrics in normalized fashion
  - No more extended IPMR Format 7 conversions or customizing direct tool set needed to produce the detail
  - Contractors future toolsets allow for export to IPMDAR with button or simple wizard
- Schema better supports ACWP at Control Account Level
- Need the correct dataset configuration options for CPD for all the automated tests
  - Time phased To-Date data instead of Cumulative to date
  - Work Package Level for integration to IMS and detail tests
  - Elements of Cost to determine Material vs Non-Material
  - Still requires proper coding of IMS and EV Cost Data to integrate at CA, WP, WBS/OBS and so forth
- Burdened dollars should be apples to apples across cost sets
DCMA DECM Analysis
Additional Analysis and Metric Opportunities

- Earned Schedule Metrics (SPIt, SVt, IECD, ES Date, etc.) down at the WBS/CA levels integrated with traditional EV and schedule metrics
- Cost and Schedule Integrated Metrics down to CA level
  - BEI vs SPI
  - Future Duration added into Schedule Forecasting Future Cost Variances
  - Schedule Variance Recovery (Dollarized Schedule Variance vs Task Execution)
  - Open Tasks in IMS vs Staffing Plans
  - Alignment of dates, plan sets, percent completes, etc.
  - Others
Future External Dataset Opportunities

• Now we’ll have a better backbone for Cost/Schedule Integration with reliable WBS/OBS Structures which will promote better:
  • Contract Funds Status Report (CFSR) Integration
  • CSDR FlexFile and Quantity Data
  • Risk & Opportunity Register
  • Integrated Master Plan (IMP) Integration
  • Technical Performance Measures (TPM)
Dataset Configuration Options

• Both Datasets
  • 10 User Defined Fields at Control Account, Work Package, Project, Task and Resource

• Contract Performance
  • To-Date data cumulative to date or time phased
  • Control Account Level or Work Package Level
    • Configurable for each cost set (BCWS, BCWP, ACWP, ETC)
  • Element of Cost breakouts or not
  • Direct Dollars included with Burdened Dollars

• Schedule Performance
  • Resources loaded schedule or not, defined by content
## CPD Dataset Configuration

Options can be tailored via CDRL

### 2.1.1 DatasetConfiguration

<table>
<thead>
<tr>
<th>Fields</th>
<th>Use Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>NonAdd_OH</td>
<td>Indicate whether detail dollars include burdening for Overhead (true) or not (false). This includes all indirect dollars except COM and G&amp;A.</td>
</tr>
<tr>
<td>NonAdd_COM</td>
<td>Indicate whether detail dollars include burdening for COM (true) or not (false).</td>
</tr>
<tr>
<td>NonAdd_GA</td>
<td>Indicate whether detail dollars include burdening for G&amp;A (true) or not (false).</td>
</tr>
<tr>
<td>ToDate_TimePhased</td>
<td>Indicate whether To Date values are time-phased non-cumulative (true) or cumulative to date (false).</td>
</tr>
<tr>
<td>Detail_HasDirectValues</td>
<td>Indicate whether direct values are reported in addition to burdened values for detail dollars (true) or not (false).</td>
</tr>
<tr>
<td>Detail_HasIndirectValues</td>
<td>Indicate whether indirect values are reported in addition to burdened values for detail dollars (true) or not (false).</td>
</tr>
<tr>
<td>BCWS_ToDate_ByWorkPackage</td>
<td>Indicate whether BCWS (To Date) is reported at the work package level (true) or the control account level (false).</td>
</tr>
<tr>
<td>BCWS_ToDate_HasElementOfCostValues</td>
<td>Indicate whether element of cost values for BCWS (To Date) are reported (true) or not (false).</td>
</tr>
<tr>
<td>BCWP_ToDate_ByWorkPackage</td>
<td>Indicate whether BCWP (To Date) is reported at the work package level (true) or the control account level (false).</td>
</tr>
<tr>
<td>BCWP_ToDate_HasElementOfCostValues</td>
<td>Indicate whether element of cost values for BCWP (To Date) are reported (true) or not (false).</td>
</tr>
<tr>
<td>ACWP_ToDate_ByWorkPackage</td>
<td>Indicate whether ACWP (To Date) is reported at the work package level (true) or the control account level (false).</td>
</tr>
<tr>
<td>ACWP_ToDate_HasElementOfCostValues</td>
<td>Indicate whether element of cost values for ACWP (To Date) are reported (true) or not (false).</td>
</tr>
<tr>
<td>BCWS_Tocomplete_ByWorkPackage</td>
<td>Indicate whether BCWS (To Complete) is reported at the work package level (true) or the control account level (false).</td>
</tr>
<tr>
<td>BCWS_Tocomplete_HasElementOfCostValues</td>
<td>Indicate whether element of cost values for BCWS (To Complete) are reported (true) or not (false).</td>
</tr>
<tr>
<td>EST_Tocomplete_ByWorkPackage</td>
<td>Indicate whether EST (To Complete) is reported at the work package level (true) or the control account level (false).</td>
</tr>
<tr>
<td>EST_Tocomplete_HasElementOfCostValues</td>
<td>Indicate whether element of cost values for EST (To Complete) are reported (true) or not (false).</td>
</tr>
</tbody>
</table>
Contract Performance Dataset Tables

- Dataset Configuration
  - Contains settings on what data and options are included in the file set
- Dataset Metadata
  - Contractor and contract information, as well as reporting period ID
- Source Software Metadata
  - Details on software and exporter used for submission
- Contract Data
  - Contract values and dates such as Negotiated Cost, AUW, EAC's
- Summary Performance
  - Total EV data in dollars and hours. Used to quickly get summary data and for cross checks
- Custom Summary Performance
  - Provides option to report summary performance data by unique contract needs
Contract Performance Dataset Tables (cont...)

• Summary Indirect Performance To Date
  • Historical BCWS, BCWP and ACWP for Overhead, G&A, Cost of Money dollars. Cumulative to date unless to-date time phased is true

• Summary Indirect Performance To Complete
  • Future BCWS and ETC for indirect values time phased monthly

• Subcontractors
  • List of Subcontractors and ties to OBS structure

• WBS
  • Work Breakdown Structure hierarchy

• OBS
  • Organizational Breakdown Structure hierarchy
Contract Performance Dataset Tables (cont...)

- Control Accounts
  - List of Control Accounts with the WBS and OBS assignment, CAM, SLLP flag and dates
- Control Account Custom Field Definitions & Custom Field Values
  - Allows for up to 10 user defined Control Account fields
- Work Packages
  - List of Work Packages with the CA assignment, EVT, PP flag and dates
- Work Package Custom Field Definitions & Custom Field Values
  - Allows for up to 10 user defined Work Package fields
- Reporting Calendar
  - Lists the accounting calendar start and end dates with working hours
Contract Performance Dataset Tables (cont…)

• BCWS To Date, BCWP To Date and ACWP To Date
  • Cumulative data, unless to-date time phased is true
  • By Element of Cost, unless has element of cost values is false
  • In burdened dollars in line with OH, G&A and CoM add/non-add & labor hours
  • Optionally in direct dollars too, if has direct values is true
  • By control account, unless by work package is true

• BCWS To Complete and EST To Complete
  • Same as To Date options but always time phased monthly values

• Reprogramming Adjustments
  • Reprogramming dollars and hours at Control Account level if applicable
Software Performance Dataset Tables

- **Dataset Metadata**
  - Contractor and contract information, as well as reporting period end date
- **Source Software Metadata**
  - Details on software and exporter used for submission
- **Project Schedule Data**
  - Dates for the project including baseline, current, actual and status date
- **Project Custom Field Definitions & Custom Field Values**
  - Allows for up to 10 user defined Project fields
- **Calendars**
  - List of work calendars in schedule
Schedule Performance Dataset Tables (cont...)

• Calendar Workshifts
  • Defines workshift details for calendars with working hours per day

• Calendar Exceptions
  • Defines holidays and workshift exceptions

• Tasks
  • Lists of tasks in the schedule with ID’s, name, types and codes for WBS, OBS, CA, WP, IMP, SOW, Subcontractor and EVT

• Task Schedule Data
  • Task dates, durations, floats, percent completes, criticality, driving path, and variances

• Task Custom Field Definitions & Custom Field Values
  • Allows for up to 10 user defined Task fields
Schedule Performance Dataset Tables (cont...)

- Task Constraints
  - Lists task constraints by type and date
- Task Relationships
  - Predecessor and successor logic links with type and lag/lead values
- Task Outline Structure
  - Defines parent/child relationships of summary tasks
- Resources
  - List of resources used in resource loaded schedule with Element of Cost ID
- Resource Custom Field Definitions & Custom Field Values
  - Allows for up to 10 user defined Resource fields
- Resource Assignments
  - Assignments of resources to tasks for budgets, actuals and estimates
Resources for IPMDAR

- DoD Earned Value Management (EVM) Division of Acquisition, Analytics and Policy (AAP)
  - Deputy Director: Mr. David Tervonen
- URL: [https://www.acq.osd.mil/evm/#/home](https://www.acq.osd.mil/evm/#/home)
  - Links to IPMDAR Data Item Description
  - IPMDAR Implementation and Tailoring Guide
  - EVM-CR
  - Several other resources
- Contact SNA-Software solutions around IPMDAR data exchanges
When Credibility Matters

SNA Software, LLC
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