



COST ASSESSMENT DATA ENTERPRISE

CADE Vision & Major Initiatives

NDIA Integrated Program Management Division

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Resources Center (DCARC)
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What is CADE?

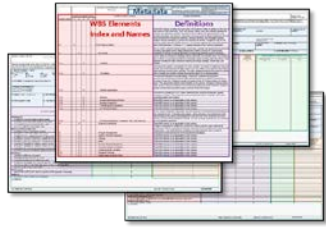
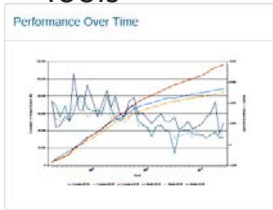
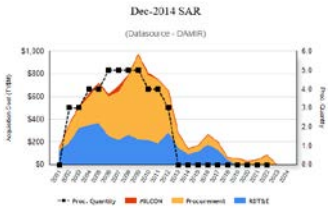




URL | <http://cade.osd.mil>



COST ASSESSMENT DATA ENTERPRISE

- › Actuals: Cost & Technical Data
- › Program and Data Situational Awareness
- › Analysis-Ready Data Downloads
- › Quick-Look Visualizations

Cost	Earned Value (EVM)	Acquisition	Technical	Library
<ul style="list-style-type: none"> › Analysis-Ready Data Downloads › Profit & Fee Visibility on FFP contracts › Insight into Prime and Subcontractor 	<ul style="list-style-type: none"> › Aligned Cost-EVM allows for time-phased analysis › Program Health metrics and Visualization Tools 	<ul style="list-style-type: none"> › Program Information › SAR/MAR › Annual Funding › SAR/MAR Schedule Events › CARDS* 	<ul style="list-style-type: none"> › Software Database › Electronic CARDS (eCARDS)* › Technical Data Reports* 	<ul style="list-style-type: none"> › Searchable data for historical reference at your fingertips” <ul style="list-style-type: none"> – Cost Estimates – Funding Memos – Program Briefings – ICEs, SCPs – Research Studies 

CADE is the authoritative data source for estimating & analyzing Major Defense Programs

349 Programs

53,875 CSDR Submissions

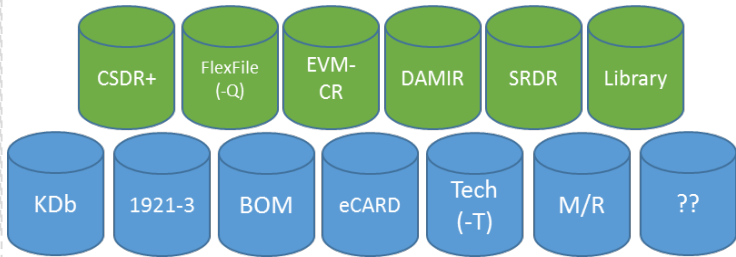
3,648 EV Submissions



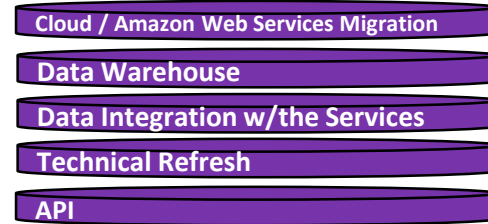
COST ASSESSMENT DATA ENTERPRISE

Quality Data That Tells A Story and Informs Decision Making

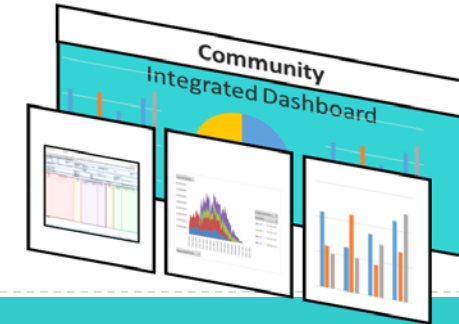
- › The Right Data
- › The Right Partnerships
- › The Right Priorities



- › Comprehensive Data:
 - › Authoritative & Searchable
 - › Seamlessly integrated
 - › Aligned
- › Process Streamlining
- › Modernized & Integrated



- › Data Accessibility:
 - › Intuitive user interface
 - › Data sharing
- › Improves Analysis:
 - › Increases Analyst Productivity
 - › Shift from Reactive to Proactive
 - › Informs Lifecycle Program Decisions



By 2020, CADE will be a modernized, fully integrated system that tells the story of a program's Lifecycle Cost



CSDR WBS & EVM WBS are Aligned

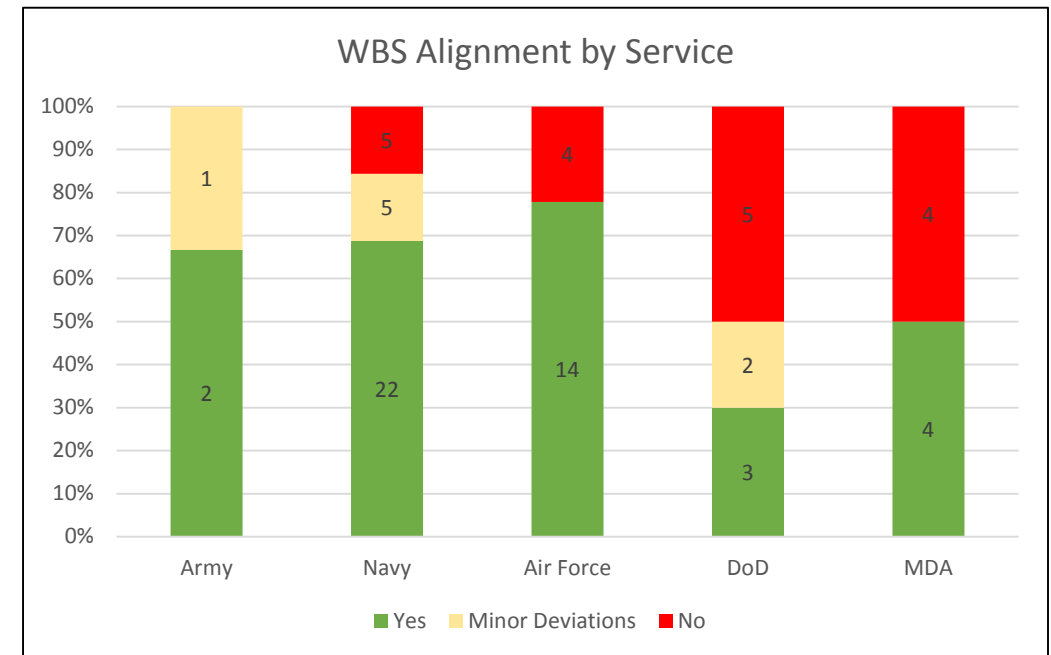


DAES Group C (Aug 2017)

48 Programs; 77 Contracts (107 Efforts)

Number of Efforts	WBS naturally aligned?
45 63.3%	Yes
8 11.2%	Minor Deviations (one or two elements were added to or removed fm WBS)
18 25.0%	No
71 100.0%	Total Efforts with both CSDR and EVM reporting
53 75%	Total instances where IPMR and CSDR naturally aligned WBS or nearly aligned
45 EXACT MATCHES	
47%	The IPMR is at a lower WBS level than CSDR
11%	The CSDR is at a lower WBS level than IPMR
45%	Both CSDR & IPMR had IWBS evels lower than the other

Data Source: EVM-CR August Monthly Compliance Report



61 Contracts (71 Efforts - data points) have both EV & Cost Reports:

- 75% of the data points are naturally aligned (EVM & CSDR WBS) (43 out of 61 Contracts – 39 Exact, 4 Minor Deviations 70%) (53 out of 71 Data Points – 45 Exact, 8 Minor Deviations 75%)

43 Contracts (53 Efforts) are naturally aligned:

- 47% have an EVM WBS reporting at a lower level than the CSDR WBS
- 11% have a CSDR WBS reporting at a lower level than the IPMR WBS
- 42% Either/or/Both

Major Initiatives



Cost

Cost/Quantity Reporting

- › **Cost Data (CCDRs/1921s)** – contains most of what analysts need to build an estimate – dollars, hours, quantities, and descriptive tagging
- › **FlexFiles** – new generation of cost reporting, government data reporting
- › **Quantity Report (1921-Q)** – provides actual account of physical units completed in a streamlined submission process
- › **1921-3** – improved ways of reporting business unit data

Bill of Materials

- › Standardized collection of parts and supplier pricing data



Technical

Technical Reporting

- › **Cost Analysis Requirements Description (CARD) / Technical Data (1921-T)** – programmatic and technical descriptions analysts need to build estimates

Software

- › **SRDRs** – software effort, size, and schedule estimating approaches including analogy, parametric, and commercial models

Maintenance & Repairs

- › **1921-M/R** – collection of information related to each maintenance event such as the specific system being repaired and reason for failure



Strategic Planning

Co-Planning

- › Reporting strategy that aligns CSDR & EVM requirements
- › Cooperative planning leads to better data, lower costs, and improved program management

Institutional Knowledge/ Community Support

- › What analysts need to know about the data
- › Additional contextual information on programs

Cost analysts will have all of this data and institutional knowledge at their fingertips. It will be the exception – not the rule – to go back to industry to do our estimates.



Data Group A

Report Metadata

Approved Plan Number
Submission Event
Period of Performance
Reporting Organization
Solicitation Number
Date Prepared
Classification

Data Group B

**Govt. Furnished Information
(Co-Plan)**

WBS Code/Level/Name
Order Name
End Items
~~End Order Code~~
Additional Tags #1-#12

Data Group C

**Contractor Definitions and
Remarks**

CWBS Dictionary
Remarks by WBS element
Summary Remarks

Data Group D

Summary Elements

Subtotal
General and Administrative
Undistributed Budget
Management Reserve
Facilities Capital Cost of Money
Contract Fee
Price

Data Group E

Actuals To Date (ATD)

Cost Account ID/Name
Reporting Period
CLIN ID/Name
Nonrecurring/Recurring **(RT/RQ optional)**
Ctr Func. Categories
Standard Func. Categories
Unit/Sublot First/Last Number
ATD (Dollars/Hours)

Data Group F

Allocation Methodology

Allocation Method Type ID
Allocation Method Name

Data Group G

Forecasts At Completion (FAC)

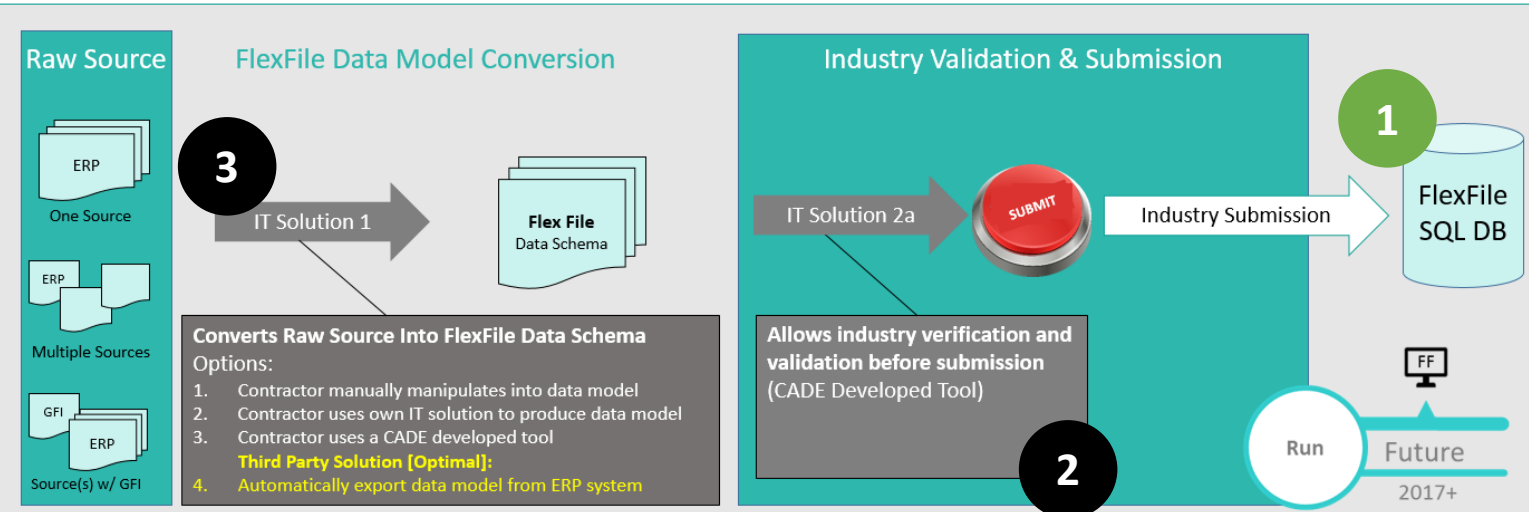
FAC (Dollars/Hours)

Major DID Changes since 2015

- › Synchronized definitions and references between the DIDs, data models, and Co-Plan
- › Reorganization of the FlexFile Data Groups
- › Recurring with Time/Quantity now optional
- › Higher level Standard Functional Categories with optional lower level breakout
- › New structure for handling multiple Orders (e.g., Lot 1, Lot 2, Lot 3) and multiple End Items (e.g., Variant A, Variant B) within the same FlexFile submission
- › Removed Supplemental Information (e.g. Bill of Material, Floor Hour Report, Hour Per Vehicle Report)
- › Terminology changes to avoid EVMS terms
 - › EACs now Forecasts At Completion (FAC)
 - › “Cost Account” will be rephrased



Industry Overview



Capabilities In Development

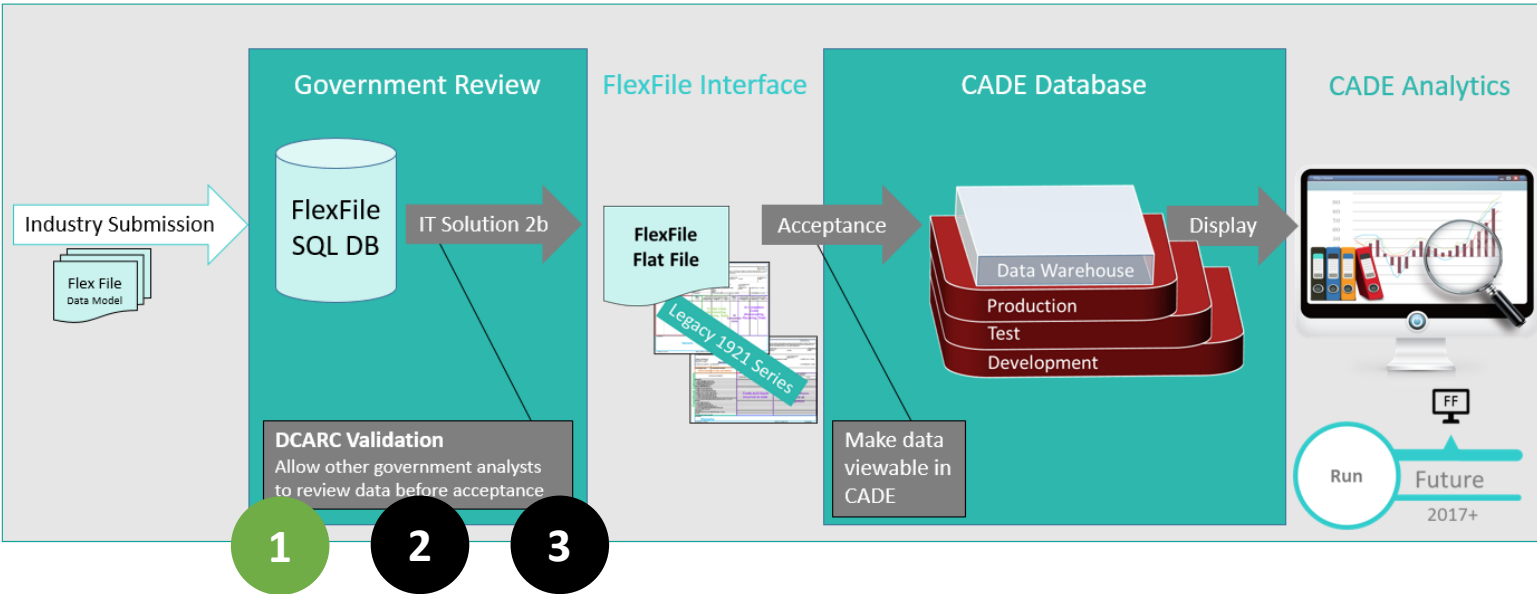
- 1 Submitters will be able to upload the FlexFile and Quantity Report(s), and recreate 1921 series
 - › Store JSON hanging files
 - › Ingest JSON data records
 - › Generation of similar 1921 series

Future Capabilities

- 2 Submitters will be able to use an online CADE tool to validate their FlexFile prior to upload
- 3 Submitters will be able to access an external online CADE tool to create a FlexFile submission



Government Overview



Capabilities In Development

1

Reviewers will validate the FlexFile submissions using the same business rules as today's 1921s

- › 1921-like report generation
- › 1921 auto-validation business rules

Future Capabilities

2

Reviewers will validate FlexFiles with updated business rules that are specific to FlexFiles

3

Reviewers will validate using visuals to quickly highlight anomalies and issues with the submission

CADE 2018 Architecture - Summary



CSDR+

enhance CSDR data

FlexFile (-Q)

automated detailed cost data

eCARD

consumable program information

Guided Workflow

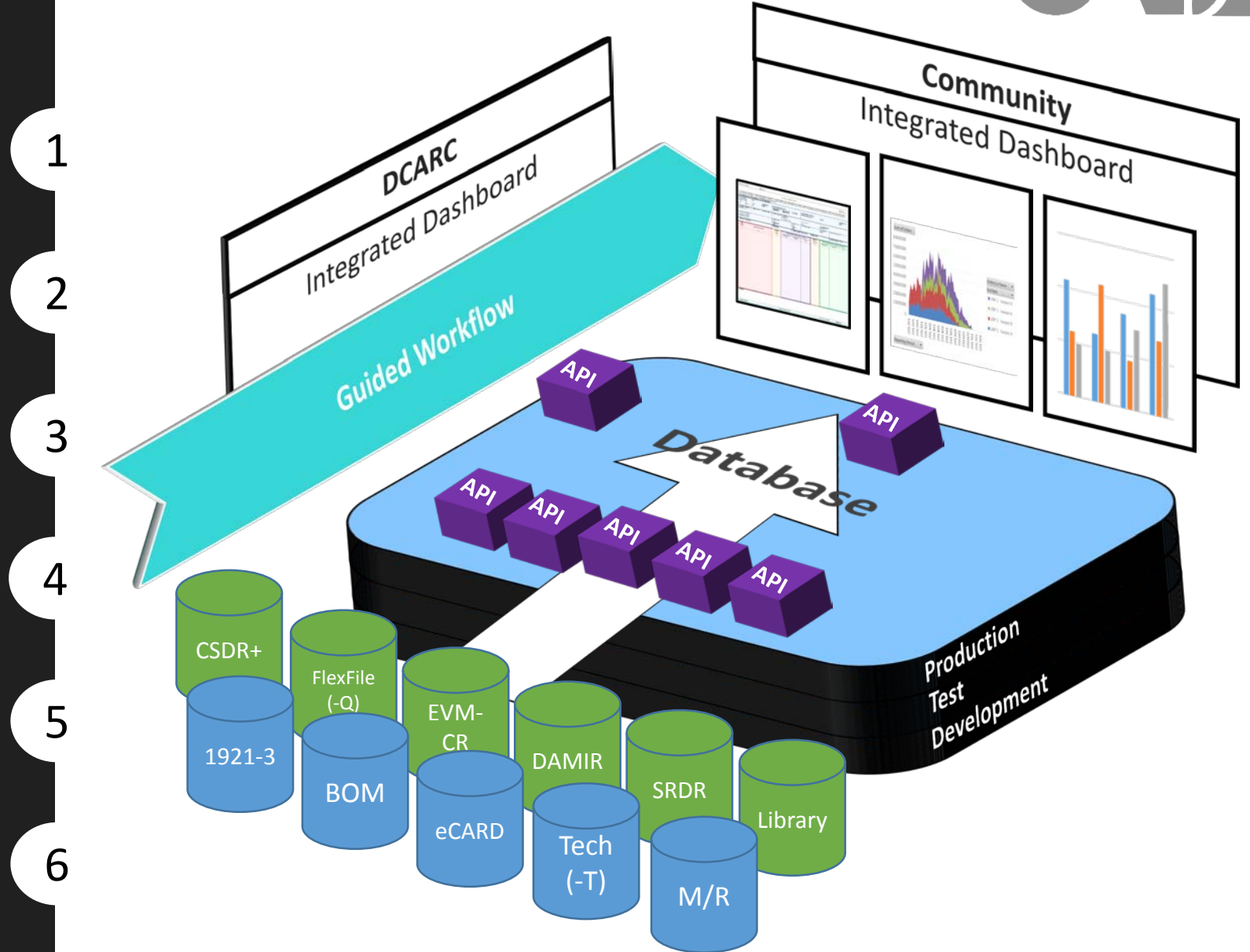
intuitive online program planning

Integrated Dashboard

customizable personalized information

API

improved database foundations



Points of contact



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CADE Training

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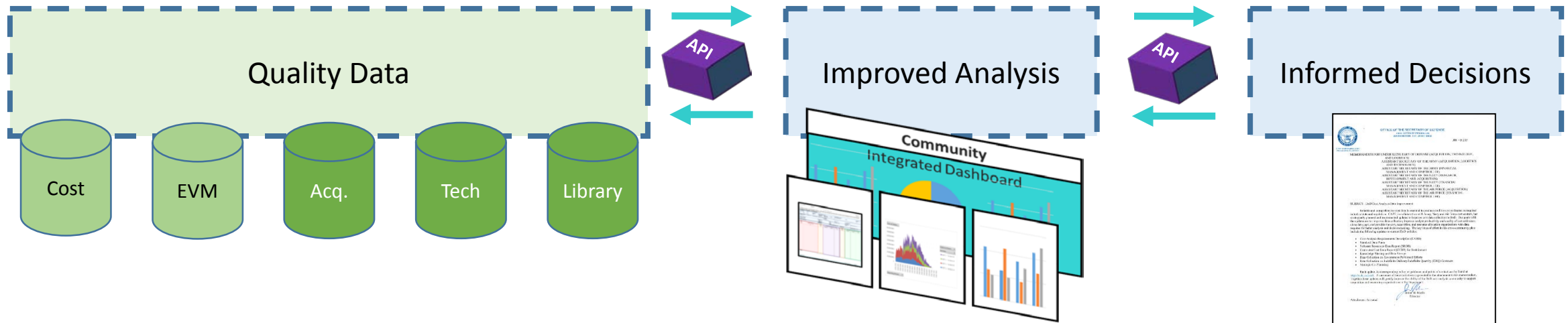


COST ASSESSMENT DATA ENTERPRISE

Back Up



By 2020, CADE will be a modernized, fully integrated system that tells the story of a program's *Lifecycle Cost*



Cost analysts will have the right data and institutional knowledge at their fingertips.
It will be the exception – not the rule – to go back to industry to do our estimates.

CADE Architecture - Summary



1 CSDR+

enhance CSDR data

- › Analyst can find and view all cost data in one search
- › Cross-program capabilities dramatically improved
- › Analyst can search data down to lower levels e.g.
 - Variants
 - Lots
 - Commodities

1

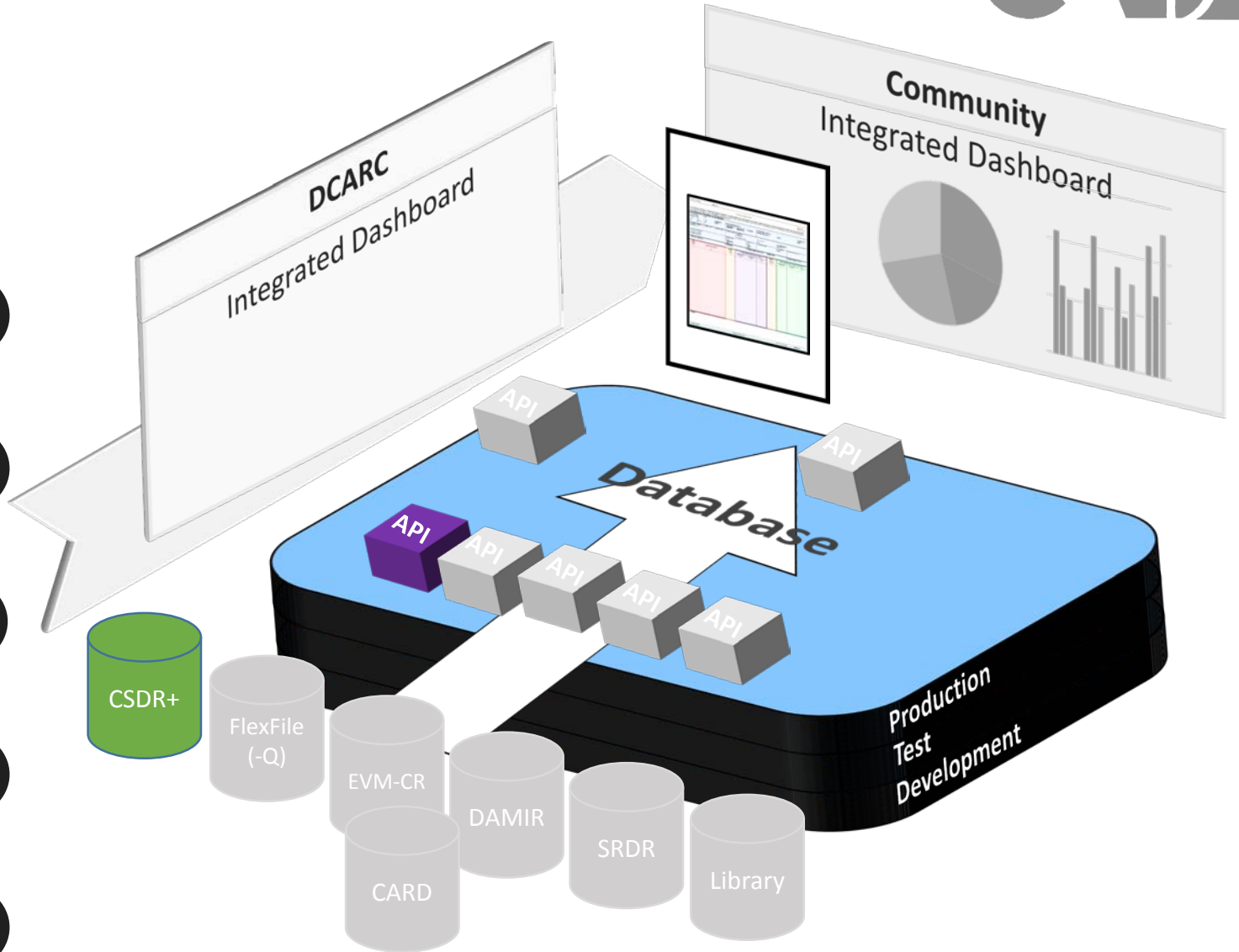
2

3

4

5

6



CADE Architecture - Summary



2 FlexFile (-Q)

automated detailed cost data

- › **Insight into the Native cost data:**
 - Only aggregate data visible in the past
- › **Ensures Completeness** through Allocation & Mapping Visibility
- › **Allows multiple modes of analysis**
- › **Increases Efficiency** through Seamless Data Integration

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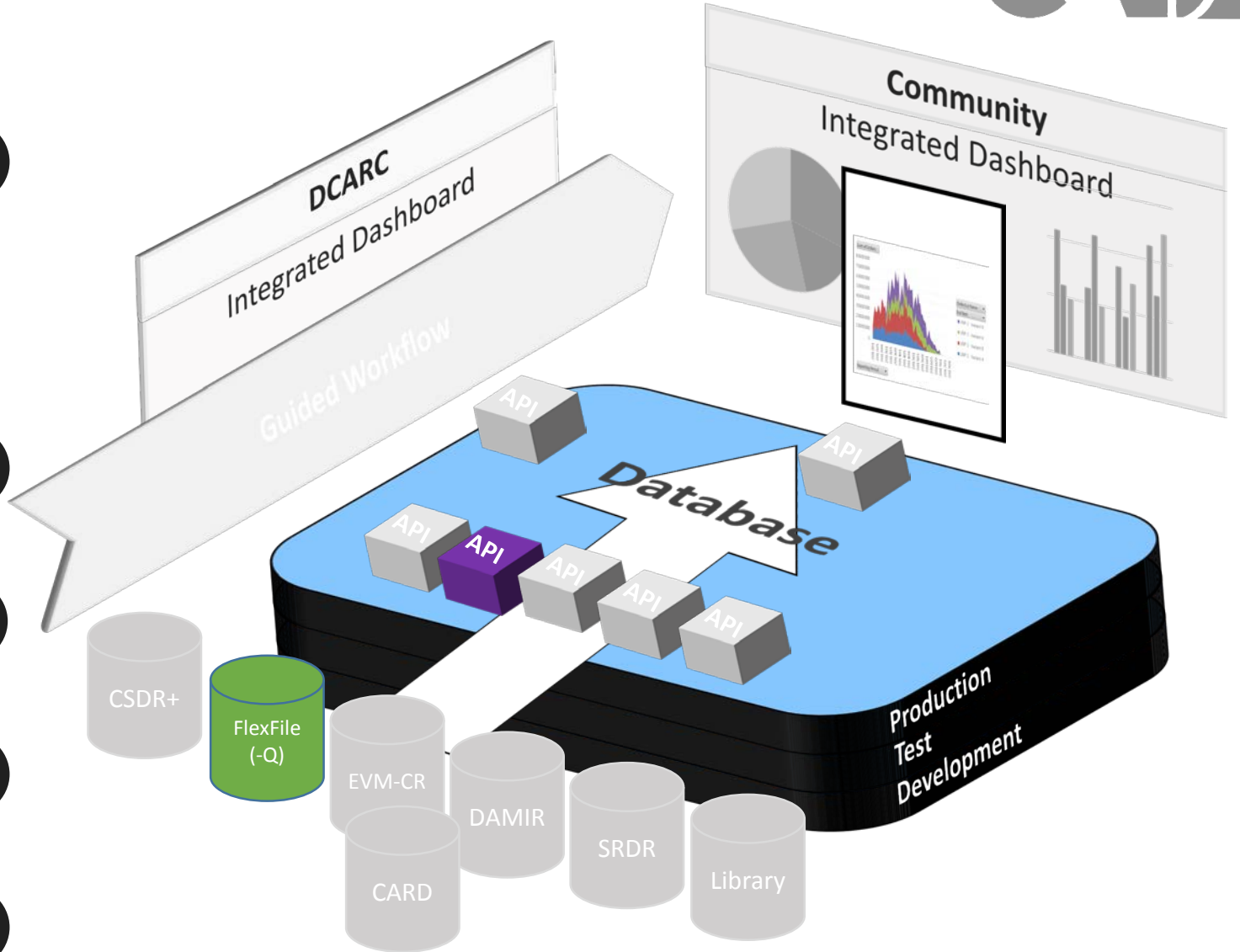
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CADE Architecture - Summary

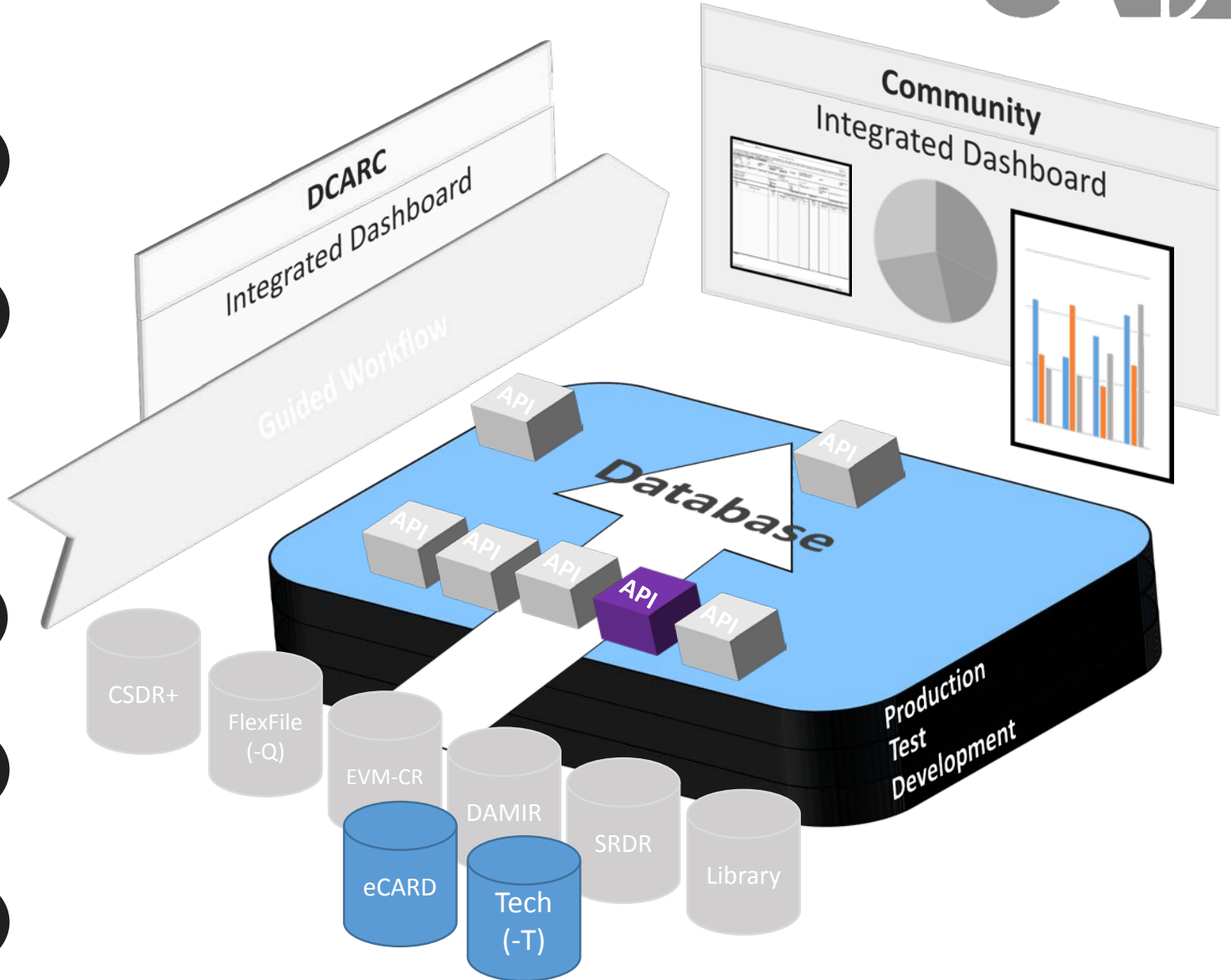


3 eCARD

consumable program information

- › Static 400 page document now dynamic and easy to compile and update
- › Pertinent information available for cross program analysis

- 1
- 2
- 3
- 4
- 5
- 6



CADE Architecture - Summary



4 Guided Workflow

intuitive online program planning



› Reduces time and resources to approve CSDR & Co-Plans

› End-to-End auditable planning process

- Maintenance
- Security
- Updates & Metrics

› Intuitive Interface that integrates:

- Planning
- Validation
- Compliance
- Metrics

1

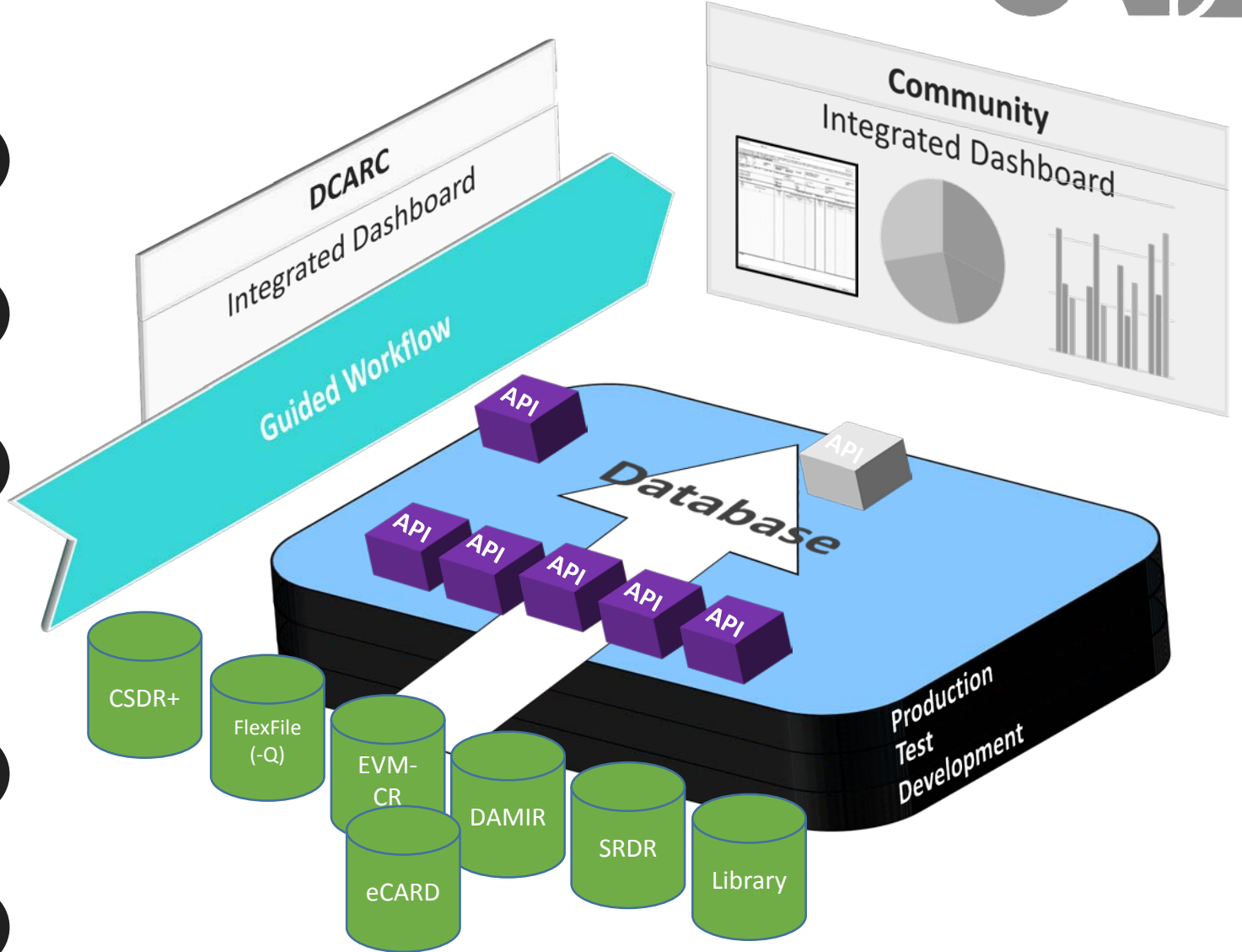
2

3

4

5

6



CADE Architecture - Summary



5 Integrated Dashboard *customizable personalized information*

- › Straightforward insight of available data
- › Customizable to analyst needs for efficiency
- › More usable tools for analysis

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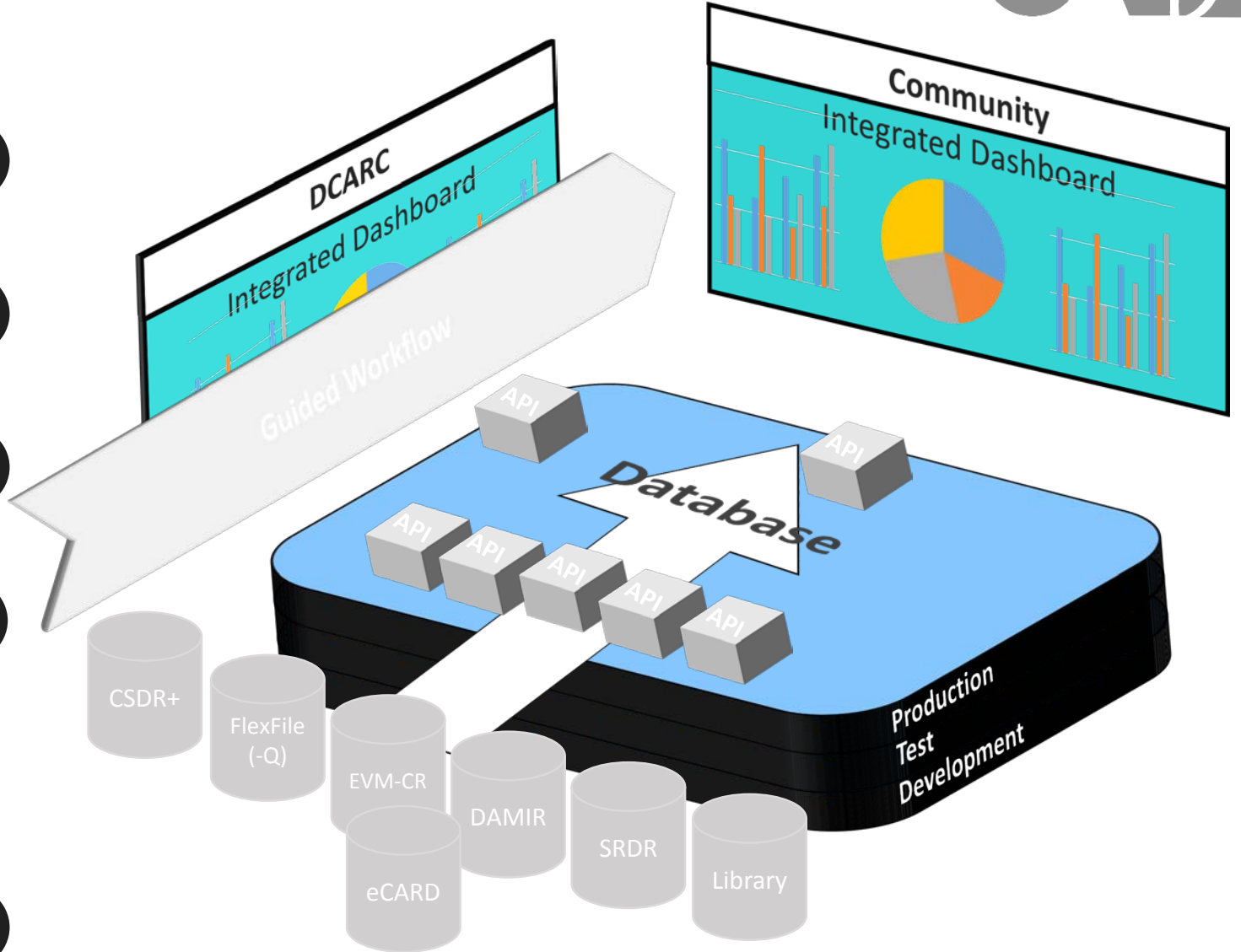
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CADE Architecture - Summary

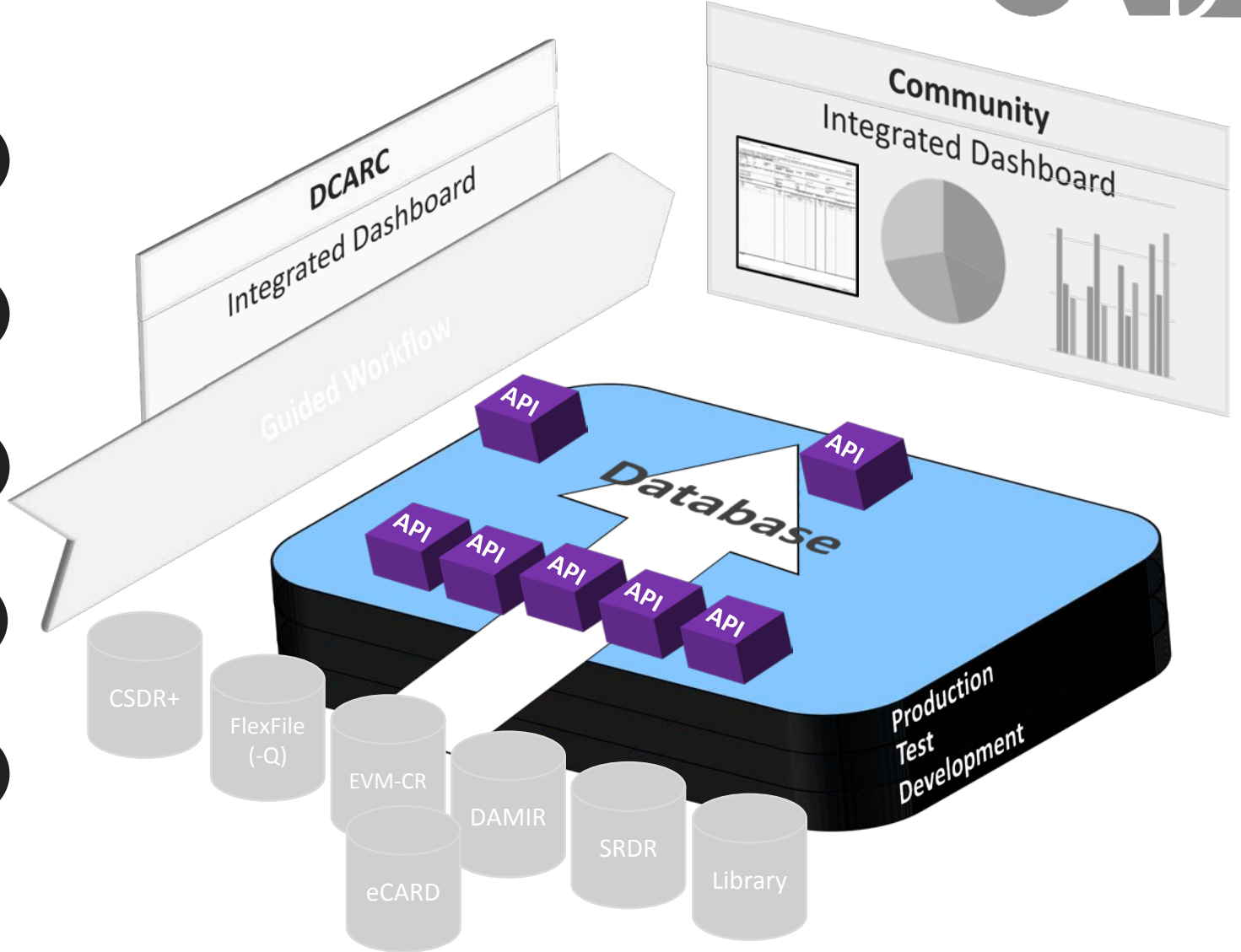


6 API

improved database foundations

- › Ensures quick and accurate interface with the database
- › Creates a modular design process for expandability
- › Automated ability for outside systems to consumer non-proprietary data from CADE

- 1
- 2
- 3
- 4
- 5
- 6



Major Initiatives



Cost:

1921-3

improved ways of reporting business unit data

Bill of Materials

Standardized collection of parts and supplier pricing data

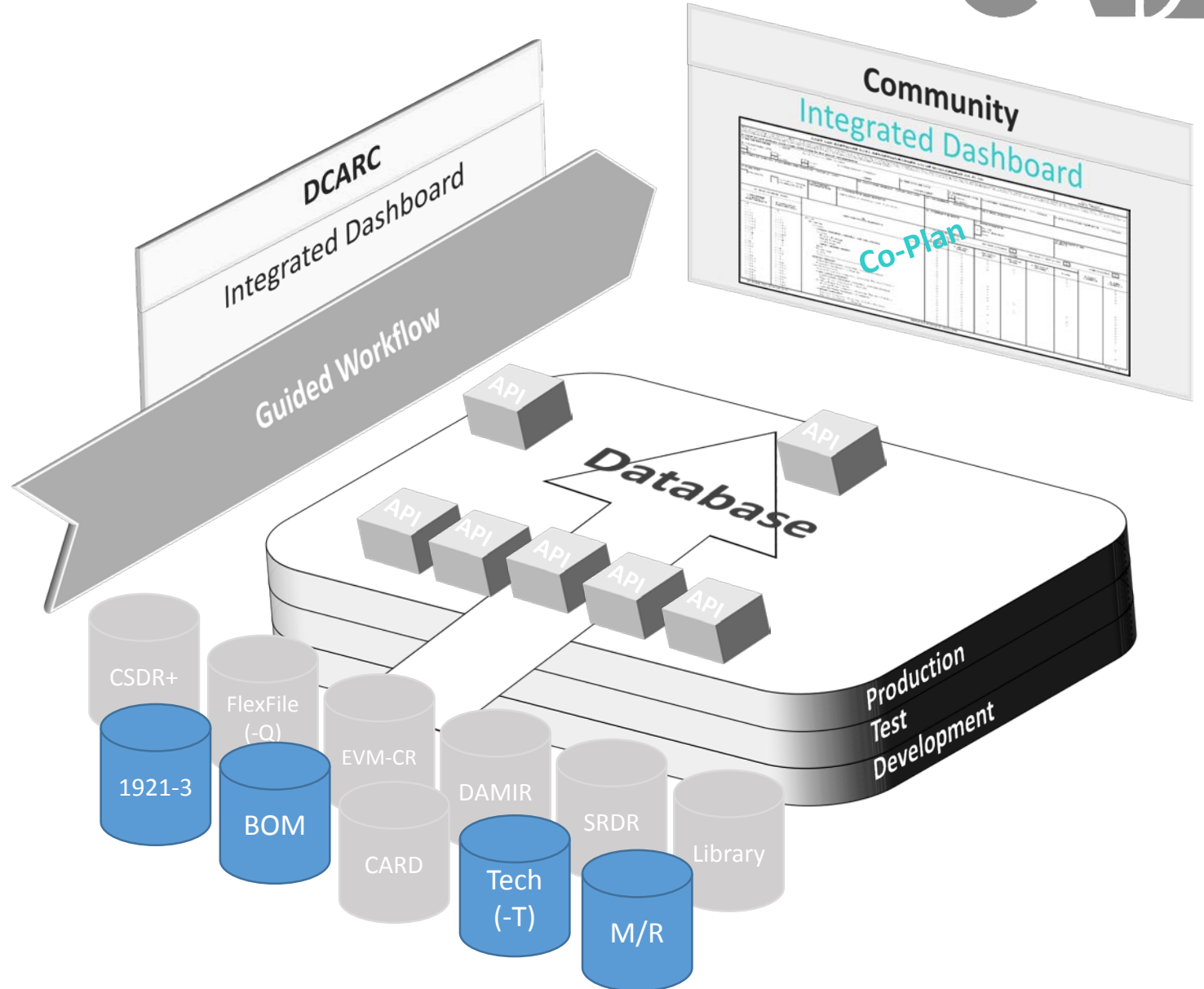
Technical Reporting:

Technical Data (1921-T)

programmatic and technical descriptions analysts need to build estimates

Maintenance and Repairs (M/R)

collection of information related to each maintenance event such as the specific system being repaired and reason for failure



CADE Community



Cost



FlexFile:	Daron Fullwood, CAPE
CSDR/EVM Co-Plan:	John McGregor, AT&L PARCA/EVM
1921-3:	Mike Biver and Carol Moore, CAPE
Sustainment:	Tom Henry, CAPE; Lisa Mably, AFCAA
Materials:	Praful Patel, NCCA


Technical





SRDR:	Ranae Woods, AFCAA
CARD:	Curt Khol, CAPE
Tech Data:	Greg Hogan, AFCAA
MAIS:	Richard Mabe, AFCAA
Maintenance & Repair:	Lisa Mably, AFCAA


Office Collaboration





 AFCAA CEM joint CADE effort, commodity leads, Contract Databases, Software & Technical Data, CARDS, SAR database

 FlexFile, JCARD (NAVAIR), Ships WG, CCRL, CER Handbook, SAR database

 MDA-DCARC alignment, CCRG

 USMC BOM/CER Effort

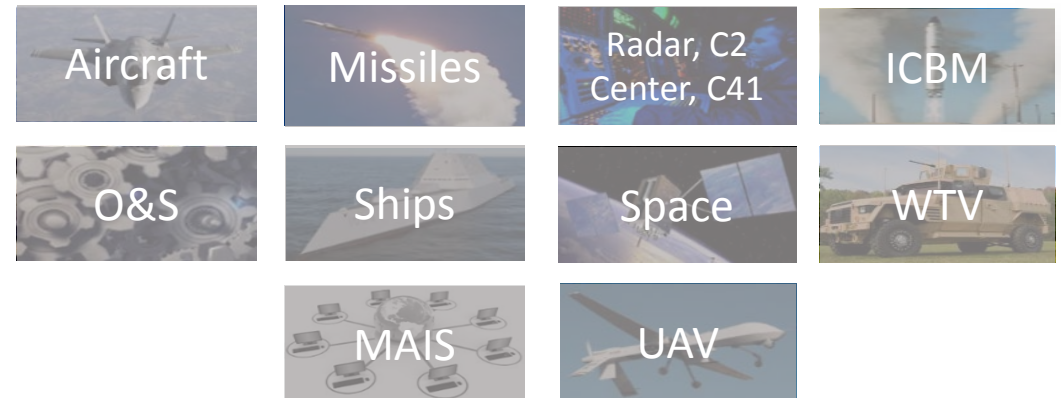
 JIAT, ACDB/WTV/Missile prototype, TACOM WTV CIPT, Historical Data Migration

 EVM-CR, DAVE (DAMIR, AIR, Kaleidoscope)
DDR&E/SE tech data; LM&R
CARD input, DCMA, DPAP, DAU,
Big Data initiative,
CSDR/EVM Co-Plans

Industry


CSDR Focus Group, Joint Training, NDIA,
FlexFile Pilot Leads: LMCO, Boeing, NGC, BAE, GDLS, HII, Ball Aerospace
CIPTs: Aviation, JSCC, O&S, Software and IT, WTV

Commodity Study Joint Effort



Service Cost Agency Leads



 David Henningsen
Katherine McCormack

 Duncan Thomas
Justin Moul

 Ranae Woods
Greg Hogan

Cost of CSDR and EVM Reporting



Cost of reporting CSDR and EVM	CSDR per Report		EVM per Month	
	Hours	Dollars	Hours	Dollars
Low	13	\$1,130	3.5	\$304
Average	93	\$7,543	633	\$52,958
High	296	\$24,200	1569	\$156,886

Based on 10 data points from different programs and different contractors

- Average of 93 hours per CSDR Report (single submission of 1921, 1921-1, etc.)
- Average of 633 hours per month for EVM/IPMR reporting

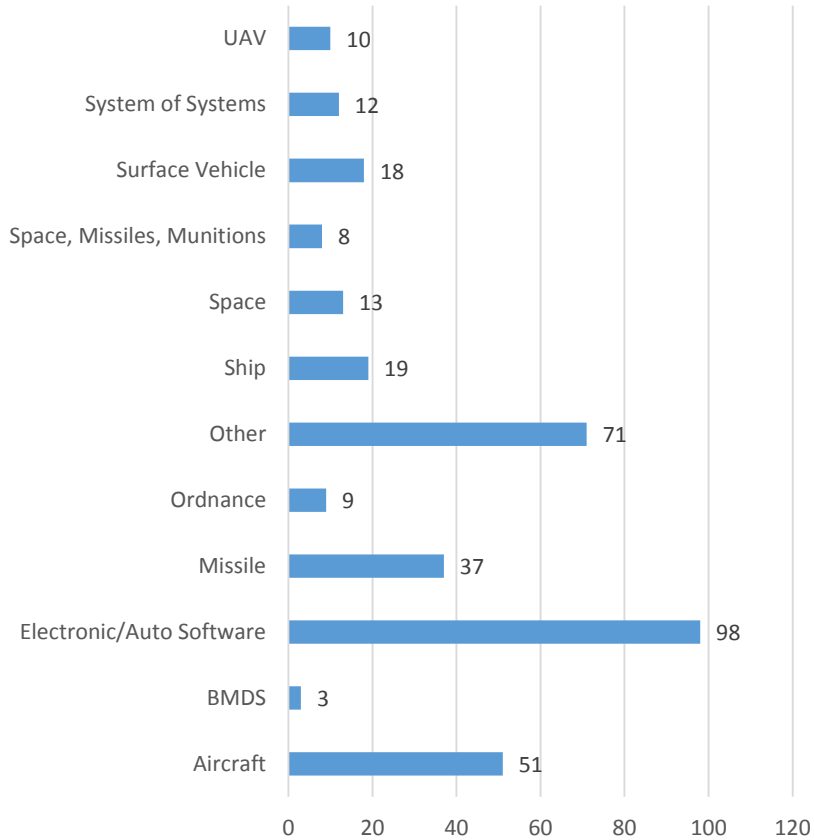
Effort varied with:

- Complexity of report
- Amount of automation in reporting
- Program Office intervention

Totals By Commodity

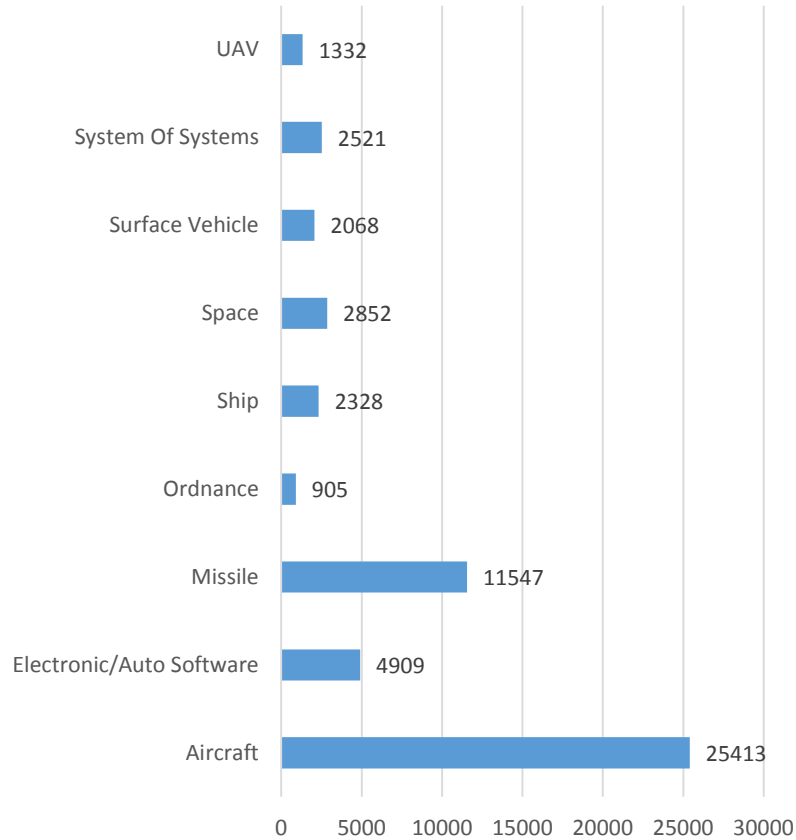


Number of Programs



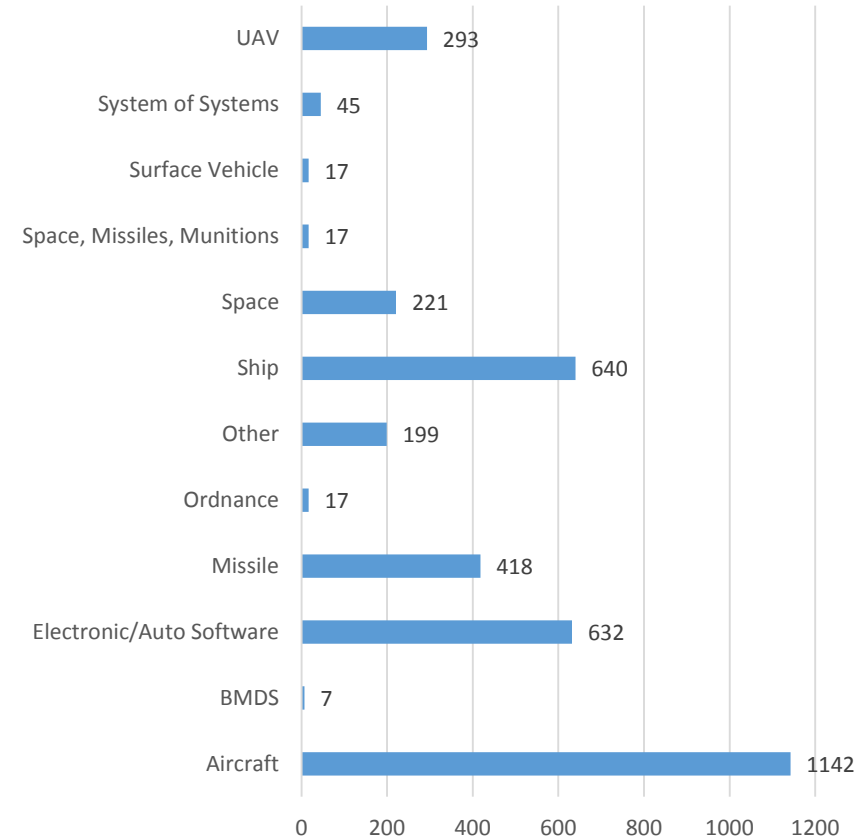
Programs = 349

CSDR Submissions



CSDR Submissions = 53,875

EV Reporting Tasks



EV Submissions = 3,648