

Integrated Program Management Data and Analysis Report (IPMDAR) Initiative and Reporting

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► Topics to be Discussed

- Background IPMDAR Effort
- IPMDAR Initiative
- Benefits of IPMDAR
- IPMR versus IPMDAR
- Live Demo: IPMDAR Charts and Analytics

- Effort began in Fall 2016
- **Purpose:** to obtain the native data out the supplier system to automate compliance testing
- **Additional benefits:** to correct incorrect assumptions used for the first IPMR
 - Original assumptions: if the schedule file included in the submission file, then there was cost/schedule integration
 - XML standard with the inability to maintain it – UN/CEFACT (many different versions); more verbose schema
- Ability to remove the human readable formats for data delivery
- **Efficiency:** obtain the universal data that resides in a native state for all suppliers' business systems (control account and work packages) to provide transparency for execution
- **Opportunity:** address costly aspects of EVM reporting (variance analysis, delivery timing, etc.)

► Goal of the IPMDAR:

- Reduce time to receive actionable data and have the right conversations

► IPMDAR Current Status:

- DEI/FFS available for use
- DID Finalized in ASSIST
- DID Memo signed April 22, 2020

► IPMDAR Update Next Steps:

- Implementation Guide
 - Adjudicate final comments
 - Finalize - TBD

- Incremental delivery options (staggered delivery of reports, all final reports due on the 16th business day)
- Facilitates communication with variance reporting (Government ability to select control accounts and thresholds)
- Standardized Executive Summary
- Control account focused (which is the way a program is managed)
- Ability to identify control account managers (CAMs) within the file
- Focus on execution of the program, not reporting
- Ability to generate legacy reporting if needed
- Focus on future forecast
- Ability to marry to associated reporting to analyze (labor resource plans, control account plans, etc)
- Element of cost identification

- Facilitate greater awareness and cost estimation for future efforts
- Ability to use the files to collect data whether or not an EVM requirement exists (example: Middle Tier Acquisition Programs)
- Synergy between CAPE's flex file initiatives; opportunities to work with CAPE in the future

IPMR Strengths / Purpose

- Performance analysis at reporting level (e.g. WBS, OBS)
- Gold Card Analytics (CPI, SPI, VAC, TCPI, EAC)

Limitations / Weakness

- Visibility into management controls (WBS & OBS vs. CA/WP)
- Visibility into execution plan (partial future forecast reporting)
- Limitations for cost/schedule integration visibility
- Visibility into retroactive contract changes
- Does not facilitate automated compliance checks

IPMDAR Same Strengths / Capability

- Generate performance analysis at reporting level (e.g. WBS, OBS)
- Gold Card Analytics (CPI, SPI, VAC, TCPI, EAC)
- Can generate legacy formats

And So Much More...

- CA or WP visibility
- Hours and dollars
- Element of Cost visibility
- Fully time-phased future plan
- Positive traceability between cost and schedule
- Visibility into retroactive contract changes with time-phased To Date
- Facilitates the automated compliance checks

Greater Focus On Forward-Looking Analytics

Integrated Program Management Data and Analysis Report (IPMDAR)

- Moving away from human readable formats and focusing on data for analysis

IPMDAR	IPMR
CPD - Contract Performance Dataset (JSON)	Formats 1-4 & 7 XML (UN/CEFACT)
SPD - Schedule Performance Dataset	Format 6 XML (UN/CEFACT)
Native Schedule	Native Schedule
Performance Narrative <ul style="list-style-type: none">• Executive Summary• Variance Analysis	Format 5
Not Required	Formats 1-4 (Human Readable)

EVM-CR Tools have the capability to generate legacy formats

► Back Ups

Regulations

Policy

Guidelines

Government agrees only to section 2 (Guidelines Intent)

EIA-748-D

Industry agrees to all sections of the

Title 10

Title 48 CFR

FAR Part 34

FAR 52.234-2

FAR 52.234-4

FAR 52.242-2
(production only)

OMB A-11 Part 7 & CPG
(OMB A-11 Part 7 is updated annually)

GAO Cost Guide
(N/A for DoD)

GAO IMS Guide
(N/A for DoD)

NDIA IPM
EVMS
Intent
Guide

PM's Guide
to IBR
Process

NDIA
IPM
Surveillance
Guide

DFAR 234.201

DFAR 234.203

DFAR 252.234-7001

DFAR 252.234-7002

DFAR 252.242-7005

DFAR 242.1107-70
(production only)

IPMR DID

DoD 5000 series
(undergoing updates)

DoD Memo
2015-O0017 EVM
Threshold Deviation

IMP / IMS Guide

OTB / OTS Guide

IPMR DID Guide

EVMSIG EVMIG

AAP EVM website

Agile and EVM Guide

Defense Acquisition Guide (Chapter
11.3.1 EVM)

IPMR CDRL

Processes

Toolkits

Buying Commands

Services



Adaptive Acquisition Framework

Tailor, combine, and transition between execution pathways to create your program strategy

Tenets of the Defense Acquisition System

1. Simplify Acquisition Policy

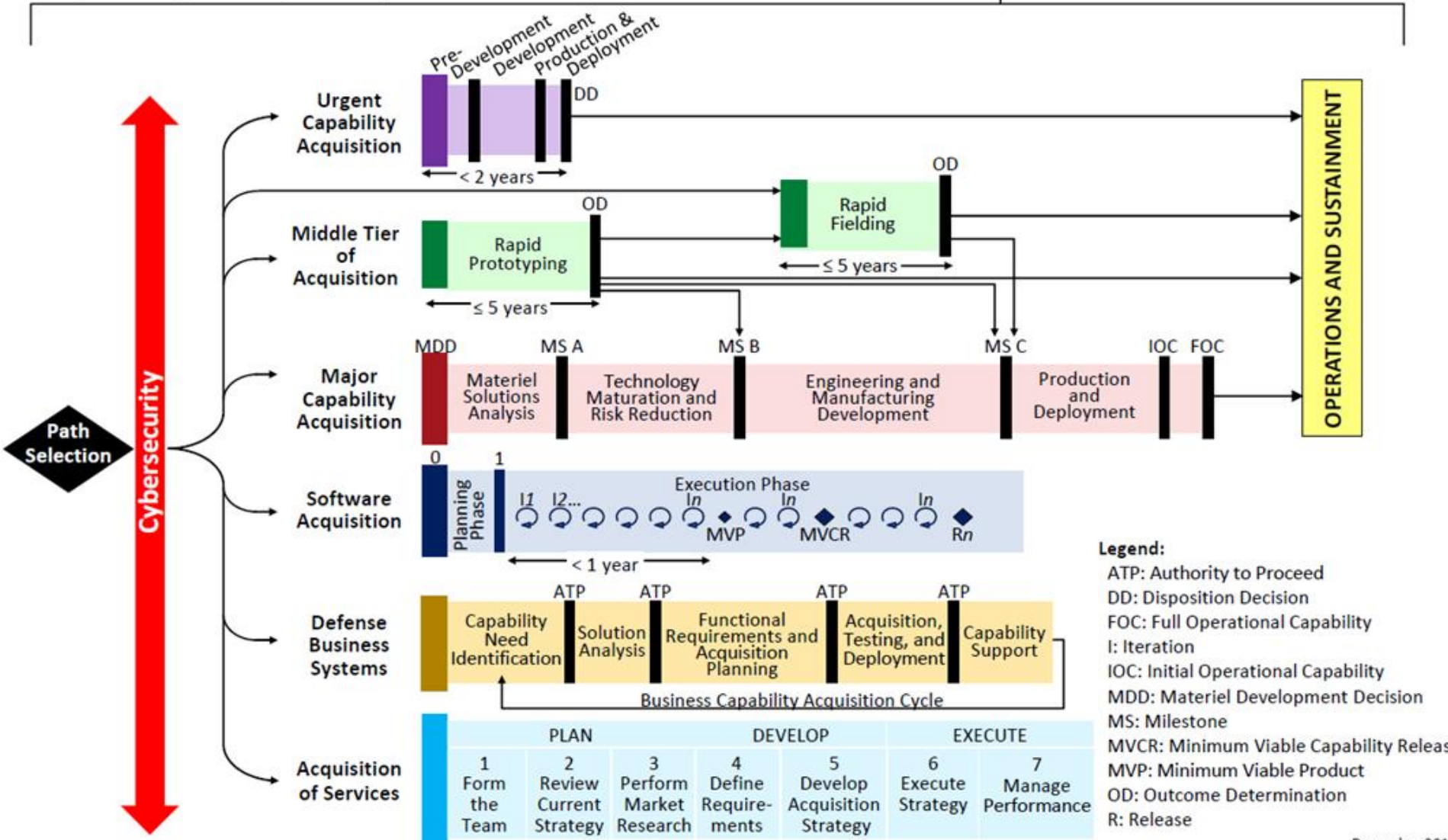
2. Tailor Acquisition Approaches

3. Empower Program Managers
4. Conduct Data Driven Analysis

5. Actively Manage Risk

6. Emphasize Sustainment

DoDD 5000.01: The Defense Acquisition System
DoDI 5000.02: Operation of the Adaptive Acquisition Framework



2 Step EVM Application Process

Step 1. Contract Criteria Review

- Contract is Cost Plus or Incentive
- Contract > \$20M (including known options)
- Contract has at least 18 months period of performance

If any No

EVM Not Applicable*

If all Yes

EVM placed on contract;
option to have
applicability
determination based on
nature of work (Step 2)

Step 2 (Optional). Work Attributes Review

- Does EVM apply based on review of SOW, PWS, WBS, & CDRLs (i.e., work discretely measurable & schedulable)
- AAP & Services - ACAT ID & IAM for DAE/MDA decision—delegated to AAP/EVM
- Services - other ACATs for SAE/CAE decision

No

*EVM does not apply** EVM not on contract; no deviation/waiver required

Yes

EVM does apply EVM is placed on contract; PMO has option to seek waiver/deviation

* The PM has the option to make a business case to apply EVM outside the thresholds and application decision



Different Perspectives....



EVM*: A program **management technique** for measuring program performance and progress in an objective manner

EVMS*: An integrated **management system** that integrates the work scope, schedule, and cost parameters of a program in a manner that provides objective performance measurement data

...a system of systems

**Definitions from the DoD Earned Value Management System Interpretation Guide*

► **Have the Conversation...**

- What are we buying?
- How are we buying?
- How do we manage?

► **Regardless of acquisition approach**

- Traditional Acquisitions
- Middle Tier Acquisitions
- Other Transaction Authorities
- Agile Development Methods

▶ IMPDAR Pivot Data

	A	B	C	D	E	F	G	H	T	BT	BU	BV	CI
1	WBS_Element_ID	WBS_Element	WBS_Element	WBS_Element	WBS_Element	WBS_Element	WBS_Element	WBS_Element	WBS_Element	ReportingPeriod_StartDate	ReportingPeriod_EndDate	BCWS_ToDate_Dollars	BCWS_ToDate_Hours
2	1.1.1.1	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT1	1/1/2016	1/31/2018	143310669	496187
3	1.1.1.1	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT2	1/1/2016	1/31/2018	115537096	379292
4	1.1.1.1	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT3	1/1/2016	1/31/2018	183217580	704744
5	1.1.1.1	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT4	1/1/2016	1/31/2018	136752176	520743
6	1.1.1.1	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT8	1/1/2016	1/31/2018	338042138	1242188
7	1.1.1.1	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	SUB1	1/1/2016	1/31/2018	32451945	106315
8	1.1.1.1	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	SUB2	1/1/2016	1/31/2018	239090698	1148320
9	1.1.1.2	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT1	1/1/2016	1/31/2018	309850733	1243865
10	1.1.1.2	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT2	1/1/2016	1/31/2018	142434439	495856
11	1.1.1.2	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT5	1/1/2016	1/31/2018	270273751	1016678
12	1.1.1.2	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT6	1/1/2016	1/31/2018	438862695	1905454
13	1.1.1.2	Subsystem	4	TOTAL	TOTAL	1.1	Subsystem	1.1.1	DEPT8	1/1/2016	1/31/2018	479965908	1874628

◀ **Flattened IPMDAR Contract Performance Data**

IPMDAR Contract Performance Data Pivot Table ▶

	A	B	C	D	E	F
1		BCWS (cum) Dollars	BCWP (cum) Dollars	ACWP (cum) Dollars	BAC Dollars	EAC Dollars
2	Subsystem 1.1.1.1	1,188,402,302	1,179,863,381	1,230,372,504	5,312,714,570	5,552,875,441
3	Subsystem 1.1.1.2	1,908,407,845	1,903,155,769	1,965,170,406	5,457,664,553	5,700,812,098
4	Subsystem 1.1.2.1	195,179,376	193,043,167	205,147,097	5,197,985,319	5,473,525,574
5	Subsystem 1.1.2.2	1,017,945,502	1,011,403,571	1,054,218,411	4,943,539,186	5,170,232,248
6	Subsystem 1.1.2.3	407,974,213	404,074,730	424,625,436	4,458,433,646	4,687,989,371
7	Subsystem 1.1.2.4	592,493,574	583,689,994	617,502,304	4,954,064,169	5,181,536,035
8	Subsystem 1.1.2.5	1,081,433,715	1,075,048,600	1,115,602,129	5,113,518,905	5,346,274,174
9	Subsystem 1.2	265,007,114	264,898,784	271,975,642	834,063,998	871,905,997
10	Subsystem 1.3	467,397,659	467,668,141	477,943,473	1,467,312,182	1,521,972,827
11	Subsystem 1.4.1	637,229,877	634,449,916	660,701,358	3,653,622,569	3,834,103,657
12	Subsystem 1.4.2	1,129,820,555	1,127,336,606	1,166,395,452	5,293,640,827	5,546,590,975

PivotTable Fields
 Choose fields to add
☐ WBS_Element_ID
☒ **WBS_Element_Name**
☐ WBS_Element_Level
☐ WBS_Element_ID_Path
☐ WBS_Element_Name_Path
☐ WBS_Element_ID_Path
☐ WBS_Element_Name_Path
 Drag fields between

► Example Pivot Table Applications

Sum of BCWS_ToComplete_Dollars		Column Labels			
Row Labels		Cpt Picard	Cpt. Kirk	Dr Crusher	Dr Pulaski
Department 1		750954204	1244411849		
BMXF-MPJF-SPVD				255748347	
BQDH-GDNV-GVLP					
DGXF-QTVR-LDLT					
DHNQ-DZFW-BHVM					
FNLV-VXQW-MJQF					
GQVR-SYBG-QWQY					
LWPP-JKCH-DHLW					
NFQB-CLQS-TNYG				551015710	
PCMS-FVSX-RJKP				437647792	
PPCZ-JXLN-JFSL					
PVJZ-HFKS-QRRY					
RLBW-TGHD-FCPX					
TDYZ-ZKXK-NYHX					
TSQD-PCZS-TZDP					
VTKF-ZZHX-YXMX			430733622		
XYJM-MFPH-RXRG			320220582		
Department 2	628955144				
Department 3					
Department 4					

Estimate to Complete by Control Account ►

◀ Responsibility Assignment Matrix

Sum of BCWS_ToComplete_Dollars		Column Labels			
Row Labels		Cpt. Kirk	Dr Crusher	Mr. L. McCoy	Mr. Spock
Department 1	750954204 1244411849	1630052364	1865364717	5490783134	
BMXF-MPJF-SPVD			255748347		255748347
BQDH-GDNV-GVLP				342192051	342192051
DGXF-QTVR-LDLT				94769357	94769357
DHNQ-DZFW-BHVM					101107804
FNLV-VXQW-MJQF					609170702
GQVR-SYBG-QWQY				369697724	369697724
LWPP-JKCH-DHLW				109605215	109605215
NFQB-CLQS-TNYG			551015710		551015710
PCMS-FVSX-RJKP			437647792		437647792
PPCZ-JXLN-JFSL				323329727	323329727
PVJZ-HFKS-QRRY				381989375	381989375
RLBW-TGHD-FCPX				478813141	478813141
TDYZ-ZKXK-NYHX				331798642	331798642
TSQD-PCZS-TZDP					352943343
VTKF-ZZHX-YXMX		430733622			430733622
XYJM-MFPH-RXRG		320220582			320220582
Grand Total	750954204 1244411849	1630052364	1865364717	5490783134	

Separating the Data from Printable Formats Enables Utilization of Modern Tools

► Example Pivot Table Applications

Sum of BCWS_AtComplete Column Labels							
	Department 1	Department 2	Department 3	Department 4	Department 5	Department 6	Department 7
Subsystem 1.1.1.1	\$ 463,531,251	\$ 493,798,214	\$ 492,274,403	\$ 288,094,804	\$ 375,837,163	\$ 370,245,647	\$ 991,964,798
Subsystem 1.1.1.2	\$ 740,584,355	\$ 393,128,465	\$ 677,529,702	\$ 270,830,128	\$ 784,933,168	\$ 795,549,681	\$ 252,786,040
Subsystem 1.1.2.1	\$ 609,170,702	\$ 274,729,718	\$ 488,359,338	\$ 270,210,682	\$ 581,109,921	\$ 466,380,337	\$ 522,373,871
Subsystem 1.1.2.2	\$ 177,812,934	\$ 423,233,743	\$ 362,819,878	\$ 849,451,563	\$ 501,419,224	\$ 379,079,857	\$ 406,142,501
Subsystem 1.1.2.3	\$ 410,371,788	\$ 523,029,947	\$ 452,998,317	\$ 377,466,809	\$ 328,863,325	\$ 235,467,492	\$ 923,113,111
Subsystem 1.1.2.4	\$ 522,076,604	\$ 454,362,781	\$ 175,907,369	\$ 473,630,465	\$ 558,561,723	\$ 413,016,470	\$ 166,851,143
Subsystem 1.1.2.5	\$ 539,655,757	\$ 394,045,301	\$ 509,395,843	\$ 331,496,346	\$ 646,577,038	\$ 819,286,564	\$ 477,433,874
Subsystem 1.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 834,063,998	\$ -
Subsystem 1.3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,467,312,182	\$ -
Subsystem 1.4.1	\$ 437,352,599	\$ 432,023,442	\$ 334,812,915	\$ 575,681,148	\$ 216,216,501	\$ 153,033,942	\$ 423,485,864
Subsystem 1.4.2	\$ 202,968,810	\$ 454,918,557	\$ 417,564,548	\$ 607,359,728	\$ 212,830,613	\$ 488,901,526	\$ 927,636,838

◀ Budget at Complete by control account

ControlAccount_ManagerName	Mr. Data	
Sum of BCWS_ToComplete_Dollars Column Labels		
Row Labels	Department 2	Grand Total
Subsystem 1.4.5.1	1080353740	1080353740
Subsystem 1.4.5.2	666617008	666617008
Subsystem 1.5.1	593246143	593246143
Subsystem 1.5.2	313315512	313315512
Subsystem 1.5.3	695773483	695773483
Grand Total	3349305886	3349305886

◀ CAM budget

Side-by-side dollars / hours

	BCWS (cum) Dollars	BCWS (cum) Hours
Summary: Cost of Money	203,967,852	0
Summary: General & Administrative	2,036,738,911	0
TOTAL	18,234,130,330	69,876,865
Subsystem 1.1	6,391,836,527	24,417,208
Subsystem 1.1.1	3,096,810,147	12,160,830
Subsystem 1.1.2	3,295,026,380	12,256,378
Subsystem 1.2	265,007,114	1,040,467
Subsystem 1.3	467,397,659	1,855,008
Subsystem 1.4	5,642,698,219	21,274,715
Subsystem 1.4.1	637,229,877	2,387,638
Subsystem 1.4.2	1,129,820,555	4,182,659
Subsystem 1.4.3	371,897,253	1,490,751
Subsystem 1.4.4	1,293,674,528	4,657,760

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► Example Pivot Table Applications

▼ Element of Cost by Control Account (Hours/Dollars)

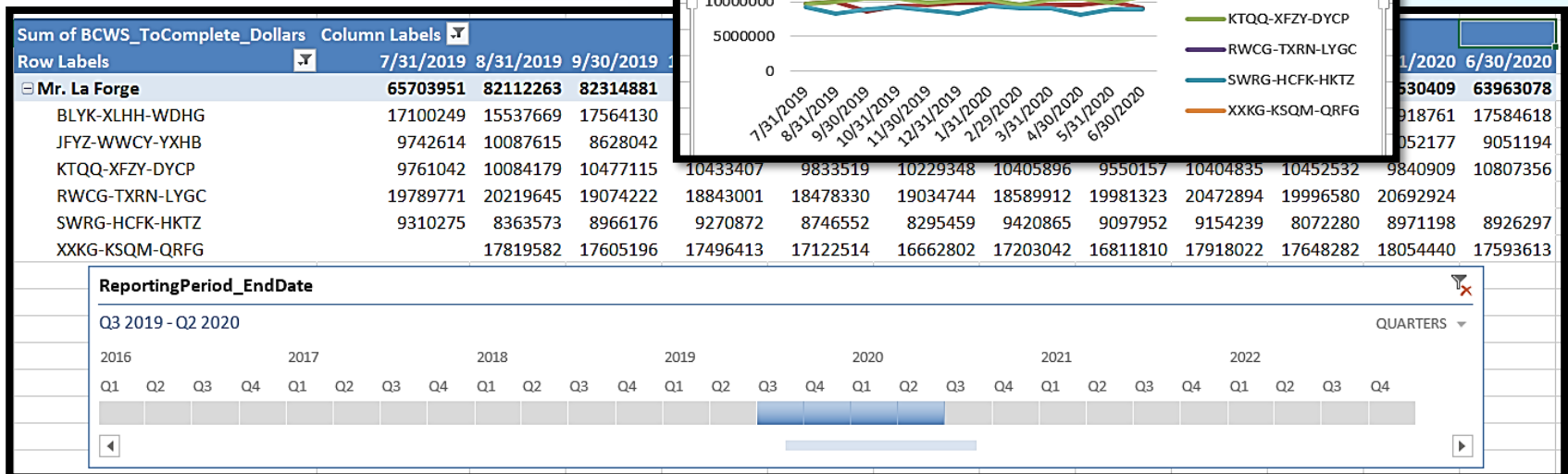
ControlAccount_ManagerName (All)								
Row Labels	BCWS Hours ToDate	BCWS ToDate \$	BCWS ToDate Lab \$	BCWS ToDate Mat \$	BCWS ToDate ODC \$	BCWS ToDate Sub \$	BCWS Hours ToCmpt	BCWS ToCmpt \$
Summary: Cost of Money	0	\$203,967,852	\$0	\$0	\$0	\$0	0	\$749,604,890
Summary: General & Administrative	0	\$2,036,738,911	\$0	\$0	\$0	\$0	0	\$7,472,884,900
TOTAL	69876865	\$18,234,130,330	\$7,251,267,995	\$4,572,743,060	\$1,831,293,797	\$4,578,825,478	253136716	\$66,597,493,961
Subsystem 1.1	24417208	\$6,391,836,527	\$2,544,102,246	\$1,594,156,919	\$641,717,039	\$1,611,860,323	110099392	\$29,046,083,821
Subsystem 1.1.1	12160830	\$3,096,810,147	\$1,228,923,142	\$774,562,387	\$309,662,078	\$783,662,540	28391211	\$7,673,568,976
Subsystem 1.1.2	12256378	\$3,295,026,380	\$1,315,179,104	\$819,594,532	\$332,054,961	\$828,197,783	81708181	\$21,372,514,845
Subsystem 1.2	1040467	\$265,007,114	\$104,115,541	\$67,676,296	\$25,685,658	\$67,529,619	2238544	\$569,056,884
(blank)	1040467	\$265,007,114	\$104,115,541	\$67,676,296	\$25,685,658	\$67,529,619	2238544	\$569,056,884
Subsystem 1.3	1855008	\$467,397,659	\$195,806,670	\$115,572,447	\$44,238,411	\$111,780,131	3771757	\$999,914,523
(blank)	1855008	\$467,397,659	\$195,806,670	\$115,572,447	\$44,238,411	\$111,780,131	3771757	\$999,914,523
Subsystem 1.4	21274715	\$5,642,698,219	\$2,214,134,722	\$1,423,372,422	\$571,093,753	\$1,434,097,322	88951915	\$23,169,473,948
Subsystem 1.4.1	2387638	\$637,229,877	\$254,972,824	\$163,571,149	\$64,472,038	\$154,213,866	11699958	\$3,016,392,692
Subsystem 1.4.2	4182659	\$1,129,820,555	\$443,994,690	\$284,927,080	\$111,925,918	\$288,972,867	16485389	\$4,163,820,272
Subsystem 1.4.3	1490751	\$371,897,253	\$144,736,375	\$90,400,269	\$39,192,858	\$97,567,751	12638031	\$3,218,258,010
Subsystem 1.4.4	4657760	\$1,293,674,528	\$488,296,318	\$332,485,939	\$130,775,818	\$342,116,453	17226071	\$4,580,337,413
Subsystem 1.4.5	8555907	\$2,210,076,006	\$882,134,515	\$551,987,985	\$224,727,121	\$551,226,385	30902466	\$8,190,665,561
Subsystem 1.5	19172227	\$4,956,190,979	\$1,983,395,612	\$1,242,147,946	\$502,878,519	\$1,227,768,902	43892533	\$11,720,337,780

Separating The Data From Printable Formats Enables Utilization Of Modern Tools

► Example Pivot Table Applications

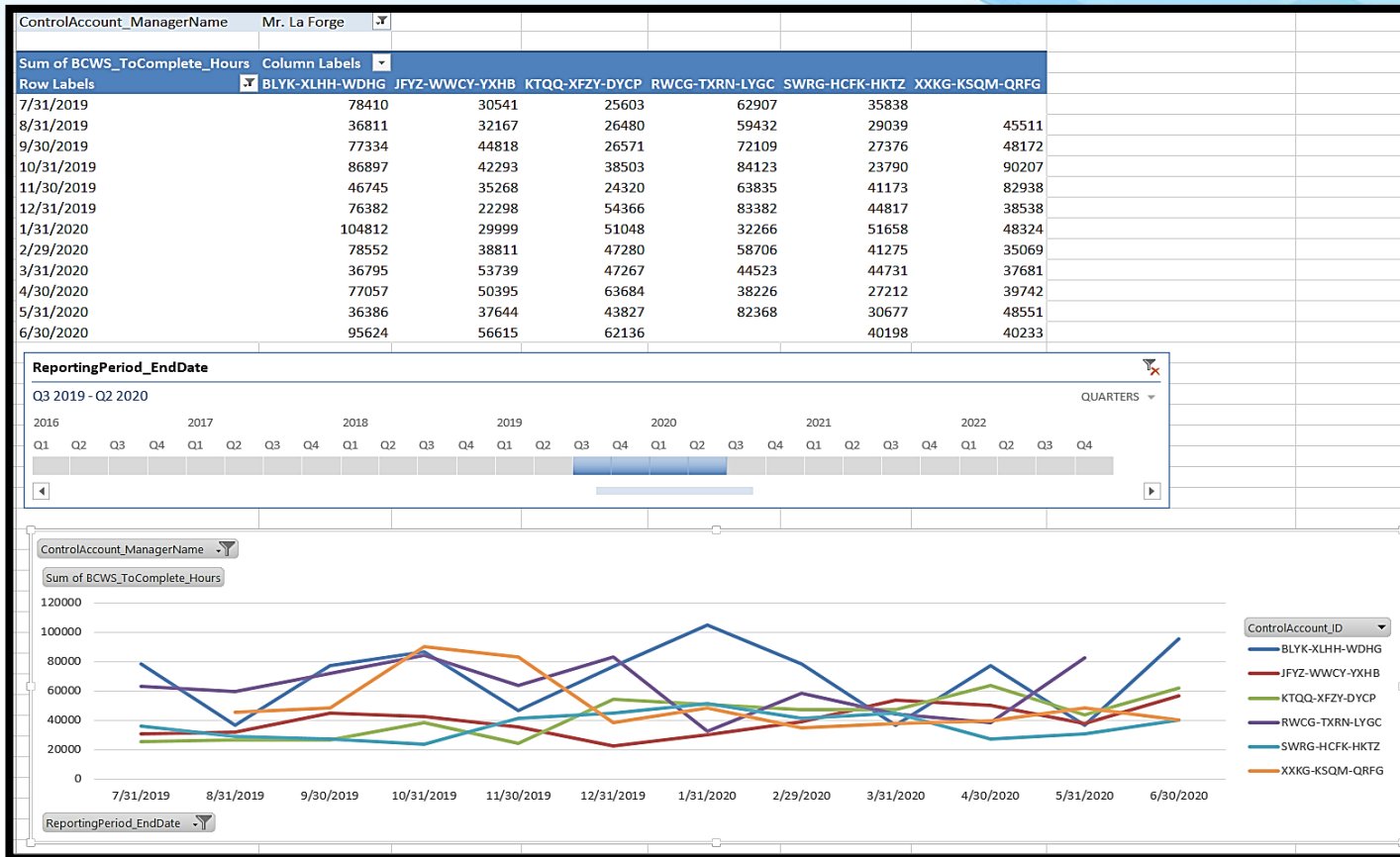
CAM Forecast (Dollars)

Time-Phased Future Forecast by CAM (Dollars)



Separating The Data From Printable Formats Enables Utilization Of Modern Tools

► Example Pivot Table Applications

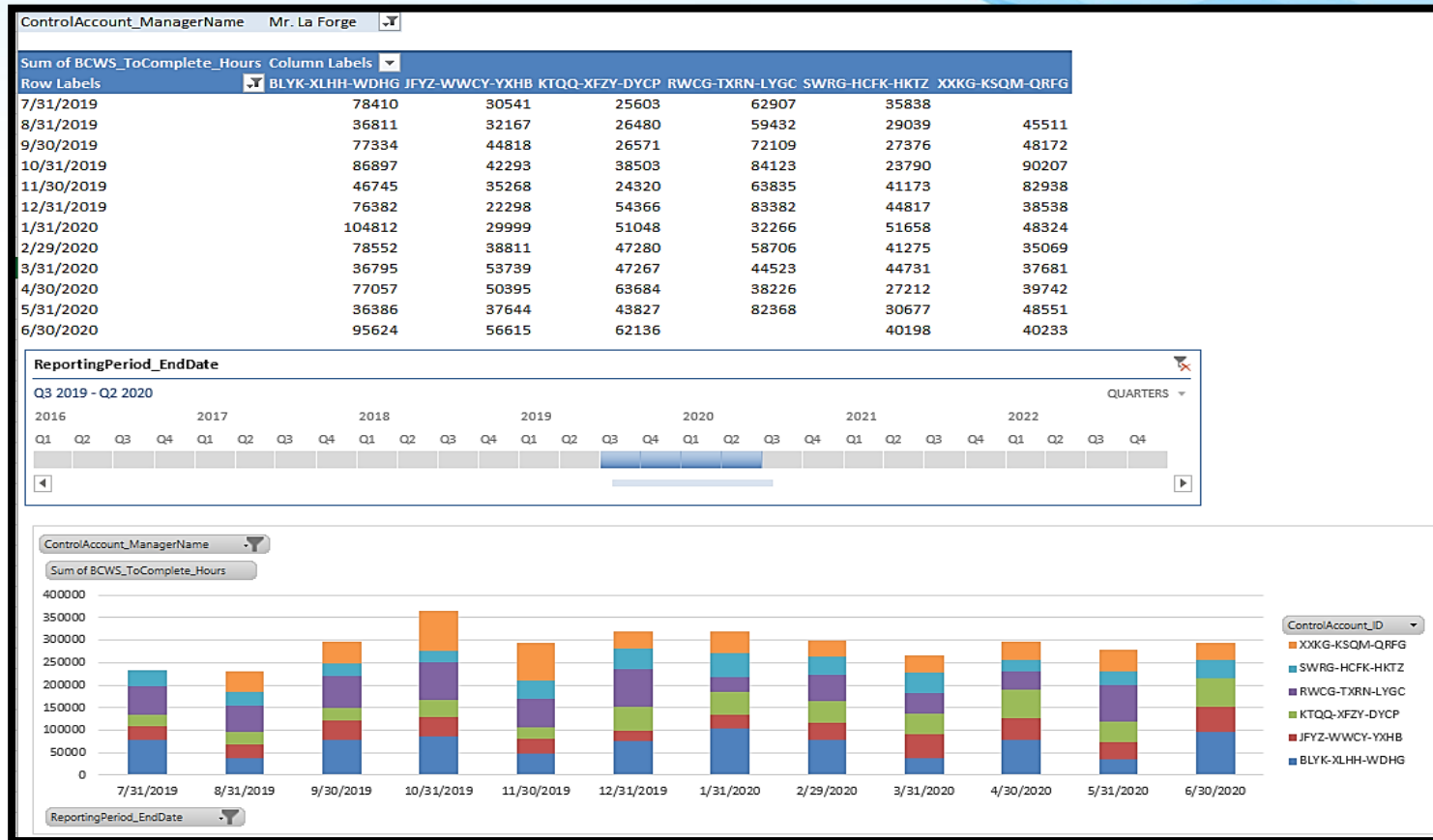


Time-
Phased
Forecast by
CAM
(Hours)

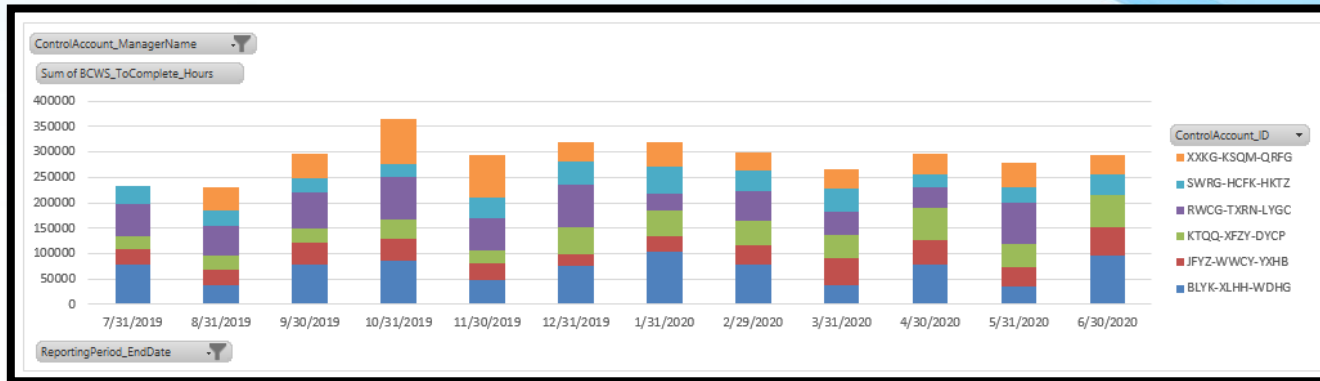
► Example Pivot Table Applications



Element of Cost by Control Account (Hours/Dollars)



► Example Pivot Table Applications



◀ Derived FTE Chart by Control Account

Derived FTE Chart by CAM

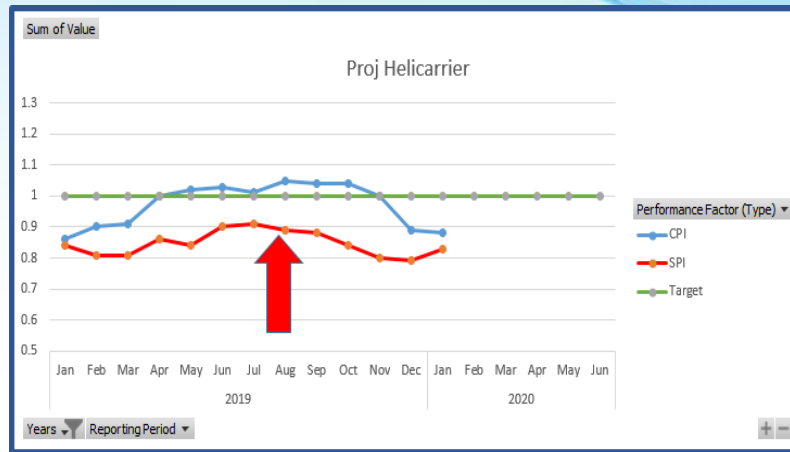


Total Date	Total Hours	Total FTE
7/31/2019	233299.0	1534.9
8/31/2019	229440.0	1509.5
9/30/2019	296380.0	1949.9
10/31/2019	365813.0	2406.7
11/30/2019	294279.0	1936.0
12/31/2019	319783.0	2103.8
1/31/2020	318107.0	2092.8
2/29/2020	299693.0	1971.7
3/31/2020	264736.0	1741.7
4/30/2020	296316.0	1949.4
5/31/2020	279453.0	1838.5
6/30/2020	294806.0	1939.5



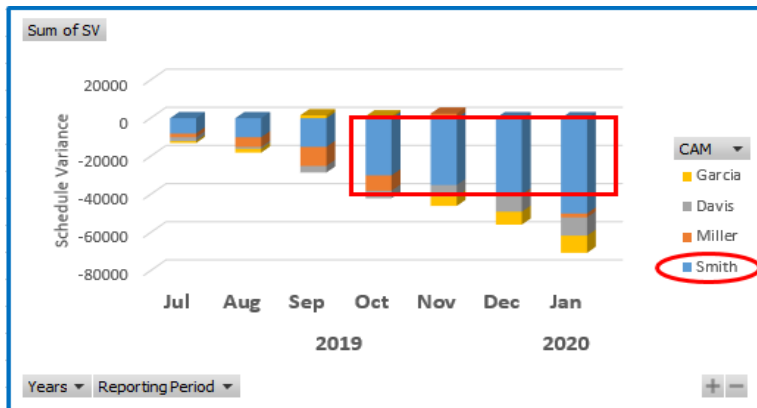
Separating The Data From Printable Formats Enables Utilization Of Modern Tools

Programmatic CPI & SPI

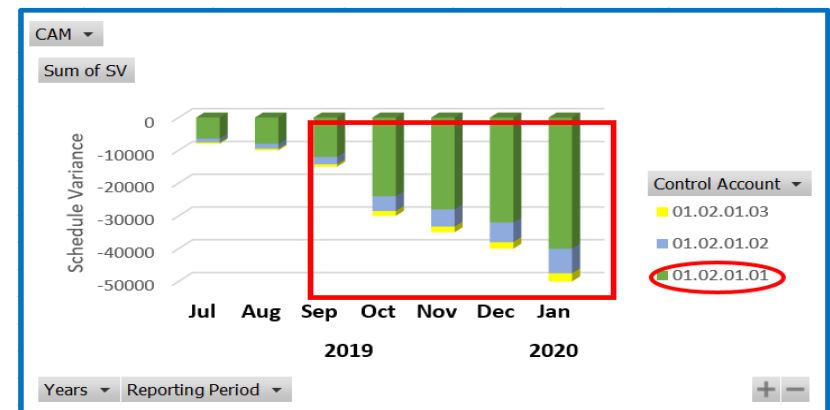


- Ability to convert IPMDAR data into trend charts
- Ability to look at control account trends and identify critical drivers

Schedule Variance by Control Account Manager

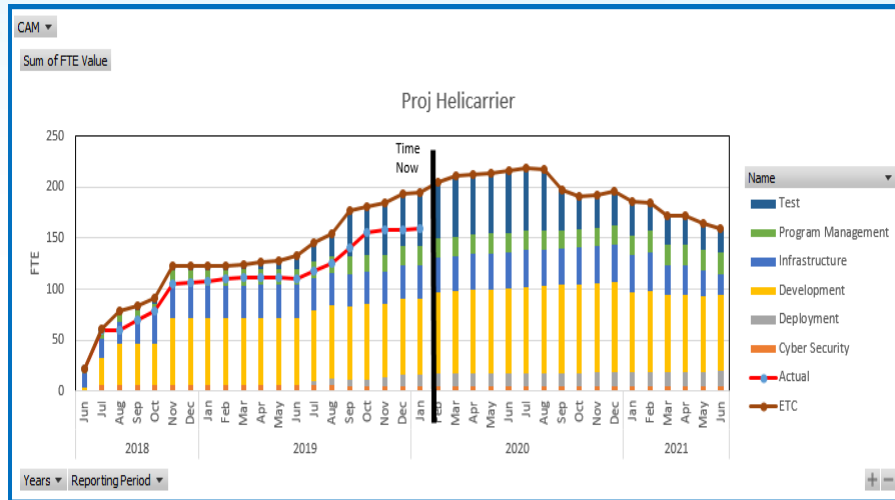


Schedule Variance by Control Account



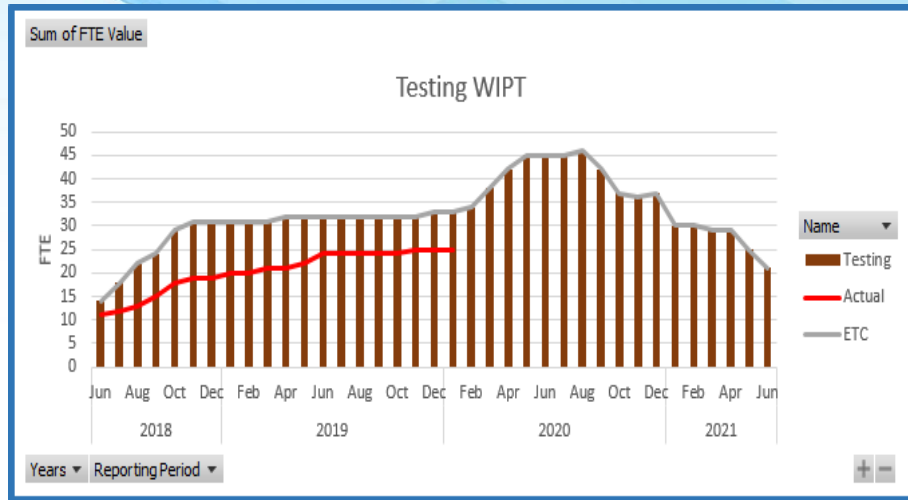
Staffing Plan Analysis by Working Integrated Product Teams

Programmatic View



- What are the current Staffing and hiring projections?
- What is the delta between past projections and actual hiring?

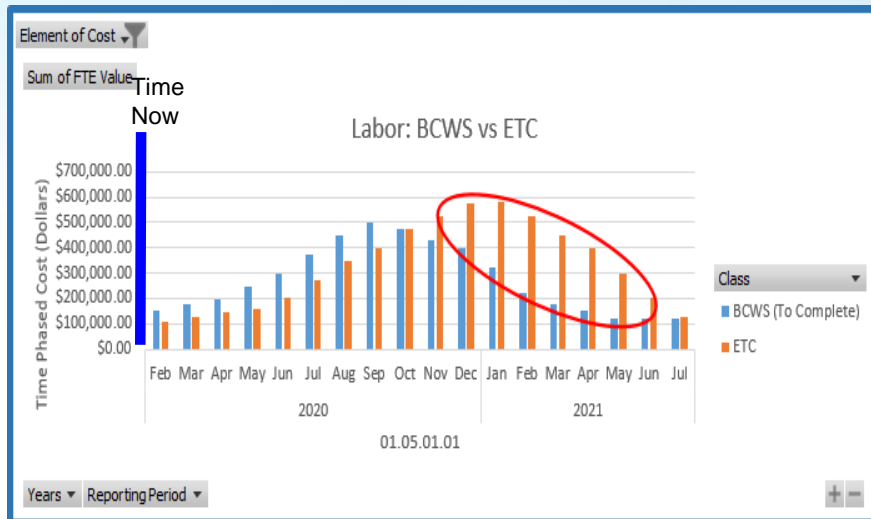
Individual WIPT View



- What is the plan to hire the number of people needed?
- Is this a realistic hiring plan?
- What is the impact on cost and schedule introduced by this identified risk?



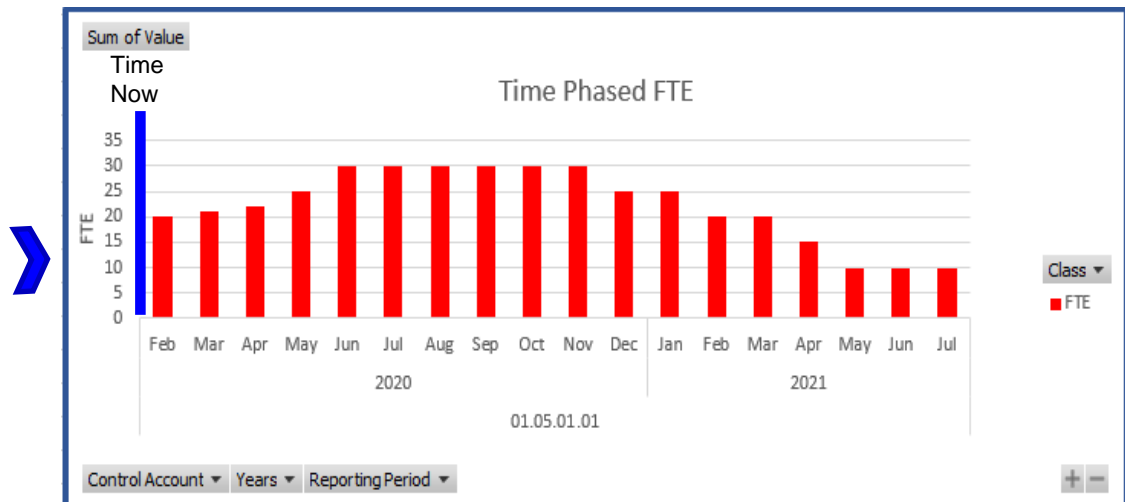
Time Phased BCWS (To-Complete) vs ETC by Control Account & EOC



- What does the trend line for BCWS look like?
- What is the delta between the BCWS and the ETC?
- Is there an imminent cost variance?

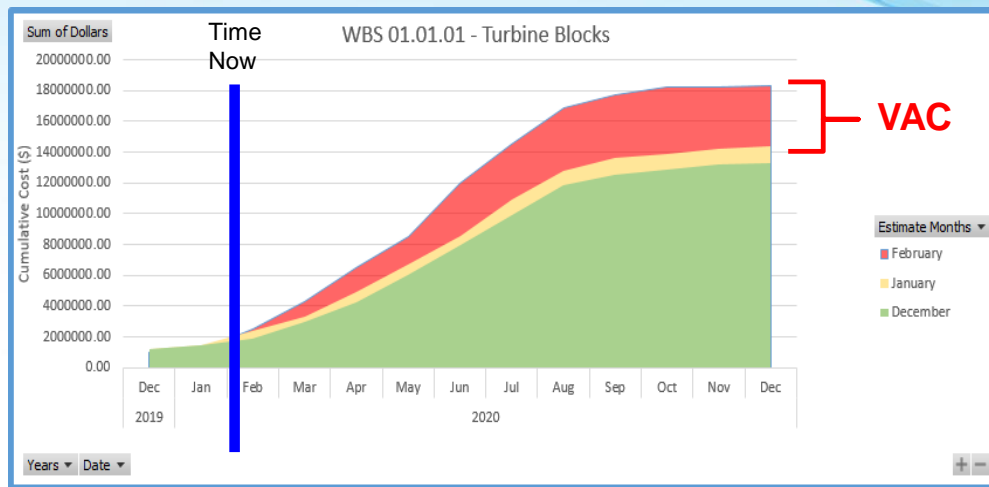
Time-Phased FTE Plan by Control Account

- Forward looking: analysis of FTEs within a control account

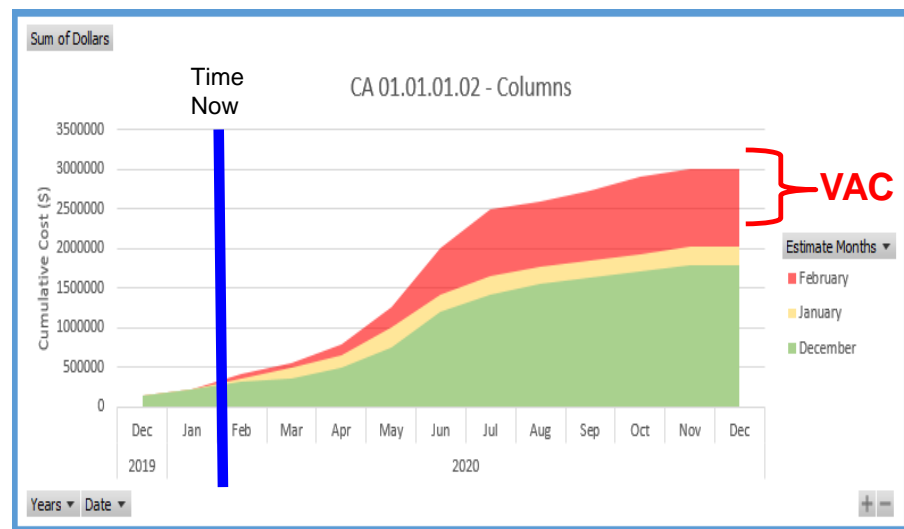
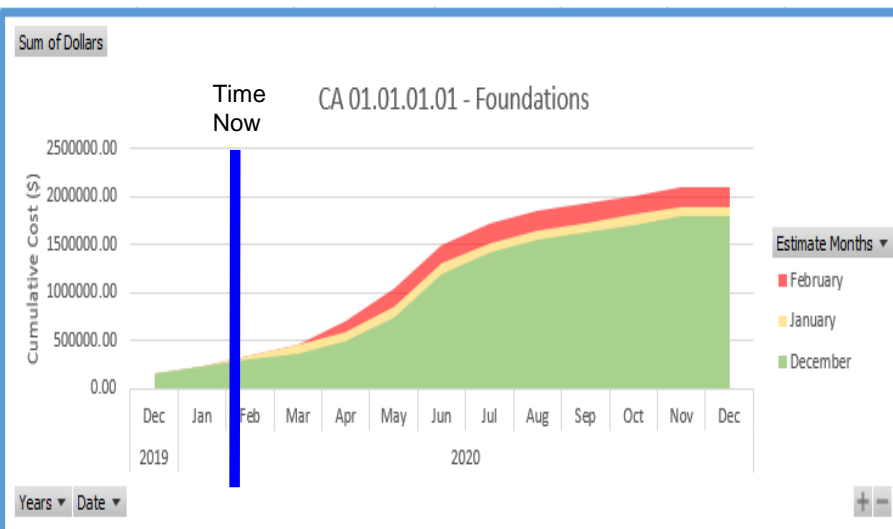


EAC Analysis by Control Account and Work Package

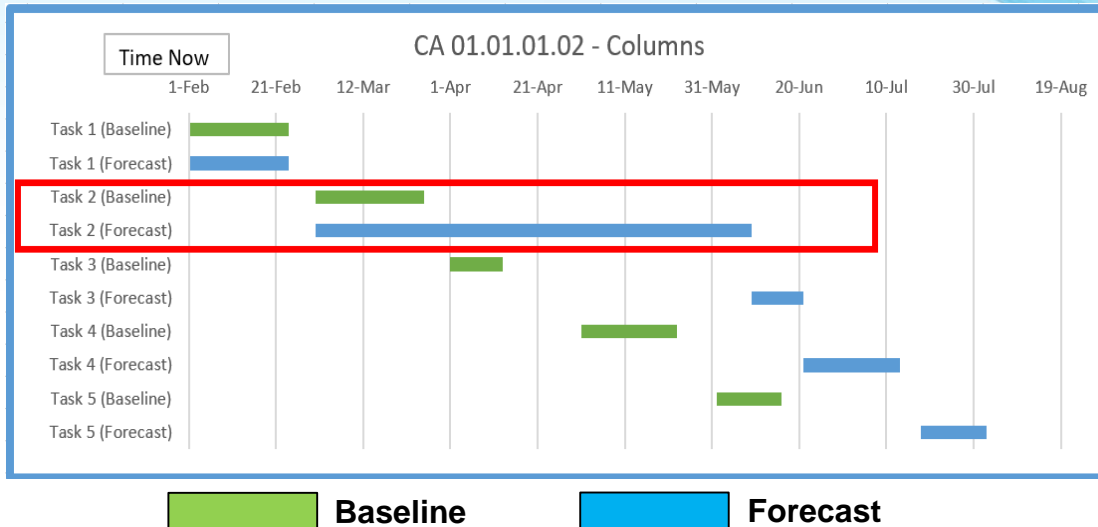
Month-Over-Month EAC



- Ability to isolate work streams that are contributing to Variance at Complete (VAC) at WBS and Control Account Levels
- Ability to recognize driving factors
- Can be performed at the control account and Work Package level



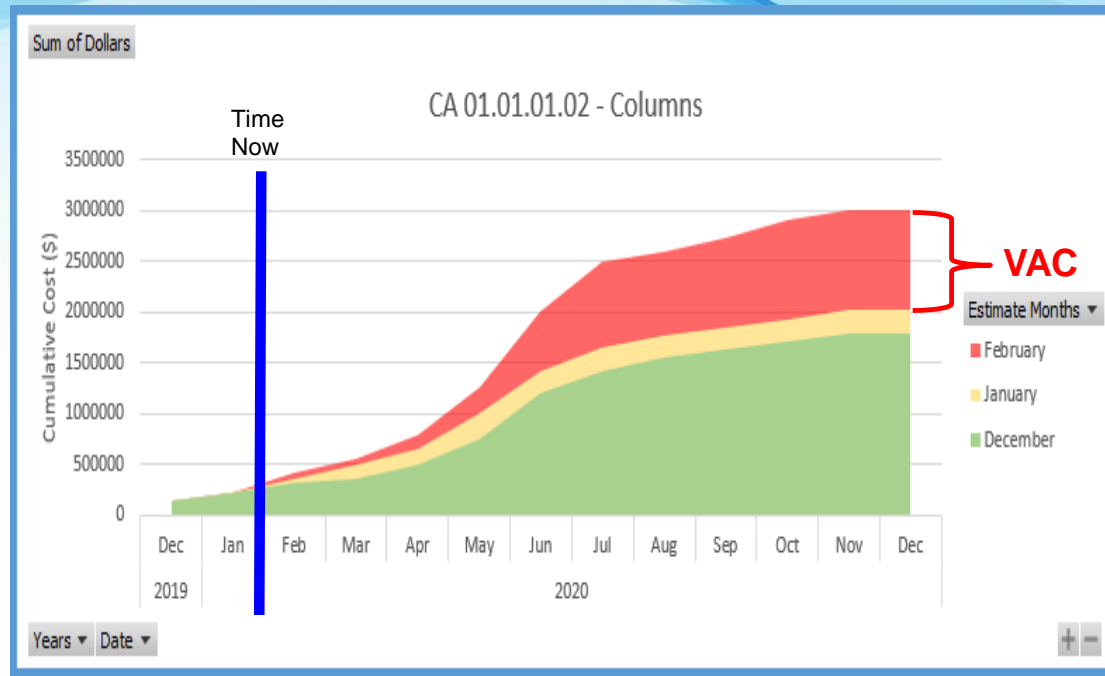
Native Schedule (IMS)



- Not only does the IPMDAR contain a project's cost data (CPD) but it also contains the project's schedule data (SPD)
- Provides for cost schedule integration

Schedule Dataset (SD)

ID	Baseline Start Date	Baseline End Date	Forecast Start Date	Forecast End Date
Task 2	3/1/2020	3/26/2020	3/1/2020	6/9/2020
Task 3	4/1/2020	4/13/2020	6/10/2020	6/21/2020
Task 4	5/1/2020	5/23/2020	6/21/2020	7/12/2020

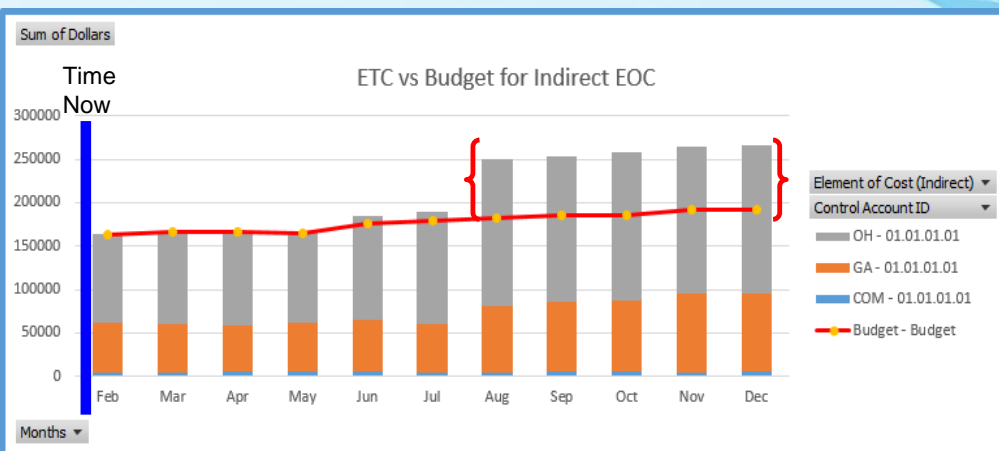


- What specific Task / Work Package is causing the VAC?
- Cost and Schedule Integration Check - Are the CPD and the IMS/SPD telling the same story?
- Question to ask - Was more work added? Was the task planned incorrectly?
- Charts and analysis promote quick realization of cost and schedule impact and promotes a timely corrective actions discussion
- Is an OTB/OTS eminent?
- Is there a scope creep?

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Time Phased Budget vs ETC by Control Account & Element of Cost (EOC)

- What is one of the causes for the Budget versus Forecast cost discrepancy?
- IPMDAR provides the ability to dissect and isolate expended costs as well as planned/forecasted costs by element of cost (EOC)
- Should be noted in the Executive Summary



- Indirect rate analysis – presenting changes by element of cost

