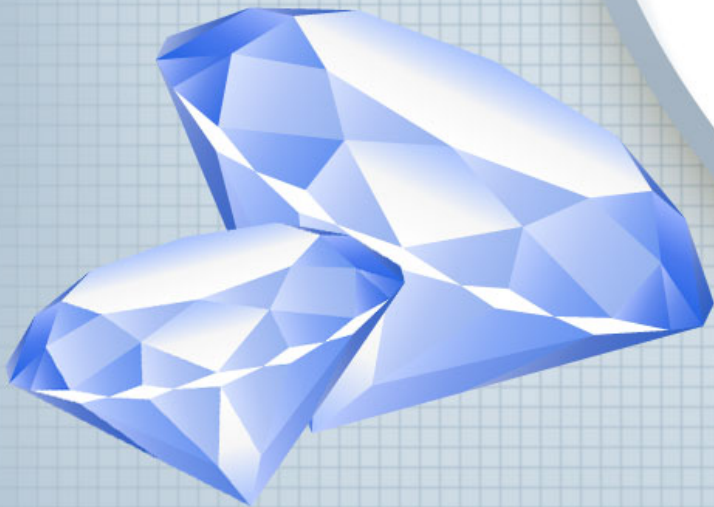


DIAMONDS IN THE ROUGH

HOW TO NORMALIZE COST ACCOUNTING DATA



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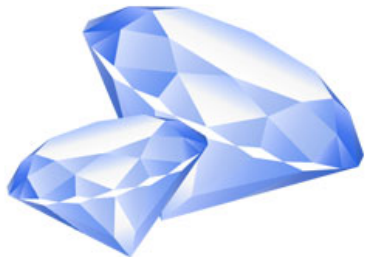
Outline

- Executive Summary
- Investment Planning & Analysis Overview
- AMS Process Overview
- Data Availability
- Our Approach
- Questions



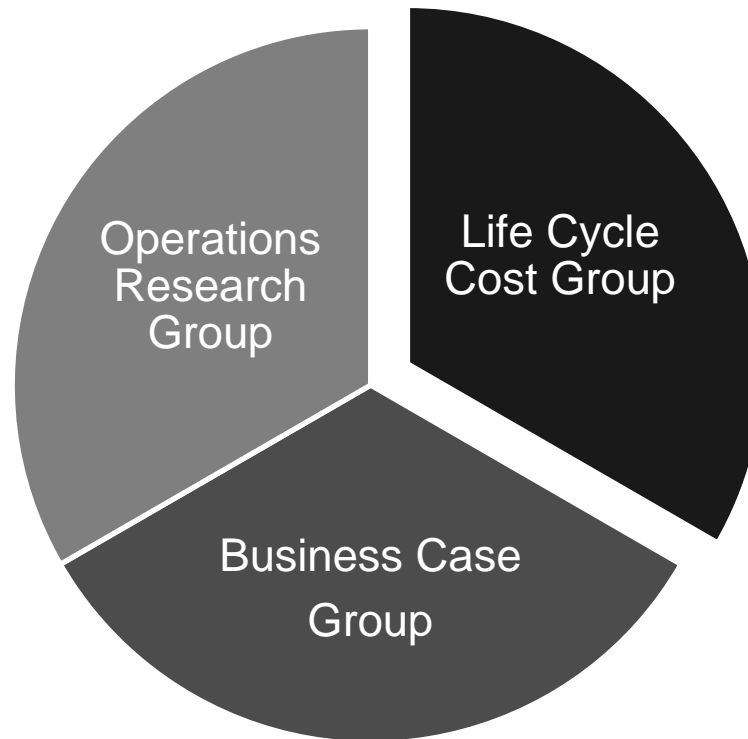
Executive Summary

A year ago, FAAs Cost Manager assembled a small team to collect cost data in hopes of producing a cost database. The team consists of analysts from Regulus and Cobec led by myself. Currently, our cost accounting system stores all cost for the agency. Our challenge is converting cost accounting data into usable cost data with the help of program EVM data. At the least, our efforts will yield a much needed repository to validate program cost estimates.



Investment Planning & Analysis

Investment Planning and Analysis (IP&A) Division's mission is to "strive to ensure that solid business cases support acquisition decision-making within the FAA"



AMS Process

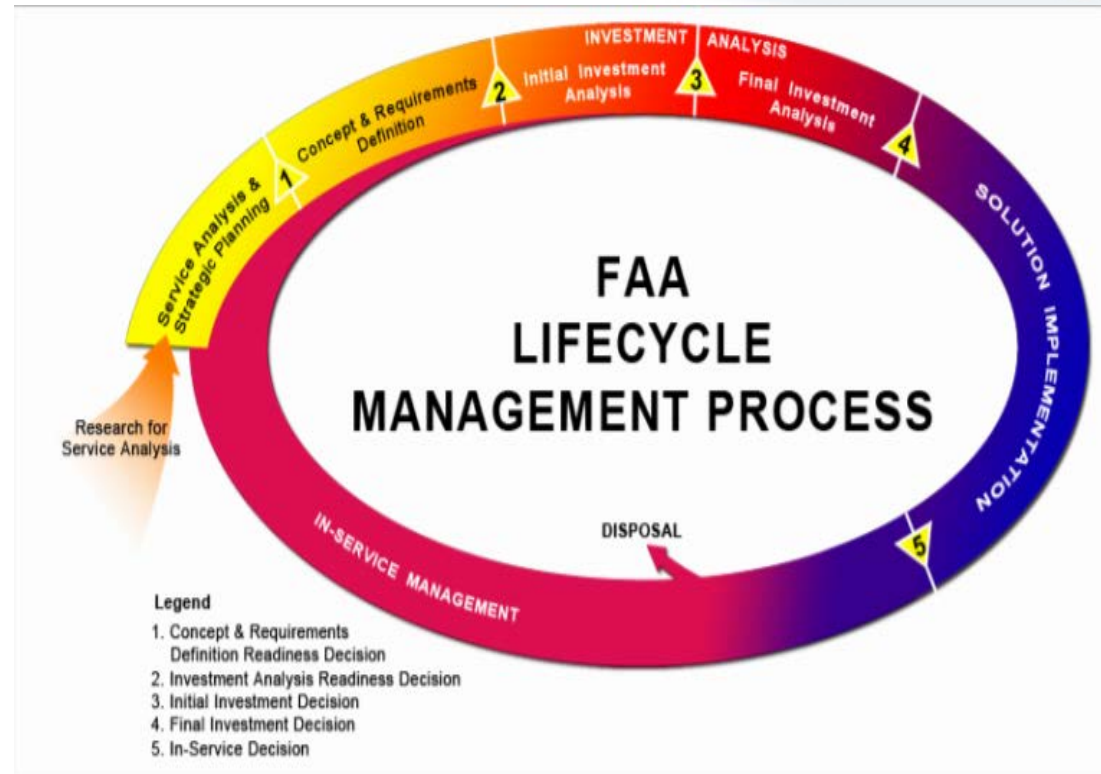
Like DoD, FAA has a lifecycle management process. Ideally we'd like to insert our efforts at EP 2.

Entry point 1 ~ Pre milestone A

Entry point 2 ~ Milestone A

Entry point 3 ~ Milestone B

Entry point 4 ~ Milestone C



Source: FAA Acquisition Management Policy, 2013

Data Availability

Data type	Primary	Secondary
Basic accounting records	x	
Data collection input forms	x	
Cost reports	x	x
Historical databases	x	x
Interviews	x	x
Program briefs	x	x
Subject matter experts	x	x
Technical databases	x	x
Other organizations	x	x
Contracts or contractor estimates		x
Cost proposals		x
Cost studies		x
Focus groups		x
Research papers		x
Surveys		x

Source: GAO



FAAs “Cost Accounting System”

Pros

Shows all expended costs

Cons

Unreliable WBS Categorization

EVM Data

Pros

Better WBS
Categorization

Cons

Questionable EVM practices
Only manages budgets under PM purview

Cost Reports and Estimates

Pros

Shows input into budget
formulation

Cons

Budgets are not actual costs
WBS categorization is not correct

Programmatic Data

Pros

Gives context to
expended costs

Cons

No actual cost data

Subject Matter Experts

Pros

Easiest method to collect
data

Cons

Extremely subjective

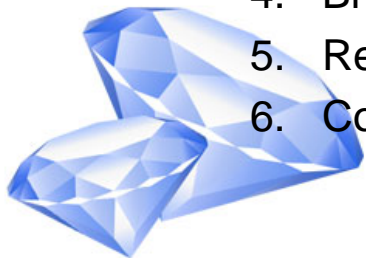
Our Approach

Fact: FAAs current environment is not conducive to *collecting cost data by Work Breakdown Structure*

Opinion: *Changing the cost culture is not a near-term fix*

Our approach is simply to mine the available data and compile our findings into a viable database. In general our process has been:

1. Extract program data from FAA Cost accounting system
2. Collaborate with program office for EVM Data and Program History
3. Break out cost accounting data by 1st level WBS
4. Break that down further using EVM Data to 2nd level WBS
5. Reconcile with program history
6. Confirm final numbers with program office



Cost Accounting Example

WBS Number	Meaning
1.0	Mission Analysis
2.0	Concept Design and Review
3.0	Solution Development
4.0	Implementation

Sum of Amount	Column Labels			
Row Labels	OPS	F&E ACTIVITY 5	F&E DIRECT	Grand Total
A030501	1,680,571.47	26,780,625.90	67,751,981.76	96,213,179.13
A030503		1,531,343.64	7,814,274.39	9,345,618.03
C260100	2,298,958.10	76,271,985.08	215,023,537.84	293,594,481.02
C260101		1,175,336.27	6,815,159.08	7,990,495.35
C260102	6,034.39	1,219,039.57	2,406,693.32	3,631,767.28
G01A0204	-458.76	1,585,425.39	7,879,380.59	9,464,347.22
00.WB1040		51,750.27	337,500.00	389,250.27
00.WB1050		11,582.36	69,496.00	81,078.36
00.WB2020		1,218,055.19	7,323,530.95	8,541,586.14
00.WB3050		9,329.82	46,502.24	55,832.06
00.WB4010		118.60		118.60
00.WB4020	-355.13	121,462.47		121,107.34
00.WB4050		139,964.04	67,110.75	207,074.79
00.WB4060	-103.63	28,316.27	35,240.65	63,453.29
00.WB4070		4,846.37		4,846.37
G02A0103	12,429.78	27,519,651.06	109,584,937.58	137,117,018.42
G02A0104		22,156.25	125,000.00	147,156.25
G02A0105		1,136,946.66	7,107,160.83	8,244,107.49



EVM and Mapping Example

EVMS WBS	EVMS Description	FAA WBS v5.1	WBS v5.1 Description	F&E FY09	Act 5 FY09	F&E FY10	Act 5 FY10	F&E FY11	Act 5 FY11
..FY.3.01.01	GDC4S Radio Base Year Order - CLIN 2004	3.1.1	Subsystem 1...n					\$ 19,134.92	
..FY.3.01.99	NEXCOM Prime Mission Product - PP								
..FY.3.01.2	GD Training	3.1.2	Prime Mission Product Software						
..FY.3.02	NEXCOM Segment 2 Program Management	3.2	Program Management		\$ 387.95	\$ 1,460.00	\$ 287.44		\$ 287.43
..FY.3.02.01	NEXCOM Segment 2 Program Management	3.2.1	Planning, Authorization, and Control	\$ 1,361.18					
..FY.3.02.01.001	Progrm Management (FAA)							\$ 400.00	
..FY.3.02.01.002	Progrm Management (CTR)							\$ 108.32	
..FY.3.02.02	NEXCOM Segment 2 Contract Management	3.2.2	Contract and Grant Management			\$ 1,400.62			
..FY.3.02.02.001	Contract Management (FAA)							\$ 1,099.23	
..FY.3.02.02.002	Contract Management (CTR)							\$ 900.44	
..FY.3.03	NEXCOM Segment 2 Systems Engineering	3.3	Systems Engineering				\$ 243.69		\$ 292.43
..FY.3.03.01	Systems Engineering (FAA)	3.3.1	Systems Engineering Management						
..FY.3.03.02	Systems Engineering (CTR)	3.3.2	Requirements and Architecture Engineering						
..FY.3.05	NEXCOM Segment 2 Test & Evaluation	3.5	Test and Evaluation				\$ 599.61		\$ 599.61
..FY.3.05.01	Test & Evaluation (FAA)	3.5.1	Development Test and Evaluation						
..FY.3.05.02	Test & Evaluation (CTR)	3.5.2	Operational Test and Evaluation						
..FY.3.06	NEXCOM Segment 2 Integrated Logistics Support	3.6	Integrated Logistics Support					\$ 130.20	\$ 302.99
..FY.3.06.01	Maintenance Planning	3.6.1	Maintenance Planning						
..FY.3.06.05	Logistics Training	3.6.5	Training, Training Support, and Personnel Skills						



Product Example

Appropriation	WBS	WBS Description	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	Total
Act5	1	MISSION ANALYSIS														\$ -
Act5	2	INVESTMENT ANALYSIS			\$ 21,223.56	\$ 77,521.78	\$ 2,498.10	\$ 3,293.85								\$ 104,537.29
Act5	3	SOLUTION IMPLEMENTATION			\$ 20,414.00	\$ 3,379,801.11	\$ 8,428,448.54	\$ 13,867,038.31	\$ 16,212,090.95	\$ 19,320,663.47	\$ 16,742,113.10	\$ 18,237,828.50				\$ 96,208,397.98
Act5	3.1	Prime Mission Product			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Act5	3.2	Program Management			\$ 3,029.36	\$ 187,938.18	\$ 326,823.05	\$ 662,199.13	\$ 593,457.60	\$ 716,774.77	\$ 465,352.49	\$ 657,814.23				\$ 3,613,388.81
Act5	3.3	Systems Engineering			\$ 2,568.27	\$ 191,207.47	\$ 311,932.06	\$ 1,464,022.66	\$ 1,132,691.25	\$ 1,634,746.61	\$ 1,229,558.63	\$ 1,738,005.76				\$ 7,704,732.72
Act5	3.4	Flight Standards, Regulations, and Rulemaking														\$ -
Act5	3.5	Test and Evaluation			\$ 6,319.34	\$ 392,059.33	\$ 681,785.38	\$ 1,389,434.85	\$ 929,005.37	\$ 670,385.10	\$ 151,264.87	\$ 213,819.36				\$ 4,434,073.61
Act5	3.6	Integrated Logistics Support			\$ -	\$ 198,112.20	\$ 344,498.10	\$ 900,832.27	\$ 651,056.54	\$ 600,873.08	\$ 539,232.55	\$ 766,588.28				\$ 4,001,193.02
Act5	3.7	Implementation			\$ 8,497.03	\$ 2,410,483.92	\$ 6,763,409.94	\$ 9,450,549.40	\$ 12,905,880.19	\$ 15,697,883.91	\$ 14,356,704.55	\$ 14,861,600.87				\$ 76,455,009.82
Act5	3.7.1	Implementation Planning, Management, and Control														\$ -
Act5	3.7.2	Environmental and Occupational Safety and Health Compliance														\$ -
Act5	3.7.3	Implementation Engineering														\$ -
Act5	3.7.4	Real Estate														\$ -
Act5	3.7.5	Facilities														\$ -
Act5	3.7.6	Infrastructure														\$ -
Act5	3.7.7	Airspace Design														\$ -
Act5	3.7.8	Key Site Preparation, Installation, Test, and Activation														\$ -
Act5	3.7.9	Site Preparation, Installation, Test, and Activation														\$ -
Act5	4	IN-SERVICE MANAGEMENT						\$ 35,750.01	\$ 10,942.76	\$ 50,023.84	\$ 4,911.15	\$ 33,025.83				\$ 134,653.59
OPS	1	MISSION ANALYSIS														\$ -
OPS	2	INVESTMENT ANALYSIS														\$ -
OPS	3	SOLUTION IMPLEMENTATION														\$ -
OPS	4	IN-SERVICE MANAGEMENT														\$ -
F&E	1	MISSION ANALYSIS														\$ -
F&E	2	INVESTMENT ANALYSIS			\$ 40,925.95	\$ 427,209.17	\$ 13,703.23	\$ 18,658.47								\$ 500,496.82
F&E	3	SOLUTION IMPLEMENTATION			\$ 27,587.33	\$ 3,333,822.64	\$ 9,443,799.09	\$ 26,959,466.14	\$ 20,950,523.19	\$ 50,574,515.24	\$ 38,885,739.94	\$ 37,992,634.90				\$ 188,168,088.47
F&E	4	IN-SERVICE MANAGEMENT						\$ 2,525.18	\$ 6,500.00	\$ 360.83	\$ 1,023.48	\$ 65,434.07				\$ 75,843.56
TOTALS			0	0	110150.84	7218354.7	17888448.96	40886731.96	37180056.9	69945563.38	55633787.67	56328923.3	0	0	0	\$ 285,192,017.71



Product Results

WBS	Act5 Estimate	Act5 Actual	Act5 Difference	Act5 Budget %
3	\$51.226	\$96.208	(\$44.982)	187.8%
3.1	\$3.107		\$3.107	0.0%
3.2	\$2.600	\$3.613	(\$1.013)	139.0%
3.3	\$2.503	\$7.705	(\$5.202)	307.8%
3.4				0.0%
3.5	\$4.010	\$4.434	(\$0.424)	110.6%
3.6	\$2.655	\$4.001	(\$1.347)	150.7%
3.7	\$36.352	\$76.455	(\$40.103)	210.3%
4				0.0%

WBS	F&E Estimate	F&E Actual	F&E Difference	F&E Budget %
3	\$235.059	\$188.168	\$46.891	80.1%
3.1	\$118.113	\$70.065	\$48.047	59.3%
3.2	\$7.077	\$8.053	(\$0.977)	113.8%
3.3	\$2.146	\$4.490	(\$2.344)	209.2%
3.4				0.0%
3.5	\$6.256	\$5.273	\$0.983	84.3%
3.6	\$7.936	\$5.869	\$2.067	74.0%
3.7	\$93.532	\$94.418	(\$0.886)	100.9%
4				



Questions??

