



# INTEGRATED PROJECT MANAGEMENT: “A VIEW FROM THE FRONT LINE”

30 April 2014

Presented to:

NDIA Integrated Program Management Division (IPMD)

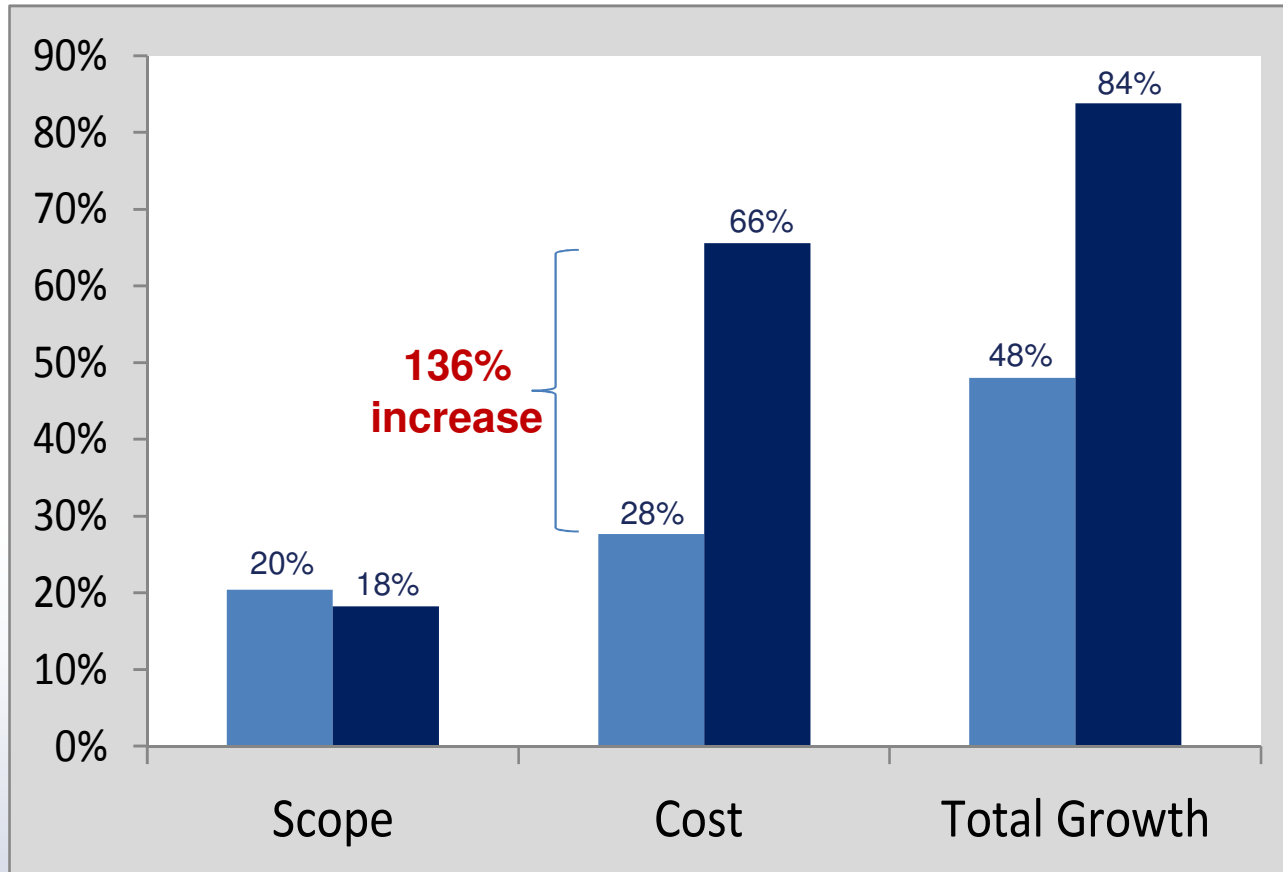
Presented by:

**Mr. Dave Burgess**

Director, Cost Department



# HOW ARE WE DOING?



Active Development Project Total Growth = \$26.2B

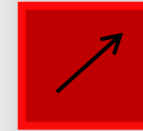
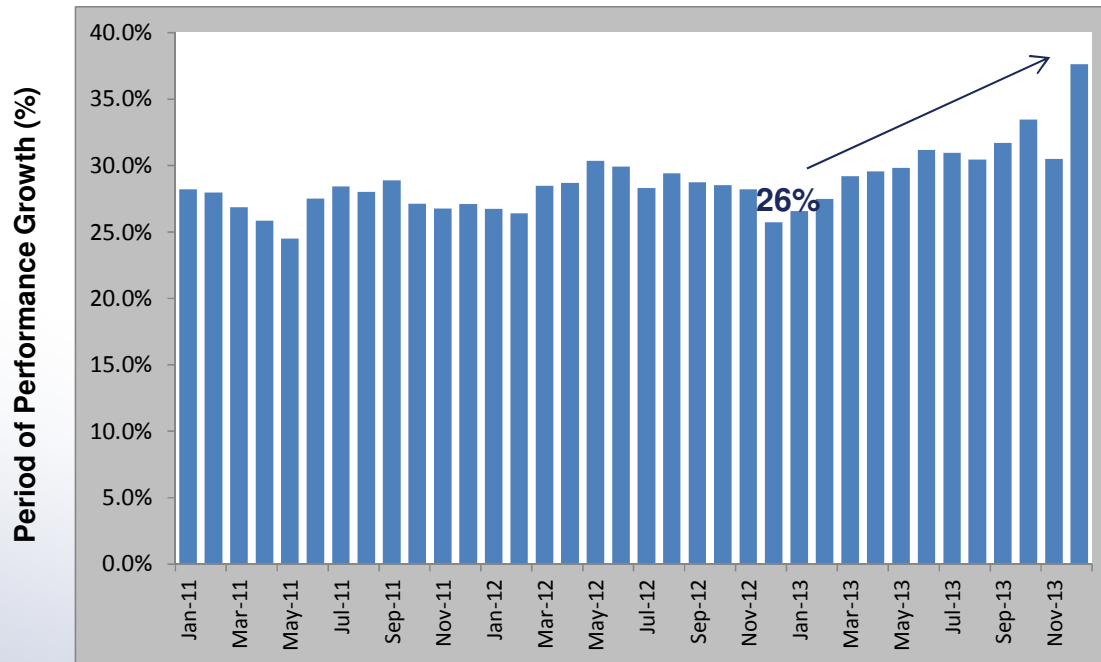
- Data based on 174 active and historic projects  
- Dec 2013 data

■ Historic Projects  
■ Active Projects

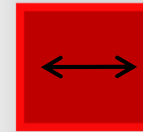
Development projects more than **doubled** their cost growth %



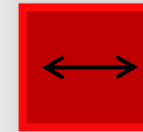
# HOW ARE WE DOING?



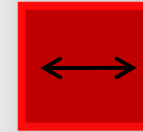
37% Projected Schedule Growth



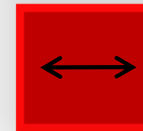
66% Projected Cost Growth



18% Scope Growth



0.53 Current Execution\*



49% Duration Growth\*

- Schedule growth based on the difference between the 4.2 estimated Period of Performance (PoP) and the original PoP
- Dec 2013 data

\*Represents the median value of contracts

**NOT WELL!!!**



# LIKELY REASONS WHY?

## Planning

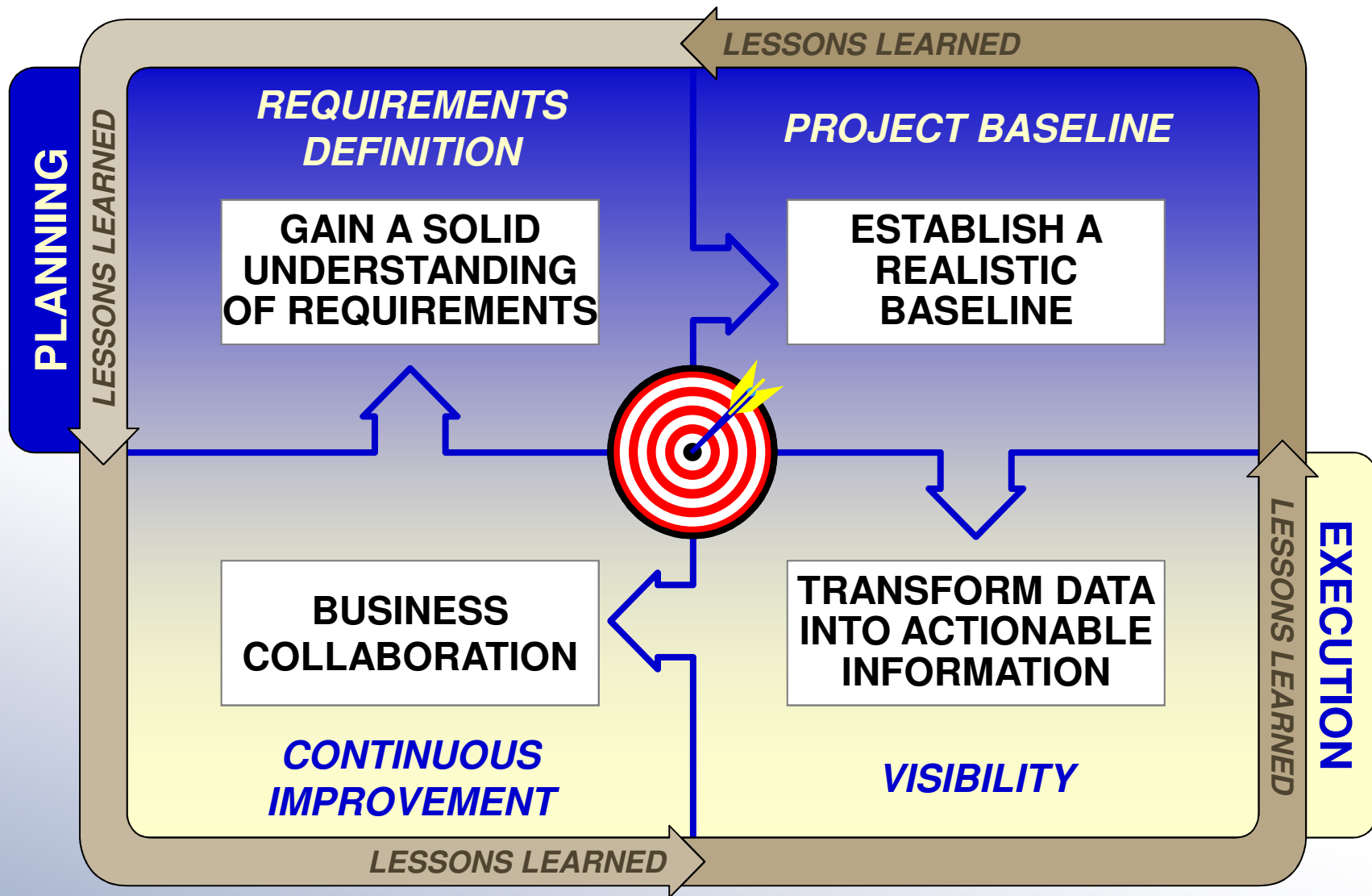
- Requirements decomposition
- Conflicting incentives
- Ignoring history

## Execution

- Accountability & Transparency
- Acquisition program management vs. project management
- Unrealistic execution plans & minimal subcontractor data

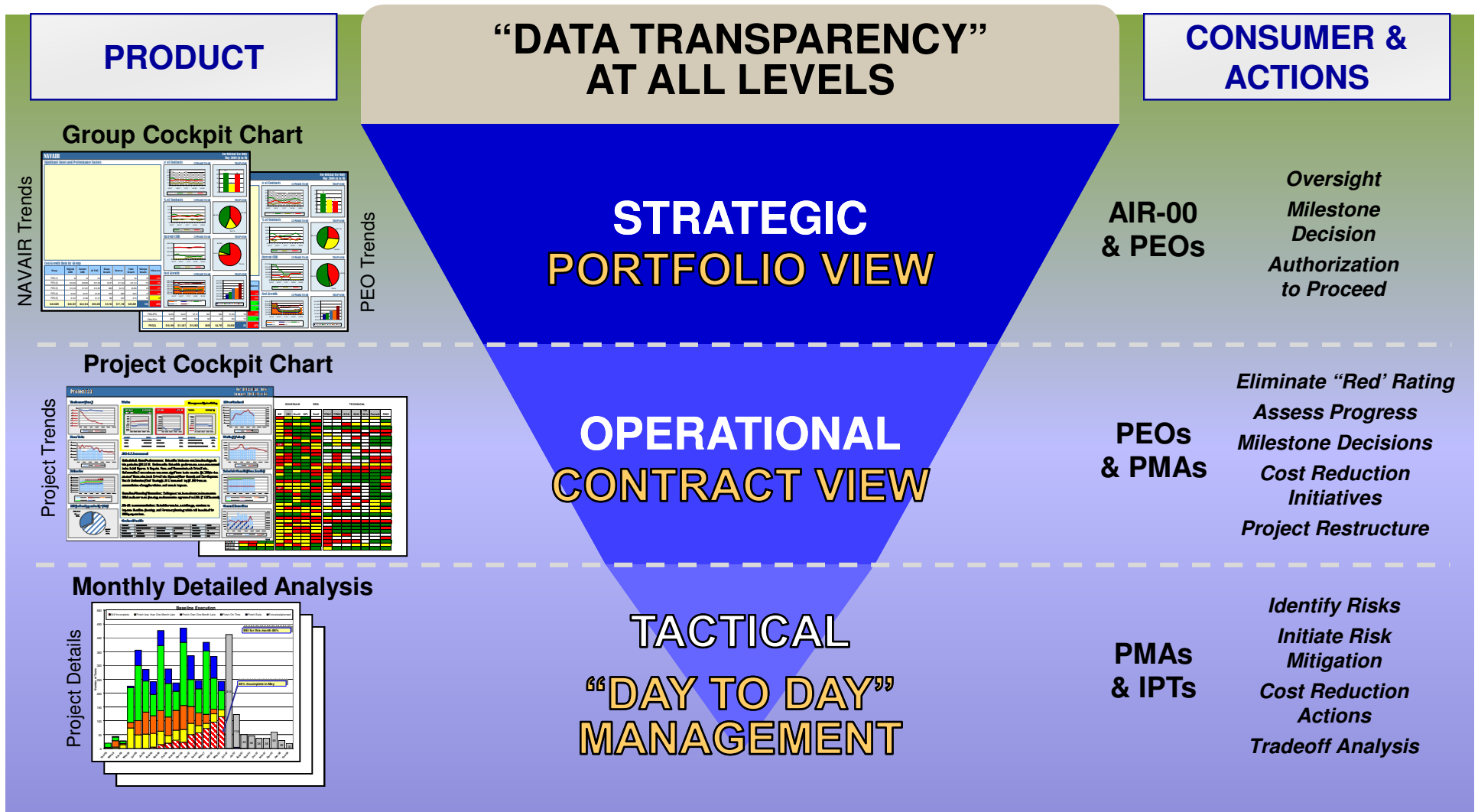


# IMPROVING PROJECT PERFORMANCE





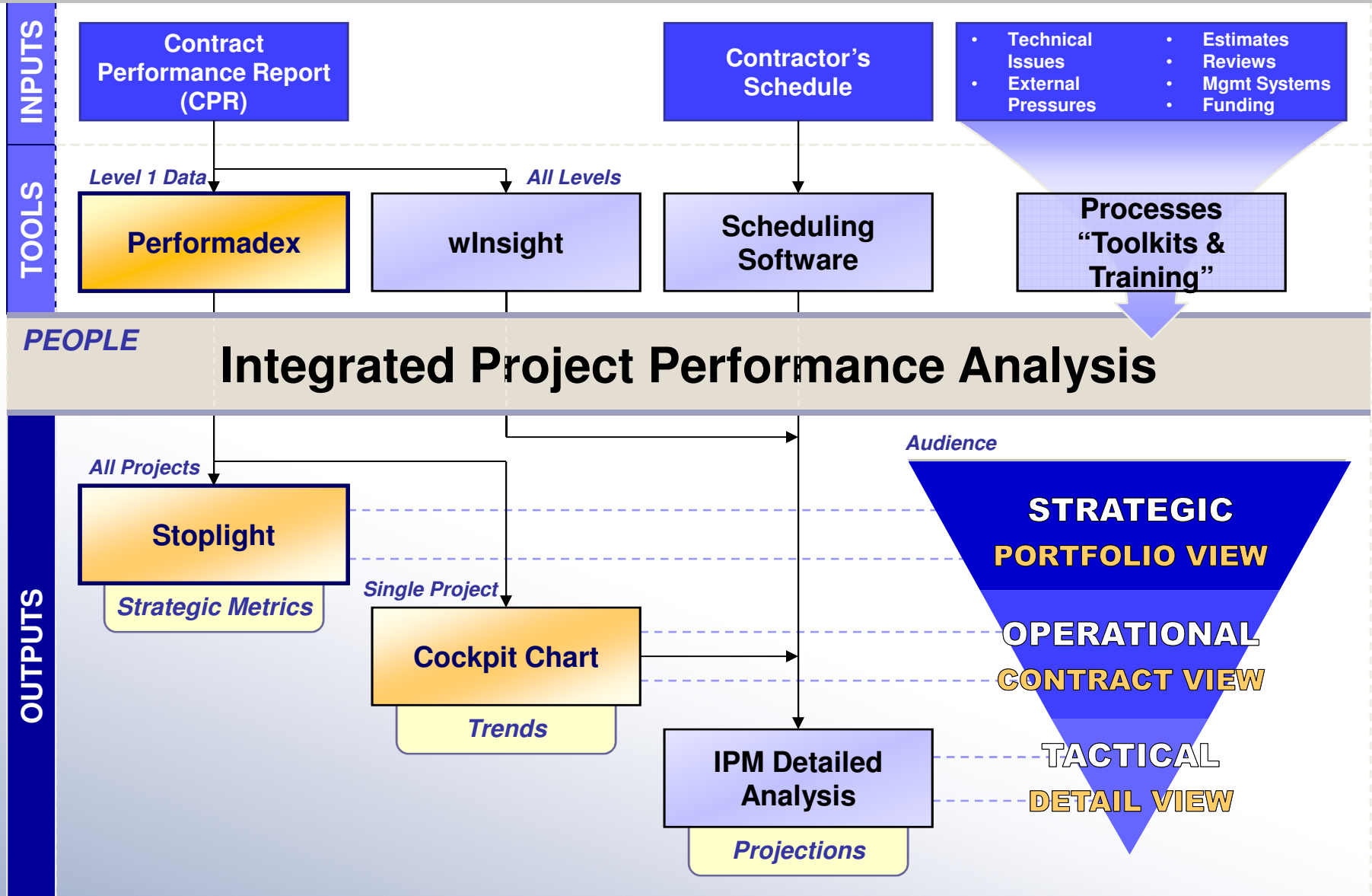
# TRANSPARENCY OF DATA



Institutionalized Standard Suite of IPM Metrics



# TRANSFORMING DATA INTO ACTIONABLE INFORMATION





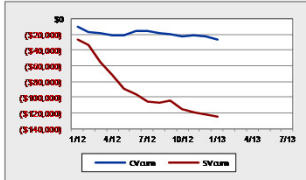
# INTEGRATED ANALYSIS – MONTHLY COCKPIT

CONTRACT VIEW

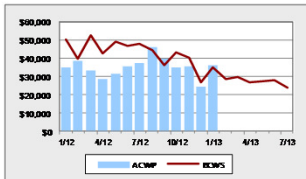
## Project 123

For Official Use Only  
January 2013 (\$ in K)

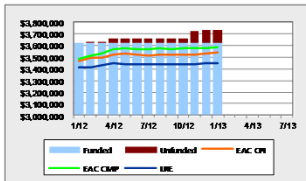
### Variances (Cum.)



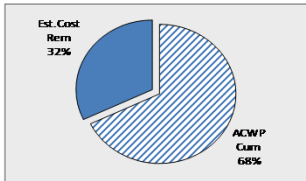
### Burn Rate



### Estimates



### Mitigation Opportunity (EAC)

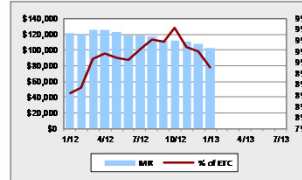


### Status

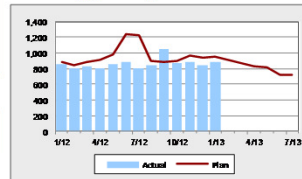
<b>CPI Cum</b> EVEN 0.96	<b>SPI Cum</b> UP 0.83	<b>VAC%</b> EVEN (7%)			
<b>TCPLRE</b> 1.08					
<b>Cost</b>	<b>\$inK</b>	<b>Progress</b>	<b>Pct.</b>	<b>Growth</b>	<b>Pct.</b>
TAB	\$3,498,482	Spent	75%	Scope (Realized)	0%
MR	\$102,215	Schedule	78%	Overrun (Underrun)	37%
EAC	\$3,736,482	Performed	74%	Schedule Behind (Ahead)	0%

### Management System Rating

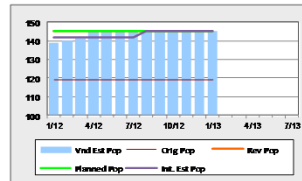
### MIR on Contract



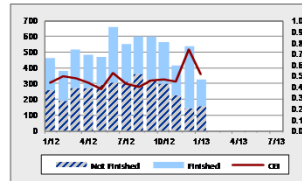
### Staffing (Prime)



### Schedule Growth (Cum. Months)



### Current Execution



### AIR 4.2 Assessment

**Schedule & Cost Performance:** Schedule Variance continued to degrade this period to \$125.1M. Unfavorable Schedule performance are concentrated in the Initial Spares & Repairs Parts and Transmission & Drive Train. Unfavorable Cost variance was most significant in six months (\$4.7M) in the areas of Transmission & Drive Train System (Gear Boxes) and Development Test & Evaluation (Qual Testing). LRE increased by \$7.3M from an accumulation of supplier claims and rework impacts.

**Baseline Planning/Execution:** Delinquent tasks continues to increase to 1831 and near term planning and execution regressed to 55% (CEI-Discrete).

**Air 4.2 recommendation:** Schedule remains a challenge, continue to improve Baseline planning and Forecast planning which will be critical for SRA preparations.

### Contract Profile

Vendor	Contractor 1			PMA	PMA
Contract	Contract Number	Org Award	\$3,052,184	Current	\$3,056,657
Type	CPIF	Category	I	Total OTB	1
Start Date	1/3/2006	Last Award Fee	9/30/2010	Last OTB	8/1/2011
Est End Date	2/28/2018	Next Award Fee	NA	Next OTB	NA

V3.1

## FORWARD LOOKING ASSESSMENT OF THE PROJECT





# HEAT MATRIX ANALYSIS

CONTRACT VIEW

		TAB			Work Remaining		COST			SCHEDULE					
		BAC	% Complete	% Spent	BCWR	ETC (LRE)	VAC % (Cum.)	CPI (Cum.)	TCPI (LRE)	BE Finishes (Cum.)	DurG (Cum.)	SPI (Cum.)	CEI Finishes	Volatility Finish	
WBS Level III	WBS A	Program A	6,220,236	0.97%	1.03%	161,496	172,607	-0.05%	0.950	0.940	0.999	1.150	1.000	0.480	0.520
	WBS B	IPT A	1,692,145	1.00%	1.02%	5,099	4,830	-0.02%	0.980	1.056	0.998	1.286	0.998	0.500	0.500
	WBS C	IPT B	194,639	0.94%	1.03%	11,362	9,395	-0.08%	0.917	1.209	0.994	1.271	0.996	0.330	0.670
	WBS D	IPT C	208,414	0.94%	1.08%	12,197	12,734	-0.14%	0.870	0.958	1.004	1.435	0.994	0.930	0.070
	WBS E	IPT D	318,843	0.99%	1.00%	4,376	4,255	-0.02%	0.984	1.028	0.999	1.151	0.995	0.570	0.430
	WBS F	IPT E	167,581	0.96%	1.10%	7,440	9,570	-0.15%	0.872	0.777	1.000	1.112	0.976	1.000	0.000
	WBS G	IPT F	103,977	0.99%	0.99%	1,363	916	0.00%	0.993	1.488	1.000	1.535	0.990	LOE	LOE
	WBS H	IPT G	99,029	0.99%	0.97%	511	491	0.03%	1.030	1.041	1.000	1.062	0.999	0.000	1.000
	WBS I	IPT H	72,377	0.95%	0.92%	3,370	2,713	0.04%	1.039	1.242	0.999	1.054	0.985	0.250	0.750
	WBS J	IPT I	52,201	0.94%	0.92%	2,974	3,239	0.01%	1.020	0.918	1.000	0.947	0.984	LOE	LOE
	WBS K	IPT J	13,471	0.98%	1.01%	269	267	-0.03%	0.968	1.007	1.000	1.125	0.998	LOE	LOE
	WBS L	IPT K	73,295	0.99%	1.13%	779	746	-0.14%	0.877	1.044	1.000	1.189	1.000	LOE	LOE

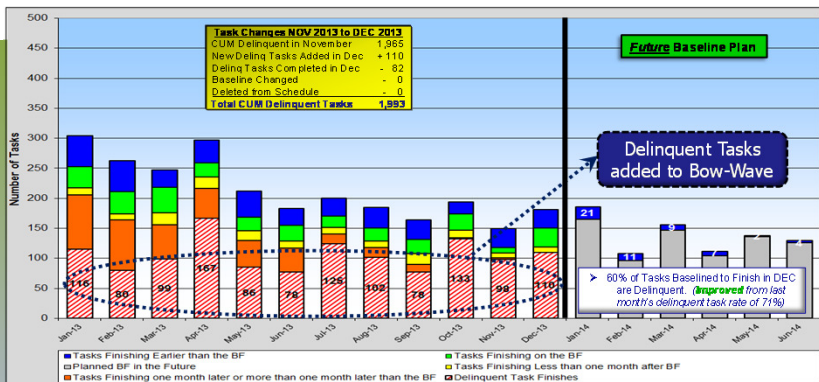
Helps to identify systemic issues and focus areas

**INTEGRATED ANALYSIS AT THE LOWEST LEVEL NECESSARY**



# ACTIONABLE INFORMATION

DETAIL VIEW



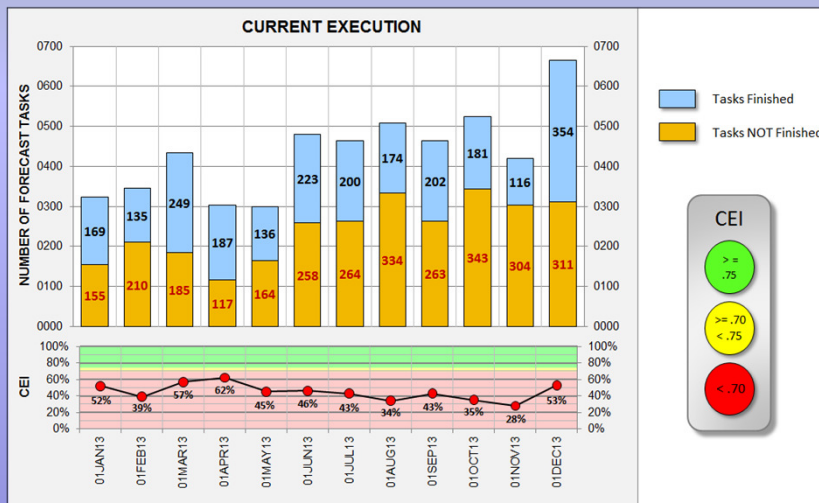
> In the month of DEC 2013, 110 tasks out of 192 (or 60% of tasks) baselined to finish during that month remained incomplete and subsequently pushed into future months.

> Cumulatively, there continues to be a large bow-wave of delinquent tasks carried over from month to month, which presents a risk to Program schedule. Previously delinquent tasks are being completed at approximately the same rate that new tasks are becoming delinquent. This prevents the Program from improving or decreasing the number of tasks in the bow-wave. Improved current month baseline execution is needed to decrease the bow-wave of tasks.

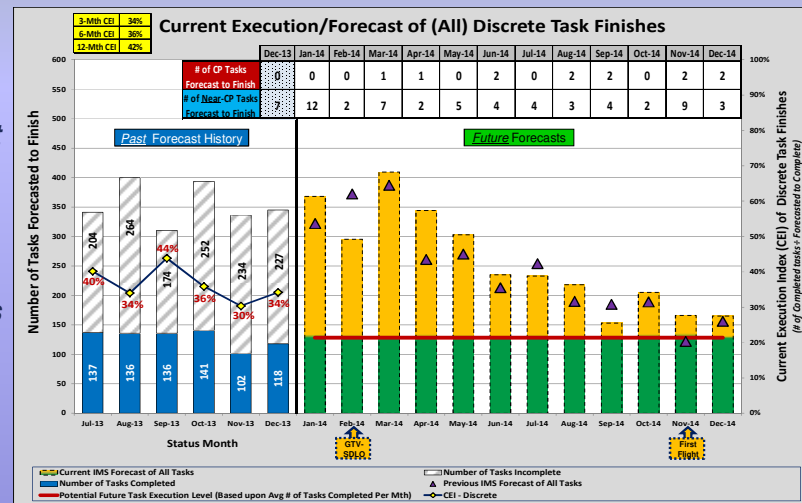
> AIR 4.2 Recommendation: 1. Optimize the use of the IMS planning window and make necessary baseline changes, as needed, to align with current execution. 2. Continue to re-evaluate resources and staffing profiles that have been planned over the next six months to determine if current plan can support the additional workload created by this bow-wave.

Kick the CAM list of specific delinquent tasks

Tasks Started that are Delinquent to their BL Finish Dates (Critical / Near-Critical)													
IPT Name	CAM Name	Activity ID	Activity Name	BL Project Start	Start	BL Project Finish	Finish	Total Rest	BL Project Duration	Remaining Duration	At Completion Duration	Variance BL Finish Date	Physical % Complete
P.T.A	Doe	111	EDM#3 Position 2 - Avionics Dynamic Components	10-Jan-13	01-Mar-13 A	9-Apr-13	1-Aug-14	0d	63d	149d	351d	-256d	46%
P.T.B	Smith	222	EDM#3 Position 1 - System Checkout Enclosures	10-Apr-13	01-May-13 A	9-Jul-13	1-Aug-14	0d	63d	149d	310d	-245d	11%
P.T.A	Smith	333	EDM#2 Position 1 - System Checkout Enclosures	30-Jan-13	07-Jan-13 A	29-Apr-13	11-Sep-14	8d	63d	177d	418d	-238d	58%
P.T.B	Smith	444	Strain Gauge & Component Installation EDM #2 Pos 1	30-Jan-13	01-Aug-13 A	26-Apr-13	11-Sep-14	8d	62d	177d	276d	-340d	37%
P.T.A	Morris	555	TGB Production 1 - Assembly	11-Jul-12	10-Dec-13 A	9-Aug-12	8-Jan-14	14d	22d	5d	16d	-341d	69%
P.T.B	Morris	666	EDM#1 TRP Flout	26-Sep-12	02-Jul-12 A	23-Oct-12	31-Jan-14	14d	20d	22d	384d	-306d	58%
P.T.A	Morris	777	EDM#1 Position 2 - Avionics Dynamic Components	3-Oct-12	04-Sep-12 A	9-Jan-13	7-Mar-14	14d	63d	47d	367d	-285d	76%
P.T.B	Morris	888	EDM#1 Position 1 - System Checkout Enclosures	10-Jan-13	03-Dec-12 A	9-Apr-13	7-Mar-14	14d	63d	47d	306d	-223d	56%
P.T.A	Clark	999	EDM #1 Component Calibration - TGB Stress Strain	11-Jul-12	02-Dec-13 A	11-Sep-12	23-Jan-14	14d	44d	16d	33d	-330d	6%
P.T.B	Clark	101	Tail Rotor Pylon Instrumentation Post fit out- EDM #1	24-Oct-12	15-Nov-13 A	30-Oct-12	21-Feb-14	14d	5d	37d	62d	-316d	8%
P.T.A	Clark	102	EDM #1 Test Prep - During FAFO Pos 2 - Salary	3-Oct-12	12-Dec-12 A	9-Jan-13	7-Mar-14	14d	63d	47d	299d	-285d	90%
P.T.B	Clark	103	EDM #1 Test Prep - During FAFO Pos 1 - Salary	10-Jan-13	22-Mar-13 A	8-Apr-13	7-Mar-14	14d	62d	47d	234d	-224d	58%
P.T.A	Clark	104	EDM #1 Test Prep - During FAFO Pos 2 - Hourly	3-Oct-12	12-Dec-12 A	9-Jan-13	7-Mar-14	14d	63d	47d	299d	-285d	90%
P.T.B	Clark	105	EDM #1 Test Prep - During FAFO Pos 1 - Hourly	10-Jan-13	22-Mar-13 A	8-Apr-13	7-Mar-14	14d	62d	47d	234d	-224d	58%
P.T.A	Clark	106	MGB Production 2 - Receive Supplier Completed Parts	4-Apr-12	31-Jan-13 A	1-Aug-12	15-May-14	16d	83d	95d	562d	-437d	51%
P.T.B	Todd	107	MGB Production 1 - Assembly (Post Calibration)	23-Oct-12	26-Sep-12 A	9-Nov-12	16-Jan-14	17d	10d	7d	72d	-323d	85%
P.T.A	Todd	108	EDM #1 Component Calibration - MR Shaft Gaging	11-Jun-12	04-Sep-13 A	10-Aug-12	10-Jan-14	17d	44d	7d	84d	-342d	75%
P.T.B	Todd	109	EDM #1 Component Calibration - MR Shaft Calibration And Gauge	11-Jun-12	04-Sep-13 A	10-Aug-12	10-Jan-14	17d	44d	7d	84d	-342d	76%
P.T.A	Todd	110	MRR EDM #2 - Rotor Head Build Up	25-Sep-12	15-Aug-13 A	9-Nov-12	30-Apr-14	18d	30d	84d	173d	-359d	5%
P.T.B	Todd	111	MR OCA Instrumentation Install EDM #2	25-Sep-12	15-Mar-13 A	9-Nov-12	29-May-14	18d	30d	104d	296d	-378d	44%
P.T.A	Allen	112	TRH EDM 1 - Receive Hub Install Components	19-Mar-12	01-Dec-11 A	14-May-12	28-Feb-14	19d	40d	42d	546d	-436d	85%
P.T.B	Allen	113	Test Plan ERB (CDRL T26)	3-Dec-12	21-Mar-13 A	21-Dec-12	27-Jan-14	20d	15d	18d	206d	-262d	40%
P.T.A	Allen	114	TRH 1) MGB BENCH TEST Program MGB 2007R PMOUT endurance	15-Mar-13	18-Nov-13 A	16-May-13	24-Jan-14	21d	44d	17d	41d	-166d	0%
P.T.B	Allen	115	Hydraulics EDRAP Documentation	22-May-12	02-Jul-12 A	24-Jul-12	24-Jan-14	21d	44d	17d	379d	-365d	89%
P.T.A	Allen	116	GTV Checkout without Blades - Salary	7-May-13	23-Dec-13 A	20-May-13	30-Jan-14	22d	10d	21d	23d	-168d	25%



Recent Current Execution trends projecting future task execution risks



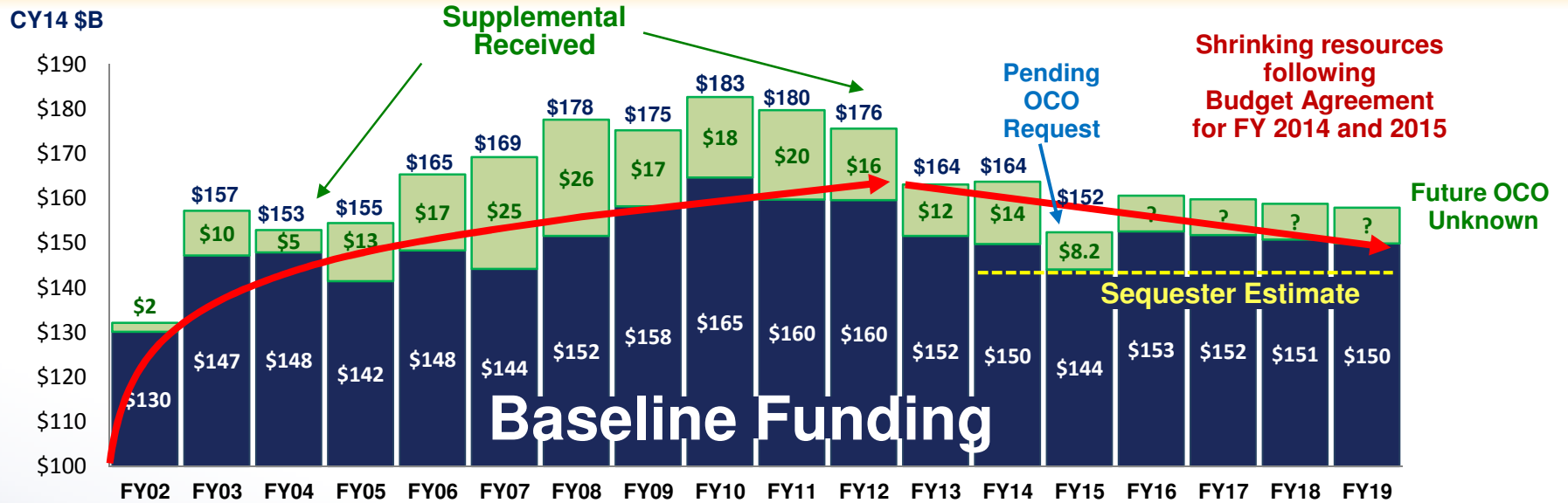
## MANAGING TASK EXECUTION TO IDENTIFY LEADING ISSUES



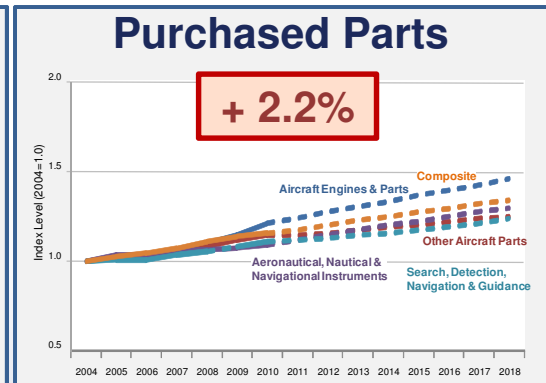
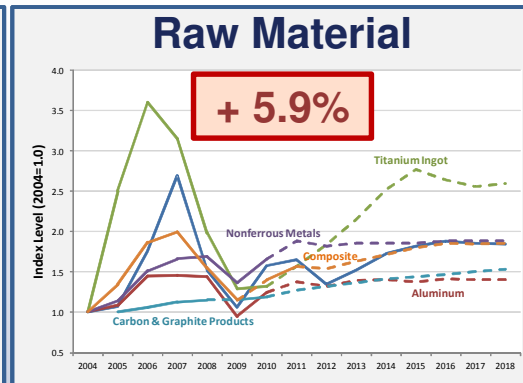
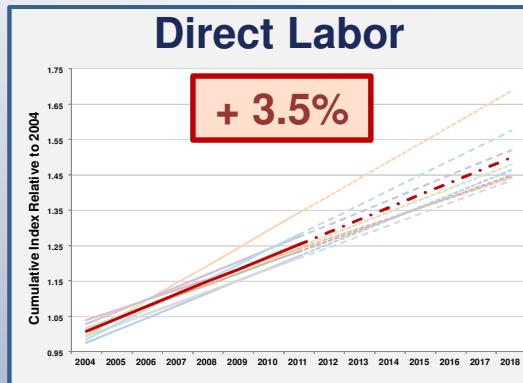


# BURNING PLATFORM

## BUDGET ENVIRONMENT



## INFLATIONARY PRESSURES





# THOUGHTS FOR THE FUTURE

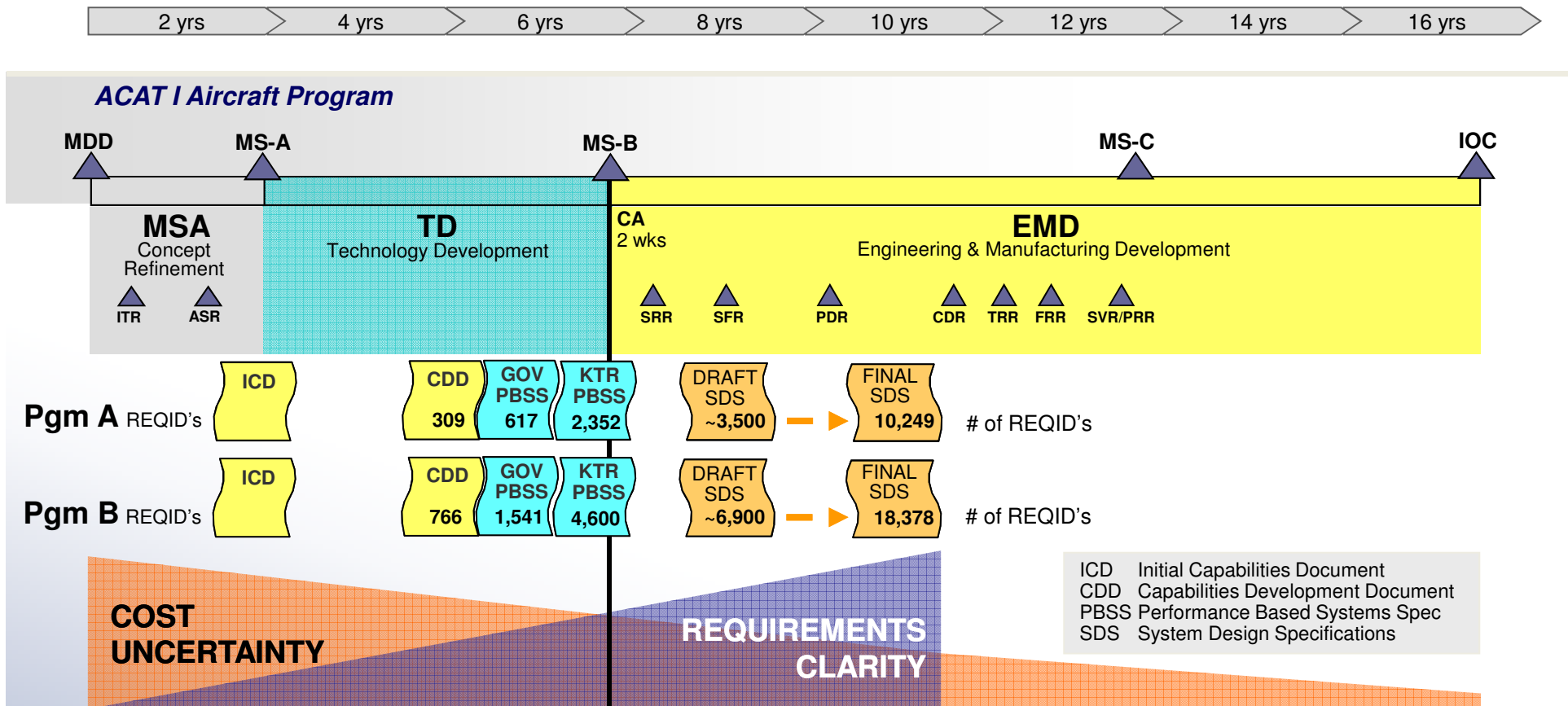
- Risk-based project management
- Business rhythms
  - Weekly/daily communication of C/S/T/Risk
  - Improving tools amongst the CAMs/IPTs
- Data-driven decision making
- Integrated Baseline Reviews – *continuous* process
- Realistic and collaborative upfront planning
- Utilization of best practices and development of new processes/requirements



# BACKUP



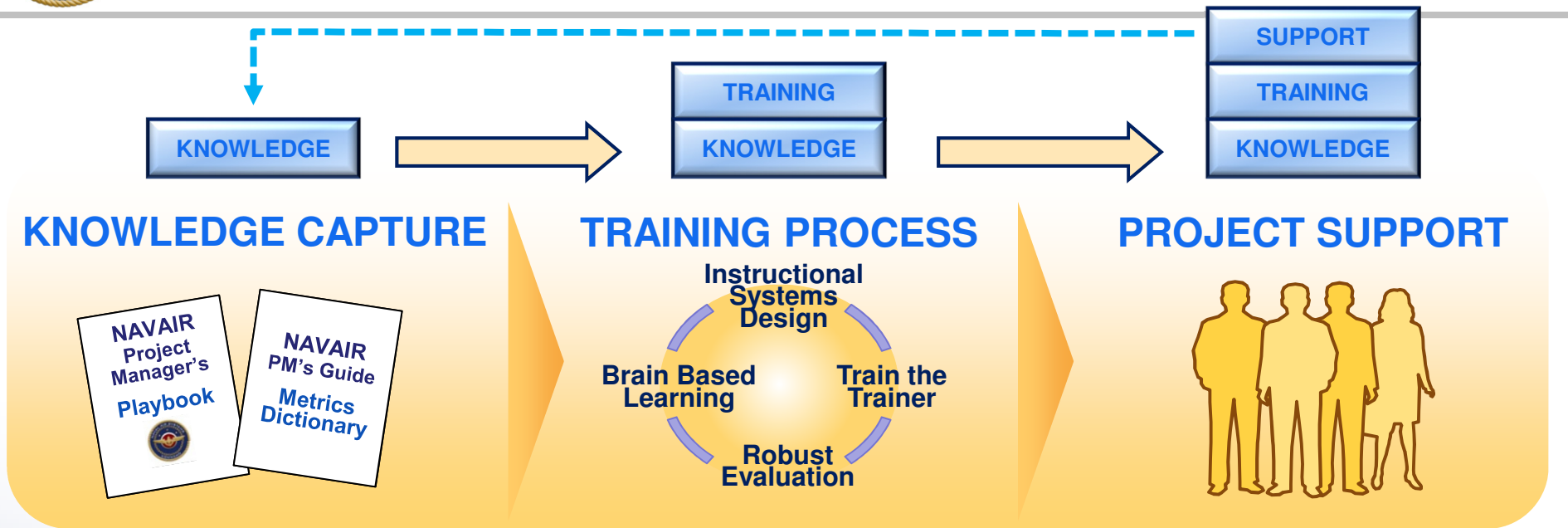
# SYSTEMS ENGINEERING PROCESS REQUIREMENTS DEVELOPMENT



**REQUIREMENTS & COST UNCERTAINTY HIGH  
UNTIL WELL AFTER MILESTONE B**



# KNOWLEDGE TO IMPLEMENTATION BUILDING BLOCKS



- Competitive & Business Data/ Performance Metrics**
- Historical Past Performance**
- SAR Growth Analysis
  - EVM Performance Analysis
- Suppliers Network Database**
- Industry Insight**
- UNC Course
  - Deep Dives

- Training**
- Integrated Product Teams**
- EVM for IPT's
  - Project Schedule Mgmt
  - IMS / EVM
  - Using IBR / Managing with EVM
  - Integrated Risk (2013)

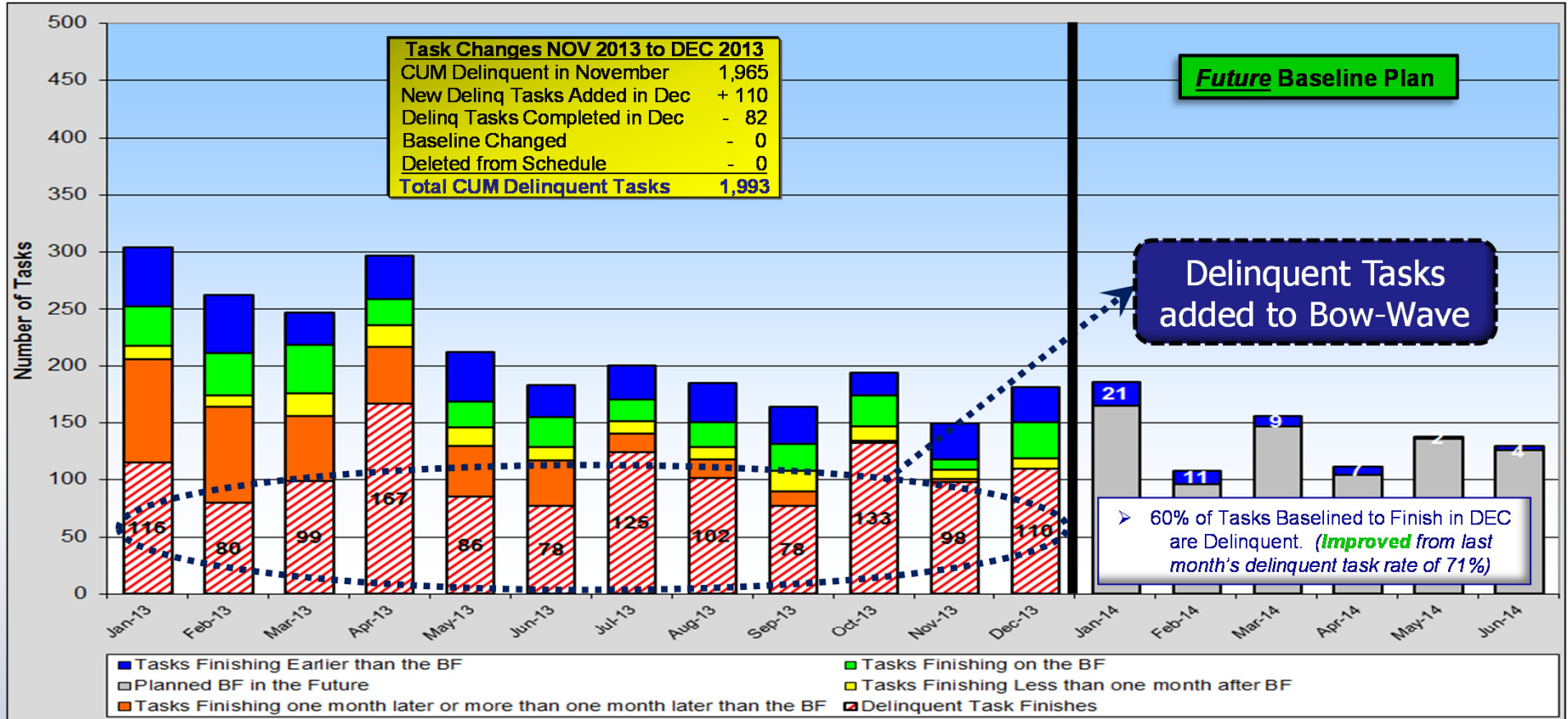
- Supporting Project Managers**
- PM Executive Seminars
- Engaging Project Teams**
- Project Start Up
  - Project Consults
  - Closed Session Training

## CLOSED LOOP PROCESS





# BASELINE EXECUTION



- In the month of DEC 2013, 110 tasks out of 182 (or 60% of tasks) baselined to finish during that month remained incomplete and subsequently pushed into future months.
- Cumulatively, there continues to be a large bow-wave of delinquent tasks carried over from month to month, which presents a risk to Program schedule. *Previously* delinquent tasks are being completed at approximately the same rate that new tasks are becoming delinquent. This prevents the Program from improving or decreasing the number of tasks in the bow-wave. Improved current month baseline execution is needed to decrease the bow-wave of tasks.
- **AIR-4.2 Recommendation:** 1. Optimize the use of the IMS planning window and make necessary baseline changes, as needed, to align with current execution. 2. Continue to re-evaluate resources and staffing profiles that have been planned over the next six months to determine if current plan can support the additional workload created by this bow-wave.

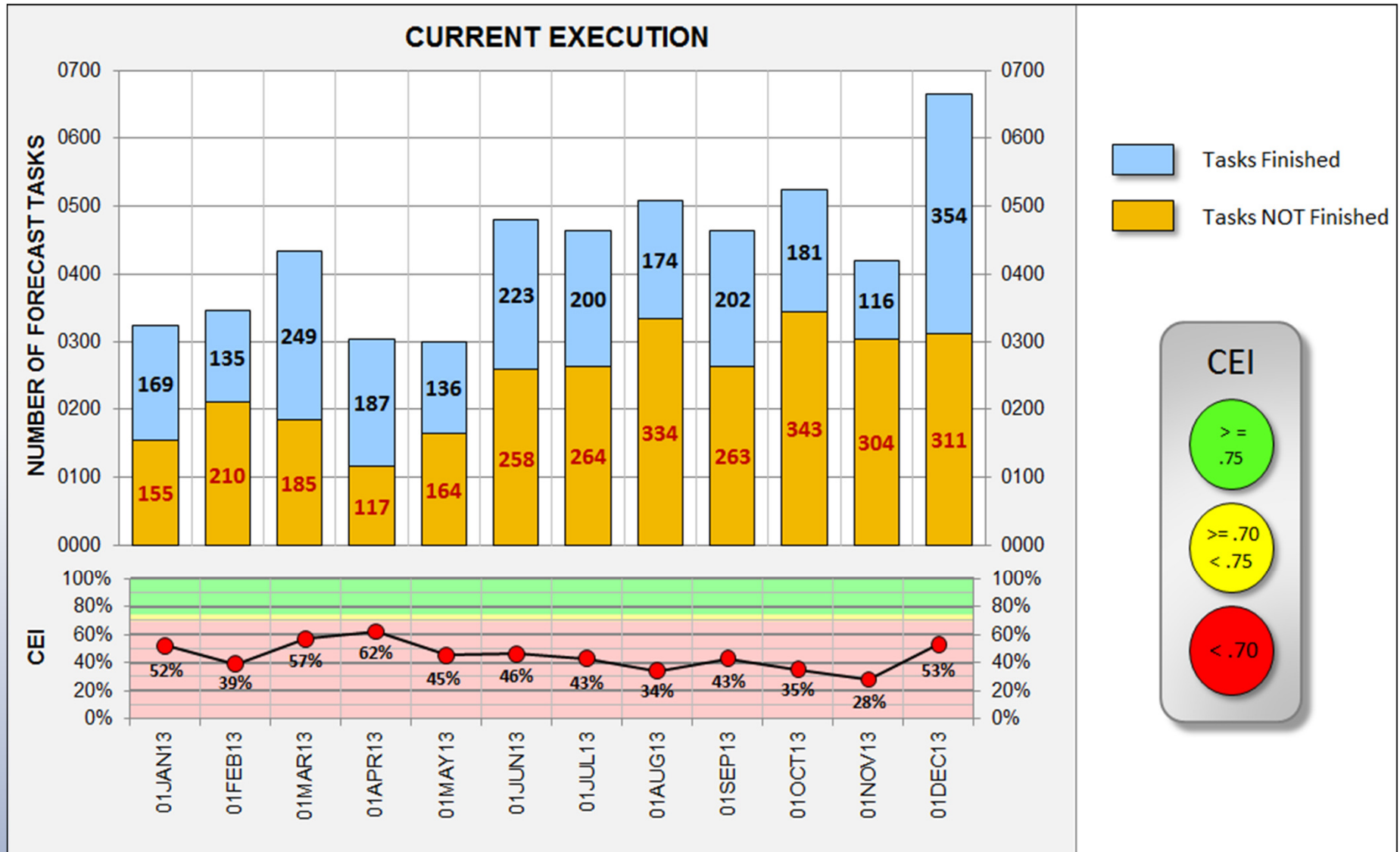


# KICK THE CAM DATASHEET

Tasks Started that are Delinquent to their BL Finish Dates ( <i>Critical / Near-Critical</i> )														
IPT Name	CAM Name	Activity ID	Activity Name	BL Project Start	Start	BL Project Finish	Finish	Total Float	BL Project Duration	Remaining Duration	At Completion Duration	Variance BL1 Finish Date	Physical % Complete	
IPT A	Doe	111	EDM#3 Position 2 - Avionic/Dynamic Components	10-Jan-13	01-Mar-13 A	9-Apr-13	1-Aug-14	0d	63d	149d	351d	-325d	46%	
IPT B	Smith	222	EDM#3 Position 1 - System Checkout/Enclosures	10-Apr-13	01-May-13 A	9-Jul-13	1-Aug-14	0d	63d	149d	310d	-264d	11%	
IPT A	Smith	333	EDM#2 Position 1 - System Checkout/Enclosures	30-Jan-13	07-Jan-13 A	29-Apr-13	11-Sep-14	8d	63d	177d	418d	-339d	58%	
IPT B	Smith	444	Strain Gauge & component Installation EDM #2 Pos 1	30-Jan-13	01-Aug-13 A	26-Apr-13	11-Sep-14	8d	62d	177d	276d	-340d	37%	
IPT A	Morris	555	TGB Production 1 - Assembly	11-Jul-12	10-Dec-13 A	9-Aug-12	8-Jan-14	14d	22d	5d	16d	-341d	60%	
IPT B	Morris	666	EDM#1 TRP Fitout	26-Sep-12	02-Jul-12 A	23-Oct-12	31-Jan-14	14d	20d	22d	384d	-306d	56%	
IPT A	Morris	777	EDM#1 Position 2 - Avionic/Dynamic Components	3-Oct-12	04-Sep-12 A	9-Jan-13	7-Mar-14	14d	63d	47d	367d	-285d	76%	
IPT B	Morris	888	EDM#1 Position 1 - System Checkout/Enclosures	10-Jan-13	03-Dec-12 A	9-Apr-13	7-Mar-14	14d	63d	47d	306d	-223d	56%	
IPT A	Clark	999	EDM #1 Component Calibration - TGB Stress Strain	11-Jul-12	02-Dec-13 A	11-Sep-12	23-Jan-14	14d	44d	16d	33d	-330d	8%	
IPT B	Clark	101	Tail Rotor Pylon Instrumentation Post fit out- EDM #1	24-Oct-12	15-Nov-13 A	30-Oct-12	21-Feb-14	14d	5d	37d	62d	-316d	8%	
IPT A	Clark	102	EDM #1 Test Prep - During FAFO Pos 2 - Salary	3-Oct-12	12-Dec-12 A	9-Jan-13	7-Mar-14	14d	63d	47d	299d	-285d	90%	
IPT B	Clark	103	EDM #1 Test Prep - During FAFO Pos 1 - Salary	10-Jan-13	22-Mar-13 A	8-Apr-13	7-Mar-14	14d	62d	47d	234d	-224d	58%	
IPT A	Clark	104	EDM #1 Test Prep - During FAFO Pos 2 - Hourly	3-Oct-12	12-Dec-12 A	9-Jan-13	7-Mar-14	14d	63d	47d	299d	-285d	90%	
IPT B	Clark	105	EDM #1 Test Prep - During FAFO Pos 1 - Hourly	10-Jan-13	22-Mar-13 A	8-Apr-13	7-Mar-14	14d	62d	47d	234d	-224d	58%	
IPT A	Clark	106	MGB Production 2 - Receive Supplier Completed Parts	4-Apr-12	31-Jan-12 A	1-Aug-12	15-May-14	16d	83d	95d	562d	-437d	51%	
IPT B	Todd	107	MGB Production 1 - Assembly (Post Calibration)	23-Oct-12	20-Sep-13 A	5-Nov-12	10-Jan-14	17d	10d	7d	72d	-282d	85%	
IPT A	Todd	108	EDM #1 Component Calibration - MR Shaft Gaging	11-Jun-12	04-Sep-13 A	10-Aug-12	10-Jan-14	17d	44d	7d	84d	-342d	75%	
IPT B	Todd	109	EDM #1 Component Calibration - MR Shaft Calibration And Gauge	11-Jun-12	04-Sep-13 A	10-Aug-12	10-Jan-14	17d	44d	7d	84d	-342d	76%	
IPT A	Todd	110	MRH EDM #2 - Rotor Head Build Up	25-Sep-12	15-Aug-13 A	5-Nov-12	30-Apr-14	18d	30d	84d	173d	-359d	5%	
IPT B	Todd	111	MR QCA Instrumentation Install EDM #2	25-Sep-12	15-Mar-13 A	5-Nov-12	29-May-14	18d	30d	104d	296d	-379d	44%	
IPT A	Allen	112	TRH EDM 1 - Receive Hub Install Components	19-Mar-12	01-Dec-11 A	14-May-12	28-Feb-14	19d	40d	42d	546d	-436d	85%	
IPT B	Allen	113	Test Plan ERB (CDRL TE26)	3-Dec-12	21-Mar-13 A	21-Dec-12	27-Jan-14	20d	15d	18d	206d	-262d	40%	
IPT A	Allen	114	[1111] MGB Bench Test Program MGB 200 HP PMQT Endurance Test	15-Mar-13	18-Nov-13 A	16-May-13	24-Jan-14	21d	44d	17d	41d	-166d	0%	
IPT B	Allen	115	Hydraulics EDRAP Documentation	22-May-12	02-Jul-12 A	24-Jul-12	24-Jan-14	21d	44d	17d	379d	-365d	80%	
IPT A	Allen	116	GTV Checkout without Blades - Salary	7-May-13	23-Dec-13 A	20-May-13	30-Jan-14	22d	10d	21d	23d	-168d	25%	



# CURRENT EXECUTION





# CURRENT EXECUTION & FORECASTS

