



Turbine Engine Test & Evaluation for Development, Qualification & Sustainment:



Enhancing Ground Test Throughput

Glads and Sads of this project SME January 28th Update





AGENDA



- Background
 - Overall project
 - Nine blocker
 - Customer Defined Value for Ground Test Throughput
 - EVMS events
 - EVMS Event Lessons Learned
- SME Sads and Glads for project
- Going forward

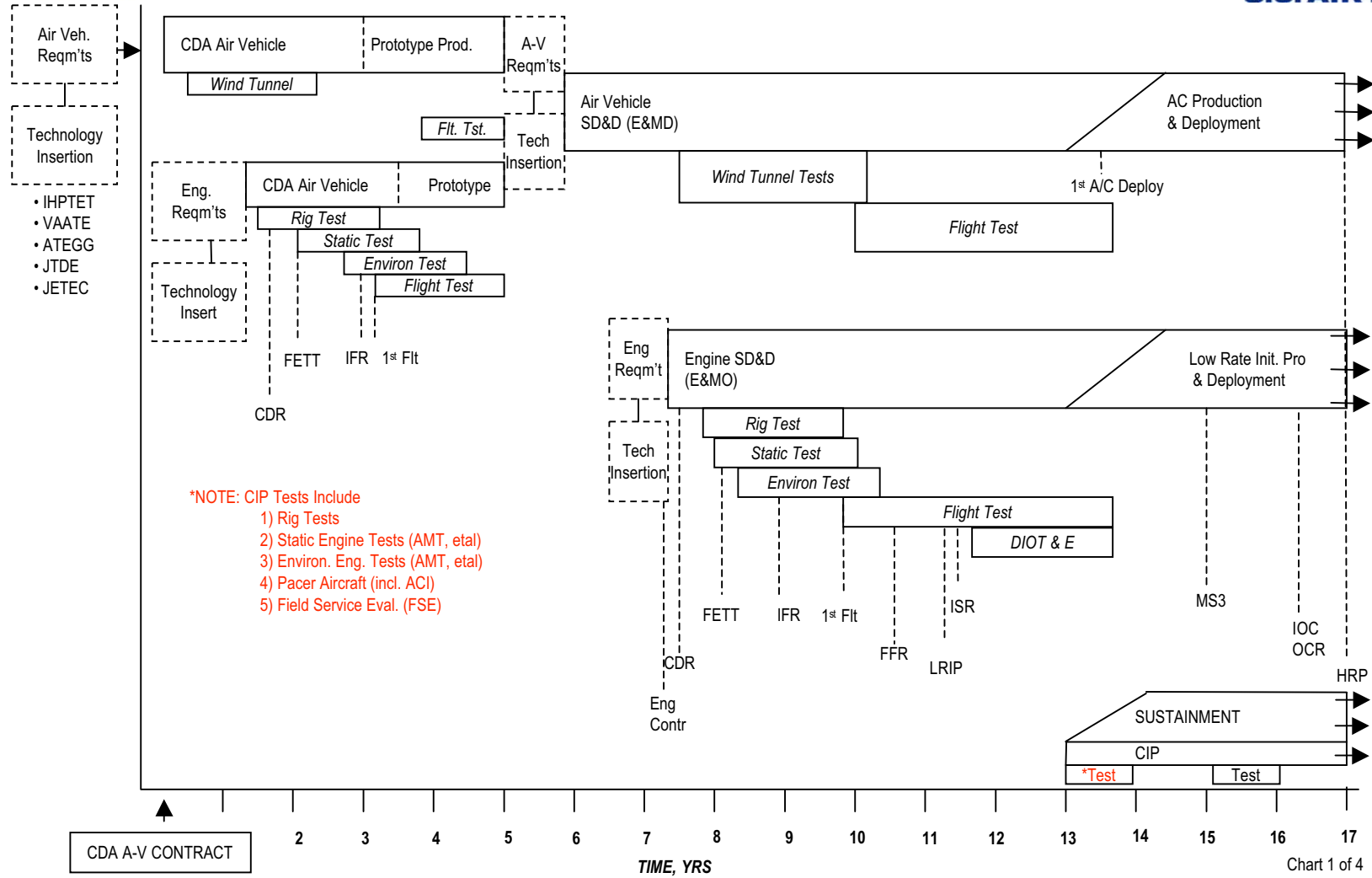


Turbine Engine Timeline – Current

Value of Test & Evaluation – Development & Sustainment (By: R.E. Smith, 8/5/03)



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***NOTE: CIP Tests Include**

- 1) Rig Tests
- 2) Static Engine Tests (AMT, etal)
- 3) Environ. Eng. Tests (AMT, etal)
- 4) Pacer Aircraft (incl. ACI)
- 5) Field Service Eval. (FSE)

Chart 1 of 4



Turbine Engine Development & Sustainment Prototype (Test and Evaluation Support Focus)



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Prototype Description:

- Use an **Propulsion Testing Enterprise Team (Air Force, Army, Navy, and Industry)** to create value and eliminate waste in the engine development and sustainment process

Preliminary Objectives:

- Significant reductions in cycle time and cost for the testing process supporting the engine development and sustainment process

Value:

- Enhance support to multiple USAF weapon systems by
(1) leveraging multi-center and industry sharing of best practices, common language, tool sets; and,
(2) attacking key cycle times & drivers

Process Information:

- **Focus upon test cost & cycle time reductions for engine RDT&E, DT&E, OT&E, & sustainment**
- Access applicability of commercial engine test approaches, as well as revised DOD acquisition models

Start Date: 10 June 2003

Team Leader: Dr. Edward Kraft, AEDC
Co-Leader: Pete Chenard, P&W; Tim Hillstrom, RR; Jim Wilson, GE

Team Members: See Attachment

Process Owner: Mr. Tim Dues, PPGM, OC-ALC

LAI Lean Experts: Ida Gall, P&W
Doug Hottman, RR

Case for Action:

- The time and cost for development testing on today's advanced engines are of the order of 10 yrs and \$2.5B
- The propulsion testing enterprise has not been examined from a lean perspective
- Application of LAI principles should lead to significant reductions in time and cost



Customer Defined Value for Ground Test Throughput



- Cycle Time Decrease
+
- Cost Decrease
or
- Engine Test Hours Increase
+
- Engine Knowledge/Data Increase
@
Same T&E Costs



Glads from last EVMS Event



Glads(sample)

- Sponsors Doing Outbrief
- Delivered Expectation
- Had the Right People
- Built Some Awareness of Areas That Need Work With Senior Leaders
- Created Impression That We Are Going to Drive Forward
- Developing a Standard Template for EVSM Event
- Design of Event Worked! Matured!
- Programmatic Implementation Was Briefed
- Great Knowledge Workers
- Pareto Approach Was Useful
- We Were Close Enough to Get Hard Data
- Good Engagement
- No Sacred Cows During the Week



Lessons Learned from last EVMS Event



Lessons Learned

- Use Examples to Clarify Objective for Each Module
- Need to Recognize Individuals
- “Value Added Document” Would Be Useful
- Map Out Your Process Ahead of Time
- Longer Day in Retreat Type Atmosphere
- Need More Mental Breaks
- Change the Structure of Sessions Around
- Have Design Re-enforce Comprehension of Waste
- More Data, More Chance to Get Data
- Need Strong Leadership From the Top



Timeline of project



- May 03 White Paper submitted
- June/July 03 Preliminary Planning meetings
- August EVMS event in Dayton
 - Arms around the project
- November 03 two more EVMS events at AEDC
- December 03 Buy in from Tim Dues on funding
- Four current projects on being reviewed on a weekly basis
- Upcoming training is being scheduled February 04

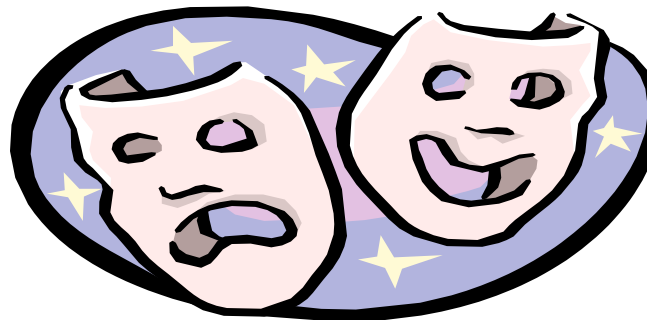


SME Glads of project



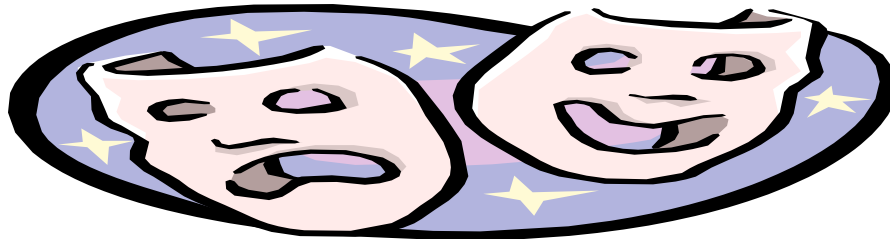
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- Weekly telecons a must...
- Good group of people interested in change...high cover still required to move the troops.
- **Goal Defined...Reduce the “as is” amount of time for the tasks between the last run of the Trent until the first data run of the GP by 50%**



SME Glads for project

- Need milestone charts/calendars



TASK	MONTH												
	1	2	3	4	5	6	7	8	9	10	11	12	
Planning	█												
Work Element Schedule Inputs		█											
Boilerplate Schedule			█	█									
Load Pilot Program Data				█	█								
Update Schedule Daily					█	█	█						
Report Results							█	█					

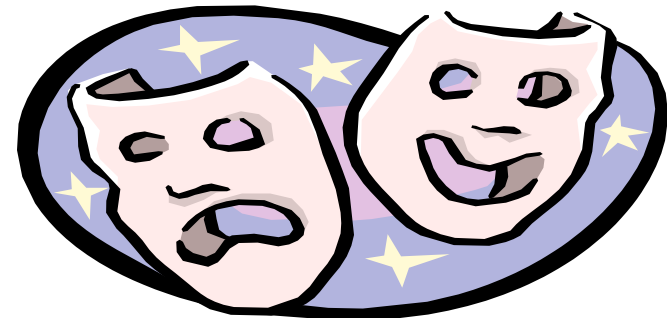


SME Sads for the project



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- Lack of resources on all fronts
- Aggressive schedule
- Let's do a study!





Going forward



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- On going weekly telecons
- Refining funding process concern
- Training of additional resources as facilitators
- AEDC Project be part of the LAI Plenary March 04