Lean Aircraft Initiative
Plenary Workshop

The Lean Enterprise Model
“A Lean Enterprise Reference Tool”

October 16, 1996

The LEM IPT
• Review of the LEM’s Development

• Beta Test Completion

• Modifications in Process for Version 1.0

• Release Schedule
The LEM has been developed according to plan

- The IPT developing the LEM has remained intact

- The LEM Development followed the original structured process

- Three LEM Products were produced
  - as organized compilations of the LAI Research Findings

- Version 1.0 will contain most of the research completed in Phase 1
The LEM is being developed at three levels of detail

- For the Executive: An Enterprise Level Summary of the Principles, Overarching Practices and Metrics found to be evident in Lean Operations

- For Management: A handbook of the Principles, Practices, Metrics, Barriers, and Mitigators that capture the next level of research detail

- For Operations: An electronic data base program that provides a means to search through the complete LAI findings of principles, practices, metrics, barriers, interactions, and reference material by hierarchy of principles and practices, by sector, or by functional process
The Objectives of the LEM have not changed

The LEM is:

• A framework for disseminating LAI research.
• A reference tool to assist in the self-assessment of leanness.
• A guide for identifying leverage points for organizational change.
• A tool to support development of new lean paradigms.

The LEM is not:

• A detailed “how-to” or “cookbook” guide.
• An exhaustive empirical validation of all lean practices.
• A mathematical formula for determining leanness.
• A description of “the ideal lean company”.

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Version 1.0 of LEM completed an extensive Beta Test Process following the model used in the “Alpha” testing

- Introductory Luncheon held at June ‘96 LAI Workshop
  - > 30 representatives from 13 Companies & 6 Govt “Agencies”
- Invitations sent to all Consortium Members
  - Board members support solicited at Executive Meeting
- Full Day Workshop held at MIT as Test Kick-off Activity
  - Attended by 11 Industry Companies & 6 Government “Agencies”
  - Electronic & Handbook version provided to all attendees
- Handbook sent to Focus Group Industry and Govt Leads for comment
- Post-Test Workshop held after Survey Data was Analyzed
  - All feedback reviewed, clarified and/or verified
  - Essential Improvements identified and approaches discussed
  - Consensus developed on plan for Version 1.0 Release
The Beta Testing involved a wide cross section of Consortium members

- Ten Industry Companies
  - Boeing*
  - G E Engines*
  - Hughes*
  - Lockheed Martin E&M*
  - Lockheed Martin TAC*
  - Northrop-Grumman*
  - Pratt & Whitney
  - Raytheon
  - Texas Instrument*
  - Textron*
- Government
  - Air Force*
  - NASA

* Also attended Post-Test Beta Workshop

Provided 56 test application reports
Beta Test Results: “The Big Picture”

- Beta test process was extensive, intensive and valuable
- Survey response showed wide variation in “user satisfaction”
- Post-test Beta Workshop was crucial in clarifying issues
- Extent of changes required more than original two week allotted schedule
- Some issues raised are beyond the scope of the Phase 1 LEM activity
Improvements are being implemented that address each of the critical needs identified in the beta testing.

- **LEM’s purpose and role**
  - Emphasis on “Reference Tool”
  - Consider Video/Slide Training Guide

- **Front-End Introduction**
  - Being developed for Version 1.0

- **Enterprise Level Metrics**
  - Elimination of “repeated” metric data
  - Specific effort would be required

- **Expansion of “Barrier” description**
  - Being developed for Version 1.0

- **Inclusion of “Supporting Practices”**
  - Being identified for Version 1.0
  - Listing only; no metrics, barriers etc.

- **“Software Friendliness” Improvements**
  - Further changes being incorporated
  - Workshop held for final changes

- **Additional Data Sheets**
  - > 20 new Data Sheets will be added
The “Alpha” evaluation revealed a continued need to clarify the objectives and use of the LEM.

Not a substitute for the need of each company to internalize the principles and practices of “Lean” in deciding its own “how-to” of operating its enterprise!
**LEANAIRCRAFT INITIATIVE**

Further “Software Friendliness” changes will be made

- **“Navigation” found difficult**
  - An Outline View added to primary screen
- **No macro view of what data exists**
  - Icon feature displays where data exists
- **Use of “Word Viewer” awkward**
  - Capability to use “Word” option added
- **Preference for Windows standards**
  - Changes made to colors and shading
- **Search feature is confusing**
  - Keyword and full text search simplified
- **Printing problems identified**
  - Ability to print all screens added
- **Glossary needs expansion**
  - Glossary additions under review

Another workshop held with interested Beta testers finalized software changes
An extensive LEM development process begun in April 1995 is near completion
  • Consortium members have been intimately involved in shaping the product
  • Available for Release at the November Executive Board
  • Control & Distribution policy must be settled prior to release

While “not everything to everybody”, the LEM has met its objectives
  • Three products to be released: Chart, handbook and electronic version
  • Version 1.0, as improved and clarified, endorsed by all Beta testers

Issues remain for LAI Phase 2 activity relative to the LEM
  • Enterprise Level metric research
  • Internet access
  • Training supplements
  • Review of consortium requirements and best approach to meeting them