

Social Contexts of Enterprise Systems Engineering

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MSR

 MITRE
Technology
Program

Problem

Traditional (hierarchical) program management approaches are not as effective for enterprise systems engineering of government enterprises, which often involve:

- Multiple powerful stakeholders**
- Competing interests among the stakeholders**
- No one individual at top of the hierarchy**
- No bottom-line feedback mechanism**

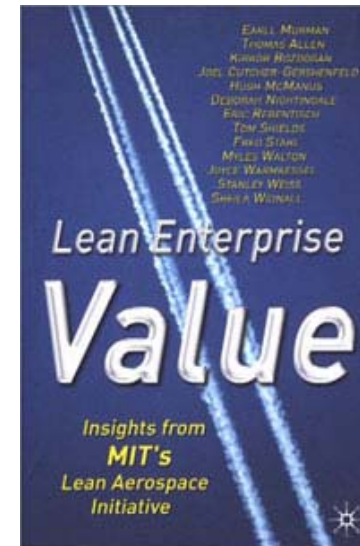
Background

Lean Aerospace Initiative (LAI)

MIT Engineering Systems Division: Lessons Learned

Developed a long-term community of practice involving multiple stakeholders through:

- A neutral forum facilitated by MIT
 - A common knowledge base from systematic research by impartial researchers
 - A common vocabulary
 - A trusted change agent
- “Enterprise success over the long term depends upon sustained commitment and developing a different way of thinking” ...
 - Creating “Enterprise Value”



Objective

Develop social science capabilities and products complementing MITRE's increasingly sophisticated technical capabilities in order to fully meet the challenges of enterprise systems engineering

Transform current practical field experience into useful and transferable social-scientific understanding via case studies and ESE tools

Activities

Leverage social science approaches to develop capabilities and products that address the social contexts of enterprise systems engineering

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- **Five written Tier 1 case studies** *February 2007*

 - **Crosscutting workshop:**
to develop themes and propose project applications *March 2007*

 - **Tier 2 interviews and case study writing** *Summer 2007*

 - **Draft extension of ESE Profiler™:**
With Renee Stevens (MITRE): using the cases to articulate boundary spanning and political engineering in the “transitional domain” and “messy frontier” *Summer 2007*

 - **Conference papers submitted** *ongoing*
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Highlight

Case Study

Definition - A narrative history emphasizing:

- Major Stakeholders
- History of Events
- Key Participants
- Important Decisions
- Outcomes

Methods – methods for collecting data include:

- Interviews
- Document Review
- Direct Observation

Each case focuses on the social (including business and managerial) aspects of engineering a particular system to operate across an enterprise

Tier 1 Case Study Outline

I. Preface

II. Overview

- Intent
- Organization
- Stakeholders
- History and Context
- Timeline
- Outcome(s)

III. Themes

- ESE Practices
- Organizational Context
- Dilemmas, Tensions
- Change Mgt

IV. Enterprise

V. Evaluation

VI. Learnings

VII. Next Steps

- Open Questions
- Additional Data Needed
- Whom Else to Interview

Highlight

Workshop

Day-long meeting, March 2007

- With takeaways for participants

Participants include

- MITRE site staff
- Interested members of sponsor organizations and contractors
- MSR team & interested MIT representatives

Purpose

- Review and discuss case studies
- Explore ESE contexts
- Share insights
- Consider applying LAI principles and practices around enterprise value
- Identify common goals and next steps
- Develop community of practitioners
- Design second round of cases



Emerging Themes

- Shift from systems to services
- Technology-induced institutional change
- Centralized ↔ decentralized control

Impacts

- **Distill practical field experience of MITRE systems engineers into transferable forms of knowledge, useful to others**
- **Develop knowledgeable MITRE ESE community of practice**
- **Document MITRE's accomplishments in ESE, building MITRE's reputation as leader in ESE and social science**
- **Strengthen MITRE ↔ MIT/ESD/LAI relationship**
 - **Working research partnership**
 - **Conceptual marriage of ESE Profiler and LAI Enterprise Value**

Future Plans

- **Develop Tier 2 Cases, to highlight:**
 - Sources of resistance or other challenges to ESE efforts
 - Practical solutions employed and improvisations used in support of ESE efforts
 - Reactions to ESE tools – are the tools and recommended practices adopted or abandoned?
- **Evaluate ESE Profiler Extension**
- **Develop ESE Roadmap – formally evaluate breadth of approaches and solutions employed, including improvisations used, to make recommendations for ESE efforts**

