Leading Enterprise Transformation

LAI Annual Meeting, Dana Point, California
Prof. Debbie Nightingale
Massachusetts Institute of Technology
March 24, 2010
We Share A Goal: Enterprise Excellence
Enabling Enterprise Excellence

Discovery - Deployment - Renewal

Research Shapes Deployment

Enterprise Research
We study Enterprises to identify best practices, transformation strategies and future Enterprise design.

Transformation Knowledge Deployment
We transform research-based knowledge into education, products, knowledge exchange events and transformation events.

Deployment Shapes Research

Stakeholder-Centric Value Creation
LAI Operating Model

- Deploy Knowledge
  - Enable Transformation
  - Exchange Knowledge
  - Measure Value

- Enable Enterprise Excellence
  - Conduct Enterprise Research
  - Develop Transformation Products

- Collaborate
  - Accelerate Deployment
  - Engage all Stakeholders
  - Collaborate To Transform

- Create Knowledge

LAI Annual Conference, Dana Point, California, March 24, 2010
http://lean.mit.edu © 2010 Massachusetts Institute of Technology, Professor Deborah Nightingale - 6
January to May, 2009
**LAI conducted 5 Army ESAT workshops**
- Participants included senior leaders from 20+ organizations from Army Headquarters and commands.

May 1, 2009
**LAI met with 50+ senior leaders from Army Materiel Command at Ft. Belvoir, Virginia**
- General Dunwoody and Dean Popps review and endorse plan and order immediate implementation.

August 31, 2009
**Materiel Enterprise Transformation Plan released**
- Plan seeks measurable cost reduction and cycle times.
- Plan defines 40+ enterprise-level transformation projects.
- Plan sets 5 enabling goal areas:
  - Roles and responsibilities
  - Industrial base
  - Leadership
  - Human capital
  - Business process and information technology

“My thanks go to the entire team for your energy and efforts to make this happen and to develop closer working relationships across our communities”

General Ann E. Dunwoody, USA Commanding General, U.S. Army Materiel Command

“The quality of this work is very impressive. I only wish that given the many challenges facing our nation right now, the rest of the government could benefit from the level and quality of analysis and work done by this team.”

Mr. Dean Popps, Acting ASA(ALT) and Army Acquisition Executive
US Army wanted to create SoS analysis capability at ASA(ALT) level to coordinate across acquisition program portfolios, capability sets, formations, and time.

- US Army and LAI in partnership leveraged MIT’s expertise to facilitate development and planning of new enterprise capability (June to Sep 2009)
  - Capability didn’t previously exist—clean sheet organization design required significant adaptation of the ESAT process
  - Senior leaders from PEO, S&T, Test, requirements and resources

Outcomes

- Produced SOSSE strategy and implementation plans
- Developed FY10 plan and annual battle rhythm for new organization
- Identified key relationships and activities
About Version 2.0

- Released after a year of effort by collaborative team of experts.
- Development team included **27 participants** from government, industry and academia, from US, UK, and Australia.
- Extended the collaboration to additional government agencies, and **involved all US DoD services**.
- **Five new leading indicators** added to existing set of 13.
- Several appendices, new information and **real-world examples** are included.

- New Appendix A: NAVAIR’s Systems Engineering Development & Implementation Center (SEDIC) use of SE leading indicators to develop advanced analysis techniques and toolkit for Navy programs.
- New Appendix B: Human Systems Integration Considerations.
- New Appendix C: Early Identification of Program Risks.
- Applied Leading Indicator Implementation Guidance.

Read About It.

*Journal Article in Top 3 Downloads*
Lean Enterprise
Self-Assessment Tool 2.0

1.0

Version

2010

LESAT

Version

2.0

Research

Consortium Input

Member Experience

Transition to Lean Roadmap

2001

Research

Lessons Learned

2010

LESAT

Version

2.0
Unique New International Journal
JET will feature both new research findings and practitioner insights.

Four Special Issues:
- The Intellectual Agenda of Enterprise Transformation
- Transformation Continuity and Change
- Enterprise Transformation in Action
- Enterprise Modeling

Co-Editors:
Professor Debbie Nightingale
and Dr. Ricardo Valerdi
of MIT’s Lean Advancement Initiative
Over the last decade, UTC has the highest shareholder return of any Fortune 50 Company (155%)

Why?

UTC attributes its performance and improvement to the development and deployment of ACE

LAI is Working with UTC to Develop Five Related Case Studies

- ACE Operating System: Its History and Tools
- ACE in Production: Homogenous Metals, Inc.
- ACE in Office: Internal Audit Division
- ACE Across Organizations: Deficiency Reporting Process Across Pratt & Whitney, USAF, and DCMA
- ACE in Engineering: Turbine Model Center
Transforming System of Systems
Test and Evaluation

ARTY

OTC
US Army Operational Test Command
Fort Hood, Texas

ATEC
US Army Test and Evaluation Command

WSMR
White Sands Missile Range

AIR FORCE

AFOTEC
US Air Force Operational Test & Evaluation Center
Kirkland AFB

412 TW
US Air Force 412th Test Wing
Edwards AFB

TRMC
DoD Test Resource Management Center
USD AT&L

NAVY

Naval Air Systems Command
Point Mugu, CA

Naval Air Systems Command
Patuxent River

Department of Defense
Lean Concepts for Product Development

- Integrated and distilled 15 years of LAI Research (175 documents)
- Developed framework with 15 categories
- Creating new white papers with insights, summary of literature, and references
- Will culminate in book

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<tr>
<th>Level of analysis</th>
<th>Type of process</th>
<th>Processes for Value-orientation</th>
<th>Processes for Enterprise Integration</th>
<th>Processes for efficient execution</th>
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<td>3. Value &amp; waste in core PD activities</td>
<td>6. Multi-project management</td>
<td>15. Core PD process principles</td>
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<td>Single Project</td>
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<td>7. Performance metrics and measurement</td>
<td>8. Product architecture &amp; commonality management</td>
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<td>9. Risk management</td>
<td>10. IT systems in PD</td>
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<td>11. HR development &amp; intellectual capital</td>
<td>12. Teams in PD</td>
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Dr. Josef Oehmen - oehmen@mit.edu
The Path to Developing Successful New Products
By Mike Gordon, Chris Musso, Eric Rebentisch and Nisheeth Gupta

“….We found—after surveying more than 300 employees at 28 companies across North America and Europe—that the businesses with the best product-development track records do three things better than their less-successful peers

- they create a clear sense of project goals early on,
- they nurture a strong project culture in their workplace, and
- they maintain close contact with customers throughout a project’s duration.

The teams in our study that embraced these tactics were

- 17 times as likely as the laggards to have projects come in on time,
- five times as likely to be on budget, and
- twice as likely to meet their company’s return-on-investment targets.

While we focused on companies in the automotive, high-tech and medical-device industries, we believe that product makers of all stripes could benefit from our work…”

November 30, 2009
Read the full article online at:
THE WALL STREET JOURNAL | BUSINESS
Emerging Research:
Roadmap for Implementing Lean Product Development Research

Joern Hoppmann
Diploma in Mech. Eng. and Business Administration, 2009
TU Braunschweig, Germany

- Investigated implementation of Lean Product Development (PD)
- Developed a comprehensive framework for a Lean PD system consisting of eleven major Lean PD components
- Empirically tested five major hypotheses on the implementation of Lean PD using data from 113 international PD departments
- Derived a roadmap outlining the order of implementing the eleven Lean PD components and identified four maturity phases of Lean PD
For 2008-2009, 64 of the 96 major defense acquisition programs were required to report budget over-runs from the initial cost estimate. Even more critical, during current operations, is the report of a 22 month average delay in delivering initial capability. (GAO 2009)

**How does stakeholder salience influence value creation in a program enterprise?**

- Conducting three case studies of program enterprises in DOD Acquisition
- Emerging results suggest how the views of enterprise architecture indicate necessary conditions of enterprise stakeholder alignment
Emerging Research:
High-Performing Hospital
Enterprise Architectures

- Contrary to predominant literature, hospitals do adopt multidimensional performance measurement practices but these are mostly set by external entities and in silo fashion.
- Studied leading hospitals in the US and UK, and despite considerably different regulatory and payment environments, characterized similar strategic and operational issues.
- Engaged 7 hospital CEOs in Massachusetts in the development of an empirically based and theoretically informed holistic performance measurement for hospitals.
- Identified the existence of multiple internal organizational configurations with variable relationships with hospital enterprise performance.

Jorge Fradinho Oliveira
MIT Degree Candidate:
Ph.D., Engineering Systems, 2010
LAI’s Enterprise Systems Approach
Applicable to a Broad Range of Healthcare Areas

- Employed ESAT to examine streamlining drug development and innovation
  - Involves collaborative models
  - Includes early involvement of stake holders (Pharmaceutical makers, regulators, insurers, health care providers, and patients)

- Hospital Enterprise Performance
  - Exploring the relationship between hospital enterprise architecture and hospital performance

- Veterans Healthcare Administration
  - Using ESAT to analyze mental health hospital network and New England regional operations

- Drug Safety Surveillance
  - Use of enterprise systems methodologies in joint MIT/Harvard research project
LAI is Tasked to Study
Post-Traumatic Stress Disorder (PTSD)

LAI will perform an enterprise analysis of the PTSD process.

Three Phases:
1. Current state analysis
2. Model creation and validation
3. Future scenario planning and recommendations

Anticipated Outcomes:
- Increased understanding of the total system, including stakeholders and system performance
- Determination of high-leverage opportunities for improving the total system
- Examination of policy and treatment implications

4-Star Speaks Out on Struggle with PTSD

“This isn't just a debt of gratitude. This is a debt that must be repaid because they have sacrificed so much. They have done exactly what this country has asked. They have fought and suffered and their lives have been affected forever.”

Admiral Michael Mullen,
Chairman of the Joint Chiefs of Staff
Army Times, 11-26-2008
The Office of the DCMO was established by Congress in the FY 2008 National Defense Authorization Act.

- **Vision**
  A high performing organization recognized throughout the Department of Defense for adding value and enabling sustained enterprise performance improvement

- **Mission**
  On behalf of the Deputy Secretary of Defense, leads and integrates enterprise-wide performance improvement and business operations to enable and support the Warfighter.

**Key Questions For DoD Enterprise Analysis**

- How does (should) DOD translate strategic direction into management outcomes?
- What management system is recommended?
- How should DoD measure progress?
- Where should DoD focus its improvement efforts in the next 1-2 years?
OSD Deputy Chief Management Office
Priorities for Phase One

- **Project 1:**
  Perform an assessment of existing DoD enterprise-level performance goals and targets

- **Project 2:**
  Assist with identifying, developing and implementing DCMO’s two-year strategic agenda

- **Project 3:**
  Create DCMO Advisory Board for devising strategies and deliberating next steps for important DCMO business operations tied to enterprise-wide performance integration and improved business operations.
Upcoming Knowledge Exchange Events

**Network - Share - Learn**

**Knowledge Exchange Events**

**April 8, 2010**

**Metrics for Enterprise Transformation**

Dr. Ricardo Valerdi and Craig Blackburn, 1st Lt., USAF

Web KEE

**Knowledge Exchange Events**

**May 5, 2010**

**Understanding Enterprise Behavior Using a Hybrid Simulation**

Dr. Chris Glazer, MITRE

Web KEE

**Knowledge Exchange Events**

**May 18 and 19, 2010**

**Principles of Enterprise Transformation**

Prof. Debbie Nightingale and Dr. Jayakanth Srinivasan

MIT Campus Cambridge, MA
Upcoming Events

LEAD AND EdNet

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

DAYTONA BEACH, FLORIDA
MAY 19-21, 2010

Lean Educator Conference
"Shifting the Status Quo"

"Integrating the Lean Enterprise"
Prof. Debbie Nightingale
MIT, Aero-Astro and ESD Co-Director, Lean Advancement Initiative

"Teaching Lean in a Manner Consistent with How People Learn"
David C. Wisler, Ph.D., NAE, MIT CDIO Initiative GE (retired)

The First Lean Dentist
Dr. Sami Bahri
Bahri Dental Group
Author, “Follow the Learner: The Role of a Leader in Creating a Lean Culture"

Keynote Speakers  Workshops  Presentations  Panels
Kennedy Space Center Tour  NAVAIR Lean Operations Tour

http://www.lean.org/LeanEd/
June 14-15, 2010
Architecting the Future Enterprise
Prof. Debbie Nightingale
Dr. Donna Rhodes

July 14-16, 2010
LAI Lean Healthcare Academy
Dr. Earll Murman

July 19-21, 2010
LAI Lean Academy Course
Prof. Annalisa Weigel
Dr. Hugh McManus

July 22-23, 2010
LAI Lean Engineering Seminar
Prof. Annalisa Weigel
Dr. Eric Rebentisch

July 26-28, 2010
Value-Driven Tradespace Exploration for System Design Future Enterprise
Dr. Donna Rhodes
Dr. Adam Ross

July 29-30, 2010
Epoch-Based Thinking: Anticipating System and Enterprise Strategies for Dynamic Futures
Dr. Donna Rhodes
Dr. Adam Ross
Leading Enterprise Transformation

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Keynote Speech

“Process Improvement in Defense Business Operations”

Elizabeth A. McGrath
Assistant Deputy Chief Management Officer for Department of Defense

Today
9:00 am
Large-Scale System Transformation: U.S. Army’s Experience with the ESAT Process

Nancy Moulton
Director, Business Transformation, HQDA, OASA(ALT) SL-ZG

Dr. Eric Rebentisch
Session Chair

Jerry A. Coover, Sr.
Managing Consultant, IBM Federal, Global Business Services

Today
11:00 am
Breakout Session 1

Architecting for Lean Product Development
Dr. Eric Rebentisch
Session Chair

The Paradox of Leading From the Middle – Part I
Dr. George Roth
Session Chair

Success Stories Above the Factory Floor (A)
J. Tom Shields
Session Chair

Today
1:30 pm
Breakout Session 2

Lean Product Development System Initiatives
Dr. Eric Rebentisch
Session Chair

The Paradox of Leading From the Middle – Part II
Dr. George Roth
Session Chair

Success Stories Above the Factory Floor (B)
J. Tom Shields
Session Chair

Today
3:45 pm
Leading Enterprise Transformation

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Breakout Session 3

Program Management in the Lean Enterprise
Dr. Eric Rebentisch
Session Chair

Enterprise Measurement Challenges
Dr. Ricardo Valerdi
Session Chair

Success Stories Above the Factory Floor (C)
J. Tom Shields
Session Chair

Tomorrow
8:00 am
Leading Enterprise Transformation

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Breakout Session 4

Value Stream Optimization in Lean Product Development
Dr. Eric Rebentisch
Session Chair

Lean in Healthcare
Dr. Jackie Candido
Session Chair

Introduction to ESAT: A Tutorial Session
Dr. Jayakanth Srinivasan
Instructor

Tomorrow
10:15 am
Lunch and Keynote Speaker

Lessons Learned on Leading Enterprise Transformation

Robert Hoffman
Director of Operations and Site Executive
BAE Systems, Inc.
Electronics, Intelligence, and Support

Tomorrow
Noon
Closing Remarks

Key Enablers to a Lean Enterprise Journey

Prof. John Carroll
Massachusetts Institute of Technology
LAI Co-Director

Tomorrow
1:00 pm
LEADING ENTERPRISE TRANSFORMATION

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OPEN DISCUSSIONS

LESAT
LAI’s Lean Enterprise Self-Assessment Tool

Dr. Jackie Candido
Session Chair

Consortium
Lean Training and Education Programs

J. Tom Shields
Session Chair

TOMORROW
3:00 pm

LAI
LEAN ADVANCEMENT INITIATIVE