Metrics for Enterprise Transformation

LEAN ADVANCEMENT INITIATIVE ™

Researcher:

Craig D. Blackburn
(cdb@mit.edu)

Advisors:

Dr. Ricardo Valerdi
(rvalerdi@mit.edu)

Prof. Deborah Nightingale
(dnight@mit.edu)

Publications:

Blackburn, C., and Valerdi, R., "Practical Implementation of an Enterprise Measurement System: From Inception to Transformation," *7th Annual Conference on Systems Engineering Research*, Loughborough, United Kingdom, April 2009.

Blackburn, C., and Valerdi, R., "The Dummy's Guide to Enterprise Measurement: A Literature Survey," *7th Annual Conference on Systems Engineering Research*, Loughborough, United Kingdom, April 2009.

Blackburn, C., and Valerdi, R., "Measuring Systems Engineering Success: Insights from Baseball," *18th Annual International Symposium of INCOSE*, the Netherlands, June 2008.

Valerdi, R., Nightingale, D., Blackburn, C., "Enterprises as Systems: Context, Boundaries and Practical Implications," *Information, Knowledge and Systems Management* (in press).

Critical attributes of enterprise research

Structure (n =57)	Function (n=60)	Value Delivery (n=37)
Service, Product or Process Based	Information Technology (IT)	Common Visions or Goals
Complex, Integrated Systems or Systems of Systems	Inter-Organizational Collaboration & Partnerships	Regulations, Doctrine and Standardization
Incorporated Businesses, Organizations, Systems or Segments	Intra-Organizational Relationships & Social Dynamics	Value Stream & Supply Chain Management
Environmental & External Factors to One's Sphere of Influence	-	Improve Performance & Efficiency
Organizational Structure/Change	-	-

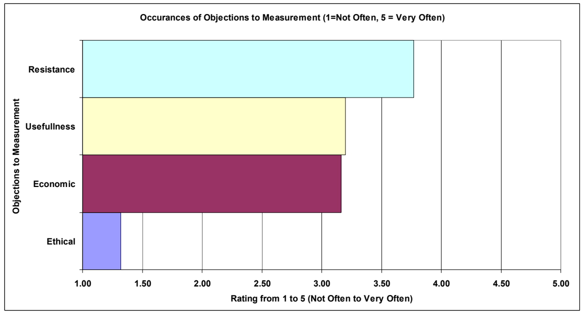
How does your enterprise measure its transformation progress?

- "Too vaguely, sporadically, inconsistently. That said, we tend to break our measurements into small pieces (like good Systems Engineers) and never re-integrate back into a big picture."
- "There are strategic level (enterprise) metrics at the top, then lower level metrics. However, these metrics have no target goals and they don't align well at all."

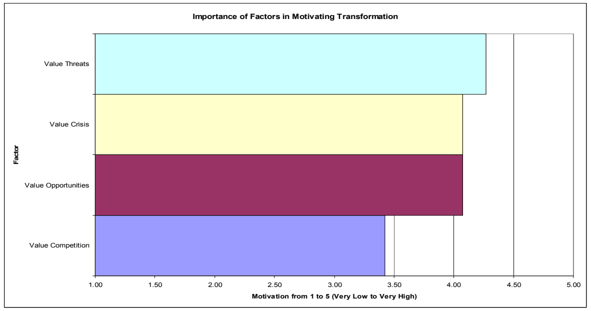
Good leading/lagging indicators of enterprise transformation success/failure?

LEADING: **"Leadership involvement, employee understanding and buy-in, linking compensation to organizational goals and objectives."**
LAGGING: **"Customer satisfaction, profitability. These tell you the value streams are operating 'well.'"**

Sources of resistance to measurement (n=25)



Motivation for Transformation (n=25)



Insight from a Case Study of ACME Company's implementation of a bottom-up enterprise measurement system

Challenges

(1) the aging workforce; (2) the Big Brother is Watching Me phenomenon; (3) the second order effects of management having an extensive information gathering system; & (4) the information overload that can occur for managers and touch laborers

Benefits

(1) Fresh & plentiful data, (2) visibility, (3) constant communication (4) holding people accountable & providing a feedback loop, (5) fostering a culture of continuous improvement, & (6) employee engagement & empowerment

Characteristics of employee engagement

(i) giving people the desire and motivation to enjoy going to work every day, (ii) making employees feel valuable, (iii) having leadership support floor level operations, (iv) building trust based relationships, & (v) providing employees with the level of training necessary to understand the value of the system in place and how to use it

Research Timeline

LAI Metrics KEE (Bethesda, MD)

LAI & Raytheon Metrics KEE (Andover, MA)

Sep - Dec 07	Jan - Mar 08	Apr to Oct 08	Oct to May 09
Literature review & prior metrics research	Surveys/interviews, identify issues & industry needs	In-depth case study	Refine theories developed, smaller case studies & verification of results

Expected Benefits to Industry

- Metrics that provide leading and lagging information for enterprise transformations
- Analysis of relationships between enablers and barriers to measuring transformation within an enterprise
  - –Culture & Organizational Inertia
  - –Leadership & Management Support
  - –Knowledge
  - –Total Employee Involvement
- Identification of best practices, heuristics for analyzing socio-technical systems
- Cost/Benefit analysis for implementing measurement frameworks

Research Methodology

- [x] Phase I: Literature review and prior metrics research
- [x] Phase II: Pilot survey/interviews, second hand case studies, and identification of industry needs
- [x] Phase III: One in-depth case study
- [ ] Phase IV: Development/refinement of hypotheses and theories

Research Contribution:

The development of an empirically-validated set of leading and lagging metrics that provide insights on enterprise transformation.