

PLM: Technology Roadmaps for Global Sustainability

**Report for PLM Advisory Board
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Abstract

The PLM Center at Purdue University has partnered with key PLM practitioners in exploratory research to identify the implications of new PLM technologies on organizational and strategic requirements, and the corresponding best practices, processes, and initiatives that lead to the development of roadmaps for successful implementation of future state of PLM advancements.

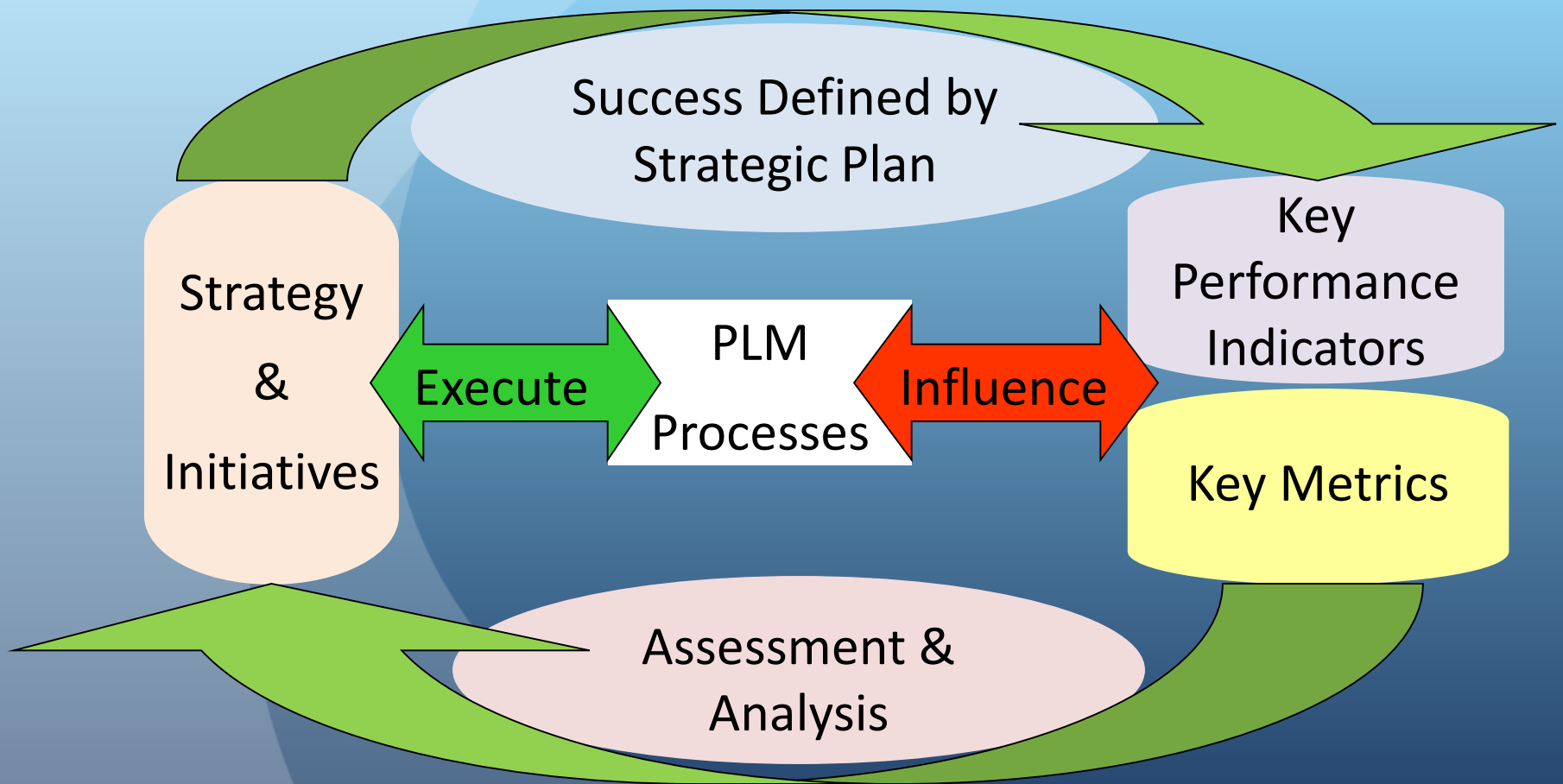
Overview

- The Product Lifecycle Management Center of Excellence at Purdue University
- PLM Metrics research
- Research purpose and rationale
- Exploratory Grounded Theory methodology
- Research Findings
- Implications

Future State Roadmaps Study: Purpose and Rationale

- Limited studies on Organizational Roadmaps for PLM Success
- Understand how to address organizational and cultural issues pertinent to PLM successes
- Review best-practice strategies from key industry leaders
- Bring the Metrics Framework research full circle

Purdue PLM Metrics Research



Research Methodology

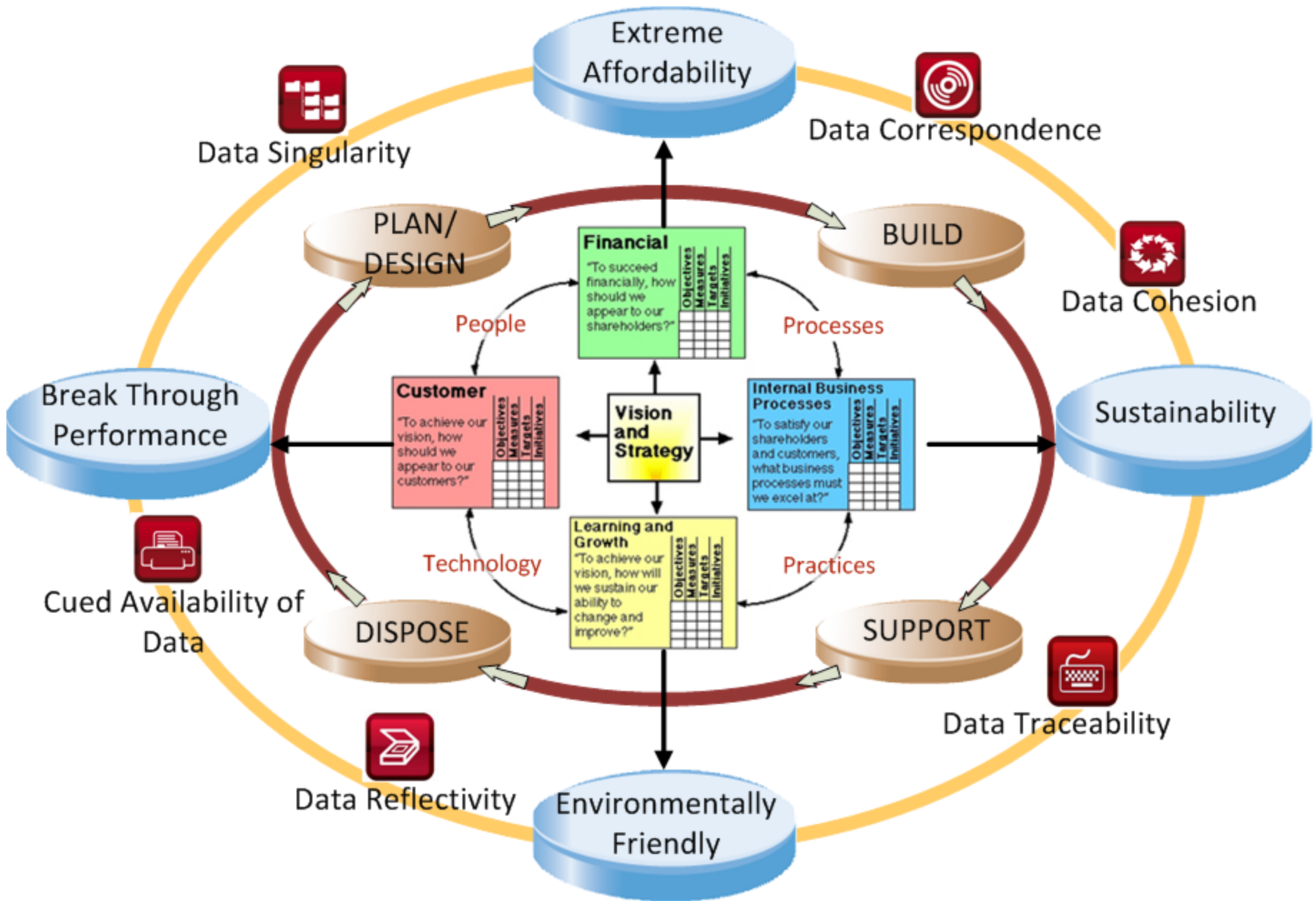
- Exploratory Grounded Theory research
- The process of Qualitative research
 1. Interview and transcribe
 2. Read and clean data
 3. Code data into chunks
 4. Axial code into major themes
 5. Prepare narrative to represent data
 6. Derive meaning and interpret findings
- Validity, Reliability, and Saturation

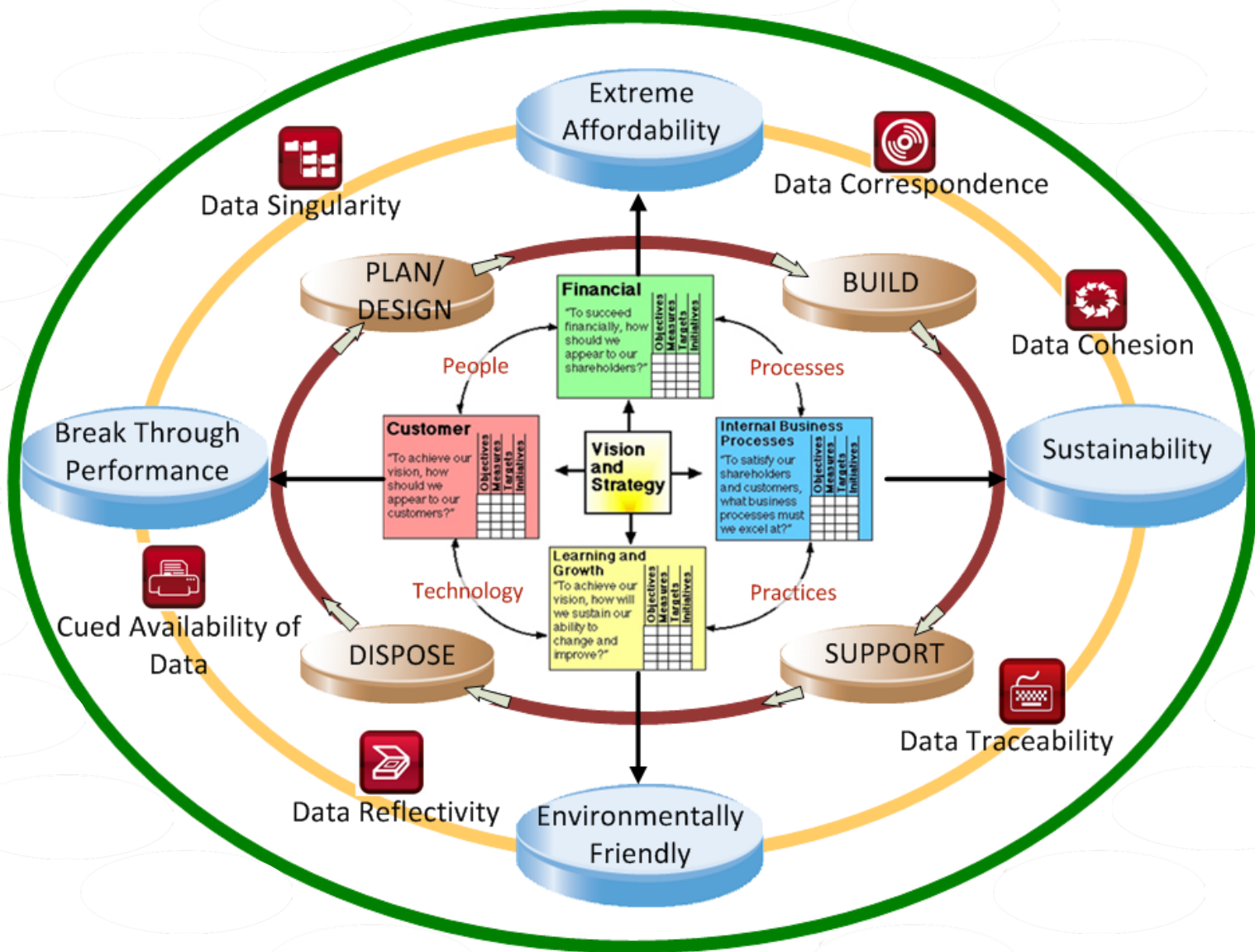
Research Phases

1. *Phase One - Project Scope and Proposal*
 1. Review of PLM literature
 2. Garner support from key industry leaders for focus group
 3. Development of interview instrument
 4. Gain approval from Purdue's IRB
2. *Phase Two - Data collection*
 1. Identification of key industry PLM users to participate in study
 2. Interview participants regarding future PLM advancements and the strategic requirements needed for implementation
 3. Transcribe interviews and codify transcripts into data (in process)
3. *Phase Three - Data Analysis and Reporting*
 1. Analyze data
 2. Write up study findings
 3. Seek publication of findings in appropriate journals and conferences
 4. Develop NSF Funding Proposal for continuing study to International Focus
 5. Present findings

Research Progress

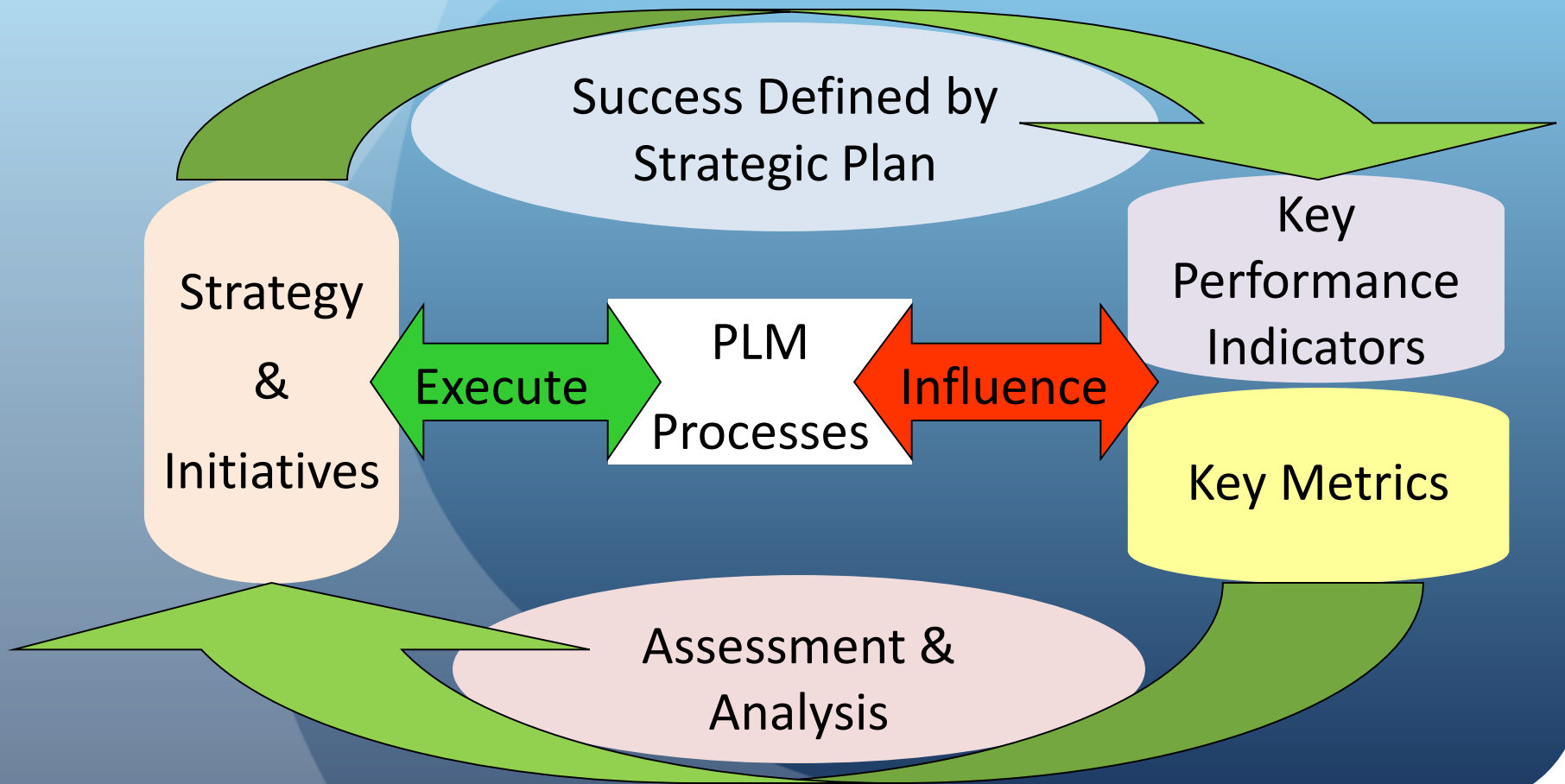
- 30 1-hour long interviews (stratified sample)
 - 1) They understand the business philosophy of PLM; and
 - 2) They are actively PLMing, not just working with a part of PLM; and
 - 3) They work in a capacity or level within the organization that would enable or require them to strategically foresee future trends in PLM, possible future applications, needed technological advancements, and requirements for successful and competitive implementation.
- 400+ pages of transcripts
- Over 150 categories of statements, examples, hurdles, and strategies
- Over 700 contextually significant and meaningful statements





Bringing It All Together

CREATING A VISION FOR SUSTAINABLE ADVANCED MANUFACTURING:
THE FIT MODEL

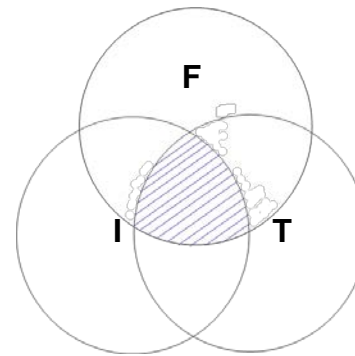


Fundamentals of Lean Systems

The Fundamentals of Lean section incorporates process thinking and tools leading to a new leadership philosophy based on the pursuit of perfection.

Institution of Change

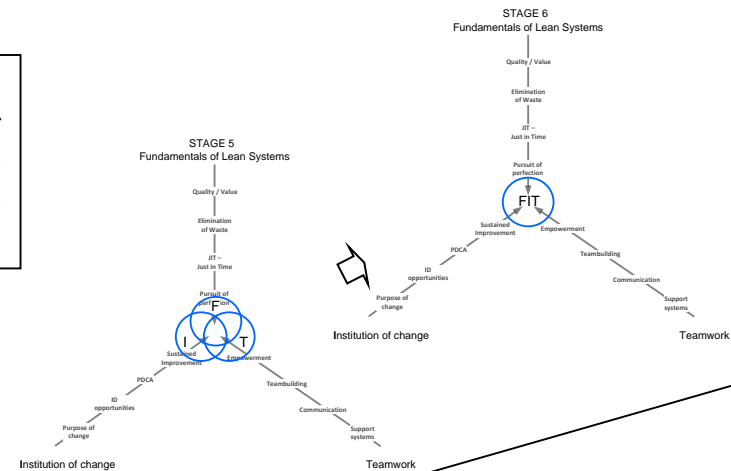
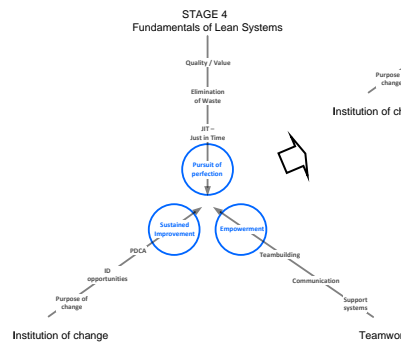
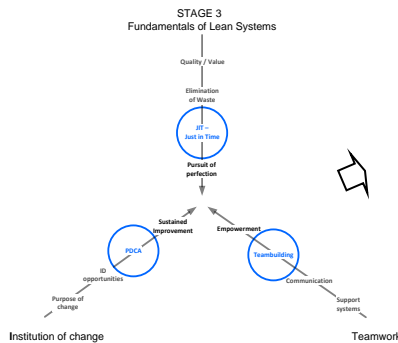
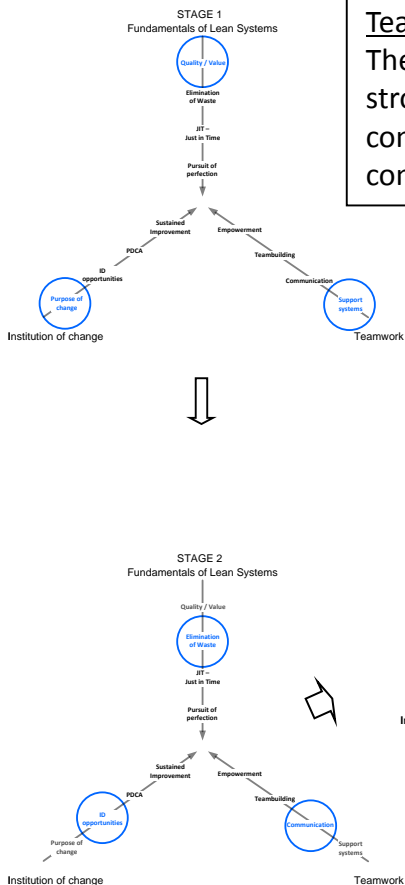
Advanced manufacturing is the realization of a continuous improvement cycle. The Institution of Change section incorporates the organizational vision that leads to an organizational culture for change.



The
FIT
Organization

Teamwork

The Teamwork section represents the realization for strong interpersonal leadership skills through effective communication, creating an environment for employee commitment and empowerment.



Becoming FIT:

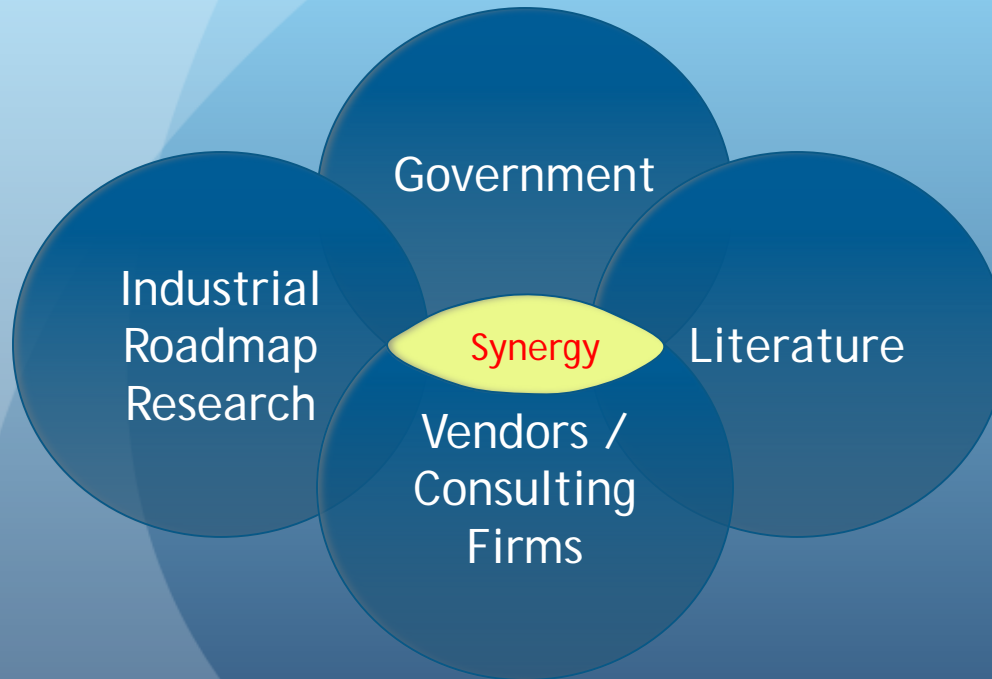
The key is concurrent education and application of all three pillars of the model. Engage, educate, execute, and expect results. The area of overlap indicates true and sustainable improvement.

The organization has achieved a FIT culture making use of the tools, skills, and leadership at all levels of the organization. The pursuit of excellence is incorporated into all facets of the organization with all employees having commitment for the vision.

Value Proposition

- Strategic Road-mapping requires:
 - Consistent and well understood mission
 - Vision of the road and foreseeable potholes or roadblocks
 - A shared plan to traverse your road
- Dialogue about real world examples of successful and failed PLM initiatives to impact:
 - Technology selection
 - Contraction negotiations
 - Business and Revenue model innovation
 - Ideation and innovation

Identifying Synergies



Next Steps

- Quantifiably validate largest roadblocks
- Bring Metrics Framework full circle with a gap analysis
- Present findings at PLM World & PLM Summit and garner support for future studies

Questions