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Integrating Lean with CMMI using VBS

Oladapo Bakare, LGO '10 Class

Raytheon Supervisors:

Project Supervisor: John Day, Director, Virtual Business System
Project Champion: Charles Mullins, Manager, CCA Business Development

Raytheon Virtual Business System Background

Using real time metrics, many essential performance and behavioral feedback loops have been implemented. These real-time metrics and behavioral results continuously drive operations to converge on lean behavior.

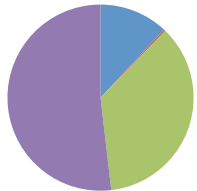
- Impact: 20% reduction in operating costs for IDS for four years running
- Full-time group members: 4
- Part-time: group members: 16
- Headquarters: Andover, MA

Project Background

Problem
The engineering group, particularly design engineering, has lack of experience w/ lean initiatives and has demonstrated limited use of the VBS tool.

Goal
To create better traction within the engineering group on the application of lean principles using the VBS tool to drive real-time analysis, lean adoption, and CMMI improvement.

Usage of Major Manufacturing & Engineering VBS Tools



- CA Portal Engineering
- ECMS_CODES Engineering
- Pareto Manufacturing
- IDS Cell Metrics Manufacturing

Internship Objectives

- Raytheon Project Goals**
- Encourage lean behavior in engineering groups
 - Identify ways in which lean and CMMI can merge
 - Create a VBS tool that improves the information flow
 - Discover other potential areas that provide value to engineering for VBS adoption
- Personal Goals**
- Gain insight into operations within a defense contractor
 - Learn more about tools for change management
 - Understand interactions between groups in a large corporation
 - Write a thesis about "intrapreneurship" as a tool for promoting lean transformation

Create a tool that promotes lean in engineering and identify other areas in engineering for lean transformation

Approach

Phase 1 Discovery

- Understand engr. group using political, cultural, and strategic lenses
- Understand CMMI Processes and Identify process goal with critical opportunity
- Understand customer value and create Value Stream Map
- Identify stakeholders

CMMI	LEAN
+ Focus on "what" (non-prescriptive)	+ Focus on "how & why"
+ Building Block approach to add processes as maturity increases	+ Iterative process relying on existing processes to reduce waste, improve flow etc
Process Consistency driven, Culture, Top and Bottom work together to align processes that are important	Cost driven, Culture, bottom-driven with support from top

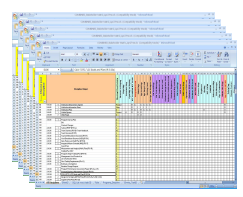
Both are useful beyond their traditional areas (CMMI can work in manufacturing / Lean can work in engineering) and can function for an Where they merge & build on each other

Lean can be used, similar to R6S, to provide methods and tools for continuous improvement to processes

Linking the two allows better integration for continuous improvement

Phase 2 Creating solution

- Design Future State: Created a stakeholder planning dashboard
- Align Enterprise Infrastructure: Built tool using VBS real-time software solution
- Create Transformation/Implementation Plan: Developed information session

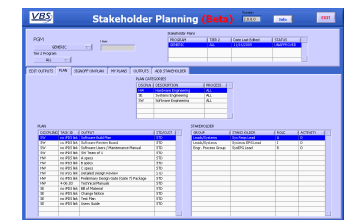


Phase 3 Pilot & Expansion

- Test ideas on program
- Build momentum to expand into other generic goals and process areas
- Nurture Lean Enterprise Thinking

Results

- Successful Pilot of a lean application in CMMI**
- Shortened man-hours
 - Simplified standard format: (~10 seconds saved per entry line)
 - Reduced consolidation time: (1 hour of meeting per group saved)
 - Reduced errors
 - One location accessible to everyone: Database viewable by all
 - Configuration Management
 - Maintain "auditable" format for CMMI review (SCAMPI)
 - Easily track and foster continuous improvement
 - Users can compare stakeholder plans between programs
 - Monitor time it takes for stakeholder planning and improve process accordingly



Conclusions

- **Lean transformation requires**
 - support from the top, bottom, and middle (peers)
 - promoting lean thinking,
 - guiding stakeholders, and
 - understanding goals/objective, metrics, and motivation of the organization
 - integrating with existing processes if those processes are mature
- **VBS as an "intrapreneurship" organization aids lean transformation by being a separate entity focused on improving the performance of all organizations**
 - In Phase 1 (Discovery), it is easier to understand organization needs when not being biased by strategic, cultural, and political perspectives
 - In Phase 2 (Providing Solution), it is not impeded by organization inertia to provide solutions
 - In Phase 3 (Continuous Improvement), it depends on customer base success therefore it provides objective support

