# Integrating Lean with CMMI using VBS

**Raytheon Project Goals**
- w/ lean initiatives and has demonstrated limited use of the VBS tool.
- The engineering group, particularly design engineering, has lack of experience

## Problem

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

## Project Background

- 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
- ECM/COBES Engineering
- Parts Manufacturing
- IDS Coldroom Manufacturing

## Approach

<table>
<thead>
<tr>
<th>Phase 1 Discovery</th>
<th>Lean</th>
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<tbody>
<tr>
<td>Focus on “what” (non-prescriptive)</td>
<td>Focus on “how &amp; why”</td>
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<tr>
<td>Building Block approach to add processes as maturity increases</td>
<td>Iterative process relying on existing processes to reduce waste, improve flow etc.</td>
</tr>
<tr>
<td>Process Consistency driven, Culture, Top and Bottom work together to align processes that are important</td>
<td>Cost driven, Culture, bottom-driven with support from top</td>
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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

- Linking the two allows better integration for continuous improvement

<table>
<thead>
<tr>
<th>Phase 2 Creating solution</th>
<th>Lean</th>
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<tbody>
<tr>
<td>Design Future State: Created a stakeholder planning dashboard</td>
<td>Align Enterprise Infrastructure; Built tool using VBS real-time software solution</td>
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<tr>
<td>Align Transformation/Implementation Plan: Developed information session</td>
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### Where they merge & build on each other

- Linking the two allows better integration for continuous improvement

<table>
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<tr>
<th>Phase 3 Pilot &amp; Implementation</th>
<th>Lean</th>
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<tbody>
<tr>
<td>Test ideas on program</td>
<td>Build momentum to expand into other generic goals and process areas</td>
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<td>Hurtle Lean Enterprise Thinking</td>
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### 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

### 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 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