Finding The Balance In Standard Bus Designs

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Stacy Garfield
Systems Engineer
Lockheed Martin Space Systems Company
Purpose

- **Standardization techniques**
  - Requirements versus size

- **Impacts on mission performance and utility**

- **Levels of standardization**

- **Lessons learned**

<table>
<thead>
<tr>
<th>Level</th>
<th>Standardization</th>
<th>Typical Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>Mission interface</td>
<td>Customer</td>
</tr>
<tr>
<td></td>
<td>- Space to ground interface</td>
<td></td>
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<tr>
<td></td>
<td>- Space to space interface</td>
<td></td>
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<tr>
<td>Spacecraft</td>
<td>Bus, payload interface, launch</td>
<td>Prime Contractor</td>
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<tr>
<td></td>
<td>interface</td>
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<tr>
<td>Subsystem</td>
<td>Algorithms, specifications,</td>
<td>Major Subcontractor</td>
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<tr>
<td></td>
<td>electrical interface, mechanical</td>
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<tr>
<td></td>
<td>interface</td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td>Electrical interface, mechanical</td>
<td>Subcontractor</td>
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<tr>
<td></td>
<td>interface, performance</td>
<td></td>
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<tr>
<td>Piece-part</td>
<td>Performance, form factor</td>
<td>Manufacturer</td>
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</tbody>
</table>
Mission and Funding Analyses

• **Drivers**
  – Market
  – Funding
  – Mission requirements

• **Optimization**
  – Utility versus cost
  – Utility versus mission requirements
Standardization Sacrifices

- Initial investments
- Performance
- System versus subsystem level
- Manufacturing
- Logistics
Proposed Solutions

• Quantity buys
• Contractor size
• Responsive development
  – Acquisition strategies
Benefits

- Technology advancements
- Rapid development
  - Block buys
- Training

There is a delicate balance between performance, risk and cost to achieve Mission Success.