Government – Industry Interdependence

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The Government – Industry Interaction

• Over many years and with varying degrees of success, both the Human and Robotic spaceflight communities of NASA have struggled with finding the “right” government-industry interaction to balance cost and performance risk
  – Human space flight has been pushing hard to find ways to find more cost effective development models without increasing the risks to crew
  – Robotic spaceflight organizations have been exploring multiple ways to better tailor methodologies to risk postures for different types/classes of missions

• We have swung the pendulum from heavy government control to almost none with many different vehicles
  – SAA, CRADA, TSPR, SySPR, FFP, FPIF, CIPF, CPFF, etc

• How we interact may well be more important than magic “vehicles”

• By now we have lots and lots of “lessons noted”; not clear how many “lessons learned” we have
The Government – Industry Interaction
Where to stop the pendulum?

- It is clear that the government can drive costs to the point of diminishing returns
- Qualitative assessments and quantitative analyses show that government interaction with a contractor team can produce a higher success rate than a contractor team alone
  - Best quantitative data is from multiple Aerospace and NASA Launch Services Program (Darren Beddell et al) analyses of launch vehicle success rate data spanning multiple US and non-US developments
  - Matt Smith et al/ ULA have recently done some analysis which indicates that some types of increased interaction may decrease the likelihood of success
Success Depends on the RIGHT Interaction

Concept and original analysis courtesy of Matt Smith et al, United Launch Alliance
Is interdependence part of the Secret Sauce*?

<table>
<thead>
<tr>
<th>Complementary technical questioning that challenges contractor’s assessments and thinking</th>
<th>vs</th>
<th>undercutting contractor’s technical ownership</th>
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<tbody>
<tr>
<td>Risk focused resources</td>
<td>vs</td>
<td>Too many mandatory items and peanut butter spread to “prevent” all problems</td>
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<tr>
<td>Timely concurrent analyses and decision making</td>
<td>vs</td>
<td>Heirarchical decision making and wait states</td>
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<td>Common focus on getting the product right</td>
<td>vs</td>
<td>Fault finding</td>
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<td>Resident, F2F and virtual interactions</td>
<td>vs</td>
<td>Excessive CDRLs and document checks against requirements</td>
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<td>Global perspective, problem hunting and family histories</td>
<td>vs</td>
<td>Narrow mission focus and “meets spec”</td>
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* This is not a recipe nor is it complete