University-led Strategic Aviation Research

AESB 2015

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1. Leverage Resources
2. Greater Utility
3. Cross-Cutting
4. Innovation at Intersections
STAKEHOLDER STRENGTHS

Enable sustained national initiatives

Applied research capabilities

Promote Economic development (jobs, jobs & jobs)

People faculty/students, Interdisciplinary innovation, Facilities

NASA

University

Industry

State
TRADITIONAL FUNDING MODEL

Enable sustained national initiatives

Applied research capabilities

Promote Economic development (jobs, jobs & jobs)

People faculty/students, Interdisciplinary innovation, Facilities

NASA

University

Industry

State
CENTER: LEVERAGES RESOURCES

Enable sustained national initiatives

U-led Strategic Aviation Research

NASA

Industry

University

State

Both Strengths and funds. Meet stakeholders’ needs

Promote Economic development (jobs, jobs & jobs)

People faculty/students, Interdisciplinary innovation, Facilities
1. Leverage Resources
2. Greater Utility
3. Cross-Cutting
4. Innovation at Intersections
GREATER UTILITY

– Joint Advisory board of Stakeholders enables better need identification

National Needs (Thrust Areas)

Commercial Needs & Viability

Industry

NASA

State

Joint Advisory Board

Economic development Needs (training, facilities)
GREATER UTILITY (CENTER SIZE)

– Issue: enable strategic projects

CENTER should be large enough to promote high-level participation in advisory board from stakeholders (e.g., industry) and undertake strategic research projects

Sufficient size (scope and time) to enable strategic projects
1. Leverage Resources
2. Greater Utility
3. **Cross-Cutting**
4. Innovation at Intersections
CROSS CUTTING

– Why cross-cutting?
   Need Sufficient expertise for the research
– Example: Focused research topic
  • Single university: maybe one top faculty in area
  • Multiple universities needed to build expertise
– Example: Broad thrust area research
  • different research areas are needed (human factors, data, fluids, etc.)
  • Cross-cutting could be different universities and/or different companies
CROSS CUTTING INDUSTRIES

– Example: DATA is important to, e.g.,
  • Safety of assured autonomy
  • Security of cloud-based computation/storage
  • Performance Optimization
– Strengths in different industry sectors
– e.g., in the Pacific Northwest
  • IT (Microsoft, Intel, Amazon, others)
  • Aerospace (Usage: Boeing, Blue-Origin, Insitu)
U-led CENTER COULD BRING SUCH DIVERSE INDUSTRIES TOGETHER (solve common problems, e.g., assured autonomy)
1. Leverage Resources
2. Greater Utility
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4. Innovation at Intersections
### INNOVATION AT INTERSECTIONS

<table>
<thead>
<tr>
<th>IT Industry</th>
<th>AERO Industry</th>
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<tbody>
<tr>
<td>Microsoft</td>
<td>Boeing</td>
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<tr>
<td>Intel</td>
<td>Blue-Origin</td>
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<tr>
<td>Amazon</td>
<td>Insitu</td>
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<tr>
<td>Cloud enabled Computing</td>
<td>Aerospace Manufacturing, UAV</td>
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<tr>
<td>Security</td>
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<td>Data</td>
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Fertile Area: Potential Innovations affecting assured autonomy: Security, cloud-enabled computing, verification and validation

Similar issues in both sectors
INNOVATION AT INTERSECTIONS

IT Industry
Microsoft
Intel
Amazon

Cloud enabled Computing
Security
Data

AERO Industry
Boeing
Blue-Origin
Insitu

Aircraft
Manufacturing,
UAV Automation

Challenging to bring them together:
Differences in scale: size, time, volume. IP issues.
A Center could bring them together to address common needs

U-led Center can exploit innovations at the intersections
SUMMARY

1. **Leverage Resources**
   (funds/strengths)

2. **Greater Utility**
   (needs identification, size for strategic efforts)

3. **Cross-Cutting**
   (can be across industries)

4. **Innovation at Intersections**
   (address common goals)