Aeronautics Research and Technology Roundtable

July 17 Meeting Summary

Presented to ASEB Meeting, October 22
ARTR Membership

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Aeronautics Research and Technology Roundtable July 17 Meeting

**Statement of Task**

“Define and explore critical issues related to NASA’s aeronautics research agenda”

“Frame systems-level research issues”

“Explore options for public-private partnerships that could support rapid, high-confidence knowledge transfer”

“Facilitate candid dialogue among participants, to foster greater partnership among the NASA-related aeronautics community, and, where appropriate, carry awareness of consequences to the wider public”

**NASA briefed the Roundtable about ARMD’s plans for flight research**

NASA will increase flight research in a number of areas as it ends some programs and can increase funding for flight research projects.

NASA is exploring new aircraft configurations.

Flight demonstration is a requirement for enabling overland commercial supersonic flight. (Focus is on data to change regulation, not developing a prototype.)

Providing autonomy capability for the community.
• Establish a National Flight Research Alliance
  – A flexible partnership across the aviation industry to rapidly and cost effectively bring the most appropriate flight assets to bear on critical flight research needs
### Possible X-Aircraft and X-System Flight Experiments

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tr>
<td>Safe, Efficient Growth in Global Operations</td>
<td>Enable full NextGen and develop technologies to substantially reduce aircraft safety risks</td>
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<td>Innovation in Commercial Supersonic Aircraft</td>
<td>Achieve a low-boom standard</td>
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<tr>
<td>Ultra-Efficient Commercial Vehicles</td>
<td>Pioneer technologies for big leaps in efficiency and environmental performance</td>
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<td>Transition to Low-Carbon Propulsion</td>
<td>Characterize drop-in alternative fuels and pioneer low-carbon propulsion technology</td>
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<td>Real-Time System-Wide Safety Assurance</td>
<td>Develop an integrated prototype of a real-time safety monitoring and assurance system</td>
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<td>Assured Autonomy for Aviation Transformation</td>
<td>Develop high impact aviation autonomy applications</td>
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<td><strong>Full TBO integration</strong></td>
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<td><strong>Low Boom Demonstration</strong></td>
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<td><strong>New Configurations &amp; Integrated Technologies</strong></td>
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<tr>
<td><strong>Alternative Energy and New Propulsion Systems</strong></td>
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<td><strong>Complex System-Wide Interactions among Flight &amp; Ground Systems</strong></td>
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<td><strong>UAS Integration &amp; Autonomy Applications</strong></td>
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Characteristics of A New Era of Experimental Flight?

• Partnership – Flight Experimentation has always had a strong emphasis on partnership
  – Enable an inclusive partnership among the aviation community
  – Expand to non-traditional partners

• Risk & Technology – Recapture ability to take risk and utilize emerging technologies to reduce cost of flight

• Assets – Expand the stable of available U.S. assets for flight experimentation
  – Utilize Live Virtual Constructive-Distributed Environment (LVC-DE) to establish a virtual test range for X-Systems type experiments

• Expanded Perspective – X-Aircraft and X-Systems
  – Enable evolution and transformation of the aviation system to meet future needs