Airframe Focus

Selected Concepts to Understand Customer Requirements, Technology Needs, and Business Case

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Why?

It is important that high speed aircraft research continues…

- Key U.S. aerospace technology development opportunities
- High value of time in national and global transportation systems
- At M~1.6 SSBJ captures most of supersonic time savings
Acceptable Boom Definition

• Acceptability criteria must be based on solid science coupled with extensive human subjective response testing

• Must have international agreement on those criteria

• Will require a significant commitment of resources and time including technology demonstrator vehicle

• Requires technology readiness to permit design/manufacturing of a vehicle that is totally acceptable to the public and of clear value to the global air transportation system
Acceptable Boom Definition

- Acoustic Chamber Research
- Structural Response of Buildings
- Focus Boom Research
- Public Opinion

Establish Acceptability Criteria

Establish Operational Restrictions

Preliminary Criteria

Design, Technology Demonstrator, Verify

Rule Making

Primary Objective
### Technologies

#### Propulsion
- Low Emissions
- High performance low noise inlet and exhaust design
- Rotor containment
- Time at temperature

#### Flight Deck
- External/Synthetic/Enhanced Vision Systems

#### Aeroelastics
- CFD for Loads, Dynamics and S&C Analysis and Design
- Aerodynamic/Structural optimization of composite structure
- Active controls application for load alleviation
Incremental Introduction

- **Supersonic corridors concept**
  - Civil use of supersonic corridors
  - Adding extra legs
  - Controlled operational airspace

- **Eventual ‘normalized’ flight routing**
  - Moving boom pattern map displays in the cockpit
  - Potential time dependent en-route supersonic curfews
Conclusions

• Fruitful area for Government funded research

• Establish clear value to global transportation system – “the value of time”

• Establishing acceptability criteria is key decision gate

• Government leadership to move forward on research required