



NASA - SATS

Transportation Systems Analysis and Assessment

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Breakout Groups



Group & topics

- Airborne Enabling Technologies:
 - Flightpath Guidance
 - Flight Deck Systems
 - Communication/Navigation/Surveillance Systems
- **Transportation System Analysis and Assessment**
 - **Economics**
 - **Market demand behavior**
 - **Technology performance metrics**
- Technology Integration and Flight Evaluation
 - Flight research aircraft and experiments
 - Simulation experiments and modeling
 - Airspace systems
 - Airspace procedures

Facilitator

Ron Swanda, GAMA

Ron Mauri, Volpe

Dres Zellweger, FAA



TSAA Objective: Prove that SATS Works



- **Establish the SATS business case:**
 - **Economically viable in the 2010 timeframe**
 - **Satisfactorily meets expectations/requirements in all areas of POETS**

P	political
O	operational (safe, secure, and reliable)
E	economical
T	technical
S	societal (environmentally compatible, comfortable and valued)
- **Show SATS contribution to NASA Mobility goals**
 - **50 % reduction in doorstep-destination time in 10 years (double the speed of the Nation)**



Does SATS Provide An Economically Viable Solution?



- How much will it cost?
- How many people will use it?
- How many SATS passenger trips will be generated?
- Important parameters
 - Business models
 - » Non scheduled carriers
 - » Privately owned
 - » Corporately owned
 - » Fractionally owned
 - » Rented
 - » Combinations
 - National economy
 - Affordable, proven, and reliable technologies



Figure 4



What Is The Impact on Then-Year NAS and Airport Infrastructure?



- Where can we fly?
 - When can we fly?
 - How do we fly?
 - What is the role of SATS in meeting then-year air traffic and mobility challenges?
 - What unintended consequences may be created?
- Delays, conflicts, airspace redesign,
of controllers, procedures/regulation
changes



Figure 5



Does SATS Satisfy Public Expectations?



- **Safety and security**
- **Environmental compatibility**
 - Noise
 - Emissions
- **Sustainable Mobility**
 - Energy
 - Land Use
- **Value for \$**





Typical Analyses and Assessments



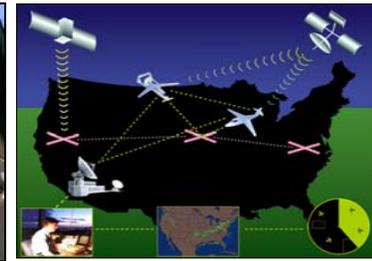
- **Transportation Systems Engineering Analyses (Decision Support Model)**
 - **Market** for SATS as a function of
 - Origin-destinations
 - Geographical area
 - Trip distance
 - Aircraft size, speed, and range
 - Airport and air traffic control infrastructure and costs
 - Business models
 - Accessibility (weather, noise restrictions and other regulations, etc.)
 - Operating and purchase costs
 - Single pilot operation (self -flown versus hired)
 - Stated traveler preferences
 - **4 operating capabilities/goals impact** on mobility metrics
 - **SATS 2010 implementation projections** relative to POETS
 - **flight demonstrations relevance to 2010 ConOPs and 2025 User requirements**
 - **Market-response, field trial design**
 - **Program assessments**



Typical Analyses and Assessments



- **Trade/benefits analyses** to assist in decision process regarding equipage for flight experiments and demonstration flights
 - **Flight path and flight deck technology**
 - **Airborne systems design**





TSAA Group Questions



The Transportation System Analysis and Assessment Group will focus predominantly on the following questions:

- **Is doubling the speed of the nation , enabled through the effects of SATS capabilities on accessibility, a valid management strategy for the SATS Program?**
- **What else is required to prove SATS works?**