Government-Industry-Academia Collaboration: Design and Operations

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This presentation offers my views on partnership design and operations, through the lens of past government-industry-academia collaborations.
Lessons Learned

• System-Level Advancement
• FAA leadership
• Governance
• JSRA – OTA structures
• Cost-sharing
• Learning curve for partnership
• Third-party facilitation
• Legacy products
• Integrate suppliers in collaboration
• Commercialization acceleration
Motivation for Industrial Collaboration

• A large underserved market opportunity exists for personal on-demand (mobility) air transportation (ODM)
• ODM is “strategic” or “blue ocean” in the sense that it stimulates new, previously unreachable demand
• The lessons of the first-to-market have been learned (e.g., DayJet, SATSair)
• Many past barriers to air taxi market success have been lowered (markets, logistics, business models)
• New barriers exist (propulsion, cost, automation, airspace)
• The market is in need of very new solutions
• The solutions generate significant value for our nation

1 Kim and Mauborgn, Blue Ocean Strategy
A $2+ Billion Bottom Line

Premise
A portfolio of integrated national technology development projects spanning the late 1980’s to 2005, with industrial and governmental investments exceeding $2 billion, was implemented on the premise that the results would lead to significant market uptick in the use of community airports and advanced technology smaller transportation aircraft for public transportation.

Outcome
The evidence of the recent ten years, following completion of these investments, reveals an absence of intended effect; the premise failed to reach fruition, to date.

Today
Why?
What is the relevance of the premise today?
What good came of the investments?
What technology strategies are relevant now?
Constellation of NASA-Industry-FAA Investments

AGATE Alliance
1994-2001

GAP Project
1995-2000

SATS Project
2001-2005

Outcome: Technology, Regulatory Policy, Infrastructure Investment supporting expanded use of community airports and smaller aircraft for public transportation; however, we did not go far enough.
Sample Legacy Products of AGATE

Industry Design Guidelines
- Crashworthiness
- Lighting Protection
- RTM Manufacturing
- Ice Protection Systems

Standards for Systems and Architectures
- Composite Systems Qualification
- AGATE Databus
- Electronic Engine Controls for Piston Engines

Regulatory Satisfaction
- AC 23.1309 and .1311 for Glass Cockpits
- AGATE Databus
- Unified Flight Training Curriculum

And many more...
Today: U.S. On-Demand Air Carrier Models

Business Models (Parts 91K, 125, 121, 135)

- Branded Charter
- Brokered Charter
- Fractional
- Subscription Transport
- Jet Card
- Equity-building Jet Card
- Leasing
- Networked Air Taxi, per-seat
- Prop Card
- Pure Charter
- Corporate Shuttle
- Ride Sharing

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The 21st Century model for innovation requires efficient collaborative processes.
A Constellation of Alliances led to the public good outcome sought by NASA and new industrial capacity deployed by industry.
Innovation Alliance Strategies
Design Architecture

Key:
Start here

If you’ll write standards, we’ll use them.

Solution Seekers/End Users

If you’ll build it, we’ll buy it.

Standards & Certification

If you’ll need it, we’ll do the research.

If you’ll write standards, we’ll finance it.

If you’ll buy it, we’ll finance it.

Supply Chain(s)

If you’ll do the research, we’ll build it.

Finance

If you’ll finance it, we’ll build it.

If you’ll finance it, we’ll do the research.

R&T Providers

If you’ll do the research, we’ll finance it.

If you’ll do the research, we’ll build it.

Finance

If you’ll finance it, we’ll build it.
Bottom Lines

• The global demand for democratized, distributed air mobility vastly exceeds the supply, globally.
• We have lived through one of the largest industrial-governmental collaborations focused on air mobility innovation (1990-2006).
• Lessons learned apply to today’s challenges.
• Need for mobility solutions is greater than 20 years ago.
• Common industry voice is vital.
• Collaboration will accelerate the path to commercial opportunities.
• Design a constellation of collaborations
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Continued
Bibliography, Concluded


