



Government-Industry-Academia Collaboration: Design and Operations

NASA-FAA Joint On-Demand Mobility and
Emerging Technology Workshop
Kansas City, MO
October 21-22, 2015

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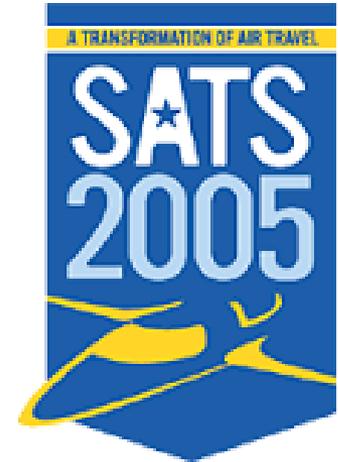
Topics

- Lessons Learned (1990-2006)
 - AGATE
 - ERAST
 - GAP
 - SATS
- Applications to Future Government – Industry – Academia
Pre-competitive Collaboration
- Summary Remarks

This presentation offer 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 ocean¹” 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



2002-2008

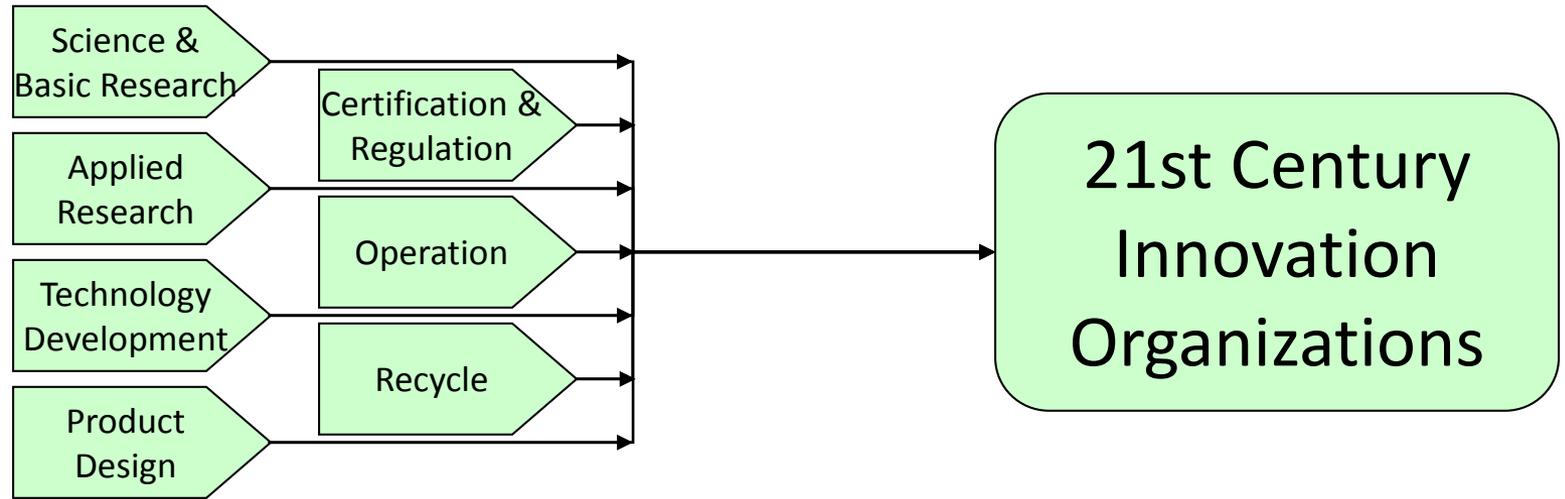
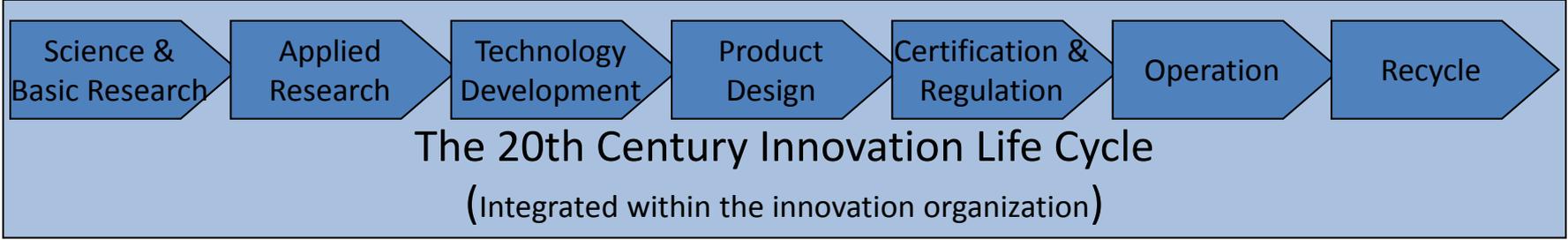
Business Models (Parts 91K, 125, 121, 135)

- 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

2002-Present



21st Century Labs and Alliance Strategies

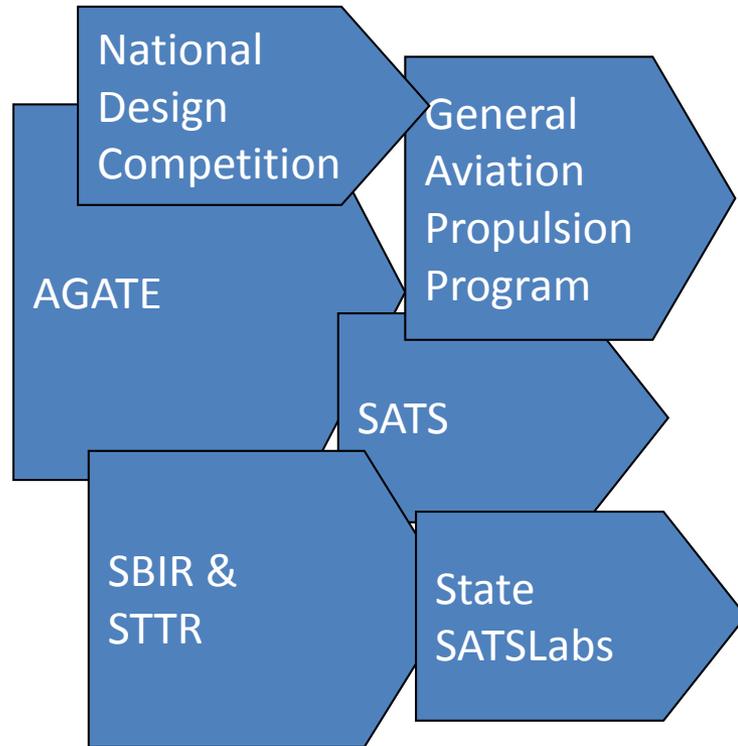


The 21st Century model for innovation requires efficient collaborative processes.



Alliance Strategy

(An Historical Example)

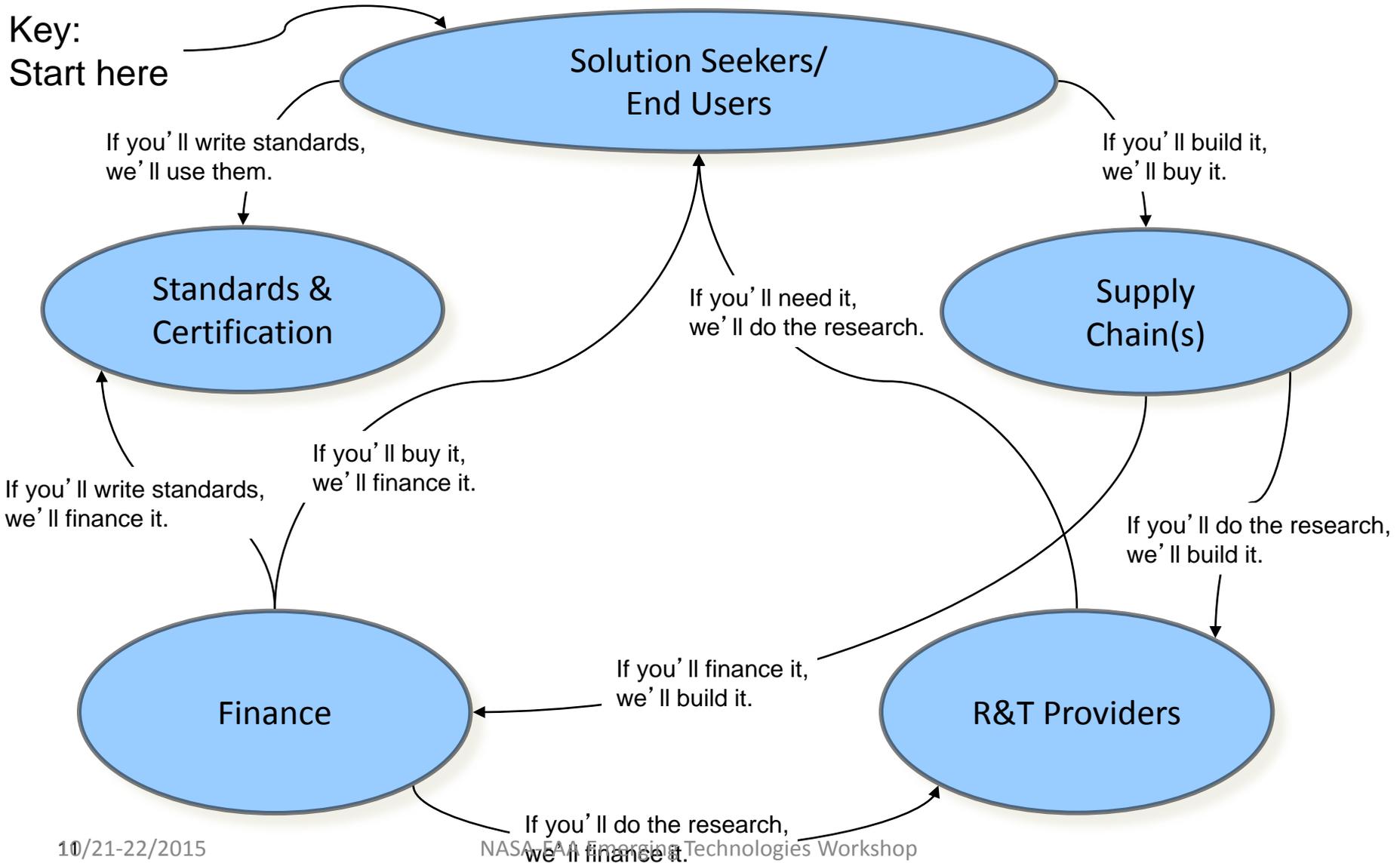


A Constellation of Alliances led to the public good outcome sought by NASA and new industrial capacity deployed by industry

Innovation Alliance Strategies

Design Architecture

Key:
Start here





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



Thank You!





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