StarNet’s Experience in General Aviation Alliances

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On-Demand Mobility Workshop
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Outline

- **Who & What:** StarNet Network
- **Types:** Alliances & Partnerships
- **How:** Fundamental Model
- **Aviation:** GA Alliances
  - **GA:** AGATE Alliance
  - **GA:** PATA Alliance
- **Next Alliance:** NextGen Software
Network of five specialists organize R&D alliances to innovate technology & business models

- **Who is in the network?**
  - Paul M- Organizational Process, Finance, Law
  - Keith Gale- Tech Commercialization
  - Bill Lennett- Government Contracting & Audit
  - Alyson Greenlee- Economic Development
  - Josette Ferrer- Intellectual Property

- **What do we do?**
  - Map Innovation Needs
  - Design
  - Manage
  - Administer
  - Secure Funding
### Types: Focus on alliances that create “systems” of technologies that can impact industry business models

<table>
<thead>
<tr>
<th>Types</th>
<th>Equipment &amp; Facilities</th>
<th>Projects</th>
<th>Programs</th>
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<tbody>
<tr>
<td>Commercial</td>
<td>Lab Sharing</td>
<td>Single Project Partnership</td>
<td>Consortium Multiple Tech</td>
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<tr>
<td>National Public/Private</td>
<td>Test Facility</td>
<td>Single Project Partnership</td>
<td>National Scale Public/Partnership</td>
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<tr>
<td>Regional/Local Public/Private</td>
<td>Engineering Facility</td>
<td>Innovation Cluster Sub-Teams</td>
<td>Innovation Clusters</td>
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<tr>
<td>University or Research Institute</td>
<td>R&amp;D Campuses</td>
<td>Project Partnership</td>
<td>Topical Center</td>
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## Scope: Range across different economic sectors

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<td>Commercial</td>
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<td>City Protocol Society</td>
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<td>GA: Air Taxi</td>
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<tr>
<td>National Public/Private</td>
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<td>Offshore Wind</td>
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<td>GA: AGATE &amp; SATS</td>
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<tr>
<td>Public/Private</td>
<td>WSU Innovation Campus</td>
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<td>University or Research</td>
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<td>Institute</td>
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How: Alliance design is based on needs assessment...like designing any system

1. Map Stakeholders
2. Assess Innovation Needs
3. Strawman Design of Alliance
4. Test with Stakeholders, Finalize Design
5. Draft Legal and Operations Agreement
6. Implement
   - Enforce the Agreement
Design: Alliances design is like any system design…such as a vehicle

- **Performance:** What want to accomplish?

- **Charter:** What’s purpose? Why different other existing groups?

- **Structure:** What are functions, roles, relationships?

- **Governance:** What is representation, mix, decision process?

- **Management:** Who and how manage?

- **Operations:** What are functions of administration?

- **Output:** How to secure, protect and distribute outputs?
GA Aviation PPP’s cover a wide range of objectives, incentives, structures and working relationships

- **Vehicle Systems:** Advanced GA Transport Experiments (AGATE)

- **Propulsion:** General Aviation Propulsion Systems (GAP)

- **Transportation Systems:** Small Aircraft Transportation System (SATS)

- **Aviation NetCentric Operations:** Airborne Internet Consortium (AIC)

- **On-Demand, Air Taxi:** Personal Air Transportation Alliance (PATA)
AGATE: AGATE Alliance was designed for discovery flexibility to develop & certify technology & vehicle systems

AGATE PPP Partnership Agreement

Executive Council
- Sets Strategy
- Approves Management, Plan & Budget

Program Management Team
- Implements Plan, Tactical Tradeoffs

Public
(NASA-LaRC)
NASA+
FAA
DOD

Private
Consortium
(501-c-3)
(anti-trust exempt)

AirFramer
Avionics
Icing Systems
Propulsion

Team #1
Product #1

Team #2
Product #2

Team #N
Product #N

Archival and Distribution of Final Outputs

Systems Integration
Systems Assurance

Applied Innovation
e.g. WSU/NIAR
RTI, ERAU
PATA: An air taxi alliance to promote a business models & define technology needs

- Industry-led
- Mutual benefit innovation alliance, not a trade association
- Support common approaches to expand air transportation with focus on small airports and aircraft serviced by air taxi
- Pool information, support and facilitate research

Personal Air Transportation Alliance (PATA)
PATA members agreed to compile information under NDA to prepare white papers.

**NexGen Modernization**
White Papers: Modernization

**Air Taxi Companies**
White Papers: Definition, Market

**Suppliers- OEM, Engine, Avionics**
White Papers: TBD-Environment

**Airport Operators**
White Paper: Airport Upgrades/Investments

**Research and Technology:**
White Paper: R&T Priorities

**Benefits**
White Papers:
- Safety
- Security
- TBD
- Air Space Use
- Economic Impact
PATA was asked to forecast the on-demand, air taxi impact on national transport

- **Members Survey:** Five largest air taxi
- **Aircraft:** 500 within 3 years
- **Altitude:** 21K to 28K feet
- **Airports:** Community airports outside urban areas with only one exception for approximately five planes over next two years
- **Update:** Semiannual
- **Expanded Survey:** Four new air taxi for a total of Nine
PATA pooled operator information to identify market demand

- **Sector:** Outside hub-and-spoke
  - Only one PATA member intends to base or even offer hub airport coverage

- **Need:** Provide time and travel disruption savings

- **Market:** Business travelers (80%) of small to medium sized businesses

- **Volume:** Total size in 2006 @ 240,000 trips per annum or 1.5% of total 200 to 1000 mile business trips
  - Key Range: 195 to 450 miles

- **Growth:** Est. 4 to 5% per annum
StarNet is evaluating the feasibility of launching a NextGen software development alliance

- **Objective**: Shared software architectures and code

- **Organizers**: StarNet and WSU/NIAR

- **Analysis Sponsors**:
  - FAA Tech Center
  - CISCO Transportation Group

- **Next Meeting**: NBAA, November 17 in the afternoon, room and time to be announced
Questions?

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White Papers on Website
Fundamentals of Innovation Alliances

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Public/private partnership is a term that encompasses four concepts about public vs. private sector economic activity

- **Two political concepts**
  - What role… government vs. private sector
  - What issues… infrastructure, innovation, job growth

- **Two organizing concepts**
  - What scope… government, private corporation, academia, bridge organizations
  - What structure… advisory, consortia, university programs, research institutes
Public/private partnerships normally take the form of specific conjoint programs, projects & ongoing operations….

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<td>Political</td>
<td>National and regional needs; national and regional interests; political organizations; think tanks; special purpose councils, etc…</td>
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<tr>
<td>Policy</td>
<td>Areas and policy positions for energy, transportation, innovation, fiscal (tax), sector regulations, etc.</td>
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<tr>
<td>Program</td>
<td>Continuing topical areas of activity impacting economics regarding energy, transportation, research, development, testing, standards, etc.</td>
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<tr>
<td>Project</td>
<td>One time activities intended to achieve a specific outcome such as a specific ethanol test, vehicle test of biodiesel, aircraft flight efficiency test, etc.</td>
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<tr>
<td>Ongoing Operations</td>
<td>Operating functions where public organizations and private vendors constantly coordinate such as transportation system development, IT security, etc.</td>
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Relevant because PPP’s are the mechanism to build economic growth, supply chain development and profitability….

**Examples…**
- **Transport**: NACA-annual event, rail and auto consortiums
- **Agriculture**: USDA university funded farm extension
- **Energy**: USGS surveys used by petroleum syndicates

**Common Industry Values from PPP**
- Co-Development of Standards
- Lowered Cost of Capital
- Skills/Workforce Development
- Public Infrastructure for Commerce
Innovation partnerships create organizations that span the full spectrum of technology development and beyond...the scope expands and structure is formalized.

The 20th Century Innovation Life Cycle
(Integrated within the innovation organization)

The 21st Century model for innovation requires new organizational processes.

NASA: APPO, Bruce Holmes, Innovation Alliance Strategy and Design, April 2007