Industry Perception of Small Aircraft Transportation Systems

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SATS Overview

- NASA Study
  - Nationwide small aircraft transportation system (SATS)
  - Combats the growing saturation of the National Airspace System (NAS)

- SATS Aircraft
  - Seat 14 or fewer passengers
  - Serves small satellite airports
    - Increased passenger convenience
    - Less congestion
  - Advanced navigation and flight instruments
  - Fuel efficient
Introduction

Purpose of Study

• Given the current state of the economy, what is the viability of SATS in future businesses?

• Gain an industry-wide perspective concerning the risk of using SATS
  – Aviation
  – Non Aviation

• Determine trends that different industries view as necessary for its successful implementation.
Past Research

- Graduate student and advisory committee
- Examined relationship between demographics and risk perception
  - Using SATS in collegiate transportation environment
- Findings
  - Significant predictors of SATS risk perception:
    - Gender, academic position, general aviation familiarity
  - High ranking individuals had different priorities with travel
    - Value of time was more important than cost
  - Individuals with aviation background demonstrated less concern of physical and status risk using SATS
Literature Review

Current Issues

• Declining number of general aviation flights
  – 5% decrease in 2010
  – Few signs of improvement in the short-term

• Average cost of Avgas: $6/gallon
  – Approximately 100% increase in four years

• Slowed development of very light jets (VLJ)
  – Piper Altaire, Hawker 200, Eclipse
Methodology

Data Collection

- Electronic Survey
  - Assess opinions and perceptions concerning SATS utilization
- Participants split into two categories
- Industry leaders from each industry
  - Business owners, managers, operators, and experienced professionals

![Pie chart showing Industry Leadership Position]

- Aviation: 48%
- Non Aviation: 52%

![Pie chart showing Participant Background]

- Other: 42%
- Part 91: 16%
- Part 131: 16%
- Part 135: 16%
- Part 121: 26%
Results

Categorical Data Analysis

• Relationship between FAA pilot certificate holders and familiarity with SATS concept

<table>
<thead>
<tr>
<th>Pilot Certificate</th>
<th>Familiar with SATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>45%</td>
</tr>
<tr>
<td>No</td>
<td>55%</td>
</tr>
</tbody>
</table>

• Chi Squared revealed p-value of 0.11
  – No statistical significance
Results

Travel Priority: Business Owners or Managers

![Bar chart showing number of responses for time spent in transportation, convenience, cost of transportation, and schedule.]
Results

Travel Priority: Aviation Industry Leaders

Number of responses

- Time Spent in Transportation: 7
- Convenience: 3
- Cost of Transportation: 6
- Schedule: 4
Results

Comparison of Means
Results

Likert Scale - Risk

• Aviation familiarity linked with risk perception of single engine aircraft
  – 78% of aviation professionals strongly agree they would be comfortable
  – Only 44% of non-aviation professionals strongly agreed

• Responses began to vary when asked specifics of SATS service
  – Both groups had 56% agreement concerning aircraft with less than 5 seats

• Single pilot operation
  – Only 22% of aviation professionals strongly agreed
  – 44% of non-aviation professionals strongly agreed

• Public Image
  – 11% of aviation and 22% of non aviation leaders exhibit positive perception
Results

Likert Scale – Marketability of SATS

• Hesitations revealed in both groups
• Is SATS is a viable system with current market trends?
  – Both groups had only 22% agreement
  – Unanimous disagreement from aviation group concerning sustainability of piston powered aircraft
    • 22% of non-aviators agreed
• Profitability of SATS
  – 44% of aviation and 33% of non aviation groups ranked 5
• Investing into SATS
  – 22% of both groups strongly agree
Discussion

Industry Suggestions

- Accident rates and small aircraft
- Large capital investment
- Strategic budgeting and cash flow analysis
- Critical success factors
  - Reliability, safety, aircraft maintenance
- Time value of money
Conclusion

Recommendations

- Application for further studies
  - Larger sample size
  - Provide insight on introducing SATS approach
- Aviation familiarity strong predictor of SATS risk
  - In agreement with previous study
    - 89% of respondents familiar with aviation are comfortable with small aircraft
- Given time, SATS could be a profitable asset for a company
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Questions
Comments

Welcome to the Small Aircraft Transportation System (SATS)
NRLA Langley Research Center
Transportation System

SATS

Purdue University