COVID - 19 Impacts

Industry and FAA

Presented to: REDAC
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Date: April 21, 2021
Purpose / Agenda

- **Purpose:**
  - Capture lessons learned and future forecasts from several perspectives to inform FAA research

- **Agenda:**
  - FAA researcher perspectives
    - WJHTC
    - CAMI
  - Industry perspectives
    - REDAC subcommittees
Resources for Stakeholders:

trb.org/ACRP/ACRPIInfectiousDiseaseResources.aspx

Featured Events: Webinar on what airports and their aviation partners are doing to prepare for the return of the flying public.

- Airport Responsibilities and Preparedness
- Crisis/Emergency Communications
- Continuity of Operations
Limited Scope Aeromedical Research Program:
- Developed by CAMI in late spring of 2020 driven by:
  - Draft legislative language
  - Volume of questions received from aerospace stakeholders
- Executed by internally reprogramming CAMI resources
- Designed to be a limited 1-2 year effort focusing on knowledge capture and synthesis to:
  - Inform a safety risk management analysis
  - Establish a foundation for developing a cabin safety pandemic playbook for future use

Researcher Lessons Learned:
- Information volume and uncertainty
- Manage complexity:
  - Scope → aircraft cabin and diseases of public health significance
  - Organizing framework → risk breakdown structure oriented to exposure environments
- Focus on the next pandemic (generalizability)
- Significant undertaking requiring more than 2 years
Industry Perspective - Guiding Questions

• What are the major lessons learned from this pandemic that should be applied to preparations for the next pandemic?

• What has changed about the industry’s 5-10 year future forecast given the pandemic?

• What has not changed?

• What research questions still need to be addressed?
Industry Perspective – REDAC Responses

- Changes to the Aviation Industry
- Technology Advances
- Global Competitiveness
## Changes to Aviation Industry

### Demand:
- Cargo increased, half for commercial traffic, GA represented a similar fall but recovered more quickly
- Has business travel changed permanently?
  - Companies that need to travel are chartering – may mean GA may rebound sooner
- How soon does international travel resume?
- More leisure travel? (weekends are busier)
- Capacity challenges – after pent-up demand what will it balance to?

### Competition:
- US/Europe funding models/levels are different - may move the competitive advantage to Europe
- US Economic model: will it change?

### Fleet:
- Size is down and average aircraft age is younger
- Type certification program – FAA done remarkable job keeping the certification team engaged

### Operations:
- ATC-0: Major challenge
- Airlines operating differently
- TSA has bigger role
- Cleaning programs changed drastically and costly
- Contactless air journey
- Experience is leaving the industry- strategy leaders and technical staff
- Upended business model – struggling with how to find new ways to generate revenue (midst and post COVID)

### Technology innovation:
- Budgets significantly reduced
Technology Advances

• The “how” is changing (virtually) but occurring very rapidly/accelerated
• Investment levels changing: R&D comes from retained earnings/raised funds and budgets have gone down
• Hard decisions being made on what to defer and/or delay product introduction
• Emphasis on technology – examples: robotics for cleaning, parking

Opportunities

• Advanced Air Mobility:
  o Freight and autonomous freighters, delivery goods/services, integration with communities
  o Business case may not be on urban air mobility (timeframe airspace/infrastructure is further away)
• Spectrum and evolving to 5G and 6G
• Greener Recovery:
  o Return to growth without emission/noise growth
  o What does trajectory towards net zero (2050) look like?
• Vehicles using hydrogen solution (hours vs minutes and larger payloads)
• Battery electric solutions
• Integrating touchless technologies
• Evaluating cleaning products and their effect on material
• Training needs: reduced/replaced staffing
• Supersonic
• Ice crystals/volcanic ash
• Cybersecurity
Remaining Globally Competitive

Public confidence
- Balancing people’s right to privacy and public trust
- Need a “curb to curb” plan for people to feel safe
  - Cleaning standards
  - Social distancing – a significant requirement for terminal space and queuing passengers
  - Partnering with other organizations never partnered with before – (i.e. aeromedical/CDC)

Planning/Future:
- Learn from COVID
  - Case study: document what we did, what we need to do and how do we do it without shutting down the system in the future?
  - Gov’t/industry/academia need more deliberate modeling/play booking these type of events.
- Monitor hostile threats
Discussion Questions

• What are the major lessons learned from this pandemic that should be applied to preparations for the next pandemic?

• What has changed about the industry’s 5-10 year future forecast given the pandemic?

• What has not changed?

• What research questions still need to be addressed?
Questions & Discussion
Challenge / Discussion Questions

• How will the business model of aviation change?
• How can we restore passenger trust?
• What does this experience mean for the environmental impacts of aviation?
• How do we ensure that aviation is not the means to spread a contagion?
• How does global differences in COVID and vaccination impact aviation?
• What does it look like for aviation to “build back better?”