Challenges of Remote Technologies Panel
ICAO Remote ATS and RPAS Symposium

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Outline

- Our Facilities
- Our ATS Service Options
- Selecting the ‘Right’ Service Level
- A Remote Service Approach
  - Drivers
  - Business Case
- Developing a Remote Service Strategy
  - Strategy
  - Regulator
  - Flex Service
Our Facilities

7 Area Control Centres

41 Air Traffic Control Towers

55 Flight Service Stations

38 Remote Flight Service Stations
Our ATS Services Options

- Airport Control Service
- Airport Advisory Service – FSS
- Remote Advisory Service – RAAS
- Flight Information Services – FIC
- Remote Weather Reporting – (AWOS, LWIS, DWC)
- Remote Control Service - RTS
Aircraft Movements
Airport Traffic Services Chart

May qualify for Airport Control Service

May qualify for Airport Advisory Service provided from a Flight Service Station

MF-ATF Communication procedures may be in force
Selecting the ‘Right’ Service Level

- Level of Service Policy
- Traffic
  - Movements
  - Types
  - Complexity
- Business Case
  - Technology investment
  - Staffing
  - Existing infrastructure
- SAFETY
  - HIRA
Remote Services Approach

• Services provided from another location
  – Approach Control
  – Traffic
  – Weather
  – Vehicle Advisory Service
What Drives a Remote Service Approach?

- Geography
- Climate
- Infrastructure

- Traffic
- Cost efficiency
- Technology
Making a Business Case for Remote Services

• Considerations:
  – Salaries, Benefits, Allowances
  – Facility Costs/Upgrades
  – Provision of Telecom/Networking services
  – Service and maintenance costs of sophisticated equipment
  – Training
Business Case Examples

• Scenario 1: Build a new or replacement ATC facility
  – Costs for new medium size facility?
  – Average annual Operating costs approx?

• Scenario 2: Increase in Level of Service from Advisory to ATC
  – Average Cost increase to transition from FSS to full ATC service
  – Addition of staff to provide remote service from existing tower

• Scenario 3: Combine Services from 2 ATC Towers
  – Cost to operate two ATC towers of similar size
  – Addition of staff to provide remote services

• Scenario 4: Provide Remote Services from ACC Specialties
  – Additional Staff costs in the Area Control Centers
  – Training and licensing costs for ACC staff
Developing A Remote Services Strategy

- Support the service required
- Put the right technology in place for the type of remote operation
- Incremental approach
Remote Tower Toolbox

OTW Presentation

Tracking & Analytics

Intelligent Video Applications

Integration w/ ATC & Airport Systems
Integrated Tower Technology
Remote or Otherwise
## Remote Services Strategy (using video technology)

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Description</th>
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| **1. Video Ground Surveillance**                 | - Large Complex Airports  
- Video capabilities used equivalent to existing surface detection                                                               |
| **2. Video Enhanced Control Service**            | - Controlled Airports requiring enhanced “Out the Window View”  
- Enhanced control service with video for targeted areas, visual verification                                                    |
| **3. Video Enhanced Advisory Service**           | - Advisory Airports requiring enhanced “Out the Window View”  
- Enhanced advisory service with video for targeted areas, visual verification                                                     |
| **4. Video Enhanced RAAS**                       | - Enhancing existing advisory services  
- Enhanced RAAS with video for seasonal peaks and to optimize LOS                                                                |
| **5. Control Service Transfer**                  | - Airports that have a mixture of control and advisory service  
- Existing control services remoted to another location and/or to optimize LOS                                                      |
| **6. Advisory Service Transfer**                 | - Airports requiring RAAS  
- Existing advisory services remoted to another location and/or to optimize LOS                                                      |
| **7. Remote Control Service**                    | - Airports requiring Control Service  
- Airport control services provided by a controller in a remote control facility                                                  |
| **8. Enroute/Airport Control Service**           | - Low density airports  
- Airport control services provided by enroute controller in a remote control facility                                               |
Regulator Strategy

Task Analysis

- SME
- Human Factors
- Standards & Procedures
- Safety
- Training

Business Cases
- Technical Requirements
- Safety Case
- Procedures / Manual of Operations
- Training Package
- HMI Development
- Regulatory Approval

Site Selections
Flex Service Solution

- Provide ‘on-demand’ tower control services from anywhere to anywhere.
  - Multiple low-volume sites (midnight shift balancing/consolidation)
  - Seasonal peaks (tourism)
  - Single contingency operation for multiple towers (tower evacuation, construction, etc.)
- Training efficiencies (fewer personnel)
- Standardized tower control toolset
- No need to redeploy staff
- Risk management
Remote Air Traffic Control in Canada
Proof of Concept

• Joint Project:
  – NAV CANADA and Searidge Technologies
• Proof of Concept for Remote ATC from Halifax to Fredericton (midnights)
• Using two currently staffed ATC Towers
• NAVCANSuite and Searidge Integrated Tower technology
• Project underway
Keys to Success

• Offer cost and operational efficiencies
  – Focus on automation innovation and technology
• Use an incremental approach
• Determine and develop procedures
• Put the right technology in place for the type of operation
• Involve employees at all stages
• Communicate with the Regulator at all stages