Improving Airport Safety and Operations Through Cost-Effective Planning and Data Management

Emerging Safety Management System (SMS) and Technology Trends

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Problem Statement: Regulation

- Understanding What is the #1 Purpose of SMS?

COMPONENTS
- SAFETY POLICY
- RISK MANAGEMENT
- SAFETY ASSURANCE
- SAFETY PROMOTION

- When FAA Approved, Part 139 Airports to Have Deadline for Completion, Anticipated at 268 Airports (98% of Enplanements)
Why SMS and Technology? – Trends

• 1980’s
  – Paper-based systems – Log books!
  – Initial desktop systems – Electronic log books

• 1990’s
  – Custom software for Operations Compliance – Big airports
  – Homegrown systems MS Windows/Office – Fax distribution

• 2000’s
  – Web-based, internet, email
  – Integrated enterprise systems – “stand alone” Part 139 programs
  – More functionality, more competition
    • GIS Map – Find this location

• 2010’s
  – Cloud-hosted systems with advanced functionality
  – SMS Software Tools or Systems come on-line
  – Low-cost, basic systems; more “build your own”
    • GIS Map – Follow me at all times
Data Solutions Solve Problems... Right?

- It’s Easy! Let me walk through the steps!
Why would someone do this!?:

Common & Less Common

- Significantly Improved Record Keeping – Finding documents through searches
- P139 Inspection – less effort and quick report
- Email – sending & receiving
- Work Order Management (CMMS) – repair status?
- Weather data – “weather.com” access; or from the field, live and logged
- Wildlife Management – logged and reported to FAA Wildlife site
- Field Condition (FICON) – FAA reporting; better predict snow conditions
  - e.g. Friction and Runway Temperature sensor/measurements
- FAA NOTAM Manager – Integrated data from FAA website to your log
- Runway Incursion Warning System (RIWS) – passive & active control

- MODELING AND PREDICTIABILITY!
SMS Software Solutions:

- Safety Data Reporting Only
  (SMS, OSHA, Incident, Accident, Property Damage)
- Safety and CMMS integration
- Safety and Property Management
- Safety and GIS
- Safety and Accounting
- Safety and All
- Dashboards,
  Dashboards,
  Dashboards (by responsibility)
SMS Software Solutions:

**Part 139 Logging**
- Operations Data Logging
- Event Management
- Situational Awareness
- Assurance Monitoring

**SMS**
- Hazard Reporting
- Documentation
- Risk Analysis
- Corrective Action Plan
- Safety Inspections

**DATA**

**ASSURANCE MONITORING**
Who Needs to Know and How do you Identify Problems

**SMS Software Functions:**
Separate Needs and Wants

**Must Considerations:**
- Regulatory Understanding
- Technology Limitations
- Ability to Update for Projects
- Flexibility for Upgrades

**REPORTING & ANALYSIS**
- Repairs & Work Orders
- Shift Logs & Inspection Reports
- Documents Data Files
- Geographic Trend Reporting

**COMMUNICATION**
- Email
- Weather Data
- FAA Digital NOTAM & Wildlife Reporting
- Dashboard and SMS Tools
- Condition Reporting Website

**USER TOOLS**
- Desktop PC
- Laptop
- Tablet

**TRACKING**
- GPS Position and Moving Map
- Runway Incursion Warning System

**Smart GIS Moving Map or “Pin” Maps**

How do you get the Information Out to Others
SMS - Costs vs. Solution vs. Functions

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(Electronic) SMS Procurement

• SMS Solutions – What should you choose!?!?
  • Start with SMS Consultants on Needs and current FAA (Function) Requirements
    • Many offerings that say they meet FAA requirements but may not
    • Not all policy decisions yet sorted out
  • Look at Airports of Similar Size and what that are doing (Lessons Learned)
  • Keep In Mind Existing and Future Capabilities
    • They run the gamut - from simple to advanced
  • Combine SMS Solutions with Airport Software (e.g. Part 139 Inspection Reporting, Work Order Management)
(Electronic) SMS Procurement

- SMS Solutions – What should you choose!?!?
  - Flexibility is Key; Technology is Ready
    - Invest in Data and Not Software
    - Stay “Leading Edge”, Not “Bleeding Edge”
    - Test Drive the Systems with (your) Data, Not Simulators
  - Consider Homegrown to the Most Solutions/Functions you can afford
    - FAA Funds are available for SMS Implementation Plans (Planning)
    - Check with FAA/Consultant on software funding from FAA
Question & Answer