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

How do you get the Information Out to Others

WEB (CLOUD HOSTED) OR LOCAL (HARDWARE) HOSTED

USER TOOLS
- Desktop PC
- Laptop
- Tablet

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

SMART GIS MOVING MAP OR “PIN” MAPS
- GPS Position and Moving Map
- Runway Incursion Warning System
SMS - Costs vs. Solution vs. Functions

- GPS – Find Me
  - Web/Cloud
  - Mobile
  - Maps
  - Tracking
- GPS – Follow Me
  - DYI Forms
  - Work Orders
- Basic Data Analysis and Reporting, GIS Tracking
- Advanced Data Analysis, Audits and Reporting with GIS Integration

SMS SOLUTIONS
- Risk Management
- Hazard Reporting
- Safety Quality
- Safety Promotion

SOLUTION MODULE OR FUNCTION
(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