

Global Information Management

SWIM: Airlines expectations

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Aviation Information World - Forecasting the Future



Today situation

- **Today ATM information exchanges are inadequate:**
 - Defined in the 1950's
 - Point to point
 - Not flexible
 - Not easily managed and understood by automation



Deficiency examples (1)

- **Technology limitations**
 - Message size
 - Constrained message format (e.g. FPL)
 - Message addressing
- **Misuse**
 - Some NOTAMs issued do not comply with the provisions outlined and do not contain appropriate NOTAM content



Deficiency examples (2)

- **Management**

- Improper message database management
 - Duplication
 - Irregular database clean-up
- Procedures are not always followed
 - Message not sent or at the wrong time

- **Quality**

- Use of free-text leads to interpretation
- Lack of geographic standards



Outside ATM

- **Internet technologies are already in use for other airline related information needs**
 - Booking and passenger details (e-ticketing)
 - Cargo
 - Flight information of interest to Airport and vendors (AIDX)



Future

- **Efficient and relevant information exchanges are essential to realize key ICAO ASBU benefits:**
 - TBO
 - CDM
 - ATFM
- **Clear interface between the different information domain**






TBO example

- **Long flight...**
- **Much uncertainty**
 - Wx
 - Capacity
 - Demand
- **Airline dispatch needs information on the above 3 to generate trajectory**
- Airline dispatch will react depending on risk tolerance:
 - ❖ Low tolerance – avoidance scenario
 - ❖ High tolerance – proceed and monitor, contingency plan available



What is needed

- **Information Technology** 
- **Networks** 
 - Including cloud-based network technology to ease accessibility
- **Standards** 
 - Information exchange format
 - Governance
 - Service definition



Traps to avoid (1)

- **Change for the sake of change**
 - Replacing a message by a SWIM information service should only take place when it provides added value
 - E.g. Creating a METAR service just to provide the METAR information in a digital format may not provide sufficient benefit to justify the investment cost
- **Only creates SWIM services when clear value can be demonstrated**
 - E.g. Increasing ability to share for mutual benefit across multiple users



Traps to avoid (2)

- **Duplication of information**
 - Avoid overloading information models with information not core to the domain
 - SAR related information in Flight Object
 - Airport-airlines specific information in Flight object
- **Rather define clear interoperability rules**



Potential SWIM services (1)

- **Nav aids information service**
 - Give in a single service all information on a navaid and impacts of an outage
- **Trajectory information service**
 - Provide trajectory awareness including for each waypoint flight levels, course, heading, speed and flight segment time and fuel burn
- **Airspace schedules and reservation service**
 - Capacity/demand visibility



Potential SWIM services (2)

- **Observed/Nowcast/Forecast Met information services**
 - Provide Met information according to selection criteria
- **Air Traffic Flow Management information service**
 - Provide flow restrictions and update
- **Terrain information service**



Air-Ground SWIM

- **Today not a requirement for the majority of the airlines**
 - Most of the considered air-ground services would be better implemented via the AOC instead of a direct link between ATC and the cockpit
 - Some concern regarding the potential for removing the pilots' attention from their primary functions (aviate, navigate, communicate) rather than using the airlines' dedicated function (AOC)
 - May be more cost effective to use parallel commercial data channels between the airline and the aircraft to be eventually retransmitted via ground-ground channels



Make it happen

- **ICAO needs to provide Standards soon**
 - Avoid proliferation of divergent solutions
- **Start by some simple services**
 - Replacement of some NOTAMs
 - Develop some ATFM services
 - Use FF-ICE as it becomes available



THANK YOU!

