Information Exchange and Global Interoperability

‘Memoires of an ICAO IMP Member’

Presented to: ATIEC 2019
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Information Management Panel

- 24 Members covering all 7 ICAO Regions
  - 17 States
  - 7 International Organizations

- Experts nominated by their State/Organisation
  - Expert opinions

- Reports to ICAO Air Navigation Commission
Objectives ‘in short’

• Contribute to the evolution of the ICAO SWIM Concept

• Lead on provisions for SWIM
  – The ‘Shalls and Shoulds’

• Lead on the development of required (implementation) guidance for ICAO SWIM
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Modernizing the required global information exchange to support the Global Air Navigation Plan objectives
The Starting Point
Manual and Concept


SWIM Manual Volume II ‘The Implementation Guidance’
PANS-IM Vol 1 on SWIM

- Obligations on States for the implementation of SWIM-based Information Services

- Provisions (requirements) on
  - Services
  - Payload (Information)
  - Technical Interfaces
  - Governance
Target Dates

- IMP should conclude by May 2020
- ICAO ‘Machinery’ starts to work.....
- Applicability date November 2022
The real challenges for the IMP?
Managing the SWIM Landscape

- Performance-based
- Main stream technologies
- Service-orientation
- Lower costs
- Shorter investment cycles
- No vendor lock-in
- Flexibility in implementation choices
- Etc.
On our journey so far we addressed.....

- What is the minimum set of requirements to ensure global interoperability?
- Breaking the norm for typical ICAO provisions on ‘Information Exchange’?
- Shattering hope for somebody procuring a ‘SWIM system’ that in the past used ICAO provisions as tech.spec.?
- What is required moving away from the legacy, the intermediate ‘exchange model oriented environment’ to a ‘service oriented environment’
- To acknowledge that interoperability is always hard work, it doesn’t come out of the box
KEEP CALM AND MANAGE EXPECTATIONS
What you will get by 2022 is.....

• The consensus on playing the ‘balance challenge’

Too simple:
• Identified requirements can not be supported
• Insufficient harmonisation
• Few benefits

Too complex:
• Difficult to implement
• Substantial benefits available only to few users
• High costs
Provisions - Services
• How to document an information service
• Quality of the information service and its payloads
• Information service discovery

Provisions - Information
• Ensuring semantic interoperability
• Linking semantic interoperability, AIRM and exchange models

Provisions – Technical Interface
• Based/building on IP
• No proprietary solutions
• Constraining ‘all’ that is available as technology for technical interfaces to a number of interface options for aviation information exchange
• Using (and evolving) the existing technical standards

Provisions - Governance
• Enabling States, and information providers and consumers, to apply the right checks and balances for information exchange in a service oriented environment
• Context for the provisions of the PANS:
  – Service
  – Information
  – Technical Infrastructure
  – Governance

• SWIM Implementation Steps
Also recognising that.....

• Evolutionary refinement is given more importance than pursuit of initial perfection

(Core SOA principle)
In conclusion

- IMP is finalising by May 2020:

- Planned applicability by November 2022