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UNITING AVIATION

# Digital Identity in International Civil Aviation

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# Digital Aviation Ecosystem

- Digital evolution impacts all stakeholders in the aviation ecosystem
- Both systems and people are fundamentally affected
- Changes in one area will be felt by everyone, intentionally or not





# Changes are underway

- Digital transition and transformation of the aviation ecosystem
- New entrants
  - UTM, drones, commercial space, etc...
- **The next “big thing” ...**



# Convergence is needed

- Interoperability requires global coordination and cooperation
- Identify common needs that can unite all aviation ecosystem stakeholders
- Develop common frameworks that build on existing foundations
- Agree on a common destination – where there is still one interoperable sky – the International Aviation Trust Framework (IATF)



# What is in the IATF?

- Harmonized digital identity policies and procedures
- Information security requirements
- Management processes and mechanisms



# Why ICAO

- The foundational principle of the global aviation system that connects us today
- A core function of ICAO since 1944
- An evolution of this framework now seems essential
  - Based on common standards
  - Anchored in State sovereignty
  - Facilitating global recognition of digital identities
  - Applied consistently across the aviation ecosystem
- ***ICAO was requested by its Member States and partner industries to lead this effort***



# A Common Destination

- Foundations based on international law
  - Chicago Convention, Beijing Convention (Article 21), Annexes, etc...
- Interoperable digital identities
  - Built on globally agreed standards
  - Anchored in proven regulatory processes



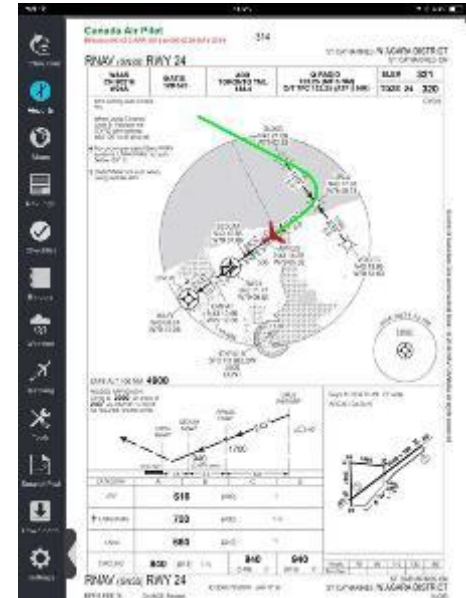
# ICAO's Role

- A digital certificate is only as good as the reputation of the organization that backs it
- International aviation is a global industry that needs global solutions
  - Lack of harmonization leads to divergence in policies and technologies and will result in higher costs
- ICAO provides the forum for all civil aviation stakeholders to come together and define global standards for identity interoperability





# ICAO standards are going digital





# Many other examples:

- Certificates
- Digital aircraft libraries
- Flight plans
- Maintenance records
- Air Traffic Services
- MET Services
- Communications (air/ground/space)



# Current Issues

- Digital identities from different entities are not interoperable with each other
- Each entity issuing digital identities can choose its own implementation path and what information to include in its credentials
  - Lack of universally harmonized digital identity credentials format/content for civil aviation
  - Each data field in the digital credential can vary between entities (Boeing-777 ≠ Boeing 777)
- Inconsistent implementation of existing technical requirements
  - Where standards exist, there is no global policy to enforce them uniformly and consistently
- Lack of harmonized identity/credential assurance criteria between entities
  - A “highly” trusted credential in one context may not be trusted in another



# Implementation Pillars

- Legal framework
  - Global basis for mutually recognizing digital credentials
- Operations
  - Operational policies to enable mutual recognition of identities
- Technical requirements
  - Criteria that ensure interoperability of credentials
- Oversight
  - Continuous monitoring and follow-up



# Implementation Considerations

- Adoption of operational and technical policies and technical requirements
  - IATF Certificate Policy
- Identity credential cross-recognition mechanism requirements
  - Criteria and Methods for Cross-recognition of Digital Identities
- Business process speed differences between aviation stakeholders (airframers vs drones)
  - Harmonized vision of IATF
- Consideration of legacy systems (forward-fit vs. retrofit)



# The Future

- Digital credentials from different entities are interoperable with each other through a global mechanism
- Standardized digital credential structures, formats and contents
  - Universally harmonized digital identity credentials format/content for civil aviation applications
  - Credential data fields based on ICAO-standard values (e.g. Doc 8643)
- DI technical standards applied consistently across aviation stakeholders
  - Even stakeholders not participating in the trust framework will base their digital credentials on ICAO requirements to ensure forward-fit compatibility
- Globally harmonized identity/credential assurance criteria between entities
  - Robust and proven assurance mappings widely available



## In conclusion...

- Trusted exchange of information is key to the future of the air navigation system
- Without global alignment, interoperability is jeopardized
- Globally accepted digital identities facilitate trust and operational efficiencies between stakeholders
- ICAO is leading the charge to realize this vision



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