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ICAO Air Cargo Digitalization

Session 3: The Interaction Between Air Cargo Digitalization and Security: Emerging Challenges



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Theme: It Is All About Trust!

Aviation ecosystem digitalization positions cybersecurity as an enabler to provide more efficient processes and new capacities. However, it also poses challenges to be managed proactively. One key challenge is to leverage the cybersecurity efforts across ICAO, international aviation and cybersecurity communities.



It's a Digital World. Let's Securely Leverage it.

Building upon the foundations laid along our digital journey.

Digital Transformation – Leverage Next

Fundamentally changing the way we interoperate, inventing new capabilities and applications that were not previously possible or even conceivable.

Digitalization – Leverage Now!

“Making processes more automated through the use of digital technologies”

Digitization – The Past

“Making information available and accessible in digital format”



Defining the Right Trust Framework

Foundations:

The foundations of a digital trust framework lie in end-to-end identity integrity.

Traceability:

Ability to attach a “fingerprint” to an item, of each person who touches it, as it moves around the world.

Define Requirements before selecting Technology:

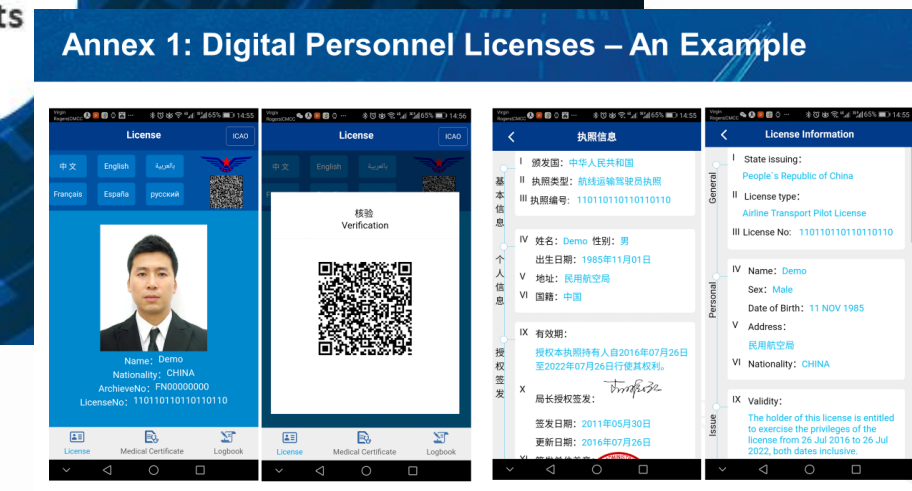
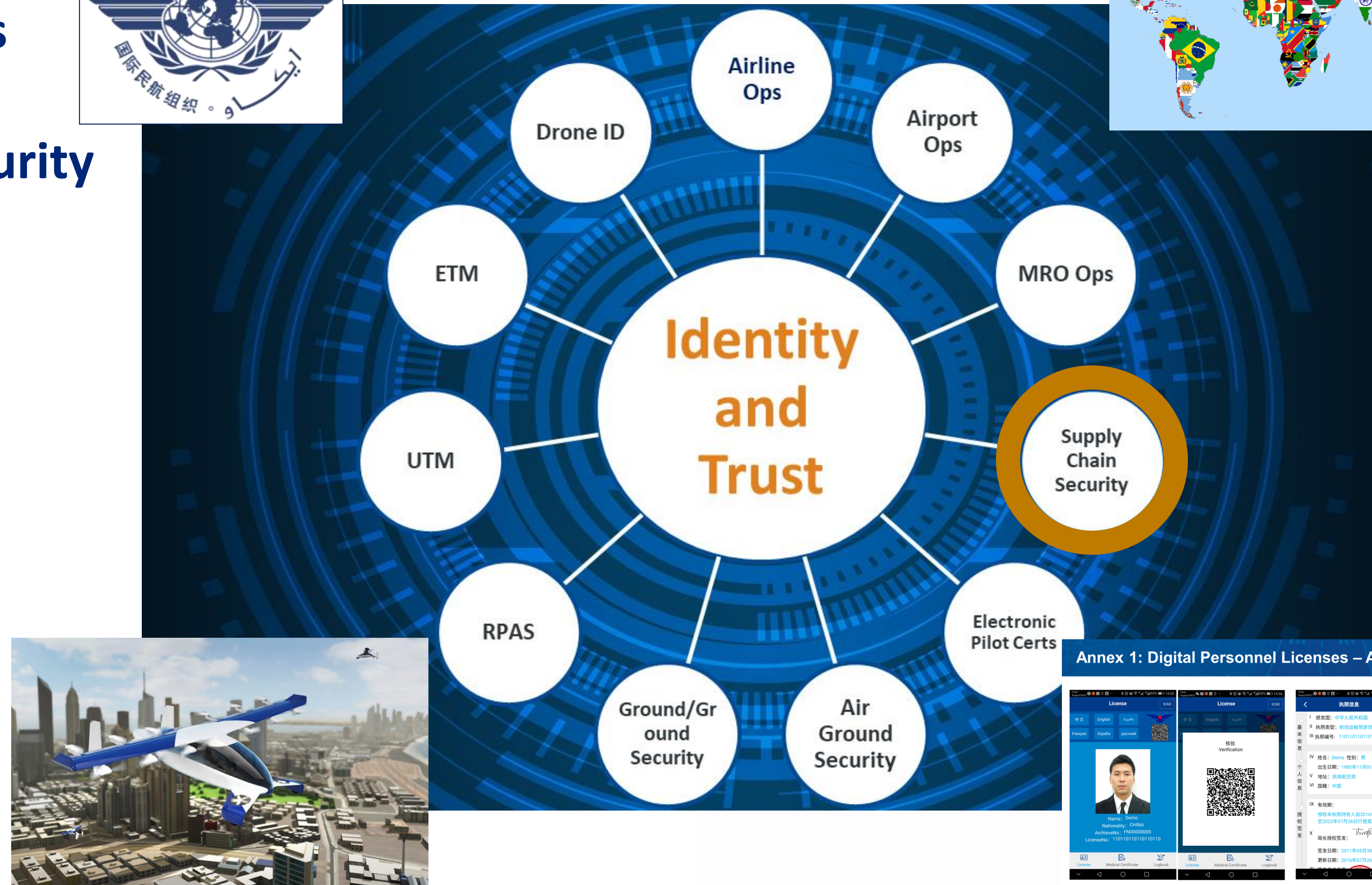
Signatures? Distributed Ledger? PKI or Blockchain are mature. Is there a better long term solution?



For Best Value We Need...

An integrated & crosscutting approach from the aviation community:

- **ICAO 40th Assembly: consolidate and harmonize cybersecurity related activities across ICAO**
 - Secretariat Study Group on Cybersecurity
 - Trust Framework Study Group
 - AveSec, GAsEP, ePassport, etc.
- **Coordinate across State & Regional Efforts**
- **Leverage & Drive Open Industry Standards**



Emerging Challenges of Secure Digitalization

- **Cost of Change:** Up-front & down-stream; socialization / implementation / training / systems & security evolve; and be aware of the costs of doing nothing
- **Risks:** Understand digitalization security risks; define an “Informed/Balanced Risk Posture”
- **Strategy:** Strategic Plan, Implementation Roadmap, Leverage security as a capability enabler (Trust Enhancement).
- **Technology Equity:** Not all stakeholders are starting from the same baseline. Keep accessible.
- **Standards:** Near Term - Stay with Standards; Long Term – Drive new Standards as needed.
- **Perspective:** Top-Down & Bottom-Up. Define needs & requirements before picking solutions, while informing what is operationally possible with emerging & maturing technologies.
- **First do what should be done first:** 80/20 Rule. Prioritize & address the biggest risks 1st.
- **Analysis Paralysis:** don't wait to get started... Implement Quickly / Collaborate Strongly / Evolve Flexibly



Summary: Secure Digitalization of the Aviation Ecosystem

- It is a Triathlon.
- It has already begun, so get going.
- Don't fall behind or you will lose... Don't get too far ahead or you will get lost.
- Engage & collaborate to leverage what others are doing.
- Standards, standards, standards.
- Watch each others backs because the bad guys really are out to you.
- ... And don't forget to have fun... we are all in this together!



Questions?





ICAO

SAFETY



“Standards” vs. “standards”

- ICAO “Standards”
 - Part of provisions, e.g. Standards and Recommended Practices (SARPs)
 - Making an ICAO Standard
- State / Multi-State Regulatory Requirements & Compliance Standards
 - e.g. ACs reference MOCs via EUROCAE & RTCA “standards”
 - other Government Standards, e.g. NIST/FIPS, ...
- Open Industry Standards (e.g. ARINC, ASTM, ISO/IEC, SAE, AIAA, IEEE, W3C, etc.)