Aircraft Security

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ICT Risk Management & Aircraft innovation lifecycle

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ICT Risk Management is part of Innovation process and aircraft design

ICT Risk Treatment is strongly ballanced with risks on aircraft operation

What ? ICT Risk in an aircraft ?

- Strong **Regulation** from Airworthiness Authorities
  - On design, development and operation of aircraft
- People **Safety** is top priority
- Aircraft lifespan is **40 years**, whereas
  - Typical Information / Communication Technology is obsolete in **2 years**…
  - Three million new threats were identified in 2009 (which equates to almost one every **10.8 seconds**).

ICT Rist Management in Air Transport Industry differs from any other industry

ICT Risk Management and innovation
« Seamless security »

- Based an « Aircraft Security Management System », derived from ISO/IEC 27001:2005

- *Requirement Based Engineering*, enriched with **functional** and **assurance** security requirements.

- Risk assessment and treatment performed at each stage of the aircraft development

- Validation of design through audits and penetration tests

- Evaluation of impact on Security of each design change

ICT Risk Management is fully integrated within aircraft innovation lifecycle

ICT Risk Management and innovation
Impacts on aircraft systems' design

- Security Treatment Plan involves
  - Adaptation of onboard ICT architecture
  - Selection and implementation of 'Security controls' (can be technical, and organisational)

- Security controls sometimes means:
  - Costs, delays and… weight
  - Ok… that's always like this, right ?

- Innovation can be **challenged** by the implementation of Security Controls, but…

Can ICT Risk Management
really *jeopardize* innovation process?

Security Treatment Plan *vs* Innovation
Example : aircraft data loading

- Modern aircraft intensively rely on software for core and non-core functions

- Being able to update aircraft software anytime, anywhere, is a key innovation for achieving aggressive turn-around time objectives

- Security assessment on this new function produced constraining security objectives
  - Example : « Aircraft data loading process shall ensure Integrity and Authenticity of data »
  - Selected security controls rely on digital signature of field loadable software
  - Ouch…What about « last minute software changes » ?...

How to reconciliate innovative aircraft operation and security objectives ?

ICT Risk Management and Innovation
How to deal with it ?

- The long tradition of « consensus »
  (because you're not the only one to know !)

> « Cost, complexity of developping 'secure' innovation »
> *vs*
> « impact on business to not have it (at all) ? »

  - Confront various points of view, then collective decision or arbitration by Business

- Challenges: « Security culture » not widely shared
- Consequences:
  - Long lead times in Air Transport Industry
- Safety Risk *vs* Innovation ? No concession to Safety: Safety wins !

How innovation influences Risk Assessment

- In early stages of the innovation process, need to rapidly identify the « go » and « no-go »
- Full Risk Assessment process not always suitable for a quick answer
- Think ‘out of the box’, look around you : pragmatic approaches exist in other areas, other industries (Defence, Health, Automotive…)
- Example: « Scenario-based risk assessment » for immediate identification of no-go’s.

Risk management approach to continously evolve to adapt to environment and business objectives

ICT Risk Management & Aircraft innovation lifecycle

ICT Risk Management is serious business in our industry

Unlike other industries, management of ICT Risk involves wide range of players (operators, airport, service providers, authorities)

Innovation and the ‘Risk Zero’ culture...

Thank you