CANSO AFRICA

SHAPING OUR FUTURE SKIES

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INDUSTRY PERSPECTIVE ON AVIATION CYBER SECURITY

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[REGIONAL DIRECTOR]

[CANSO]

Points of discussion…

1. Cybersecurity threats and risks
2. Cybersecurity threats and risks in Africa
3. Why is cybersecurity necessary in the ATM industry
4. Requirements for top-level security for data and information
5. Which elements should Cybersecurity improvements address
6. The CANSO Standard of Excellence (SoE) in Cybersecurity
7. Cybersecurity policy Template
8. Conclusion

Cybersecurity threats and risks?

- Over the past decade, confidence in traditional cyber and information security methods has been severely eroded.
- Notwithstanding sharply rising global spend on cyber-security, governments and business continue to experience breaches of expanding impact.
- Concurrently, acts of influence through cyber means (including, but not limited to, ‘fake news’) are increasing exponentially.
- The threat landscape is furthermore characterized by the blurring distinction between what was conventionally labelled as state-sponsored Advanced Persistent Threats (APTs) and the actions of other actors (such as criminal groupings, corporate entities, hacktivists).
- For both state and non-state actors correspondingly, multi-vectored intelligence operations (which combine human, cyber and other technical vectors) are now a precursor to extensive breaches.

Cybersecurity threats and risks in Africa?

- There is a significant rise of cyber threats to African national security.
- A broad range of actors participate in these activities, from lone-wolf hackers to nation-states, who have varying capabilities and intentions.
- The African governments and security sector actors have only just begun to identify and respond to the ways in which digital technology is transforming African security.
- Four major categories of security activity merit attention:
- espionage, critical infrastructure sabotage, organized crime, and the shifting contours of the African battlefield.

Why is cybersecurity necessary in the ATM industry….

- Aviation has evolved incredibly in the last decades:
- Cutting-edge technology, reception and transmission of data for real-time decision making are an essential part of today's aviation operations, which is why cybersecurity must be an essential part of our operations.
- Cyber-attacks continue to be an emerging threat to the aviation industry as a result of increased digitalization and the interconnectivity of systems, especially in ATM.
- Any disruption of these highly technical systems due to a cyber-attack could have the potential to seriously impact air transport.
- We must therefore be prepared to secure our systems and to adopt all necessary measures to ensure we continue to provide a highly safe and seamless service.

Requirements for top-level security for data and information?

- Confidentiality
- Integrity
- Availability
- Authentication
- Authorisation
- Non-repudiation
- Traceability

Which elements should Cybersecurity improvements address?

- Like safety, cybersecurity is a cross-cutting discipline that covers policy, processes, technology and people.
- It also has a full security incident lifecycle approach: protecting assets from threats, detecting anomalous behavior, responding to incidents and recovering from compromise.
- The lifecycle approach reflects the unfortunate reality that no matter how much planning and protection is put in place, failures will occur and determined attackers will gain access to protected systems.
- This fact does not minimize the need for good architecture design and investment, both of which reduce the susceptibility to compromise.
- An enterprise-wide approach is therefore needed that enhances security.

The CANSO Standard of Excellence (SoE) in Cybersecurity

- Helps air Navigation Service Providers (ANSPs) assess, develop and improve their cybersecurity in order to provide safe and resilient air navigation services.
- This SoE complements the CANSO Cyber Risk Assessment Guide that provides ANSPs with an introduction to risk assessment for cybersecurity in Air Traffic Management (ATM), including the cybersecurity threats, risks and motives of threat actors, and an example risk assessment method.
- Using the CANSO Cyber Risk Assessment guide will enable ANSPs to move towards improved cybersecurity, as measured by this Standard of SoE.
- This Standard of Excellence also complements the CANSO Emergency Response Planning Guide that brings together best practices, knowledge and experience related to contingency plans and procedures from ANSPs around the world

Cybersecurity policy Template…

- CANSO, ICAO and Airbus have prepared an *Air Traffic Management Cybersecurity Policy Template* to help states implement cybersecurity mechanisms and culture across entire ATM systems and security operations.
- The template aims to guarantee aviation system resilience, safeguarding information integrity, availability, confidentiality, and hardware/software protection, and support civil aviation security, national security and defence and law enforcement.
- The *Air Traffic Management Cybersecurity Policy Template* is a living document that will adapt to the changing environment we live in. Implementing a cybersecurity policy protects organization while increasing safety.
- It also assists organizations to learn how to identify critical infrastructure and secure it through risk analysis, monitoring and review
- Explore the role of industry collaboration in integrating, adopting and adapting risk management procedures
- Discover the importance of training and qualifications for technical and operational personnel

Conclusion…

- Cybersecurity is a fundamental part of ATM security and, more generally, of overall aviation security.
- Society expects a high standard of aviation safety and security, and the level of security performance will determine society's confidence in air transport.
- The lack of a high level of security performance will impact the reputation of aviation stakeholders and thus, influence customer perception and choice.
- The performance of the future ATM system must therefore contribute to ensuring that a high level of security is achieved by the aviation industry as a whole.
- This can be achieved not only by ensuring that the infrastructure which comprises the ATM system is resilient to attacks, but also that the ATM system will provide information that can be used by other organizations to protect air transport and the aviation system as a whole.

THANK YOU

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