



# IFATSEA and ATSEP in the New aviation ERA

Presented by  
Theodore Kiritsis  
President  
IFATSEA

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## IFATSEA - The Federation

- Founded 1972
- More than 40,000 ATSEPs (Air Traffic Safety Electronic Personnel)
- over 75 countries
- Non political & Non industrial & Democratic
- Promote Safety & Efficiency in Aviation
- Development of high standards technology
- Skill, Knowledge & Professionalism for ATSEP
- Cooperate closely with international Aviation bodies

International Federation of Air Traffic Safety Electronics Associations (IFATSEA) unites the professional associations of Air Traffic Safety Electronics Personnel (ATSEPs) from around the world.

IFATSEA is the authoritative voice on the competence of air traffic safety electronics personnel. Using our strong global network, we actively contribute to the improvement of air traffic safety performance.



## Working with other ATM stakeholders

- IFATSEA is recognised as an observer by ICAO.
- Working Together with ICAO, IFATSEA was strongly involved in developing the ICAO PANS-TRG Doc 9868 and the Manual on Air Traffic Safety Electronics Personnel Competency-based Training and Assessment, Published as ICAO Doc 10057.
- IFATSEA contributes to the work of the **SESAR Joint Undertaking**, defining the future technology platform for the Single European Sky.
- IFATSEA is participating to the EASA rulemaking activities related to ATSEPs and their competency.
- IFATSEA maintains working relationships with the ATM staff trade union organisations European Transport Workers' Federation (ETF) and International Transport Workers' Federation (ITF) and ATCEUC.
- IFATSEA also collaborates with the global federations for other Aviation Professional Staff – IFAIMA , IFALPA, IFATCA and IFISA.



## The Objectives of IFATSEA

- To operate as a non-political Federation of Air Traffic Safety Electronics Associations.
- To promote safety, efficiency and regularity in International Air Navigation.
- To assist and advise in the development of electronics systems in order to maintain the safe, orderly and expeditious flow of air traffic.
- To uphold a high standard of knowledge and professional efficiency among Air Traffic Safety Electronics personnel.
- To protect and safeguard the collective professional interests of Air Traffic Safety Electronics personnel.
- To make mutual benefit affiliations with other professional organisations.
- To strive for a worldwide Federation of Air Traffic Safety Electronics Associations.



## Who are the ATSEP

Employed by Air Navigation Service Providers, ATSEPs are mainly engineers, technicians, hardware and software specialists who are responsible for the specification, procurement, installation, integration, calibration, maintenance, safety assurance and monitoring of these systems.

The equipment ranges from discrete specialist electronic systems to Commercial-Off-The-Shelf computer hardware running specialist software designed and maintained to provide a high critical safety-of-life service to aircraft.

The systems provide Communication and Navigation services for aircraft, Surveillance (e.g. Radar), Flight Data Processing and supporting tools for Air Traffic Controllers

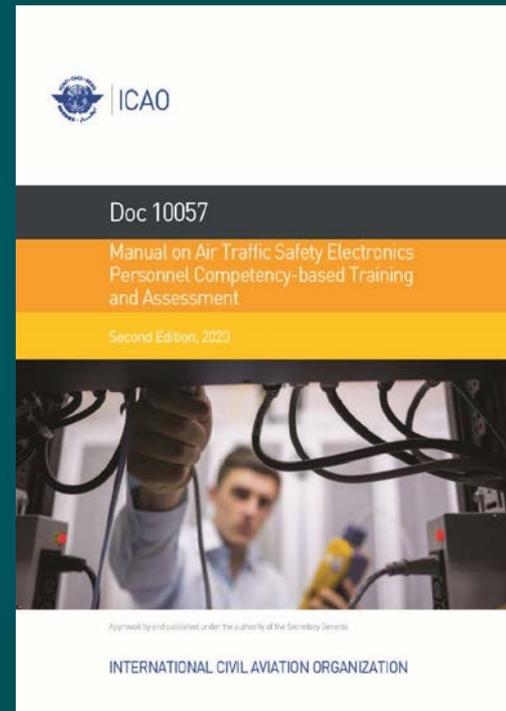
# Manual on Air Traffic Safety Electronics Personnel (ATSEP) Competency-based Training and Assessment (Doc 10057)



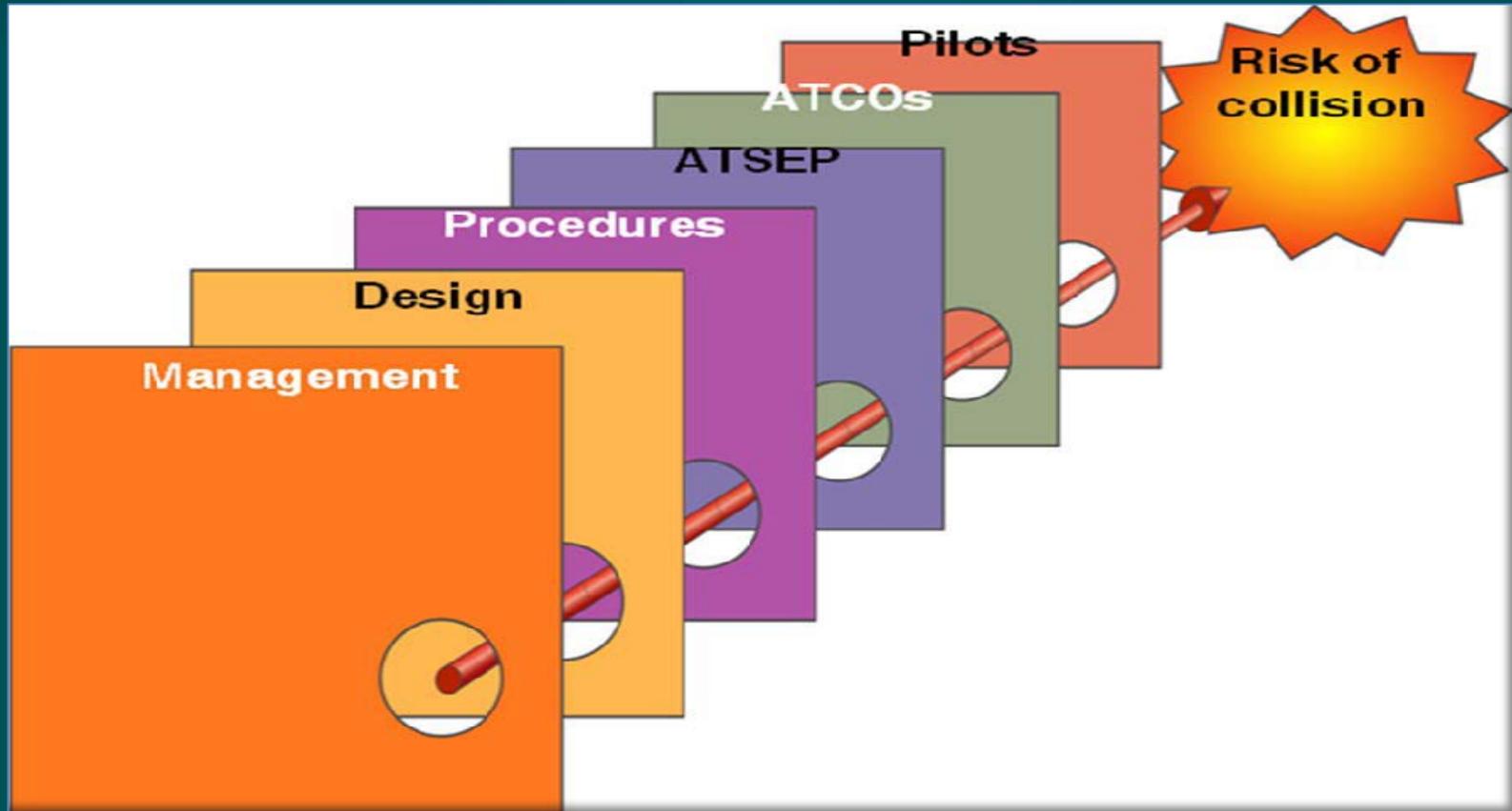
Air traffic safety electronics personnel (ATSEP) involved in the installation, operation and maintenance of the communication, navigation, surveillance/air traffic management (CNS/ATM) system must have a shared understanding of what is expected of them in terms of performance wherever they may work in order to support a globally interoperable system and to achieve optimum capacity within acceptable safety limits.

This shared understanding becomes critical when considering the increasing traffic and the growing complexity and interconnectedness of the systems involved.

As controller-pilot and system-to-system interfaces evolve, the ATSEP installing, operating and managing the CNS/ATM system need common competencies and practices to ensure seamless operations

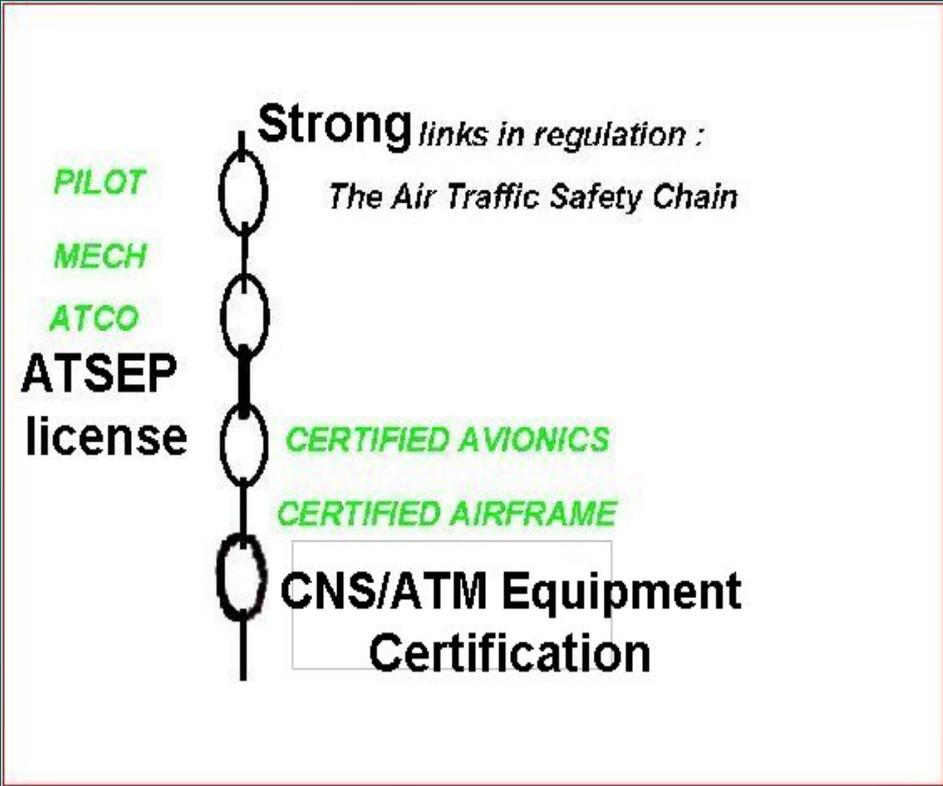
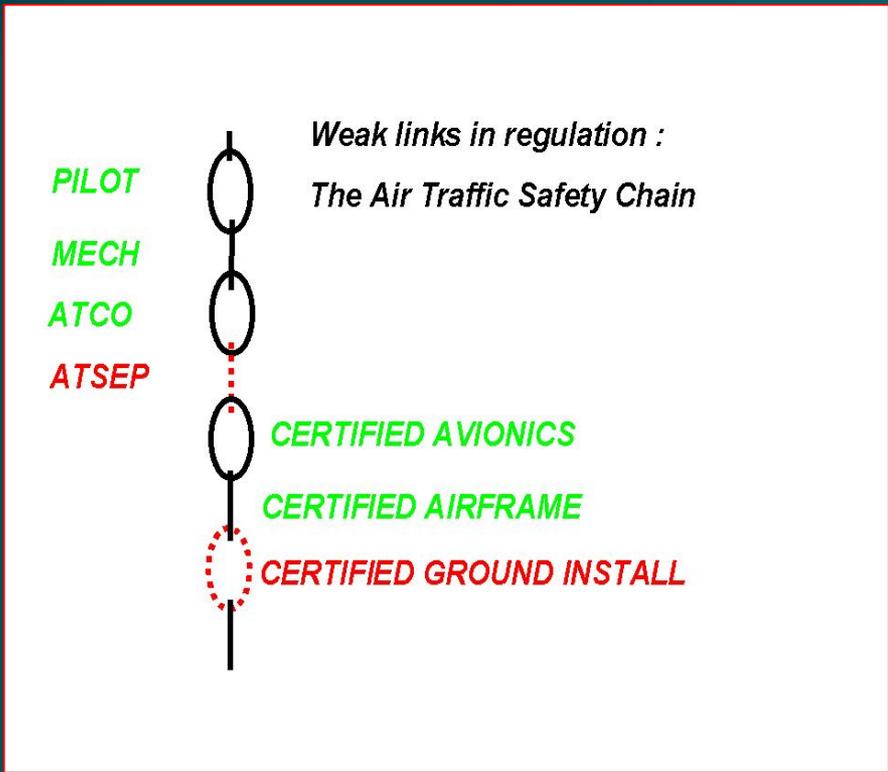


# THE Swiss cheese model



a study performed by the European Commission showed that 'the regulation of the ATSEP Profession may bring up to a 15% improvement in Safety'

# ATSEP are an important link of the Safety Chain

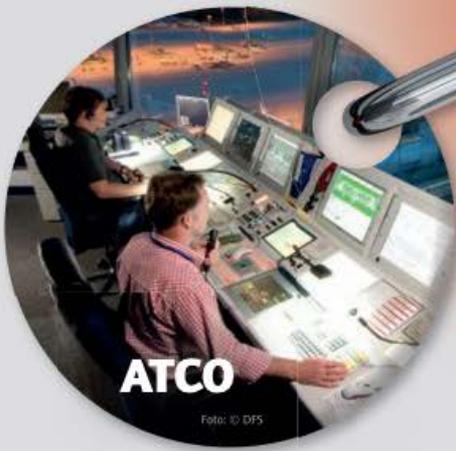


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**ATSEP**

**ENSURE  
SECURITY  
AND SAFETY**





ASSEMBLY —39TH SESSION  
TECHNICAL COMMISSION

### A39-WP/298

Agenda Item 37: Other issues to be considered by the Technical Commission

### **THE INCLUSION OF AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL INTO ANNEX 1**

### A39-WP/370

Agenda Item 36: Aviation safety and air navigation implementation support

### **A CYBERSECURITY ARCHITECTURAL APPROACH FOR LEGACY- AND SWIM-BASED CNS/ATM SYSTEMS**

(Presented by the International Federation of Air Traffic Safety Electronics Associations (IFATSEA))





# Two case studies

## 1. The ATSEP working position (ATSEP WP)

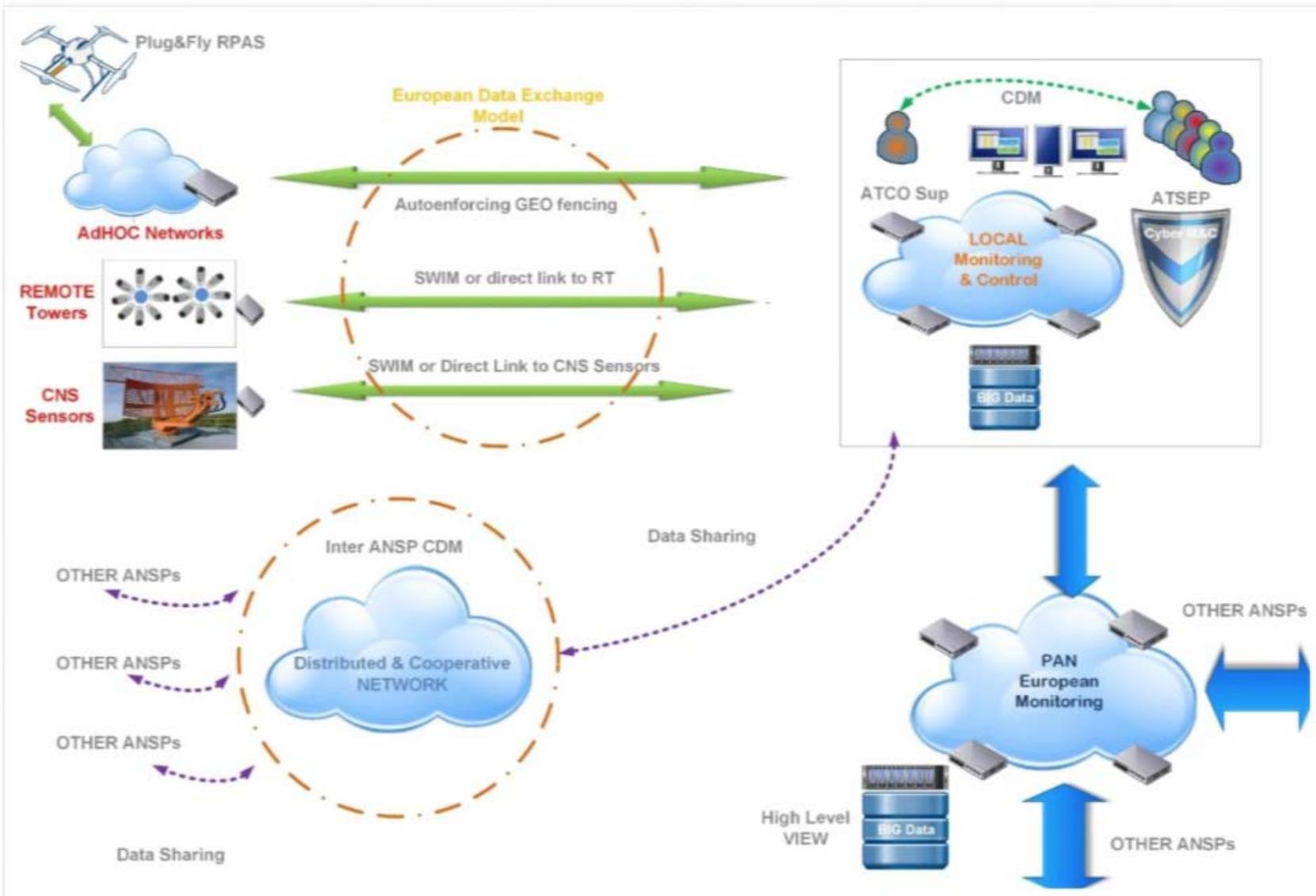
A rising Concept (tbd in the new SESAR Program) { an aggregation of tools , systems and procedures for Digitalized era but also for legacy systems) . This concept is missing in ICAO documents.

## 2. The Cyber\* capable System Monitoring and Control Interface

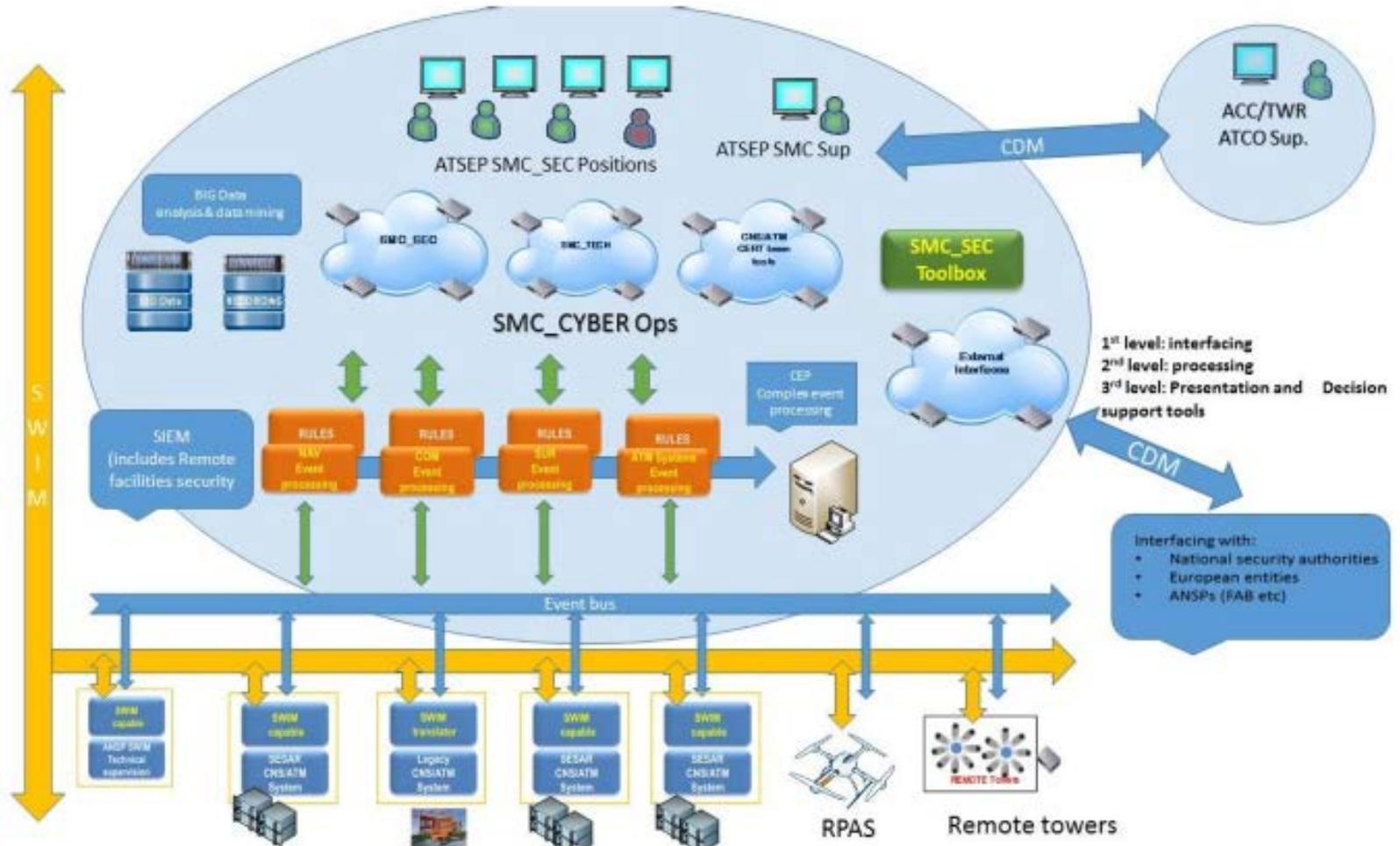
-Question: who is the first to address a cybersecurity attack ?

\*Note: the attack may be to signal in space and through the ground networks.

# What does the concept look like?



# IFATSEA Cyber-SMC Conops



all the above architectural approach is currently missing .....

ATM services

CNS services

AIS/MET services

SoA — non Geographically co-located

Cyber sec alerts for ANS-SWIM

High level of  
Abstraction!



| System holistic awareness | Working Position | Tools | Best practices |



# A major transformation of the whole ecosystem

## What enablers we need to materializes this..

### Connectivity



Automation & AI



Data sharing & data services



Cybersecurity & safety



Virtualization



## HUMAN PILAR



One thing is for sure, all these new concepts are not without challenges for all the ATM actors.

1) However, **ATSEP will require to run the Legacy systems until at least 2030** while working towards the implementation and integration of all new systems.

2) There will be:

- New roles/duties and competences for ATSEP, driven by the new Technologies and **Automation, Digitalization** and even new Business models.
- New Actors like RT, Virtual Centers (separation geographically)
- New teaching disciplines to fulfill these new competences

4) **Security and integrity wise, “Bullet proof” and resilient SYSTEMS , together with trained and competent personnel (ATSEP & ATCO in order to avoid situations that will impact Safety and ensure resilience of the Aviation Industry.**



## What is the role of the Human (ATSEP) in a changing technology dependent aviation ecosystem?

- Technologies will be digitalized
- we will not be talking about systems but Services
- New technologies like AI will drive development
- Systems will be interconnected and based on distributed architectures
- Processing systems may be not geographically colocated or be cloud based
- systems will be cyber dependend
- the **human** operator will be 'separated' from the equipment or the system
- the **human** must be highly specialized
- The qualification entry requirements and all the phases of training will have to be readapted or continously adapted for the new concepts and technologies



# Changes for ATSEP

1. Increased awareness of system users and functionalities
2. Increasing performance requirements (or new due to Performance based CNS/ATM)
3. Faster and faster networks
4. Increased collaboration (with whom?)
5. Integrated systems
6. Automation, COTS, open standards, big data, ML, AI
7. Virtualisation
8. Cyber security

## NEW NEEDS

- Need for specific knowledge
- Need to develop NEW skill set
- Need to cope with advance responsibilities
- Need for better collaboration



\* DIGITAL TRANSFORMATION

\* IMPACT ON CNS/ATM SYSTEMS \*CHALLENGES FOR ATSEP

## Some Challenges to think about per Category:

- Future skills and jobs **in the era of Digital Transformation**
- Safety & Cyber Security in the era of **Connectivity**
- Performance & Liability **in the forthcoming era of Service Oriented Architectures**
- Physical infrastructure management **in the era Virtualisation**
- Failure Management (even cascaded failures) in the era of **Automation**
- New business concepts of operation...**Data & Network centers**



## Human elements

Do we have the answers for all the previous questions?



If not , let us continue planning ahead for this New Generation of Aviation Professionals , with an open mind , flexibility and a preemptive approach.

IFATSEA believes that it is about time that following the decision of ICAO Assembly 35 when the concept of ATSEP Licensing requirements was accepted, **a roadmap for the establishment of ATSEP Licensing requirements is defined and soon kicked off together with the inclusion of ATSEP in Annex 1.**



THANK YOU!