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# BSA-ANS WKS-SAF-SW

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07 MAY 2013



## AGENDA

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1. NSA obligation
2. NSA problems
3. Concretely
4. Way forward
5. Conclusion



## 1. NSA obligation

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- EC1035/2011
- EC482/2008
- EC1034/2011



## 2. Problems encountered by NSA

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### History

- SES I regulation package: 4 basic regulations:

- EC549/2004 (F-R)
- EC550/2004 (SP-R)
- EC551/2004 (A-R)
- EC552/2004(IOP-R)

With their related IR:

- EC 2096/2005 (21/12/2005) (CR-R)

• **EC1315/2007**

• **EC482/2008**

• Directive 2006/23/CE

=> RD 2008/05/08 on ATCO

lic

• **SES II + perf in 2010**

• ...

} Certification of ANSP  
before  
21/12/2005+1an+(6mois)  
= **21/06/2007**

→ Change reviews

→ Certification  
of Training  
ORG +basic  
training in  
2009

In //  
New  
IOP  
IR

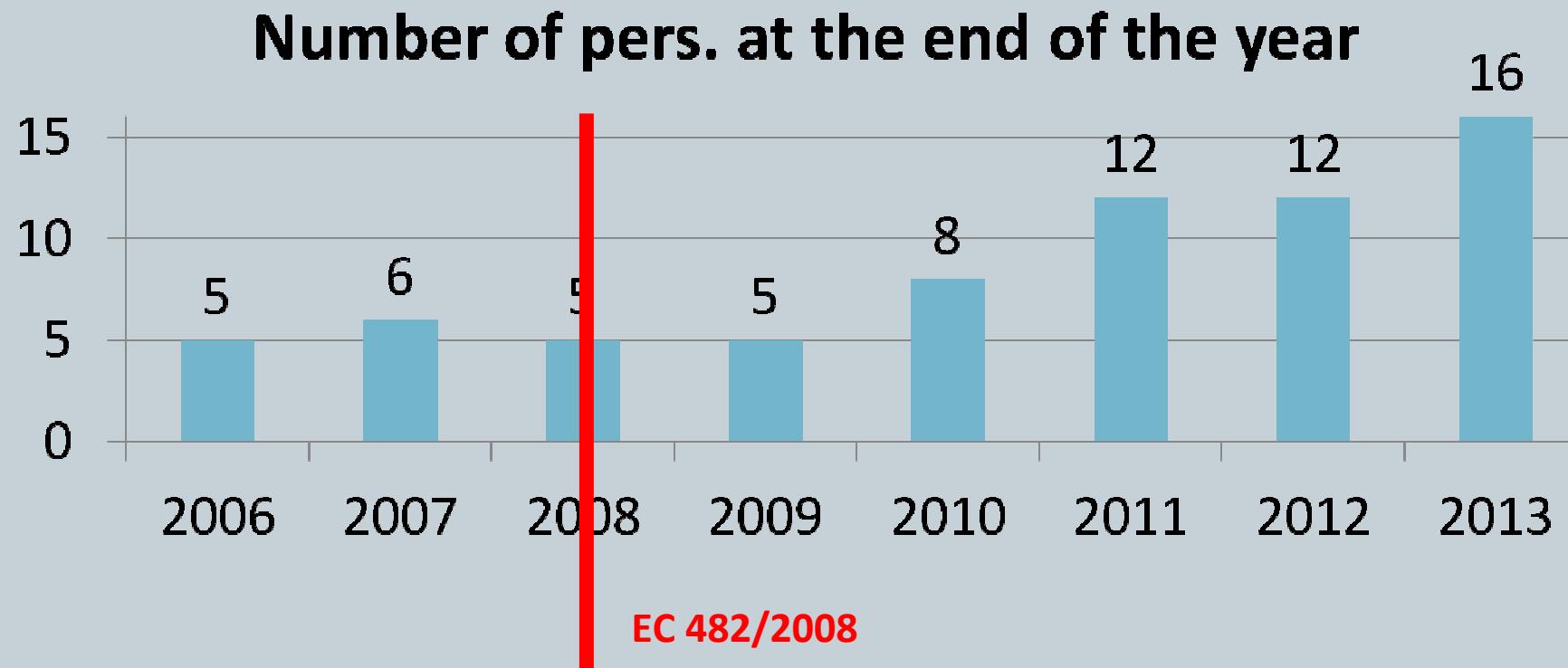


## 2. Problems encountered by NSA

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### Staff

- Evolution of number of personnel from 2006 till now





## 2. Problems encountered by NSA

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### **Possible delay due to the SSAS implementation**

ANSP needed time to implement such regulation=> it postponed NSA activities



## 2. Problems encountered by NSA

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- Summary of problems which can explain delay in NSA activities regarding this SW regulation:
  - History of regulations
  - Number of staff
  - (Experience in SW)
  - Delay in ANSP SSAS implementation



## 2. Problems encountered by NSA

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- Problems encountered when starting working on SW regulation content:
  - SW regulation interpretation
  - SW regulation level of details
    - ★ High level regulation, do not impose “so much” to the ANSP. It is up to the ANSP to define the different SWAL, and the rigour related to them,...
    - ★ Details like SW unintended functions
  - No official AMC



## 3. Concretely

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- ATM systems are "complex" and mix of different kind of SW
  - new Development SW
  - COTS
  - Reuse SW
  - ...
- ATM systems/COTS consist also in "legacy" systems with sometimes limited existing formalized documentation



## 3. Concretely

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- Possible discussion of what is an COTS?
- Existing COTS/legacy systems could have been developed against other standards, meaning that some differences could exist.
- What is in reality the % of ATM SW developed which will fulfill entirely the whole set of existing standards (AMC)?
  - SW developed from scratch: few %

=> ATM system = Mix of SW => possible ad hoc compliancy,...



## 3. Concretely

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- for a same ATM system at the same supplier, different SWAL may be requested by different ANSP=> very difficult to go back to more stringent SWAL



### 3. Concretely

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- No official AMC
- + "Complexity" of ED-153
- + differences between different standards
- + possible migration to new standards

= TIME

= MONEY



## 4. Way forwards?

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???

My first question to the empowered thinkers:

**“ Will this regulation remain?”**



## 4. Way forwards?

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- FAB's?
- +: shared costs, common specifications, common evidences, one NSA global approval, ...
- -: not exactly the same need, the same delay, the same environment, the same number of instances, “monopole”/FAB ...



## 4. Way forwards?

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- SESAR

The new ATM system will pass through SESAR.

e.g.: Air/ground inter-relation: how the assurance level (SWAL/DAL) will be allocated, achieved and demonstrated?



## 4. Way forwards?

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- Mix of different aspects in a SW assurance system:
  - EC 1035/2011+EC 482/2008 for Safety management system: safety, performance, continuity, availability,...
  - (EC 1035/2011 for Quality Management system: (safety), functionality, performance, availability, continuity, ...)
  - EC 1035/2011 for data security => **IT security management system (=CIA)**
- New (IOP) IR/CS encompassing SW aspects?
  - EC 73/2010 for data quality (include quality, safety, security aspects)=> SW aspects: performance, functionality, integrity

⇒ **But different scopes, different audiences**

⇒ **Only One SW assurance system?**



## 4. Way forwards?

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EU 1035/2011: QMS

EU 1035/2011: SMS

IOP IR EU 73/2010

EC  
482/2008

EU 1035/2011: Security Management system



## 4. Way forwards?

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- Quid for the SW "Manufacturer"?
  - New SW regulations for ANSP, for Manufacturer,...?
  - New EASA AMC for ANSP, NSA, (manufacturer)



## 4. Way forwards?

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- In the frame of a “total system approach” or in the frame of the new ATM system (SESAR), would a standardization of SW AMC in ATM community (air & ground) be thinkable?



## 5. Conclusions

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- **For ALL (including manufacturer):**  
Work together to build an (S)SAS
- **For ANSP:**  
If you have problems to implement the SSAS, KISS!



## 5. Conclusions

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- **For rulemakers:**

- Keep involving all the stakeholders (SW) specialists to future (SW) regulation, AMC, ...
- Keep/Improve consistencies between all the regulations

- **For NSA:**

Increase international/inter-professional cooperation

2 examples of fruitful collaboration:

- EGNOS SCIAT (Safety Case & Interoperability Assessment Team)
- EGNOS SW audit performed by experts of DGA-TA (=direction générale de l'armement-Techniques aéronautiques, experts in aeronautical SW audits & certification for EASA)



## Questions?

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Thank you for your  
attention

