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AGENDA

2

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



1. NSA obligation

3

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



2. Problems encountered by NSA

4

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



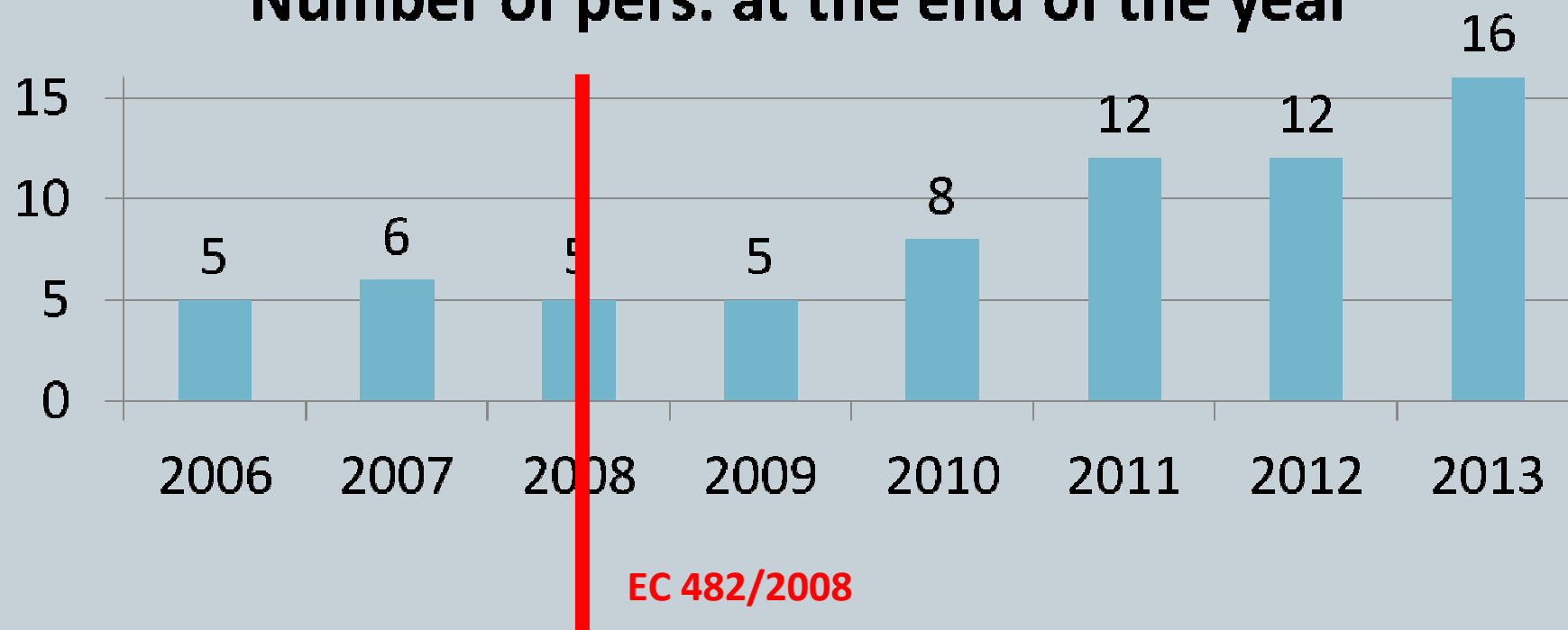
2. Problems encountered by NSA

5

Staff

- Evolution of number of personnel from 2006 till now

Number of pers. at the end of the year





2. Problems encountered by NSA

6

Possible delay due to the SSAS implementation

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



2. Problems encountered by NSA

7

- 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

8

- 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

9

- 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

10

- 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

11

- 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

12

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

= TIME

= MONEY



4. Way forwards?

13

???

My first question to the empowered thinkers:

“ Will this regulation remain?”



4. Way forwards?

14

- 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?

15

- 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?

16

- 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?

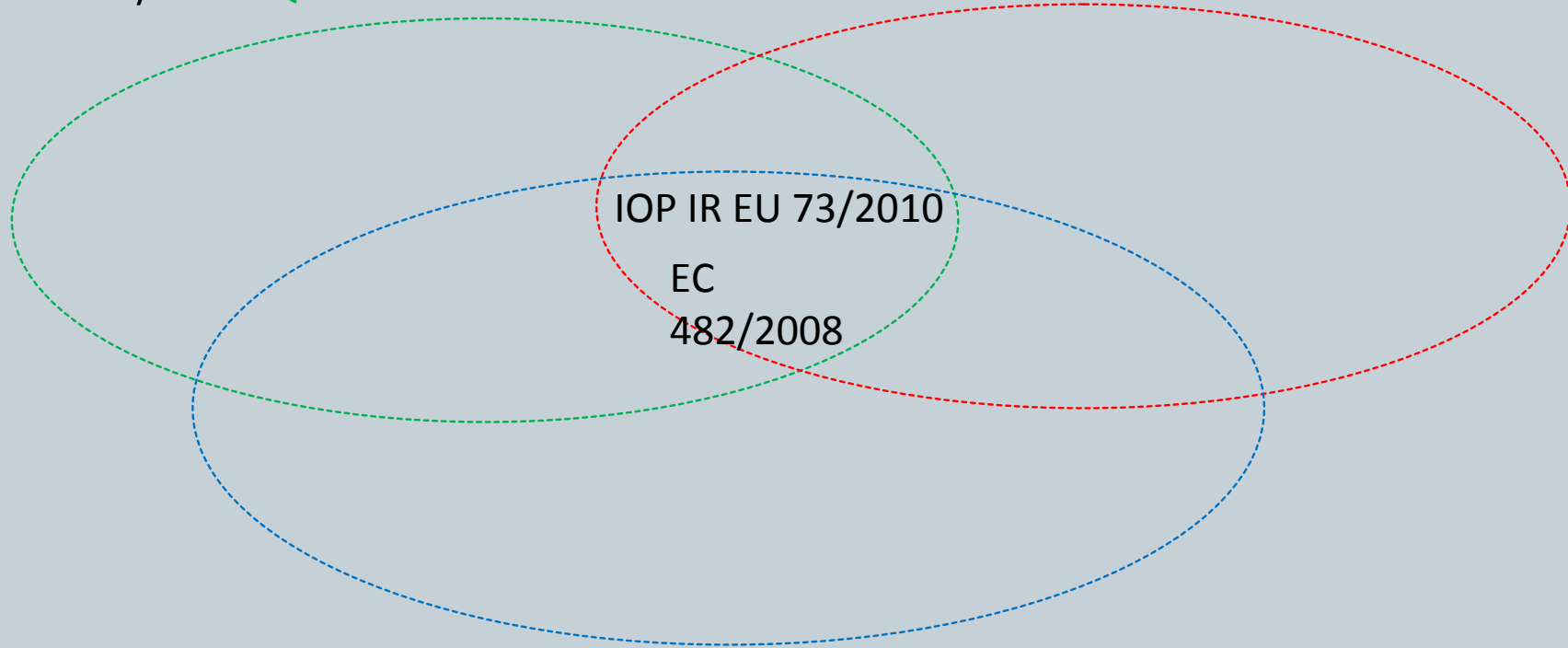


4. Way forwards?

17

EU 1035/2011: **QMS**

EU 1035/2011: **SMS**



EU 1035/2011: **Security Management system**



4. Way forwards?

18

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



4. Way forwards?

19

- 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

20

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



5. Conclusions

21

- **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?

22

Thank you for your attention

