



EUROPEAN AVIATION SAFETY AGENCY  
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE  
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT



# Performance-based safety regulation

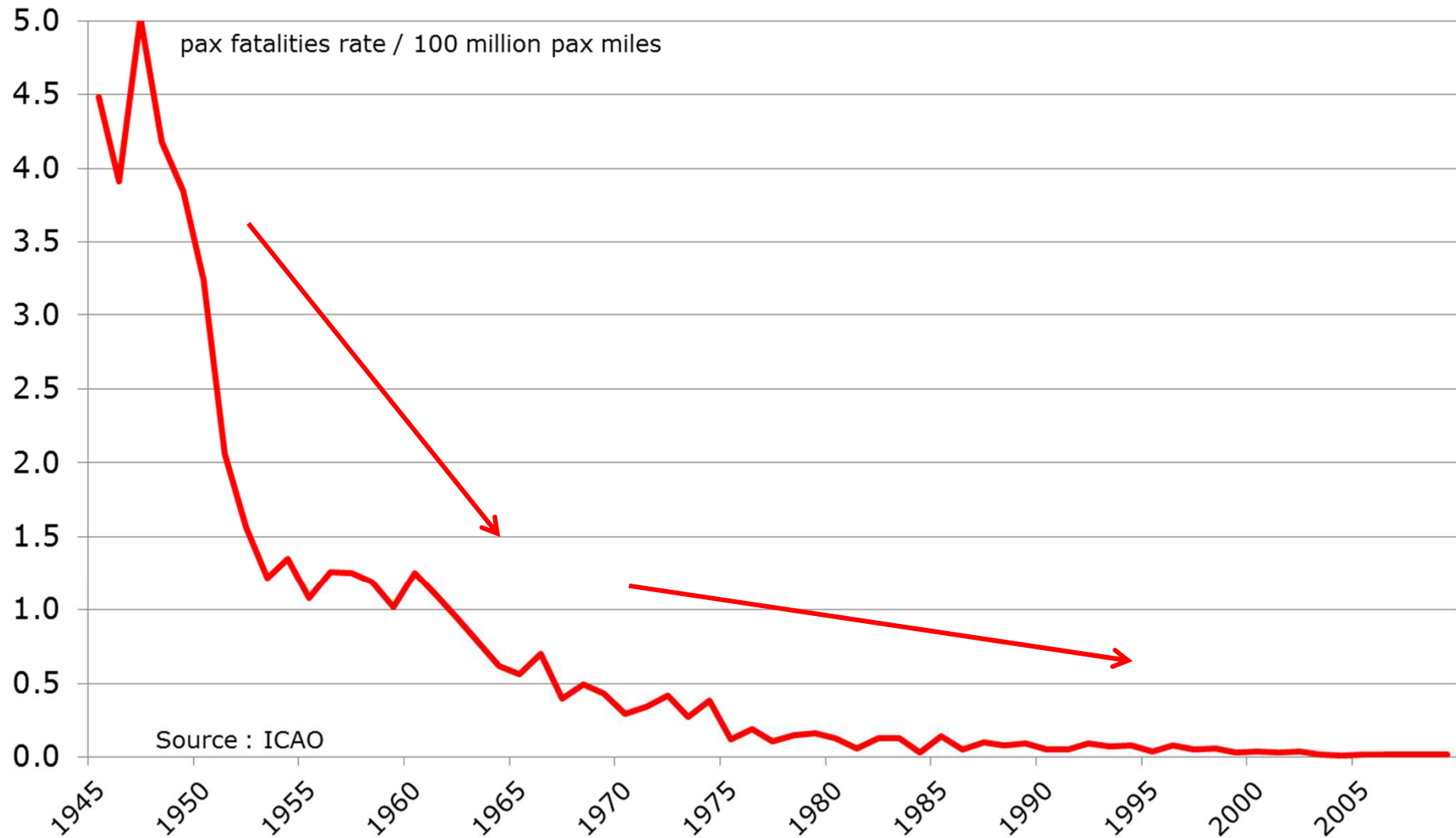
Jean-Pierre Arnaud  
*EASA, Rulemaking directorate*

ICF4 – 4<sup>th</sup> Panel - Cologne, 11 June 2014

Your safety is our mission.



# Evolution of Safety





# Definitions

- **Prescriptive Regulation:** A regulation that specifies requirements for mandatory methods of compliance.
  - *Associated key word: **Compliance***
  
- **Performance-Based Regulation (PBR):** A regulatory approach that focuses on desired, measurable outcomes.
  - *Associated key words:*
    - **Performance**
    - **Effective compliance**



# To illustrate

- **Prescriptive rules** (design of large aeroplane):
  - *CS 25.807 / 813 / 815: emergency exists – dimension, number of exit doors and width of the aisle are given*
- **Performance-based rules**
  - *CS 25. 807 and 810: sliding chutes must deploy within 6s + emergency evacuation in less than 90s – compliance by actual demonstration*
- **Another example in the field of air navigation:**
  - ANS performance scheme - (EU) No 390/2013 – indicators and targets related to environment, capacity (traffic), navigation (ex: separation) and safety



# What's new with PBR?

- ▶ **We are trying to extend the concept of “ safety performance” to:**
  - ▶ Complex systems and Organisations.
- ▶ **New ICAO Annex 19 – *Safety Management* – focuses on desired, measured outcomes for:**
  - ▶ Services providers (SMS) and States (SSP).

## •A Performance –based environment (**PBE**) comprises:

- measurement of safety performance through SMSs and SSPs;
- Performance-based rules (PBR) and -oversight (PBO)

## PBE

PERFORMANCE  
BASED  
**REGULATIONS**

RISK BASED  
**OVERSIGHT**



# Underlying concept to PBR / PBE

- Measurement of Safety (performance)
  - **“You can’t manage what you can’t measure”.**
  - Safety Performance Indicators (**SPIs**) associated with **targets** are the tools.
- **“What” to measure and “how”**
  - Must be Specific, Measurable, Achievable, Realistic, Sensitive to safety, Representative of the activity (usefulness), Cost-beneficial...;
  - Systems easy to capture reliable data;
  - Can be associated to the measurement of risks



# PBE: Enablers and challenges

- Data collection - common terminology
- Open-reporting environment + protection of information and people
- Cooperation and sharing
- Mature SMSs and SSPs
- Responsibilities and Enforcement
- Data Driven Decision making based on SPIs (intelligence - big data)
- Resources, cultural change
- Oversight



# Prescriptive Rules vs PBR = better rules

## Prescriptive

- Simple (reactive) philosophy per domain
- Simple oversight: you comply or you don't
- Often: one fits all (no proportionality)



## PBR

- No matter "how": only the outcomes count
- Improved understanding of risks and mitigations
- Flexibility and proportionality
- Better targeting of resources
- Address the regulatory gaps between domains (interoperability)







# EASA and EC with PBR?

## ➤ **Currently efforts aim at modernizing the European rules:**

- Better rules by assessing the limits, inconsistencies and differences of the current rules in all domains;
- Introducing “proportionality” and “flexibility”;
- EC Study launched on “how to introduce more PBR”
  - Reviewing the ANS performance scheme;
  - Considering any option how to move towards PBE.
- Introduction of Annex 19 concept in all domains
  - including the concept of “Performance”, “Risks” and “PBO”.
- The EASP coordinates and harmonizes the deployment of SPIs, SSPs by the European States;
  - With the help of a network of analysts and the use of ECCAIRS – identification of performance indicators



# Conclusions

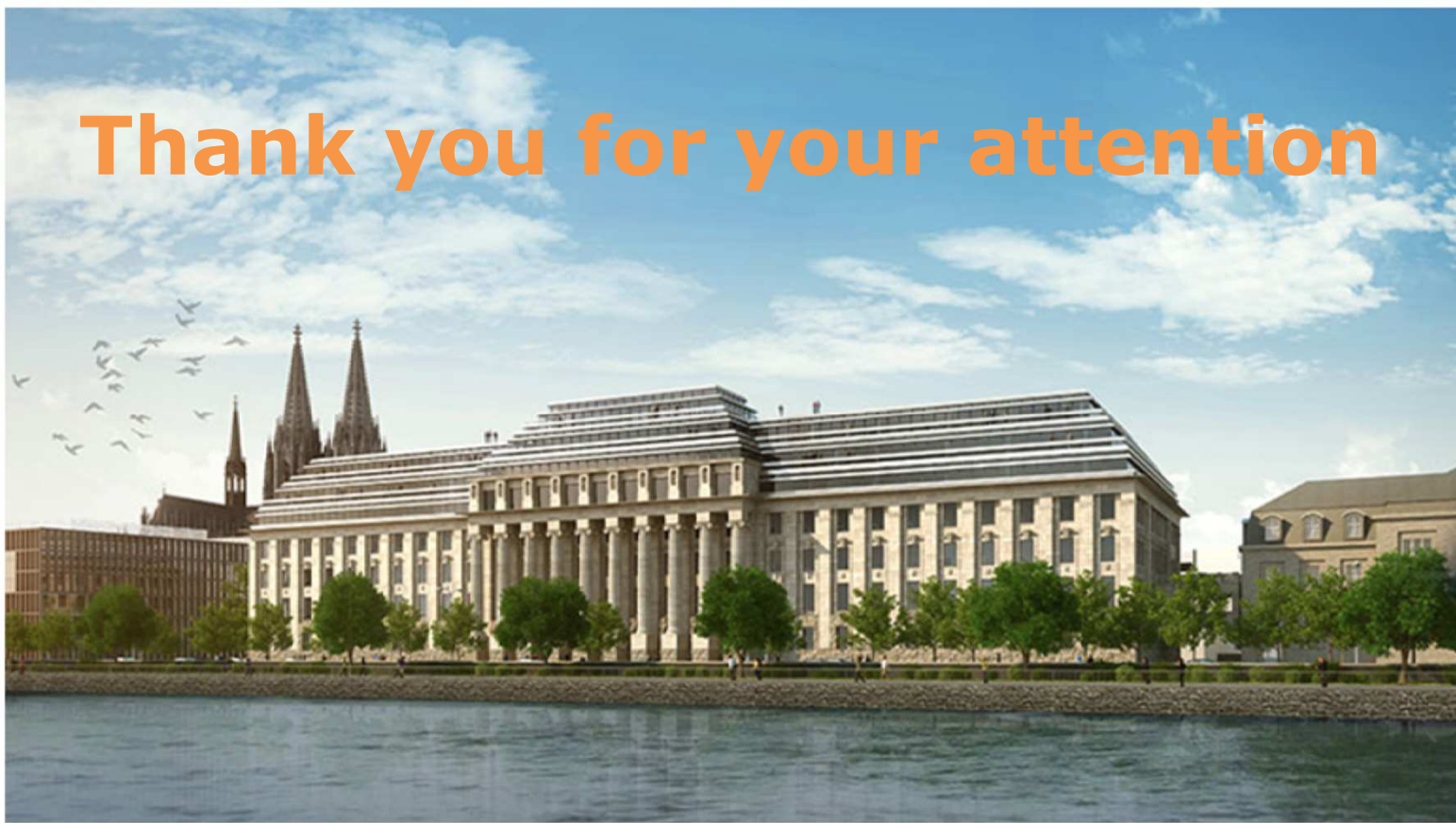
- Performance-based regulation (PBR) would:
  1. not replace prescriptive rules but rather complement it.
  2. continue to improve or maintain safety
  3. give flexibility how to achieve it but is not a relaxation of the rules
  4. take time to implement and mature
  5. Be a game changer for oversight
- PBR is central to EASAs future plans.
  - With the help of our partners.





EUROPEAN AVIATION SAFETY AGENCY  
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE  
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

**Thank you for your attention**



Your safety is our mission.  
[easa.europa.eu](https://easa.europa.eu)



# Literature

- Managing safety in a performance-based environment:  
<http://easa.europa.eu/conferences/pbo/>
- EASA will post a paper on PBR on its website in the coming weeks.



# Introduction of PBR: several options under scrutiny

1. SMS/SSP (already in motion – ICAO Annex 19)
  - Discretion left to the State and its service providers
2. Performance scheme
  - Better appropriate to organisations?
3. SPIs directly introduced into the rules
  - Better appropriate to systems?
4. Acceptable Means of Compliance versus Alternative MC
  - Only high level objectives in the hard rules - An approach to flexibility?



XXX

➤ YYY