

# SAS Norway

## Sub Part I

### Presentation to: Seminar Bodø

#### 17SEP09



# SAS Norway Sub Part I

1) Preparation and qualification process Sub Part I

2) Experiences from Airworthiness Review process

3) Result and outcome of system implementation

*This new discipline  
"Airworthiness Review" need  
corporate commitment as an  
integrated part of the Safety*



**System**  
**BUT FIRST SOM Fact's and FIGURES**

# SAS Norway Sub Part I

## STATUS FIGURES

### Sub Part I Approval Granted: 03FEB09

1<sup>st</sup> ARS Approved 03FEB09 Morten Arnesen

2<sup>nd</sup> ARS Approved 02APR09 Gebory Furat

### AR fleet Planning


55 737 CL/NG

6 F50

47 ARC Issued

32 Closed

14 ARC Remining to complete the hole fleet



*“Most hazards / incidents and accidents occur with aircraft that are perfectly airworthy and operated by airlines that are perfectly regulatory-compliant“*

Yves Benoist –Former Airbus VP Flight Safety Enhancement



# SAS Norway Sub Part I

## 1)Preparation and qualification process Sub Part I

### Project start April 2008

- Complex regulation framework (not any consolidated available)
- Only vague and “incomplete” guidelines detailing company procedures
- Extensive research – National ARC – JAA/UK training – others...
  - “Grip on intention – content – process - expectations “how to-?”
  - The AR as an integrated part of SMS – AR versus Audit – vendors -
  - Management involvement – “ -What`s in it for us- ?” –or just another cost !?!
- S08 Establish culture – Philosophy –system approach and start drafting procedures (CAME)
- Sep08 – refining – discussion with LT – refining – amending – detailing – testing (LN-TUD)
- Place in organization – independence – NPH support vital – AR as “new discipline”
- Recruitment – company assessment process – development of ARS Guidance as support
- LT`s contribution and encouraging guidance – vital success factor – “-learn as you climb-”
- “The AR discipline” challenge and demand a broad range of “secret area of experiences –”Where to find-?”
- Review technique – methods – analyses – feedback – system approach ID HAZARDS:  
“A dangerous or otherwise unwanted outcome, especially one resulting from the failure of an engineered system”

### → Qualification /Assessment process:

- Though – intensive – 3 day`s – “thought-provoking event” and a great tutorial

# SAS Norway Sub Part I

## 2) Experiences from Airworthiness Review process

- Coaching of involved personnel
- Ascertain accountability (deliveries – corr- prev- and verification together with philosophy/scope
- Started with 11 A/C due in FEB09 – 24 hrs - 7/d – 90 days window “watch out” !!!
- Planning and timing the review - vital to accomplish checklist and defined scope
- Plan Review with clear defined scope – checklist mandatory – areas in depth- rotation plan
- Post meetings essential to clarify and reach consent together with responsible for each action
- No acceptance of findings to be “scrub out” if noted in findings report presented at post meetings
- Interpretation of and the use of Level 1 findings intricate within the 90 day period before expiry
- Administration of each AR burdensome – More efficient if administration could be delegated

- 
- Checklist not detailed enough – especially source data – systems and applications used
  - Corrective action process trouble-free

A STAR ALLIANCE MEMBER 

Morten Arnesen

5



# SAS Norway Sub Part I

## 3) Result and outcome of system implementation

- Ongoing of corrections – databases –
- New routines Flt Ops recording of revision and implementation
- Clean-up and standardization of documentation registration
- Re-designed reports from data systems
- Revision of A/C checklists and inventory control
- ATL write-up of remarks among crew alert
- New TIS Placards and Markings developed and introduced
- Form 1 and AD and SB status established
- All supplier / Vendor related findings possessed within their Occurrence Report System
- Document control B2B re-designed and systems updated in config
- Part M Sub Part G and I relations integrated (not an audit but review - ! )
- Technician inspection and AT write up (approved data reference) procedures alert
- Use of HIL MEL alert
- and others...but still like to see analyzes of database – root-cause – system improvements



# SAS Norway Sub Part

## Operational Risk Management

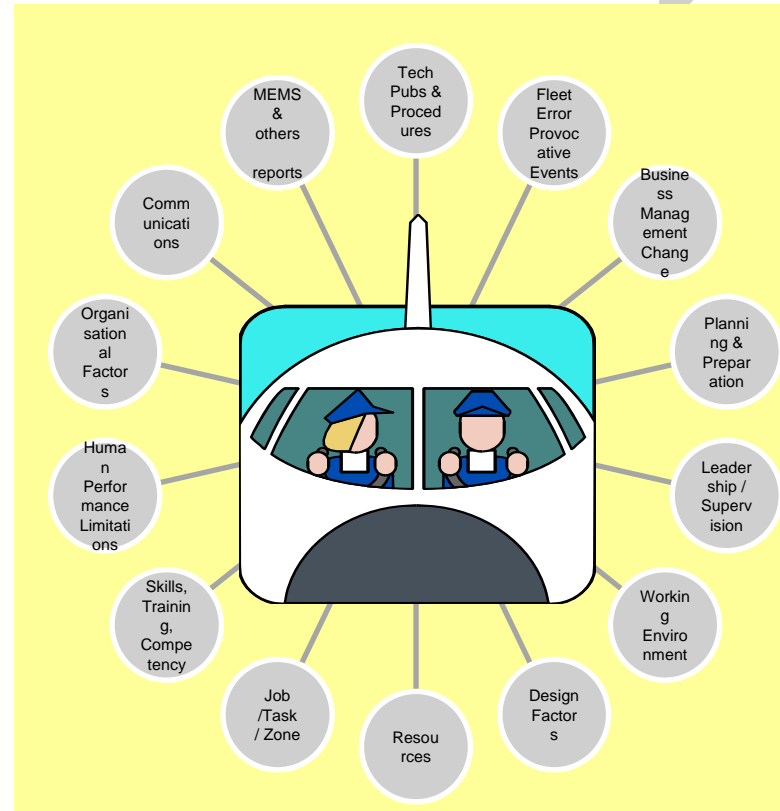
Continuing Airworthiness activities

Hazard identification, assessment and control, should be an integral part of routine maintenance, rather than limited to project lifecycle phases and implicit personal action.

Typical Hazard Considerations for Maintenance

Need to consider assessments by aircraft rectification lines and component bays, using personnel from these areas.

### MAINTENANCE ACTIVITIES



Flight Operations activities

### PASSENGER SATISFACTION



# SAS Norway Sub Part I

Philosophy:

## Hazard Identification: Fundamental Requirements

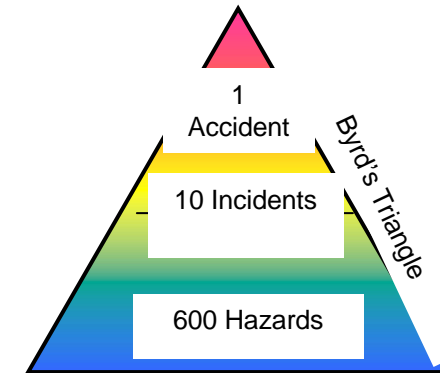
The fundamental requirements for effective hazard identification are:

- To get past perceptions and to quantify wherever possible
- To tap into the vast reservoir of knowledge that exists within Aviation
- To ‘think outside the box’
- Be paranoid: believe everything and believe nothing:

***“-continually test for facts-”***

### **Systems are for People?**

**“Even the *most well-considered* safety system can be wrecked by the idiosyncratic behaviour of a single individual”**



**Eliminate hazards and you will eliminate incidents and accidents**

# SAS Norway Sub Part I

**This new discipline  
Airworthiness Review  
need corporate  
commitment as an  
integrated part of the  
Safety System**

## **Safety is a corporate value:**

*Safety practices consider the organizations particular “way of doing business” as well as corporate possibilities and constraints. What works well for one airline does not necessarily work equally well for others.*

The formal goals of an AR are as follows:

To produce a Review of “fully airworthy aircraft” , which is maintained in a safe working environment, that are subsequently operated safely.

To ensure and demonstrate that Airworthiness is being managed as formally as *any other critical business function*.

To ensure and demonstrate that the Organization is ‘responsible’ and exercising ‘due care’.

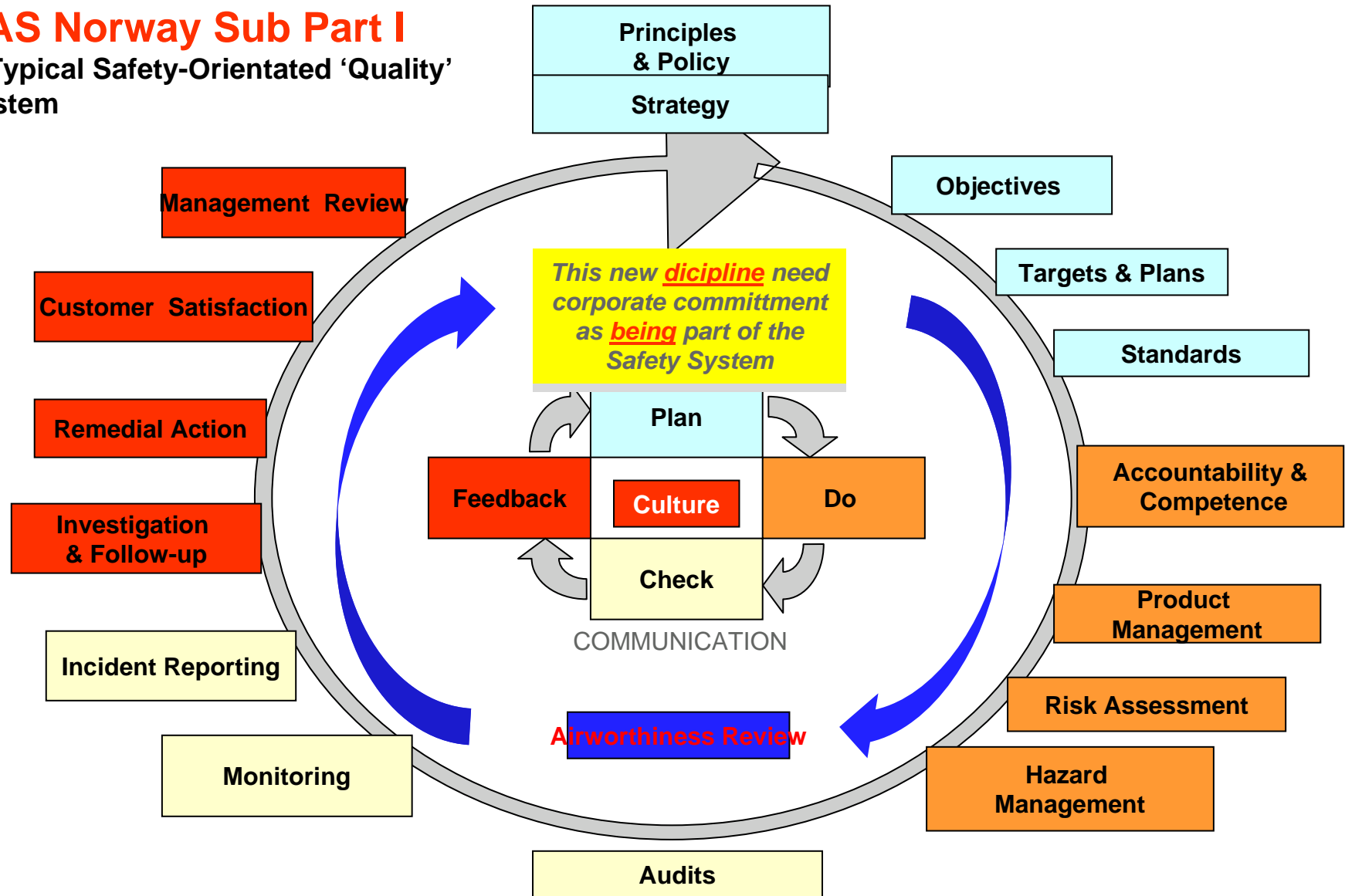
**The aim is to create a virtuous circle of operating experience - benchmarking – corrective and actions - and self assessment:**



**Should we ever become unworried, we will risk experiencing a failure of our safety culture and systems. Should this happen, then even if there has been no significant accident or event, this decline in safety culture awareness must be part of any review !**

# SAS Norway Sub Part I

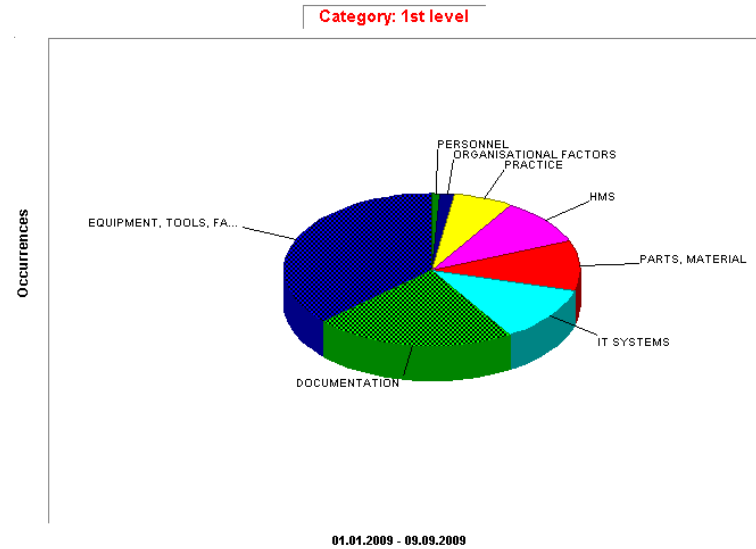
## A Typical Safety-Orientated 'Quality' System



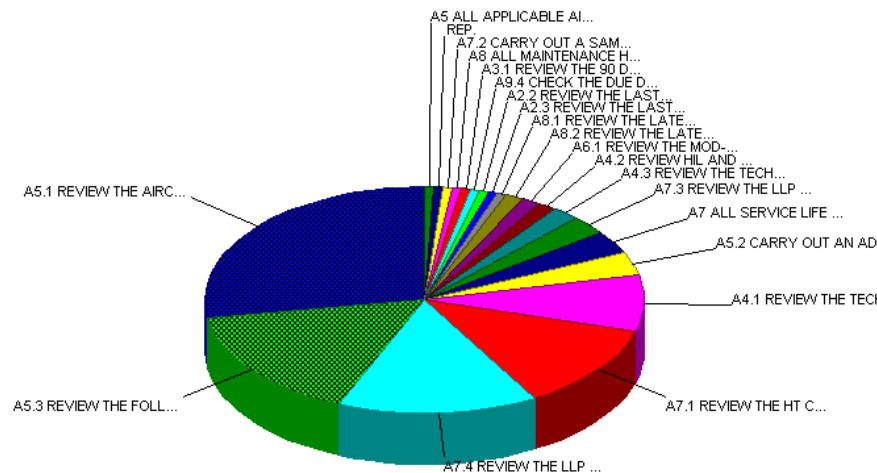
# SAS Norway Sub Part I

## Findings from AR

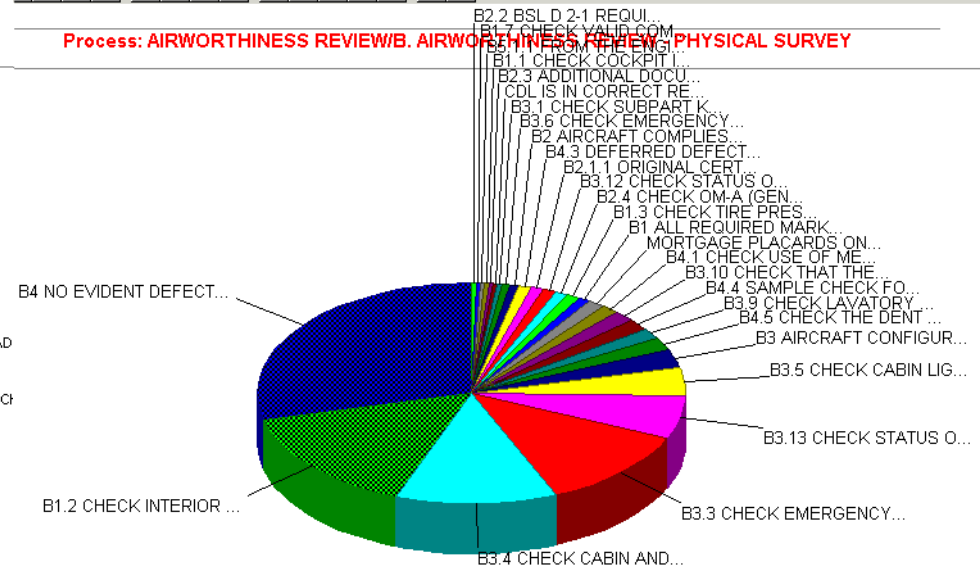
## Areas of improvements



Process: AIRWORTHINESS REVIEW/A - AIRCRAFT RECORDS



Process: AIRWORTHINESS REVIEW/B. AIRWORTHINESS REVIEW/PHYSICAL SURVEY



# Questions

?

