

Continued airworthiness

SAFRAN Helicopter Engines – Jean-Luc THOUVENOT



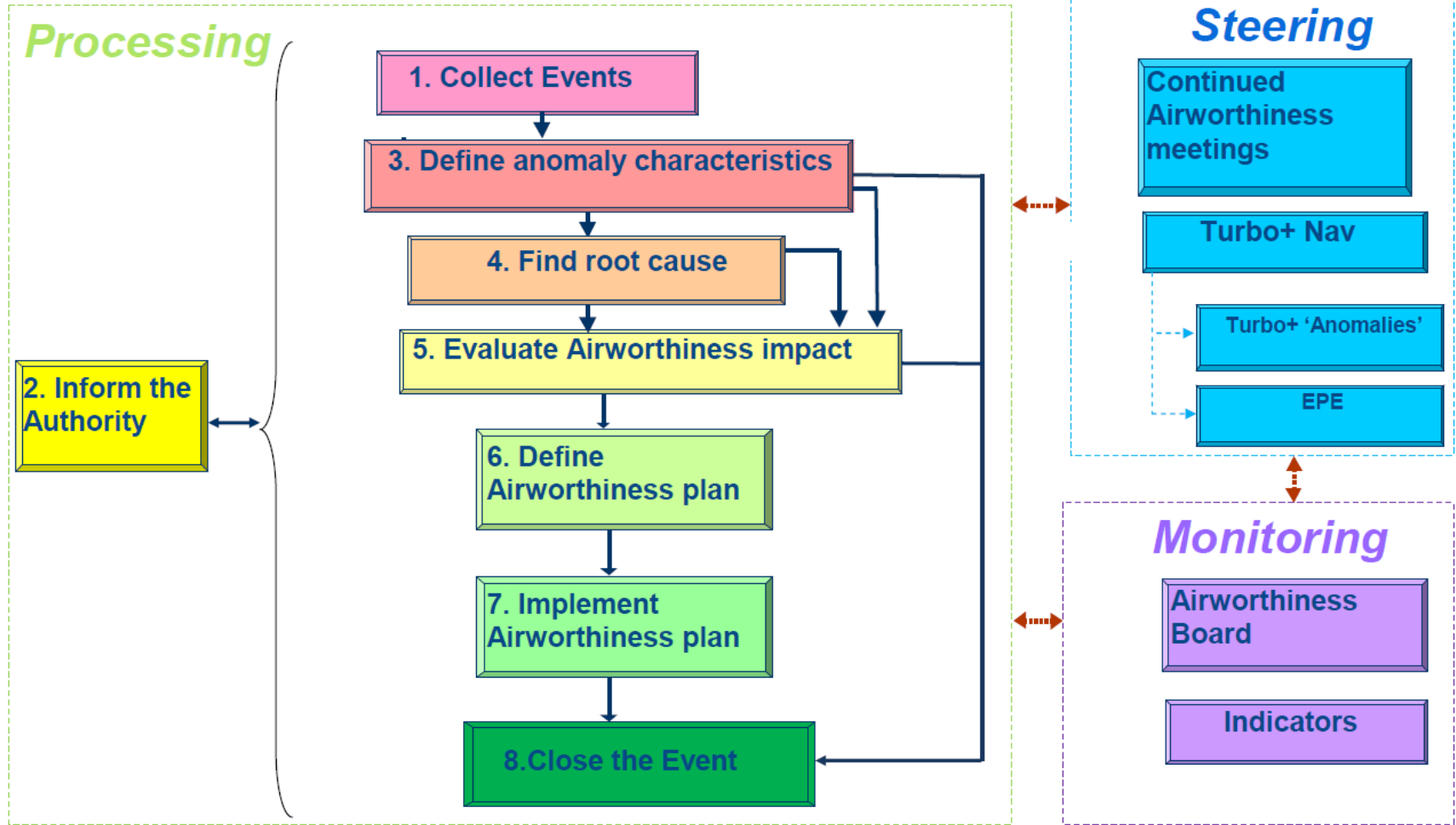
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➤ Key messages

- Safran HE has structured the Continued Airworthiness according to EASA regulation and monitors frequently key figures / processes with Authority
 - Collect and analyze in-service events and out of operation events
 - Inform the Authority within 72h about all event potentially leading to unsafe conditions
 - Analyze the airworthiness impact at engine level of these events and inform the Authority all along the process
 - Propose to the Authority the mandatory corrective actions



➤ Continued Airworthiness process



➔ This process is managed by the airworthiness engineer



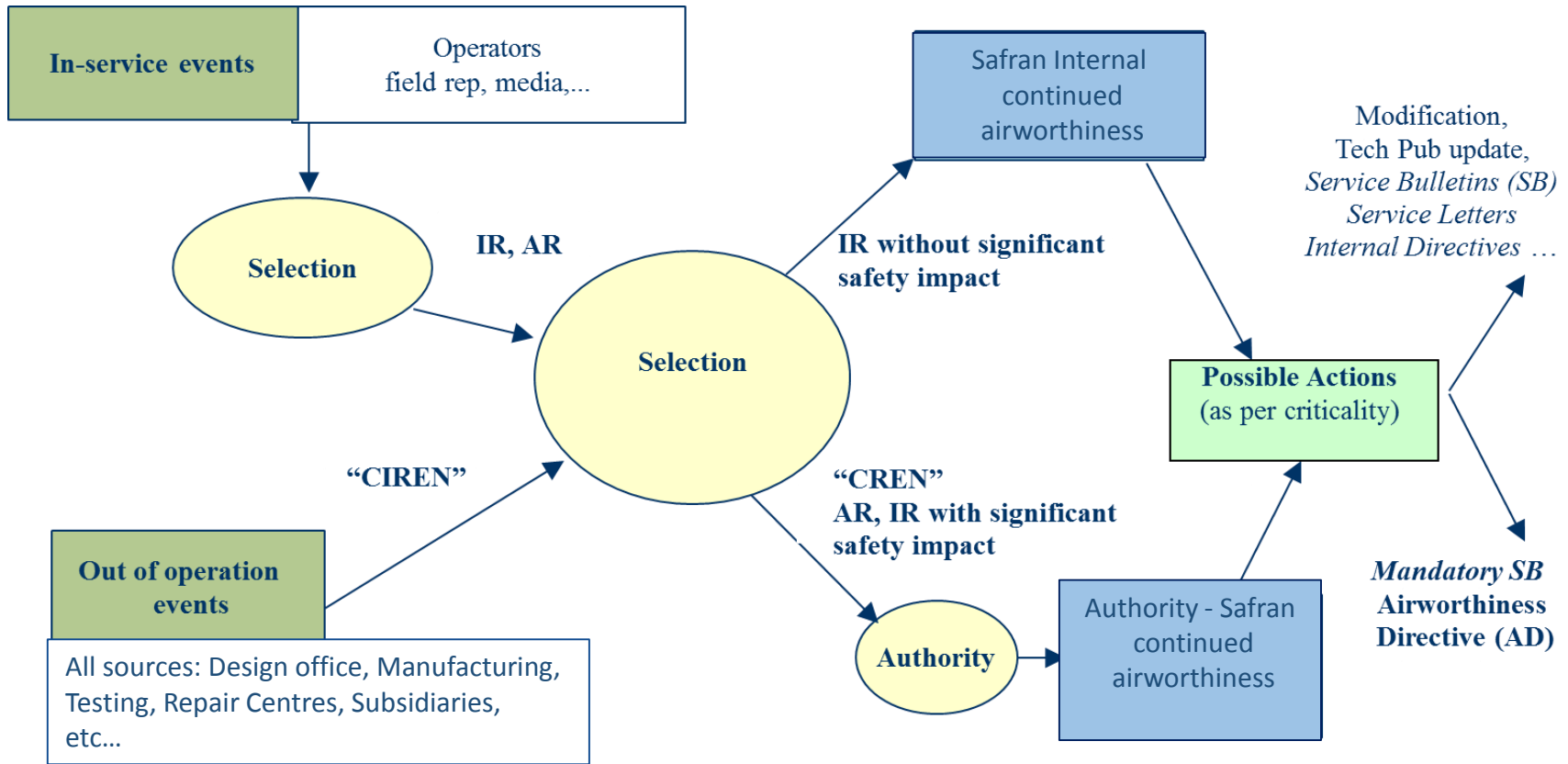
- Continued Airworthiness process – in service events
 - Customer Support collects events occurring at operator's
 - Events are sorted out to identify those with airworthiness impact: Incident Reports (IR) or Accident Report (AR)
 - AR and IR impact are issued and sent to EASA within 72h
 - Performed by corporate customer support under Airworthiness office delegation
 - Investigation launched for each event in order to:
 - Identify the origin of the event
 - Assess the associated airworthiness impact



- Continued Airworthiness process - other events
 - Any technical events detected in Design, Manufacturing, Testing, assembly, repair,...
 - That could potentially affect airworthiness of the fleet
 - Those events are reported to the Airworthiness Office via a 'CIREN' (Internal Report relative to an airworthiness event)
 - After evaluation, the Airworthiness Engineer:
 - Either closes the 'CIREN' if no/low airworthiness issue is identified
 - Issues a 'CREN' (Airworthiness Event Report) to EASA if potential airworthiness issue is identified



► Continued Airworthiness process- Summary



➤ Continued Airworthiness process – Decision Matrix

Occurrence rate / airframe flight hour or per solicitation (non availability of max power)

Conséquence	10 ⁻³ A	10 ⁻⁴ B	10 ⁻⁵ C	10 ⁻⁶ D	10 ⁻⁷ E	10 ⁻⁸ F	10 ⁻⁹ G	10 ⁻¹⁰
1 Catastrophic (according CS-airframe)	I	I	I	II	III	III	IV	
2 Hazardous (according CS-E)	I	I	II	II	III	IV	IV	
3 Major (according CS-E) or single engine uncommanded IFSD	II	II	III	IV	IV	IV	IV	
4 Commanded IFSD or twin engine application uncommanded IFSD	II	III	IV	IV	IV	IV	IV	
5 Other consequence (e.g non availability of max or OEI power)	III	TBD on a case by case basis						

Criticality	Required Action
I	Immediate action before the next flight
II	Action in X days/weeks lead time
III	Necessary action to reduce the risk
IV	Acceptable risk

Does not include application of CM PIFS-011



➤ EASA Certification Memo CM–PIFS-011

- « Determination of an Unsafe Condition for Risk of Rotorcraft Engine In-Flight Shut-Down (IFSD) and Power Loss application »
- Specific to helicopter operation
- Based on the reality that some Minor engine failures can create an aircraft Unsafe situation
- Safran Helicopter Engines implemented a process that meets EASA expectations, with a close coordination with airframer:
 - Cooperate with the airframer to investigate/allocate the cause and assess the risk on the fleet
 - Assess the risk at helicopter level in operational conditions
 - Define a reaction time, based on this risk
 - Define associated action plan



- Some challenges to perform continued airworthiness
 - Getting operators declaration of in-service events, and subsequent information
 - Getting hardware returned to factory for investigation
 - Getting contributions from equipment suppliers
 - Knowing the detailed fleet operating hours in order to perform statistic evaluation
 - Getting actual experience of hardware from repair shops (how it wears/fails)
 - Understanding the failure scenario, and reasons for failing
 - Implementing fixes quick enough worldwide when a real safety issue is confirmed
 - Cooperation with airframer to quote the risk





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LAST SLIDE

Jean-Luc THOUVENOT
VP Airworthines
Jean-luc.thouvenot@safrangroup.com



This project is funded by the European Union