



Annual Safety Review 2021
National Plan for Aviation Safety

Direction de l'aviation civile
Jean-Claude Petesch

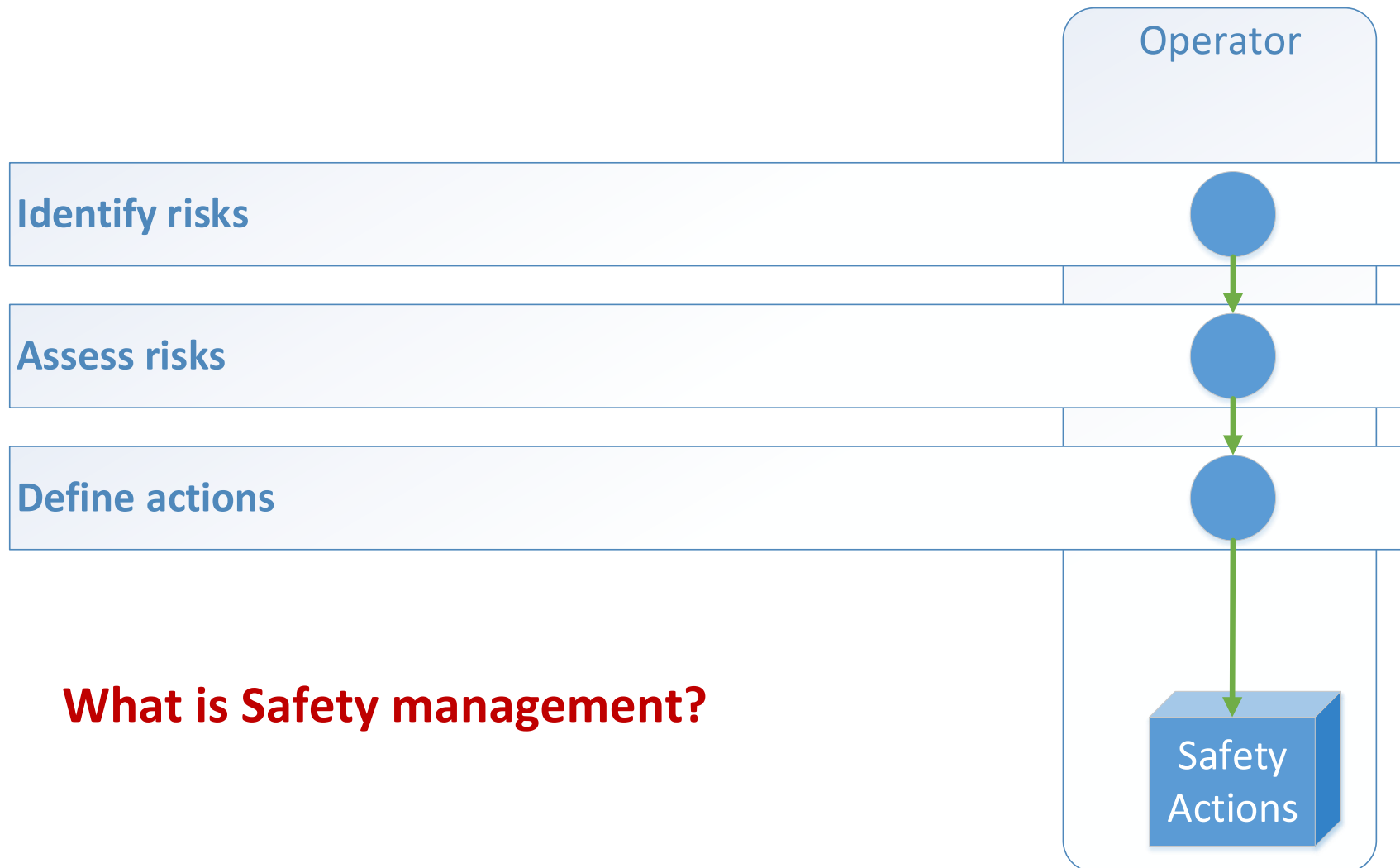
AOPA Safety Seminar 2023



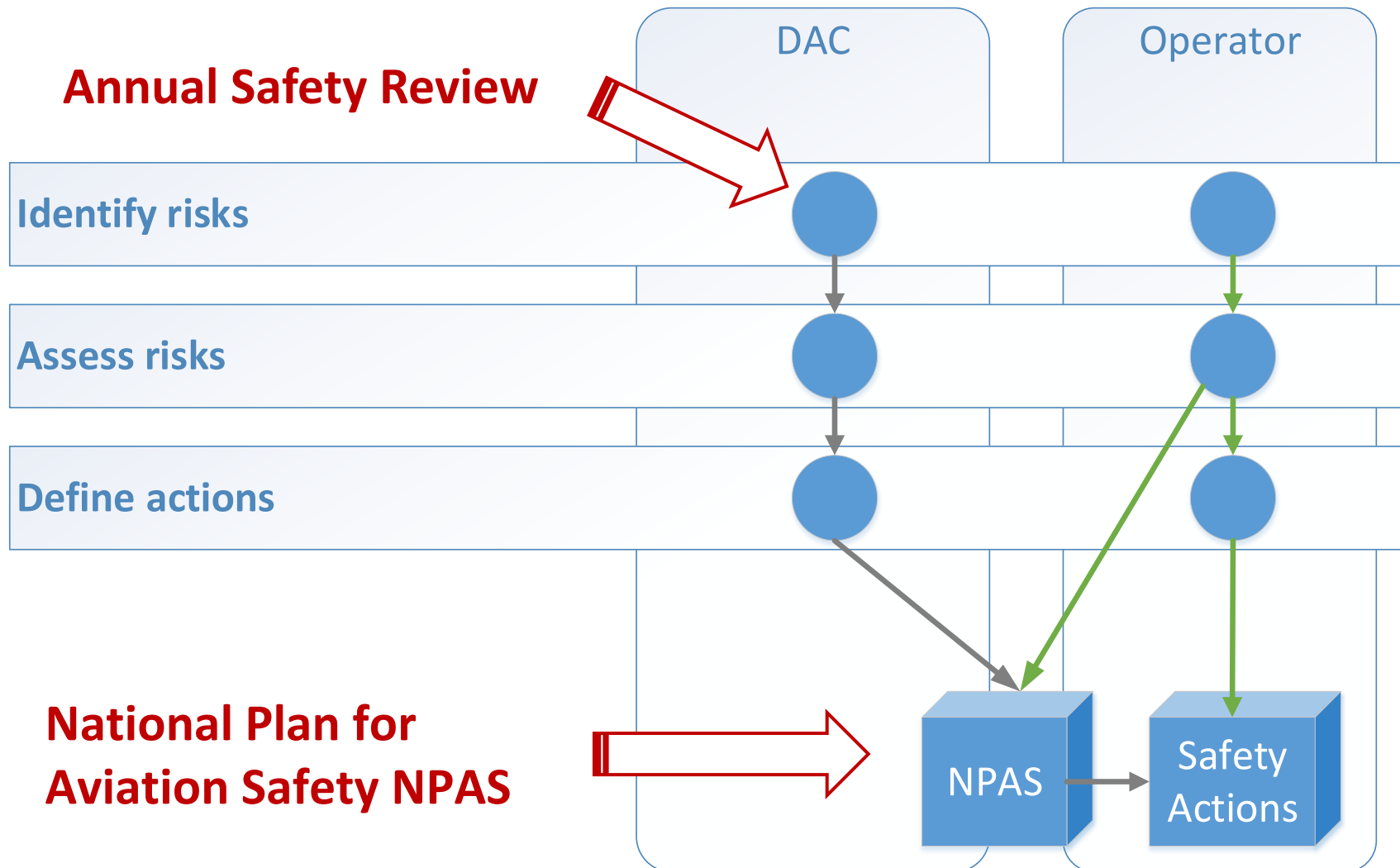
Agenda

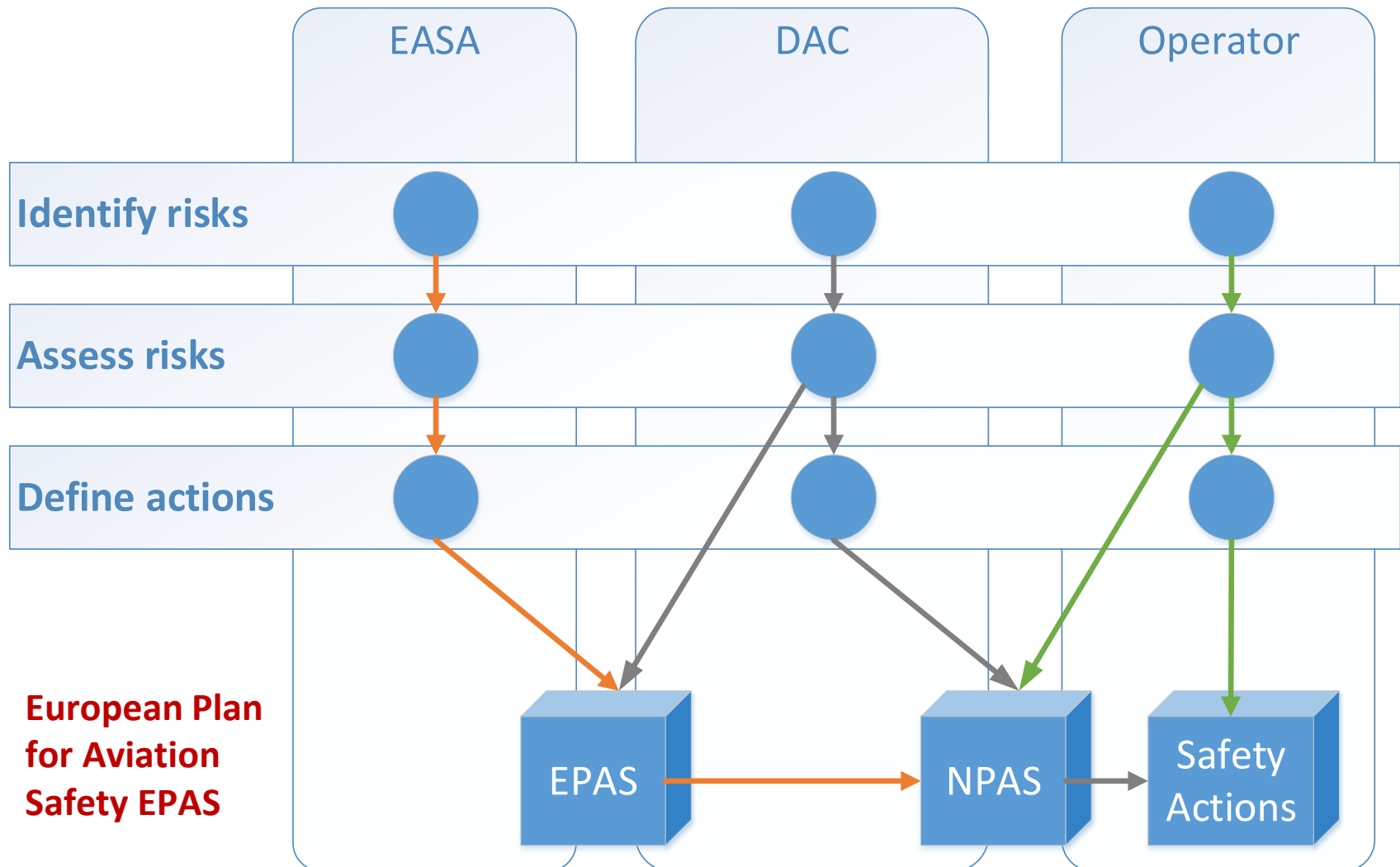
1. Overview
2. Annual Safety Review 2021
3. National Plan for Aviation Safety
4. How to report an occurrence





What is Safety management?







Agenda

1. Overview
2. **Annual Safety Review 2021**
3. National Plan for Aviation Safety
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Accidents and serious incidents 2021

1 accident – 1 serious injury (General Aviation, balloon)

3 serious incidents – 2x CAT, 1x General Aviation

1 high-risk incident - CAT

	Aircraft type	Date	Location	Event	Investigation
Accident	Cameron Z-105 (Hot Air Balloon)	14.8.	Consdorf	Balloon envelope caught fire after landing	AET
Serious incident	Boeing 747-8F	22.3.	Dubai (UAE)	Smoke/fire from windshield heater	AAIS (UAE)
Serious incident	Boeing 747-400F	28.7.	Zhengzhou (China)	Engine fire	CAAC (China)
Serious incident	Pilatus PC12	20.10.	Brive- Souillac (F)	Loss of altitude and speed in an abrupt manual maneuver due to weather	BEA (France)
High-risk event	Boeing 747-400	22.11.	ELLX	Straps loose and cut on heavy cargo	Operator



Accidents and serious incidents 2022

No accident!

1 serious incident

	Aircraft type	Date	Location	Event	Investigation
Serious incident	Bombardier Global Express	7.4. 2022	London/ Luton (UK)	Wingtip strike during go-around	AAIB (UK)



Accidents with serious injuries or fatalities - last 10 years

Activity	Date	Location	Event	Phase	Outcome	Victim
Ballooning	18.8.2012	Near Filsdorf	Basket overturned	Landing	1 serious Injury	Passenger
Ballooning	22.7.2013	Near Limpach	Adverse weather / Basket overturned	Emergency landing	1 fatal	Passenger
Ballooning	9.9.2013	Near Zagajewice (Poland)	Basket overturned	Landing	1 serious Injury	Pilot
Military fixed-wing	24.10.2016	LMML Malta	Technical malfunction leading to loss of control	Initial climb	5 fatal	All crew
Paragliding	15.4.2018	Near Bourscheid	Hit the ground during steep turn	Landing	1 serious Injury	Pilot
Parachuting	19.8.2018	ELNT	Excessive vertical speed on landing	Landing	1 serious Injury	Pilot
Ballooning	14.8.2021	Consdorf	Inadvertent burner activation	Landing	1 serious Injury	Passenger



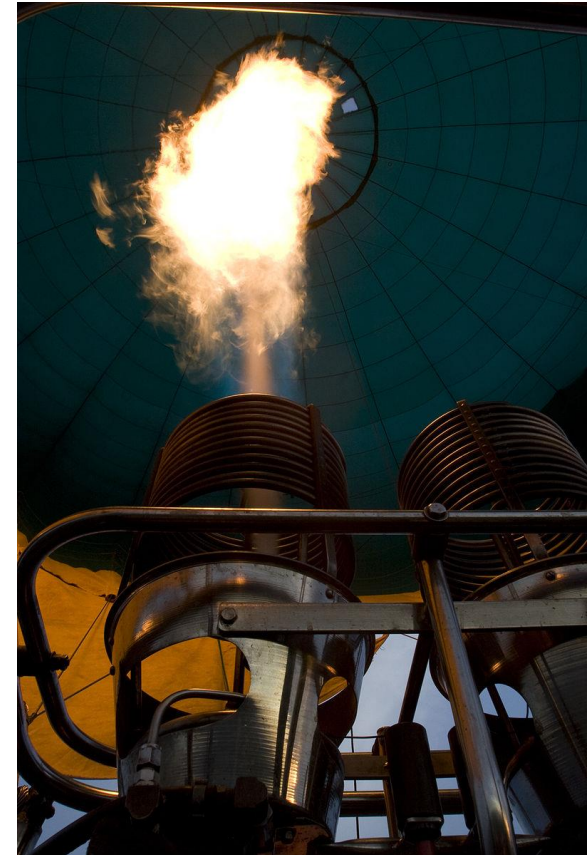
Accidents with serious injuries or fatalities - last 10 years

Ballooning:

Most dangerous aviation activity in Luxembourg?

Typical balloon accident phase: landing

Typical balloon accident victim: passenger





Reports by occurrence class

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Variation 2020-2021
Proactive report / Observation / Occ. with no flight intended	332	561	454	535	470	617	704	488	232	288	+24%
Occurrence Without Safety Effect	684	813	727	798	689	289	843	883	563	873	+55%
Incident	458	523	597	578	873	1229	1310	1473	1256	1699	+35%
Serious Incident	3	1	1	3	0	2	0	0	2	3	-
Accident	2	9	5	3	2	3	3	0	1	1	-
Total	1479	1907	1784	1917	2034	2140	2860	2844	2054	2864	+39%

2 or more reports for the same event are merged.

2022:
Total ≈ 3100 !



Top Ten Safety Issues 2021

	Safety issue
1	Risk of Mid-Air Collision
2	Fatigue
3	Engine failure or problems - multi-engine aircraft
4	Incorrect aircraft setup by crew
5	Windshear
6	FOD (Foreign Object Debris)
7	Smoke and fire on board
8	Unstabilized approach
9	Cargo moving/shifting during flight
10	Technical - flight controls



Top Ten Safety Issues 2021 - Luxembourg

	Safety issue - LUXEMBOURG
1	FOD (Foreign object - Debris)
2	Risk of Mid-air collision
3	FDP Issues at ELLX
4	Radar issues at ELLX
5	Smoke and fire on board
6	Engine failure or problems - multi-engine aircraft
7	Incorrect aircraft setup by crew
8	Risk of collision with drone
9	Technical - Landing gear
10	Fatigue



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State Safety Program – ICAO definition:

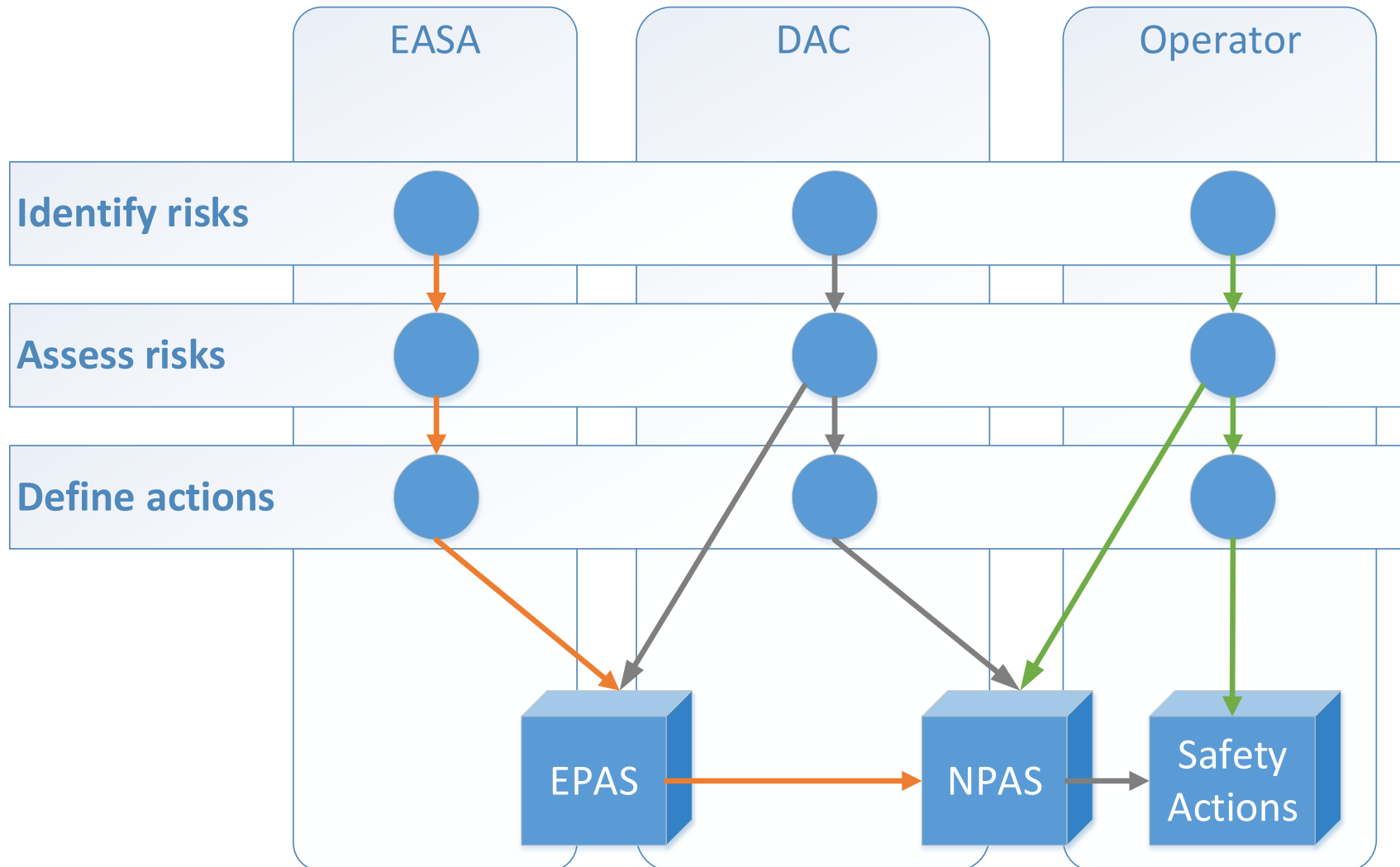
“an integrated set of regulations and activities aimed at improving safety”

... a Safety Management System for the State

Split in 2 documents:

- **Programme national de sécurité aérienne** - published Jan. 2020 contains the “fixed” elements: describes the structure, regulations, responsibilities of the national aviation system
- **National Plan for Aviation Safety** - published Jan. 2022 contains the “variable” elements: actions to improve safety regular updates

NPAS: Introduction and context





issued by EASA
after consultation of advisory boards

Structure:

3 volumes:

- I. Strategic priorities
- II. Actions
- III. Safety Risk Portfolios

EPAS 2023-2025 published on 18.1.2023



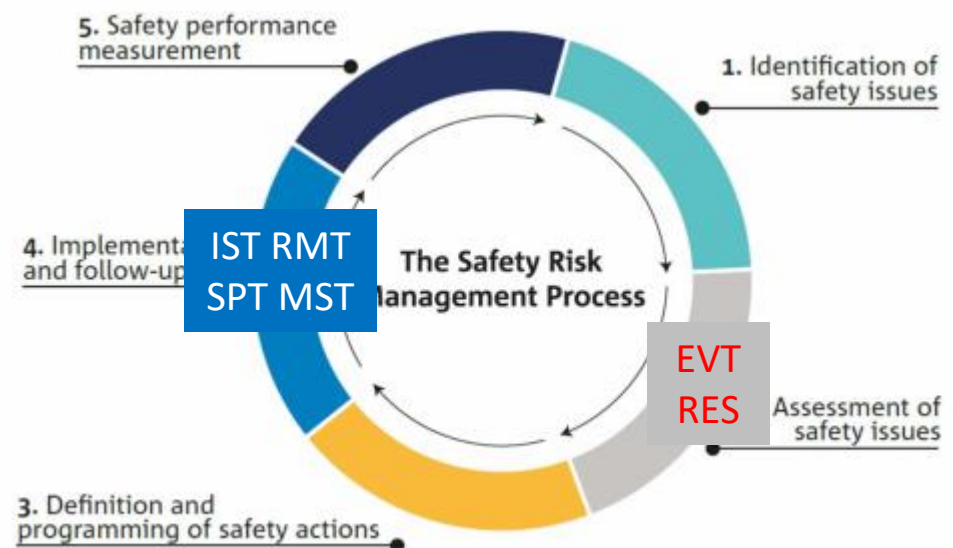


Volume II of the EPAS contains safety actions:

Types of tasks:

EVT: Evaluation Tasks	4
IST: Implementation support	1
RES: Research Tasks	38
RMT: Rulemaking Tasks	64
SPT: Safety Promotion Tasks	35
MST: Member State Tasks	23

MSTs should be integrated in
Member States' NPAS if applicable





Draft distributed to stakeholders for feedback on 1.6.2021

Published on 3.1.2022

- 1. Purpose**
- 2. Main risks** Main risks and opportunities:
from analysis of safety occurrences,
identified shortcomings,
proactive: foreseeable evolutions
- 3. Systemic actions** Across different aviation sectors.
Not necessarily linked to occurrences.
- 4. Operational actions** Designed to mitigate specific risks
- 5. Safety oversight actions** “Internal” actions for DAC
- 6. Differences to EPAS** EPAS Member State Tasks not applicable to Luxembourg

COVID-19 pandemic-related risks and actions: distributed in 2,3,4



Summary:

- a. State Safety Plan
- b. Promotion of Safety Management Systems (SMS)
- c. Systemic issues linked to the COVID-19 pandemic
- d. UAS – Unmanned Aerial Systems (drones)**
- e. SAR – Search And Rescue**
- f. Helicopter traffic integration study**
- g. Airspace complexity and traffic congestion**
- h. Cybersecurity



3.d. UAS (drones)

Title	UAS – unmanned aerial systems		
Description	Safe integration of UAS in the aviation system in Luxembourg		
Deliverables	Timeline	Owner	
Launch a media campaign for “Open” category UAS users	done	DAC	
Complement EU regulations by national regulations	ongoing	DAC	
Establish a Forum for professional drone users	Done (Dec 2021)	DAC	
References	DAC Annual Safety Report 2019		





3.e. SAR – Search And Rescue

Why?

Obsolete arrangements

- Not all scenarios covered by Aerodrome Emergency Plan AEP and Plan Nombreuses Victimes PNV
- Not all ICAO requirements met
- Not all available assets integrated

Action: Define coherent set of adapted national regulations, clear responsibilities and response plans for SAR



3.f. Helicopter traffic integration study for ELLX

Why?

Traffic complexity

Most frequent aircraft type in ELLX?

1. Boeing 747
2. Piper PA28



- Integration of CAT, VFR piston and helicopter traffic is challenging!
- Top Ten Risk identified: Runway incursions by aircraft

Action: Feasibility study for designated helicopter take-off and landing areas at Luxembourg airport



3.g. Airspace complexity and traffic congestion

EPAS Member State Task MST.0038

Title	Airspace complexity and traffic congestion		
Description	Member States should consider 'airspace complexity' and 'traffic congestion' as safety-relevant factors in airspace changes affecting uncontrolled traffic, including the changes along international borders.		
Deliverables	Timeline	Owner	
Consult with FABEC partners on potential airspace changes	2023	ANA	
References	EPAS MST.0038, EPAS SPT.0120		



Summary:

- a. Reduce the risk of mid-air collisions**
- b. Runway safety**
- c. Operational issues linked to the COVID-19 pandemic
- d. Dialogue with operators on Flight Data Monitoring (FDM)
- e. Peer-to-Peer support programs
- f. Jet blast
- g. FOD – Foreign Object Damage**
- h. General Aviation: Meteorological info in the PPL/LAPL syllabus**
- i. General Aviation: Improvement in the dissemination of safety messages**
- j. Promotion of safety culture in General Aviation**



4.a. Reduce the risk of mid-air collisions

2 Tasks:

- From DAC Annual Safety Report:
Surveillance chain issues at ELLX identified as latent condition
=> Improvement and validation of the Surveillance chain at ELLX
- From EPAS: MST.0030
Implementation of SESAR solutions aiming to reduce the risk of mid-air collision en-route and in terminal manoeuvring areas



4.b. Runway safety

Why?

- AET Safety recommendations: some long-lead items agreed but not fully implemented yet (e.g.: ASMGCS Level 2)
- AET Safety recommendations: recent occurrences show that some of the intended safety barriers failed
- Runway incursions identified as a risk: DAC Annual Safety Report, Local Runway Safety Team (LRST)
- Runway refurbishment works increase the risk of runway incursions
- EPAS MST.0029: Implementation of SESAR runway safety solutions - several “solutions” on the common theme of:

Ground situational awareness



4.g. FOD

Higher risk of FOD

due to runway refurbishment works





4.h. General Aviation: Meteorological info in the PPL/LAPL syllabus

addresses weather-related risks such as:

- entering IMC,
- icing conditions,
- carburetor icing,
- poor weather conditions

EPAS MST.0036: PPL/LAPL learning objectives in the Meteorological Information part of the PPL/LAPL syllabus

Linked to SPT.0087: Weather awareness for GA Pilots –
Safety Promotion material by EASA (2020-2022)



4.h. General Aviation: Meteorological info in the PPL/LAPL syllabus

Title	PPL/LAPL learning objectives in the Meteorological Information part of the PPL/LAPL syllabus		
Description	Member States should develop proportionate learning objectives in the 'Meteorological Information' part of the PPL/LAPL syllabus. Such learning objectives to be of a basic, non-academic nature and address key learning objectives in relation to: <ul style="list-style-type: none">— practical interpretation of ground based weather radar, strengths and weaknesses;— practical interpretation of meteorological satellite imagery, strengths and weaknesses;— forecasts from numerical weather prediction models, strengths and weaknesses.		
Deliverables	Timeline	Owner	
Learning objectives, with related question bank	2022	ATOs	
References	EPAS MST.0036, SPT.0087		



4.i. General Aviation: Improvement in the dissemination of safety messages

Title	Improvement in the dissemination of safety messages		
Description	Member States should improve the dissemination of safety promotion and training material by their competent authorities, associations, flying clubs, insurance companies targeting flight instructors and/or pilots through means such as safety workshops and safety days/evenings.		
Deliverables	Timeline	Owner	
Safety workshops and safety days/evenings	continuous	GA organisations	
Participation of DAC in associations' safety events	continuous	DAC	
References	EPAS MST.0025		



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4.j. Promotion of safety culture in General Aviation

Title	Promotion of safety culture in General Aviation		
Description	Member State CAs should include provisions to facilitate and promote safety culture (including just culture) in GA as part of their State safety management activities in order to foster positive safety behaviours and encourage occurrence reporting.		
Deliverables	Timeline	Owner	
Provisions to facilitate and promote safety culture as part of SSP/SPAS	continuous	DAC	
Provide feedback to individuals addressing an occurrence report directly to DAC	continuous	DAC	
References	EPAS MST.0027		



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How to report?



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Direction de l'aviation civile

Mandatory reports:

- To the authority that issued your pilot's licence
- Within 72 hours

All reports:

- Via the European Portal
www.aviationreporting.eu
online or PDF form





Thank you for your attention!

Any questions?

