EASA
European Aviation Safety Agency

Safety Risk Management Process and Safety Risk Portfolios

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CASIAs
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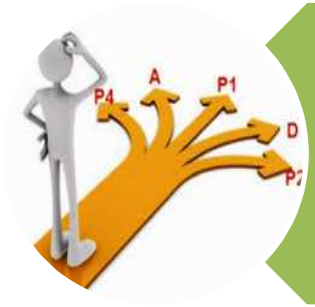
Your safety is our mission.

What is a Safety Risk Portfolio?

- Safety Issues
- Risk Assessment
- Actions Taken (Impact)
- Residual Risk Level
- Safety Performance

Why did we do it?

Connect safety intelligence with actions



Identify safety priorities

Work with experts from Industry and States more effectively

Focus on Global Safety Issues

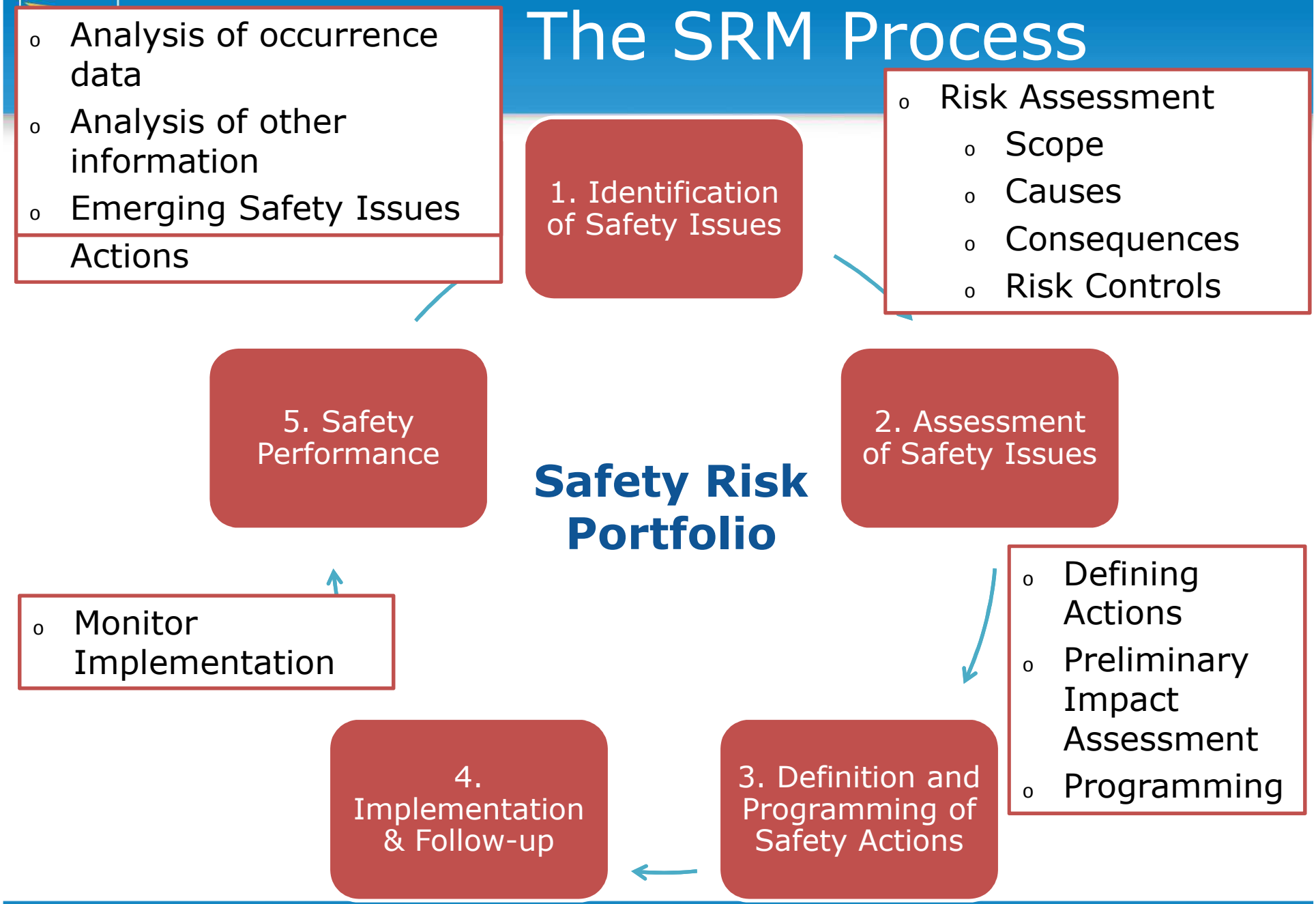
Better addressed by the Agency than by individual Member States

Require coordination of more than one entity, for example issues affecting:

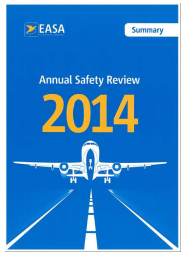
- more than one aircraft type,
- more than one operator, and/or
- more than one State.

Global safety issues include those addressed by EASp actions.

The SRM Process



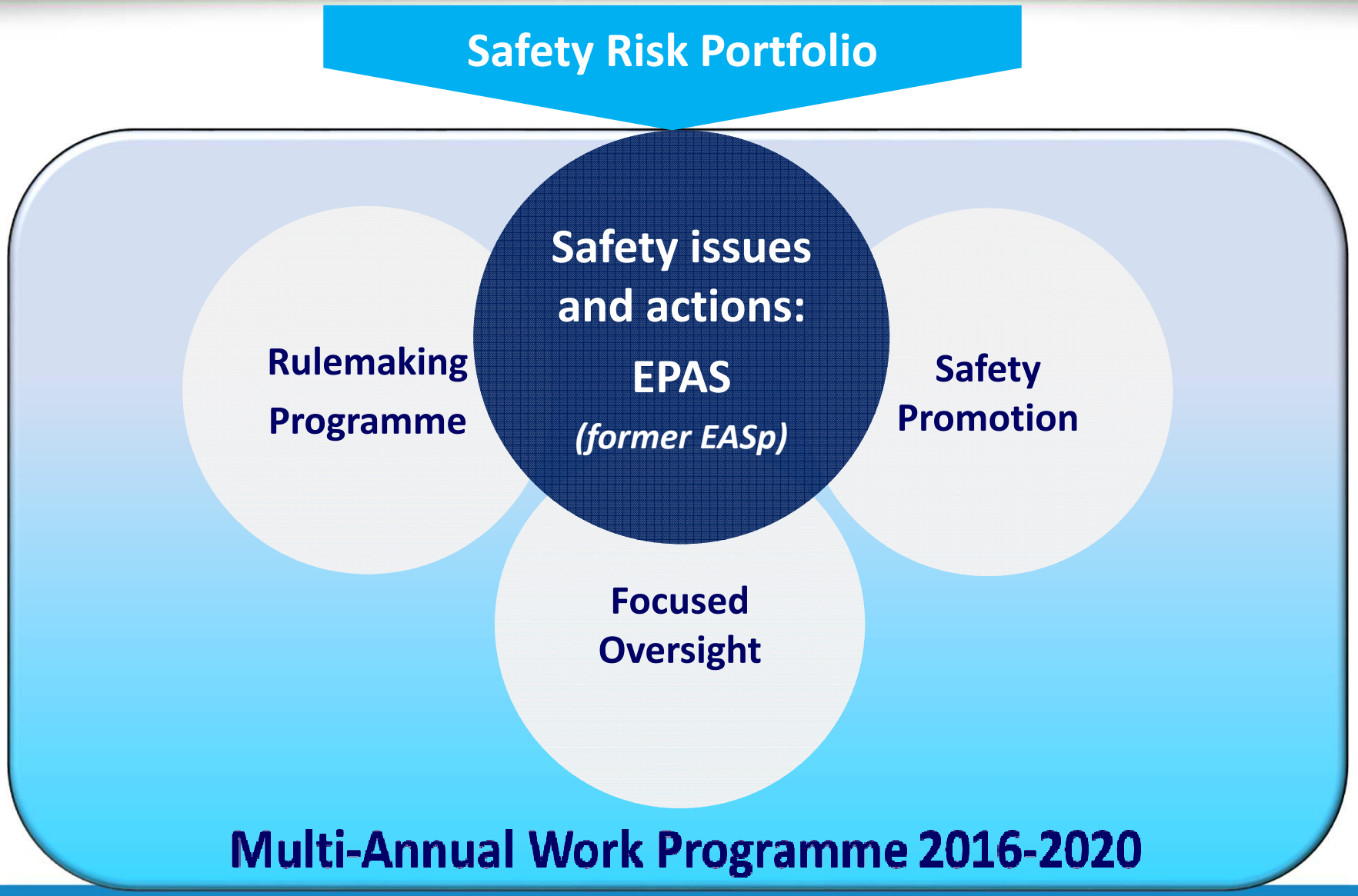
SRM Outcomes



1. Identification of Safety Issues
   - Accepted Safety Issue
2. Assessment of Safety Issues
   - Safety Risk Portfolio
   - Safety Analysis Reports
3. Definition and Programming of Safety Actions
   - EPAS
   - RMP
   - SPP
   - PIA Reports
4. Implementation & Follow-up
   - FABS/ESC reports
   - EPAS report
5. Safety Performance
   - ASR

SRM Outcomes

An *integrated* multi-annual programme for a new era of Safety planning



Identification of Safety Issues from Ocurrence data

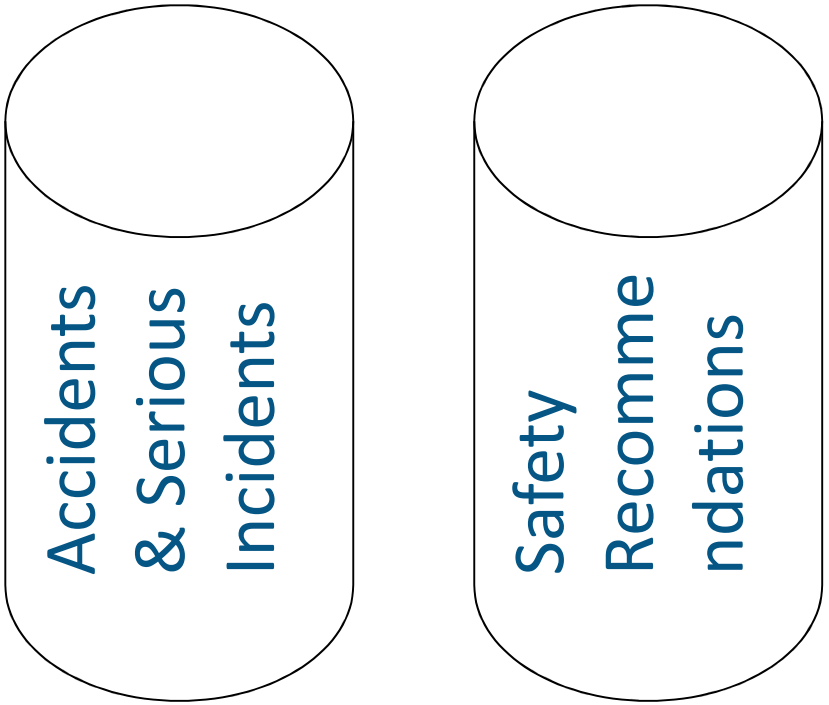
Type of Operation*

- *CAT (Fixes wing, Off-Shore helicopter…)
- Aerial Work (FW/helicopter)
- General Aviation (Gliders, Ballons, RPAS

Safety Issues

Risk Areas

(LoC-I, MAC, RE,…)

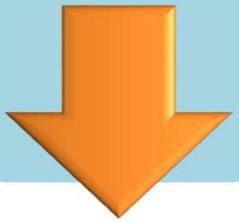


CAT Fixed Wing Portfolio

	CAT – Fixed Wing	SYS	Outcomes							
	Safety Issue		LOC-I	SCF	MAC	RE/A RC	GCOL/ RAMP	Fire	CFIT	RI
Operational	**Management of adverse weather conditions**		•			•	•		•	•
	Erroneous take-off and landing parameters		•	•		•				
	Inadequate handling of Go-Arounds		•			•			•	
	Inadequate recognition and recovery from aircraft warning system operation		•		•	•			•	
	Improper management of separation between aircraft		•		•		•			
	Improper fuel management		•	•		•			•	
	Incorrect maintenance		•	•	•	•	•	•	•	•
	Improper loading and dangerous goods handling		•	•			•	•		
	Inadequate ground handling activities (e.g. de-icing and servicing)		•				•			•
	Birdstrikes		•		•					
	Survivability and Evacuation		•			•	•	•	•	•
Technical	Technical failure in flight		•	•	•	•		•	•	
	Contamination of controls or critical surfaces		•	•		•				
	ILS false/disrupted signal capture		•	•		•				
	Unsuitability of Recording devices	•								
Human	**Inadequate crew situational awareness**	•	•		•	•	•	•	•	•
	Inadequate crew resource management (CRM), communication and decision-making	•	•		•	•	•		•	•
	Inadequate knowledge of aircraft systems and associated procedures	•	•		•	•			•	
	Inadequate monitoring of flight parameters/ automation modes		•		•	•			•	
	Crew impairment	•	•		•		•	•	•	•
Org.	Improper oversight	•								
	Inadequate management system (incl. procedures)	•								

Assessment of Safety Issues

	CAT – Fixed Wing	SYS	Outcomes							
	Safety Issue		LOC-I	SCF	MAC	RE/ ARC	GCOL/ RAMP	Fire	CFIT	RI
Ops.	Erroneous take-off and landing parameters		•	•		•				



Following Steps:

- Assessment of the Safety Issue
- Safety Actions and Impact
- Safety Performance Measurement

Safety Risk Portfolios

Already available

Commercial Air Transport Fixed Wing	Offshore Helicopters	General Aviation	Balloons

In preparation

RPAS	ATM/ANS	Aerodromes	Gliders	Airwothiness	Emerging Issues

Offshore Helicopter Portfolio

		Key Risk Areas (Outcomes)							
	Outcome Percentage of Fatal Accidents (Last 15 Years)	**27.8%**	**16.7%**	**13.9%**	**8.3%**	**5.6%**	**0%**	**0%**	**0%**
	Outcome Percentage of Non-Fatal Accidents (Last 15 Years)	**34.4%**	**8.2%**	**9%**	**4.9%**	**4.9%**	**4.1%**	**1.6%**	**0.8%**
Safety Area	**Safety Issues**	**System Failure**	**Aircraft Upset**	**Obstacle Conflict**	Terrain Conflict	Fire	Abnormal Runway (Landing Area) Contact and Excursions	Airborne Conflict	Incursions and Wrong Deck Landings
Operational	**Detection, Recognition and Recovery of Deviation from Normal Operations**		•	•	•	•	•	•	•
	Control of the Helicopter Flight Path and Optimal Operational Use of AFCS Capabilities		•	•	•		•	•	•
	Obstacle Clearance			•	•			•	
	Operation in Adverse Weather Conditions		•	•	•		•	•	•
	Fuel management	•	•						
	Flight Planning and Preparation		•	•	•	•	•	•	•
	Ground/ Helideck Operations	•	•	•		•	•		•
	Safe Landing Environment			•		•	•		•
	Helicopter Maintenance	•	•	•	•	•	•	•	•
Technical	Diagnosis of System Failures	•	•			•	•		
	Gearbox and Transmission System Reliability	•	•						
Consequences	Safe Forced Landings	•	•	•	•	•	•	•	•
	Safe Survival and Egress	•	•	•	•	•	•	•	•
Human Factors	**Flight Crew Perception and Awareness**		•	•	•		•	•	•
	CRM and Communication		•	•	•		•	•	•
	Knowledge and Competency of Individuals	•	•	•	•	•	•	•	•
	Personal Readiness	•	•	•	•	•	•	•	•
	Use of Rules and Procedures	•	•	•	•	•	•	•	•
Organisational	Crew Composition and Management		•	•	•		•	•	•
	SMS Implementation	•	•	•	•	•	•	•	•

GA Fixed Wing Portfolio

	GA - Fixed Wing	Total number of accidents in 2014 per safety issue	Key Risk Areas (Outcomes)													Total no. of accidents last 5 years
	Outcome Percentage of Fatal Accidents (2010-2014)		46%	20%	13%	10%	9%	4%	4%	3%	3%	3%	2%	2%	1%	0%	399
	Outcome Percentage of Non-Fatal Accidents (2010-2014)		9%	1%	1%	1%	15%	50%	2%	15%	5%	4%	5%	1%	12%	6%	2426
	Safety Issues		Aircraft Upset in Flight	Post impact fire	Terrain Conflict	Low altitude operations	Engine Failure	Abnormal Runway Contact and Excursions	Airborne Conflict	System Failure	Obstacle Conflict	Human factors	Fuel and Icing	Abrupt manouvre	Aircraft Upset on Ground	Ground Ops	Number of occurences per safety issue in 2014
Operational	Detection, Recognition and Recovery of Deviation from Normal Operations	66	31%	5%		6%	6%	16%			1%			1%	14%		86
	Control of manual aircraft flight path	65	14%				2%	33%		5%	2%				12%		42
	Hard landings due to incorrect action and perception of the situation	33	4%	2%				47%		9%	2%	4%			6%		53
	Flight planning and preparation	25	18%	8%	3%	3%		13%	5%			5%	11%		11%	5%	38
	Influence of weather factors	24	11%					37%		5%	3%		13%	5%	18%		38
	Unstable approach	19	4%					75%		4%	4%			4%			28
	Fuel planning and management	7										13%	88%				8
	Checklist and procedure adherence	6						33%				22%			11%	11%	9
	Intentional low flying	5	33%	8%	8%	33%	8%					8%					12
	Aircraft loading and CofG	5	43%	29%				29%									7
	Maintenance procedures not followed	4					40%			40%		20%					5
	Bird strike	3						40%									5
	Level bust	2				20%			40%					40%			5
Technical	Engine shut-down during flight	49	9%	1%	1%	1%	64%	8%		1%	3%	3%	3%	1%	1%		77
	Landing gear system malfunction	28						30%		64%					4%		47
Human	Decision making and planning	50	10%	5%	4%	6%	2%	29%	2%	2%	6%	4%	4%	2%	8%	7%	83
	Perception and Monitoring	45	7%	2%		4%	1%	43%	2%	5%	9%	6%	1%	1%	8%	3%	108
	Over confidence or lack thereof	6	10%			20%		20%				10%			20%	20%	10
	Pressure during operation	5	13%					75%							13%		8
	Navigation during operation	3							29%			14%		29%			7

Balloon Safety Risk Portfolio

		Key Risk Areas (Outcomes)				
	Outcome Percentage of Accidents (Last 5 Years)	**36%**	**17%**	**7%**	**4%**	**3%**
Safety Area	**Safety Issues**	**Abnormal Runway Contact and Landing Injuries**	**Obstacle Conflict**	**Fire**	**Balloon Control**	**Airborne Conflict**
Operational	Operation in Diverse Weather Conditions	•	•		•	
	Control of the Balloon Flight Path and Management of Balloon Inertia	•	•		•	•
	Maintaining Adequate Separation Between Balloons During Mass Launches					•
Technical	Propane System Fire			•		
	Visibility of Exterior Registration Markings in Mass Balloon Launches					•
Human Factors	Knowledge and Competency of Individuals – Particularly Related to Balloon Physics	•	•		•	•
	Flight Crew Planning and Decision Making	•	•		•	•
	Commercial and Competitive Pressure on Balloon Operations	•	•			•
	Communications Between Balloons During Mass Launches					•
Organisational	Passenger Safety Knowledge	•	•		•	•
	Availability of Operational Documentation and Marking of Hazards	•	•			•

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Thank you

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EASA is an agency of the European Union