

Implementing Effective SRM Process

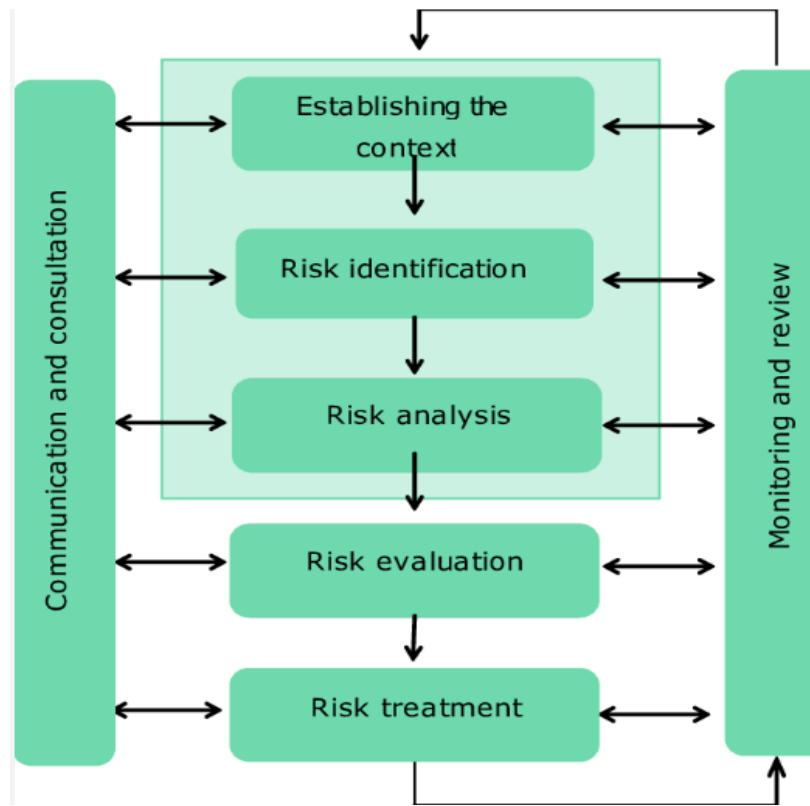
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State Safety Risk Management

- ❑ States shall establish and maintain a process to identify hazards from collected safety data.
- ❑ States shall develop and maintain a process that ensures the assessment of safety risks associated with identified hazards.



Safety Risk Management (SRM) Framework



State needs to establish SRM Framework, which would enable the risk-guided modus operandi

would help State allocate its resources intelligently in line with its mission across the air transport system and all organizational functions

- Making sure all possible safety data and safety information could be captured and utilized
- Creating a holistic risk picture at various levels of aviation system
- Prioritization based on risk.

Safety Risk Management Framework Principles



Ensures that the SRM process supports State decision-making and would enable proactive SRA

Systematically prioritizing resources towards the most significant safety risks

helps States meet ICAO SSP requirements pertaining to State SRM as prescribed in ICAO Annex 19 requirements

Safety Risk Management Governance

Management and execution of the SRM Process is supported by decisions, intelligence, actions and resources at all levels of the SSP, throughout the lifecycle of the process.



Example

Safety Data Analysis & Monitoring Team

Safety Risk Assessment & Advisory Groups (SRAAGs)

State-Industry Collaborative Risk Workshop Groups (CRWGs)

Safety Risk Steering Committee (SRSC)

Aviation Domains



Commercial air transport fixed-wing operations (OPS CAT FW)

Commercial air transport rotary wing operations (OPS CAT RW)

Air navigation services (ANS/ATM)

Aerodromes and ground aids (ADR)

Ground handling (GH)

Fight training (ATO)

General and recreational aviation (OPS GA)

Commercial air transport airworthiness (AIR CAT)

Security

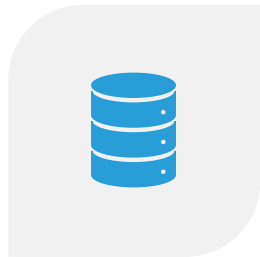
Safety Risk Management Process

- Enables risk assessment and mitigations of significant safety risks.
- SRM process and its supporting tools to be developed to consider, prioritize and manage strategic safety risks.
- The SRM process to be used with both internal and external stakeholders where management of safety risks is undertaken collaboratively with industry partners.

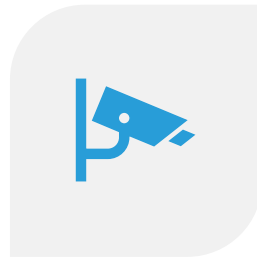


An Integrated Approach-SRM

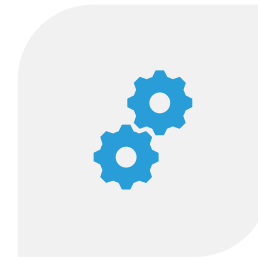
- The SRM process is driven by inputs and outputs from a variety of stakeholders throughout State's aviation system
- SRA work relies on the involvement and expertise of State SMEs in all areas as well as industry experts and the data available to them as it focuses on the identification of system risks



Safety Data &
information Integration



Surveillance
Programme Integration



Industry integration

Risk Assessment Methodologies-Examples

1. Traditional Safety Risk Assessment

Safety Risk		Severity				
Probability		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely improbable	1	1A	1B	1C	1D	1E

2. ARMS- Event Risk Classification (ERC)

Question 2 What was the effectiveness of the remaining barriers between this event and the most probable accident scenario?				Question 1 If this event had escalated into an accident, what would have been the most probable outcome?		Typical accident scenarios
Effective	Limited	Minimal	Not effective	Catastrophic Accident	Loss of aircraft or multiple fatalities (3 or more)	
90	100	100	1000	Major Accident	1 or 2 fatalities, multiple serious injuries, major damage to the aircraft	Loss of control, bird air collision, uncontrolled fire on board, explosions, total structural failure of the aircraft, collision with terrain
10	21	101	500	Minor injuries or damage	Minor injuries, minor damage to aircraft	High speed taxiway collision, major hull/structure injury
2	4	20	100	No accident outcome	No potential damage or injury could occur	Pushback accident, minor weather damage
1						Any event which could not escalate into an accident, even if it may have operational consequences (e.g. diversion, delay, individual sickness)

3. European Risk Classification Scheme (ERCS)

Severity		Classification (ERCS Score)															
Potential Accident outcome	Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extremely catastrophic accidents with the potential for significant number of fatalities (1000+)	X	0.0001	0.001	0.01	0.1	1	10	100	1000	10000	100000	1000000	10000000	100000000	1000000000	10000000000	100000000000
Significant accidents with potential for fatalities and injuries (100-1000)	S	0.00001	0.0001	0.001	0.01	0.1	1	10	100	1000	10000	100000	1000000	10000000	100000000	1000000000	10000000000
Major accidents with limited amount of fatalities (2-10), life changing injuries or destruction of the aircraft	M	0.000001	0.00001	0.0001	0.001	0.01	0.1	1	10	100	1000	10000	100000	1000000	10000000	100000000	1000000000
Single fatality, life changing injury or substantial damage	I	0.0000001	0.000001	0.00001	0.0001	0.001	0.01	0.1	1	10	100	1000	10000	100000	1000000	10000000	100000000
No accidents/fatality minor and serious injury (life changing) or minor aircraft damage	E	0.00000001	0.0000001	0.000001	0.00001	0.0001	0.001	0.01	0.1	1	10	100	1000	10000	100000	1000000	10000000
No likelihood of an accident	A	No implication to Safety															
Corresponding Barrier Score		9	8	7	6	5	4	3	2	1	0						
Barrier Weight sum		17-18	15-16	13-14	11-12	9-10	7-8	5-6	3-4	1-2	0						

4. ARMS- Safety Issue Risk Assessment (SIRA)

	Stop	CANCELLATION OF OPERATION UNTIL RISK MITIGATING MEASURES HAD BEEN IMPLEMENTED
	Improve	IMPLEMENT RISK MITIGATING MEASURES AND MONITOR THE OPERATION
	Secure	CONTINUOUS MONITORING OF OPERATION TO DETECT IF RISK INCREASE TO UNACCEPTABLE LEVELS
	Monitor	REGULAR MONITORING OF OPERATION ADEQUATE TO EACH PROCEDURE
	Accept	NO SPECIFIC ACTION IS REQUIRED

Safety Risk Register

Group

	Domain/Sector	Source	Occurrence Classification	Occurrence Category	Remaining Risk Controls	ERC			Safety Issue States	Safety Issue ID	Safety issue (SI) title	Hazard Generic Term	Hazard Specific Term	Consequence and Potential Outcome	Preventing Risk controls	Recovery Risk Controls	SIRA			Risk Owner	Target Date	Completed Date	Monitoring and review date
						Prob	Event	Risk Index									Prob	Event	Risk Index				
1																							
2																							
3																			1A				

Safety Risk Register

- A safety risk register is a systematic and comprehensive tool used to identify, assess, and categorize safety issues/hazards and risks associated with aviation operations:
 - are list of safety issues that need to be mitigated at State level.
 - form an essential component of the SRM process.
 - serves as a knowledge base for stakeholders,
 - enhancing communication and collaboration between regulatory bodies and industry partners

RISK MANAGEMENT



Safety risk mitigation strategies

- **Avoidance:** The operation or activity is cancelled or avoided because the safety risk exceeds the benefits of continuing the activity, thereby eliminating the safety risk entirely.
- **Reduction:** The frequency of the operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of the safety risk.
- **Segregation:** Action is taken to isolate the effects of the consequences of the safety risk or build in redundancy to protect against them.

Generate Creative Ideas for Safety Risk Mitigation Measures



Requires creativity, ingenuity
and above all, an open mind



Consider all possible solutions



Broad participation from all
stakeholders



Thinking outside the “box”

The results of the SRM Process at State Level



National aviation safety plan (NASP) update



Selection of priorities for the oversight plan and planning of oversight



Updating the national SPIs and assessments of service providers' performance



Selection of priorities for safety promotion and planning of promotion



Prioritization and content of aviation events organized by state

Thank You

