Session 3

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civil air navigation services organisation

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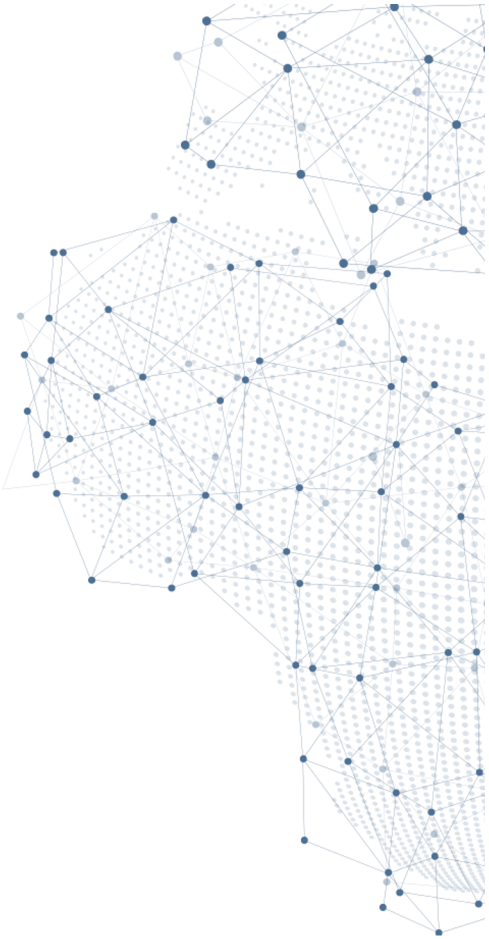
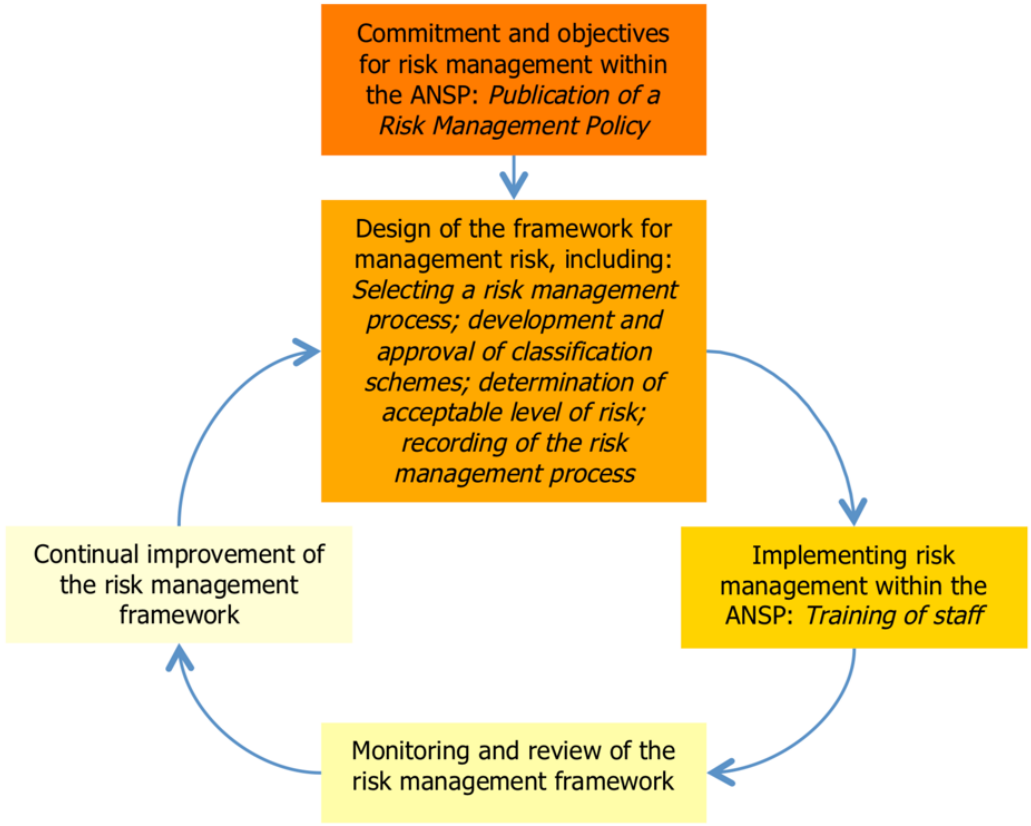
SAFETY RISK MANAGEMENT:
Risk Management Process



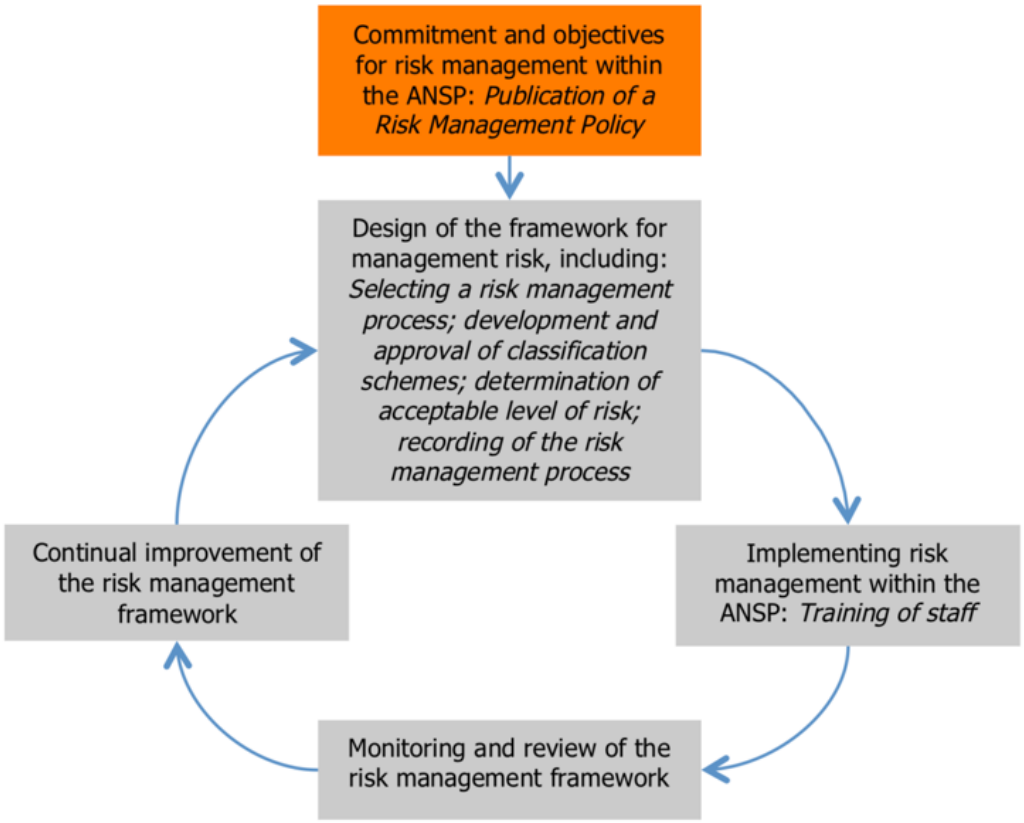
Safety Risk Management

- ***Risk*** - the composite of the predicted severity and probability of the potential effect of a hazard in the worst credible system state.
  - ***Severity*** – a measure of how bad the results of the worst credible outcome if an event are predicted to be
  - ***Probability*** – expression of how often an event is expected to occur
  - ***Worst credible effect*** – most unfavourable conditions in which the risk could realistically occur

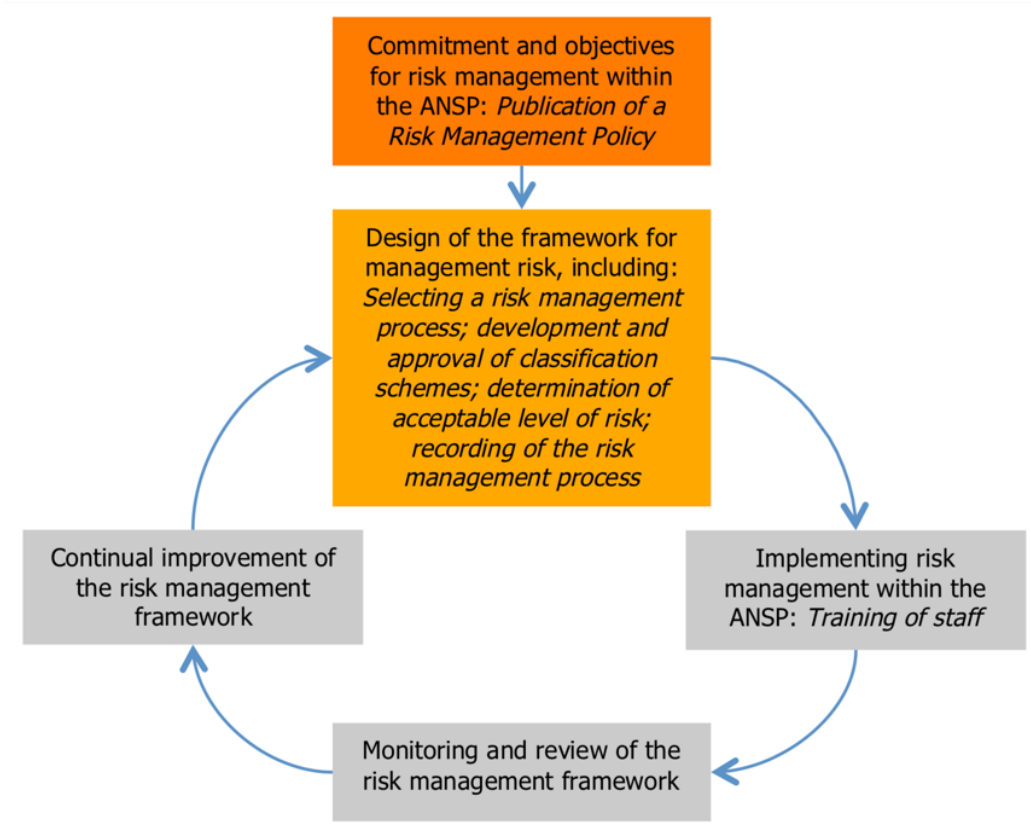
Framework for Managing Risk



Commitment to and Objectives for Risk Management

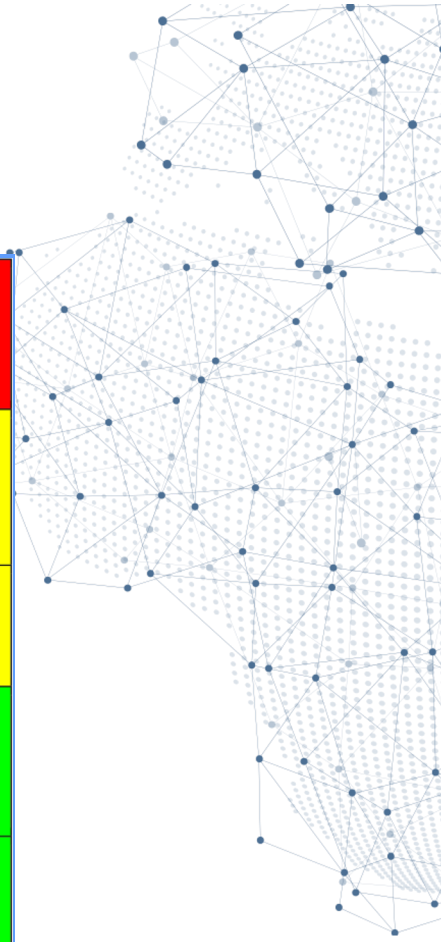


Designing a Framework for Managing Risk



Assessing Risk Severity

Severity Class 1	Inability to provide any degree of air traffic control in one or more airspace sectors. A situation from which recovery is limited to only the pilot or providence. Air traffic control barriers are totally ineffective.
Severity Class 2	Ability to maintain air traffic control is severely compromised within one or more airspace sectors. A situation from which some opportunity for recovery is provided within the air traffic control system, but this recovery may not always be effective.
Severity Class 3	Ability to maintain air traffic control is impaired within one or more airspace sectors. A situation from which opportunity for recovery is available within the air traffic control system and this recovery is likely to be effective.
Severity Class 4	Ability to maintain air traffic control is not impaired. However, there is a lowering of risk margins. The situation needs to be reviewed for the application of contingency measures if the condition prevails.
Severity Class 5	Negligible or with little effect to air traffic control.



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Assessing Risk Probability

Probability of Occurrence		
Qualitative Definition	**Meaning**	**Value**
Frequent	Likely to occur many times *(has occurred frequently)*	5
Occasional	Like to occur sometimes *(has occurred infrequently)*	4
Remote	Unlikely, but possible to occur *(has occurred rarely)*	3
Improbable	Very unlikely to occur *(not known to have occurred)*	2
Extremely Improbable	Almost inconceivable that the event will occur	1

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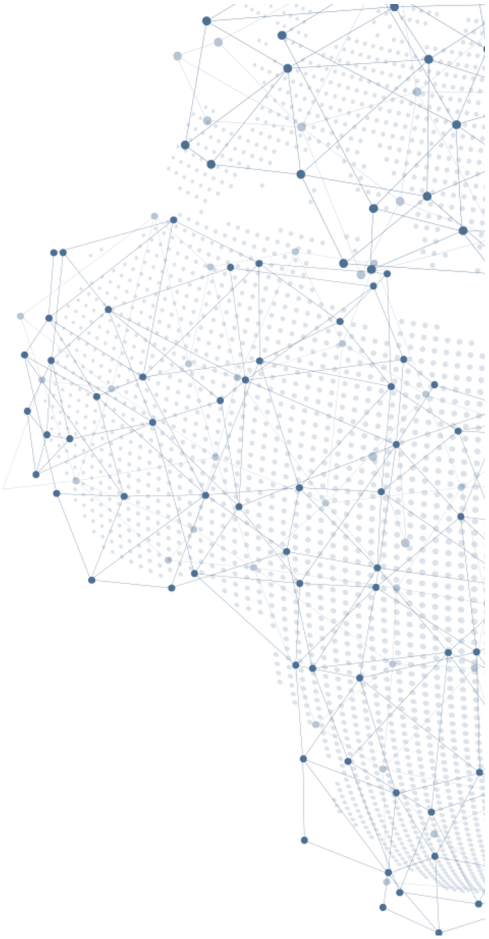
Risk Matrix

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

* Unacceptable with Single Point and/or Common Cause Failures

High Risk
Medium Risk
Low Risk



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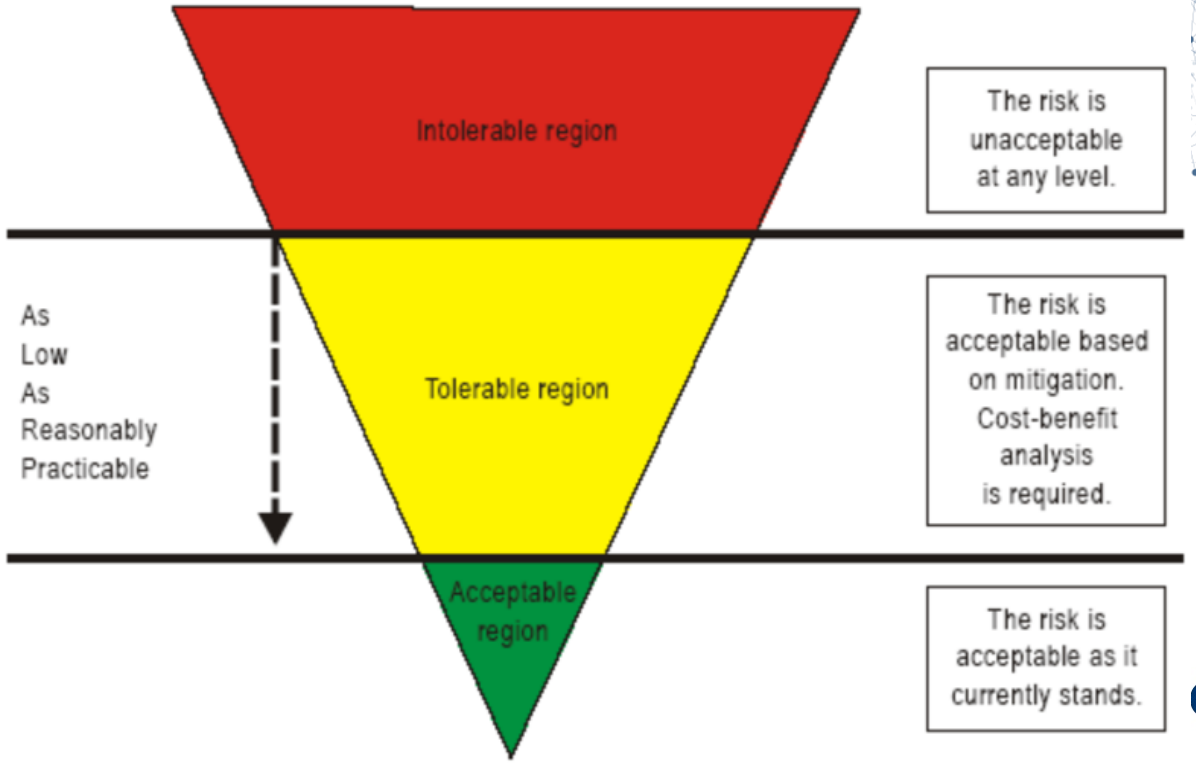
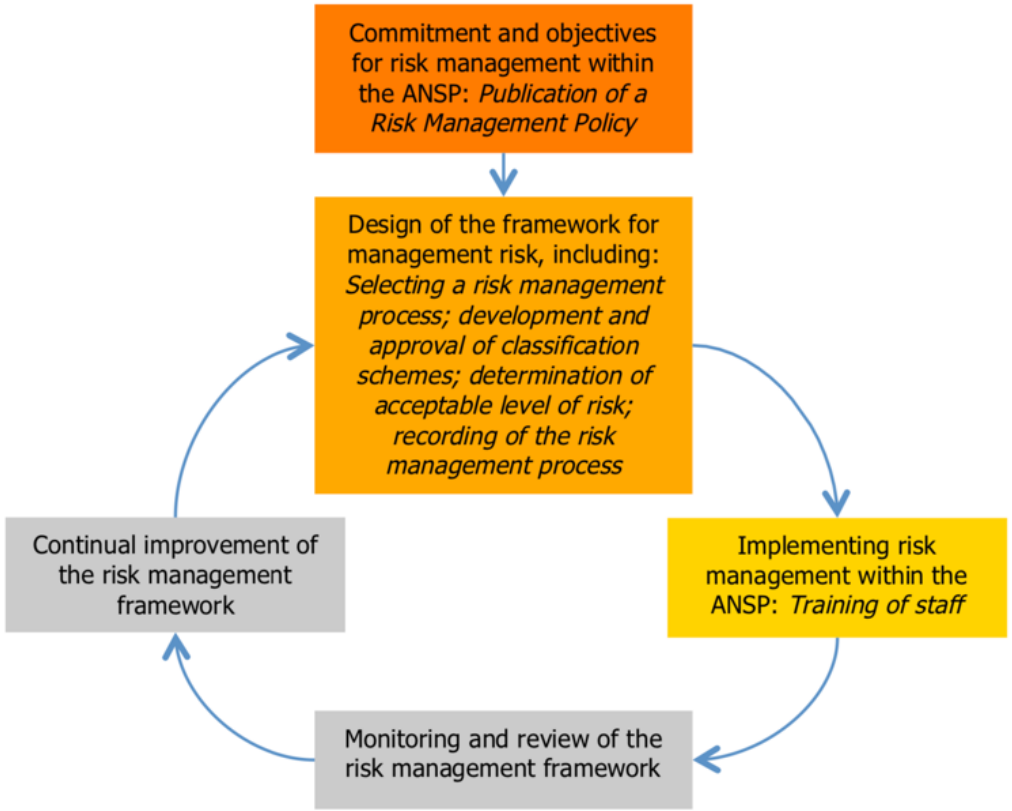
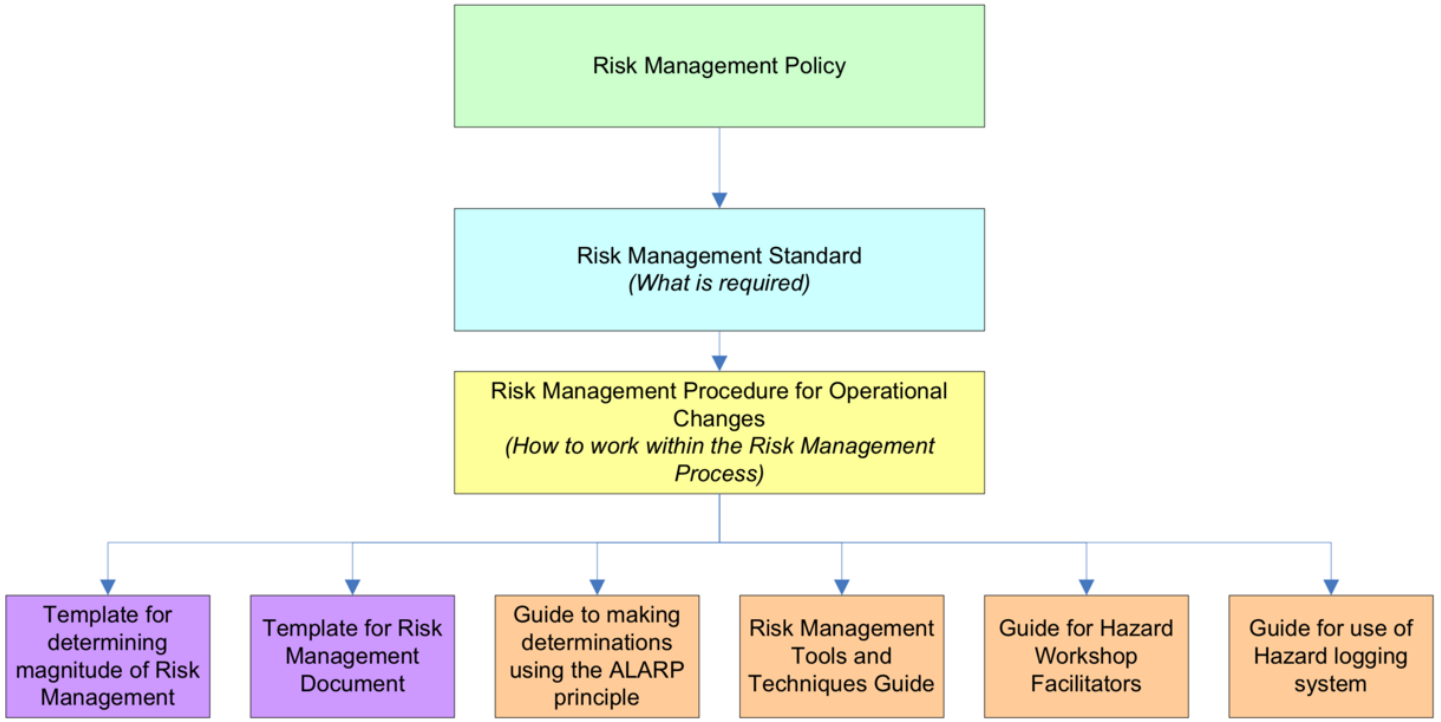
Acceptable Risk



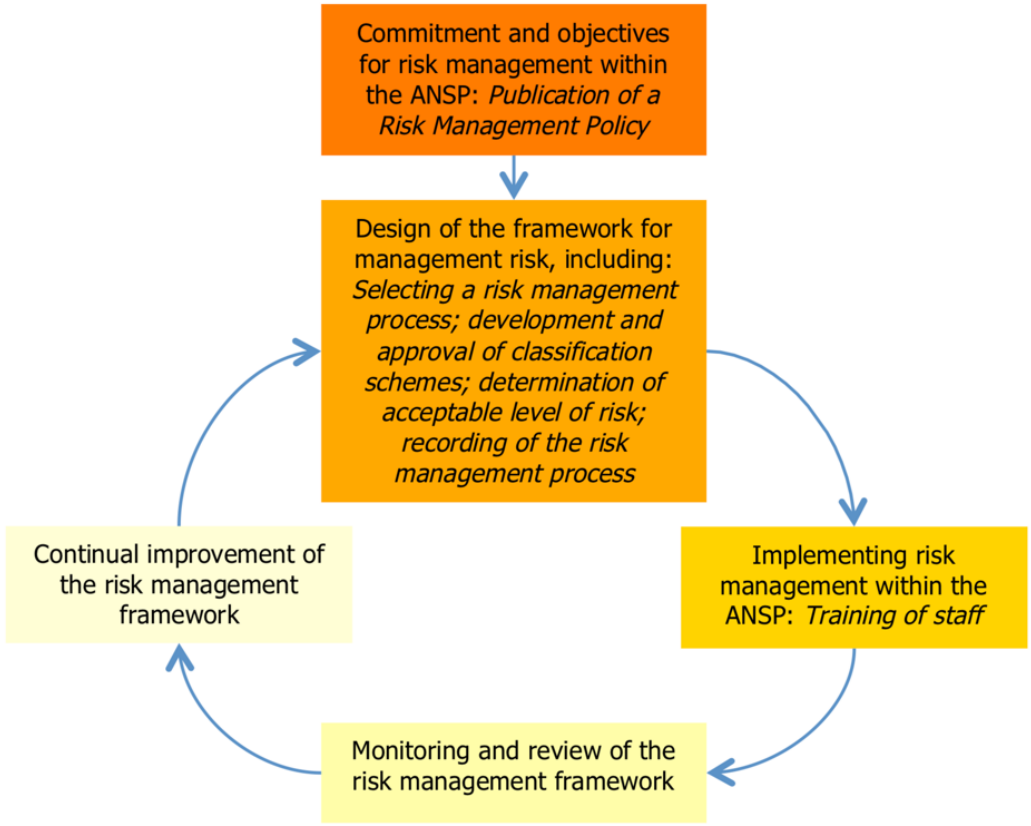
Implementing Risk Management



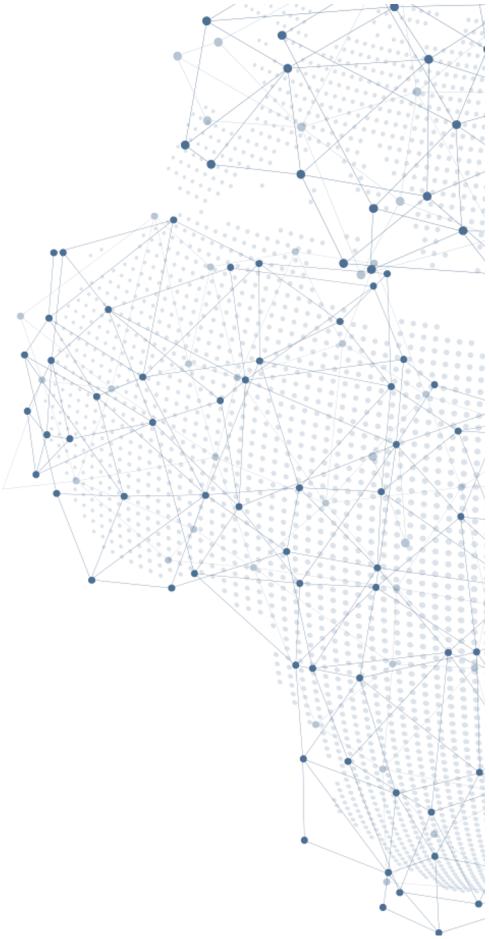
Risk Management Documentation



Monitoring and Continuous Improvement



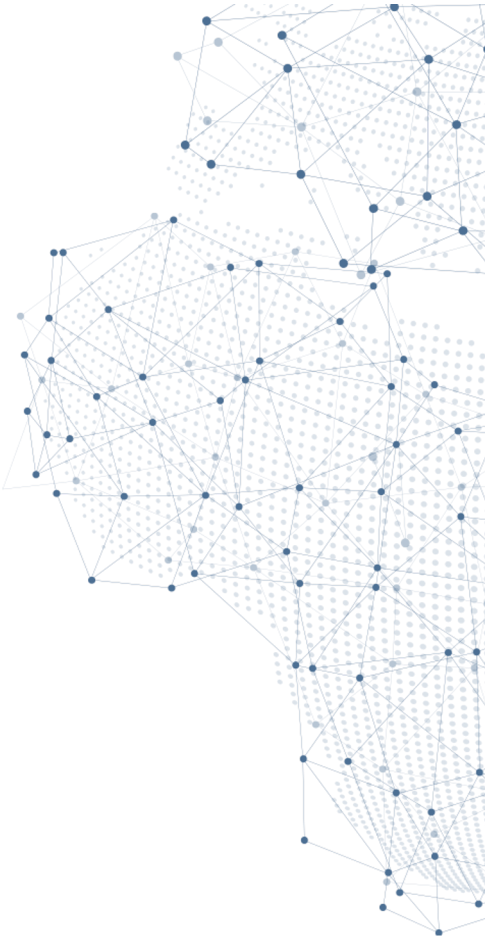
SAFETY ACHIEVEMENT



Safety Achievement

- Safety by Design
- Safety Interfaces
- Fatigue Risk Management

SAFETY ACHIEVEMENT:
Safety by Design

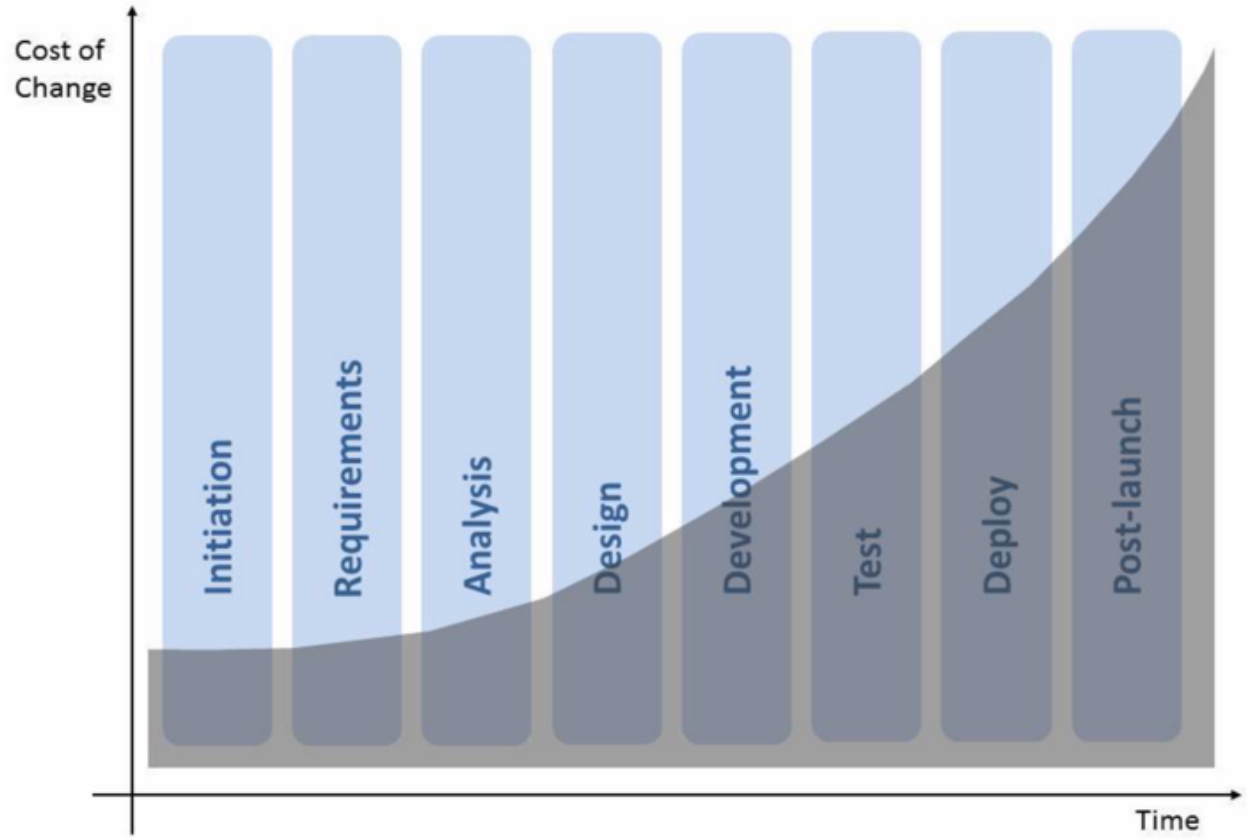


Safety by Design Philosophy

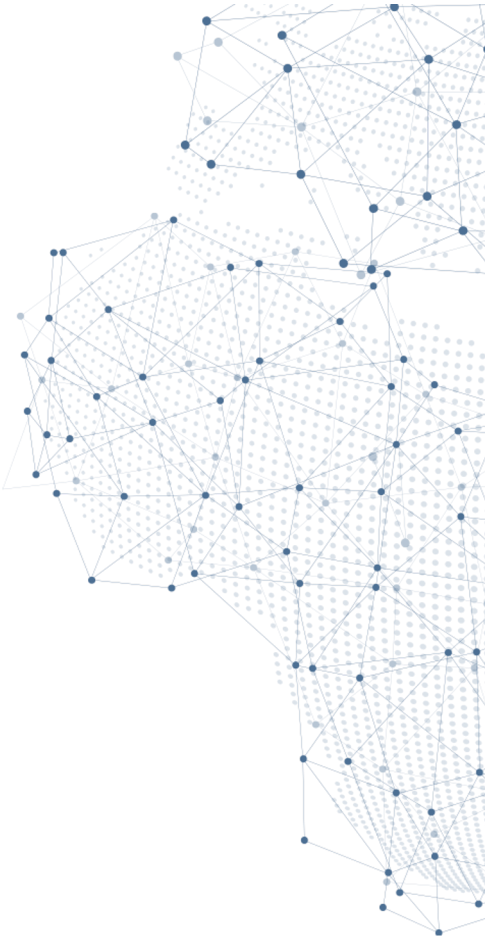
Application of a Safety by Design (SbD) philosophy in ANSPs has increasingly been used as a reaction to the growing need to:

- Drive risk levels down
- View changes in a total system context
- Build ‘safety attributes’ into every system
- Address know and anticipated human performance issues

Safety by Design Philosophy



SAFETY ACHIEVEMENT:
Safety Interfaces



Safety Interface`s

- The current state of and changes to services
- Implementation of new technologies
- Changes in the level of services at specific sites or in airspace managed by the ANSP

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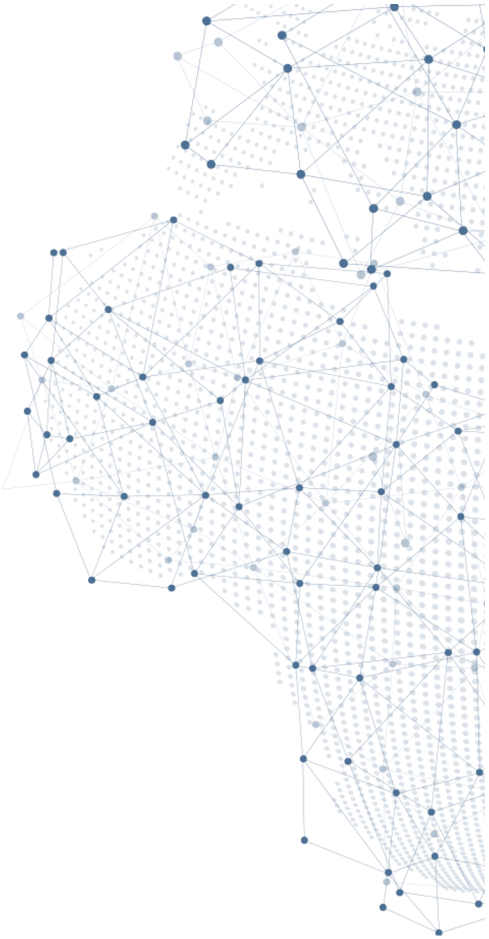
SAFETY ACHIEVEMENT:
Fatigue Risk Management



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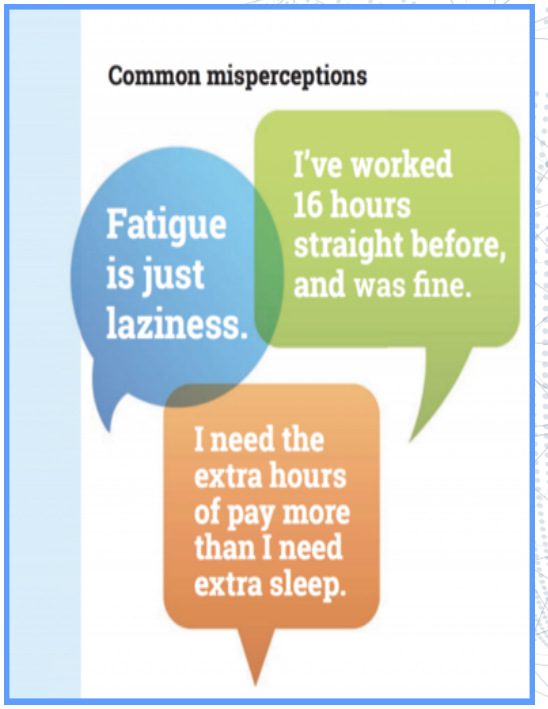
Fatigue Risk Management

- Fatigue risks need to be both understood and addressed in safety-critical industries
- There needs to be flexibility in how fatigue risks are controlled
- Prescriptive versus Risk-Based approach



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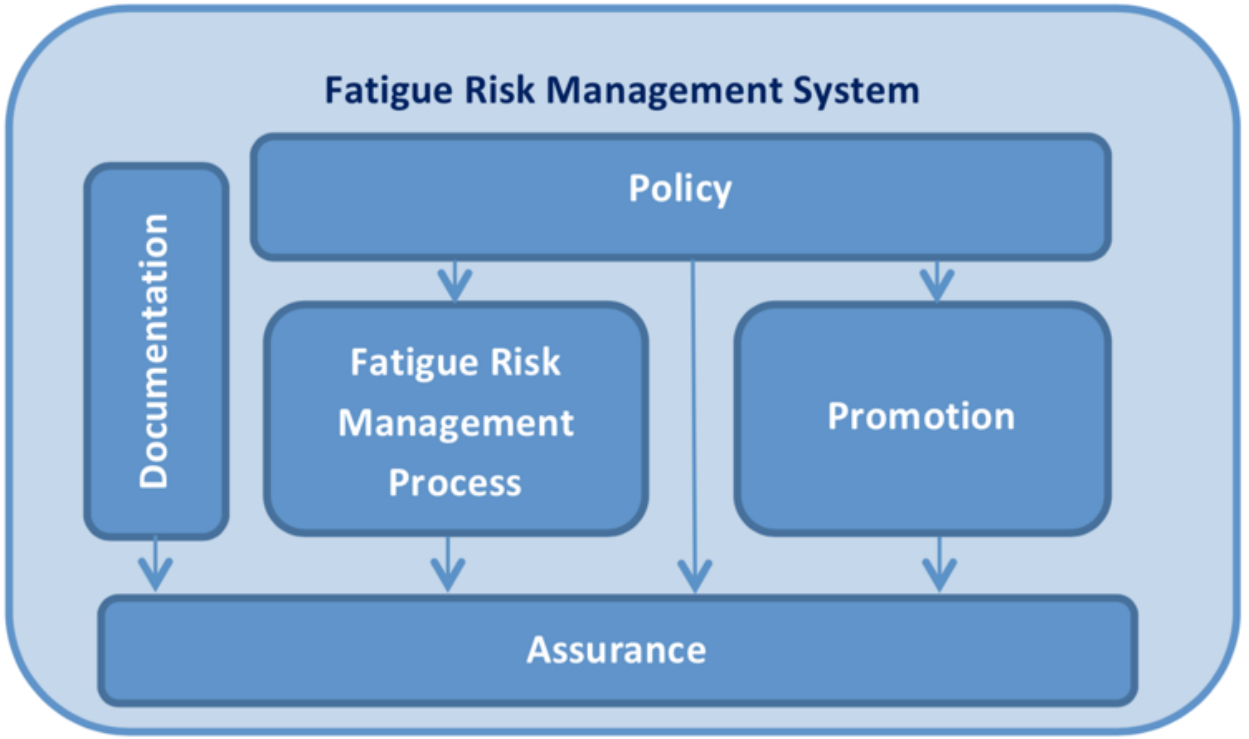
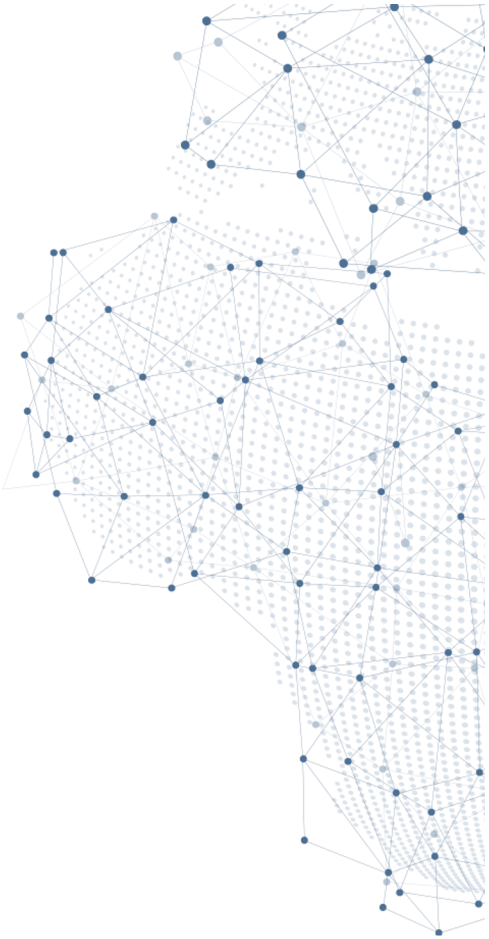
Fatigue Risk Management System (FRMS)



SAFETY ASSURANCE



Safety Assurance

- Safety Reporting, Investigation and Improvement
- Operational Safety Surveys and SMS Audits
- Safety Performance Monitoring
- Management of Change
- Continuous Improvement of SMS

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