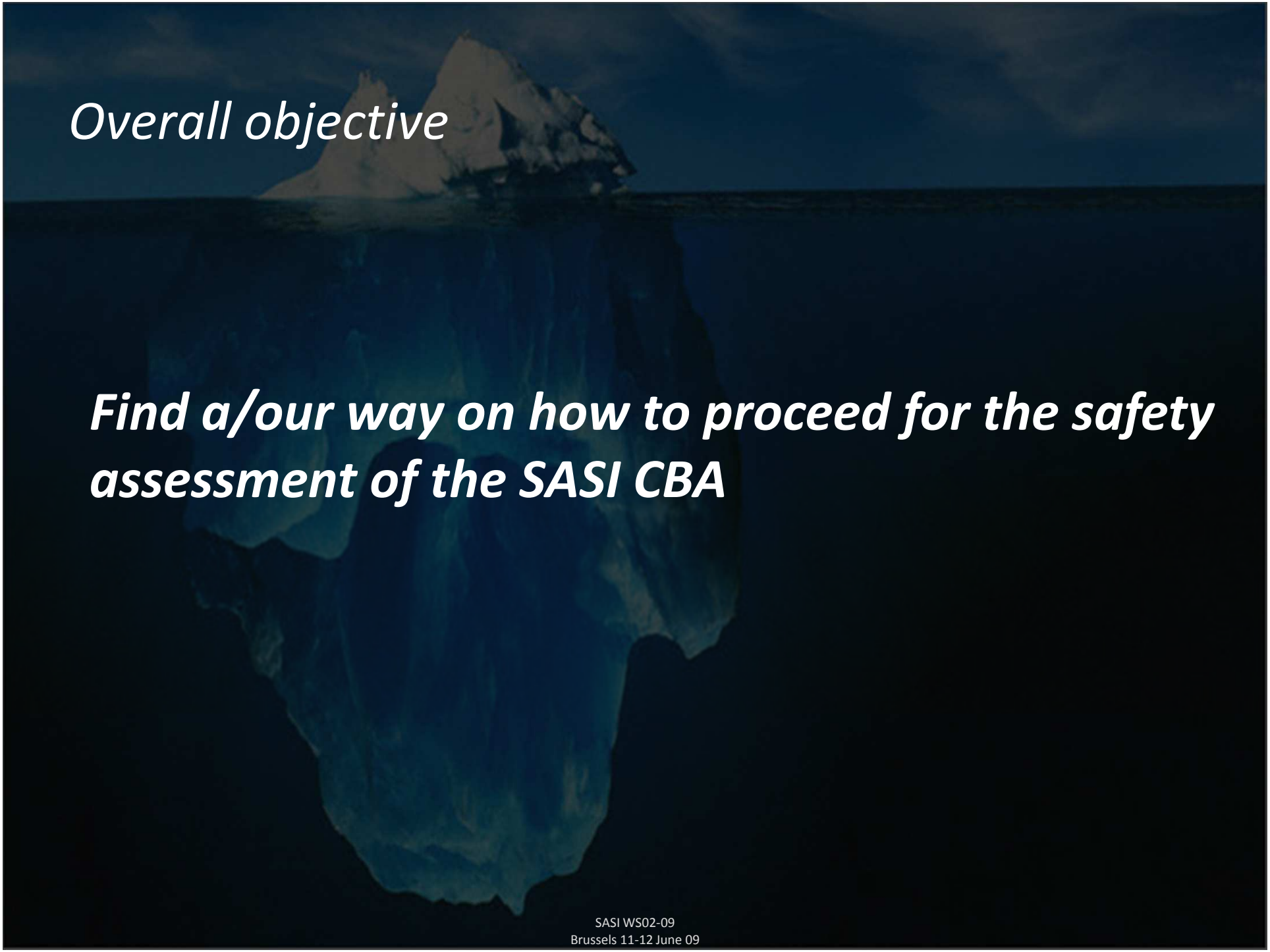
Safety case

for the

SASI CBA



Overall objective

Find a/our way on how to proceed for the safety assessment of the SASI CBA

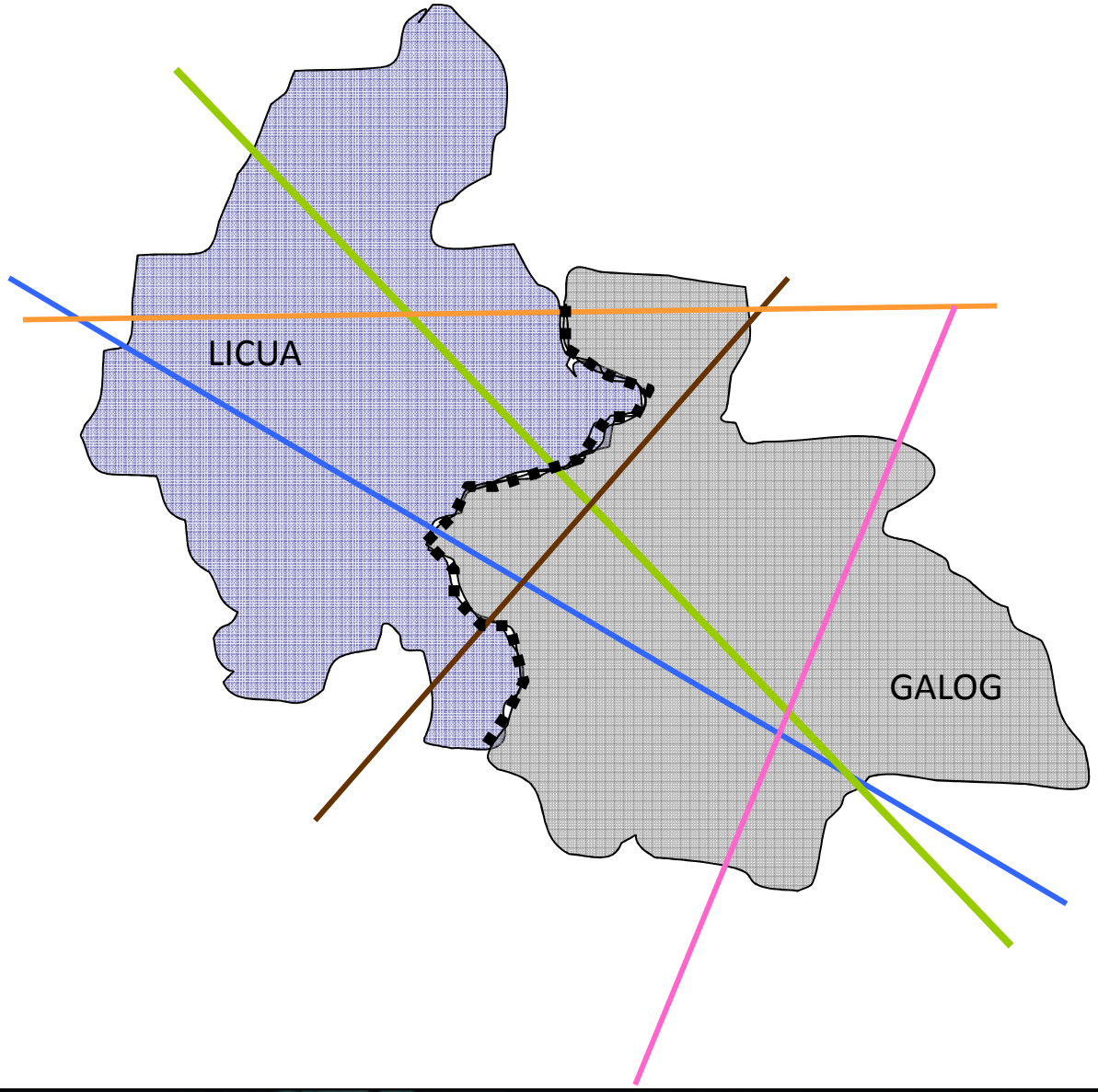
Ops Concept

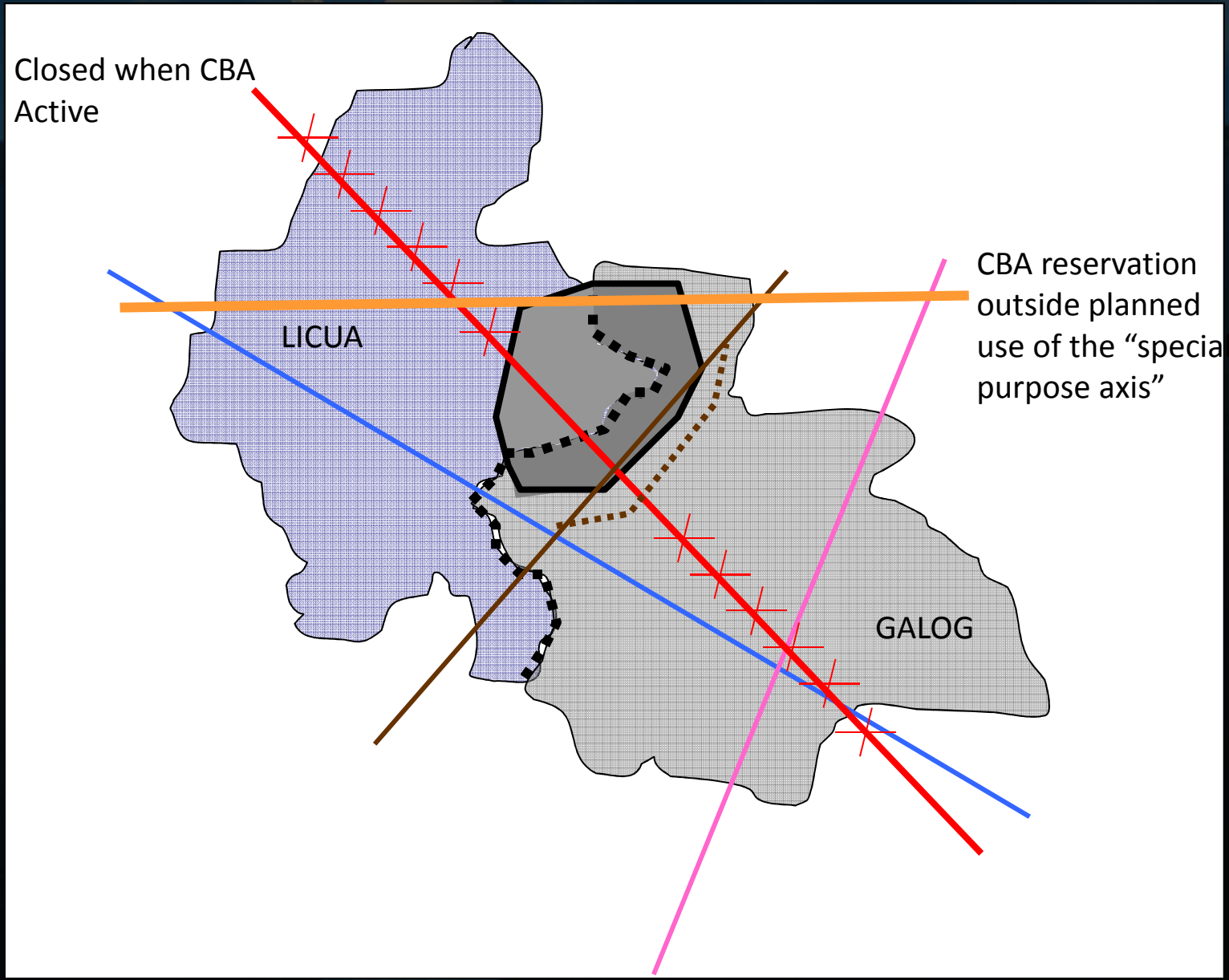
How do we proceed?

- ***Presentation by project (change) owner and questions audience***
- ***Referring to documents provided***

What shall we obtain?

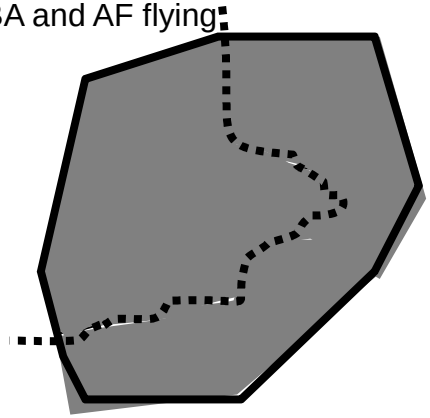
- ***Scope***
- ***Justification***
- ***Safety Criteria***
- ***(part of) assumptions***


LICUA
GALOG

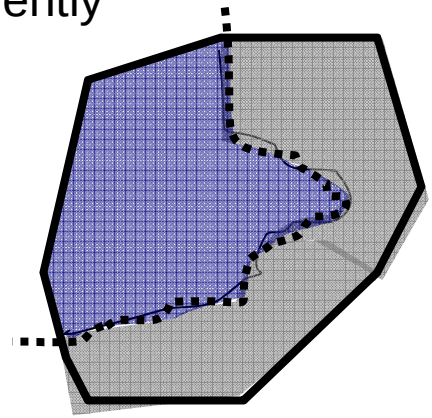

Closed when CBA Active
LICUA
CBA reservation outside planned use of the “specia
purpose axis”
GALOG

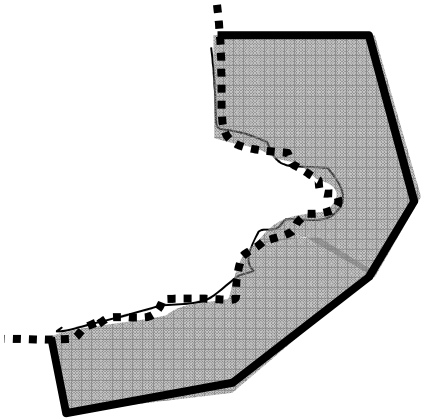
SASI CBA

Sub scenarios are built on combinations of MIL unit controlling in CBA and AF flying

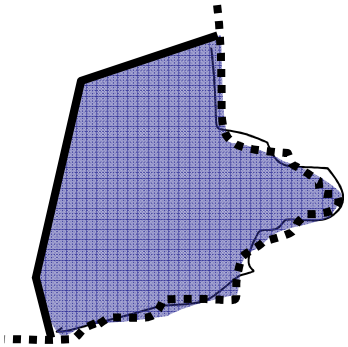


Both TSAs active independently

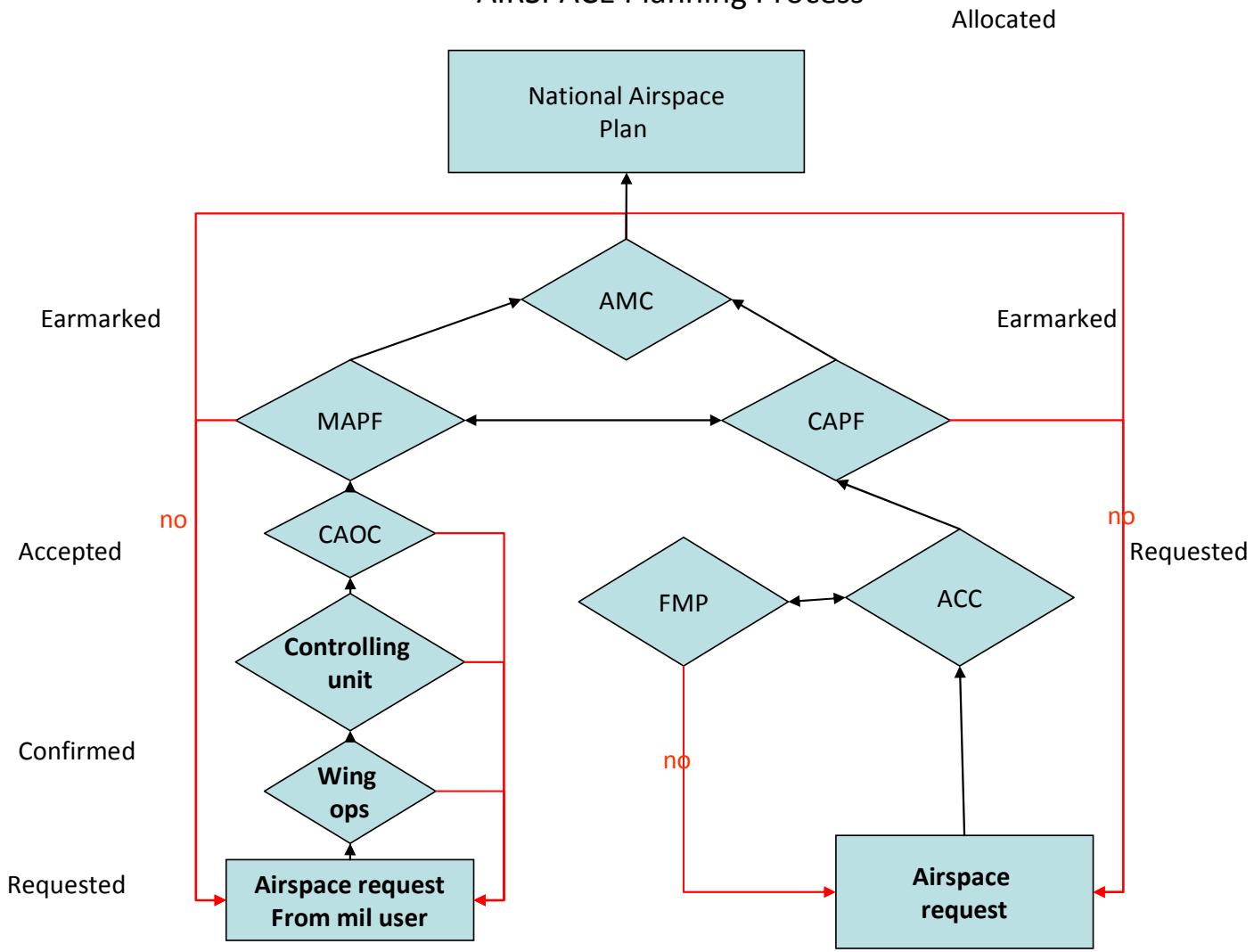




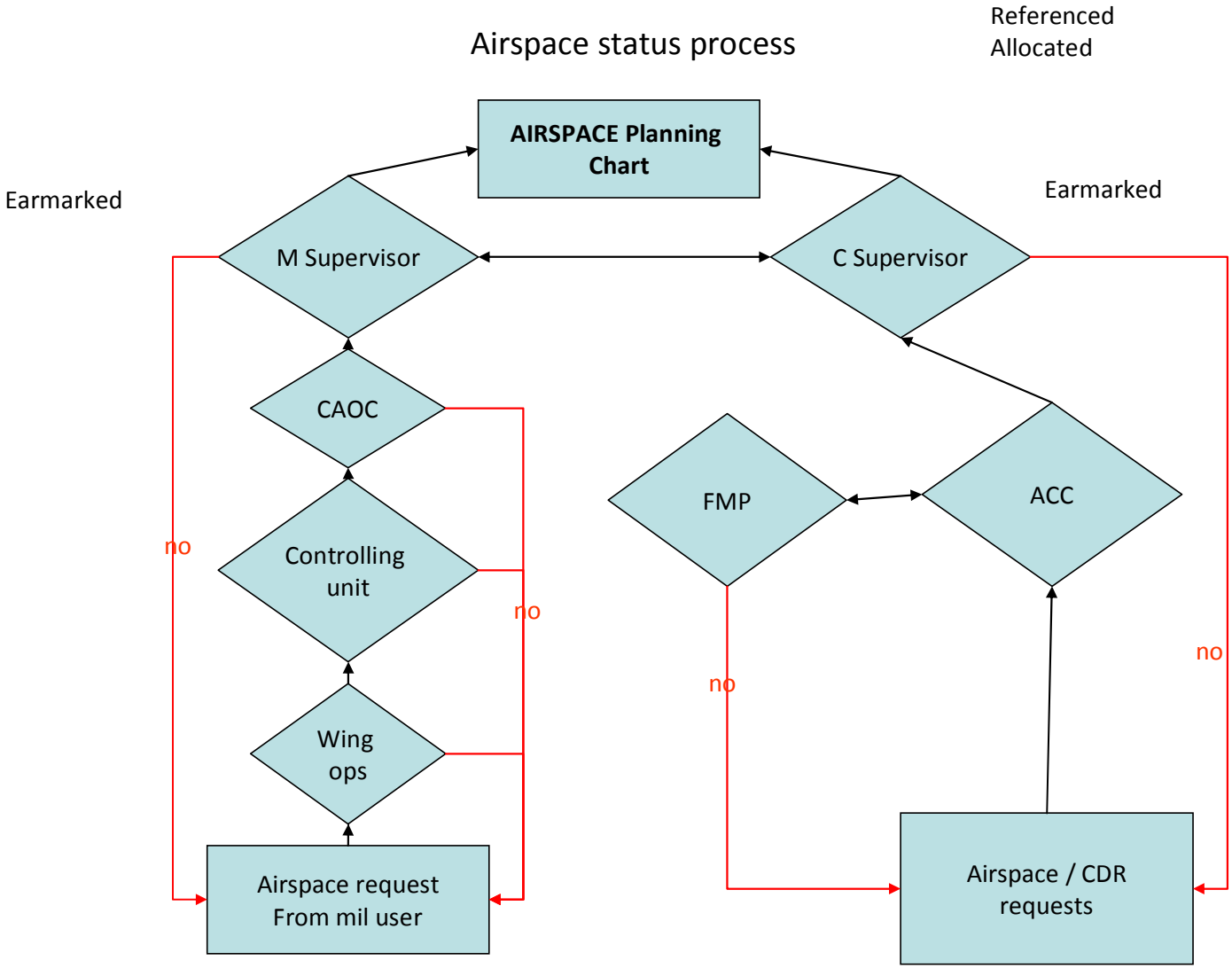
One or the other TSA active



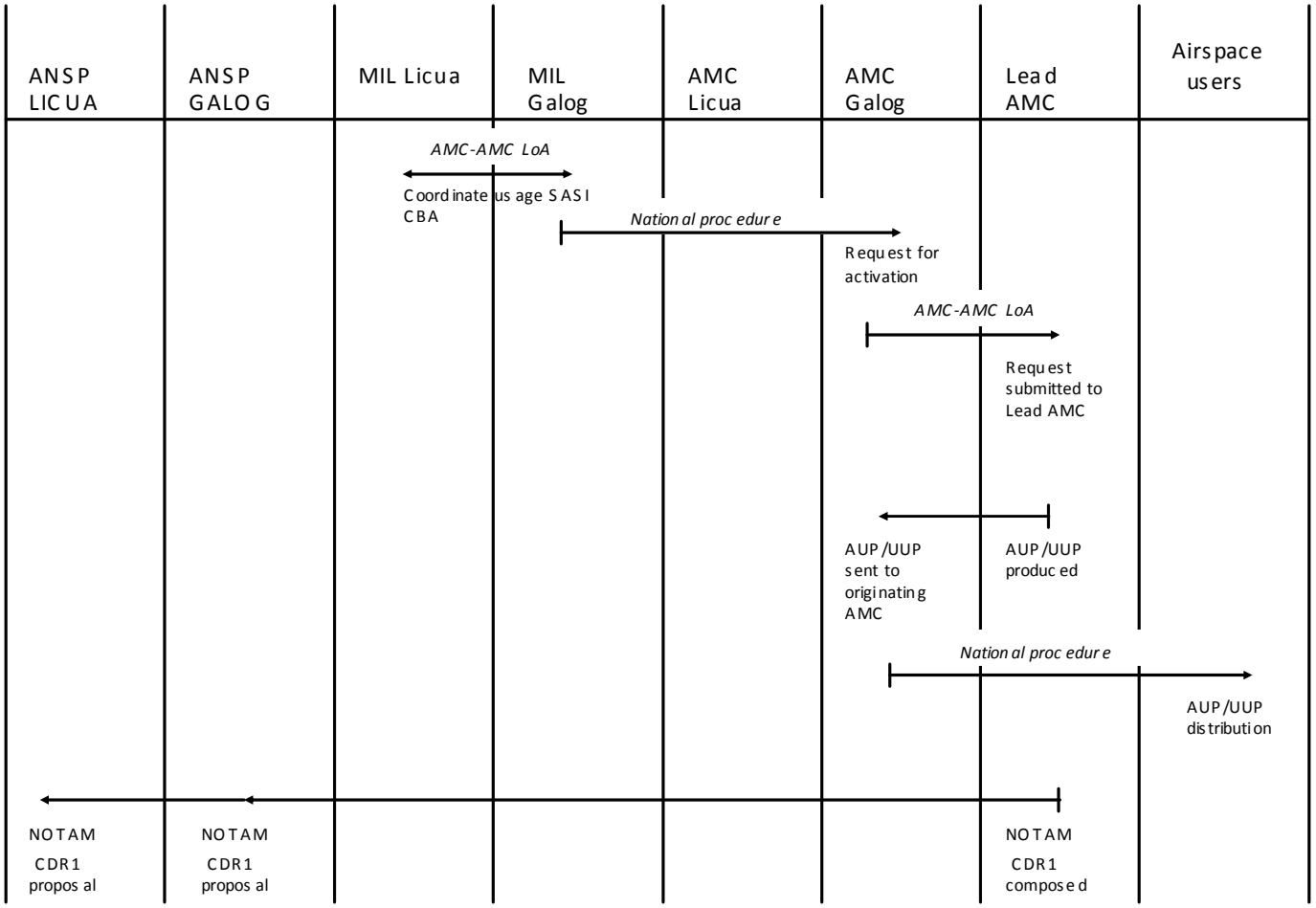
AIRSPACE Planning Process

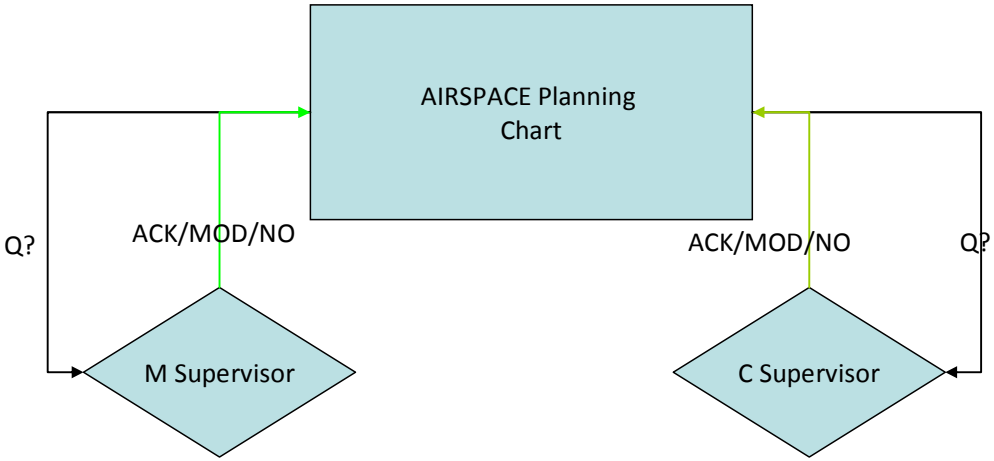


Airspace status process



Example request LicuaAF to utilise SASI CBA




AIRSPACE Planning
Chart
Q?
ACK/MOD/NO
ACK/MOD/NO
Q?
M Supervisor
C Supervisor

Safety considerations

How do we proceed?

Use of a simple Excel sheet to trigger discussion

What shall we obtain?

Training requirements (backing evidence)

Identification differences before/after the change

Requirements for H,E,P, airspace

Identification of Regulatory, liability etc issues

(part of) assumptions

Environment of operations (initial descritption)

Identify interfaces

Major/minor change

Safety considerations

Environmental description/ gap analysis							current operations	future operations [OCD-ORD]	Gap	impact on safety assessment	training gap
1.	equipment										
	1.1	communications									
CHANGE		1.1.1	air-ground					ared testing		relates to the comprehensive protocols and results to provide evidence	Training: Supervisors & ATCOs to be fully familiar with system capabilities
			1.1.1.1	microwave link						redundancy level?	
			1.1.1.2	land lines						redundancy level?	
			1.1.1.3	satellite				?			
			1.1.1.4	remote transmitters				old ones/ new ones			
			1.1.1.5	data-link							
			1.1.1.6	frequencies							
			1.1.1.7	radio coverage				affected e.g. improved ared calibration?			
			1,1,1,8	HMI				new R/T and Inf HMI			ATCOs to be fully conversant with HMI
CHANGE		1.1.2	ground-ground							relates to the comprehensive protocols and results to provide evidence	
			1,1,2,1	telephone				new system			
			1,1,2,2	HMI				new system			ATCOs to be fully conversant with

Initial Safety Argument

How do we proceed?

Go through the SC structure argument per argument and identify potential evidence

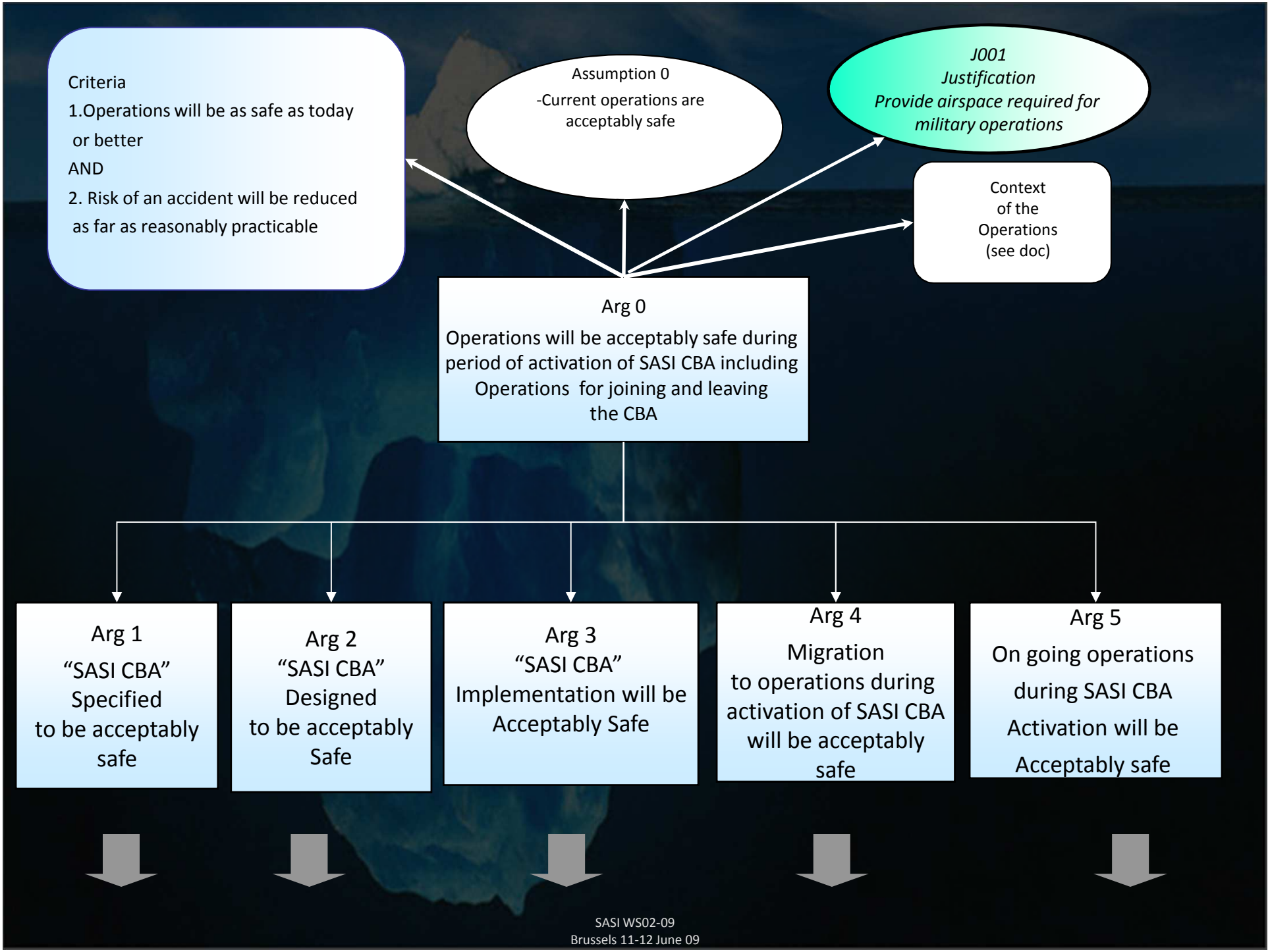
Refine argumentation

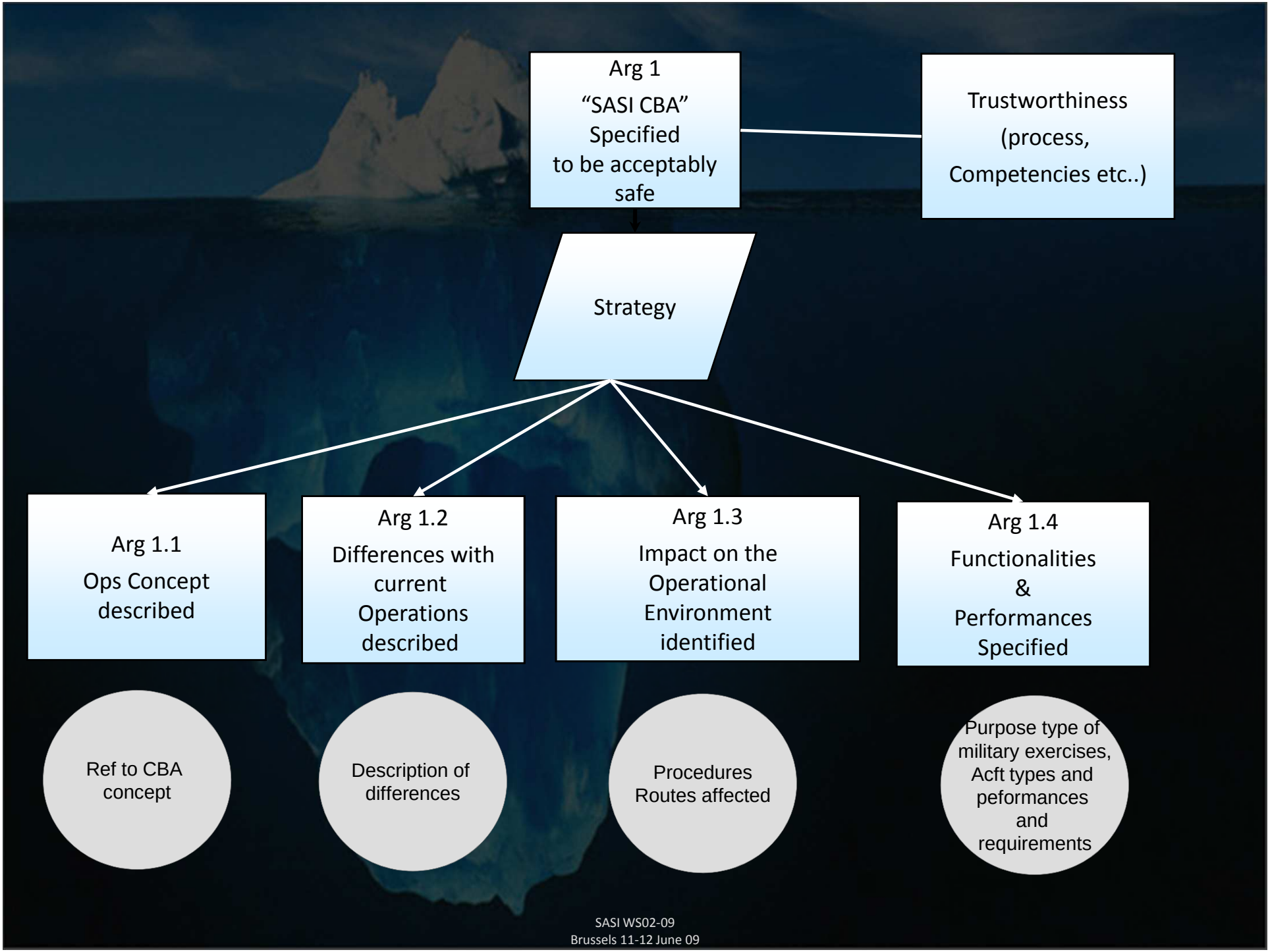
What shall we obtain?

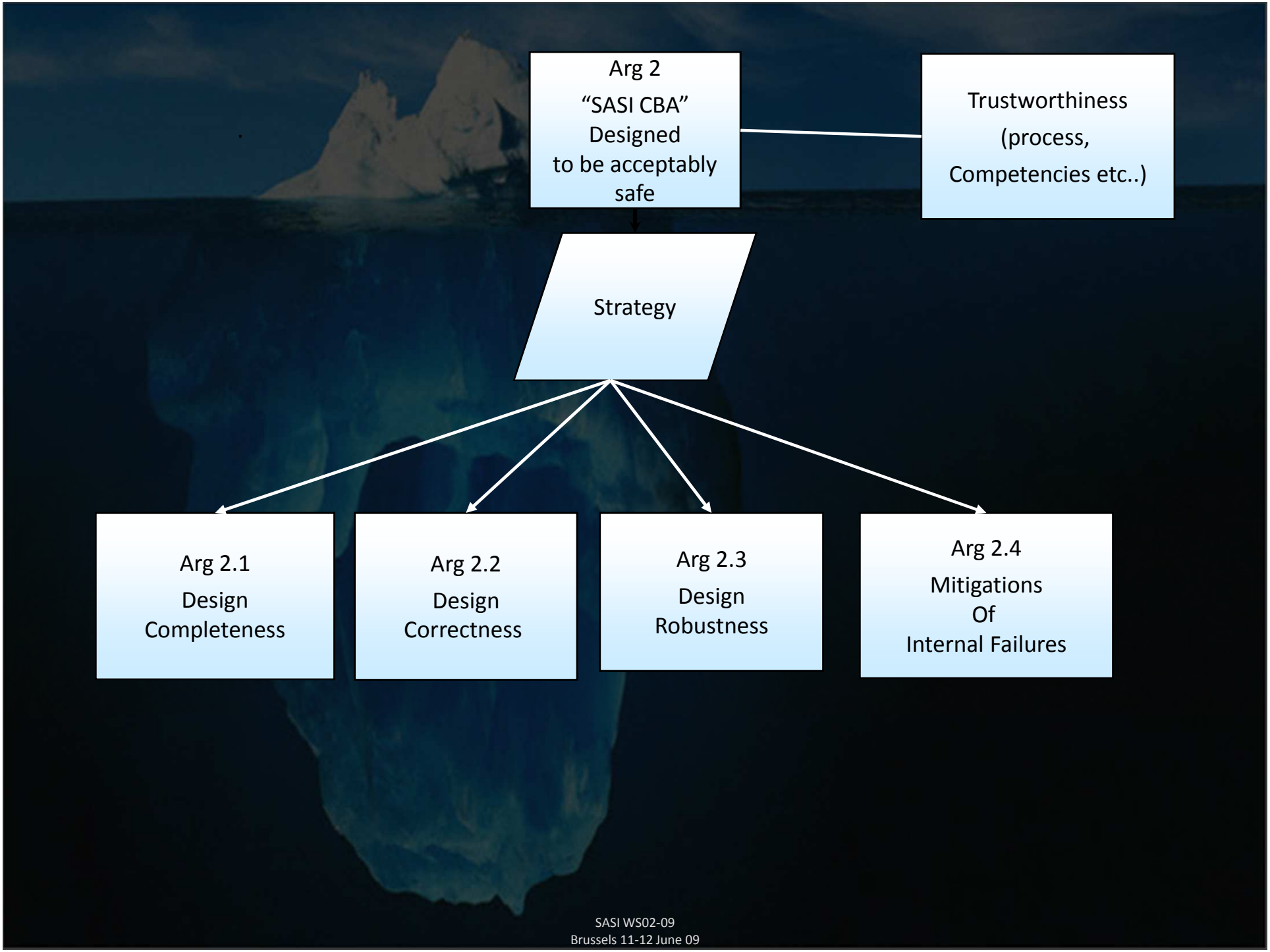
Idfentification Evidence (direct and backing)and related activities

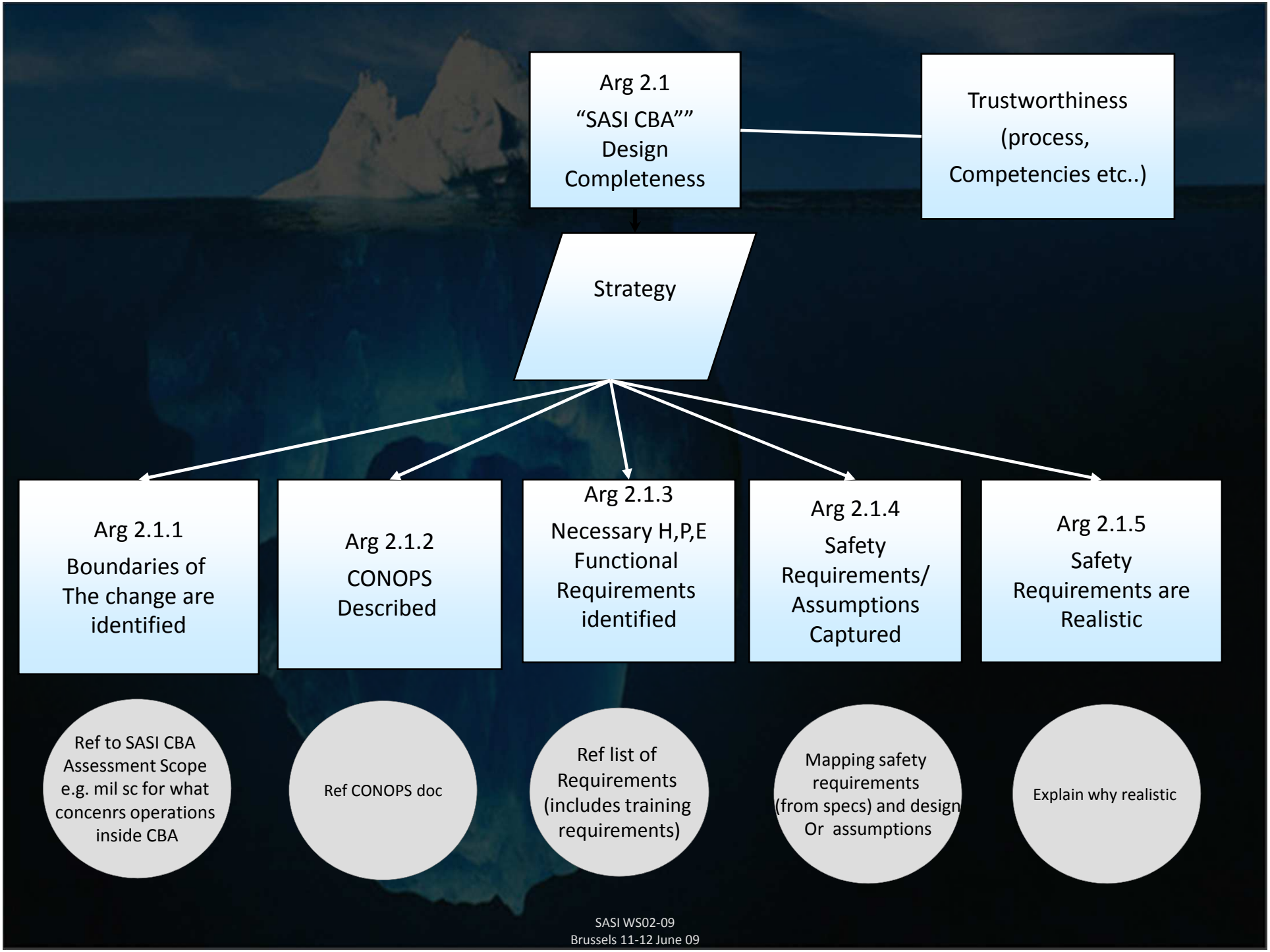
Argumentation

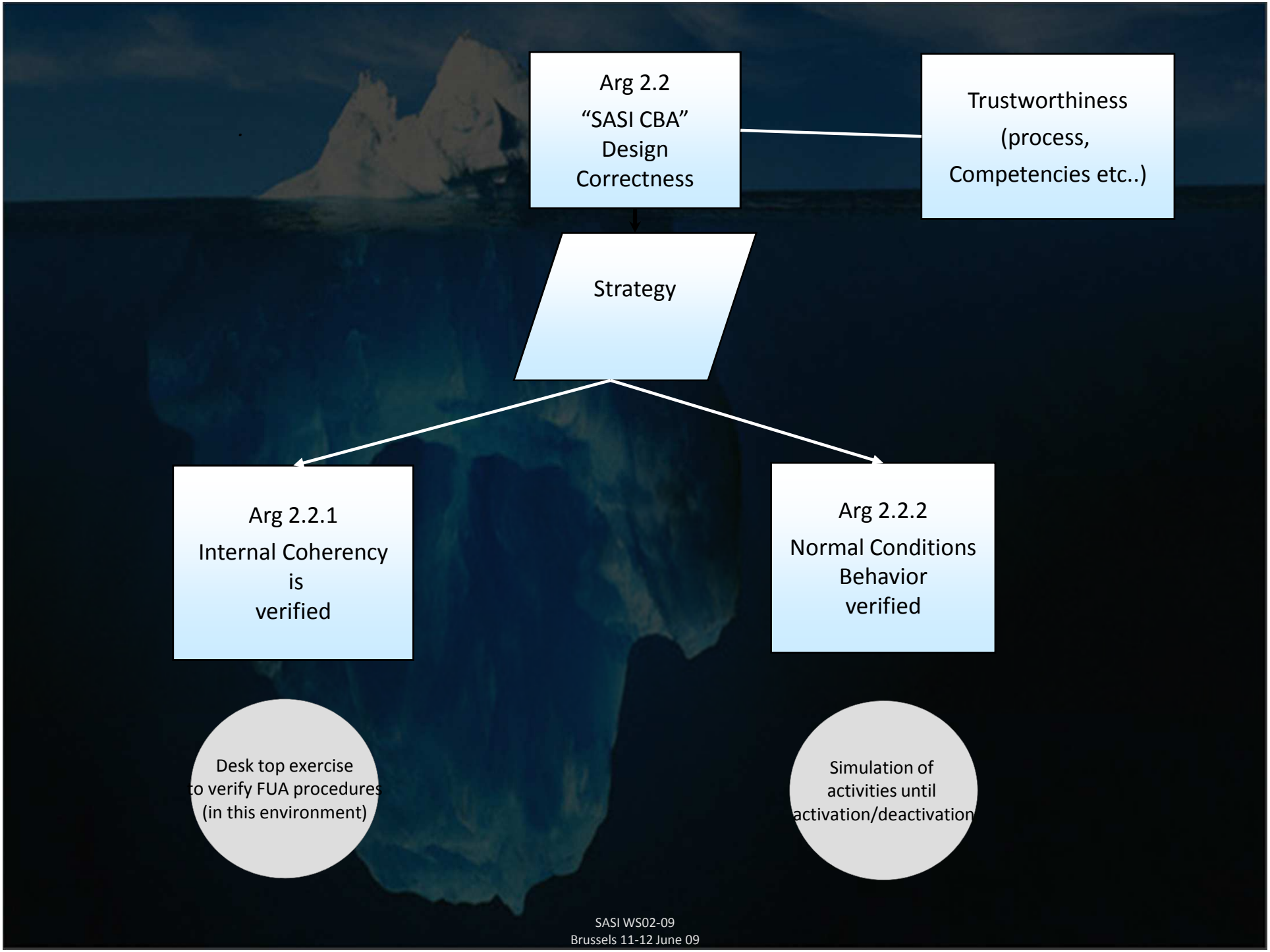
(part of) assumptions

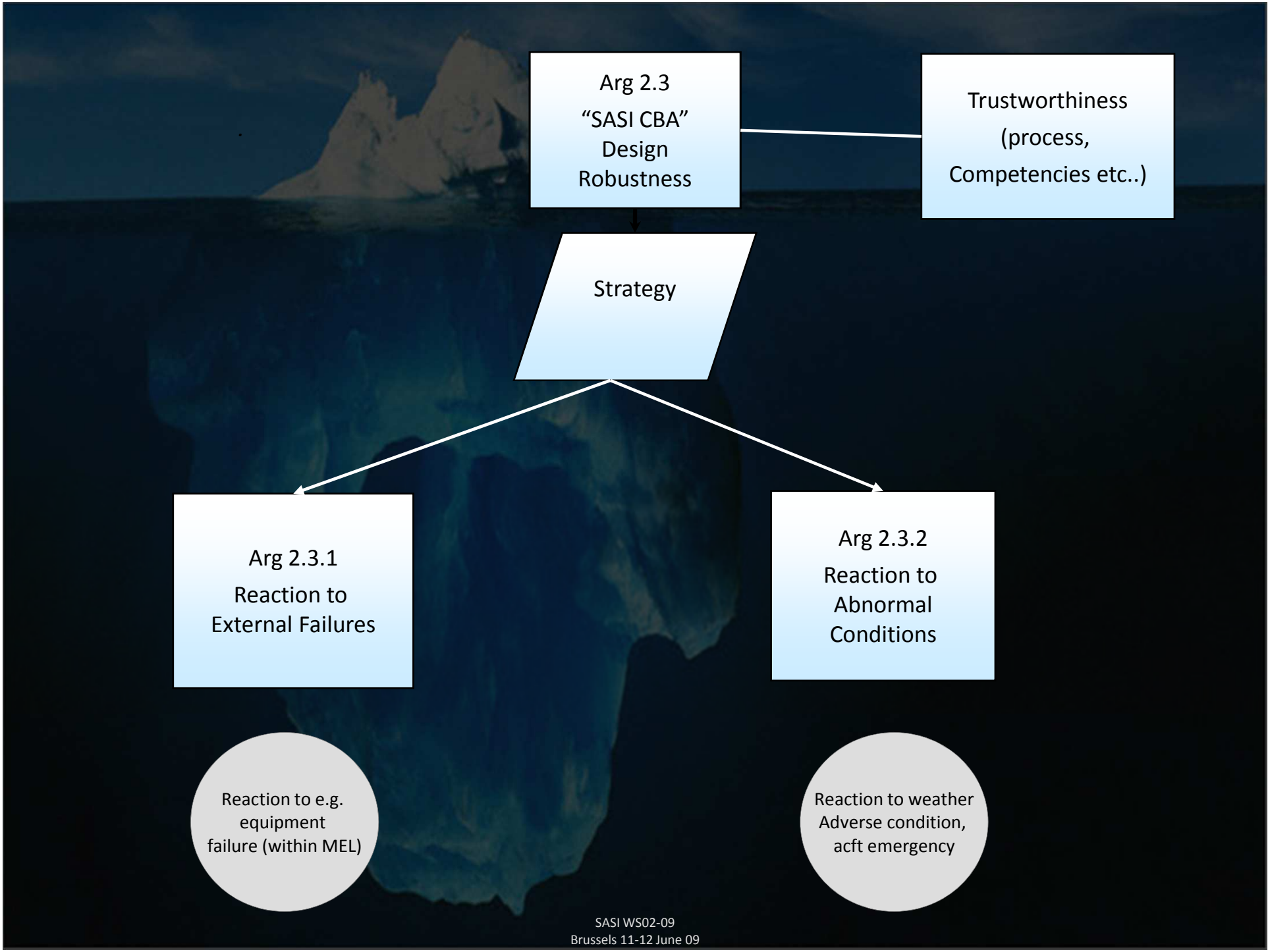

Criteria
1.Operations will be as safe as today or better
AND
2. Risk of an accident will be reduced as far as reasonably practicable
Assumption 0
-Current operations are acceptably safe
J001
Justification
Provide airspace required for military operations
Context of the Operations (see doc)
Arg 0
Operations will be acceptably safe during period of activation of SASI CBA including Operations for joining and leaving the CBA
Arg 1
"SASI CBA" Specified to be acceptably safe
Arg 2
"SASI CBA" Designed to be acceptably Safe
Arg 3
"SASI CBA" Implementation will be Acceptably Safe
Arg 4
Migration to operations during activation of SASI CBA will be acceptably safe
Arg 5
On going operations during SASI CBA Activation will be Acceptably safe

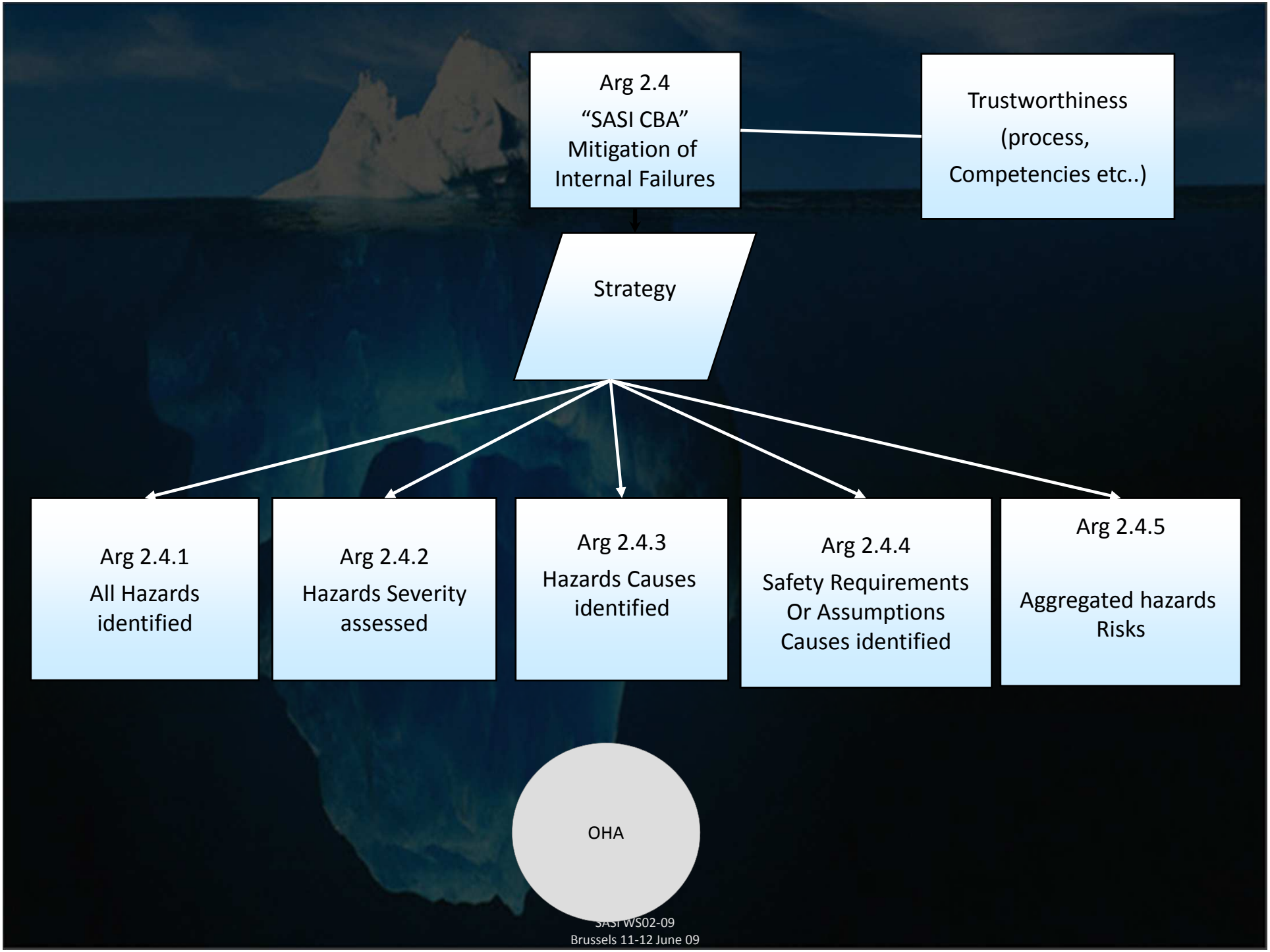

Arg 1
"SASI CBA"
Specified
to be acceptably
safe
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 1.1
Ops Concept
described
Arg 1.2
Differences with
current
Operations
described
Arg 1.3
Impact on the
Operational
Environment
identified
Arg 1.4
Functionalities
&
Performances
Specified
Ref to CBA
concept
Description of
differences
Procedures
Routes affected
Purpose type of
military exercises,
Acft types and
peformances
and
requirements

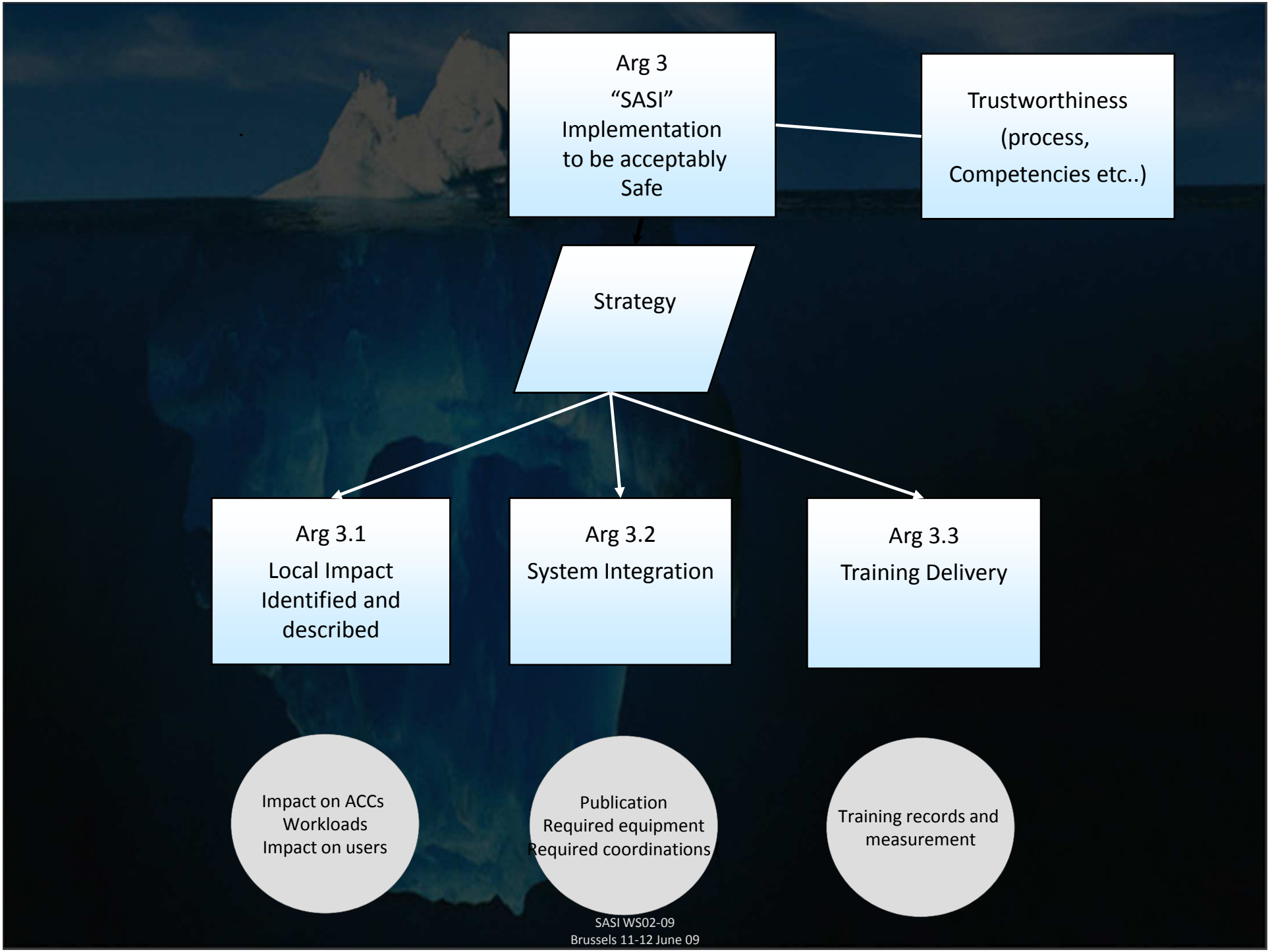

Arg 2
"SASI CBA"
Designed
to be acceptably
safe
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 2.1
Design
Completeness
Arg 2.2
Design
Correctness
Arg 2.3
Design
Robustness
Arg 2.4
Mitigations
Of
Internal Failures

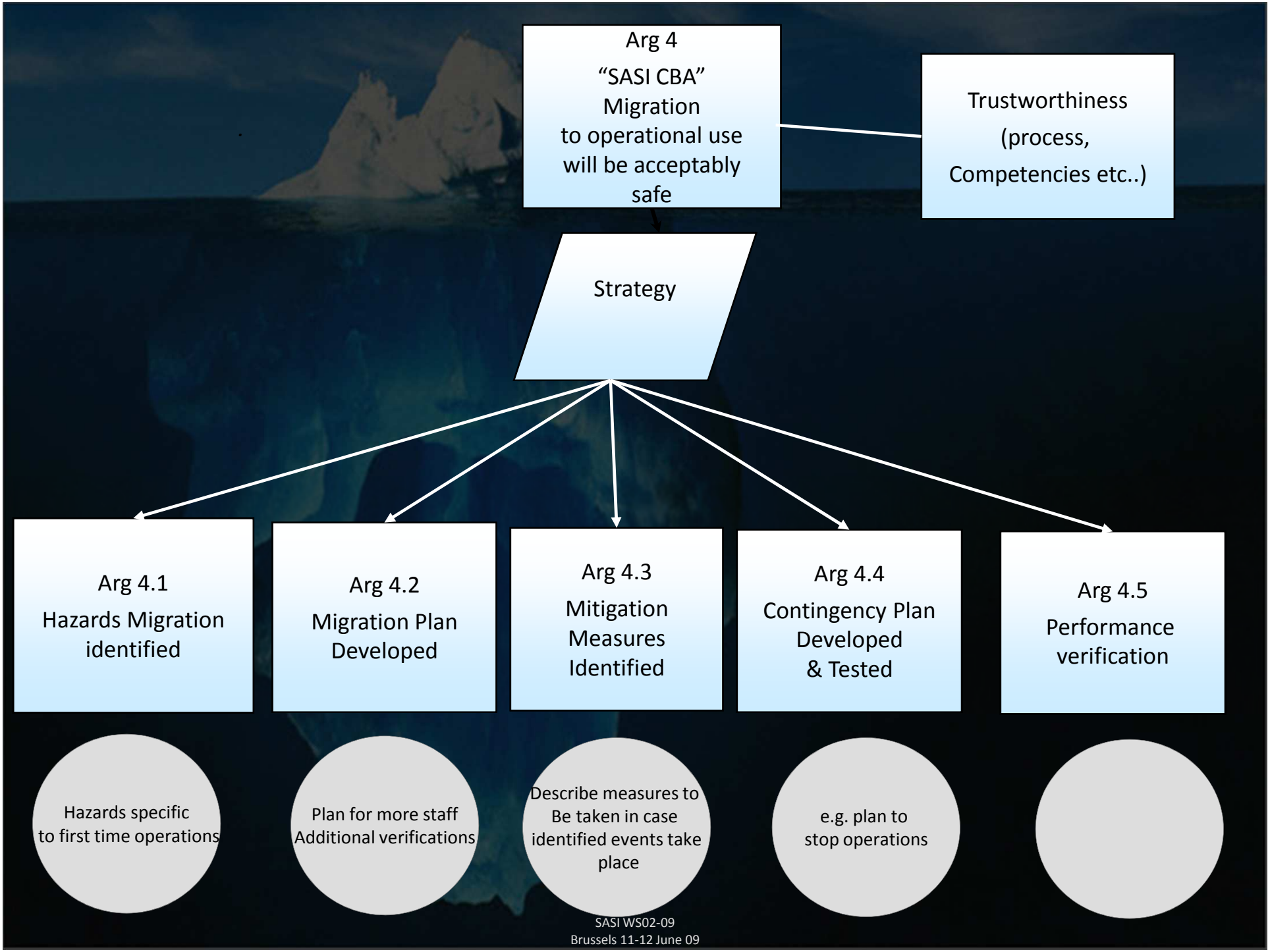

Arg 2.1
"SASI CBA""
Design
Completeness
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 2.1.1
Boundaries of
The change are
identified
Arg 2.1.2
CONOPS
Described
Arg 2.1.3
Necessary H,P,E
Functional
Requirements
identified
Arg 2.1.4
Safety
Requirements/
Assumptions
Captured
Arg 2.1.5
Safety
Requirements are
Realistic
Ref to SASI CBA
Assessment Scope
e.g. mil sc for what
concenrs operations
inside CBA
Ref CONOPS doc
Ref list of
Requirements
(includes training
requirements)
Mapping safety
requirements
(from specs) and design
Or assumptions
Explain why realistic

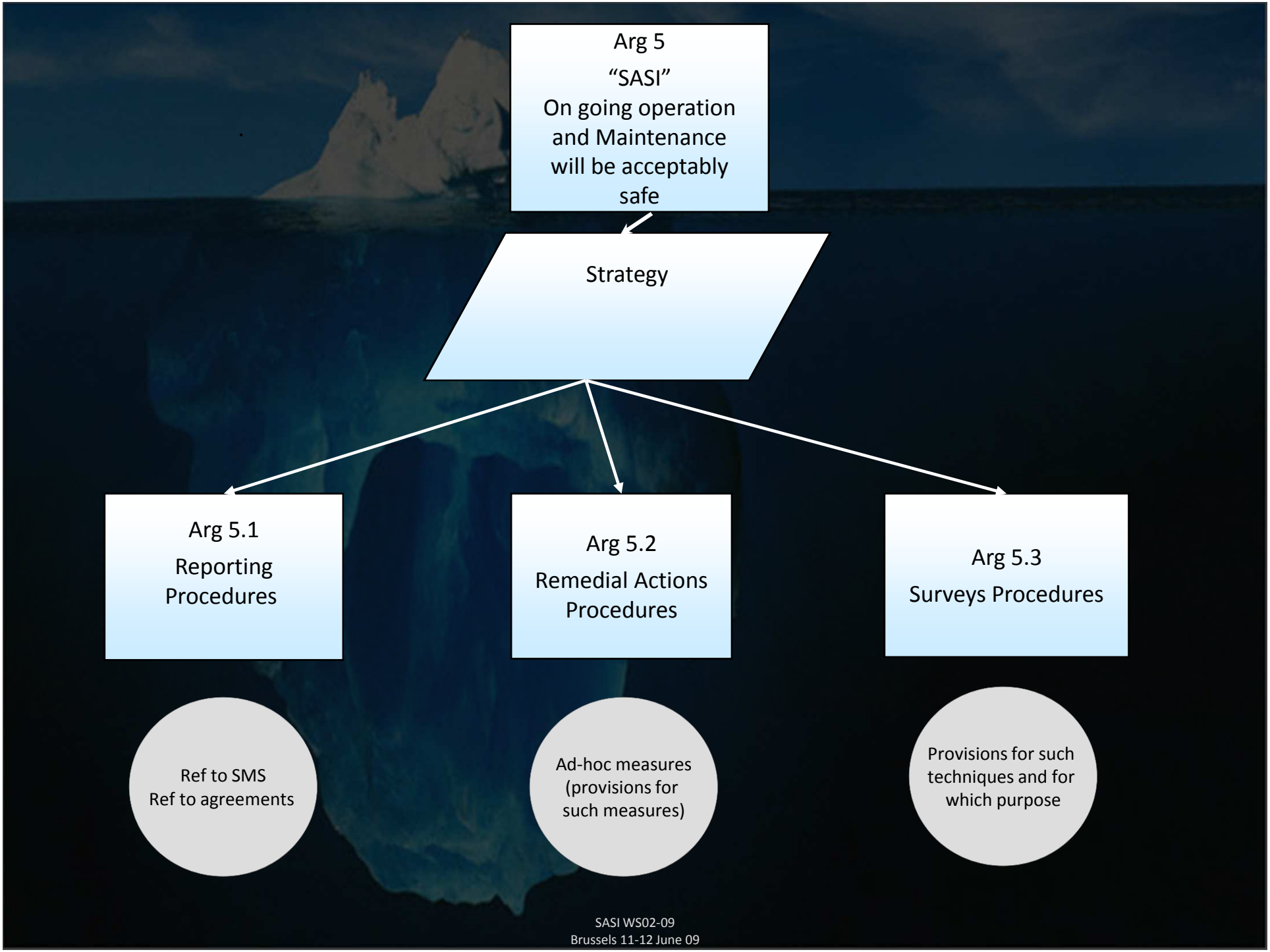

Arg 2.2
"SASI CBA"
Design
Correctness
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 2.2.1
Internal Coherency
is
verified
Arg 2.2.2
Normal Conditions
Behavior
verified
Desk top exercise
to verify FUA procedures
(in this environment)
Simulation of
activities until
activation/deactivation


Arg 2.3
"SASI CBA"
Design
Robustness
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 2.3.1
Reaction to
External Failures
Arg 2.3.2
Reaction to
Abnormal
Conditions
Reaction to e.g.
equipment
failure (within MEL)
Reaction to weather
Adverse condition,
acft emergency


Arg 2.4
"SASI CBA"
Mitigation of
Internal Failures
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 2.4.1
All Hazards
identified
Arg 2.4.2
Hazards Severity
assessed
Arg 2.4.3
Hazards Causes
identified
Arg 2.4.4
Safety Requirements
Or Assumptions
Causes identified
Arg 2.4.5
Aggregated hazards
Risks
OHA


Arg 3
"SASI"
Implementation
to be acceptably
Safe
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 3.1
Local Impact
Identified and
described
Arg 3.2
System Integration
Arg 3.3
Training Delivery
Impact on ACCs
Workloads
Impact on users
Publication
Required equipment
Required coordinations
Training records and
measurement


Arg 4
"SASI CBA"
Migration
to operational use
will be acceptably
safe
Trustworthiness
(process,
Competencies etc..)
Strategy
Arg 4.1
Hazards Migration
identified
Arg 4.2
Migration Plan
Developed
Arg 4.3
Mitigation
Measures
Identified
Arg 4.4
Contingency Plan
Developed
& Tested
Arg 4.5
Performance
verification
Hazards specific
to first time operations
Plan for more staff
Additional verifications
Describe measures to
Be taken in case
identified events take
place
e.g. plan to
stop operations


Arg 5
"SASI"
On going operation and Maintenance will be acceptably safe
Strategy
Arg 5.1
Reporting Procedures
Arg 5.2
Remedial Actions Procedures
Arg 5.3
Surveys Procedures
Ref to SMS
Ref to agreements
Ad-hoc measures (provisions for such measures)
Provisions for such techniques and for which purpose

Safety Plan

How do we proceed?

From the findings of the presentation of the Ops Concept, the Safety Consideration report and Initial Safety Argument identify argument per argument the activitis required to produce both evidence (safety assessments) and the SC itself

What shall we obtain?

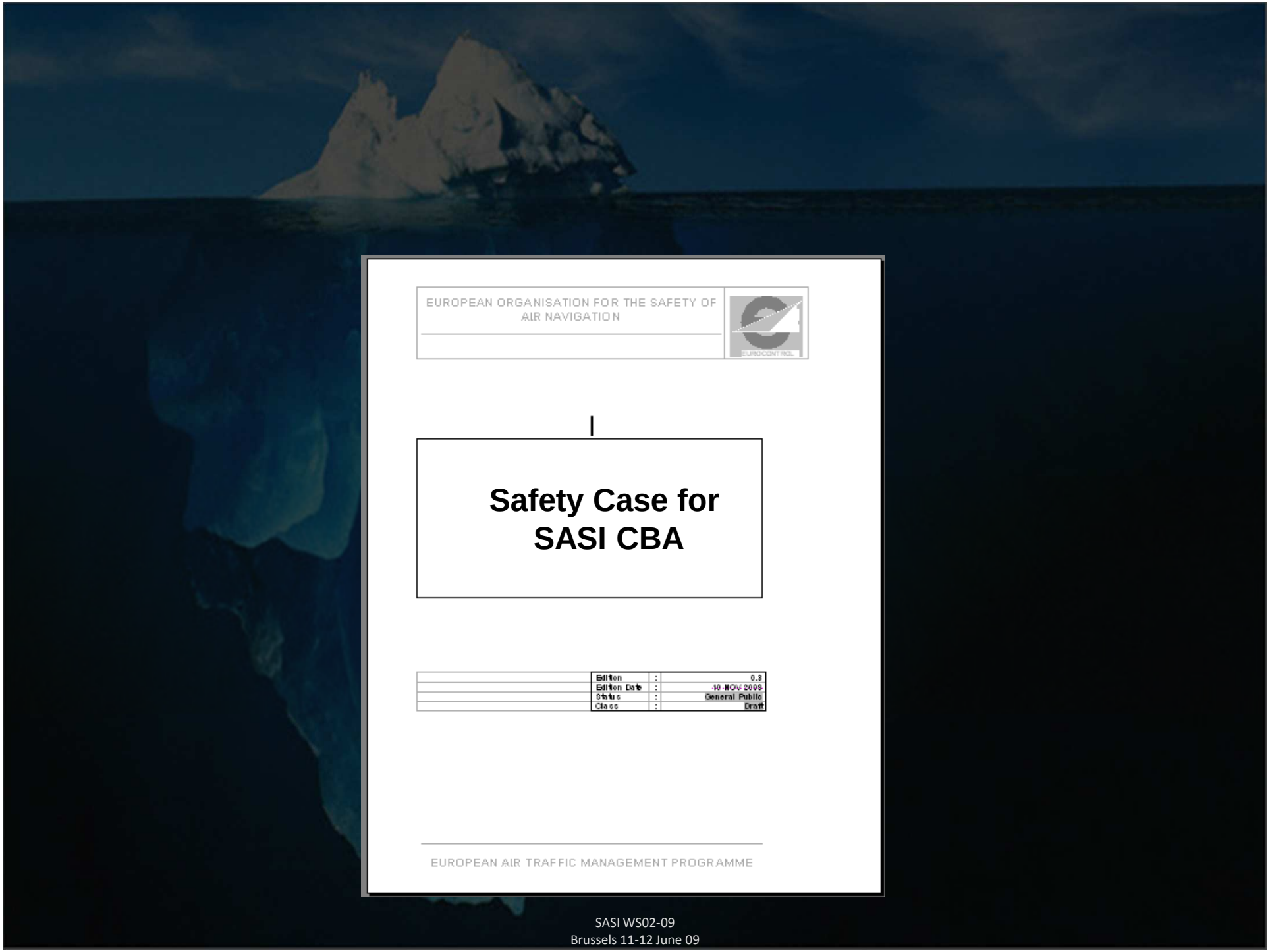
A work plan detailing activities and responsibilities from which a PMP can be derived

Safety Plan

Item nber	Safety case argument reference	Evidence/reference to be provided/produced	Person/team responsible	Technical content verification	Target date for completion
0	Preambule		Project Manager	Project Team	
1	Justification Reason for implementing the change.		Project Manager	Project Team	
2	Context May include a statement which limits the scope of an Argument in some way.		Project Manager	Project Team	
3	Operational concept What is required: Users' needs, high level requirements, scope		Project Manager	Project team	
4	CONOPS How system will be used		Ops department and TECH department in cooperation with project management team	Project team	
5	Safety criteria Rationale for using relative or quantitative criteria and AFARP		Project manager (Support Safety department)	Project team	
6	Assumptions Statements made a priori that will have to be demonstrated		Project Manager	OPS and TECH departments	

From there on…

1. **Organise for resources**
   - **Preparer**
   - **Contributors**
   - **Support from Safety Department**
2. **Finalise the Safety Plan (Preparer)**
   - **Identify documents exact references**
   - **Identify activities to be planned (e.g. OHA/PSSA)**
   - **Allocate work**
   - **Find tentative target dates**
3. **Incorporate Safety Activities in PMP (Project Manager)**
4. **Produce the first SC draft (now) (Preparer)**
5. **Carry out identified activities (Project Manager)**
6. **Update SC in line with completed activities (Preparer) and conduct document reviews (Project manager-Contributors-Support Safety Department)**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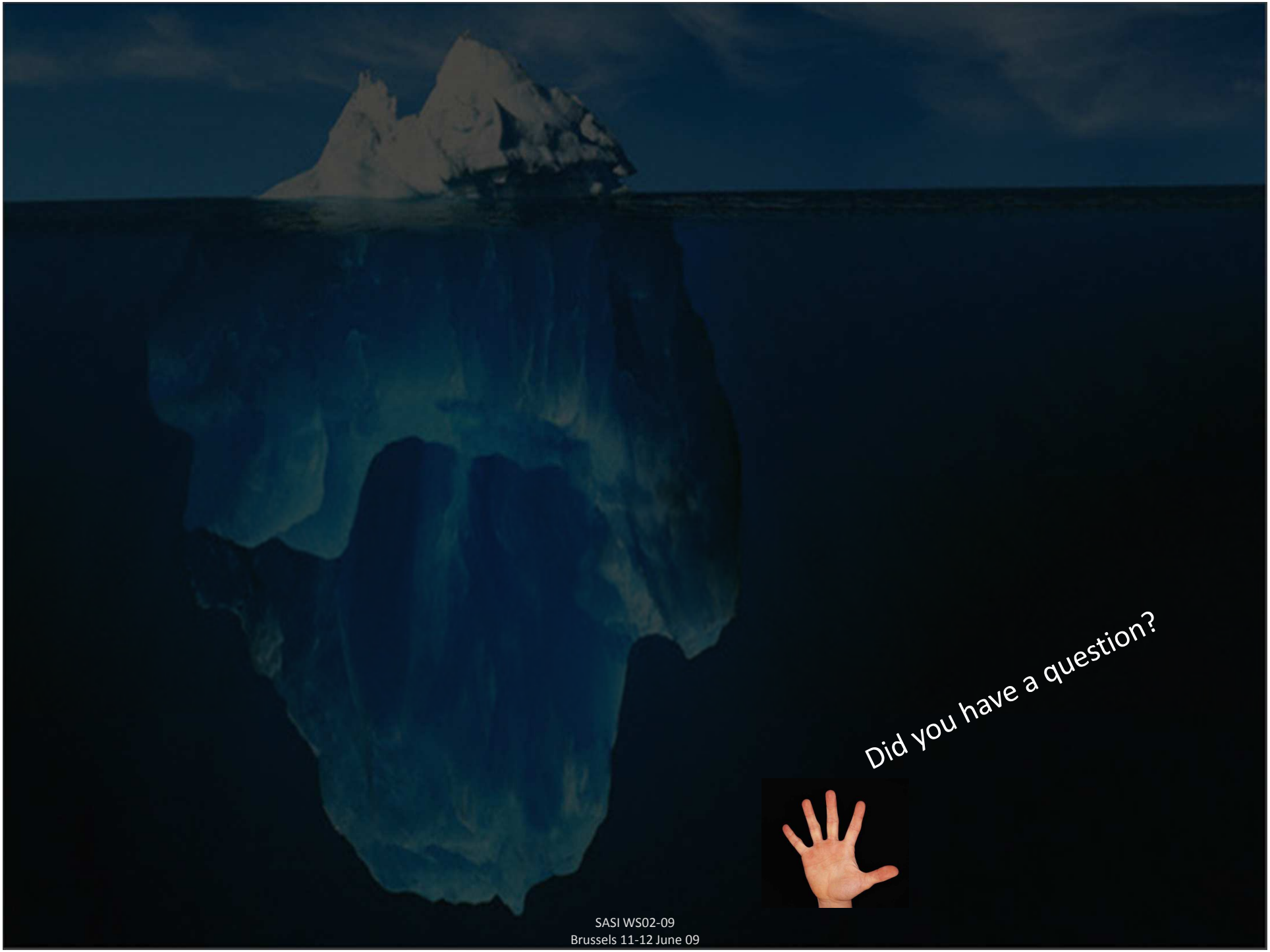
EUROCONTROL
Safety Case for SASI CBA
Edition : 0.3
Edition Date : 10 NOV 2008
Status : General Public
Class : Draft
EUROPEAN AIR TRAFFIC MANAGEMENT PROGRAMME


Did you have a question?