



International Civil Aviation Organization

# PBN

# AIRSPACE CONCEPT

# WORKSHOP

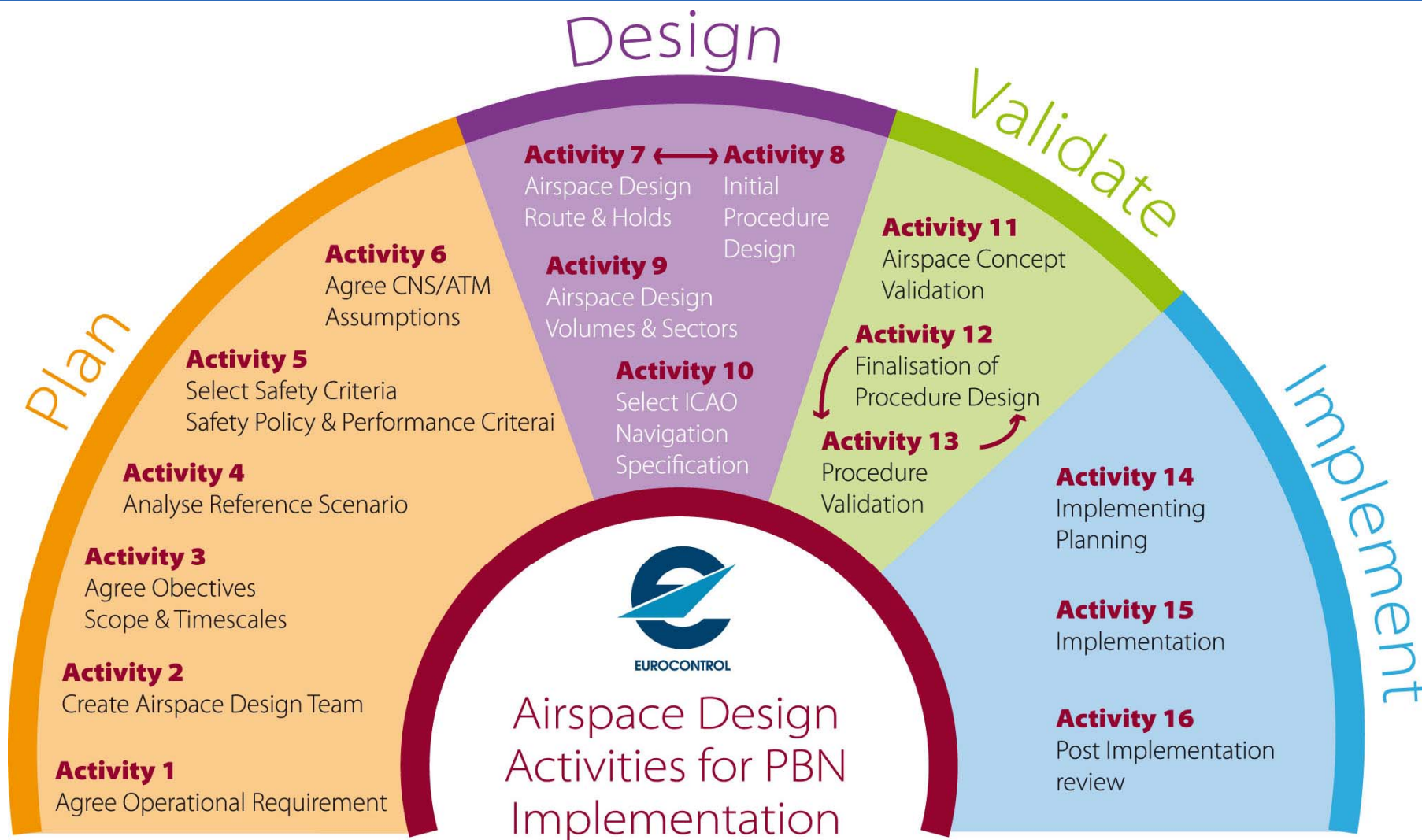
Activities 1 2 3



## OBJECTIVE

This module will provide an overview of the Activities that are involved in the development of a PBN Airspace Concept.

It will provide a direct link to the PBN Manual and it's processes and related steps.



# Activity 1 (P1)



## 1 - Agree on Operational Requirements

- Capacity
- Environment
- Accessibility
- Safety
- Efficiency

# Activity 1 (P1)



## 1 - Agree on Operational Requirements

- Sample ATM requirements
- Agreeing on priorities can be difficult...

### INSET

#### *Sample Operational Requirements*

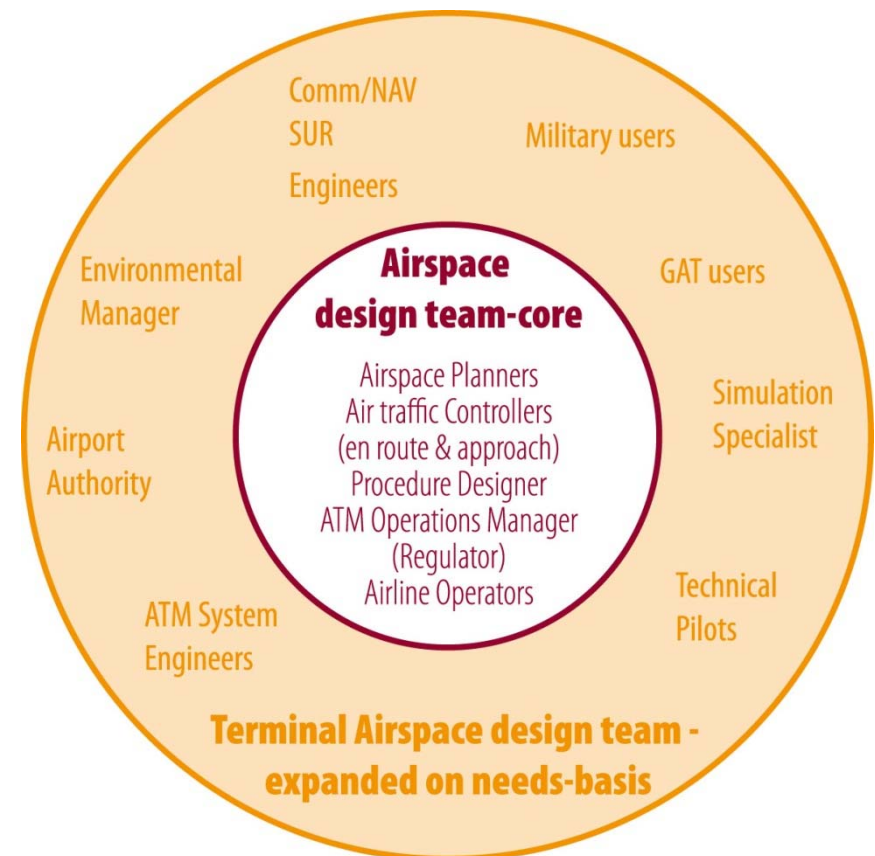
- ▶ MARKED TRAFFIC INCREASE/DECREASE AT ADJACENT AIRPORT
- ▶ TRAFFIC DISTRIBUTION
- ▶ NOISE COMPLAINTS
- ▶ ADDITION/CLOSURE OF RUNWAY(S)
- ▶ NEW AIRPORT TO BE BUILT/AIRPORT TO BE CLOSED
- ▶ OPERATIONAL DIFFICULTIES IN ADJACENT SECTORS
- ▶ INCREASED/REDUCED CAPACITY IN ADJACENT SECTORS
- ▶ RE-ORIENTATION OF EN ROUTE ATS ROUTE FLOWS
- ▶ NEW AVAILABILITY/CLOSURE OF AIRSPACE
- ▶ HIGH INCIDENCE OF LEVEL BUSTS
- ▶ INCREASE OF UNAUTHORISED AIRSPACE PENETRATIONS
- ▶ NEW INTRODUCTION/APPLICATION OF TECHNOLOGY COMM/NAV OR SUR

# ACTIVITY 2 (P1)



## 2 - Create Airspace Design Team

- Lead by ATM/airspace specialist
- ATC (Approach and Area controllers)
- ATM & CNS specialist
- Procedure designers
- Technical pilots
- .....



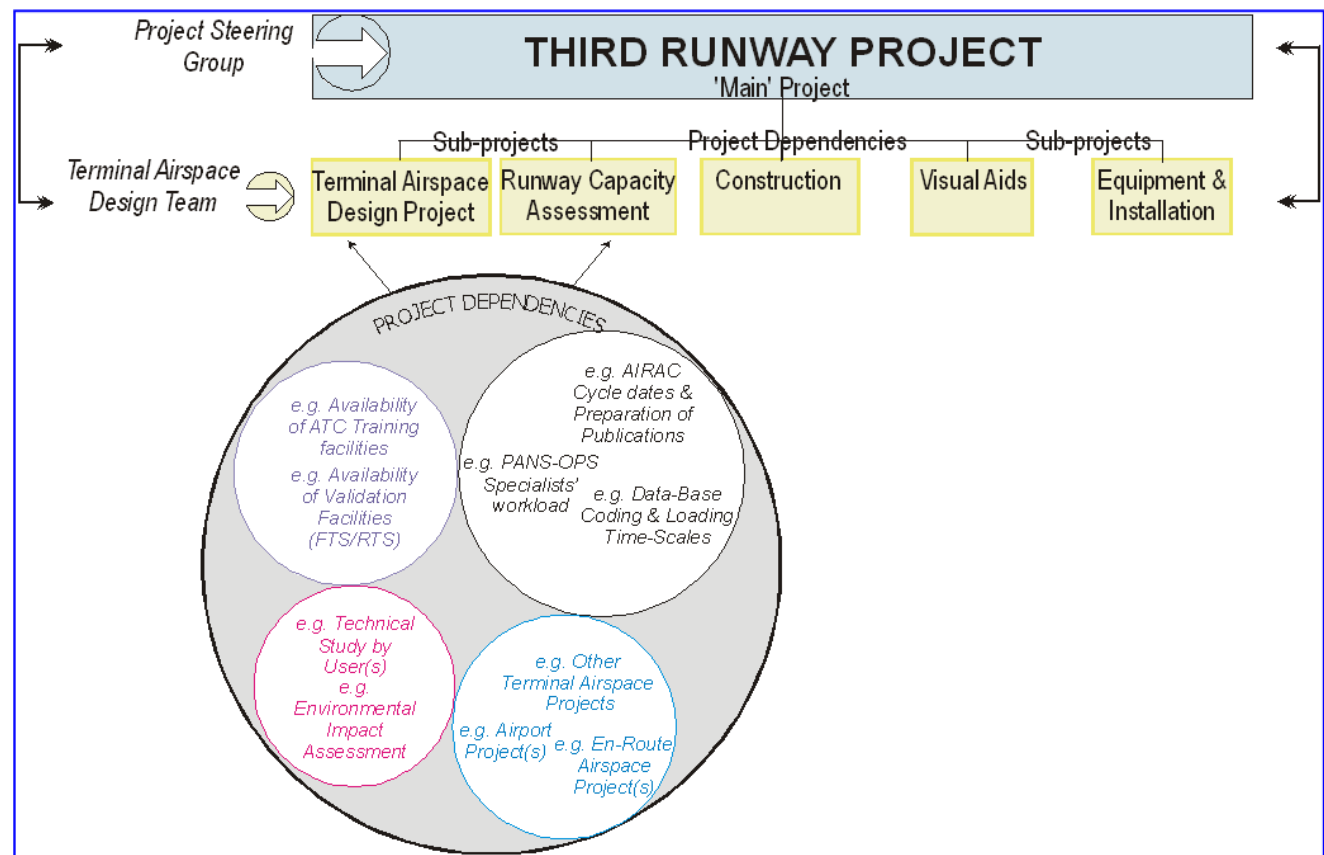
# Activity 3 (P1)



## 3 – Project objectives, scope and timescales

**Needed!**

**An organisational structure**





# Activity 3 (P1)

## 3 – Project objectives, scope and timescales

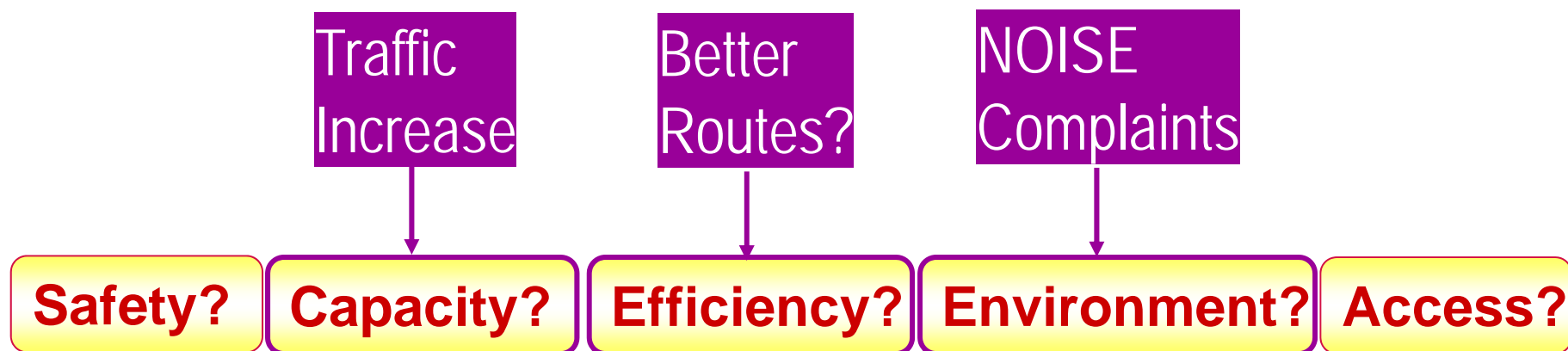
- Objective derived from Ops requirements
- Scope ( sets the limit of the project)
  - Time
  - Resources
- Timescales

**Sometimes the most difficult task**



# Activity 3 (P1)

## 3 – Project objectives



# Activity 3 (P1)

## 3 - Project objectives

**Safety?**

**Capacity**

**Efficiency**

**Environment**

**Access?**

Improve SID/STAR design to accommodate projected traffic growth

Provide shorter and more predictable routes to/from Kapitali

Reduce noise over sensitive areas

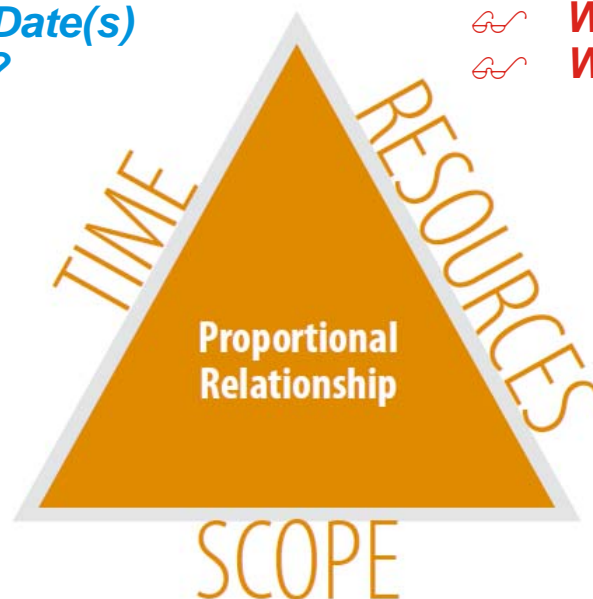
**Airspace Concept**




# Activity 3 (P1)

## 3 – Project objectives, scope and timescales

 *Implementation Date(s)*  
 *Phases of Work?*

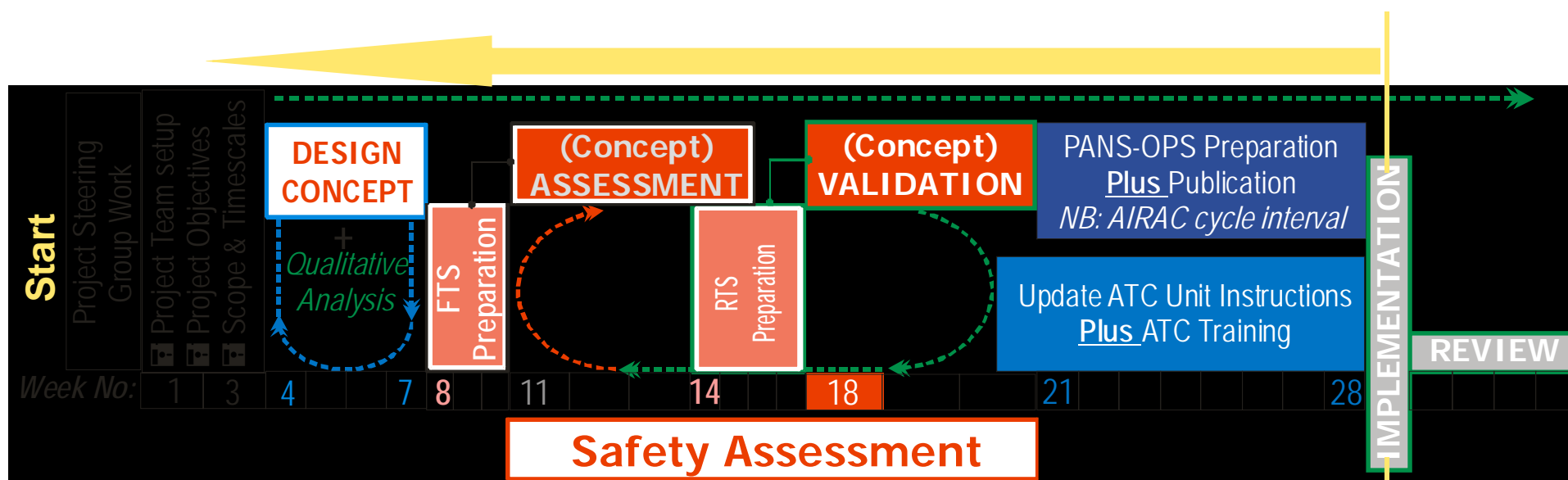
 *Which Human Resources?*  
 *What about the budget?*



-  *What is the Objective ?*
-  *How much can be done?*
-  *What cannot be done?*

# Activity 3 (P1)

## 3 – Project timescales



To find out time required to complete a project  
– calculate **backward** from Implementation date



# PLANNING TOOL EXAMPLE

AIRSPACE CONCEPT HANDBOOK ACTIVITIES 1 TO 15: PROJECT PLANNING SAMPLE				
ACT	<i>(to be read from bottom-up)</i>	No of Days	Key Dates (latest)	
15	Implementation of Airspace Change (Match Airac Cycle date)	0	06/02/2014	<< Enter INTENDED Implementation Date here (Must match Airac Cycle Date)
14	Implementation Planning - Write up LoAs - ATC System Changes	56	12/12/2013	
	Additional working day buffer to allow for unforeseen delays	60	13/10/2013	
12+13	Procedure Design and Validation + 56 day AIRAC cycle - ATC Training †	90	15/07/2013	
11	Airspace Concept Validation by Real-Time Simulation (Preparation and Runs)	100	06/04/2013	
11	Airspace Concept Validation by Fast-Time Simulation (Preparation and runs)	70	26/01/2013	
10	Selection of ICAO Navigation Specification	2	24/01/2013	
7-9	Finalise Airspace Design - iteration	5	19/01/2013	
9	Airspace Design: Structures and Sectors	5	14/01/2013	
7	2nd Iteration: Airspace Design - Routes and Holds	5	09/01/2013	
8	Navigation Analysis of Airspace Design	5	04/01/2013	
7	1st Iteration: Airspace Design - Routes and Holds	10	25/12/2012	
6	Data collection and agreement on CNS/ATM assumptions incl. Fleet capability; traffic sample etc.	5	20/12/2012	
5	Select Safety Criteria; Determine Performance Criteria and understand Safety Policy Considerations	10	10/12/2012	
4	Analyse Reference Scenario (incl. Data collection of full ATM operations and critical review of current operations)	20	20/11/2012	
1-3	Agree Operational Requirement; Project Planning; Create Airspace Design Team; Agree Project Objectives and Scope	10	10/11/2012	<< This is the latest project start date
	Total number of <b>working</b> days required	453		
Notes				
†	Assumes availability of FTS or RTS simulator slots, available of required specialists & ATCs/pseudo pilots			
‡	Separate no of days not calculated for ATC Training; Above shows that this would occur at the same time as PANS-OPS procedure design or during 56 day final AIRAC cycle			

LINK



# Sample Project Checklist

TERMINAL AIRSPACE DESIGN PROJECT (ref. Part B)			
PROJECT NAME:		START: [date]	TARGET ↓IMPLEMENTATION↓
ESTIMATED EFFORT (TOTAL)		END: [DATE]	[DATE]
BACKGROUND & CONTEXT:			
INTERNAL DESIGN TEAM MEMBERS:	[NAME]	[NAME]	[NAME]
	[NAME]	[NAME]	[NAME]
EXTERNAL TEAM MEMBERS:	[NAME]	[NAME]	[NAME]
INTERNAL REPORTS TO:	[NAME]	[NAME]	[NAME]
<b>STRATEGIC CONSIDERATIONS</b>			
1. OBJECTIVES:			
<b>DESIGN CONSIDERATIONS</b>			
1. OBJECTIVES:		2. SCOPE:	
3. DEPENDENCIES:		4. RISKS: performance indicators	
5. PERFORMANCE INDICATORS:			
Safety:			
Capacity:			
Environmental:			

# ICAO

Uniting Aviation on

Safety | Security | Environment

