# PBN
# AIRSPACE CONCEPT WORKSHOP

## Reference scenario

Federal Aviation Administration

EUROCONTROL

# REREFERENCE SCENARIO

## OBJECTIVE

This module provides an overview of the development of a (critical) reference scenario and importance of this in the context of PBN Airspace Concept.

# WHY

Reference Scenario enables you to identify your current operations;

- Positive
- Negative
- Benchmark

# WHY NOT?

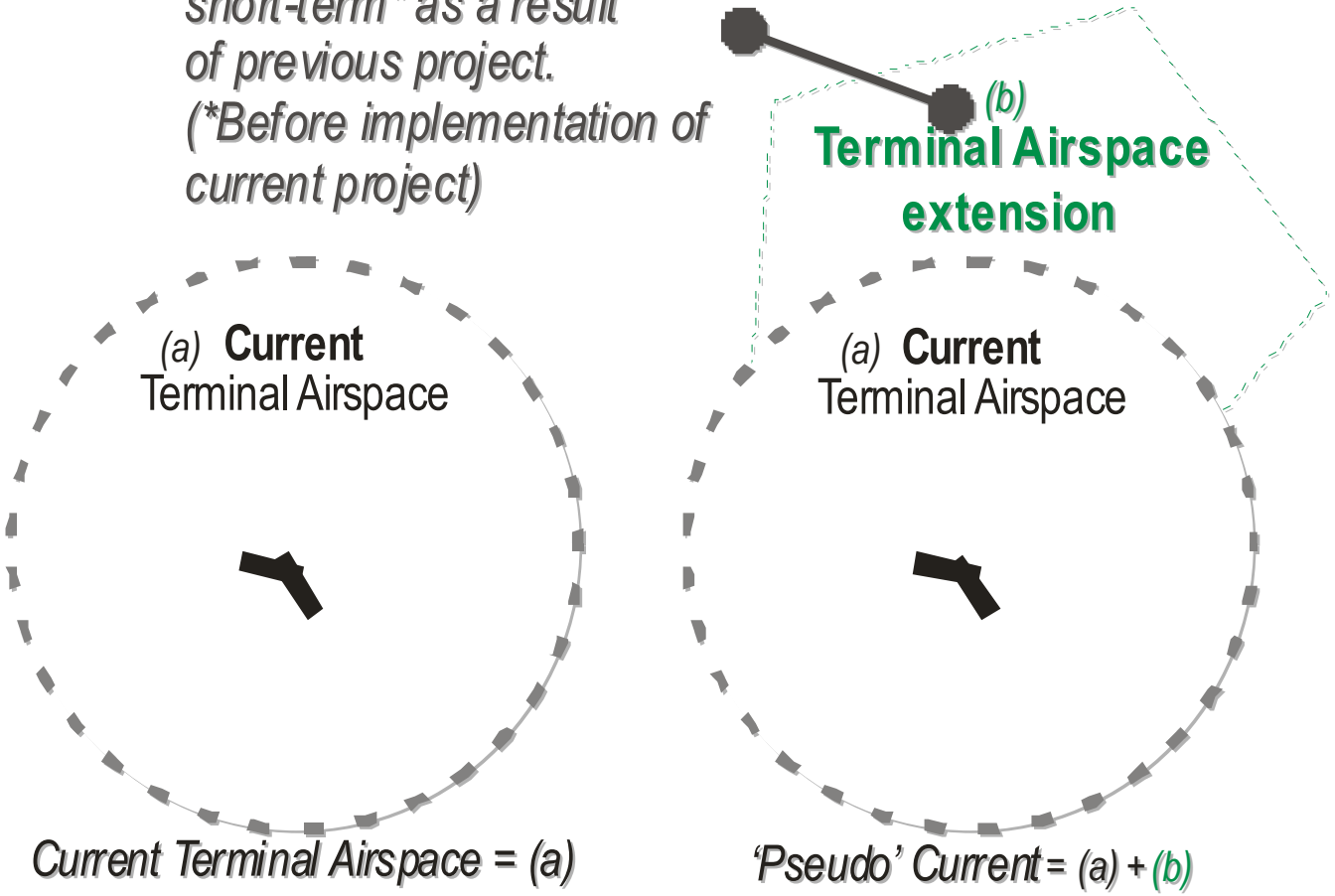
- In order to improve you need to measure
- No means of comparison
- New concept could be worse
- Using only procedures and LOAs will not provide realisitic overview

# TYPES

- Reference Scenario
- Pseudo Reference Scenario
  - Takes into account near term changes that will effect the PBN Airspace Concept

# PSEUDO REF

*Not currently in use but to be implemented in the short-term* as a result of previous project. (*Before implementation of current project)*



# Obtaining Information

| Information | How obtained |
|---|---|
| Predominant Runway-in-use at airport(s) within the existing Terminal airspace. | Statistical analysis of existing data over the last few years. |
| Current Traffic Demand and its geographic and time distribution. | Traffic samples can be obtained from the CFMU and/or local ATC centre(1). |
| Analysis of the Traffic sample e.g. IFR/VFR mix; Fleet Mix; Aircraft performance mix, etc. | Traffic sample. obtained above. |
| Routes (IFR & VFR), instrument approach procedures and Holding patterns/areas. | AIP and traffic sample; |
| Radar Vectoring patterns | Operational controllers |
| Airspace dimensions | AIP and Operational controllers |

# HOW

- Develop through workshop
- Normally 3-5 days
- All core members should attend
- A lot of work!

# INFORMATION (1)

- Predominant RWY in use
- Traffic demand
- Analysis of traffic sample
- Routes (IFR and VFR)
- Radar vectoring patterns
- Airspace dimension

# INFORMATION (2)

- Sectorisation
- Coordination between sectors
- Existing constraints (terrain)
- Existing ATM/CNS enablers

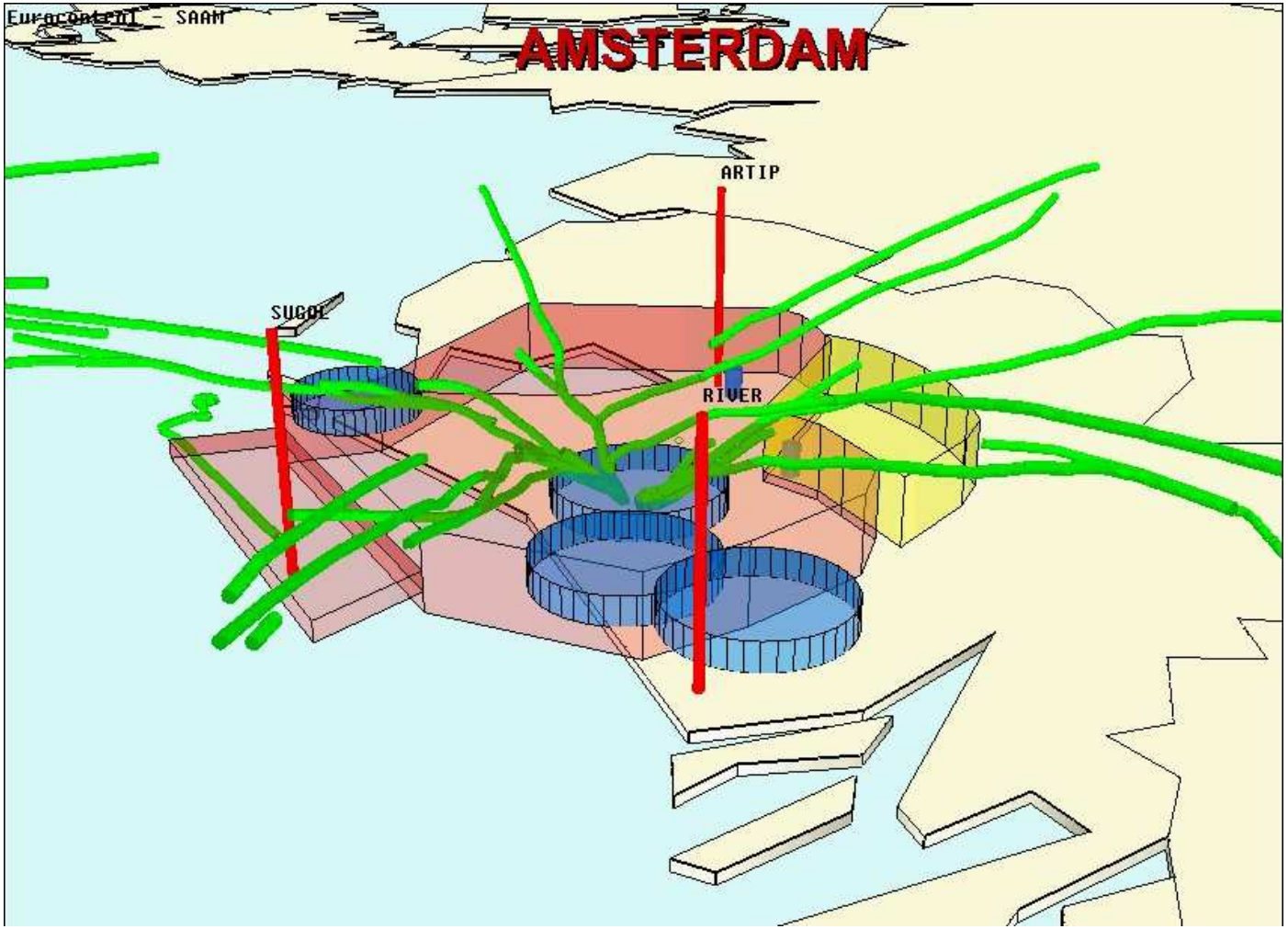
# SUPPORT TOOL

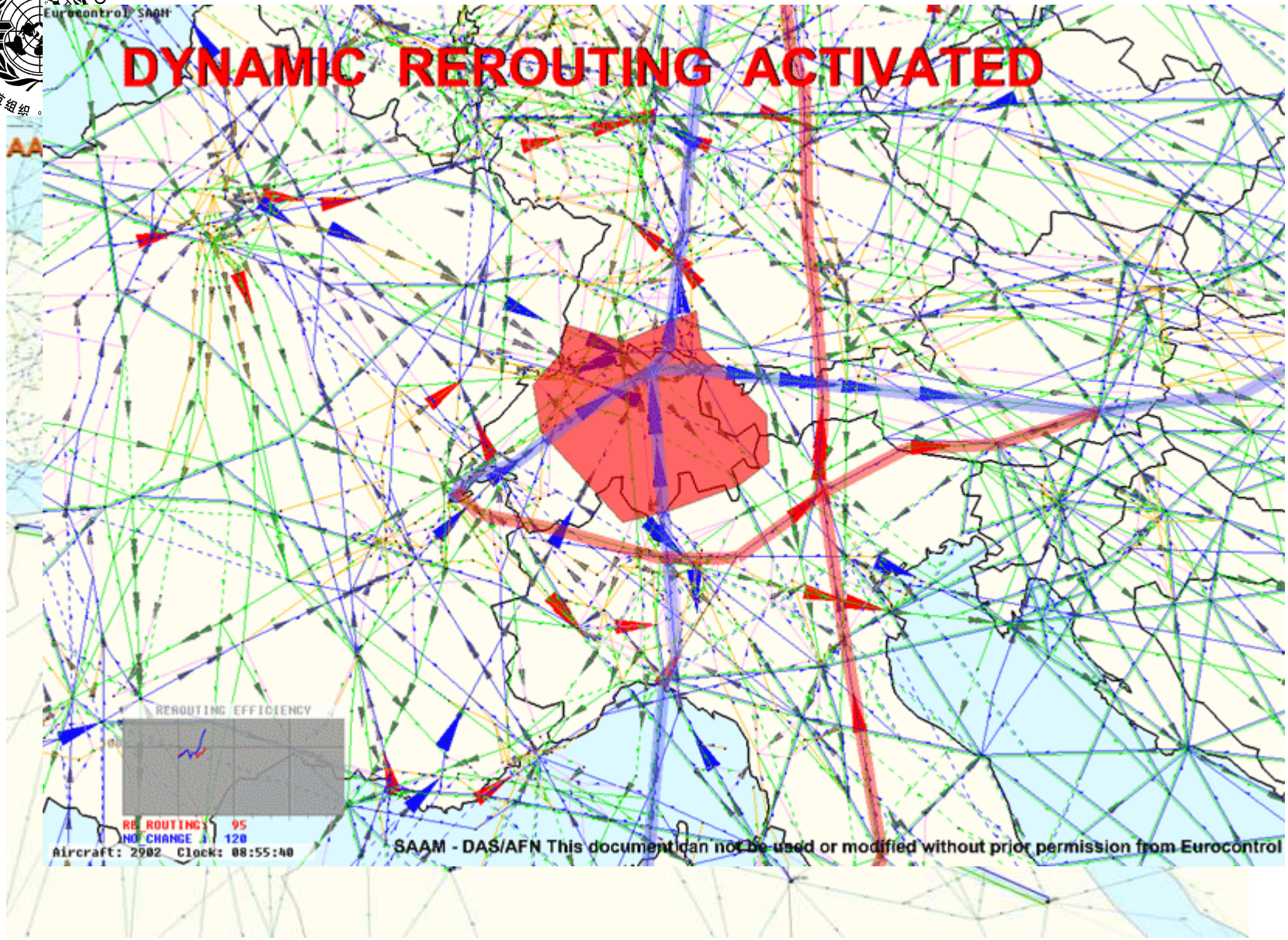
## SAAM (EUROCONTROL)

- Free Route Concept
- Flexible Use of Airspace (FUA)
- RVSM
- 8.33Khz
- Version 2/3/4/5 and AAS of ARN (European Route Network)
- **Terminal Airspace Development**
- Functional Airspace Block (FAB)
- Dynamic Management of European Airspace Network (DMEAN)

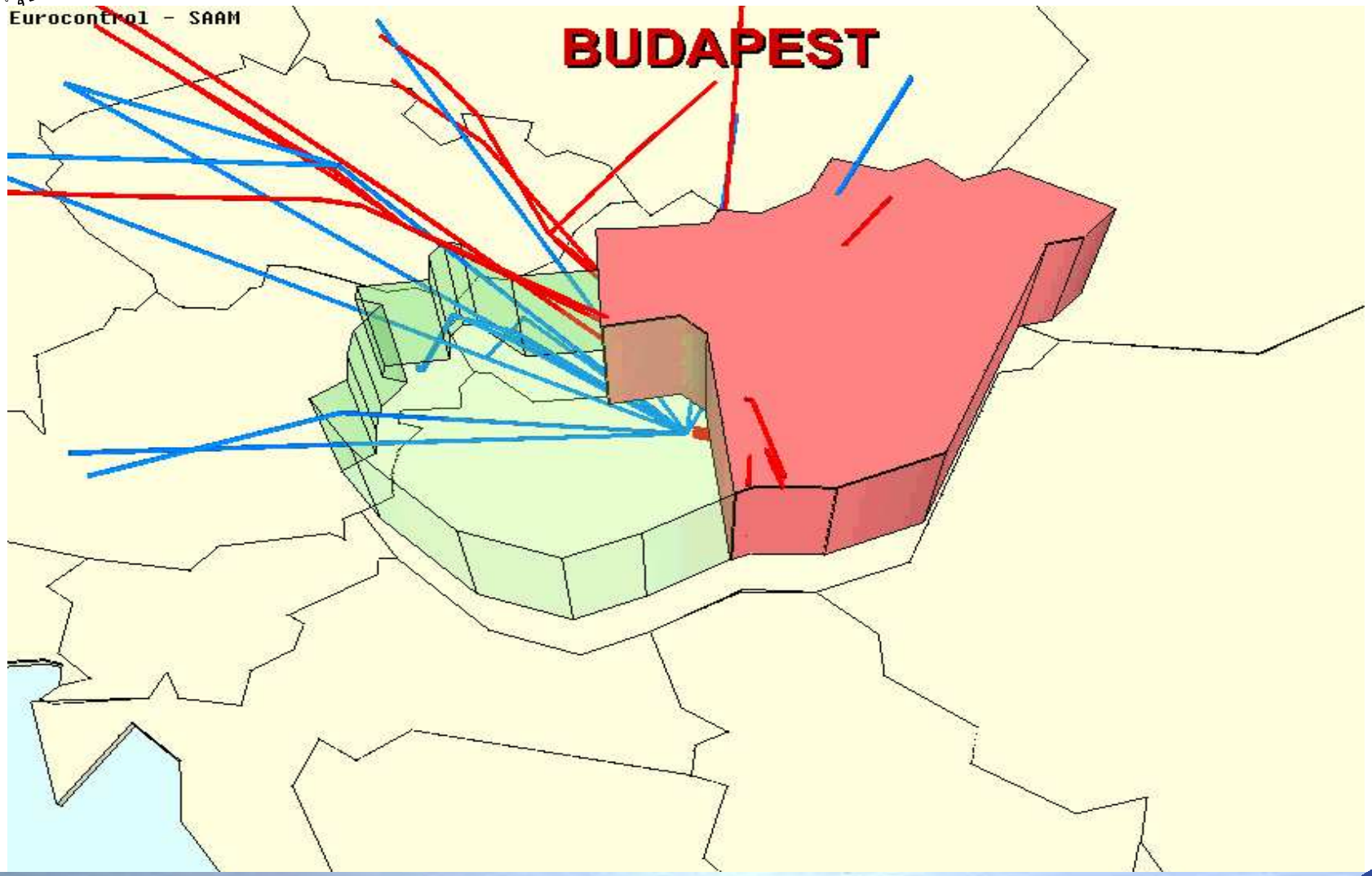
# TOOLS

## SAAM




DYNAMIC REROUTING ACTIVATED
REROUTING EFFICIENCY
RE ROUTING 95
NO CHANGE 120
Aircraft: 2902 Clock: 08:55:40
SAAM - DAS/AFN This document can not be used or modified without prior permission from Eurocontrol

# DEMO



# Sample Reference Scenario Checklist

| WRITING THE REFERENCE SCENARIO (ref. Part C 2.2, 2.3) | |
|---|---|
| **1. Runways** | |
| | Which runways are in use? |
| **2. Traffic Types and Distribution** | |
| | • What is the quantity of the traffic in terms of Arrival, Departure and Transit Traffic in combination with different traffic types?<br>• What are the Traffic Mix in categories (H/M/L) and Navigation Capabilities (Conventional / NAV)? |
| **3. Terminal Airspace** | |
| | • What are the lateral dimensions of the Terminal Airspace?<br>• What are the Airspace Classifications in, and if deemed of interest, outside the Terminal Airspace?<br>• What is the Transition Altitude in the Terminal Airspace?<br>• Are there Airspace Reservations (military/VFR corridors/ recreational flying)?<br>• Are there Airspace Restrictions that have an impact on the Terminal Airspace?<br>• Are there Holding Areas and is there a Minimum Safe Altitude?<br>• Are there Approach procedures published and to what extent are they used?<br>• Are there Departure and Arrival procedures published?<br>• Are there Radar Vectoring Patterns & MRVA defined and/or published? |
| **4. Traffic Management** | |
| | • How is the airspace surrounding the TMA organised? Are there adjacent ACC Sectors, ACC Sectors above and/or adjacent Terminal Airspace(s) and what is their relation with the TMA?<br>• How is the Arrival Traffic managed?<br>• How is the Departure Traffic managed?<br>• How is the Transit Traffic managed?<br>• If applicable, how are Military, VRF and Recreational Traffic managed? |
| **5. Technical Support Infrastructure** | |

# CRITICAL REVIEW

- Critical review
  - Identify operational problem areas
  - Identify constraints
  - Identify mitigation and enablers

# Sample Checklist: Critical Review of Refrence Scenario

| CRITICAL REVIEW OF THE REFERENCE SCENARIO (ref. Part C 2.4) | |
|---|---|
| **1. Runways** | |
| | Which runways are in use? |
| | • *What are the Primary and Secondary Runways in Use in main & adjacent TA?*<br>• *Is the mode of operation of the existing runways likely to change prior to the implementation of the existing project?*<br>• *Are additional runways likely to be in use prior to the implementation of the existing project? If so, in what mode?*<br>• *When was the mode of use for the runways implemented?*<br>• *Have other modes of use been considered – and discounted? If so, why?* |
| **2. Traffic Types and Distribution** | |
| | What is the quantity of the traffic in terms of Arrival, Departure and Transit Traffic in combination with different traffic types? |
| | • *What is the geographic distribution of the traffic (in %)?*<br>• *What is the time distribution of the traffic (seasonal/daily)?*<br>• *What is the ratio between Arriving and Departing Traffic during peak hours?*<br>• *What is the ratio between IFR/VFR, Military/Civil?*<br>• *Do recreational-type-flying activities take place in the Terminal Airspace?*<br>• *For items (1) to (5) on left, does the future traffic sample deliver the same results as the existing traffic sample used?* |
| | What are the Traffic Mix in categories (H/M/L) and Navigation Capabilities (Conventional / NAV)? |
| | • *Does the future traffic sample deliver the same results as the existing traffic sample used?* |
| **3. Terminal Airspace** | |
| | What are the lateral dimensions of the Terminal Airspace? |
| | • *Are all IFR Flight paths contained inside controlled airspace?* |

# REFINING DESIGN OBJECTIVES

- Current flaws or weaknesses used to improve design objectives
- Example;
  - Creation of SID only for summer months for Heavy a/c

# QUALITY MANAGEMENT

- To measure is to know
- Constant process
- When correctly applied
  - Keep reduced project team
  - Little effort
  - Easy/early adaptation to changes
  - Customer orientated

# KAPITALI

- Additional data to finalise reference scenario?
- Is this enough data to work with?????

# Any further questions?