BLUE MED
Mediterranean FAB

Co-financed by the EU (TEN-T)

FAB SAFETY CASE

CEO Safety Conference -
Limassol 29 Feb 2012

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The BLUE MED airspace

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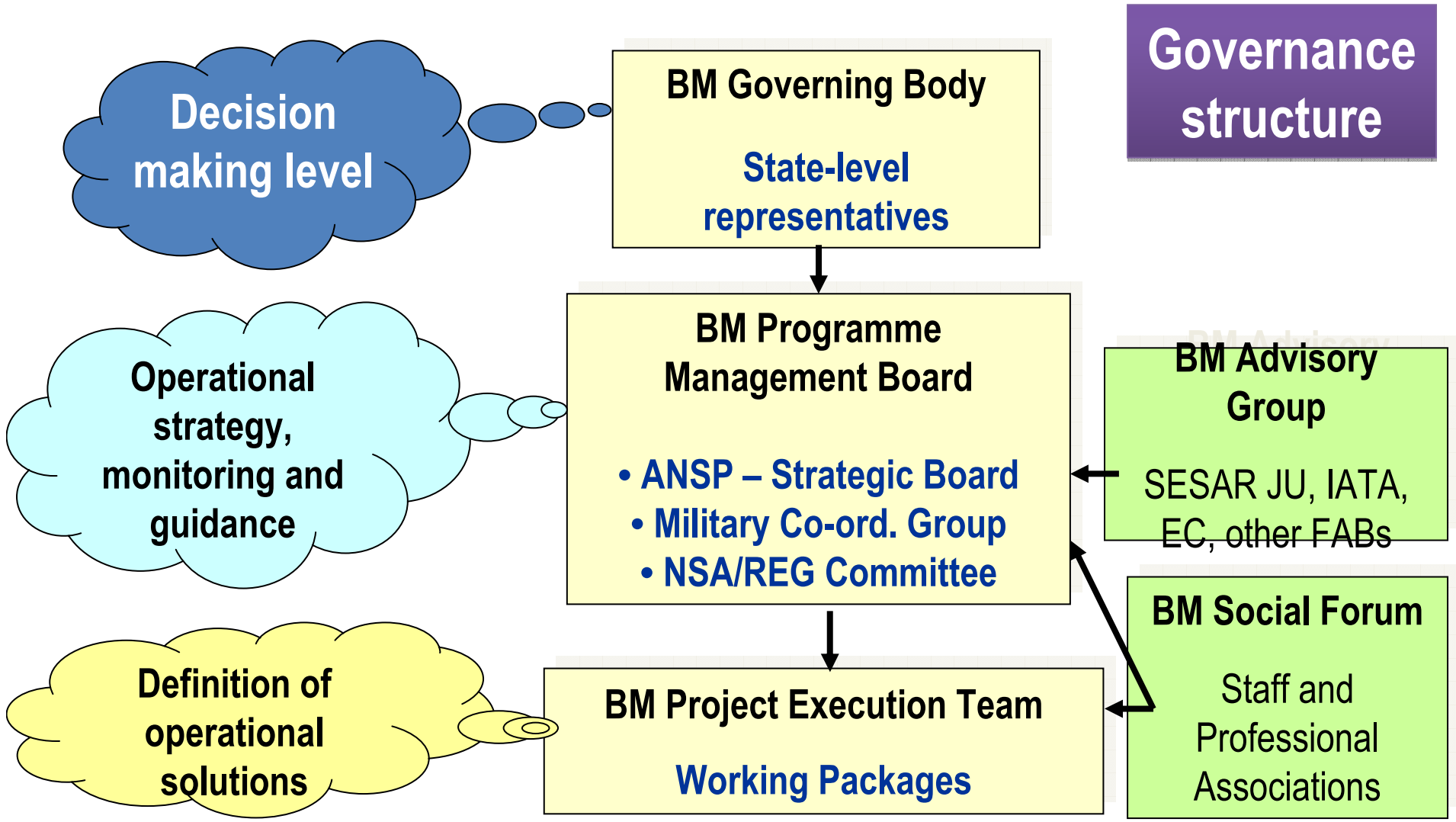


CEO perspective on FAB Safety…

- *Where do we stand today, together as a FAB ?*
- *Where do we want to go ?*
- *How do we get there ?*
- *Do we meet the regulatory requirements ?*
- *Do we have any new risks (due to the FAB) ?*
- *Are there any safety benefits to be gained ?*
- *Will it cost more or less than before ?*

FAB

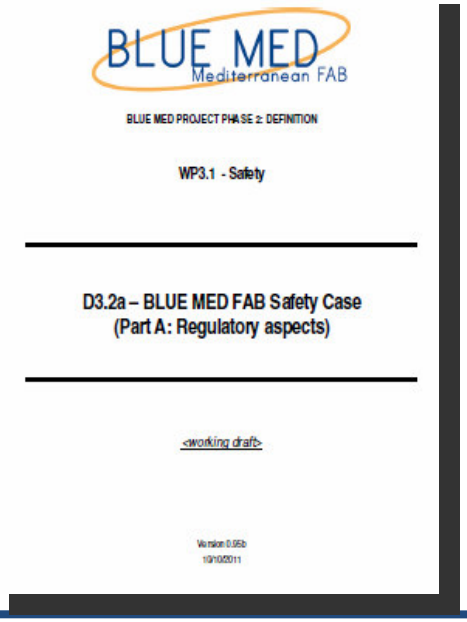
Safety Case

BLUE MED – Safety Case – document structure

For easy readability, the BM SC is presented in two documents:

D3.2a – BLUE MED FAB Safety Case (Part A: Regulatory aspects)

D3.2b – BLUE MED FAB Safety Case (Part B: Beyond Regulatory requirements)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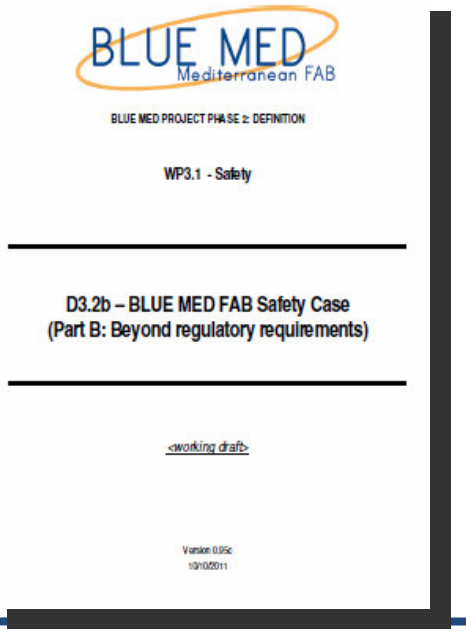
BLUE MED PROJECT PHASE 2: DEFINITION

WP3.1 - Safety

D3.2a – BLUE MED FAB Safety Case
(Part A: Regulatory aspects)

<working draft>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BLUE MED PROJECT PHASE 2: DEFINITION

WP3.1 - Safety

D3.2b – BLUE MED FAB Safety Case
(Part B: Beyond regulatory requirements)

<working draft>

BLUE MED – Safety Case – Argumentation

The three main arguments supporting the claim that the FAB can be implemented in a manner which is acceptably safe:

Arg.1 – Safety culture will be developed

FAB Safety Policy and Safety Culture surveys at FAB level

Arg.2 – Safety will be managed

FAB SMS Roadmap

Arg.3 – Safety will be overseen

Coordination of NSA oversight activities

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FAB SMS roadmap…

…action plan aligned with the reference periods of the performance regulation…

2012 | **2013 – 2014** | **2015+** | **2020**

SHORT TERM

- FAB Safety Policy
- FAB SMS organisation
- Occurrence reporting and assessment
- Risk Management
- Setup of FAB Safety Performance monitoring
- FAB Safety Programme

MID-TERM

- Harmonisation of SMSs
- Implementation of FAB Safety Performance monitoring
- FAB-wide occurrence reporting and assessment
- Adoption of best practices
- Harmonisation of safety culture
- FAB Safety Report

LONG TERM

- One unique FAB SMS
- Continuous improvements through FAB-wide surveys
- Management of external services
- Ensure harmonised competence in all SMS areas
- FAB Acceptable levels of safety
- Going beyond FAB boundaries

Performance IR – First Ref. Period

Performance IR – Second Ref. Period

Ref	(EU) 176/2011 requirement (Annex, Part 2)	Safety Argument	Backing evidence	COMMENT
With regard to the functional airspace block safety case, the following information is hereby provided:				
R1	(a) The common safety policy or plans to establish a common safety policy	Arg. 1	D3.3 – FAB SMS Roadmap, 7.1	COMPLIANT
R2	(b) A description of the arrangements dealing with accident and incident investigation and plans on how to address safety data collection, analysis and exchange;	Arg. 2.1	FAB State Level FAB Agreement Article X + D3.3 – FAB SMS Roadmap 7.4, 7.8, 8.7	COMPLIANT
R3	(c) A description of the safety management system in place or planned to avoid degradation in safety performance within the functional airspace block;	Arg. 2.2	D3.3 – FAB SMS Roadmap 7.6, 7.7, 8.2, 8.7	COMPLIANT
R4	(d) A description of the arrangements clearly identifying and allocating the responsibilities and interfaces with relation to the setting of safety targets, safety oversight and the accompanying enforcement measures in regard to the provision of air navigation services within the functional airspace block;	Arg. 2.3 Arg. 3	D3.3 – FAB SMS Roadmap 7.7, 8.2 **NSA Agreement**	COMPLIANT
R5	(e) Documentation and/or statements that the safety assessment including hazard identification, risk assessment and mitigation **has been conducted before introducing operational changes** resulting from the establishment or modification of the functional airspace block;	Arg. 2.4	D3.2 (this document), Part B and Annex 2	COMPLIANT

Compliance Matrix

Going beyond the Regulation…
Demonstration of safety benefits

CEO perspective on FAB Safety…

- *Are there any safety benefits to be gained ?*

What information is most useful for the decision makers…

…What is the ***overall*** safety impact of the foreseen changes ?…

…Which changes have the *most significant* safety impact ?…

…***What*** is the safety impact on operations (positive / negative) ?…

Hence, identify need for mitigations

…If the changes are implemented in the framework of the FAB are there safety benefits to be gained ? (or, are the risks mitigated more effectively ?)

…

Demonstration of safety benefits – HOW ?

…How can you compare the safety effect, given the dissimilar type of changes ?

…introduction of technological improvements (e.g. automation)

…vs

…airspace related changes (new routes etc..)

Demonstration of safety benefits – HOW ?

...Novel approach is needed !

EUROCONTROL

Step 1: Identify changes with a safety significance (e.g. Comms, coordination etc…)

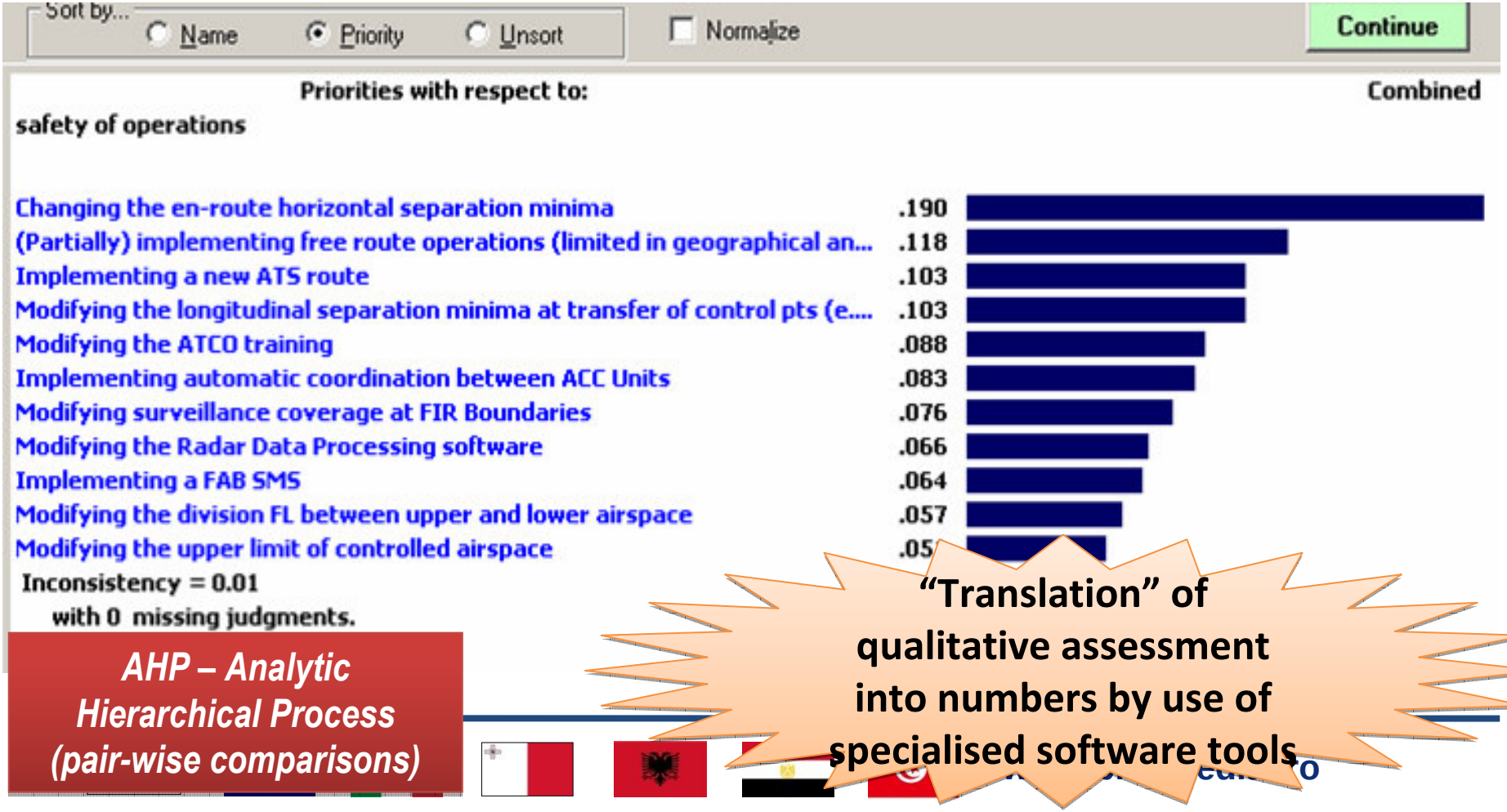
Step 2: Decide on relative safety significance, using expert judgement *e.g. what can have the highest safety impact, loss of COMMS or loss of SUR ?*

Step 3: Assess (*qualitatively*) on *what* the impact may be (positive / negative)

Step 4: Assess whether introducing the changes in the framework of the FAB has safety benefits (…and why and by how much)

Demonstration of safety benefits – HOW ?

Step 2: Decide on relative safety significance, using expert judgement

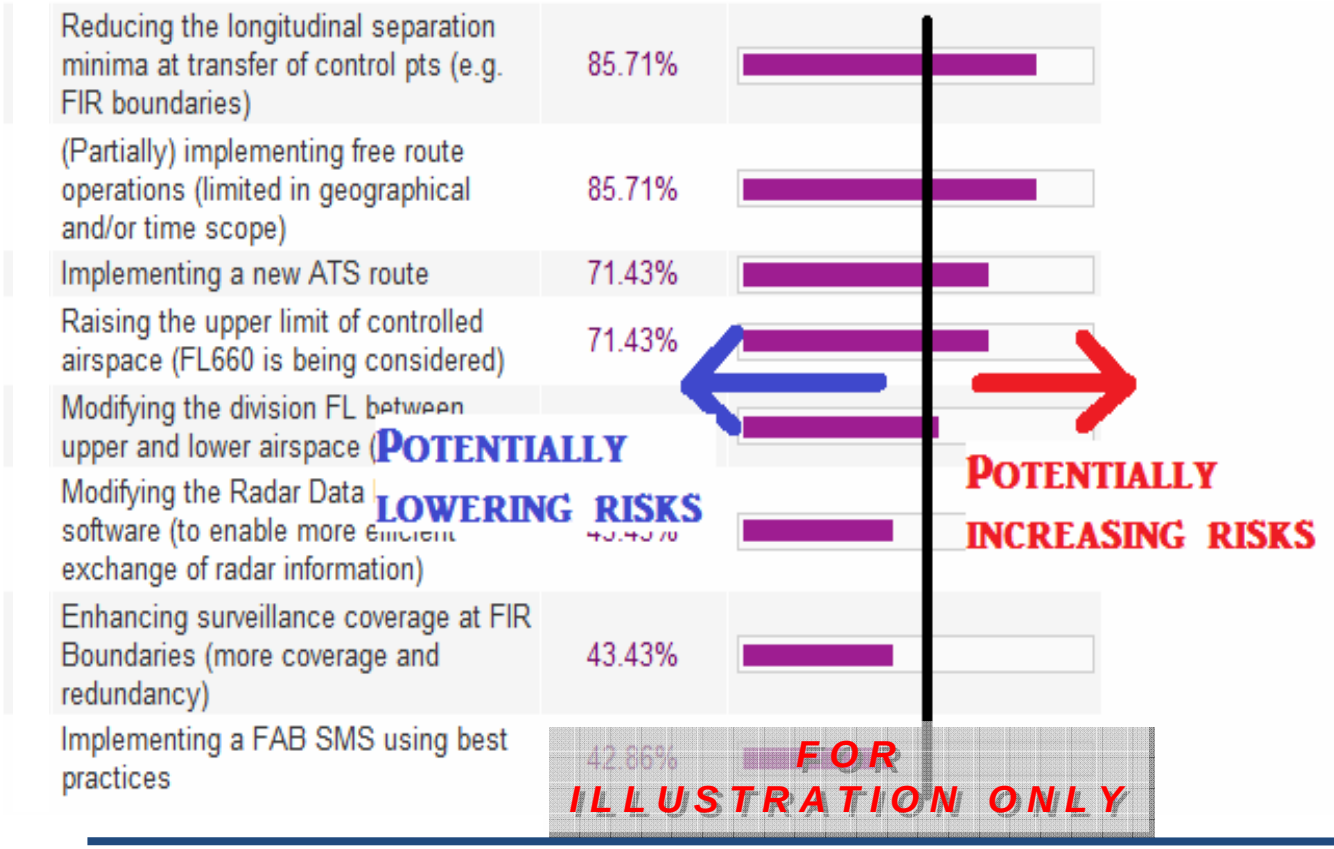


AHP – Analytic Hierarchical Process (pair-wise comparisons)

"Translation" of qualitative assessment into numbers by use of specialised software tools

Demonstration of safety benefits – HOW ?

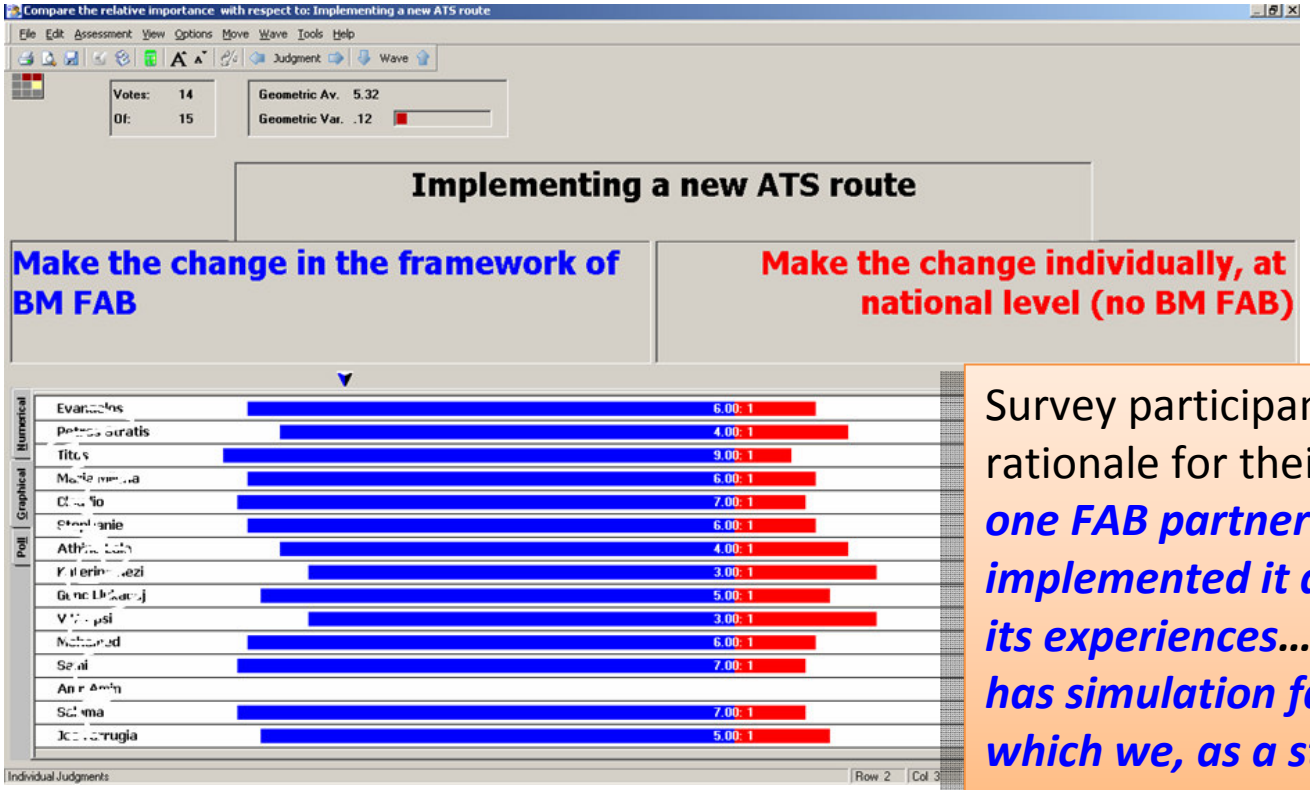
Step 3: Assess (*qualitatively*) on ***what*** the impact may be (positive / negative)



Information which can help FAB management to prioritise changes with respect to mitigations required

Demonstration of safety benefits – HOW ?

Step 4: Assess whether introducing the changes in the framework of the FAB has safety benefits (…and why and by how much)



SC safety arguments

Survey participants also offer the rationale for their replies e.g. ***"…because one FAB partner has already implemented it and we can learn from its experiences…"*** or ***"…because the FAB has simulation facilities and expertise which we, as a state, we don't have…"***

Demonstration of safety benefits – HOW ?

Putting it all together…

When the assessment has been completed, the consolidated result is a function of…

The relative safety significance of the change	**X**	**The assessed change to risk**	**X**	**The "influence" of the FAB in implementing the change**

In the case of BLUE MED, with the set of the foreseen changes, this was assessed to be positive…

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Demonstration of safety benefits – HOW ?

Putting it all together…

Domain / Change	Relative Weight	SAFETY EFFECT OF CHANGES		FAB FACTOR	SAFETY EFFECT WITH FAB
Modifying the en-route horizontal separation minima (5 NM under consideration)	0,199	2	0,398	0,697	0,277
Introducing Free route operations (limited in geographical and/or time scope)	0,113	1,67	0,189	0,717	0,135
Modifying ATCO Training according to best practice in the FAB	0,125	0,34	0,043	0,725	0,030
Implementing a new ATS route	0,082	1,33	0,109	0,812	0,088
Improving the coordination process between ACC Units (automatic - OLDI)	0,081	0,34	0,027	0,658	0,018
Improving surveillance coverage in FIR boundaries	0,068	0,02	0,001	0,732	0,0009
etc…	1,0		1,1		0,8

In this example, it is demonstrated that the foreseen changes can be implemented, in the framework of the FAB, with **reduced risk**

Thank you

Questions ?

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More info @…

http://www.bluemed.aero