

# ED-273 & ETSO-2C521

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# Limitations of the OEB process

- Current process has limitations:
  - Non-binding outcome (recommendations)
  - Lack of tools for change management, occurrence reporting...

## Industry requested a EASA involvement to be legally binding

- To better support operators
- To better support EU competent authorities
  - 28+4 Member States
  - Uneven level of knowledge
  - Requirements require expertise

*Still optional*

# ETSO Path - Scope

- (1) EFB Hardware (platform)
- (2) EFB Software (classification, HMI, software assurance...)
- (3) Non-airline specific ops issues (generic risk assessment, training syllabus, generic procedures and admin guidelines...)
- (4) Airline-specific ops issues (EFB administration, risk assessment, SOPs, maintenance, training, dispatch, integration in the A/C...)

- Tomorrow: **Optional path**

	H/W	S/W	Generic Ops	Specific Ops
EFB SW 'DOA'	N/A	Apply to EASA		N/A
EASA	(On request)	Evaluate & authorize		N/A
Operator	Responsible	Use installation & ops data		Responsible
NAA	Oversee	N/A		Approve

# Timeline ED-273 & ETSO-2C521

- Oct. 2016: WG-106 ToR approved by EUROCAE Council
- 2017-2020: 15 WG meetings
- Aug. 2021: ED-273 published
- Aug. 2022: CS-ETSO Amdt. 17 published with ETSO-2C521

# ED-273 MOPS Structure

## → General requirements (all apps)

- Functions Eligibility
- Safety Risk Assessment
- HMI
- Development Assurance
- Databases
- Security

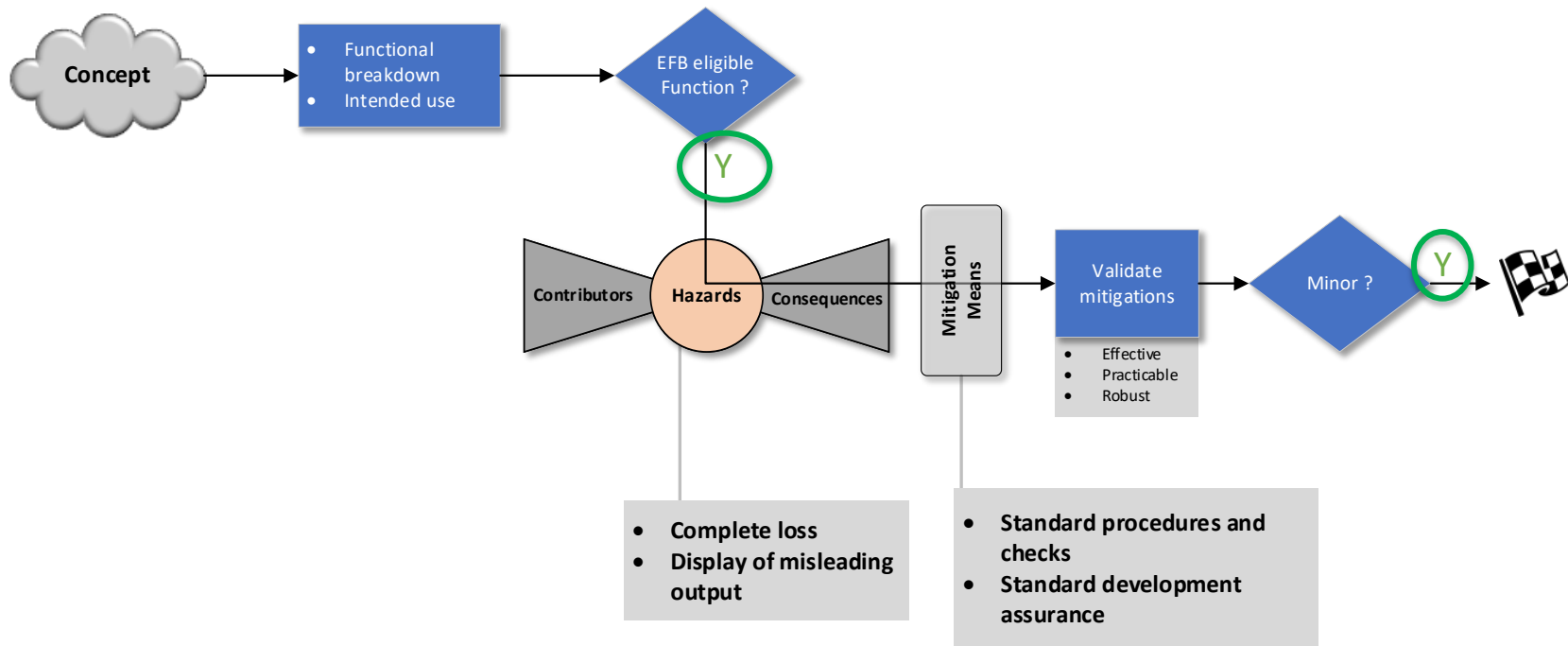
## → Specific requirements

- Aircraft Performance and Mass and Balance
- Own-ship Position
- Airport Moving Map Display
- In-Flight Weather
- Electronic Checklist
- Electronic Signature

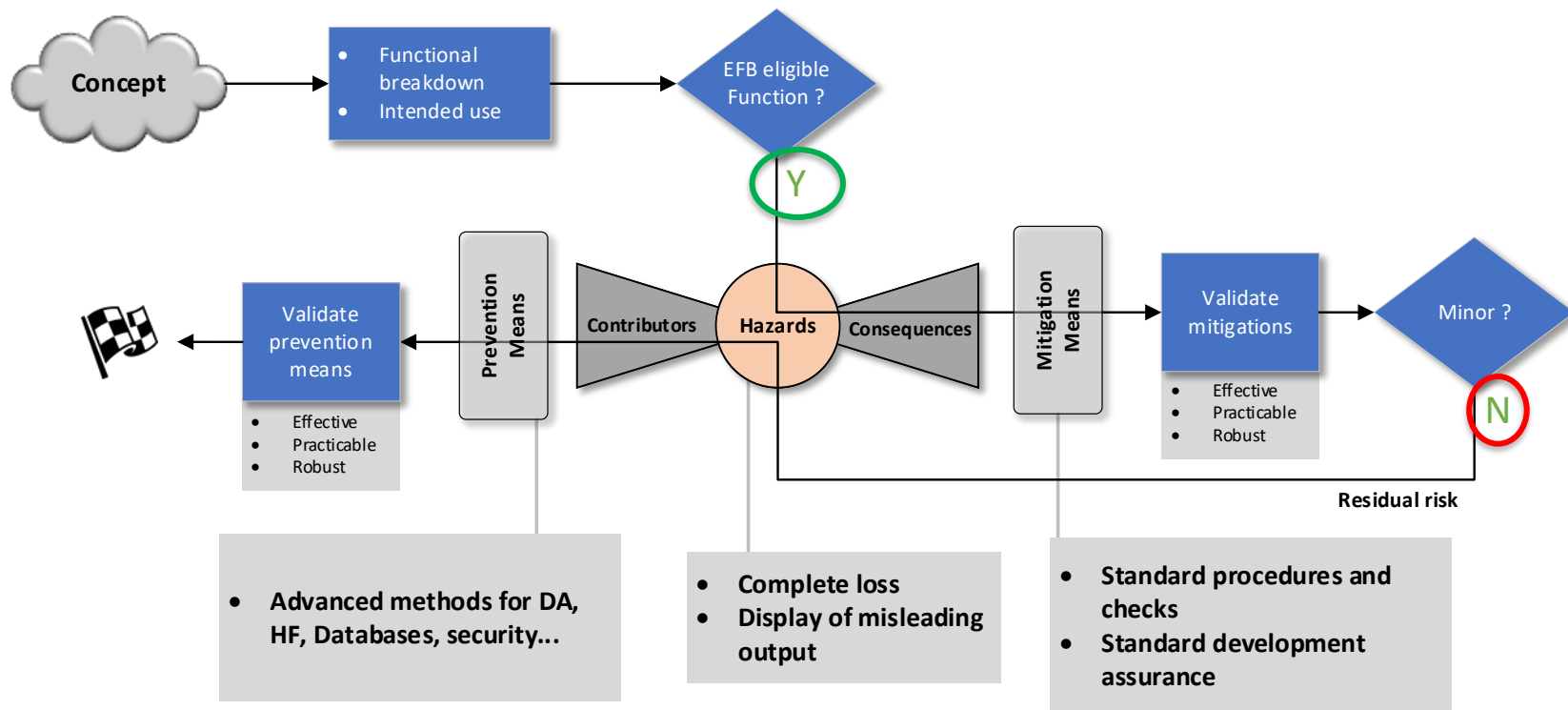
## → Operational and Installation instructions

## → Appendices: Examples

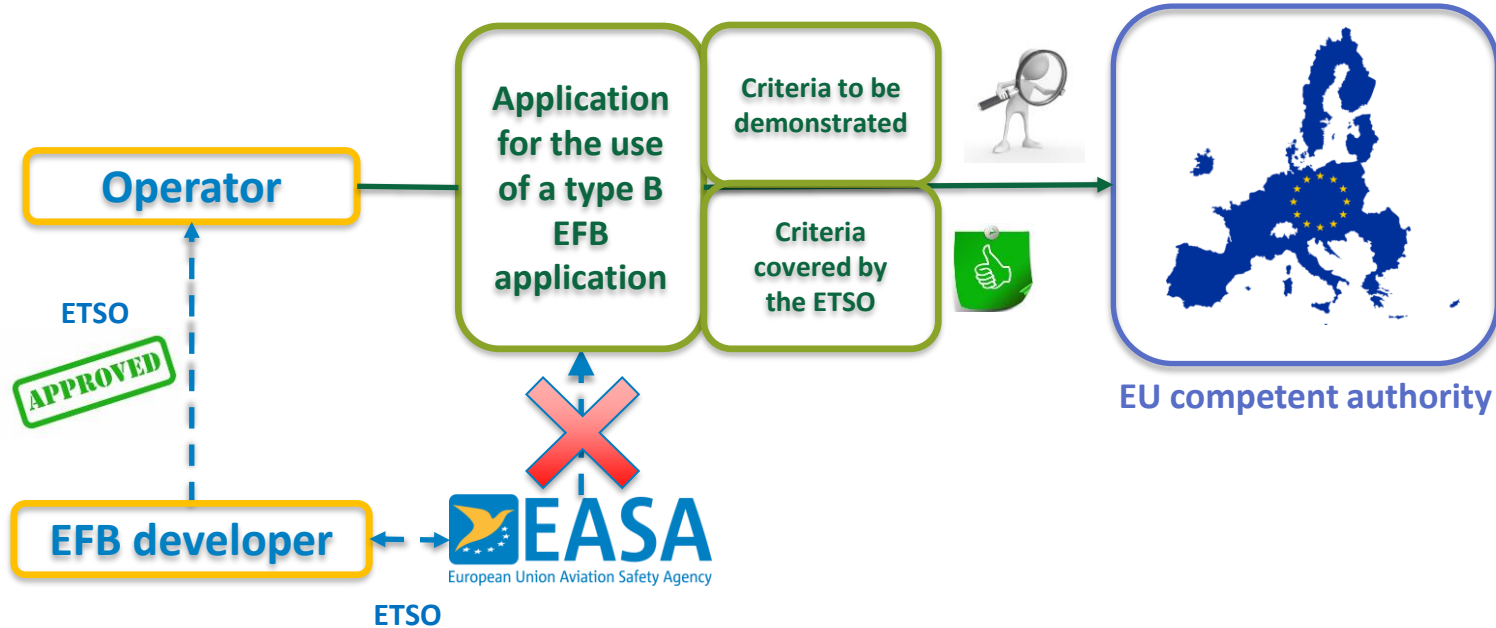
# Safety Risk Assessment



# Safety Risk Assessment



# EFB ETSO and OPS requirements



=> No further demonstration needed for the criteria covered by the ETSO..



# EFB ETSO and OPS requirements

Several hooks related to an ETSO approval are contained in the EFB regulation:

- AMC1 to CAT.GEN.MPA.141(b): eligibility and classification
- AMC4 to SPA.EFB.100(b): criteria covered by the ETSO.

## Eligibility/classification:

- In case of an ETSO approved EFB application:
  - It is considered eligible (if not listed in AMC2/3 to CAT.GEN.MPA.141(b), e.g. ECL)
  - Its classification is based on the assessment conducted during the ETSO approval process.
- For another EFB application having the same function and used with the same concept of operations (same intended use and same mitigations):
  - The severity conditions of the ETSO approved EFB application should be considered.
  - Its severity conditions cannot be less than the one of the ETSO approved EFB application.

# EFB ETSO and OPS requirements

## Areas where credit or partial credit can be provided by the ETSO:

- Human machine interface (HMI) assessment (AMC1 SPA.EFB.100(b)(2))
- Risk assessment (AMC1 SPA.EFB.100(b)(1))
  - The RA needs to be customised to the operator's specificities (operations, organisation,...)
- Electronic signature (para g) AMC3 SPA.EFB.100(b)(3))
- Security (para f) AMC3 SPA.EFB.100(b)(3))
- Criteria for specific applications (AMC5/6/9/10 SPA.EFB.100(b)(3))
  - Performance and mass & balance (AMC5)
  - AMMD (AMC6)
  - IFW (AMC9)
  - Own-ship position (AMC10)

# EFB ETSO and OPS requirements

Changes to an ETSO approved EFB application:

The 2 processes are independent:

- The ETSO amendment process
- the management of changes to an application for which an operator holds an operational approval.

⇒ Whenever the criteria or AMC2 SPA.EFB.100(b) are met, the change should be approved by the operator's CA.

⇒ In principle, changes to the:

⇒ HMI

⇒ Calculation algorithms

May not need a further assessment by the CA as they can be covered in the ETSO amendment.

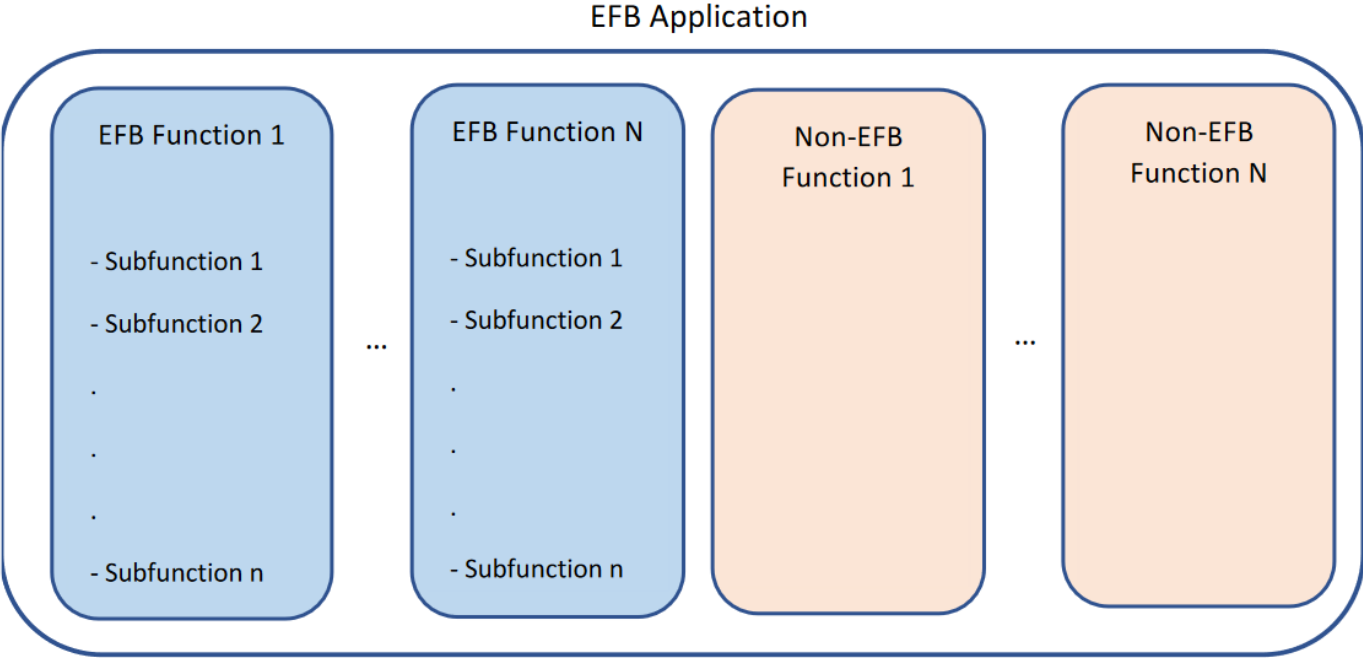
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# Functional Breakdown



**FIGURE 1: FUNCTIONAL BREAKDOWN**

# Development Assurance

**TABLE 3: FQL OBJECTIVES**

	Development process objective		FQL allocation	
	Section	Description	High	Low
Development plan	2.4.2.1.1	Minimum considerations	x	x
	2.4.2.1.2	Additional considerations	x	
Operational requirements	2.4.2.2.1	EFB Function operational requirements definition	x	x
	2.4.2.2.2	EFB application architecture definition	x	x
	2.4.2.2.3	EFB Function Operational Requirements validation	x	x
	2.4.2.2.4	EFB Function compliance with operational requirements	x	x
Software development	2.4.2.3.1	EFB Function software requirements definition	x	
	0	EFB function software requirements validation	x	
	2.4.2.3.3	EFB function compliance with software requirements	x	
Configuration Management	2.4.2.4.1	Configuration identification	x	x
	2.4.2.4.2	Baselines establishment	x	
	2.4.2.4.3	Problem reporting	x	x
	2.4.2.4.5	Change control	x	
	2.4.2.4.5	Archive	x	x
Application Release	2.4.2.5.1	EFB Application conformity	x	x
	2.4.2.5.2	Impact analysis of known issues	x	x
Quality Assurance Process	2.4.2.6	Quality assurance	x	x

# Provisions in Air Ops Regulation

- AMC1 CAT.GEN.MPA.141(b) - Application Classification
  - 'An application may also be recognised as a type A or type B EFB application through an appropriate approval (e.g. ETSO authorization) granted by EASA'
- AMC4 SPA.EFB.100(b) - EFB Applications With ETSO Authorisations
  - 'EFB software applications may be approved by the Agency e.g. by means of an ETSO Authorisation. Such EFB applications are considered compliant with the requirements of SPA.EFB.100(b) that are covered in the approval scope, provided the EFB software is installed and used in conformity with its installation and operational instructions and limitations.'