Smart procedure validation

Next level of quality and efficiency

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Smart Procedure Validation

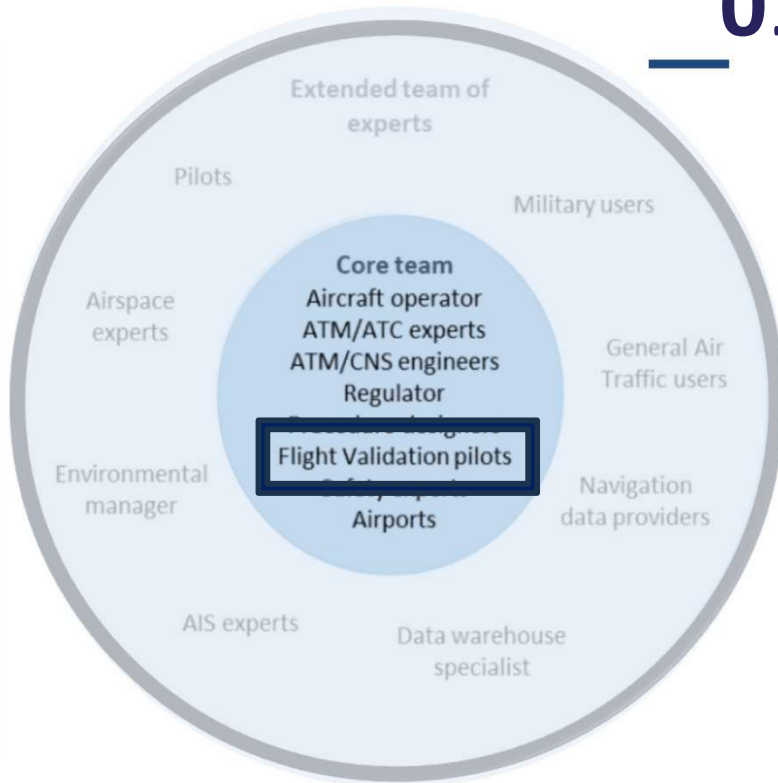**01** **Flight Operational Perspective**
ICAO EUR Doc 025 EUR –
　　　　FVP @ project start

02 **ICAO Doc 9906 Vol 5**
Flow chart difference between
Edition 1 and Edition 2

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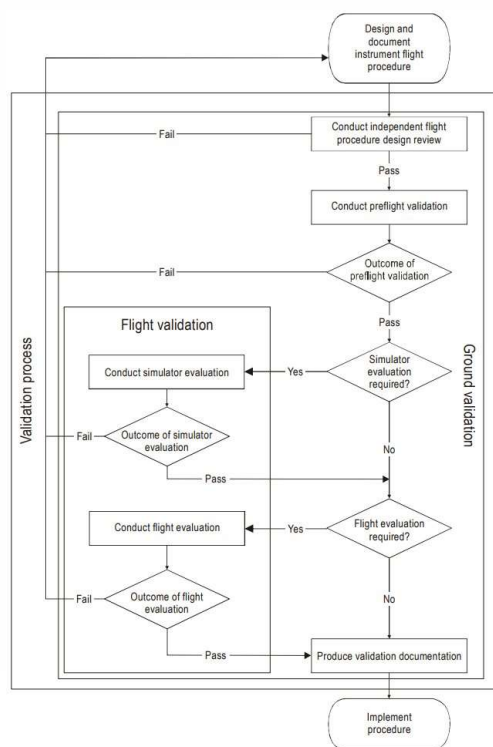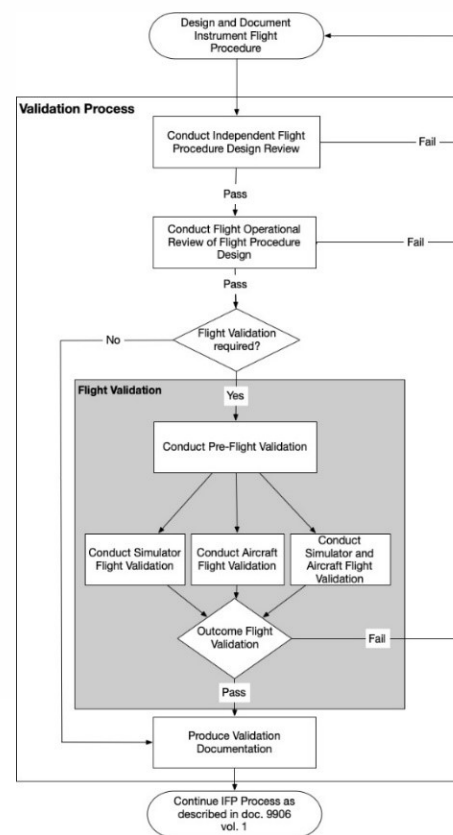# _01 Flight Operational Perspective

ICAO EUR Doc 025

5.2.3.1 A **multi-disciplinary team** is needed to ensure **all necessary aspects** of the implementation of RNP Approach procedures are **recognised** and adequately **addressed**
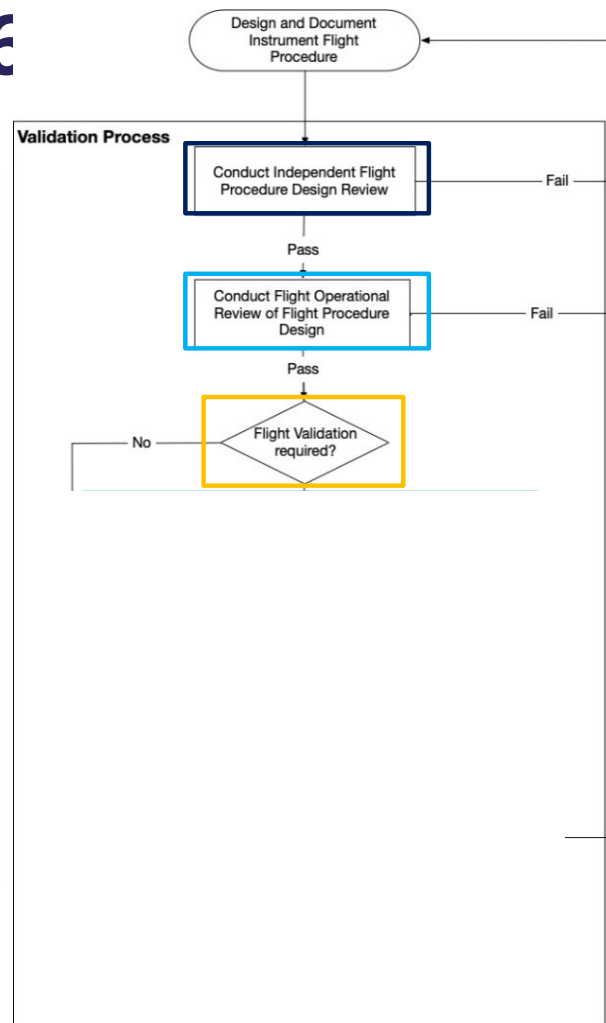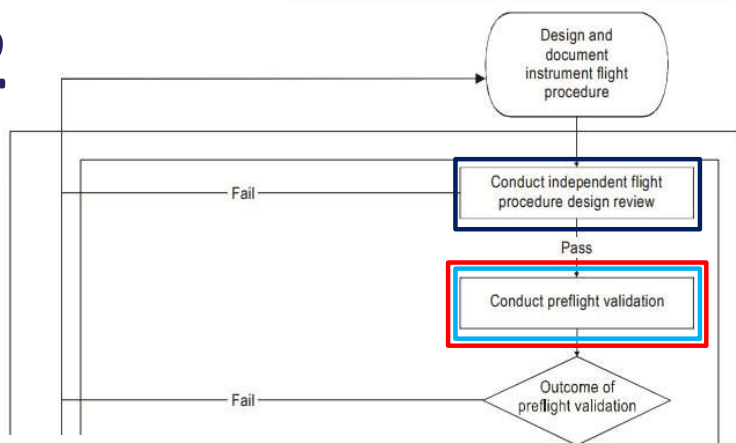
Use FVP at project start

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ICAO Doc 9906 Vol 5

edition 1

edition 2

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Simulator Flight Validation

Airplane or Helicopter

- Flyability - with most used aircraft type
- Human Factors and workload

- Efficiency – repositioning
- Weather – set as required
- Sustainable

- No interference with live traffic
- Enhanced GPWS (terrain DB) accurate

Aircraft Flight Validation

Airplane or Helicopter

- Obstacles and terrain reviewed
- Night flight validation
- Basic GPWS (radio altimeter) is correct
- GNSS interference identifiable
- Possible Flight Inspection combined with Flight Validation
- Human Factors and workload

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03   No Flight Validation (GV only)

9906 Vol 5 ed. 1 para 1.2.4

- Flyability of the procedure can be determined without flying

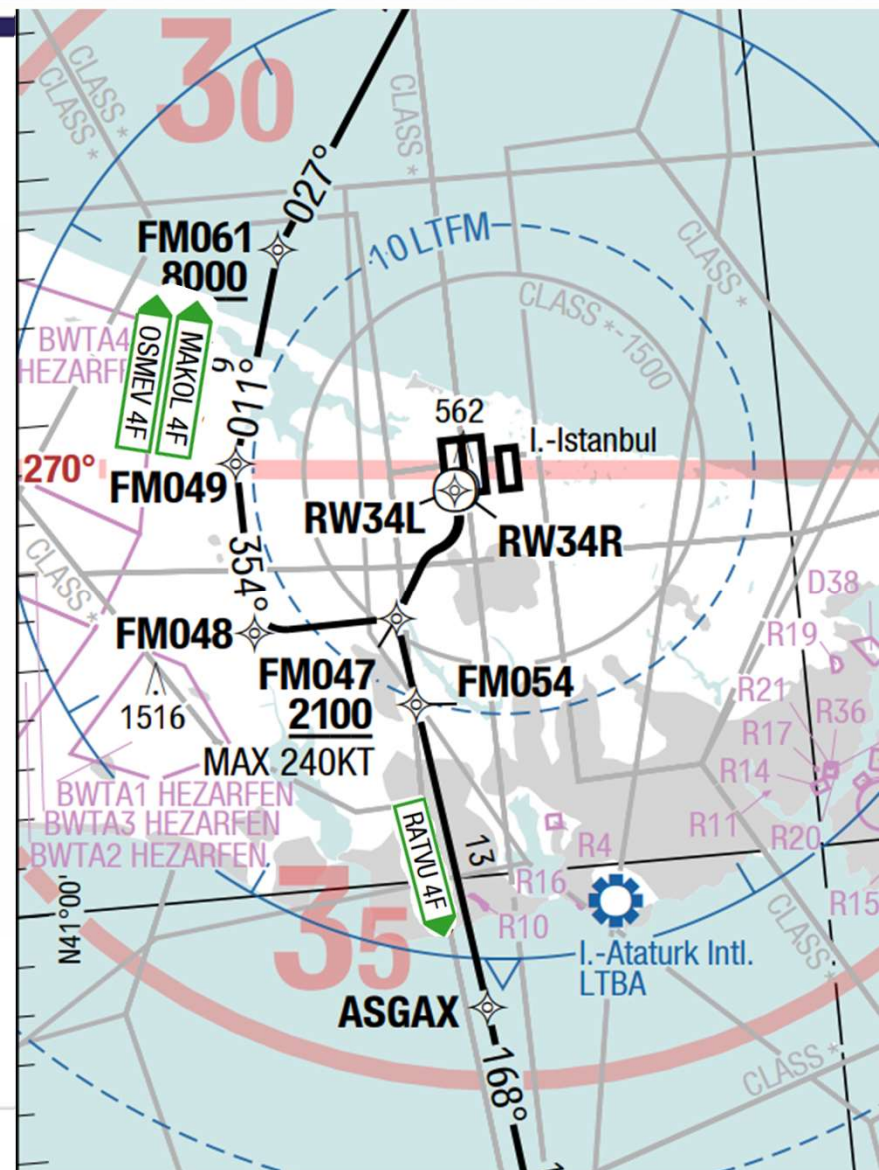- Procedure does not deviate from design criteria

→ What validation for REDFA 1A?

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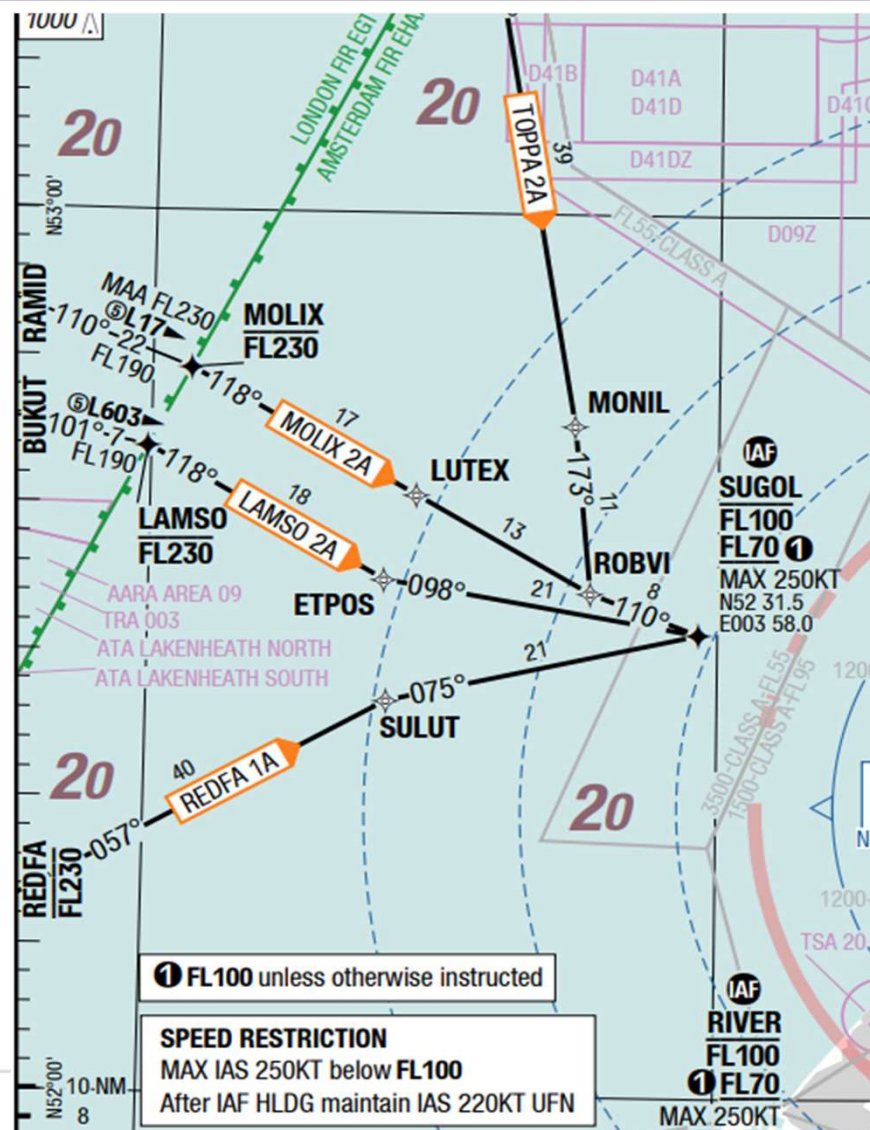
04 Aircraft Flight Validation

9906 Vol 5 ed. 1 para 1.2.4

- Flyability of the procedure cannot be determined by other means

- Procedure requires mitigation for deviations from design criteria

- Accuracy and/or integrity of obstacle and terrain data is insufficient

- New procedures differ significantly from existing procedures; and

- Helicopter PinS

- Night flight validation

→ **New airport with new SIDS and deviation in first turn**

→ **What validation for MAKOL 4F and RATVU 4F?**

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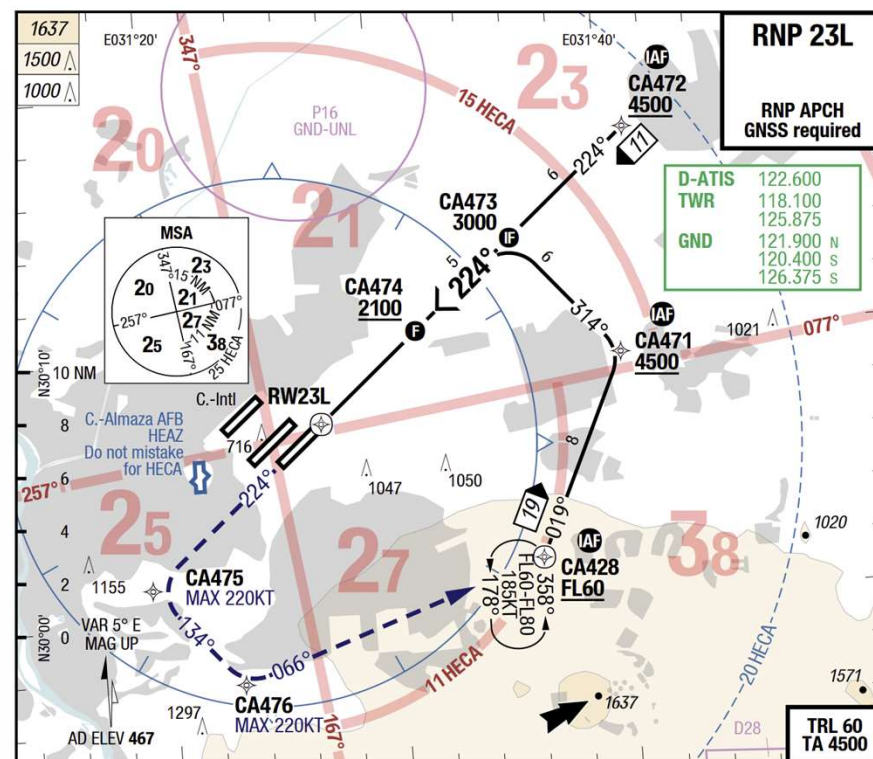# 05 Simulator Flight Validation

9906 Vol 5 ed. 1 para 1.2.4

- Flyability of the procedure cannot be determined by other means

- Procedure requires mitigation for deviations from design criteria

- ~~Accuracy and/or integrity of obstacle and terrain data is insufficient~~

- New procedures differ significantly from existing procedures; and

- Helicopter PinS

- ~~Night flight validation~~

→ **Obstacle survey performed prior design**

→ **Existing airport and existing ILS used at night**

→ **What validation for new RNP 23?**

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Regulator Opinion

Simulator Flight Validation for RNP APCH with LNAV, LNAV/VNAV and LPV

State / Regulator	FV with SIM only for RNP APCH – 3 minima lines *generally* accepted	Final decision based on
UK	yes	validation plan
Netherlands	yes	case by case
Denmark	yes	case by case
Sweden	no	n.a.
Italy	yes	case by case
Switzerland	yes	case by case

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Multiple procedures / airports

Experiences and Take Aways

New/ amended procedure	PBN implementation project	IFP validation = Project

Small projects:

→ depends on the procedures

Large projects:

~ 50% no Flight Validation

~ 35% Simulator FV

~ 15% Aircraft FV

IFP Validation is part of Flight Procedure Design, which is **project based**, not yearly recurring activity.

Flight Validation ≠ Flight Inspection

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Simple is not easy!

PVS as pathfinder
to manage efficient
implementation and validation

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