

# OSD Simulator Data

EASA OSD Workshop – 21 October 2015

**Jens Krüger – Senior Expert Flight Simulation Training Devices**

Your safety is our mission.

EASA is an agency of the European Union





# Content

- Simulator Data – one constituent of OSD
- CS-SIMD
- EASA Process: Initial Application for OSD SIM -> Approval
- Flow of data provision
- Validation Data Roadmap (VDR) Document
- Involved parties: From data provision to 1<sup>st</sup> FSTD evaluation



# Simulator Data – one constituent of OSD

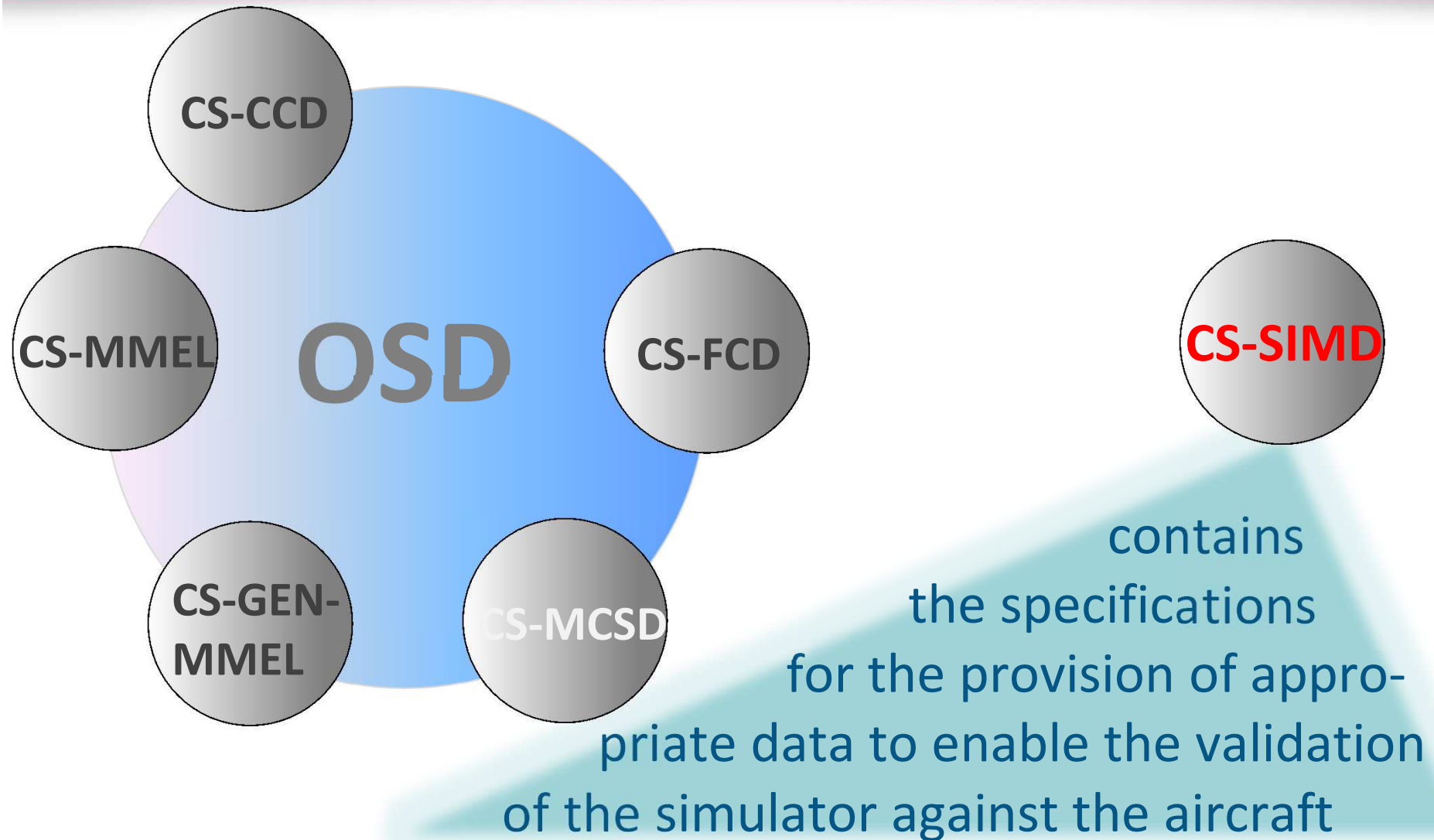
## Objective:

Provision of data to be used to validate by objective comparison that simulators used for type-rating training represent the type of aircraft.





# Simulator Data – one constituent of OSD



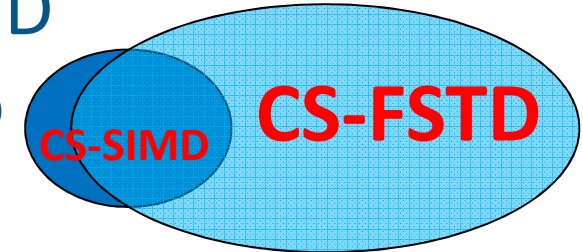


# CS-SIMD

Is CS-SIMD something completely new ?



Most of the elements of CS-SIMD were already part of CS-FSTD to be applied for the evaluation of Flight Simulation Training Devices (FSTD).

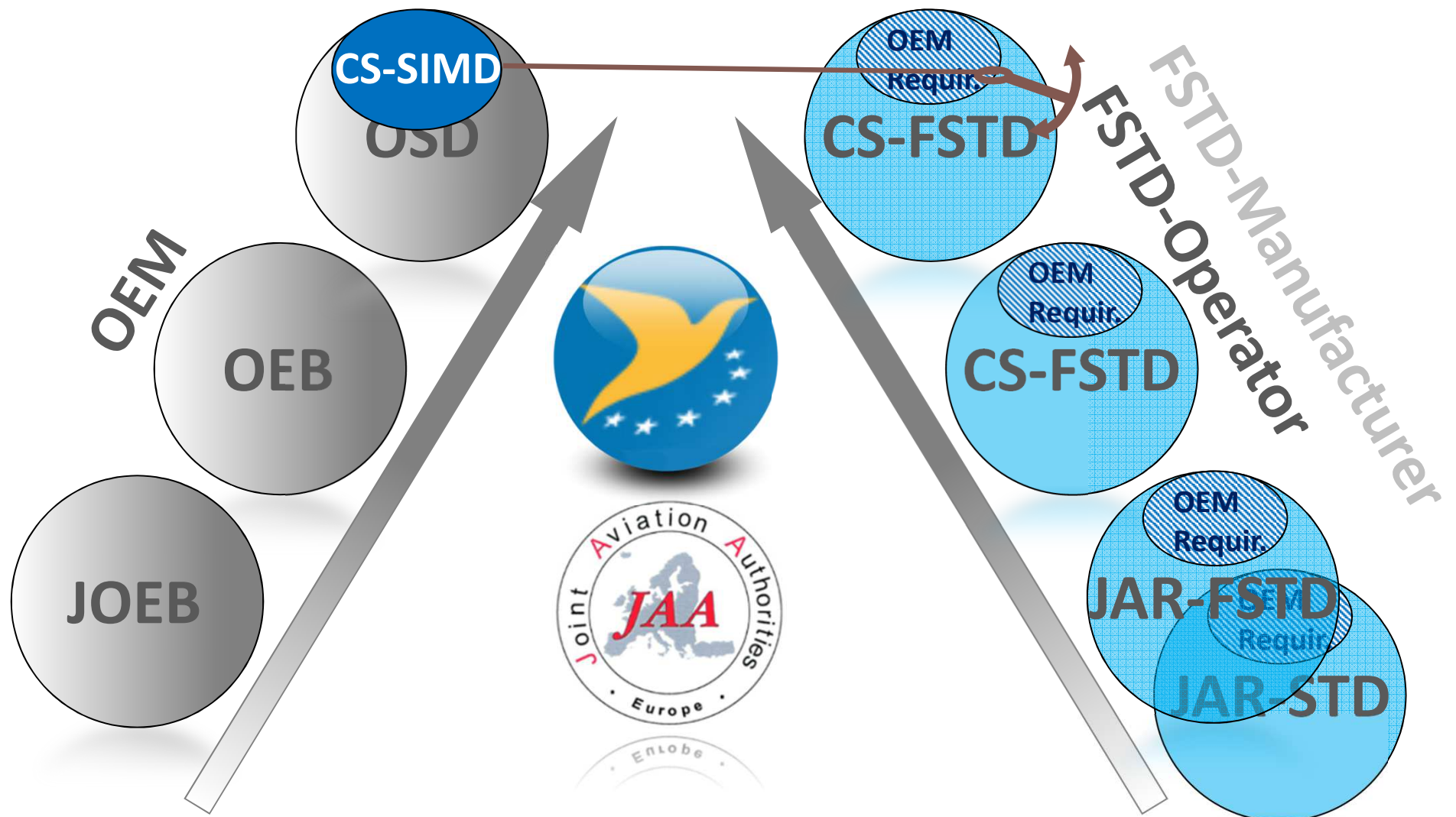


It was always essential to demonstrate that simulators are representative of the aircraft type concerned.





# CS-SIMD





# CS-SIMD



Why has CS-SIMD been drafted as a separate document under OSD Part-21 ?

## Before:

- boundary between tasks of data provider (e.g.OEM) and FSTD manufacturer/FSTD operator leading to a successful evaluation of the final product – the simulator – was a little bit blurry





# CS-SIMD



Why has CS-SIMD been drafted as a separate document under OSD Part-21 ?

## New:

- area of responsibility for an OEM becomes more clear
- voluntary OEB process -> mandatory OSD process to provide all source data required for validation (sim vs. a/c) before EIS of the aircraft





# CS-SIMD



Why has CS-SIMD been drafted as a separate document under OSD Part-21 ?

New:

- the provision of source data will be done by an authority-approved '*definition of scope of validation source data (VSD)*'



# CS-SIMD Applicability



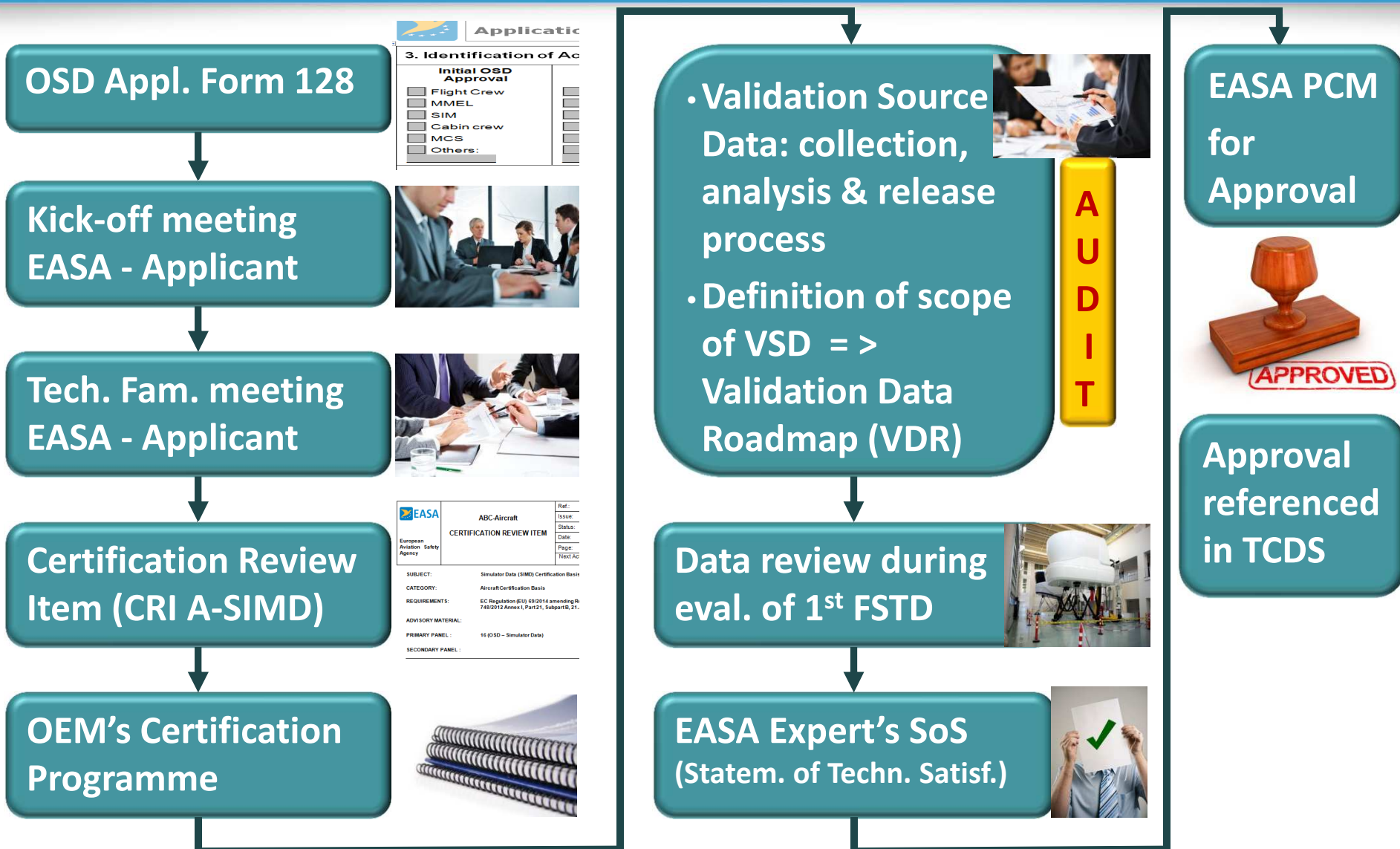
Applicability - to whom and when ?

- TC applicants for which the pilot type rating training makes use of Level B, C or D full flight simulators (FFS) for aeroplanes and helicopters and level 3 flight training devices (FTD) for helicopters
- Applicants requesting a change to an already approved '*definition of scope of VSD*'
- Applications for TC filed after 17 Feb 2014  
(Art. 7a of Com. Reg. (EU) No 69/2014 amending No 748/2012)



# EASA Process

## Init. application for OSD-SIM -> Approval

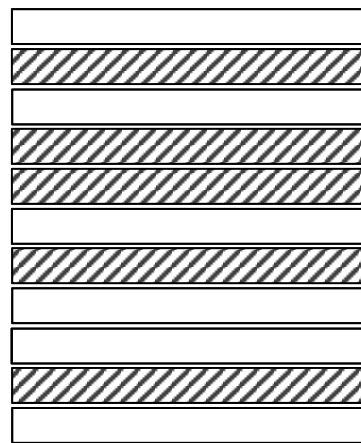




# Flow of data provision

## Validation Source Data

### Definition of Scope of Validation Source Data



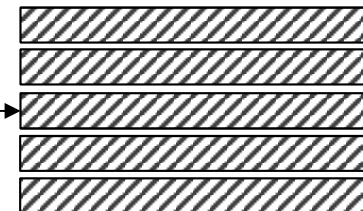
- Ground Test Data
- Flight Test Data
- Engineering Data (interim C)
- References to config. items like:
  - A/C systems
  - Avionics
  - Engine Version(s)
  - etc.

### Validation Data Roadmap (VDR)

Validation Document		Comments	
Document ID	Document Title	Document ID	Document Title
1.1.1	Minimum Level of Detail (MLD)	1.1.1	MLD
1.1.2	Minimum Level of Detail (MLD)	1.1.2	MLD
1.1.3	Minimum Level of Detail (MLD)	1.1.3	MLD
1.1.4	Minimum Level of Detail (MLD)	1.1.4	MLD
1.1.5	Minimum Level of Detail (MLD)	1.1.5	MLD
1.1.6	Minimum Level of Detail (MLD)	1.1.6	MLD
1.1.7	Minimum Level of Detail (MLD)	1.1.7	MLD
1.1.8	Minimum Level of Detail (MLD)	1.1.8	MLD
1.1.9	Minimum Level of Detail (MLD)	1.1.9	MLD
1.1.10	Minimum Level of Detail (MLD)	1.1.10	MLD
1.1.11	Minimum Level of Detail (MLD)	1.1.11	MLD
1.1.12	Minimum Level of Detail (MLD)	1.1.12	MLD
1.1.13	Minimum Level of Detail (MLD)	1.1.13	MLD
1.1.14	Minimum Level of Detail (MLD)	1.1.14	MLD
1.1.15	Minimum Level of Detail (MLD)	1.1.15	MLD
1.1.16	Minimum Level of Detail (MLD)	1.1.16	MLD
1.1.17	Minimum Level of Detail (MLD)	1.1.17	MLD
1.1.18	Minimum Level of Detail (MLD)	1.1.18	MLD
1.1.19	Minimum Level of Detail (MLD)	1.1.19	MLD
1.1.20	Minimum Level of Detail (MLD)	1.1.20	MLD
1.1.21	Minimum Level of Detail (MLD)	1.1.21	MLD
1.1.22	Minimum Level of Detail (MLD)	1.1.22	MLD
1.1.23	Minimum Level of Detail (MLD)	1.1.23	MLD
1.1.24	Minimum Level of Detail (MLD)	1.1.24	MLD
1.1.25	Minimum Level of Detail (MLD)	1.1.25	MLD
1.1.26	Minimum Level of Detail (MLD)	1.1.26	MLD
1.1.27	Minimum Level of Detail (MLD)	1.1.27	MLD
1.1.28	Minimum Level of Detail (MLD)	1.1.28	MLD
1.1.29	Minimum Level of Detail (MLD)	1.1.29	MLD
1.1.30	Minimum Level of Detail (MLD)	1.1.30	MLD
1.1.31	Minimum Level of Detail (MLD)	1.1.31	MLD
1.1.32	Minimum Level of Detail (MLD)	1.1.32	MLD
1.1.33	Minimum Level of Detail (MLD)	1.1.33	MLD
1.1.34	Minimum Level of Detail (MLD)	1.1.34	MLD
1.1.35	Minimum Level of Detail (MLD)	1.1.35	MLD
1.1.36	Minimum Level of Detail (MLD)	1.1.36	MLD
1.1.37	Minimum Level of Detail (MLD)	1.1.37	MLD
1.1.38	Minimum Level of Detail (MLD)	1.1.38	MLD
1.1.39	Minimum Level of Detail (MLD)	1.1.39	MLD
1.1.40	Minimum Level of Detail (MLD)	1.1.40	MLD
1.1.41	Minimum Level of Detail (MLD)	1.1.41	MLD
1.1.42	Minimum Level of Detail (MLD)	1.1.42	MLD
1.1.43	Minimum Level of Detail (MLD)	1.1.43	MLD
1.1.44	Minimum Level of Detail (MLD)	1.1.44	MLD
1.1.45	Minimum Level of Detail (MLD)	1.1.45	MLD
1.1.46	Minimum Level of Detail (MLD)	1.1.46	MLD
1.1.47	Minimum Level of Detail (MLD)	1.1.47	MLD
1.1.48	Minimum Level of Detail (MLD)	1.1.48	MLD
1.1.49	Minimum Level of Detail (MLD)	1.1.49	MLD
1.1.50	Minimum Level of Detail (MLD)	1.1.50	MLD
1.1.51	Minimum Level of Detail (MLD)	1.1.51	MLD
1.1.52	Minimum Level of Detail (MLD)	1.1.52	MLD
1.1.53	Minimum Level of Detail (MLD)	1.1.53	MLD
1.1.54	Minimum Level of Detail (MLD)	1.1.54	MLD
1.1.55	Minimum Level of Detail (MLD)	1.1.55	MLD
1.1.56	Minimum Level of Detail (MLD)	1.1.56	MLD
1.1.57	Minimum Level of Detail (MLD)	1.1.57	MLD
1.1.58	Minimum Level of Detail (MLD)	1.1.58	MLD
1.1.59	Minimum Level of Detail (MLD)	1.1.59	MLD
1.1.60	Minimum Level of Detail (MLD)	1.1.60	MLD
1.1.61	Minimum Level of Detail (MLD)	1.1.61	MLD
1.1.62	Minimum Level of Detail (MLD)	1.1.62	MLD
1.1.63	Minimum Level of Detail (MLD)	1.1.63	MLD
1.1.64	Minimum Level of Detail (MLD)	1.1.64	MLD
1.1.65	Minimum Level of Detail (MLD)	1.1.65	MLD
1.1.66	Minimum Level of Detail (MLD)	1.1.66	MLD
1.1.67	Minimum Level of Detail (MLD)	1.1.67	MLD
1.1.68	Minimum Level of Detail (MLD)	1.1.68	MLD
1.1.69	Minimum Level of Detail (MLD)	1.1.69	MLD
1.1.70	Minimum Level of Detail (MLD)	1.1.70	MLD
1.1.71	Minimum Level of Detail (MLD)	1.1.71	MLD
1.1.72	Minimum Level of Detail (MLD)	1.1.72	MLD
1.1.73	Minimum Level of Detail (MLD)	1.1.73	MLD
1.1.74	Minimum Level of Detail (MLD)	1.1.74	MLD
1.1.75	Minimum Level of Detail (MLD)	1.1.75	MLD
1.1.76	Minimum Level of Detail (MLD)	1.1.76	MLD
1.1.77	Minimum Level of Detail (MLD)	1.1.77	MLD
1.1.78	Minimum Level of Detail (MLD)	1.1.78	MLD
1.1.79	Minimum Level of Detail (MLD)	1.1.79	MLD
1.1.80	Minimum Level of Detail (MLD)	1.1.80	MLD
1.1.81	Minimum Level of Detail (MLD)	1.1.81	MLD
1.1.82	Minimum Level of Detail (MLD)	1.1.82	MLD
1.1.83	Minimum Level of Detail (MLD)	1.1.83	MLD
1.1.84	Minimum Level of Detail (MLD)	1.1.84	MLD
1.1.85	Minimum Level of Detail (MLD)	1.1.85	MLD
1.1.86	Minimum Level of Detail (MLD)	1.1.86	MLD
1.1.87	Minimum Level of Detail (MLD)	1.1.87	MLD
1.1.88	Minimum Level of Detail (MLD)	1.1.88	MLD
1.1.89	Minimum Level of Detail (MLD)	1.1.89	MLD
1.1.90	Minimum Level of Detail (MLD)	1.1.90	MLD
1.1.91	Minimum Level of Detail (MLD)	1.1.91	MLD
1.1.92	Minimum Level of Detail (MLD)	1.1.92	MLD
1.1.93	Minimum Level of Detail (MLD)	1.1.93	MLD
1.1.94	Minimum Level of Detail (MLD)	1.1.94	MLD
1.1.95	Minimum Level of Detail (MLD)	1.1.95	MLD
1.1.96	Minimum Level of Detail (MLD)	1.1.96	MLD
1.1.97	Minimum Level of Detail (MLD)	1.1.97	MLD
1.1.98	Minimum Level of Detail (MLD)	1.1.98	MLD
1.1.99	Minimum Level of Detail (MLD)	1.1.99	MLD
1.1.100	Minimum Level of Detail (MLD)	1.1.100	MLD

- Contains guidance from the data supplier recommending the best possible sources of data to be used as Validation Data in the MQTG

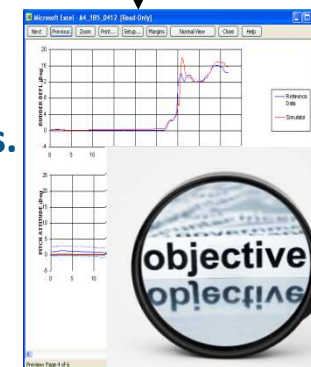
### Validation Data



### Master Qualification Test Guide:

- Comparison Simulator vs. Validation Data

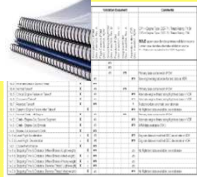
### MQTG





# Validation Data Roadmap (VDR) – Document (provided by the data supplier)

## Validation Data Roadmap (VDR)



Contains guidance from the data supplier recommending the best possible sources of data to be used as Validation Data in the MQTG

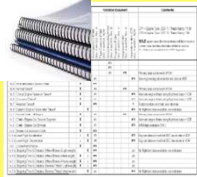
Guidance and information is *based on*:

- CS-FSTD
- Additional features selected by the applicant, e.g. related to
  - steep approaches,
  - Technical Areas of Special Emphasis (TASE),
  - special equipment,
  - etc.



# Validation Data Roadmap (VDR) – Document (provided by the data supplier)

## Validation Data Roadmap (VDR)



Contains guidance from the data supplier recommending the best possible sources of data to be used as Validation Data in the MQTG

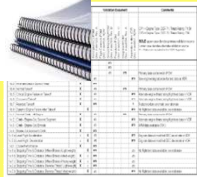
## Guidance and information *include*:

- Sources of all required tests in matrix format
- Revision levels of avionics affecting handling qualities and performance
- Rationales in case of missing data or parameters, use of engineering data, use of AFM data or when flight test methods require explanation, etc.
- Description of cause/effect of any deviation from data requirements
- References to other sources of validation data like sound and vibration data documents



# Validation Data Roadmap (VDR) – Document (provided by the data supplier)

## Validation Data Roadmap (VDR)



Contains guidance from the data supplier recommending the best possible sources of data to be used as Validation Data in the MQTG

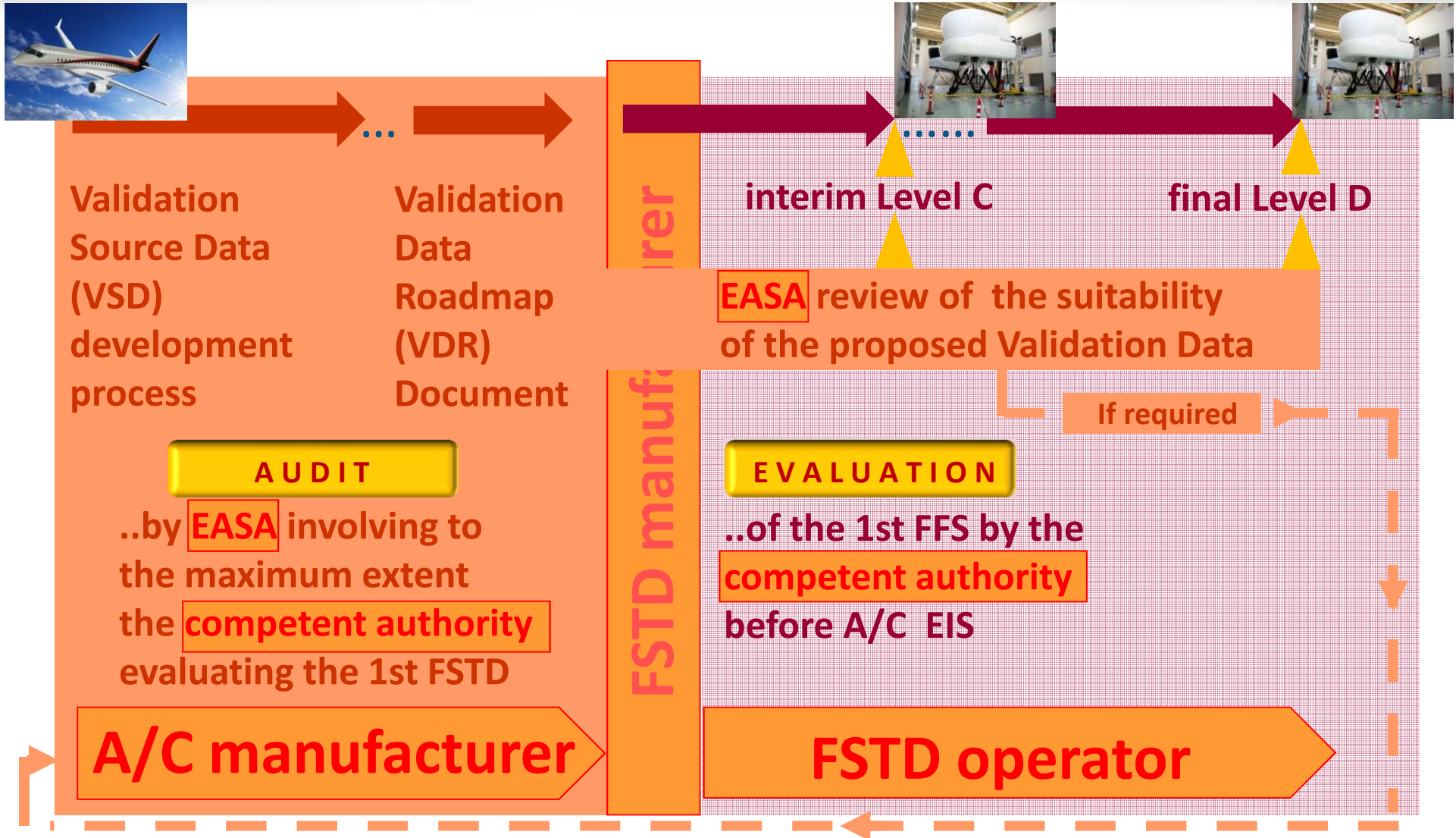
- With the applicability of CS-SIMD within OSD EASA will establish a list of approved VDRs  
⇒ VDR database
- Approved VDRs are OSD deliverables to be made available to FSTD manufacturers/operators for device validation
- In case a VDR is approved as part of the OSD for a certain A/C type others than the TCH can apply for an approval of an alternate VDR through the STC process under Part-21 Subpart E.

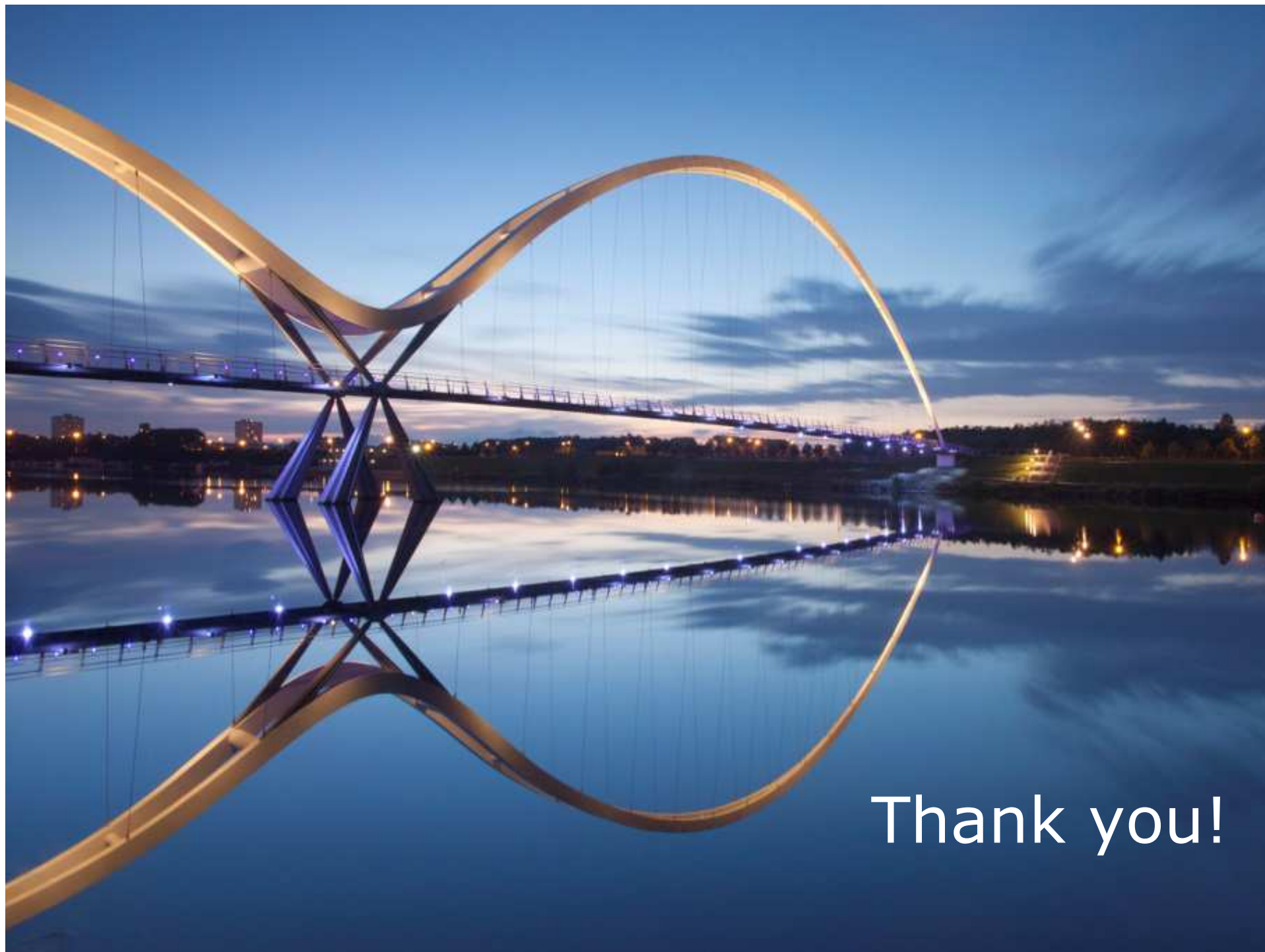




# Involved parties

– from data provision to 1<sup>st</sup> FSTD evaluation





Thank you!