



**EASA**  
European Aviation Safety Agency

# OSD Sim Data vs. FSTD Qualification

Aircrew Training Conference – Cologne, 06 Sept 2017

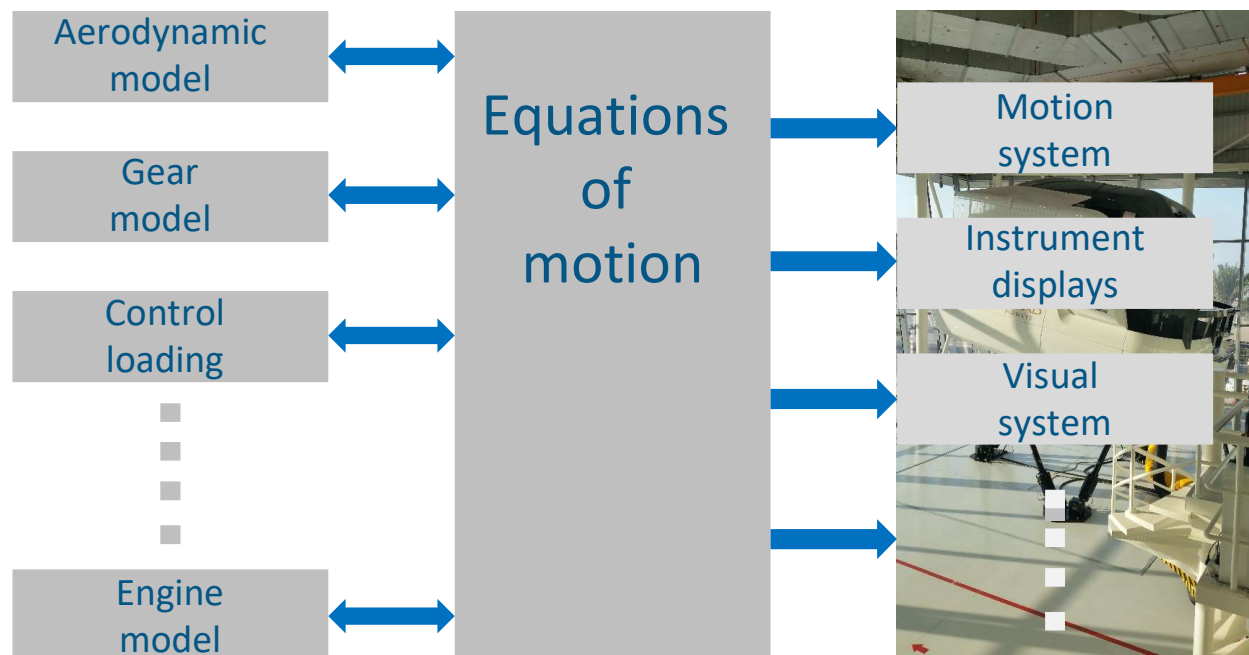
**Jens Krüger - Senior Expert Flight Simulation Training Devices, EASA**

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An agency of the European Union 

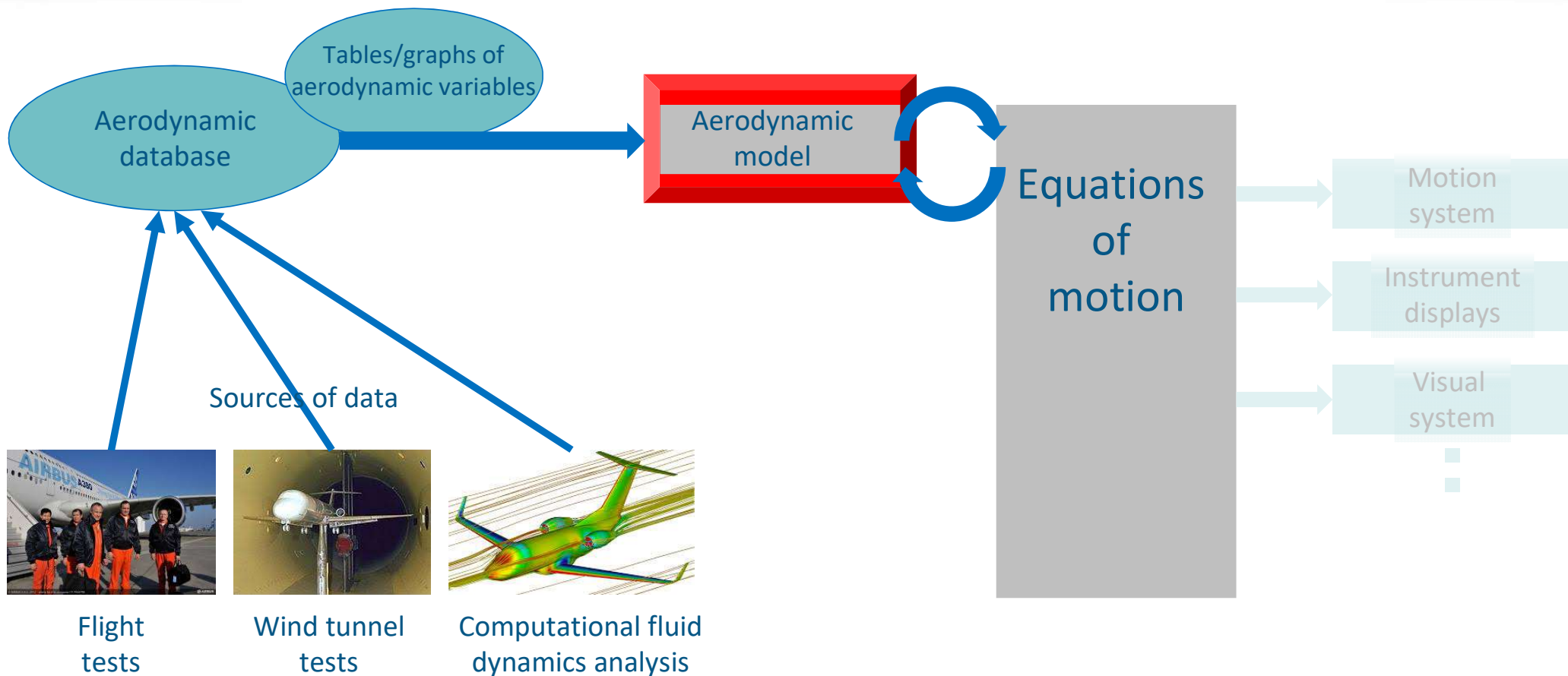


# How will data bring an FSTD to life ?



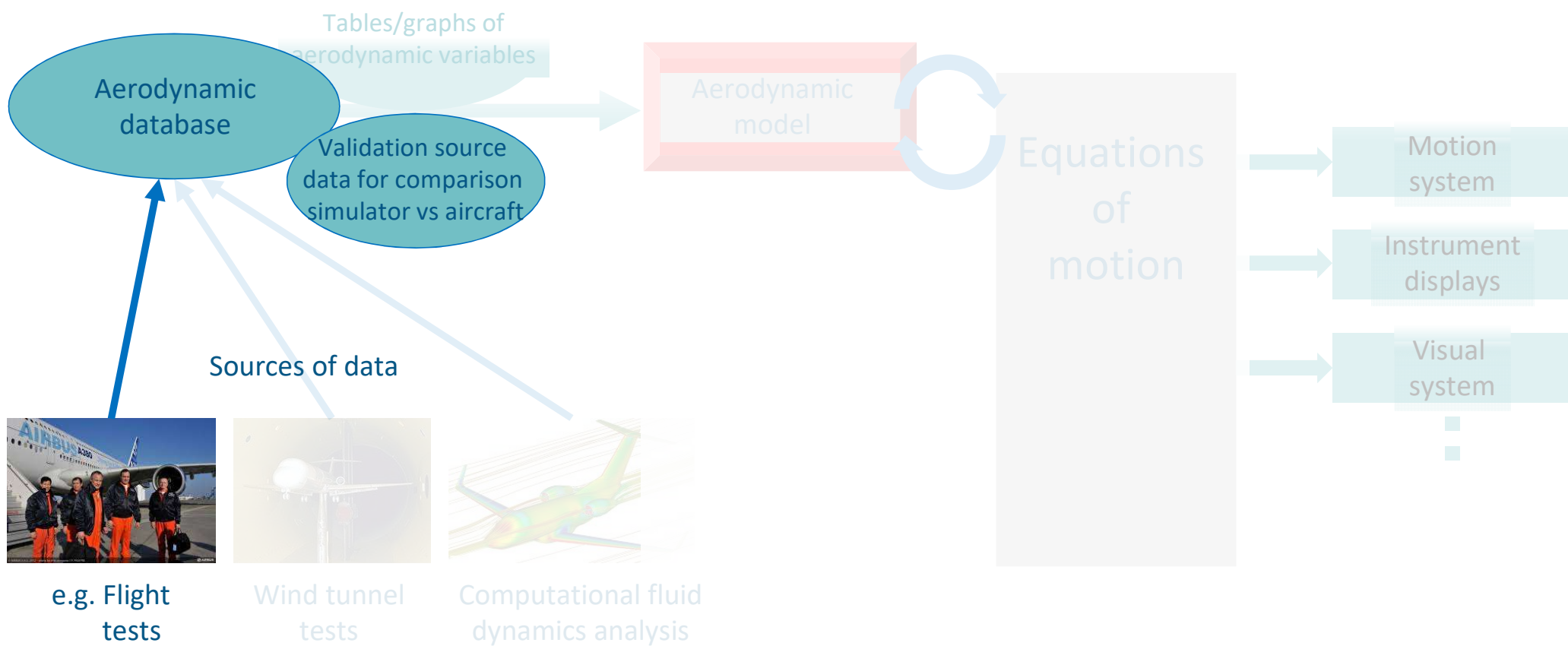


# Sources of data to bring an FSTD to life



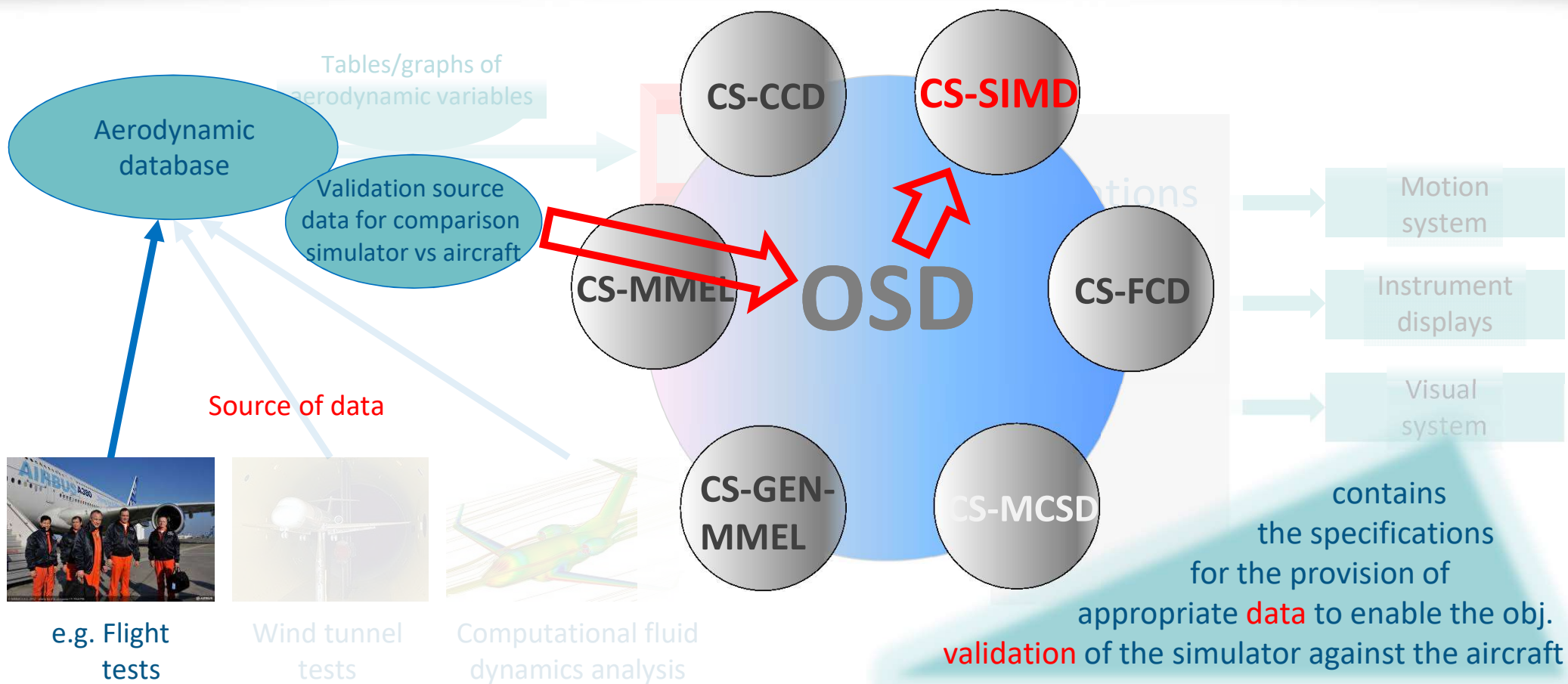


# Sources of data to bring an FSTD to life





# CS-SIMD - one constituent of OSD





# CS-SIMD Applicability

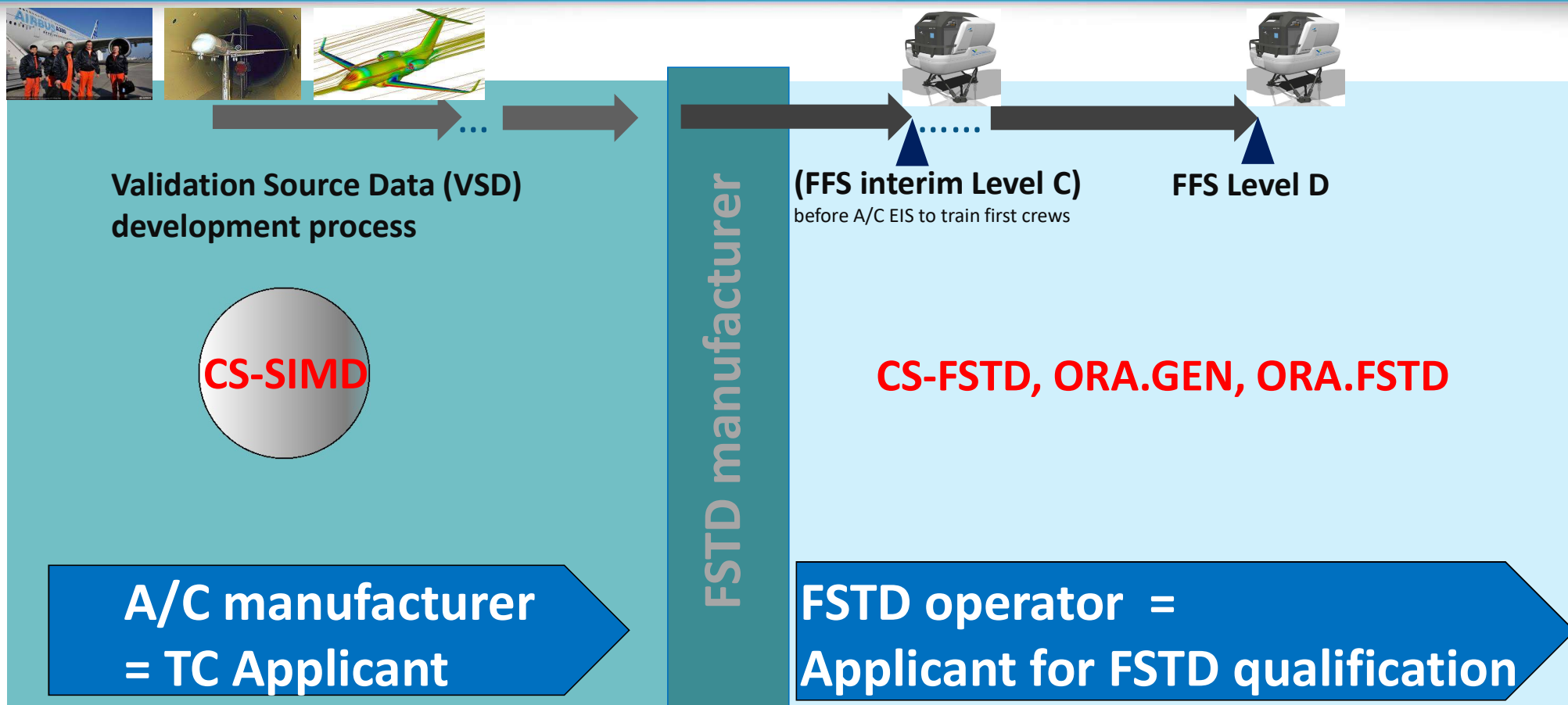


Applicability - to whom and when ?

- 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
- Applications for TC filed after 17 Feb 2014  
(Art. 7a of Com. Reg. (EU) No 69/2014 amending No 748/2012)



# OSD Sim Data vs. FSTD qualification





# OSD Sim Data vs. FSTD qualification



Are all necessary data made available.....

CS-SIMD



**Audit**

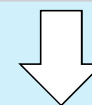
(EASA, authority competent for the evaluation of the 1st FSTD)

where applicable

CS-SIMD

..... to support the comparison of the simulator with the real A/C during the evaluation of the FSTD for qualification ?

CS-FSTD



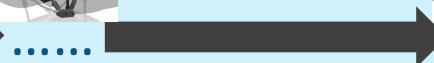
Objective & subjective **evaluation** of the FSTD (competent authority, EASA)

CS-FSTD





# OSD Sim Data vs. FSTD qualification



## **Audit scope:**

- Data gathering and processing
- Validation Data Roadmap (VDR)
- Config. Control

CS-SIMD

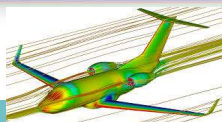
## **Evaluation:**

- **Objective tests**  
to compare the FSTD with Validation Data (A/C, eng. data)
- **Functional/subjective tests (Fly-out)**

CS-FSTD



# OSD Sim Data vs. FSTD qualification



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CS-SIMD

## Validation Data Roadmap (VDR)

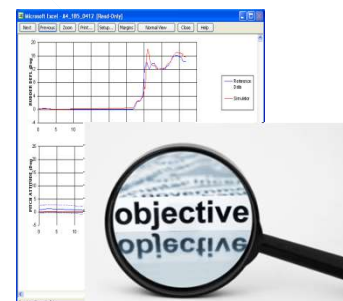
- Provision of tests required by CS-FSTD and their sources (flt test no., eng. data)
- Additional tests to cover:
  - specific A/C operations (e.g. steep approaches)
- Validation Source Data from CS-FCD requirements related to TASE
- revision levels of all avionics affecting aeroplane handling qualities and performance
- Rationales (eng. data used, deviations,...) etc.



.....



## Objective tests



Functional & subjective fly-out, following test profiles

CS-FSTD

[illegible]

## CS-SIMD



The screenshot shows a presentation slide with two plots and a magnifying glass graphic.

The top plot is titled "Total water volume" on the y-axis and "Time" on the x-axis. The x-axis ranges from 0 to 100. The y-axis ranges from 0 to 100. The plot shows two curves: a blue line labeled "Reference" and a red line labeled "Stroke". Both curves start at 0, remain flat until approximately time 40, then rise sharply to a peak of about 100 around time 60, and then gradually decrease. The red curve is slightly higher than the blue curve during the peak.

The bottom plot is also titled "Total water volume" on the y-axis and "Time" on the x-axis. The x-axis ranges from 0 to 100. The y-axis ranges from 0 to 10. The plot shows two curves: a blue line labeled "Reference" and a red line labeled "Stroke". Both curves start at 0, remain flat until approximately time 40, then rise sharply to a peak of about 10 around time 60, and then gradually decrease. The red curve is slightly higher than the blue curve during the peak.

A magnifying glass graphic is overlaid on the bottom right of the slide, focusing on the word "objective" which is repeated twice in a large, bold, black font.



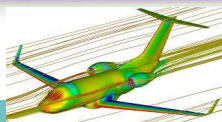
## CS-FSTD



# Importance of OSD Sim audit

and

# 1<sup>st</sup> FSTD evaluation which may lead to a qualification



...



.....



## Importance of **OSD Sim audit** of the VDR to check if,

- referring to CS-FSTD
  - the tests offered are complete and correctly recorded
  - the (flight)conditions are as required
  - all parameters for comparison are recorded
  - the A/C configuration is consistent
- rationales, where applicable, are contained in the VDR
- config. control process is in place to handle A/C evolution

CS-SIMD

## Importance of **1<sup>st</sup> FSTD evaluation** and qualification for a **new type of A/C** to check if,

- all information and suitable validation data have been provided to objectively and subjectively evaluate the device (e.g. sound test, vibration test,...)
  - the VDR can be finally approved
- and to assure for further initial and recurrent evaluations that**
- by using the same VDR the performance and handling qualities are matching the validation data within prescribed limits.

CS-FSTD



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EASA FSTD Section  
Thank You  
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