



# Airbus BelugaXL

Veronique Roca – Beluga XL Chief Engineer

**AIRBUS**

RAeS Hamburg in cooperation with the DGLR, VDI, ZAL & HAW invites you to a lecture

## Beluga XL - Oversize Transport for the 21st century

**Veronique Roca**, Airbus BelugaXL Technical Director & Chief Engineer, Airbus Operations

**Date: Thursday 23 January 2020, 18:00**

**Location: HAW Hamburg Berliner Tor 5, (Neubau), Hörsaal 01.11**

Lecture followed by discussion  
No registration required !  
Entry free !



Featuring one of the most voluminous cargo holds of any civil or military aircraft flying today, the Airbus Beluga plays a key role in keeping Airbus production and assembly network operating at full capacity. The current fleet of 5 Beluga, based on A300-600, carries complete sections of Airbus aircraft from different production sites around Europe to the final assembly lines in Toulouse, France and Hamburg, Germany.

To support the A350 XWB ramp-up and other production rate increases, Airbus will gradually replace its current Beluga's with six BelugaXL aircraft, derived from the company's versatile A330 widebody product line. Veronique Roca, Chief Engineer of the BelugaXL, will tell us about the BelugaXL since its launch in Nov 2014: with the First Flight in July 2018, the BelugaXL is now completing the Flight Test Campaign and has recently achieved certification.

*Veronique has been BelugaXL Technical Director & Chief Engineer since 2016. As part of her mission she holds the Technical Authority to define and validate the target configuration of the aircraft, in line with operational and certification requirements, and meeting highest safety standards. Previously, Veronique was A330 Chief Engineer for France for two years.*

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RAeS Hamburg Branch  
VDI, Arbeitskreis L&R Hamburg  
ZAL TechCenter

<http://hamburg.dglr.de>  
<http://www.raes-hamburg.de>  
<http://www.vdi.de/>  
<http://www.zal.aero/veranstaltungen>

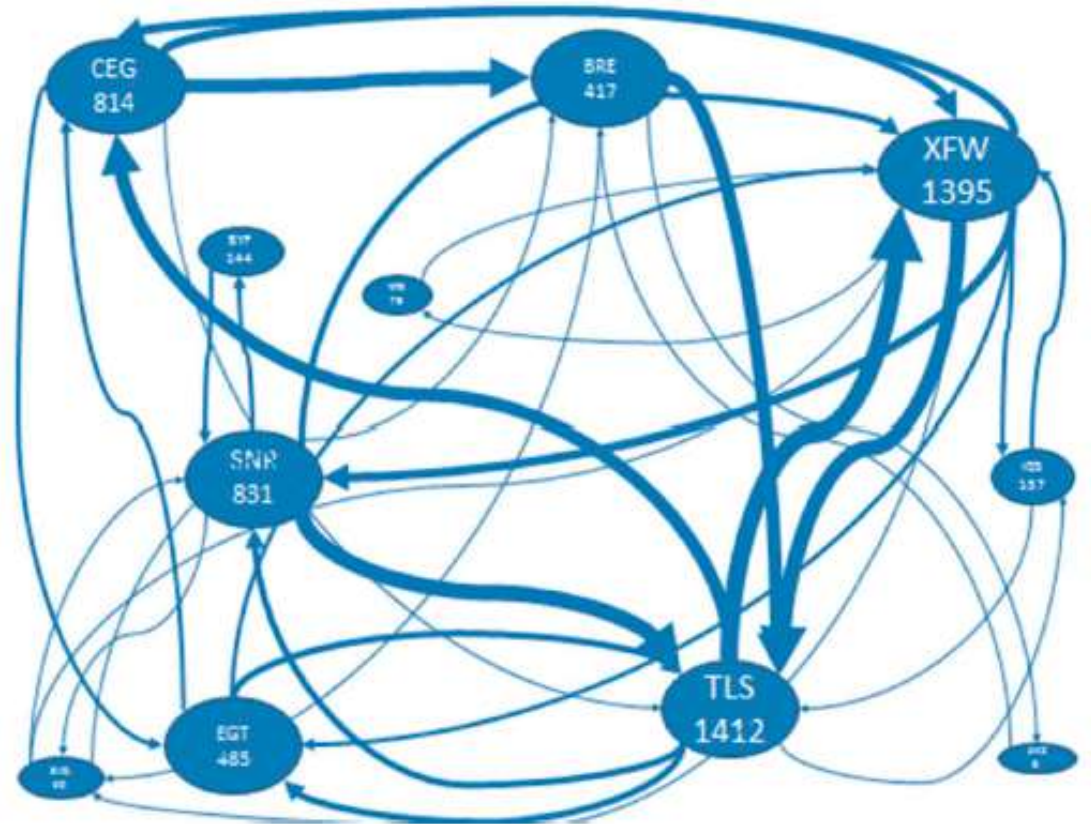


Hamburg Aerospace Lecture Series von DGLR, RAeS, ZAL, VDI und HAW Hamburg (PSL)  
<http://www.AeroLectures.de/>

# The Beluga's: a family portrait.



# Oversize Air Transport – End to End solution for Airbus production



5 flights/day/aircraft, 6 days /week

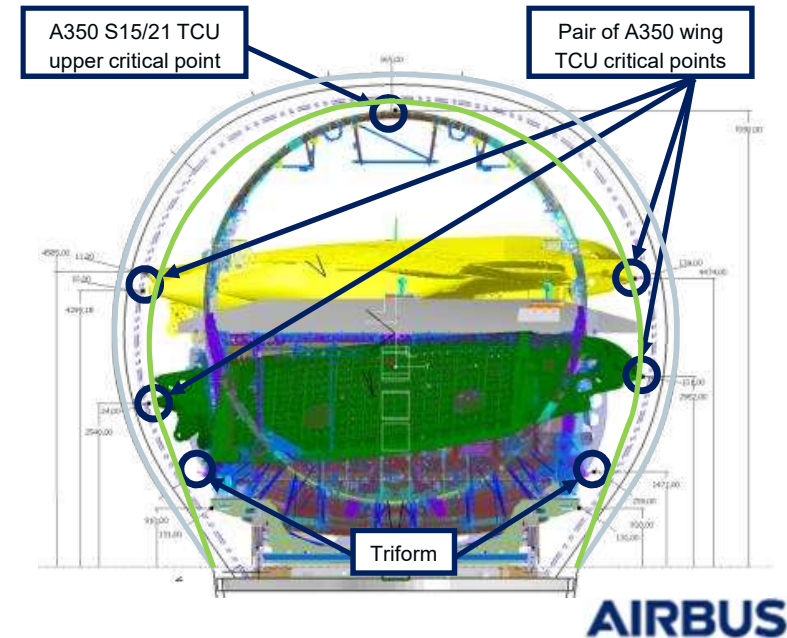
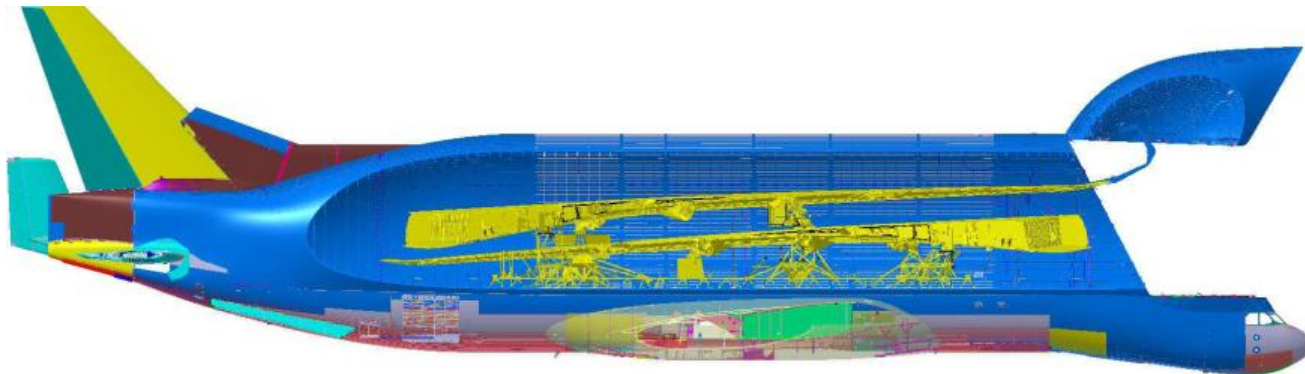
# Why a Beluga XL?

Today: 5 Beluga ST, operated at their maximum

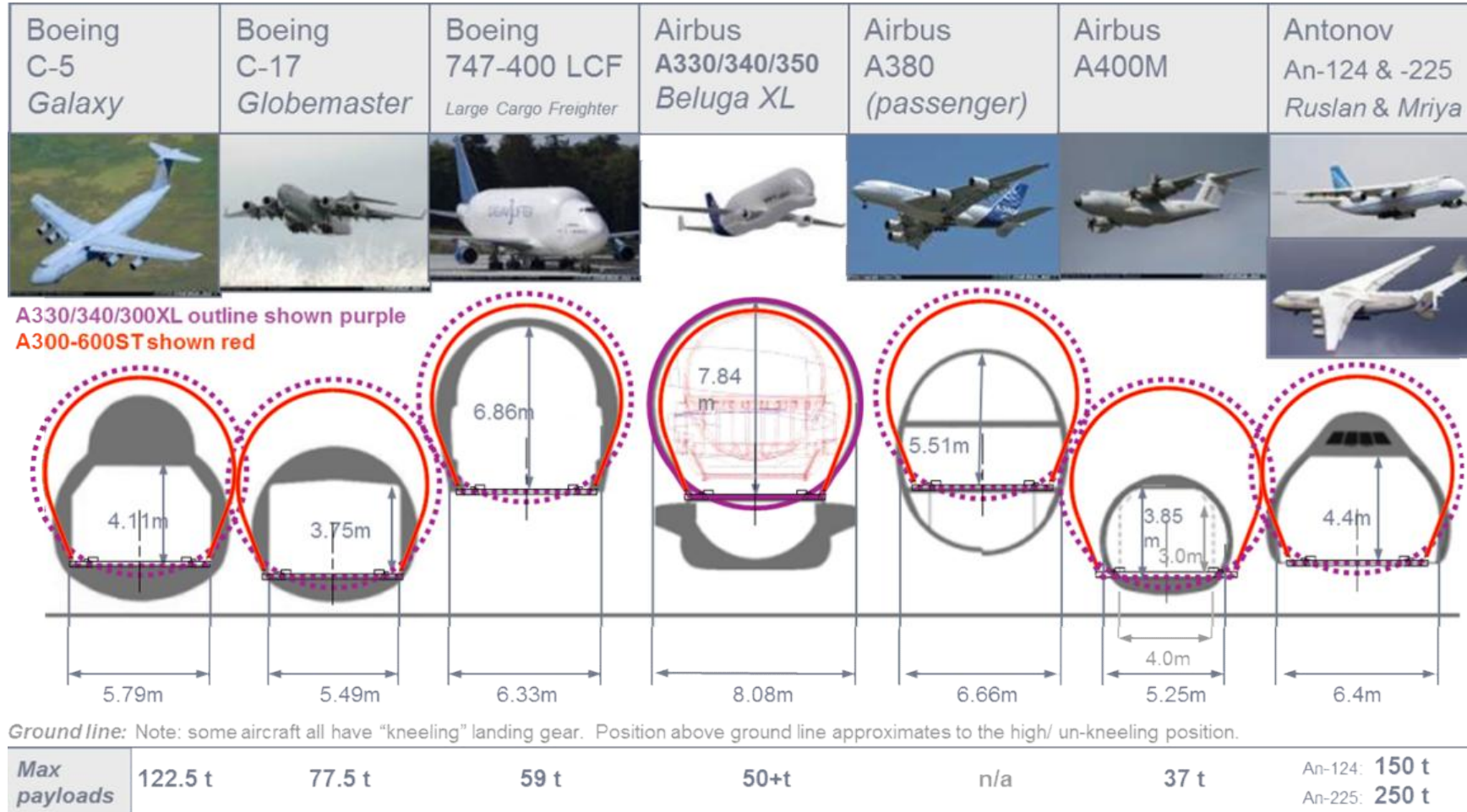
Increased production rates through time

Higher transport requirements: with A320 : ref, A330 : x3, A350 : x7

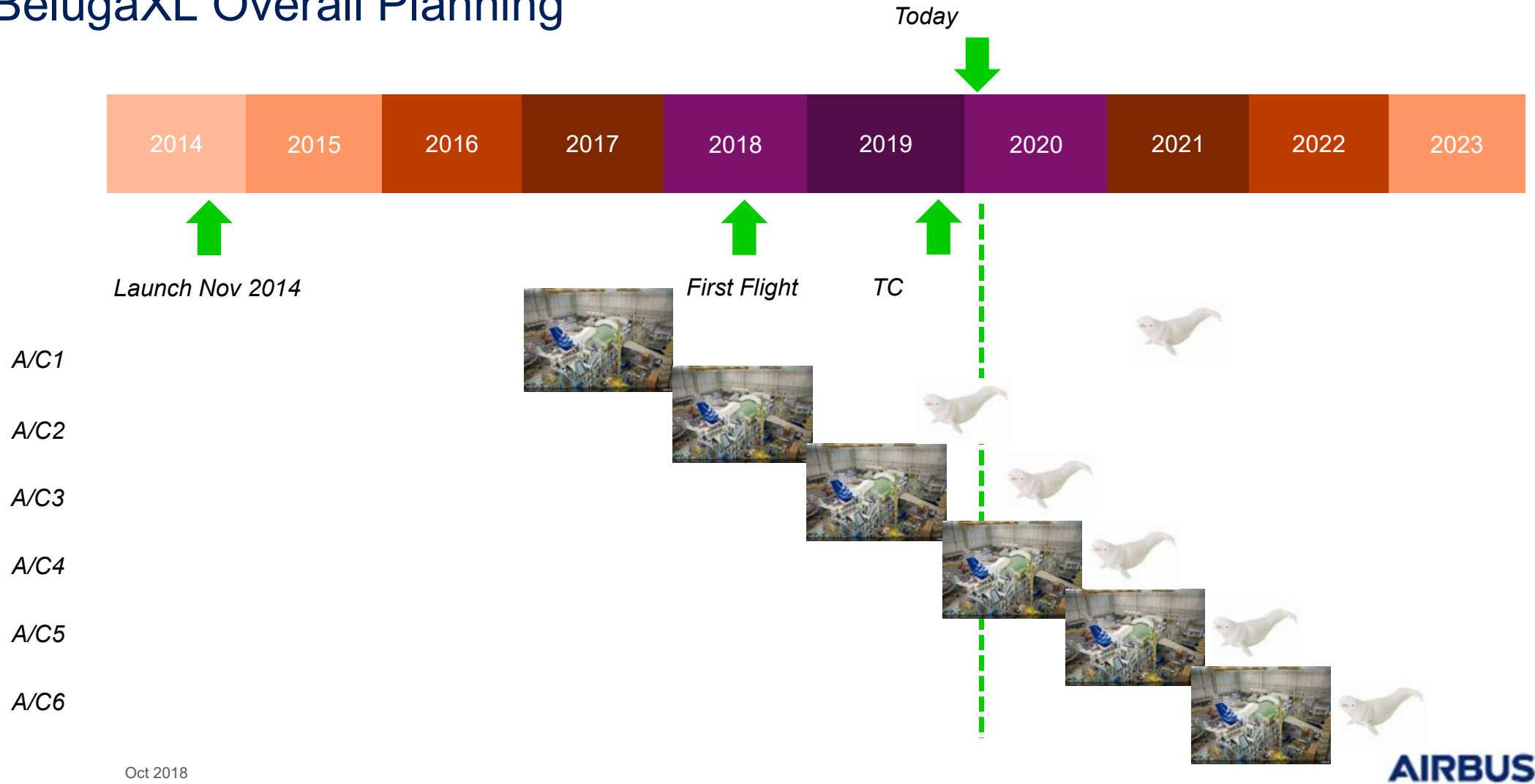
Road and sea transport less flexible



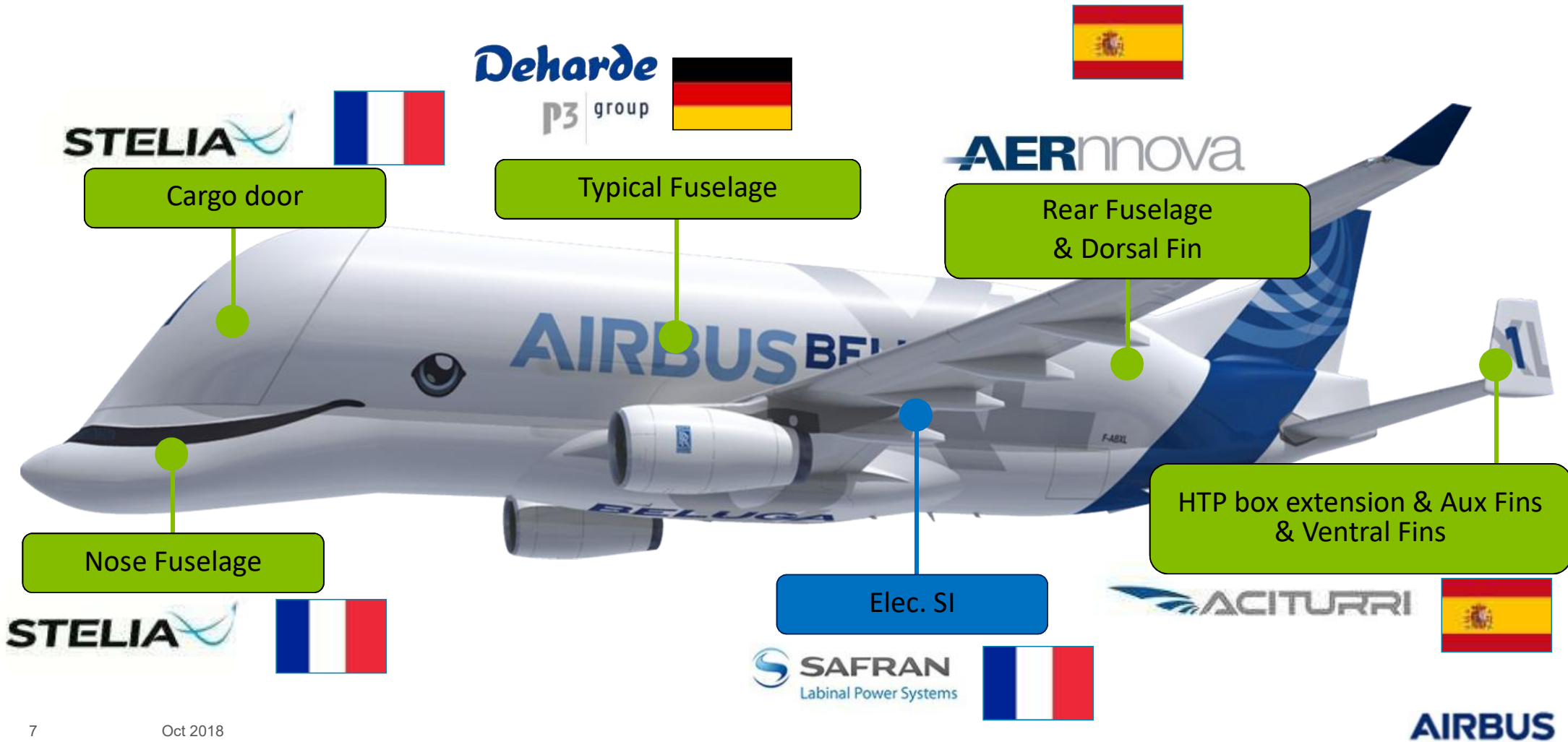
# Why a BelugaXL ?



# BelugaXL Overall Planning



# A Team work - Major Structure & SI Suppliers

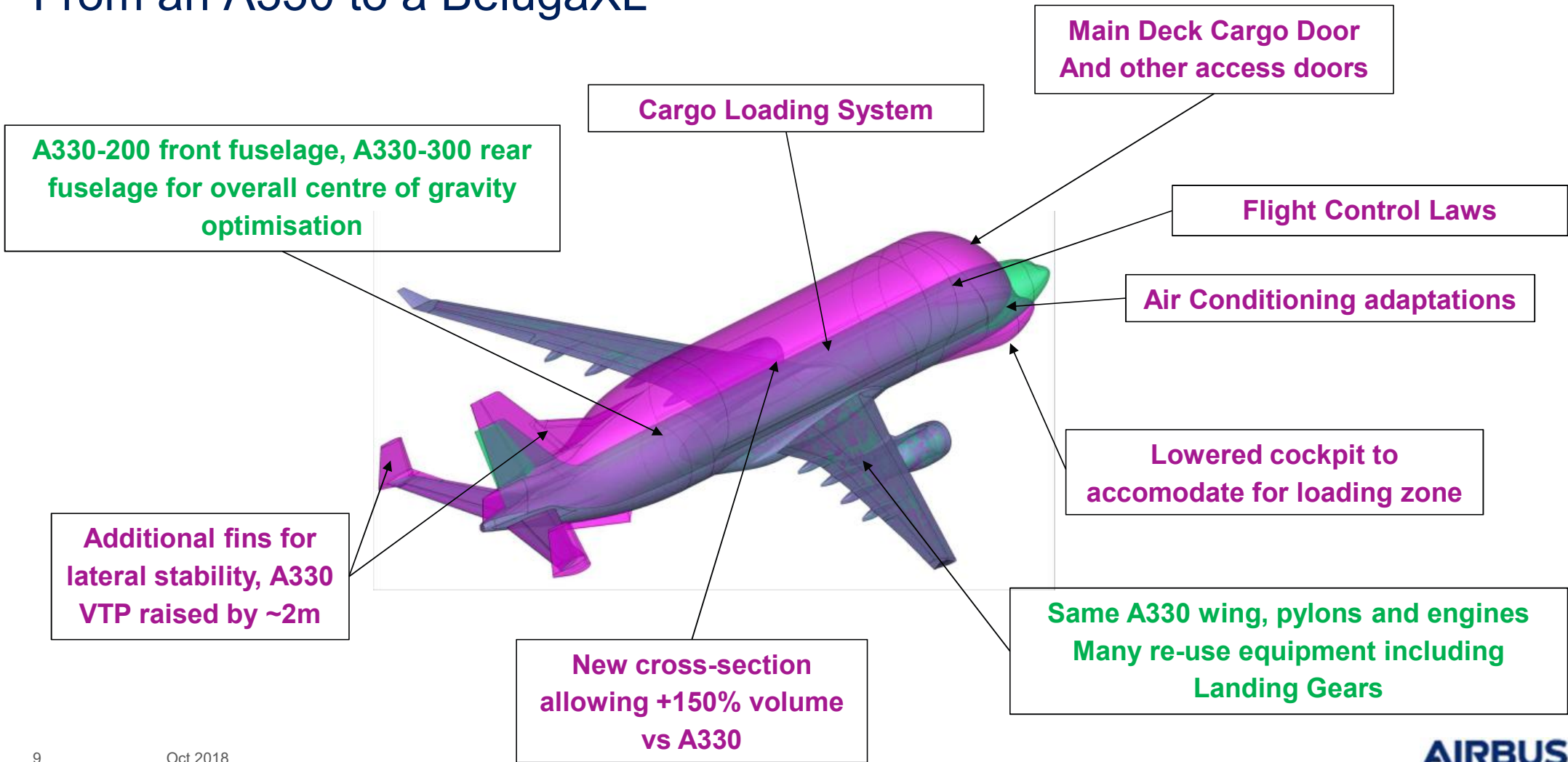




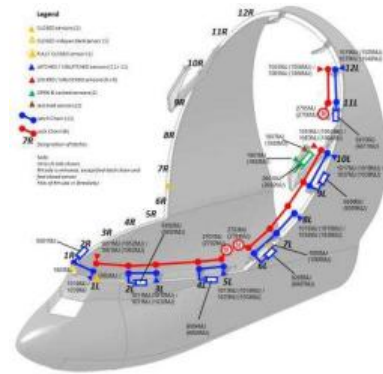
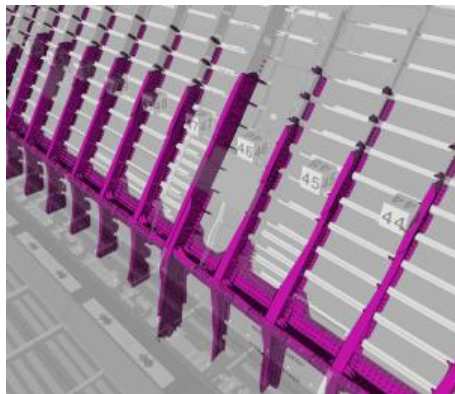
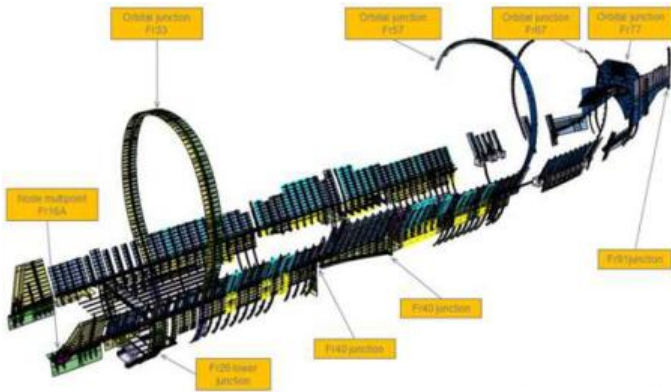
# A Team work - Major Equipment / Systems Suppliers



# From an A330 to a BelugaXL



# From an A330 to a BelugaXL



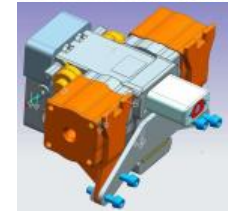
Main cargo door and cargo loading system concepts similar to Beluga ST designed for compatibility with existing infrastructures

**BELUGAXL**

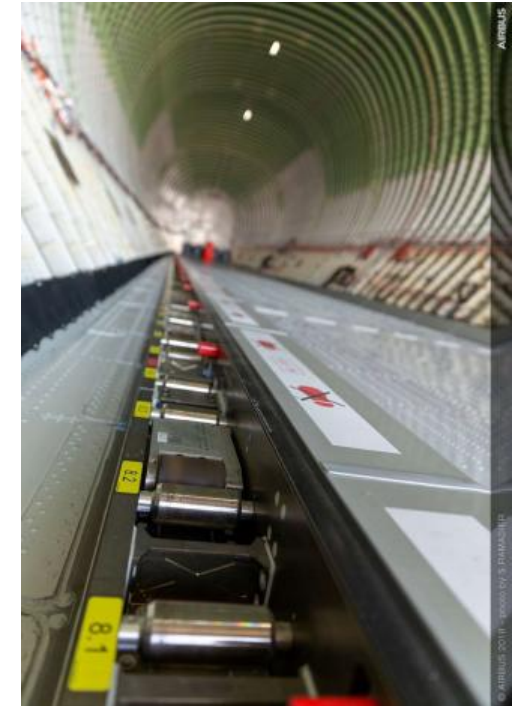
**Power Drive Unit**



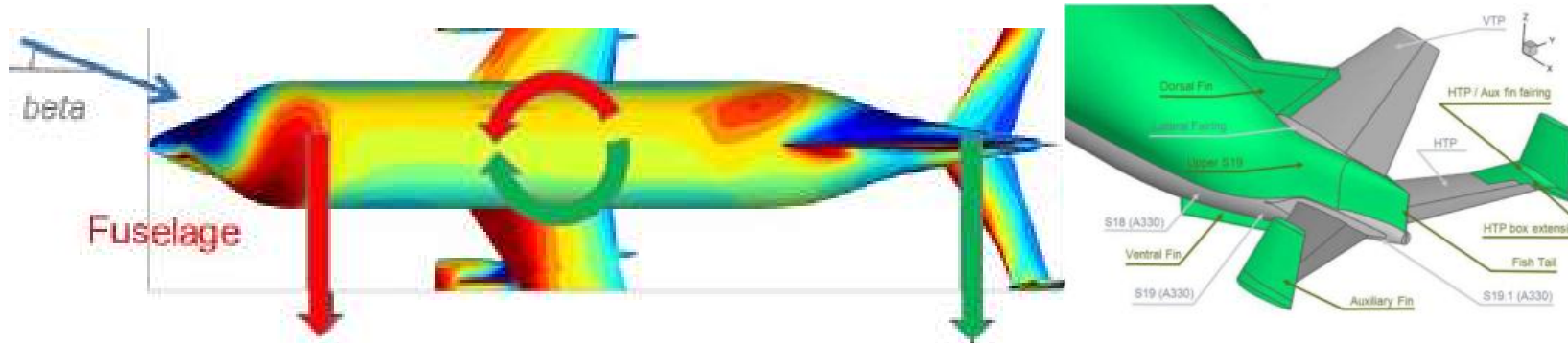
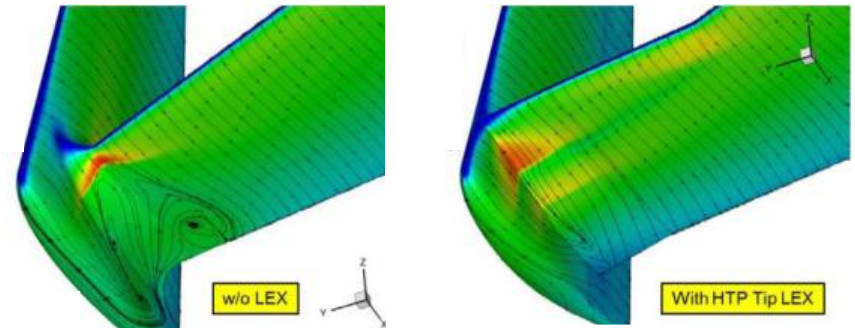
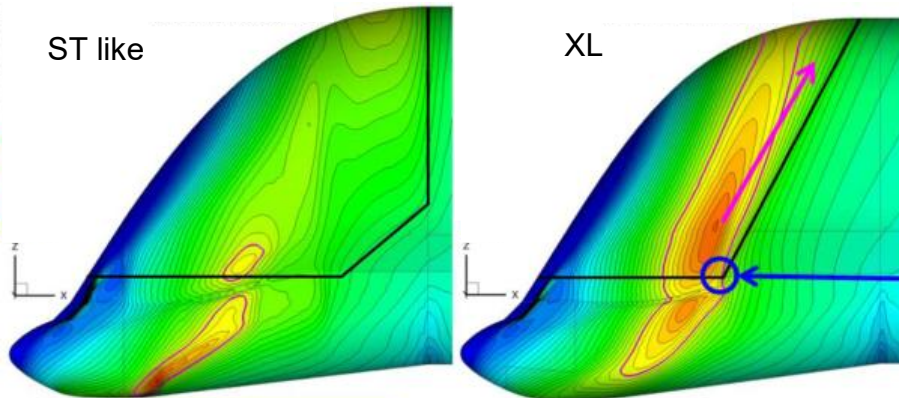
**Power Lock Unit**



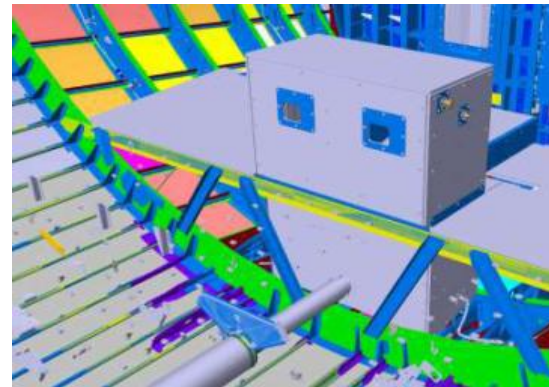
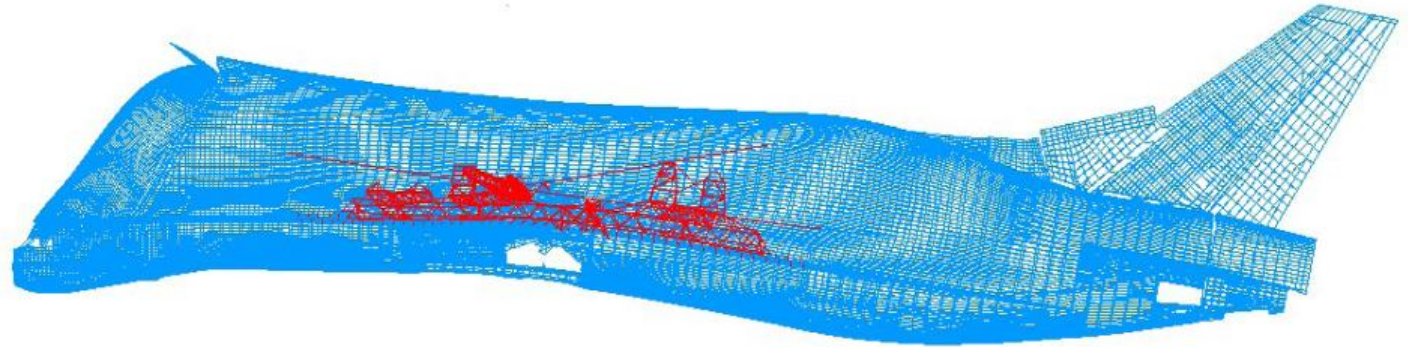
**TCU Sensor**



# Challenges: configuration



# Challenges: structure



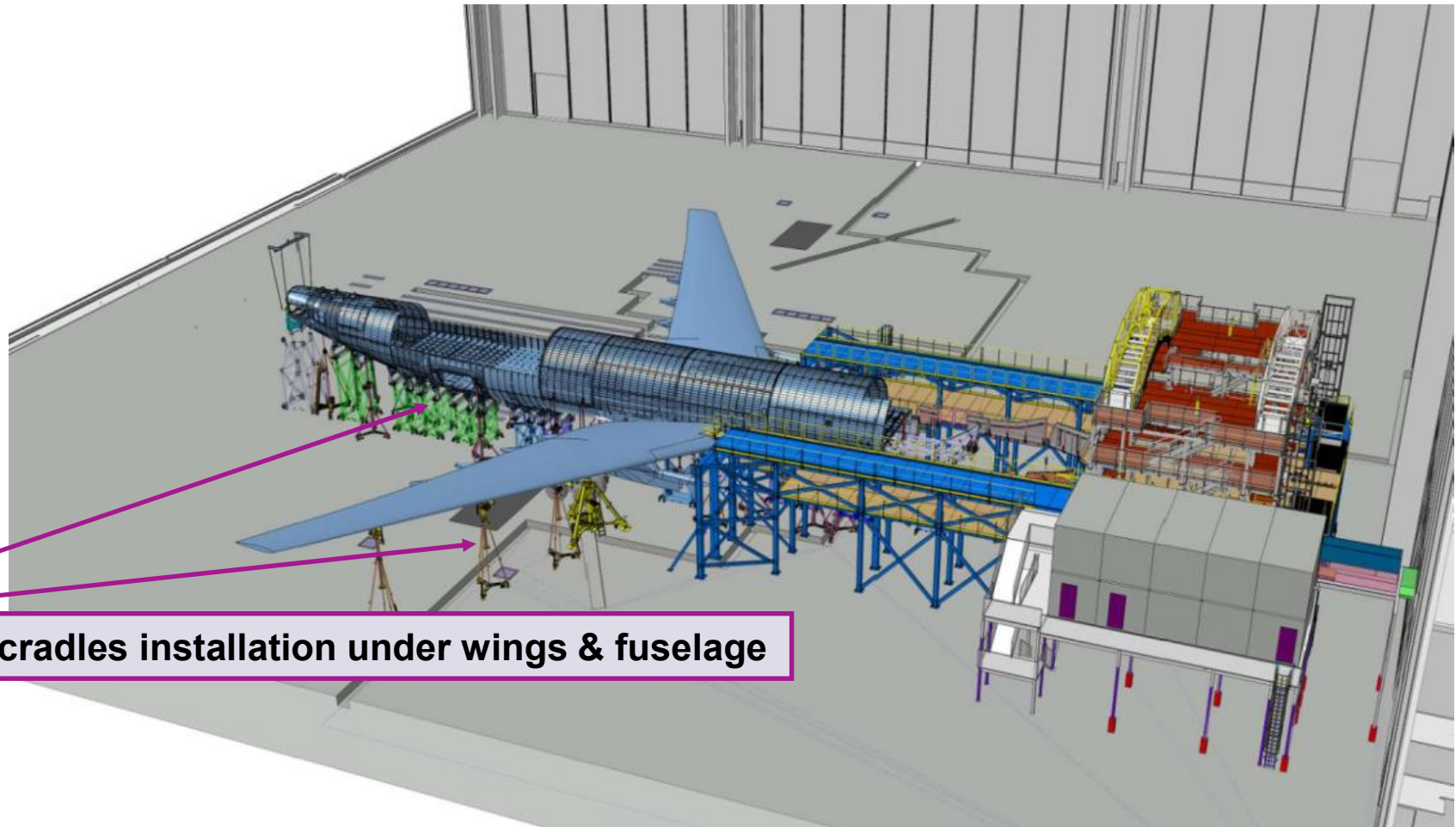
End 2016, the A330 platform is ready for 1 year of integration



## FAL assembly build process - moulding operations



## FAL assembly build process - jacking operations



Jacks & cradles installation under wings & fuselage



# 16<sup>th</sup> of Jan 2017: housewarming party of conversion hangar



© AIRBUS S.A.S. 2017 - photo by H. GOUSSÉ / master films

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## Cutting of A330 upper fuselage



## Preparation of the Junction, Installation of rails

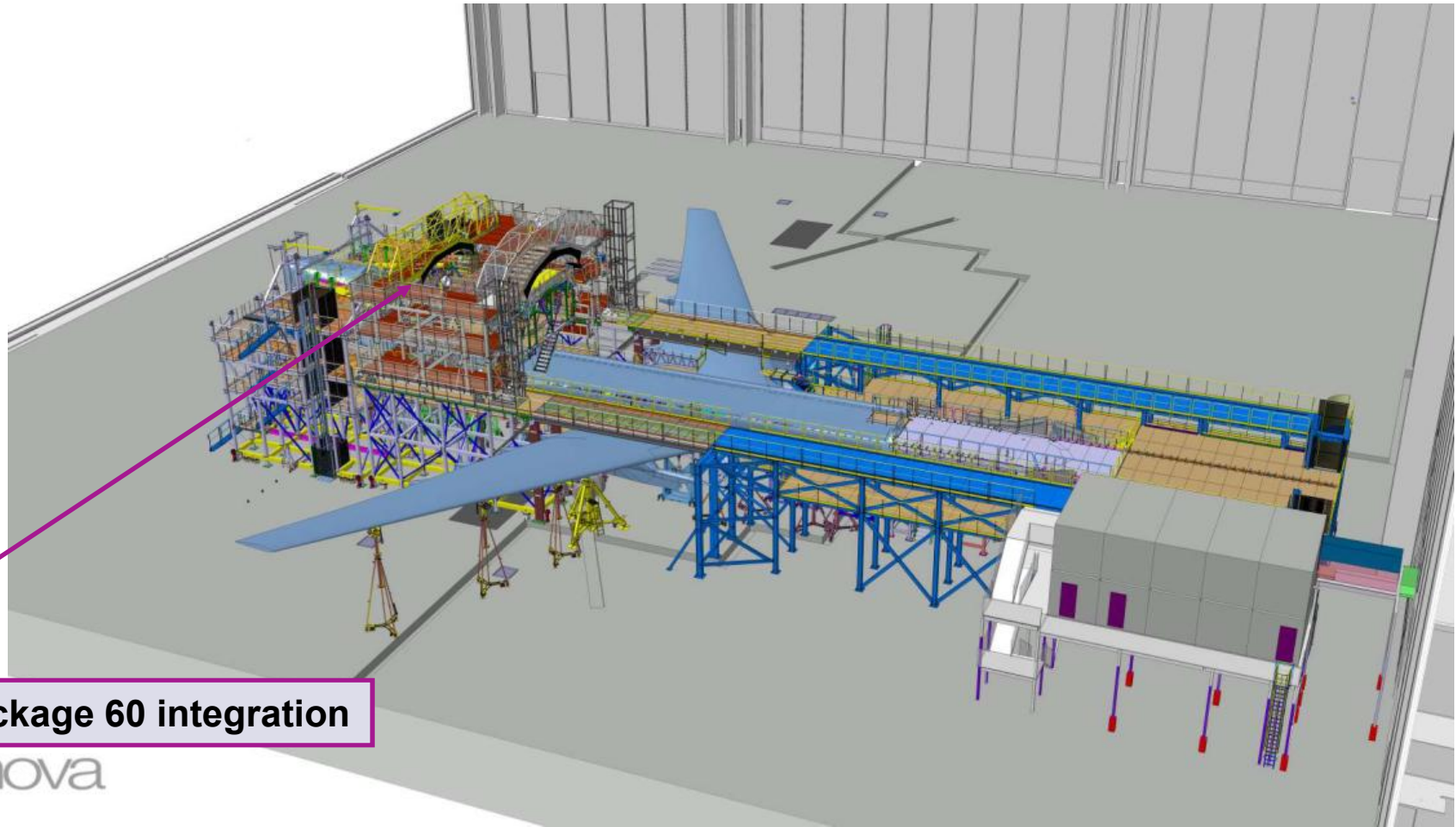


# FAL assembly build process – Fin Insert integration on Section 19



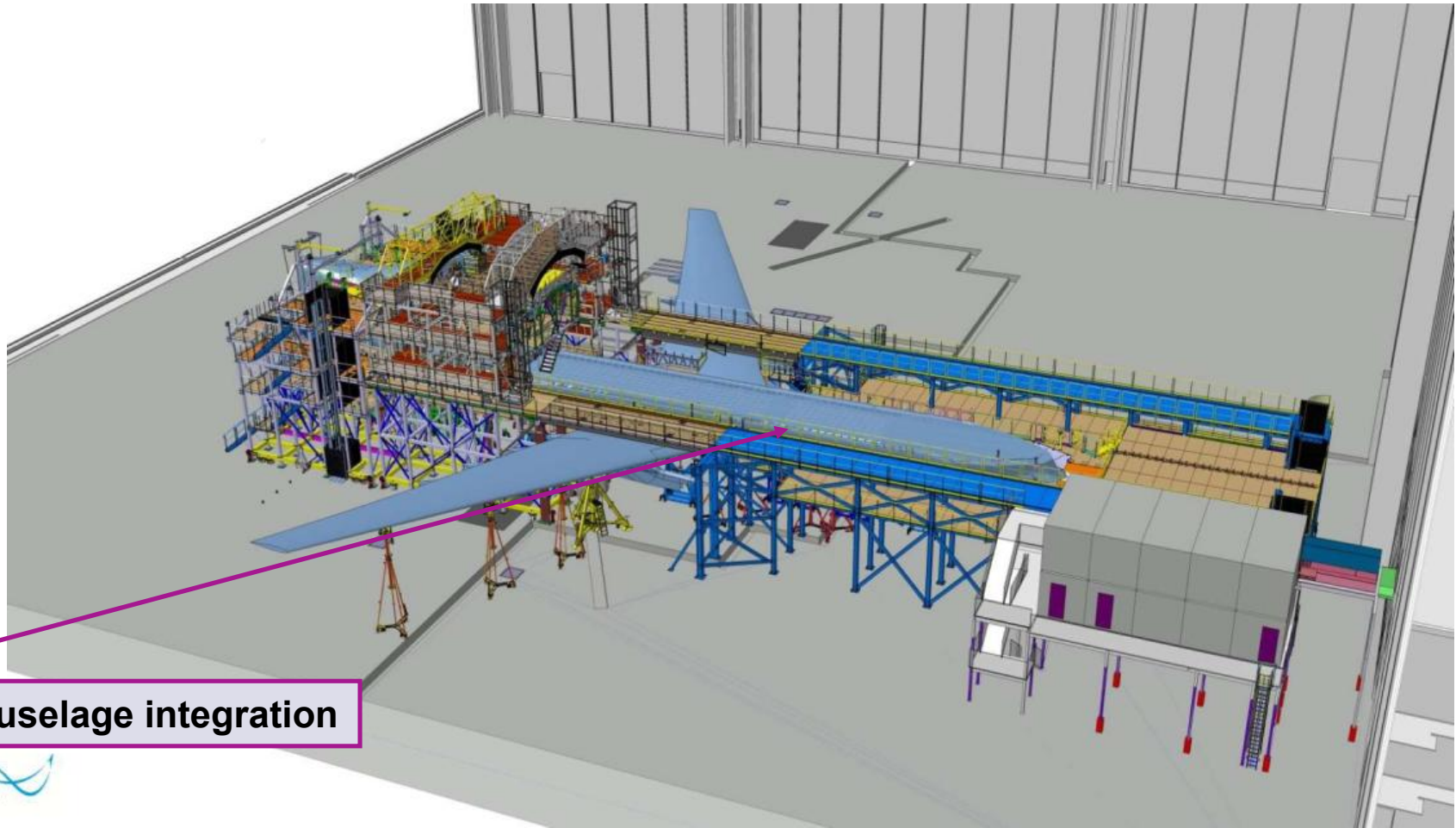
**WP70 integration on the top of Section 19**

# FAL assembly build process – Rear Fuselage integration



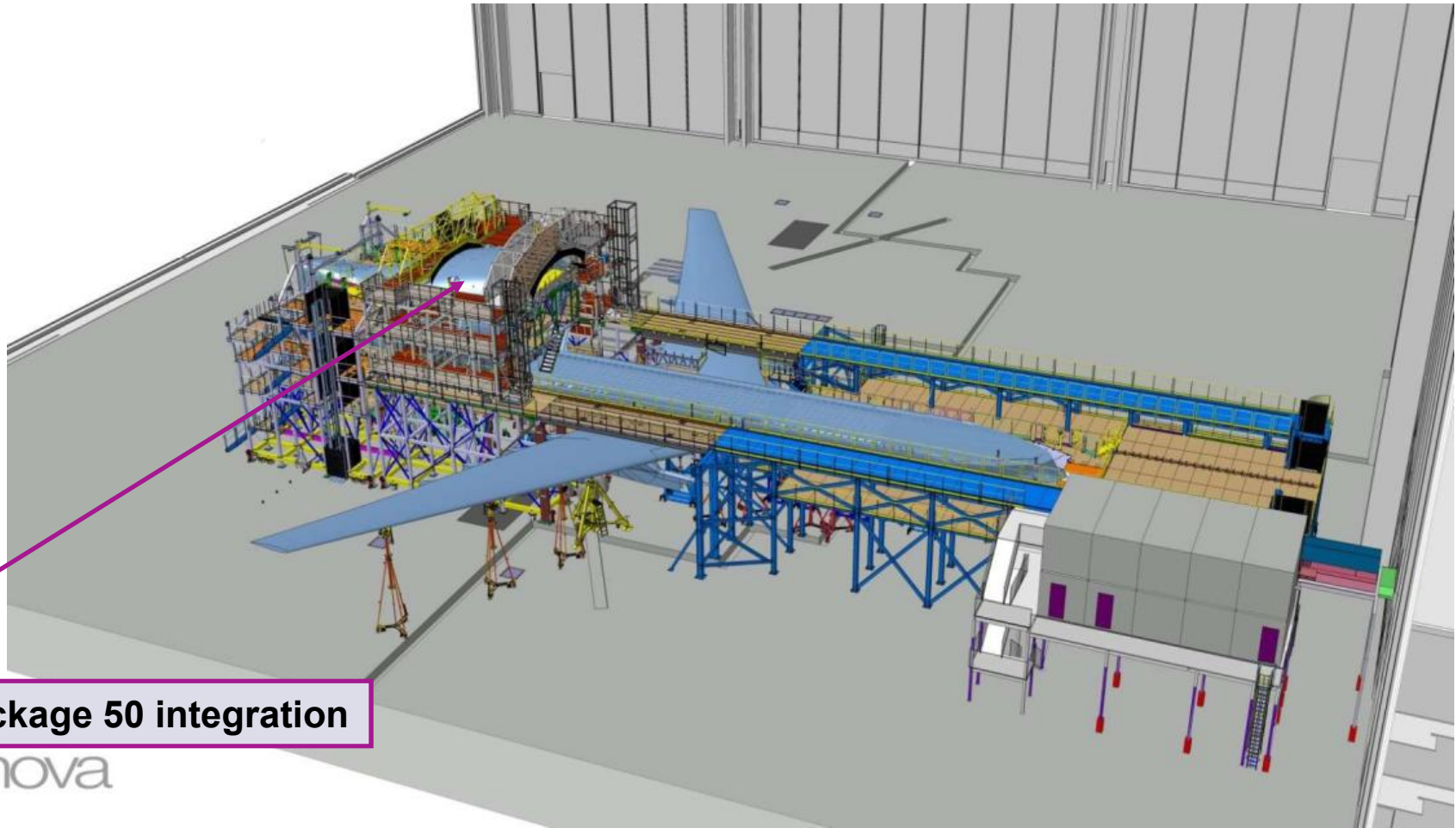
Work Package 60 integration

# FAL assembly build process – New Nose Fuselage integration



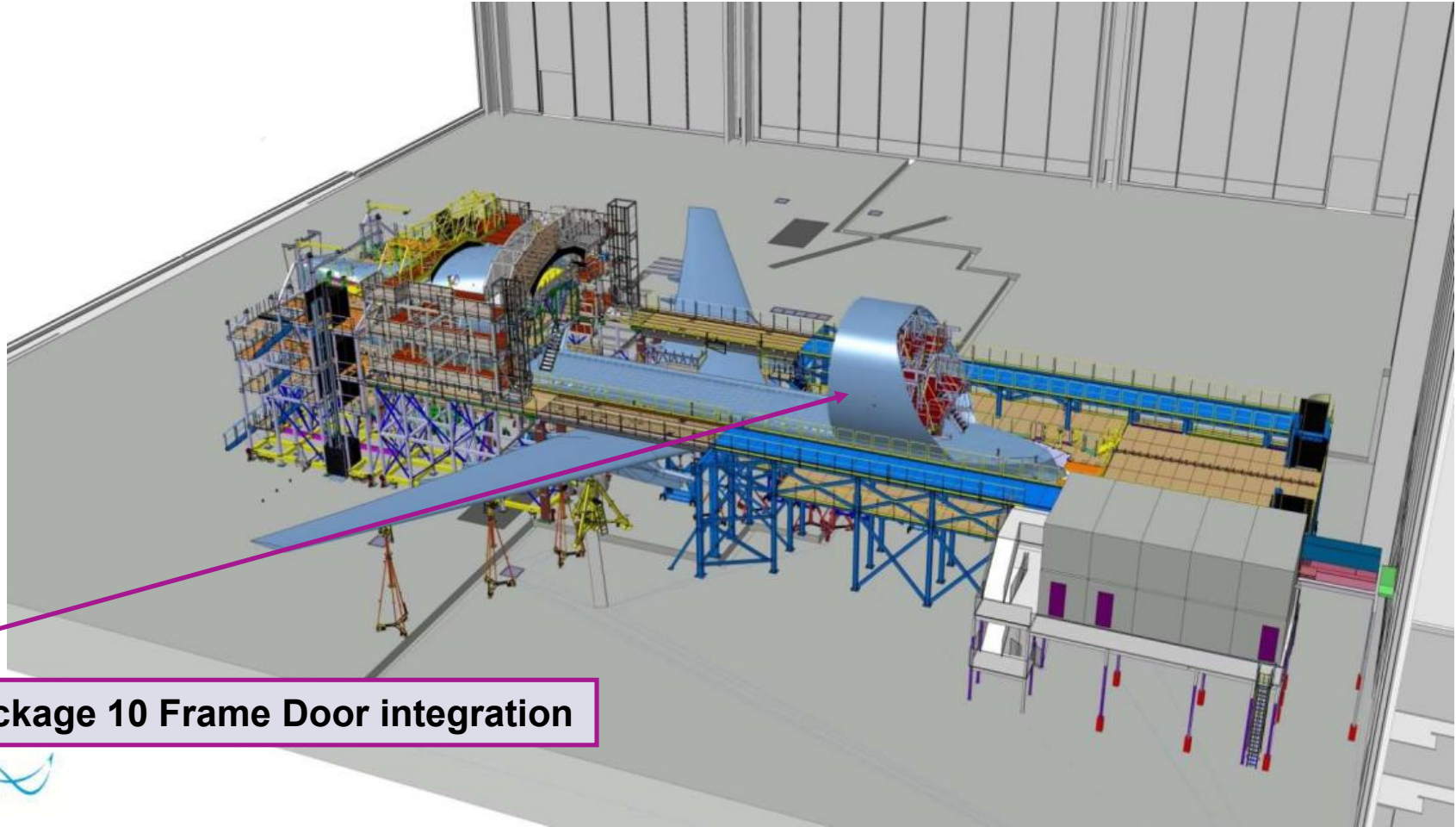
Nose Fuselage integration

# FAL assembly build process – Rear Fuselage integration



Work Package 50 integration

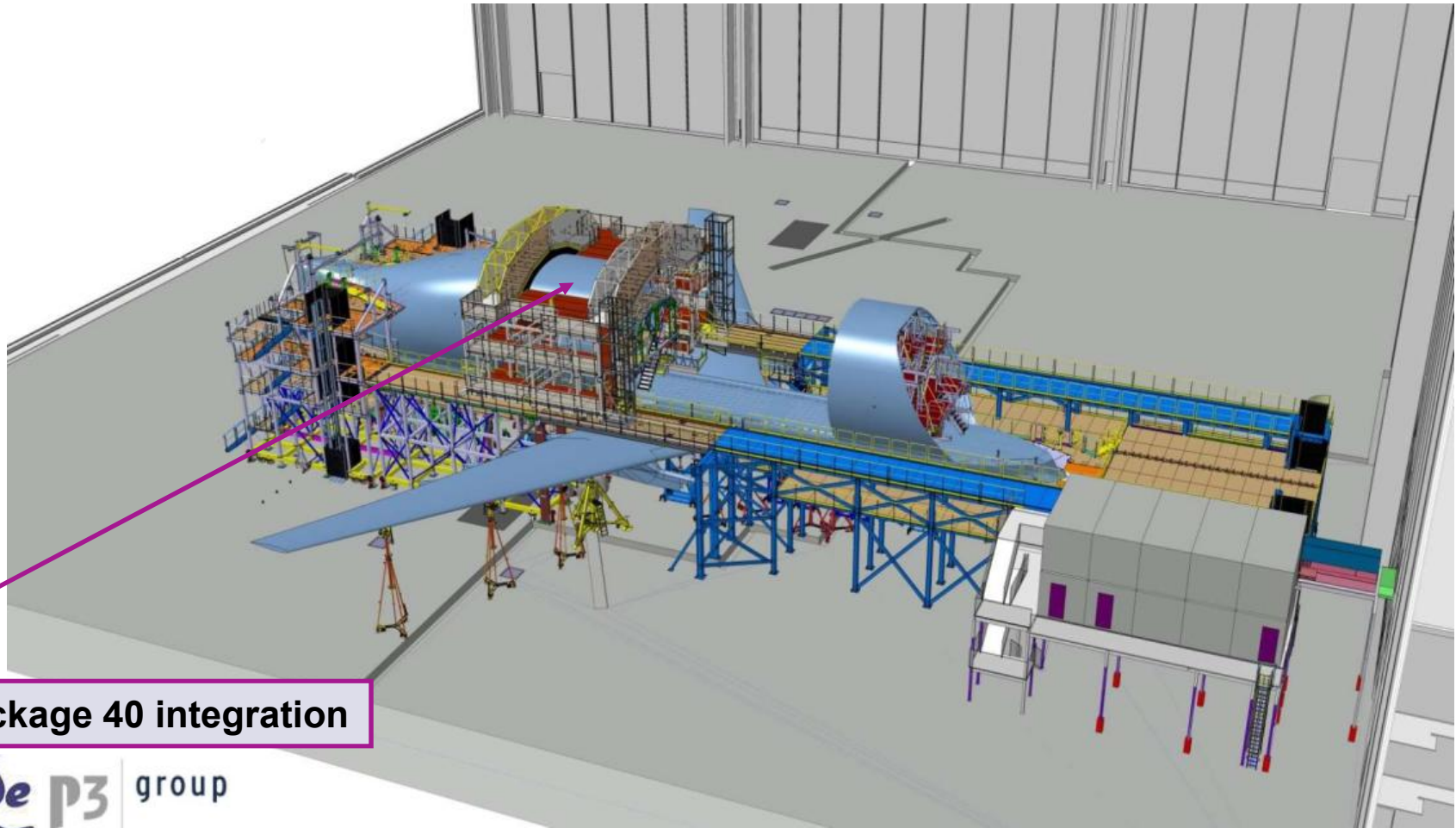
# FAL assembly build process – Door Frame integration



Work Package 10 Frame Door integration

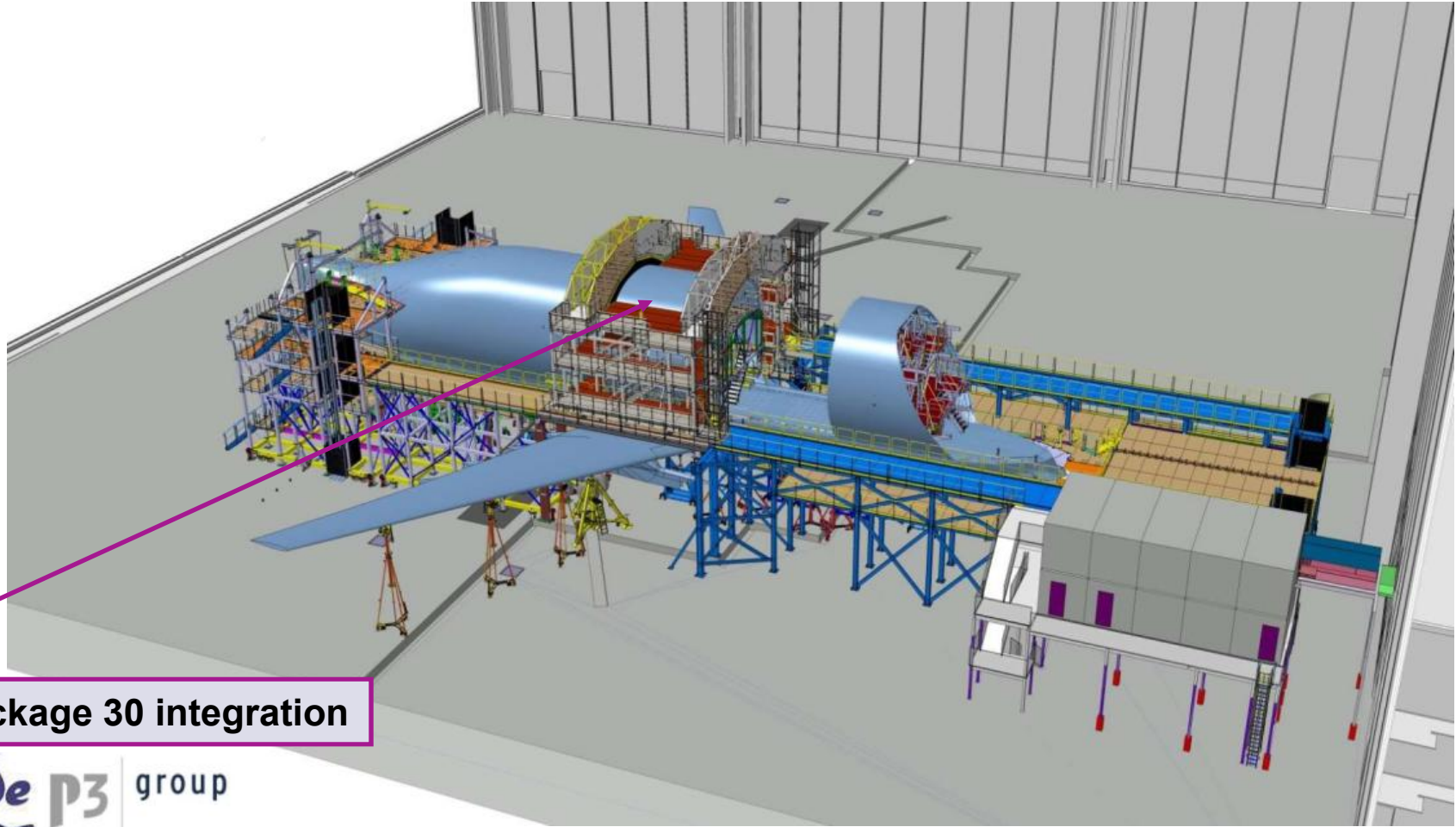


# FAL assembly build process – Central Fuselage integration



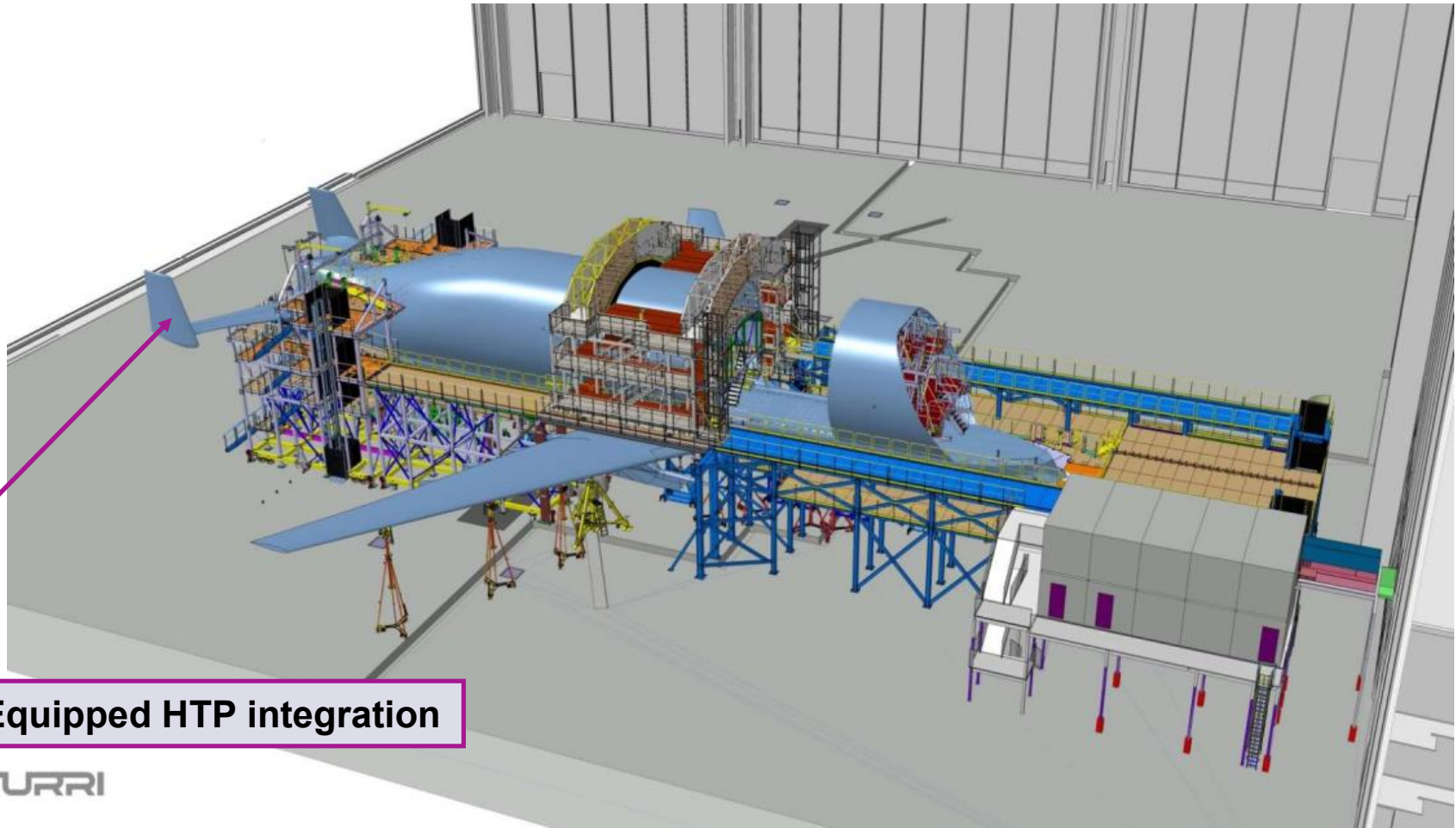
Work Package 40 integration

# FAL assembly build process – Central Fuselage integration



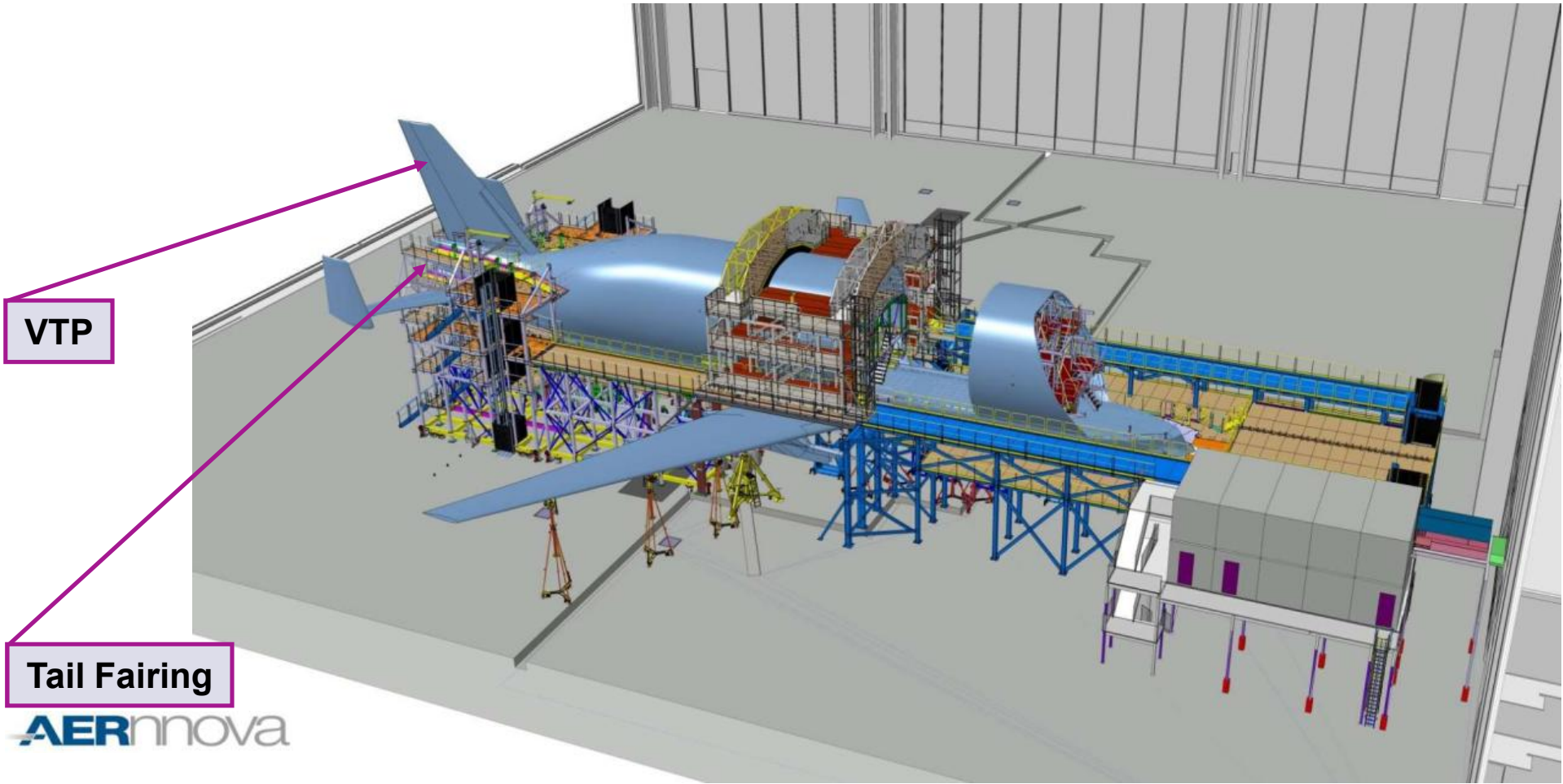
Work Package 30 integration

# FAL assembly build process – Equipped HTP integration



WP 230 Equipped HTP integration

# FAL assembly build process – Tail Fairing & VTP

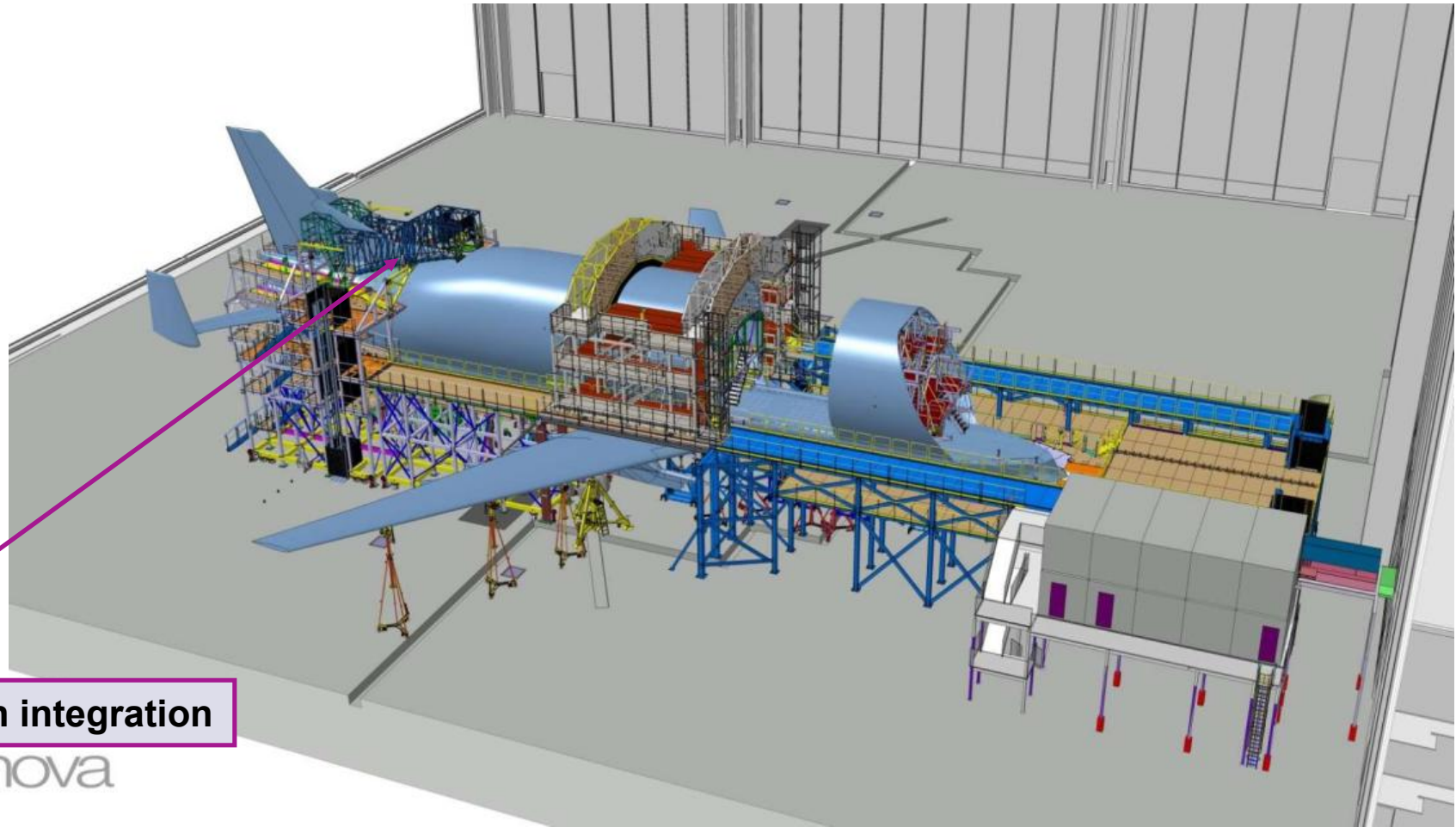


VTP

Tail Fairing

AERnova

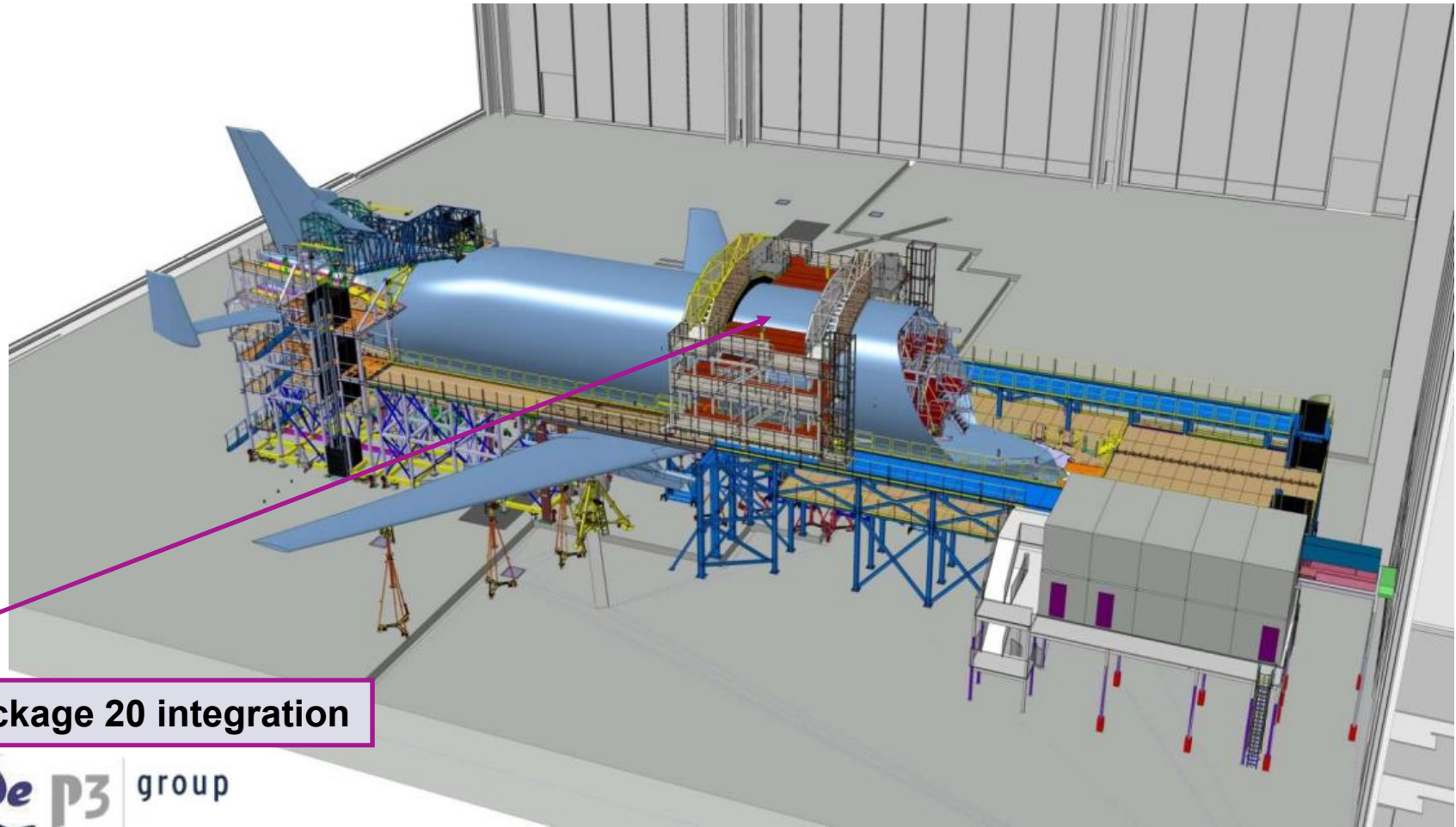
# FAL assembly build process - Dorsal fin integration



Dorsal fin integration

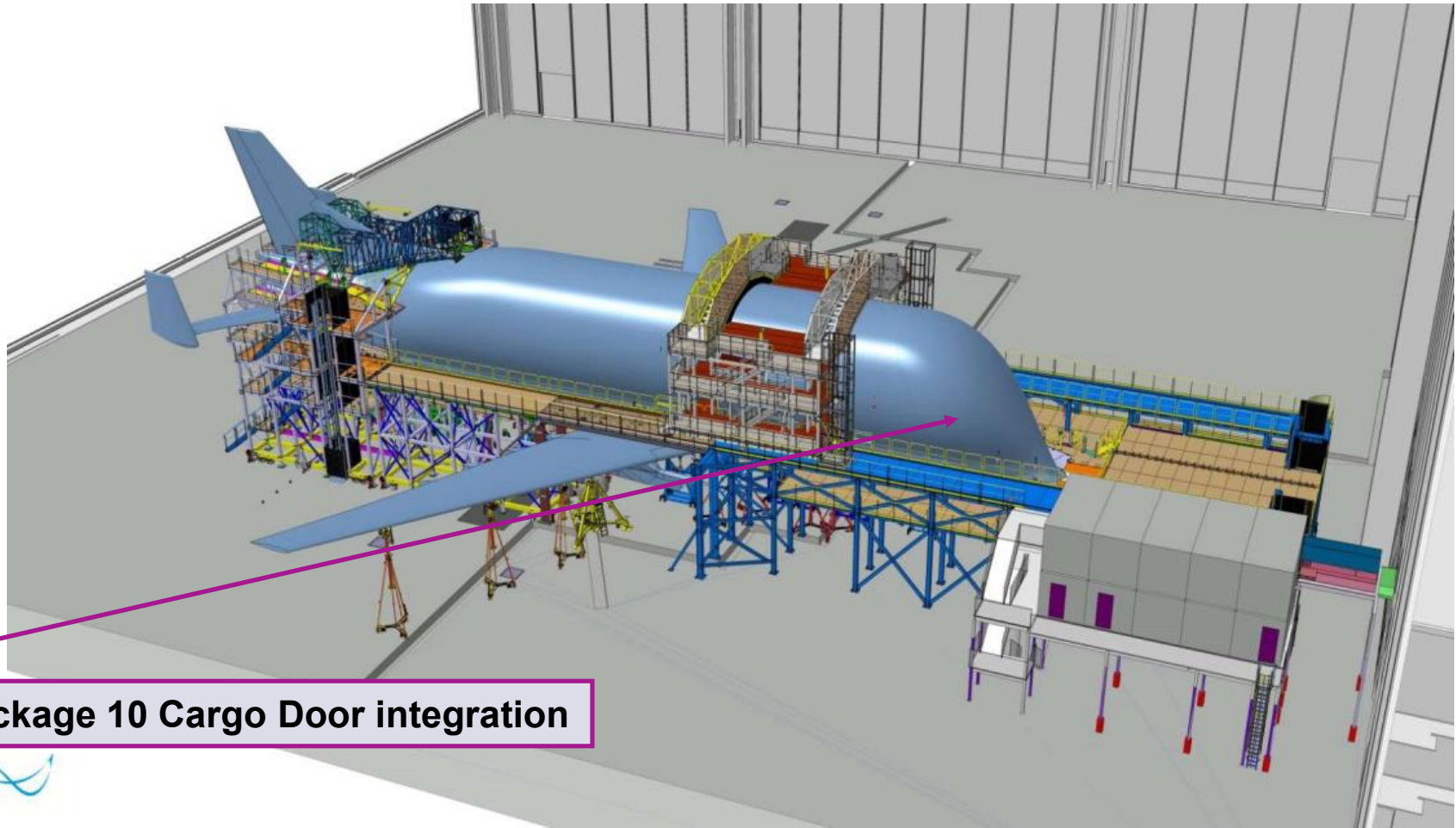
AERnova

# FAL assembly build process – Last fuselage section integration



Work Package 20 integration

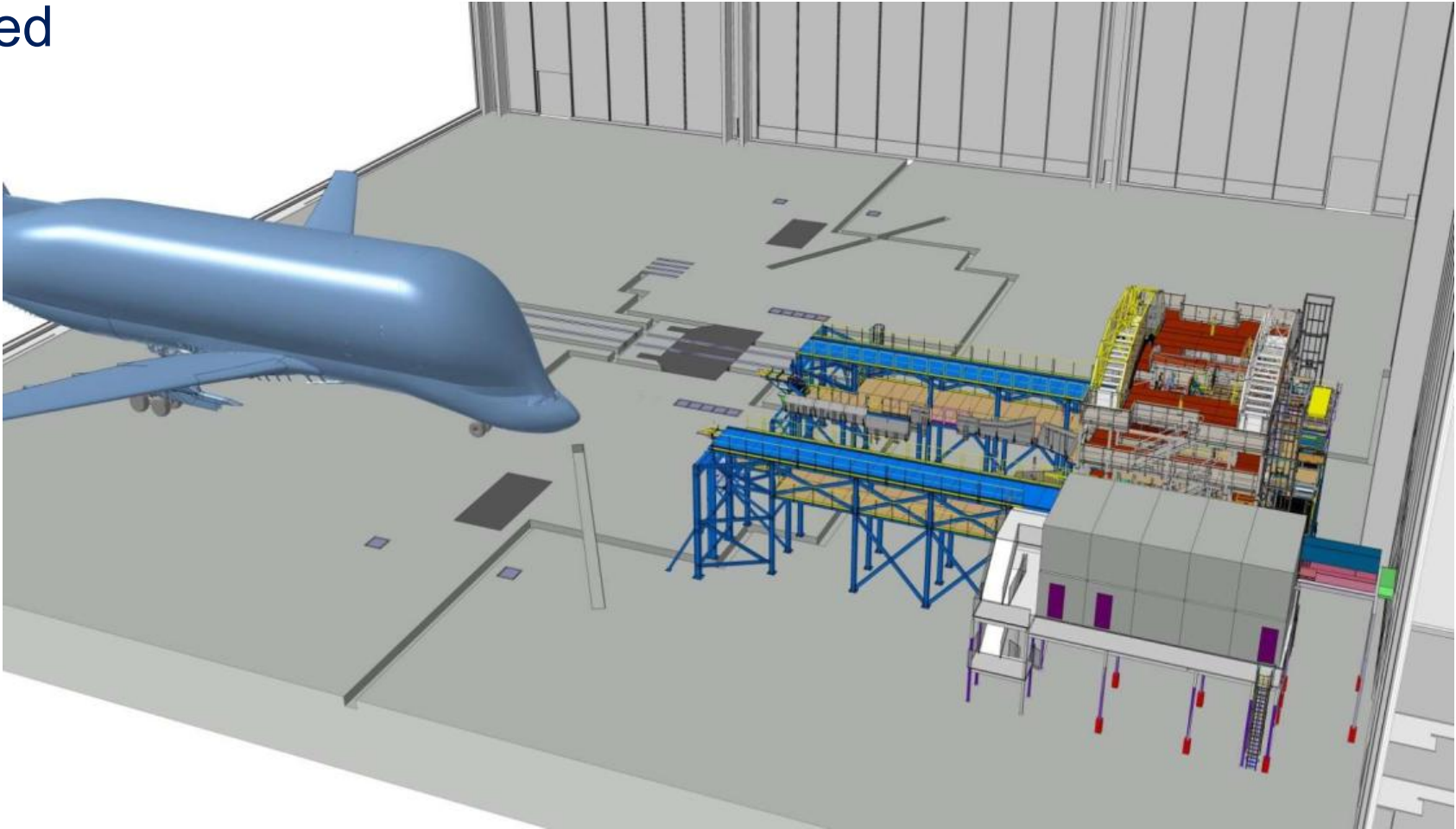
# FAL assembly build process – Main Deck Cargo Door integration



**Work Package 10 Cargo Door integration**

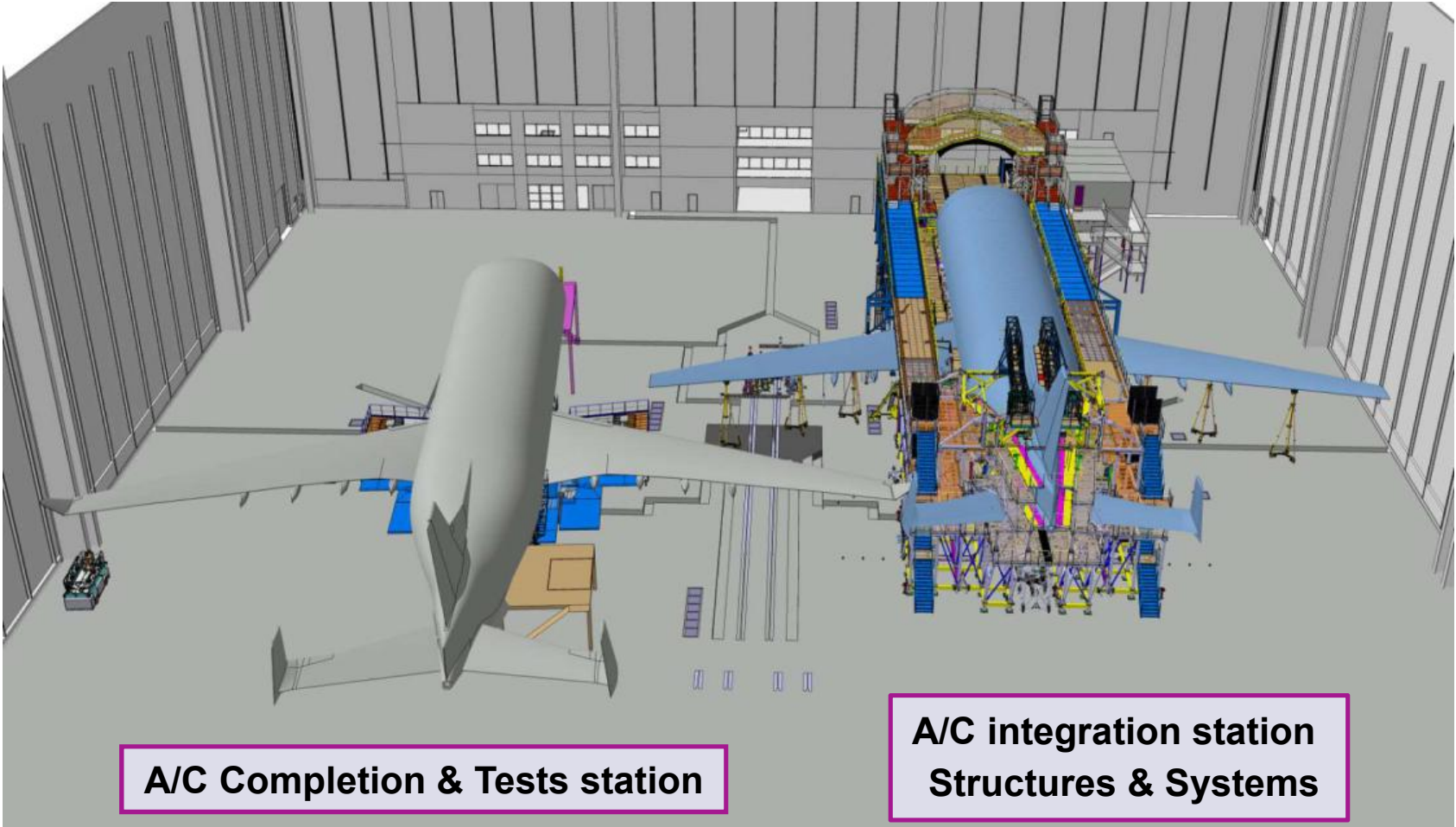


FAL assembly build process – A/C on wheels, all platforms & accesses removed





## FAL assembly build process - Stations organisation



## January 2018 - Aircraft moves



# End 2017/ Beg 2018: A/C 1 Power On & Roll out



## Dedicated Aircraft 1 testing prior First Flight: aircraft weighing



# Dedicated Aircraft 1 testing prior First Flight: GFEM validation



# Dedicated Aircraft 1 testing prior First Flight: Ground Vibration Tests



## Dedicated Aircraft 1 testing prior First Flight: Cargo Loading Trials



## 2 weeks of painting end of June 2018





# 19<sup>th</sup> of July 2018: First Flight



**BELUGA**XL



A video player interface with a dark blue background. In the top left corner is a white circle containing a blue letter 'A'. The main video area shows a white BelugaXL aircraft with blue accents and the word 'BELUGA' on its side, flying against a clear blue sky. A large white play button is centered over the video. In the bottom left, there are playback controls: a play button, a next button, a volume icon, and a progress bar showing '0:00 / 3:46'. In the bottom right, there are icons for settings, a square, a rectangle, and a full-screen button. A small white information icon is in the top right corner of the video frame.

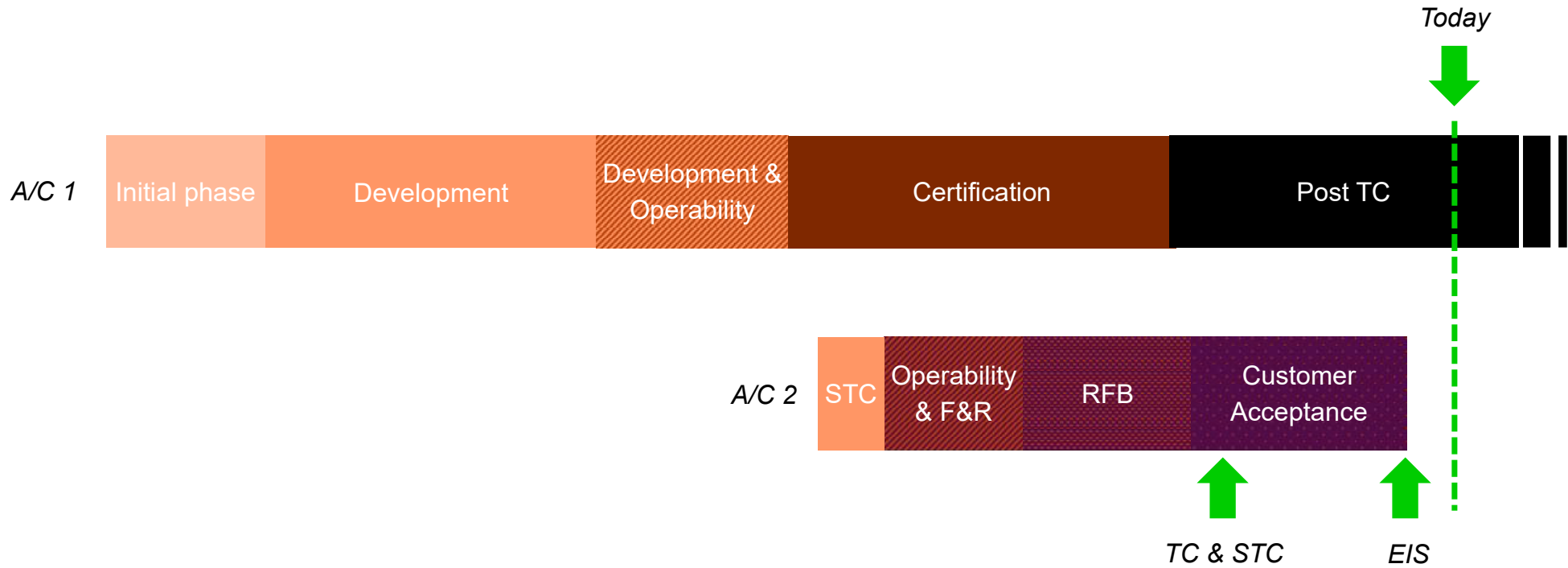
# BelugaXL Maiden flight

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## Flight Test Installation: some particularities



# Flight Test campaign towards certification S2 19

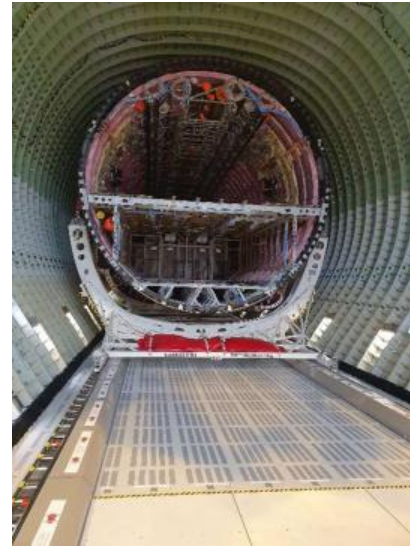
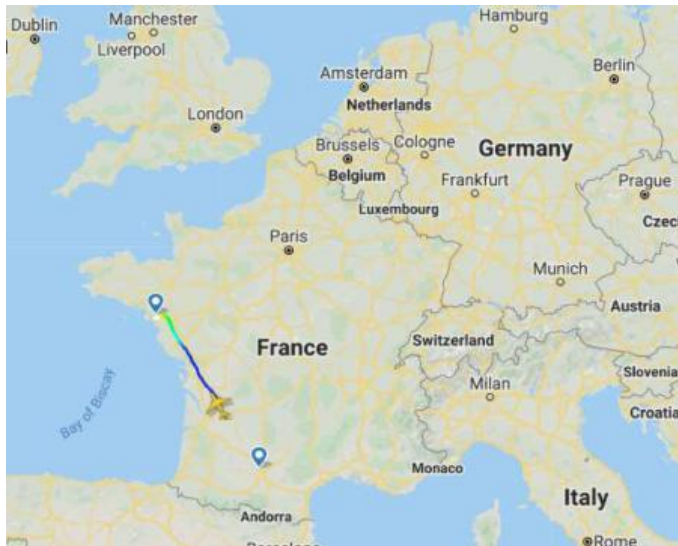




# Adaptation of the overall system in parallel



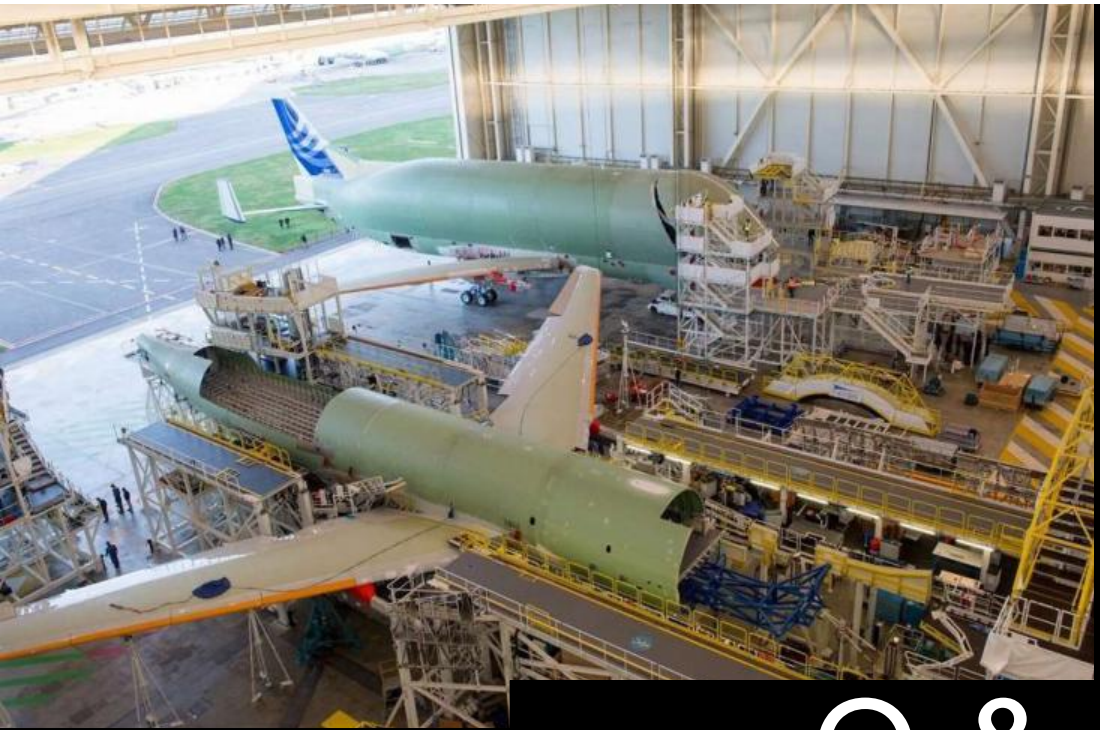
In operation since the 9th of January 2020, in SNZ on 16th of January **BELUGAXL**



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# Q & A



**Thank you**

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