

Didier Evrard

Executive Vice President Programmes

Airbus Innovation Days

Keeping our product at the leading edge



The most comprehensive range of aircraft: Four product lines, customer support and services

Ramp up A320



Ramp up A350



Transition to A330neo



Passengers' choice A380



*Committed to continuous development keeping Airbus aircraft ahead of the competition with Airbus **Customer Services** supporting aircraft performance and operations throughout their lifecycle.*

***Leveraging synergies** across all programmes and services*

Protect final stage of deliveries and improve Customer Confidence

Key Customer Priorities

- Transparency & communication
- Stable delivery planning
- Empowered focal point
- Better product quality
- Improved responsiveness & Right First Time fixes

4 MAJOR AXIS

“READY to OPERATE”



Aircraft
readiness



Robust
Planning



Customer
mindset



Accelerated
Feedback
loop



A350 XWB – Driving the ramp up

- **2016 deliveries** target at 50+ A/C
 - “Protect the ramp-up” project in place, including Supply chain
 - Around 40 A/C in FAL process
- First **A350-1000** delivery planned 2nd half 2017



A350-900: ULR enables SIA to resume non-stop flights to the US

**Increase in Maximum
Take-Off Weight (280t)**

**Composite Door
Surrounding
Structure**

**Adapted Cabin &
Cargo Layout**



**Modified fuel system
to increase
fuel carrying capacity**

**Reinforced
Main Landing Gear**

**Aerodynamic
improvements**

A350-900 ULR

First delivery 2018

The world's longest
commercial passenger
route.

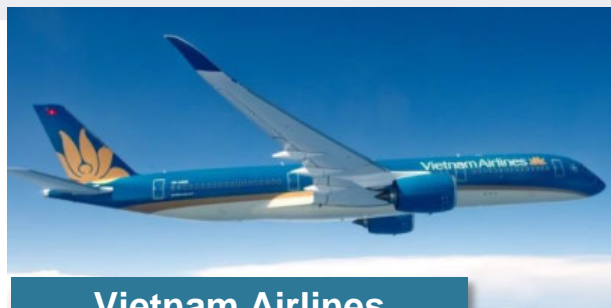
A 19-hour flight from
Singapore to New York

Delivered to all corners of the globe



Qatar Airways

8 A/C delivered
first commercial flight
15 January 2015



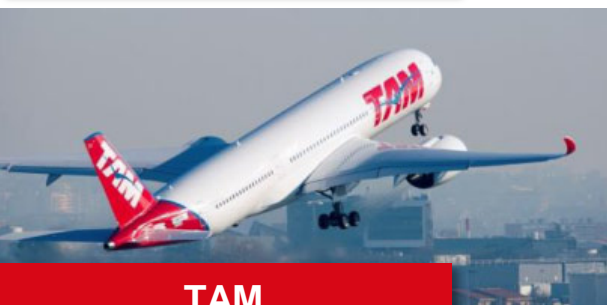
Vietnam Airlines

4 A/C delivered
first commercial flight
3 July 2015



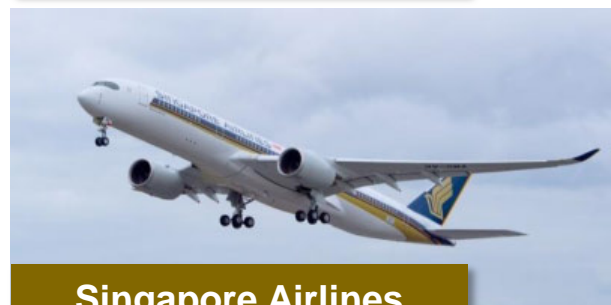
Finnair

5 A/C delivered
first commercial flight
9 October 2015



TAM

3 A/C delivered
first commercial flight
25 January 2016



Singapore Airlines

3 A/C delivered
first commercial flight
8 March 2016

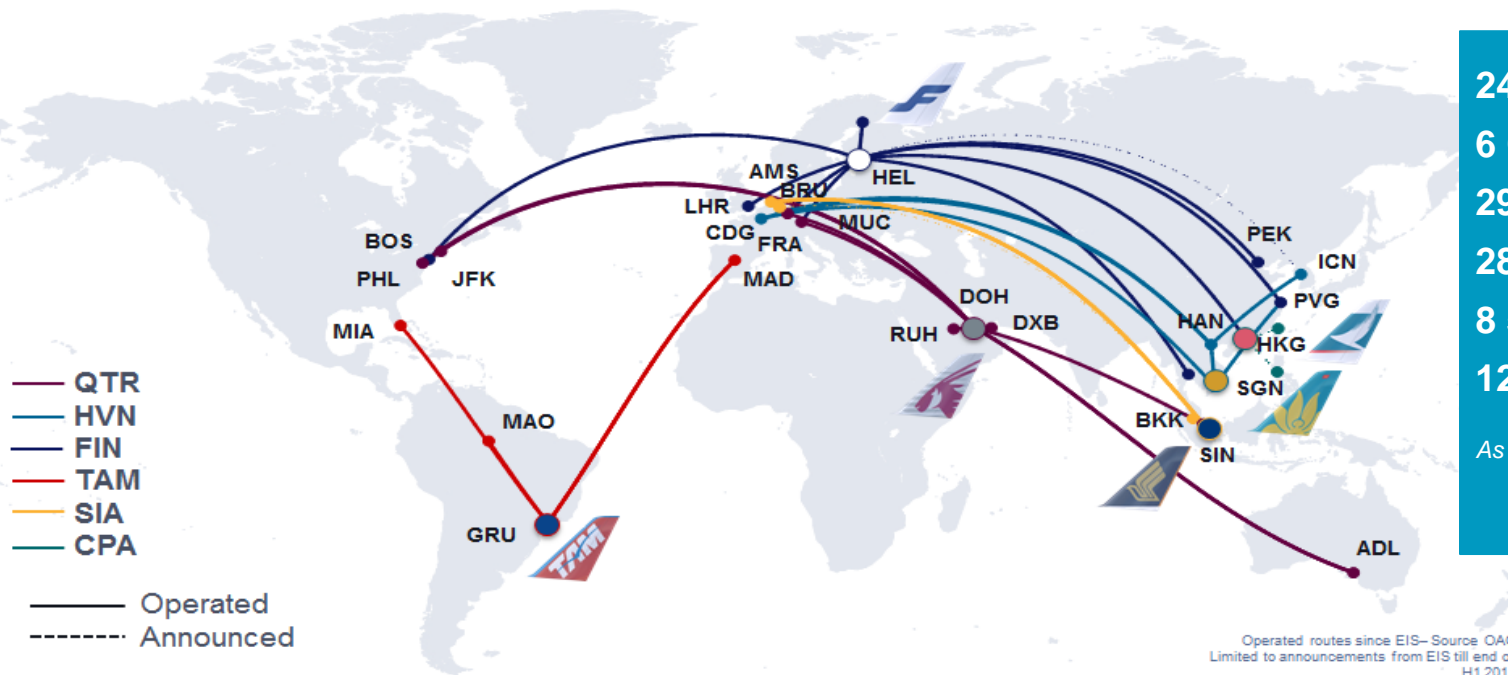


Just delivered!

Cathay Pacific

1 A/C delivered
first commercial flight
1 June 2016

29 routes worldwide, 2 million passengers since EIS



24 In Service A/C
6 Operators
29 Routes
28 Destinations
8 500+ Flight cycles
12h+ Daily utilization

As end of May 2016

A350 XWB operators' satisfaction worldwide through ad-hoc support



Close to
2000000
passengers have enjoyed the Xtra experience

- A350 XWB in service fleet reached an Operational Reliability of 97.8 % in last 3 months
- Time To Get Fix (TTGF) improved to average of 9 months
- Service Bulletins implementation accelerated in Production
- One step beyond required "Anticipation Boost" to eradicate In-service issues Inflow

A350 XWB Ad-hoc support

A350 OPS
Center
AOG

Accelerated
spare
deployment
Logistics &
transportation

Reduced
TTGF

Specific
Health
Monitoring

A350-1000: a new chapter of innovation to shape the future



First A350-1000 in FAL #MSN59

All 3 test aircraft in FAL



First new 6 wheel bogie
Main Landing Gear
fitted on the MSN59

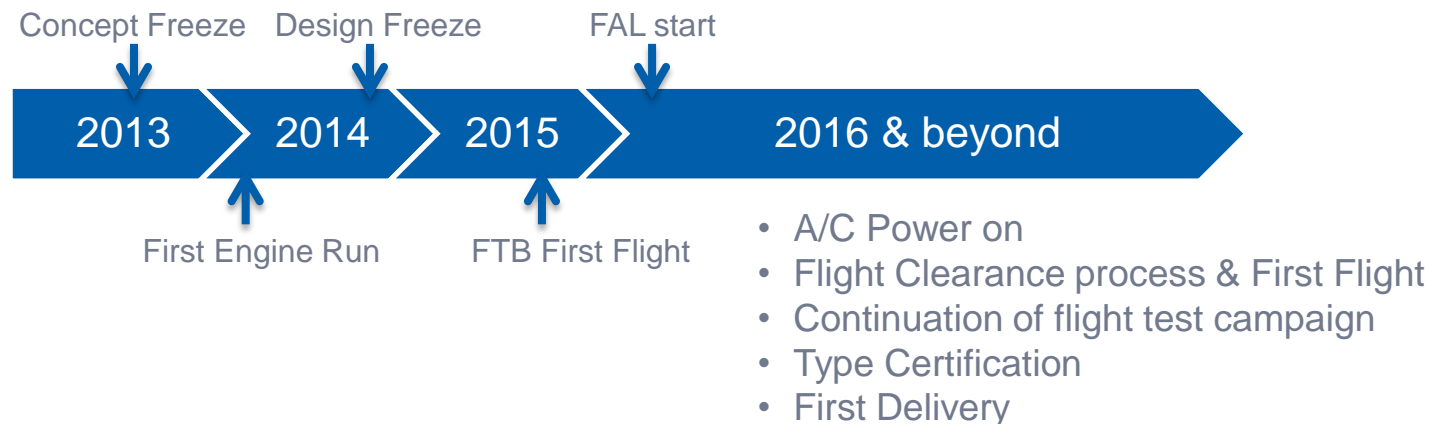


Rolls-Royce Trent XWB 97 engine
for MSN59



Rolls-Royce

A350-1000 a new chapter of innovation for the future



FTB campaign and Test means running to support Flight Clearance
 Engine delivery to FAL Mid 2016
First Flight by Q4 2016



A350-1000

10 customers

181 orders

Air Caraïbes
Air Lease Corp.
Asiana Airlines
British Airways
Cathay Pacific
Etihad Airways
Japan Airlines
Qatar Airways
TAM
United Airlines



A330 Family Best selling widebody in the past 2 years

- **242t for the -200 delivered** on time
- A330ceo secured over 100 new orders in 2015, filling the production line ahead of the introduction of the A330neo in late 2017
- Completion and Delivery Centre in China launched



A330 Family

- Rate 6 in 2016
- Rate 7 in 2017
- 1 634 orders including 186 neo & 20 MoU

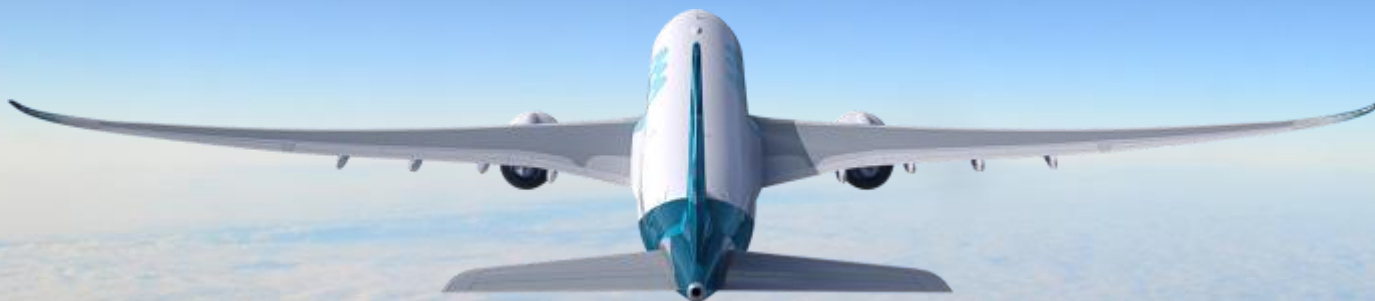
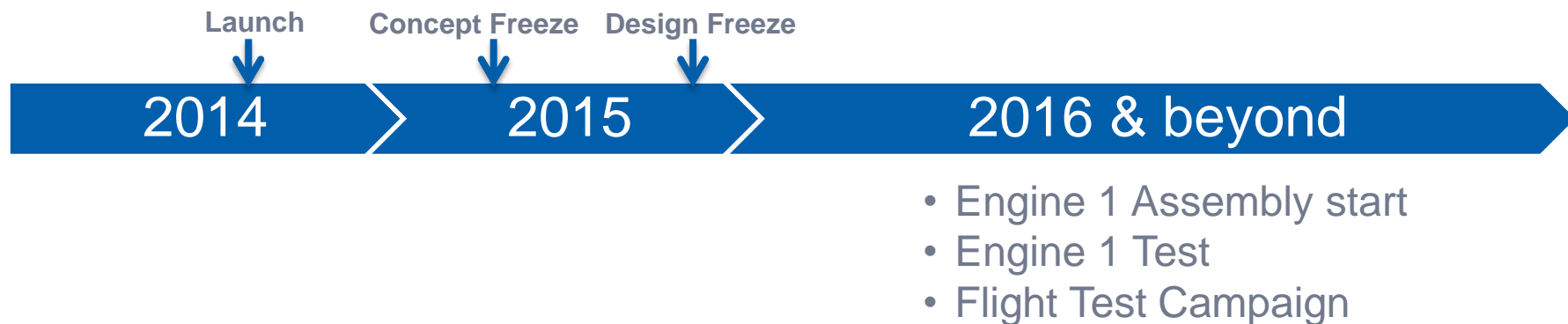
A330neo suppliers and Airbus sub-assemblies on track for FAL



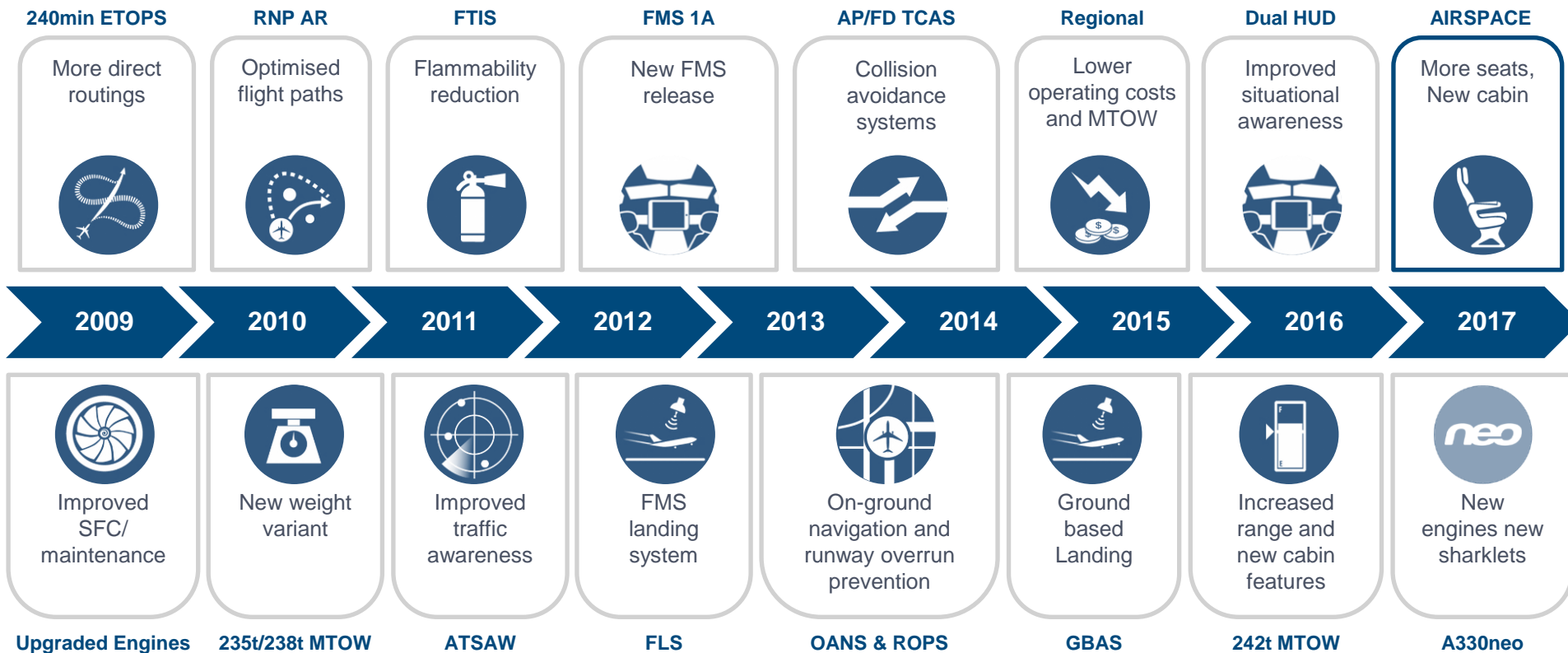
- Pylon (St Eloi)
- Air Inlet (Nantes)
- Central wing box (Nantes)
- Wing (Broughton)
- Nacelle (Aircelle)




A330neo Programme on track



A330 Family non-stop innovation to enhance airline profitability



AIRSPACE



New A330neo Airspace interior

A350 XWB style

New larger overhead bins

New entrance area

Efficiency

Space Flex/Smart Lav

10 more seats

Comfort

18in wide Airbus comfort
economy seat

Quietness

An Airbus trademark



A380: leverage market development platform

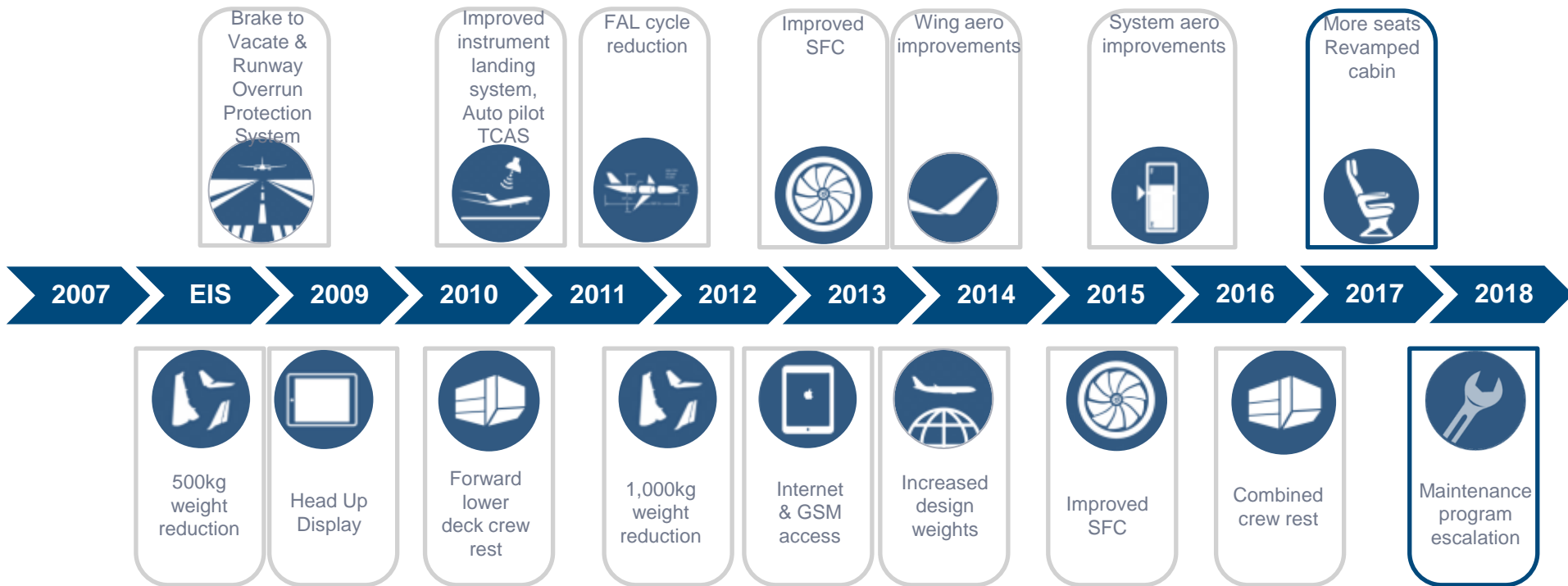
- Stable level of deliveries planned in 2016 towards past years.
- Product now mature with improved dispatch reliability at 98.7%
- Industrial breakeven achieved and stabilized
- Innovations enablers through **incremental developments**,
Cabin improvements, Reconfiguration capability and Maintenance Programme optimization

A380

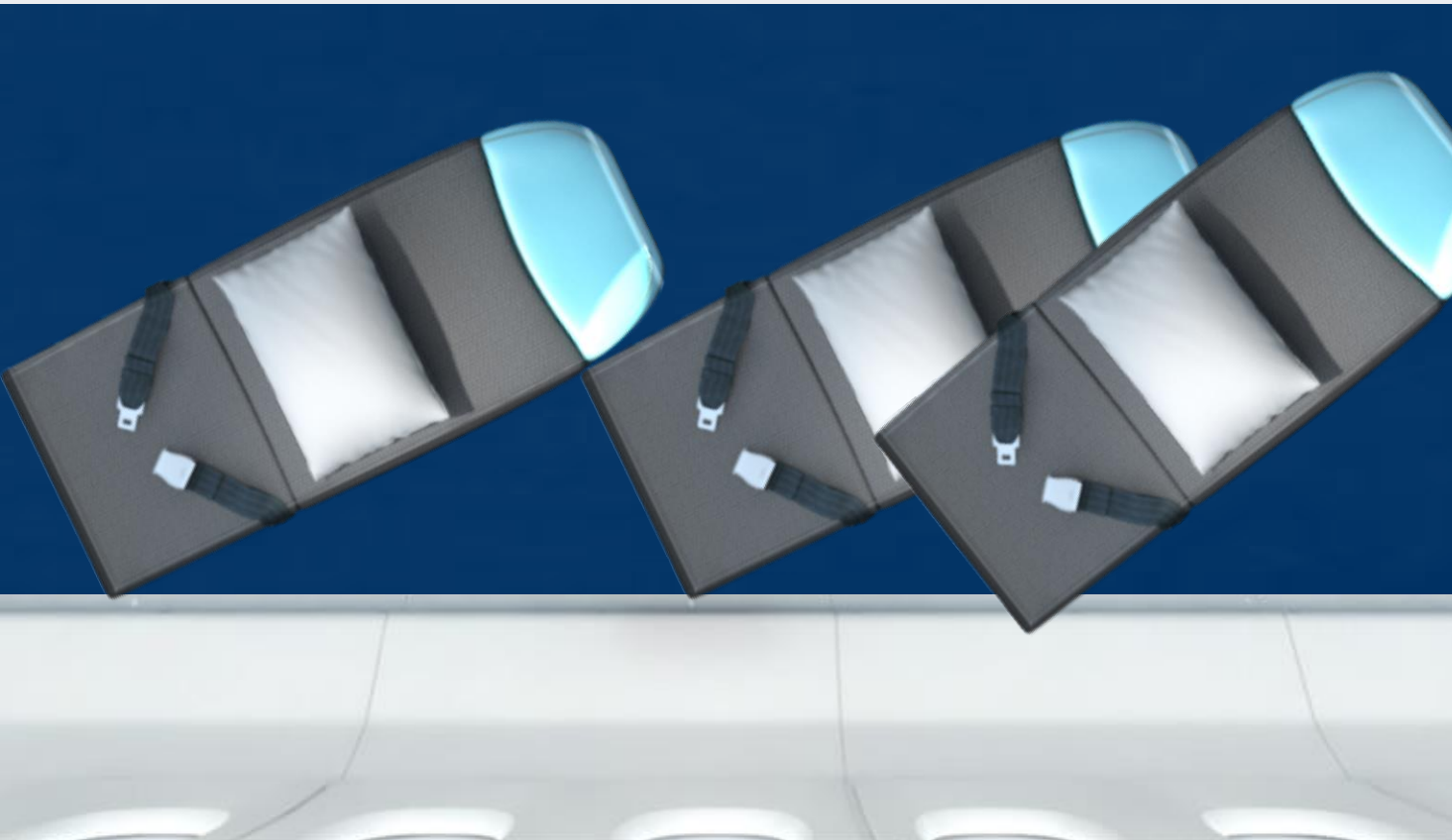
Market
development
platform steers
innovative
combined offers



A380 non-stop innovation since entry into service



Sidewall stowage removal and business seat positioning



A380
New upper deck
sidewall lining

+10
Business seats

+\$6m
annual revenue



Beluga XL More capacity to meet ramp up challenges

Beluga XL

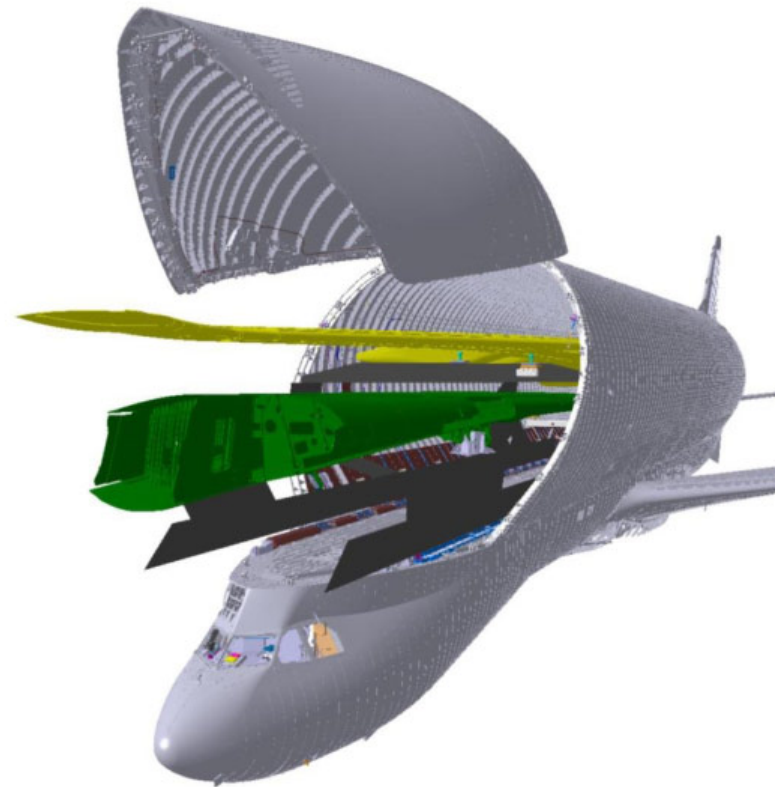
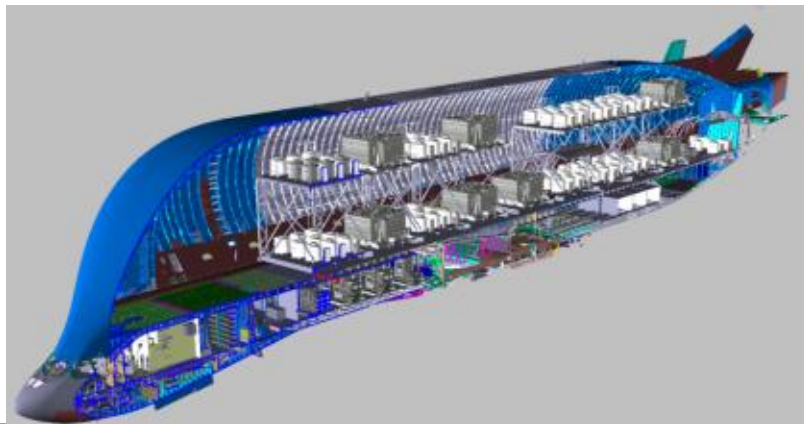
- Based on A330
- Design to cost
- 40% increased efficiency on A350 XWB transport
- Transports 2 A350 wings
- Payload increase by 12%



Innovative project management – Beluga is the Airbus lab

A 5-year development cycle at minimum cost

- One team one office
- Open book approach, more transparency
- Enhanced DMU portal – 3D Juump viewer





A320 Family non-stop innovation to enhance airline profitability

Landing Gear and Fuel Pumps

Lower Maintenance costs



Universal IFE platform

Integration of IFE and connectivity



Smart-Lav

Up to +6 seats



Space-Flex V2

Up to +6 seats



A321 High & Hot

35k Thrust



Cabin-Flex

Increasing seat count on A321 to 240



Brake-to-Vacate*

Improve runway occupancy



2014

2015

2016

2017

2018

2019

2020



Lower Maintenance costs

Full LED



15% fuel burn reduction

neo



A320 189 seats
A321 230 seats

Increased Exit Limit



Improved pilot operations

Wifi in Cockpit



Improved low speed performance

SHARP**



4000nm

A321LR



2% further fuel reduction

P&W Advantage

*Subject to launch ** Short Airfield Performance

Klaus Roewe
Head of A320 Programme

Airbus Innovation Days

A320 Programme Update





A320neo Worldwide success

4,515
Firm orders

82
Customers

60%
market share

end April 2016
Source: Airbus

Innovation where it matters

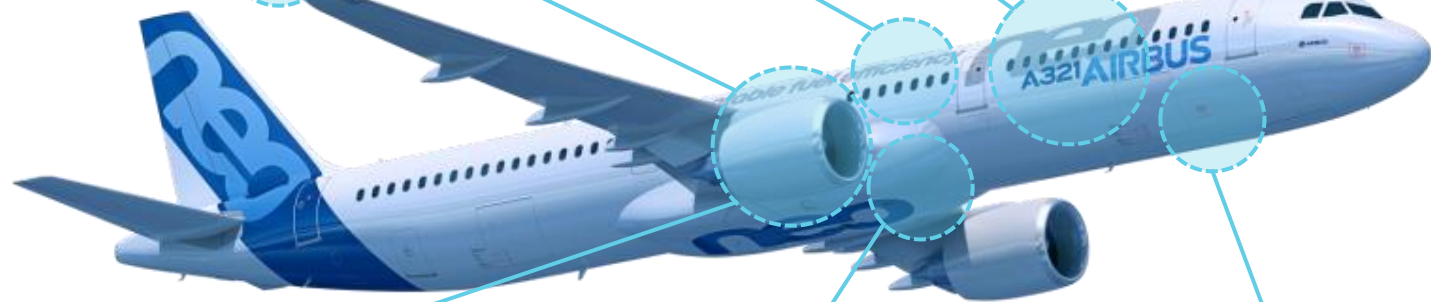
95% airframe spares **commonality** with the A320

Lower operating costs with more revenue potential

Sharklets & New Engines
-15% lower fuel burn

Increased Cabin Efficiency
more seats

A321LR*
Up to 4,000nm range



New bleed system
Higher reliability
Lower maintenance cost

Updated MPD**
-5% lower aircraft
maintenance cost

Landing gear
+20% more time
between overhauls

**Maintenance Programme Directives

* 97t MTOW and up to 3 ACTs



-15% **Fuel Burn*** confirmed



Range +500nm confirmed



Better **Low Speed** performance



Shorter **Time to Climb** than A320ceo



Aircraft weight on spec
150kg lighter than launch targets



Better **Noise margin**
-19db noise level compared to Ch.4



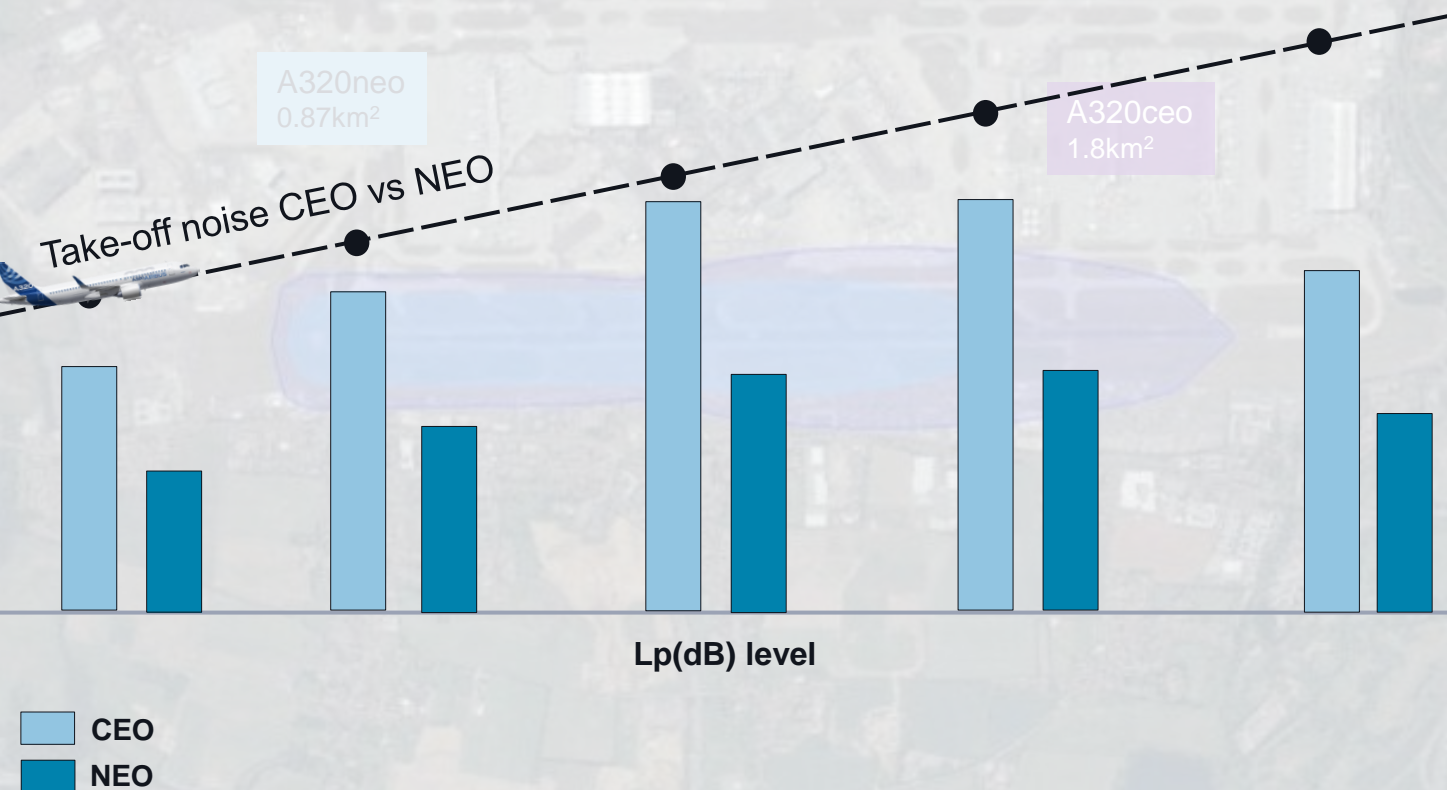
-50% NOx emissions*
below current regulation standard



-15% CO2 emissions*
-5.000 t per year per aircraft

Promises proven in service

Less fuel Less noise Less CO₂



**Best
environmental
performance**

**50%
reduction
in noise
footprint**

A320neo and A320ceo noise contours at
London Heathrow





A320neo Programme highlights

**A320neo P&W aircraft
Type Certificate
24th of November 2015**

**1st A320neo delivery
20th January 2016**

**First Flight A321neo
CFM
9th of February 2016**

**First Flight A321neo
P&W 9th of March 2016**



A320neo in service

More than
2200 revenue
flight hours
with **6** aircraft
in service



High Altitude
La Paz - September 2015



Cold Weather
Iqaluit – January 2016



First Flight A321neo CFM
February 2016



Function & Reliability
April 2016



**On track for
A320neo CFM
certification**

**Overall NEO Test
fleet status**



**+2 800 Flight Hours
+940 Flights**

**A321neo flight test
campaign on going**

A320neo teething issues status

Fixes identified

Plan in place with customers' endorsement

	STATUS/RESOLUTION	WHEN
Engine start time (not at CEO level) 	<ul style="list-style-type: none"> • Deliveries with P&W engines with improved start time • Engines start up to achieve similar time as current aircraft 	Summer 2016 Autumn 2016
FADEC nuisance faults 	Software update applied to all fleet	✓
Hydraulic temperature	Lift ambient temperature limit from 50 → 55°C	Summer 2016



On track for ramp up to rate 60



Head of Customer Services
Didier Lux

Non-Stop Innovation Customer Services

Airbus Innovation Days



Serving over 400 airlines operating Airbus aircraft

Product sophistication
and outsourcing of expertise



The fleet size effect (From 2015 to 2017)

	100	140	180
	310	410	440
	175	200	225
	2015	2017	2019

Meeting >99% reliability industry expectations






A320	99.7%
B737	99.5%
A330	99.4%
B787	99.1%

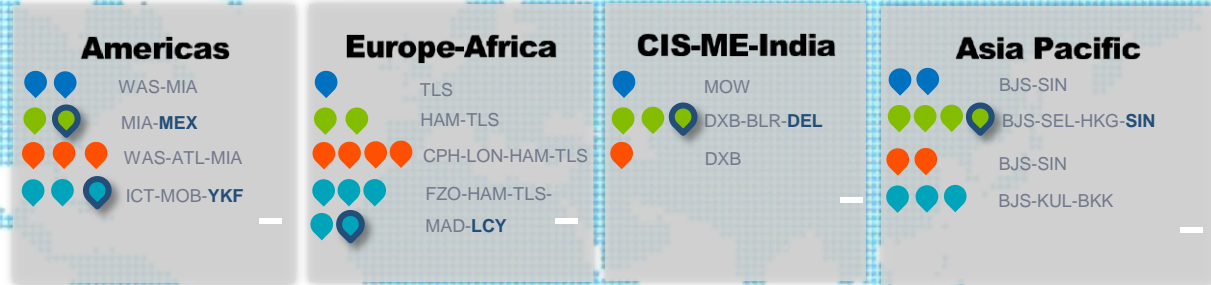
Last 2 year deliveries

Supporting 9,000 in-service Airbus aircraft **Safely** by end of 2016,
while delivering **Services** commitments

Expanding our global footprint: More proximity to support our customers 24/7

global

-  Customer support centres
-  Training centres
-  Material and Logistics centres
-  M&E centres
- +150 Field service stations worldwide
-  New over the past 12 months



5 500+ dedicated people worldwide from 50 different nationalities.

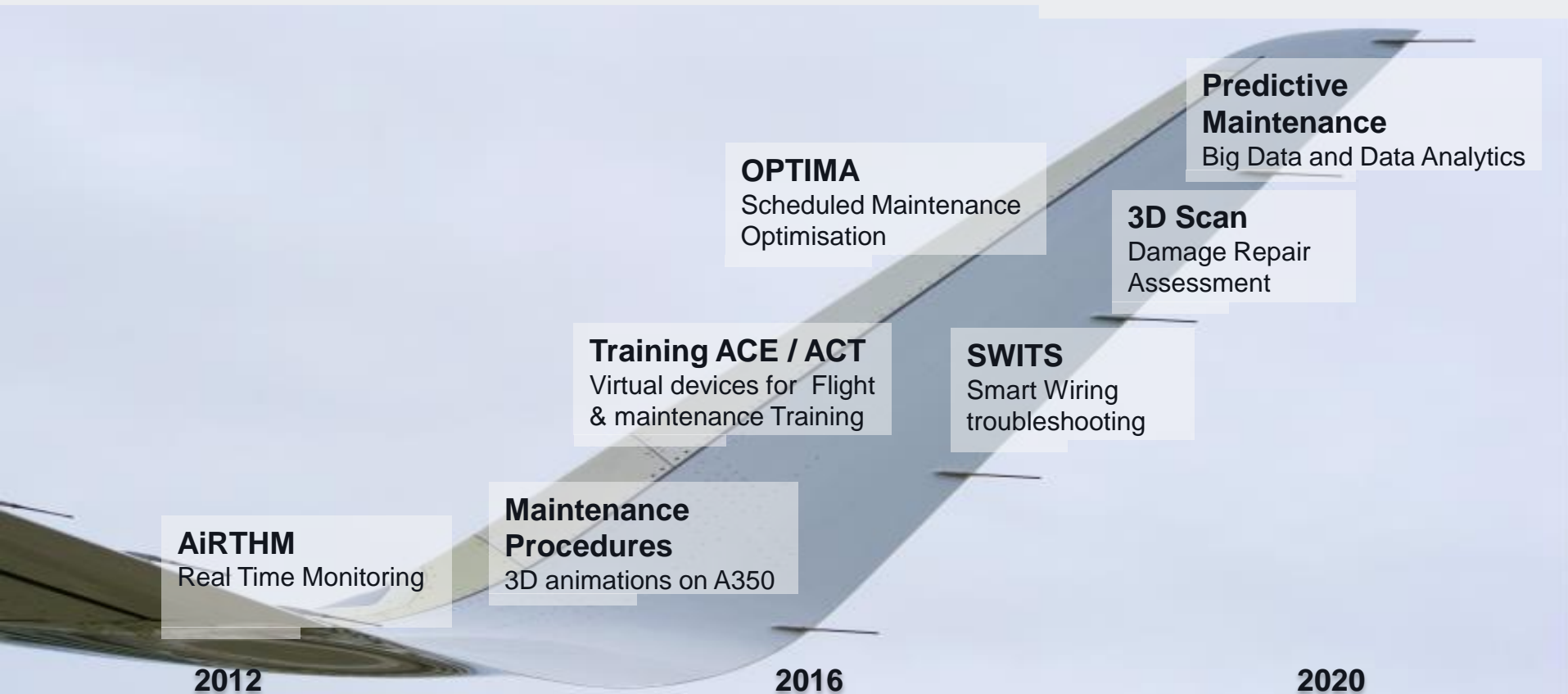
12 months of continuous business expansion globally



* FHS: Flight by Hour Services

** TSP: Tailored Support Package

Meeting Customer expectations through non-stop innovation



Non-Stop innovation... Training ACE / ACT

Airbus Cockpit Experience trainer

- + Incorporates **Evidence based training** concept
- + A350 familiarization through **virtual cockpit**
- + Knowledge acquisition on **systems and procedures**
- + **Functional learning** for theory and practice
- + **Free play simulation** for system practice
- + **Self-paced** learning to proficiency



Airbus Competence Trainer (Maintenance)

- + Balance of theory & practice on dynamic virtual media
- + Learning by doing concept
- + Focuses on need-to-know
- + Optimized simulation scenarios
- + Reduce practice on aircraft by 50% minimum for certifying courses
- + Based on product design

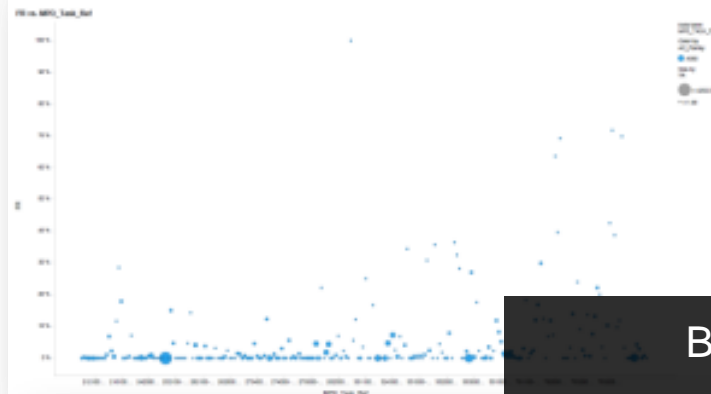


Non-Stop innovation... OPTIMA – Schedule maintenance

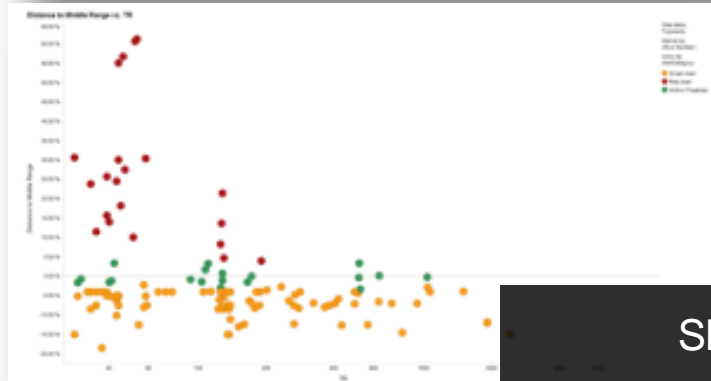
Optimize and escalate maintenance tasks to minimize aircraft downtime during scheduled visits

- + Quantified view on task efficiency based on scheduled maintenance data
- + Simple identification of potential tasks for interval increase or decrease
- + Confirmation of good performance
- + Means to provide more specific optimized maintenance program deliverables.

1. BIG DATA



Blurry



Sharp

Non-Stop innovation... Predictive Maintenance

Crunching data from the aircraft as well from the ground to anticipate failures

- + Avoid unplanned events by detecting system failures before they occur
- + Predict a system failure to prevent unscheduled events
- + Optimize Maintenance planning and MCC operations
- + Identify the most effective maintenance procedures



Non-Stop innovation... 3D Scan

Use 3D scanners for improving damage assessment and consequently shorten the repair lead-time

- + Provide speedier solution
- + Improve A/C dispatch in case of impact
- + Traceability, impact damage recording
- + No specific qualification to use the tool



Thank you



Glossary

- OR: Operational Reliability
- FHS: Flight by Hour Services
- TSP: Tailored Support Package
- ACE: Airbus Cockpit Experience trainer
- ACT: Airbus Competence Trainer
- OPTIMA: Optimization of Performance by Task Interval Maintenance Assessment
- SWITS: Smart Wiring Trouble Shooting
- AiRTHM: Airbus Real Time Health Monitoring
- MRO: Maintenance, Repair, and Overhaul

