Titanium Aerospace
Demand & Integrated Supply Chain

27th September 2016
ITA Arizona
Before starting

**Presence**

An Airbus takes off or lands every **1.5** seconds

<table>
<thead>
<tr>
<th>Aircraft sold</th>
<th>Delivered</th>
<th>Daily flights</th>
</tr>
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<tbody>
<tr>
<td><strong>16,789</strong></td>
<td><strong>9,920</strong></td>
<td><strong>25,000+</strong></td>
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Data to end August 2016
AIRBUS Global Context - for Airbus Civil Aircraft

Backlog orders

A320
5,627
A320neo
A330
1,117
A350
125
A380

Total order backlog Aug’16

6,869

Moving Global

Exchange rate

Ramping up to our highest levels ever

Generate Value to customers & shareholders

Digital opportunities
Material and Parts Strategic Objectives

- Enable sustainable Competitiveness
- Ensure Supply Chain derisking and ability to meet ramp-up
- Develop a consistent and eco-efficient global footprint
- Foster innovation on current and future programmes
- Strengthen synergies within Airbus Group and Extended Enterprise
Every working day, Airbus products manufacturing requires around **30 tons** of Titanium (2014 consumption)

**New aircraft models require more Titanium:**
The input weight of Titanium is **18 times** higher on A350 XWB than on A330

All incremental development (NEO’s) to support optimisation of Aircraft performance involves new Pylon, where Titanium is key

Composite is a new major player in Aircraft manufacturing, Titanium demand is linked

→ **Titanium is key for Airbus**
Titanium strategy – Way Forward

Boost competitiveness
- Investigate all opportunities to improve the Total Cost of Ownership of flying parts

Deliver on commitments
- Stable and robust supply

Prepare the future
- Innovation and new technologies
- Technological trade-offs
- To push the most competitive solutions forward
- Supplier development

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Challenge#1 - Deliver on commitment

CONTEXT – Ramp-up & New product introduction

OBJECTIVE – Supply-Chain operational excellence

- Promote and accompany supply-chain actors towards industrial excellence \( \rightarrow 100\% - 0 \)
- Systematic Supply-Chain de-risking on critical items
- Improve demand management
- Improve processes and deploy lean initiatives

“The most important thing is that we mitigate risks without making the company scared to accept challenges” - Klaus RICHTER, AIRBUS GROUP CPO
Challenge#1 – Deliver on commitment / Excellence

CONTEXT: Non homogeneous supply-base

- 601 Supplier Sites
- 2’024 Suppliers sites in surveillance
- 230’000 Part Numbers

Current Supply Performance:

94,6% On-Time Delivery*

* 12 months rolling window

OBJECTIVE: Reaching industrial excellence

- 100% On Time Delivery
- R1 0 PPM
- 0 Quality escape (Concessions, QSR, Out.work)
- IPCA rating A
Challenge#2 - Boost Competitiveness

**CONTEXT – Agressive competition**

Boeing (737Max, 777X, etc)
New competitors arising (Canadian, Chinese, Russian, etc.)

**OBJECTIVE – Enable sustainable competitiveness**

- Cost reduction initiatives on programmes*
  - Transfer efforts from new programmes to incremental developments
  - Improve usage of material (« Buy to Fly », VI) & set-up competition amongst capable technologies

- « Global » cost reduction initiatives
  - Optimize cost structure (Recycling, flow optimization, etc.)
  - Challenge current technical and manufacturing requirements

- Collaborate on futures solution to maintain our competitive edge

“We still need to keep the spirit and passion of being the “challenger”, not to think we will always be successful because we’re as big as we are today” - Tom WILLIAMS, AIRBUS COO
Challenge#2 - Boost Competitiveness / Buy to Fly

CONTEXT: Low yield ratio

10T engaged

OBJECTIVE: Optimize use of material

1T flying

SA Center Wing Box: BtF = 1:10

Lever1 - Use less material

Lever2 - Re-use material/Recycle
Challenge#3 - Prepare our future

CONTEXT – Disruptive technologies and new business models emerging

Impression 3D (ex: A320NEO bracket)  SA “Pulse Line” & Smart Glasses  Move to Digitalization

OBJECTIVE – Keep our State of the art

- New technologies assessment and development for products and enablers
- Supply-Chain adherence to Digitalization initiative (Big Data, Central model)
- Adaptation to the new aerospace “eco-system” (cybersecurity, environmental, new services business models)

“New digital technologies have a lot to offer to Airbus. They will transform our operations, bring greater reactivity to production, reduce our cycles and strengthen our competitiveness.” - Fabrice BREGIER, AIRBUS CEO
Challenge#3 - Prepare our future / Digital BoM

CONTEXT: Scattered referentials

OBJECTIVE: SMART database

Programme updates

Material demand

Supply Base (Consumers)

Material Supplier (Producers)

AC BoM

Central model

Digital BoM (Multi-criteria)

Enabler for
- Deliver on commitment (Predictive demand model, Lead-time supervision, etc.)
- Boost competitiveness (Standardization, BtF, Bundling, etc.)

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Conclusion

➔ Favorable context - opportunities ahead!

➔ Airbus and Supply Base to step up partnership as means of
  • Further improving use of raw material
  • Reaching a sustainable industrial excellence
  • Adapting operating model to the digital era
Time for questions – Q&A