

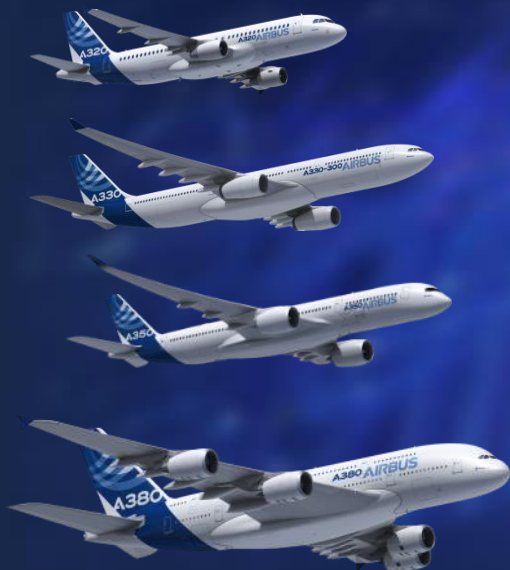
Airbus Innovation Days
May 2016

How Airbus designs the future

Charles CHAMPION
Executive Vice President Engineering

We leverage incremental & breakthrough innovations to design our future aircraft

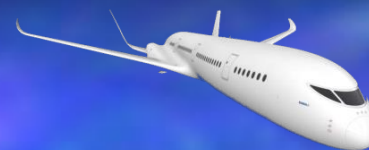
State of the art Airbus aircraft family



Incremental Developments



New Concepts



Airbus R&D

Over **2 bn€** each year
to enhance aircraft efficiency,
new technologies & architectures

Our **key drivers** to design the aviation of tomorrow

Enhance
Aircraft Performance

Boost our
Customer Competitiveness

New **Ways of Working** by
Leveraging new **Technologies**
Inspiring & Connecting **People**

Improve overall
Air Traffic Management

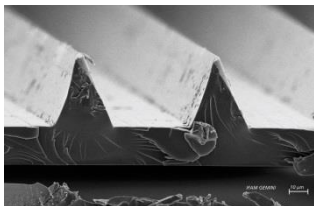
Contribute to
Sustainable Aviation

Our **key drivers** to design the aviation of tomorrow



Enhance Aircraft Performance

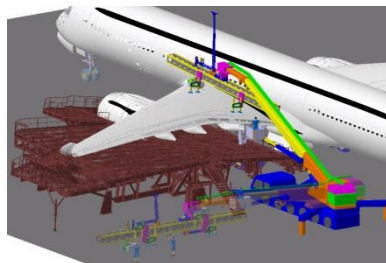
With application of riblets to reduce turbulent drag in cruise



Technology
development
of riblet
application



Implementation
& Testing
in near-industrial
environment



“Full Scale System”
demonstrator in
industrial environment

2013

2015

2017



Expected Benefits

-1.5% fuel burn
dependent on aircraft type, mission,
area applied and riblet efficiency

Our **key drivers** to design the aviation of tomorrow



Boost our Customer Competitiveness

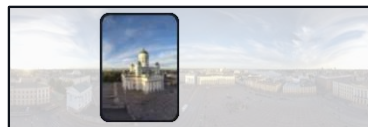
With enhanced passenger outside view



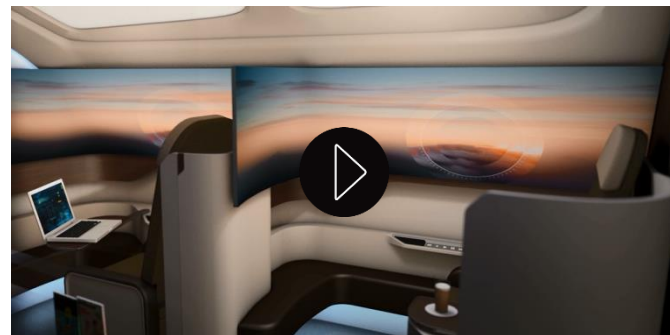
Interactive displays
virtual outside view,
in special areas



Big interactive surfaces
virtual outside view,
in cabin segments



Entire cabin
equipped with
interactive surfaces
& virtual outside view



Expected Benefits

- **New customer experience** & ancillary revenue generation
- **Extra comfort**
- **Higher flexibility** & reduced customization efforts

Short term

Mid term

Long term

Our **key drivers** to design the aviation of tomorrow



Improve overall Air Traffic Management

With maximized air transportation safety, efficiency, and growth



**Closure of
SESAR 1**
R&D phase
e.g. initial 4D

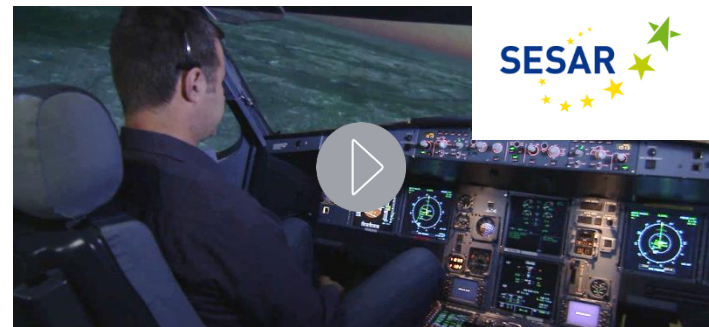


Data Collection
on real flights

SESAR 2020
R&D phase
*e.g. mature use of aircraft
trajectories in ATM*



**Very Large
Demonstrations**
on revenue flights
*e.g. more than 100
equipped aircraft flying
over core Europe*



Expected Benefits

- Reduce aircraft delays
- Reduce fuel burn,
CO₂/NOx emissions & noise
- Enable increased capacity
while maintaining safety

2016

2016-2019

2017-2020

Our **key drivers** to design the aviation of tomorrow



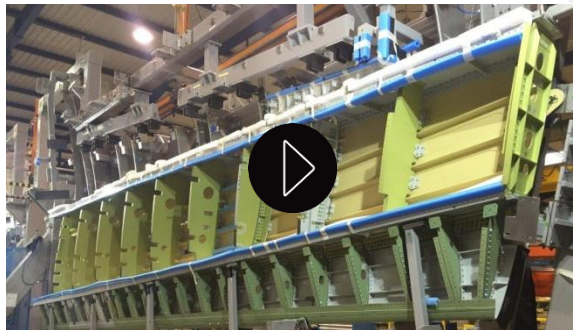
Demonstrate environmental benefits at aircraft level

Breakthrough Laminar Aircraft Demonstrator in Europe - BLADE



2014 – 2015

Wind tunnel tests. Laminar wing & Krueger flap demonstrator



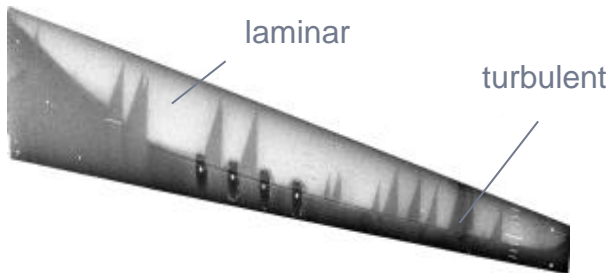
2016

First aircraft parts



2017

Flight tests on Airbus A340



Expected Benefits

Minimise drag with laminar flow

-5% fuel burn saving
compared to current aircraft generation



Our **key drivers** to design the aviation of tomorrow



Leverage new Technologies

Using low-cost smart sensors in our tests



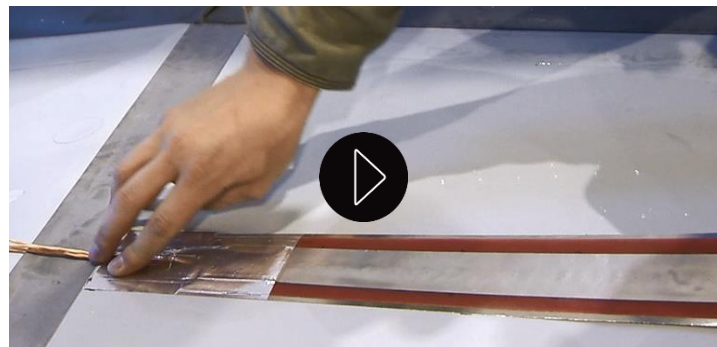
Until 2014
Classical sensors
used on Airbus
flight test aircraft



2015
First "off the shelf"
sensors on A350 XWB
flight tests



A350-1000
Fully equipped with
smart sensors



Proven Benefits

- Simplifying flight test system architecture & installation
- Cost efficient
- Delivering new kinds of data

Inspire & Connect People

To innovate faster



“Test fast, fail fast, adjust fast”

- **IdeaSpace**
1,000+ ideas posted (2015)
- **Agile methods, Design thinking**
- **Fast prototyping**
6 ProtoSpace open

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