

# ATI introduction for EPSRC institutional support launch meetings

21 October, 2016

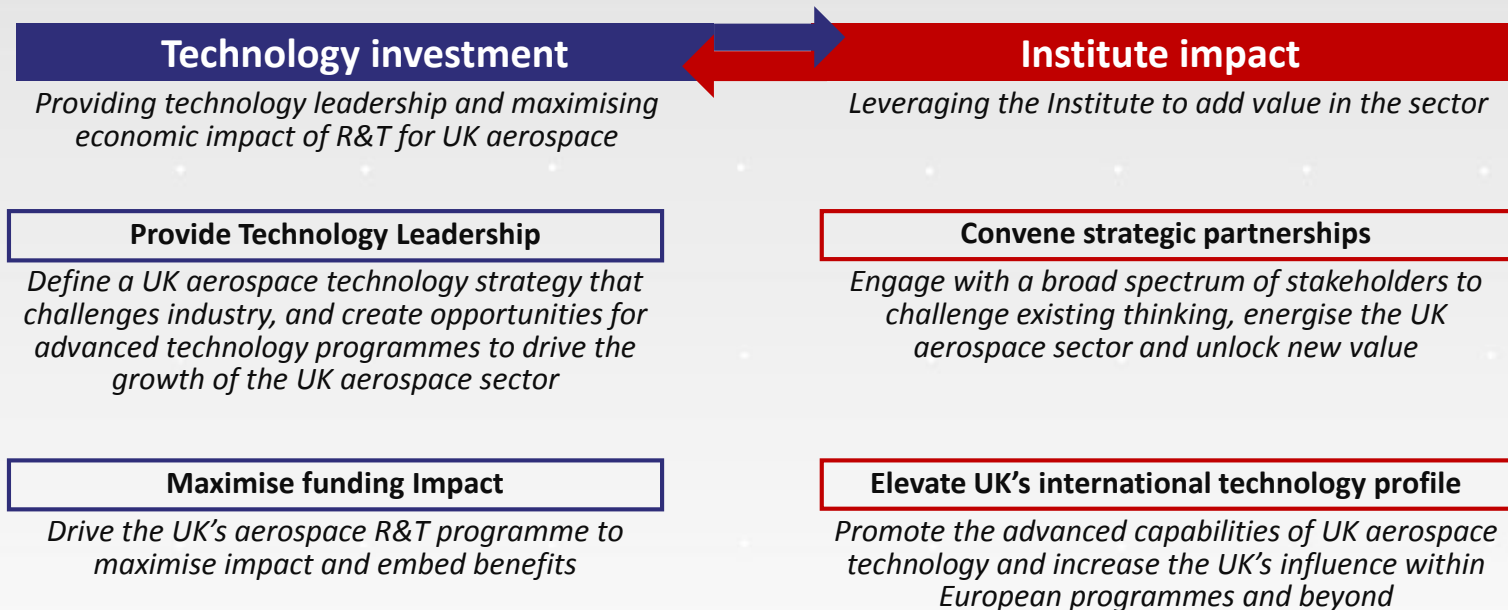


# The ATI

- The Aerospace Technology Institute (ATI) is the objective convenor and voice of the UK's aerospace technology community
- We define the national aerospace technology strategy
- We work closely with Government and industry to direct joint funding into aerospace R&T projects that align with the strategy
- The Comprehensive Spending Review of November 2015 extended the joint funding available to £3.9 billion over 13 years (to 2026).

# Our mission & goals

Through strategic investment in differentiating technologies,  
secure the full economic potential of the UK aerospace sector



# The UK aerospace technology strategy



# EPSRC support for Early Stage Research

## Aircraft of the Future

- Prof. Andreas Schafer (University College London)

## Smart Connected & More Electric Aircraft

- Prof. Barrie Mecrow (Newcastle University)

## Propulsion of the Future

- Prof. Pericles Pilidis (Cranfield University)

## Aerostructures of the Future

- Prof. Kevin Potter (University of Bristol)

# ATI Early Stage Research Opportunities

## Propulsion of the Future:

- Novel propulsion and airframe integration (structural, aerodynamic) **approaches to enable distributed propulsion concepts**
- **Electrical technology** (transmission, control, cooling, storage) to facilitate hybrid turboelectric propulsion
- Research on **novel aerothermal cycles** to meet the European Union's ACARE Flightpath 2050 environmental targets

## Smart, Connected and MEA:

- Development of an **experimental hybrid propulsion platform** to validate technologies including **high-density energy storage, superconducting electrical systems and networks**
- Ultra-high bandwidth secure **communications systems**
- **Advanced control for more autonomous architectures** together with cost effective approaches to development and verification
- **Advanced analytics** for health management of increasingly complex aircraft systems
- **Advanced sensing technology** to enable optical data distribution and **novel energy harvesting**

# ATI Early Stage Research Opportunities

## Aircraft of the Future:

- New and novel whole-aircraft architectures and operational concepts
- Greater interaction between aircraft conceptual and air transport system modelling linked to the European Union's ACARE Flightpath 2050 goal
- Human factors in the flight deck
- Design and evaluation of the overall aircraft system to better leverage ongoing component and system research

## Aero-structures of the Future:

- Disruptive processes for additive and subtractive manufacturing
- Complex, high-performance, and low-cost composite, metallic and hybrid components
- Enhanced verification and validation to reduce physical certification requirement
- Digital enablement of the entire vertical and horizontal supply chain
- Advanced material formulation, design, processing and certification
- Seamless virtual product lifecycle modelling to ensure high-quality, low variability, and minimal process steps