



Urban Air Mobility and the ATI

UK Aerospace R&T Programme

Introduction to the ATI

- The ATI Programme represents a £3.9 billion joint government and industry investment managed by the ATI, Innovate UK and BEIS. Its purpose is to maintain and grow the UK's competitive position in civil aerospace.
- Combined funding (industry – 50% and government – 50%) of £300m per year to 2026
- **Mission:** to grow the UK's aerospace industry so that it is able to take advantage of the forecast growth in the civil aerospace market.
- **Two key areas of work:**
 - Setting the strategy for UK civil aerospace R&T
 - Selecting projects to fund and overseeing the portfolio

Funding Landscape

UK ATI Programme

Strategic Programme

Key Facts

Total grant funding: up to £1.9bn
Up to £150m grant/year available

Portfolio to date:

ATI Strategic Programme

Total value so far: £2bn
Total grant so far: £1.1bn
Projects: 211 on contract
Unique partners: 219
Total SMEs: 115
Average project grant: £4.8m
Average partners per project: 4

Collaborative R&D Competition Calls (CR&D)

Key Facts

Total grant funding: up to £20m
First call now up to £8m grant

Previous waves:

CR&D1 (2013) & CR&D2 (2014)

Total value: ~£77m
Total grant: ~£43m
Projects contracted: 34
Partners: 174
Total SMEs: 80

NATEP

Under ATI Programme since 2017

Key Facts

Total grant funding: up to £10m
Details announced in 2019

Previous waves:

NATEP1 (2013)&NATEP2 (2017)

Total value: £54.4m
Total grant: £31m
Projects contracted: 152
Partners: 368
Most of which are SMEs

UK-Sweden EUREKA Call

Key Facts

Total grant funding: up to £2.25m
Call open now

First bi-lateral call

ATI Programme: Portfolio statistics



£1.3 billion

OF GRANT FUNDING HAS BEEN
AWARDED TO UK ORGANISATIONS...

...CONTRIBUTING TO THE UK AEROSPACE RESEARCH AND
DEVELOPMENT PROGRAMME THAT NOW TOTALS

£2.5 billion



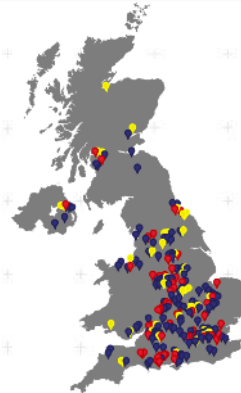
243 PROJECTS

DEVELOPING CAPABILITIES ACROSS 4 ATI VALUE
STREAMS AND 5 KEY ENABLERS WITH

137 LIVE PROJECTS



PORTFOLIO PROJECTS ON CONTRACT HAVE
POTENTIAL TO CREATE AND SUSTAIN UP
TO **62,000** UK JOBS



231 UNIQUE PARTNERS

INVOLVED FROM EVERY NATION AND REGION OF
THE UK INCLUDING



BOOSTING PRODUCTIVITY BY
+30%



WITH EVERY £1M
INVESTED DELIVERING **£7.5M** IN PRIVATE
INVESTMENT

DELIVERING A RETURN OF
£114 billion
IN VALUE ADD AND SPILLOVER TO 2035

Defining the UK aerospace Technology Strategy

Raising Ambition - 2016

Aircraft of the future



Smart, connected and more electric aircraft



Aerostructures of the future



Propulsion of the future



High value design

Additive manufacture

Autonomy

Digital economy

Through life services

Strategy 2019

Connect to a future vision of air transportation

Keep a “core” scope in vehicles, structures, propulsion & power, and advanced systems

Highlight changes / dependencies in the wider aviation system

Launch: ATI Conference 19-20 Nov



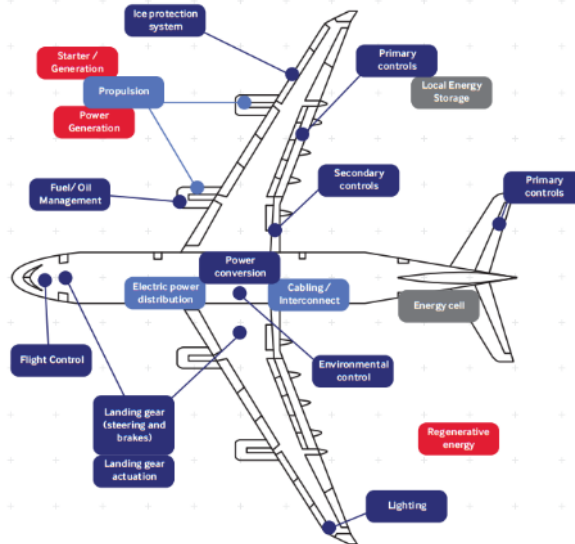
INSIGHT Papers

INSIGHT



Introduction

The INSIGHT document is intended to enable wider consultation on electrical power systems in support of future updates to the Aerospace Technology Institute's technology strategy, Raising Ambition. This paper highlights the increasing importance of electrical power systems in current and future commercial aircraft and identifies new market sectors that are dependent on enhanced technologies for such systems. Four possible applications of advanced electrical power systems are considered, and the requirements derived from these market applications. An outline view of potential market opportunities is provided to support investment in electrical power systems in these sectors. Initial technology roadmaps have been established to explore technology development opportunities in electrical power systems for UK aerospace in advance of a future review of the ATI's Aerospace Technology Strategy. The UK industry is well placed to take advantage of the more electric, or all electric aircraft and novel electric propulsion systems, with appropriate investment in technology development.



Technology Road Map 2018: Architecture & Interconnect



The road towards electric propulsion



Staying up to date with the ATI

David Debney
Head of Technology – Whole
Aircraft

Engaging with the ATI

- Subscribe to our fortnightly eNewsletter
- Follow us on Twitter and LinkedIn
- Visit our web site: www.ati.org.uk
- Read our INSIGHT papers



@UKAeroInstitute



Aerospace Technology Institute


The Future Flight Challenge

An Aviation System Approach

4th September 2019

Gary Cutts
Challenge Director – Future Flight

Future Flight – a new market of new opportunities



Demonstrates aviation systems incorporating low environmental impact, electrified, increasingly autonomous air vehicles and airspace management by 2025

Pioneers an accessible airborne mass transit and service delivery system

Unlocks new aviation markets worth over \$2Tr and enhances UK prospects in the \$17Tr conventional aviation markets to 2050

Airborne transformation of UK connectivity, exports, productivity and mobility

This requires an aviation system approach



- How will we cope with the volume of vehicles?
- How much autonomy makes sense?
- Should they be fully integrated with current aviation systems?
- What is the right infrastructure for charging?
- How do we fly and land in cities?
- Where can we develop and demonstrate?
- What is the best use of the new capability?
- Is the public ready?
- Do the economics work?
- How do we maintain aviation safety levels?

.....and many more!

**Business
models**

New vehicles

Regulation

**Consumer
readiness**

System Safety

**Airspace
integration**

Use cases

**Urban
integration**

**Physical /
Digital
infrastructure**

Future Flight is a £125m UK government aviation system demonstration around 3 vehicle types



Future Integrated Aviation System of Systems

Safety cases
Environmental, economic and social impacts
System simulation at scale

Air Vehicle Technologies / demonstration

Autonomous technologies

Beyond visual line-of-sight control

Vehicle communications

Detect and avoid systems

Control and Regulation

Traffic Management Systems

Autonomous control

Regulations

Flight in controlled airspace

Ground Infrastructure Systems

Airport / vertiport concepts

Charging concepts

Digital / comms systems

Multi-modal transport links

New Operating Models

Public acceptance

Market demand and requirements

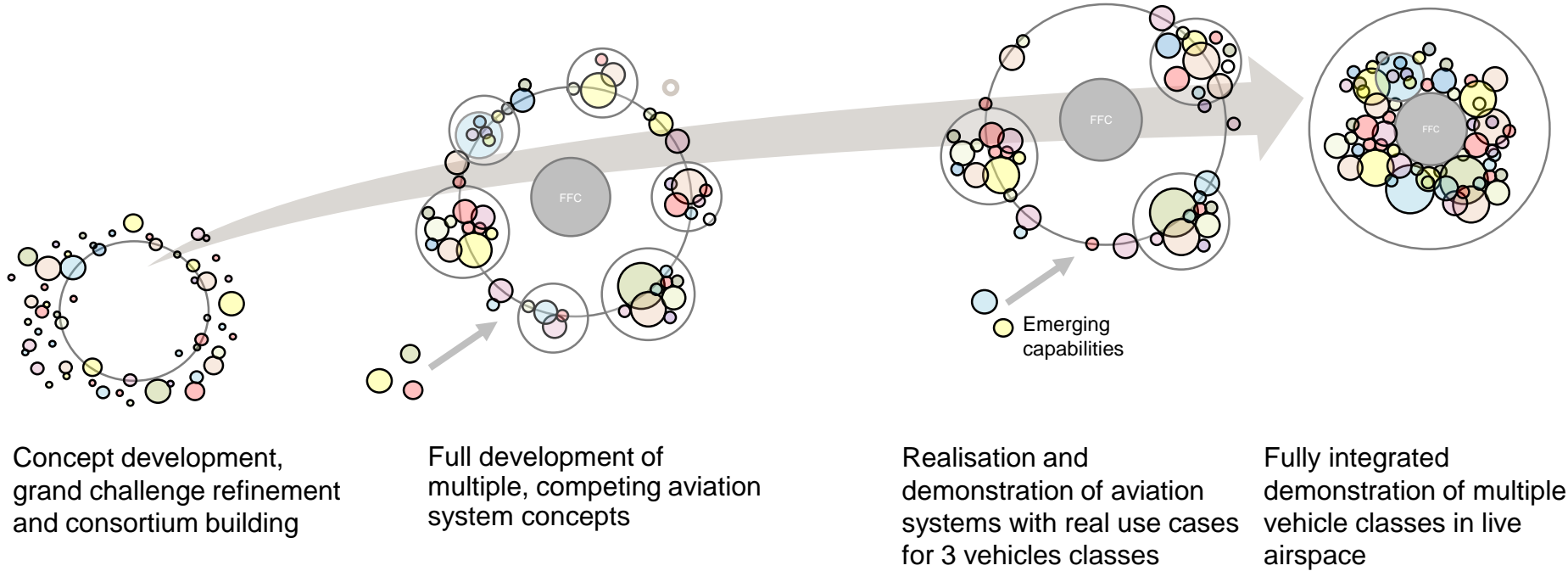
New service concepts

Drone System Demonstration

Air Mobility System Demonstration

Hybrid Electric Aircraft System Demonstration

Delivery is via a phased programme of open competitions



What are the next steps?



- A full briefing is planned for 10:30 am on 5th Sept 2019
- The first competition opens on 30th Sept 2019
- We encourage wide participation from all types of organisations with
 1. innovative ideas and
 2. a willingness to collaborate
- Successful applicants will be invited to concept development workshops in early 2020
- We anticipate opportunities for organisations to engage in future stages too