

# CASE STUDY

## Future Aviation Security Solutions Industrial PhD Partnerships (FASS IPP) *Building the UK's research base to develop aviation security*

### WHO WE ARE

The Connected Places Catapult (CPC) is an independent, trusted, expert broker operating at the intersection between the public and private sectors and between local, regional and national decision making. We promote UK innovation and broker relationships between government, academia and industry providing support and solutions for innovators to commercialise their projects and research. With our deep expertise in technology, we bridge the gap between buyers, suppliers, innovators and industry. Our agile approach enables us to convene our partners to act rapidly to create new market collaborations responding to public funders and industry needs. We boost demand for innovation to unlock wider economic and environmental benefits.



#### Our client says

**Industrial PhD Partnerships represent a novel step for the Future Aviation Security Solutions programme as it is the first time we have funded students to conduct original and high-quality research in the field of aviation security.**

**In deciding to work with the Connected Places Catapult we were seeking an organisation that could show flexibility, responsiveness, and the ability to think creatively to allow us to develop this challenging and complex call. The Connected Places Catapult met all our requirements and the support they have provided has been essential in driving the success of the Industrial PhD Partnerships to date.**

**We look forward to continuing our work with them now and in the future.**



**Chris Malbon** – Future Aviation Security Solutions Team Leader

### Challenge

It is essential that the UK is equipped to anticipate, respond to and counter future threats to UK aviation security including dangers to passengers, staff, cargo and in-flight supplies. Building on existing competencies, the UK's ambition is to be a world-class leader in aviation security developing innovative products and services to open new markets.

A key challenge is building an effective bridge between the UK's research organisations and industry. Cross-sector collaboration is essential to provide trialling, testing and prototypes leading to the development of technologies going to market. The UK needs enhanced expertise to address: Ways to detect and prevent prohibited articles being taken on board aircraft; utilising social science to evaluate human behaviour and update access control; revolutionising air traffic monitoring systems and preventing radar jamming plus incorporating drones into the future of airport security systems.

### Solution

The FASS Industrial PhD Partnership (FASS IPP) £1 million grants programme competition was launched in August 2019 by the Department for Transport (DfT), the Home Office and CPC. The competition was open to universities and industry partners to come forward with collaborative proposals identifying future aviation security challenges supported by targeted and co-funded innovative PhD studentships. This grant funding is in addition to DfT and Home Office commitment to £25.5 million funding for research and innovation in the Future Aviation Security Solutions (FASS) Programme launched in 2016.

CPC had a key role in actively promoting the programme to stakeholders. In September 2019 CPC ran briefing sessions encouraging academia and industry to come together in Leeds, Birmingham and London. A total 293 attendees took part in these sessions including 35 universities and 150 industry representatives. These included: AIRBUS, BAE Systems, Cyber Tech Facilitation Services Ltd, Geollect, London Gatwick, London Heathrow, Metrasens, Northrop Grumman UK Ltd, QinetiQ Group plc, SANS Institute and Vysiiion.



FUTURE AVIATION SECURITY SOLUTIONS

The UK's leading Chief Scientists attended including DfT Chief Scientific Adviser **Professor Phil Blythe**, Professor of Intelligent Transport Systems at Newcastle University and **Sir Patrick Vallance**, Government Chief Scientific Adviser who highlighted the need to develop future skills to innovate new solutions to fix security threats we have yet to encounter.





The FASS IPP competition eligibility and criteria requirements were designed to build effective partnerships between academic institutions and industry partners. The programme includes additional industry partners able to support the four-year PhD studentships. This approach builds a range of mini-consortia able to drive the commercial development of products and services.

### Outcomes

CPC managed the application stages ensuring a robust and fair process. There were 18 expressions of interest with 14 full applications going through a transparent assessment by a Government representative and CPC. Eight PhD studentships were selected to undertake research involving five universities and six business partners. Projects start in October 2020 and complete by 31st October 2024.

#### They are:

- ◆ **Access Control/UAV/Drones:** Cranfield University, NCC Group (IT security).
- ◆ **UAV/Drones:** Cranfield University, Aveillant Ltd (Aviation consultant) and Autonomous Devices Ltd (Produces robotic systems).
- ◆ **Human Factors/Passenger Experience:** De Montfort University, Manchester Airports Group.
- ◆ **UAV/Drones:** University of Birmingham, Aveillant Ltd and Science and Technology Facilities Council.
- ◆ **Baggage Scanner:** Imperial College London, Smiths Detection (Threat detection and security screening technologies).
- ◆ **Explosives:** City University London, Smiths Detection.
- ◆ **Radar Jamming Prevention:** Lancaster University, Forsberg Services Ltd (Engineering consultant – precision solutions for diverse applications).
- ◆ **Air Traffic Management Monitoring System:** Cranfield University, Thales (Aerospace).

Over the next four years the PhD students will share research at industry events. CPC will facilitate annual cohort events for knowledge sharing and identify opportunities for cross-sector collaboration. CPC will work with the projects to identify how the FASS IPPs can be commercialised to create new products and services.

### CPC creates value

By bringing together the right academic expertise with the right industry focus the FASS IPP programme has leveraged a total of £1.3 million combined funding from industry and academia working in collaboration in addition to government funding of just under £1 million.

### Benefits

- ◆ First time PhD students are being funded to conduct original and high-quality research in aviation security creating a pool of skilled researchers capable of developing UK aviation security.
- ◆ Facilitates engagement and long term relationships between universities and industry.
- ◆ Encourages development of academic networks and skills that FASS can use.
- ◆ CPC is driving the commercial application of innovation to create new products and services.
- ◆ CPC works with other Catapults, universities and the wider R&D ecosystem.

### Next steps

We have a tested process to broker academic, industry and business relationships. CPC welcomes interest from industry and academia to join the *CPC Academic Engagement Programme* [\[Link\]](#). It includes our Business Fellow Network comprising 14 knowledge exchange subject matter experts from 13 universities to create CR&D opportunities.

To find out more about the Connected Places Catapult and how we can help you develop the future skills that address the needs of your organisation please contact [info@cp.catapult.org.uk](mailto:info@cp.catapult.org.uk)

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