

Case study

Technology incubation and scale-up in Central Bedfordshire

Turning disruptive ideas into exciting new businesses

AVIATE+ workshops, Cranfield University

As places where disruptive, technology-led ideas can be safely nurtured into dynamic new companies, technology incubators can play a vital role in building and accelerating a regional industry cluster. At the centre of Central Bedfordshire's high-performance technologies cluster, Cranfield University's incubation and scale-up facilities are helping to create the aerospace and aviation technology businesses of the future.

Like any good technology incubator, Cranfield University ensure that its start-up tenants have access to the support and resources they need to survive in the early stages, to grow, gain traction in target markets, and prosper. Incubators are nothing new though. Indeed, it's estimated that today there are more than 7,000 incubators worldwide, with around 1,000 in Europe alone. So why choose Cranfield University?

Obviously, the facility's dominant focus on Aerospace and Aviation Technology (AvTech) attracts innovators in these specific sectors. It already has a proven track record in successfully nurturing high-technology businesses, but there's a little bit more to it than that.

Cranfield University also happens to be the number one in Europe for aerospace research. It has unrivalled links with industry and long-term partnerships with sector leaders including Airbus, BAE Systems, Boeing and Rolls Royce. Plus it has its very own airport, making it a centre for sector research of truly global significance and influence.



Digital Air Traffic Control suite, Cranfield University

Case study

Technology Incubation

The Cranfield Eagle Lab technology incubator

Founded by the university in close partnership with Barclays back in 2019, the Cranfield Eagle Lab technology incubator provides early-stage businesses with the space and technical facilities they need to start-up, offering business mentoring and training events, networking opportunities with like-minded people, and access to potential funding.

The incubator services also include:

- A fully managed and serviced site
- 24/7 entry card access
- Wi-fi at 100Mbps
- Co-working desks, private offices and meeting rooms
- Fully-equipped Maker Space with lab engineers
- On-site ecosystem manager
- Resident Royal Society Entrepreneur
- Access to university technical expertise and facilities
- Support from Cambridge Judge Business School (CJBS), Codebase and the wider Eagle Lab Network.



Eagle Lab, Cranfield University

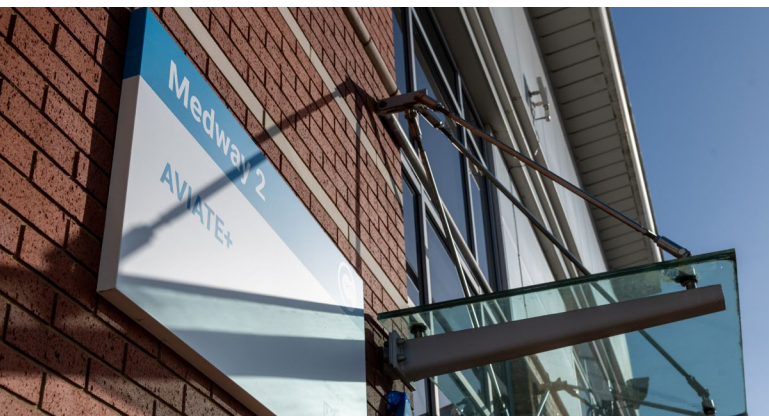
AVIATE+ scale-up facility

Cranfield University's AVIATE+ scale-up facility was officially launched in 2021, with the support of £1.2 million from Research England. This followed Cranfield's formal designation as a University Enterprise Zone in 2019 to enable the sharing of knowledge and innovation with businesses and to promote local growth and skills.

Adjacent to the Cranfield Eagle Lab on the university campus, AVIATE+'s role is to provide technology start-ups with the grow-on space and resources they need to move on from early stage incubation, accelerating their business development.

As well as all the services offered by the Eagle Lab, the new AVIATE+ facility will offer private workshops for larger scale prototyping, additional power and data infrastructure, and more tailored business support on product development pathways and future growth strategies.

We spoke to Christine Lucas, Barclay's Ecosystem Manager at Eagle Lab Cranfield, and Nicola Stelling, Business Development Officer at AVIATE+, about the services they offer to tenants, what makes them different, and the kinds of companies they work with.



AVIATE+, Cranfield University

Case study

Technology Incubation

More than just space

Nicola said, "As a dedicated service that's built within a university environment, the advantages brought by academic expertise can't be overlooked. The University in particular provides access to world class academic research, the global research airport – including DARTeC, the digital aviation research and technology centre – and highly skilled graduates, which all combine to bring significant competitive advantage".

Christine added, "And this advantage, being focused on Aerospace and AvTech, coupled with Barclays' centuries-long experience of supporting small business, means that Cranfield Eagle Lab really does offer start-ups the complete support package they need at that early stage. Yes, we have commercially attractive office space and suitably equipped workshops, but we're about a whole lot more than just space".

Building the ecosystem

Christine continued, "Building the right ecosystem around each individual business is vital. Start-ups, particularly at the early stage, would ideally be focusing their efforts on product design and development. So, we step in here as mentors to help them identify the extra professional support they need, be it technical, commercial, legal, marketing etc., to help accelerate the business as a whole. We bring them the time to think and the resources they need at a critical time".

"Importantly, essential components of that tech ecosystem are always on-site. Our shared Maker Spaces are not only equipped with state-of-the-art prototyping equipment, like 3D printers and laser cutters for example, they're also supported by a highly experienced lab engineer. More than that, we also have a Royal Society Entrepreneur in residence, available to impart the right kind of advice, right when it's needed".

FTI Communications Systems, Cranfield Eagle Lab

Networks for aviation control tower infrastructure

FTI Communication Systems is a provider of resilient networks for UK aviation control tower infrastructure. Its market-leading equipment supports airfield communication, navigational aids and surveillance systems.

Its ground-breaking research includes algorithms for controlling data packet flow in congested networks and it offers its expertise in safety critical network infrastructure to a variety of sectors, including defence, telecommunication, transportation and utilities.

The company plays an active role at Cranfield's global research airport, at the Digital Aviation Research and Technology Centre (DARTeC) and its digital air traffic control centre, housing the UK's first operational remote air traffic control tower.



FTI Communication Systems

Case study
Technology Incubation



Eagle Lab workspace, Cranfield University

The value of networking

Nicola continued, “A real beauty of the service we offer is that networking opportunities come as standard. Being able to share ideas with other like-minded entrepreneurs and SMEs on site, to learn from each other, can be really helpful. This natural camaraderie can be a real asset to many entrepreneurs and innovators”.

“It’s also a real advantage that we can now take start-ups through the incubation stage and onwards into the early growth stage without any disruption. Remember that the Eagle Lab and AVIATE+ are right next door to each other on the university campus, so all those local networks continue to grow unhindered by relocation”.

The Eagle Lab network as a whole is a further vibrant source of wider networking opportunities, as Christine explains. “The Eagle Lab network has grown very rapidly over the years and we’re now up to 34 sites in the UK, with a strong commitment to many more. It’s the right thing for us to do and it means even more networking opportunities, linking start-ups and high growth businesses with all the expertise they need”.

KAN Engineering, Cranfield Eagle Lab

Advanced simulation solutions

Founded in 2018 by Dr Amir Masoud Soltani, a former lecturer at Cranfield University, KAN Engineering is a leading provider of advanced simulation solutions for the development, testing and validation of automotive industry applications.

KAN Engineering is a fast-growing high-tech start-up and a true expert and pioneer in its field, pushing the boundaries of advanced simulation technologies applied to Electric, Connected and Autonomous vehicles (ECAV), with a vision of helping to make the planet a greener and safer place.

KAN Engineering is currently working on the development of a disruptive simulation solution: KAN-Do simulation platform, as a distributed, end-to-end, vendor-agnostic co-simulation environment capable of catering to the most challenging demands for simulation orchestration, configuration and data management in the industry today.



KAN Engineering

Case study

Technology Incubation

Space Resources Laboratory, Cranfield Eagle Lab

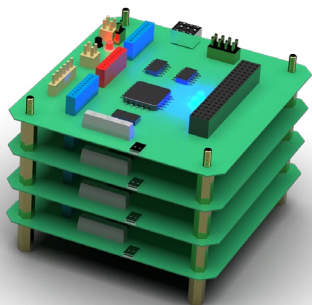
Small satellites & propulsion systems

Space Resources Laboratory (SRL) is a space subsystem provider building small, low-cost space solutions in the CubeSat industry. Their aim is to make space accessible for everyone.

Founded in 2019, the company's comprehensive range of services includes: CubeSat and PocketQube platform integration; launch systems and ground services; power systems for satellites and telemetry, tracking and command systems; attitude determination and control systems.

Conscious of the need to help reduce the growing problem of space debris, SRL produces propulsion systems enabling precise attitude control of CubeSats, ensuring safe de-orbiting at their end of life.

In 2022, SRL secured the Prestige Award, Aerospace Company of the Year for London & South East England. The award recognizes the best performing, ethically innovative SME's in their respective fields of expertise.



The Structural Battery Company, Cranfield Eagle Lab

Structural batteries

Helping to accelerate the move to sustainable energy for transport and eliminate its reliance on fossil fuels, The Structural Battery Company designs, manufactures and licenses structural battery solutions for electric vehicles, electric vertical take-off and landing (eVTOL) aircraft and maritime vessels.

As well as enabling a faster transition to net zero, the company aims to create embedded battery technologies capable of providing a performance much greater than the sum of its parts. Weight-saving multifunctional structures, their batteries act as both an energy store and a source of mechanical integrity.

By using existing cylindrical cells, packed hexagonally, The Structural Battery Company's products can be both cheaper and stronger, with a more versatile module form factor facilitating easier system integration and damage-tolerant system design.

Case study
Technology Incubation

Flexibility is king

The types of businesses attracted by Cranfield's incubation and grow-on spaces can be diverse, spanning a range of different technologies and market sub-segments, and they can be led by innovators, first-time or serial entrepreneurs. Their needs can therefore be very different, as Christine was keen to point out:

“When it comes to tech incubation it certainly isn't a case of one size fits all, far from it. The kind and amount of support a tech start-up requires will always depend on the type of technology, the particular sector they're in and the expertise and experience of the founding management team”.

“So we always need to be flexible in the services we offer and provide. Some start-ups benefit from weekly or monthly face-to-face mentoring, while for others it's quarterly just to check things remain on track. In some cases, I stay in touch with the company even after it's left the incubator”.

“Tech start-ups need to be agile and responsive, so flexibility is key. Incubators can't be seen to be getting in the way or holding a business back in any way. Training and coaching can't be forced on a business, it has to fit naturally. And when it comes to tenancy notice periods, it's weeks rather than months – flexibility's built-in from the start”.

That need for flexibility is also why Central Bedfordshire Council provides growing businesses with access to a wide-range of property solutions in the area, from technology parks to strategic development sites. For example, Millbrook Technology Park, co-located with the vehicle proving ground of the same name and just 20 miles east of the Eagle Lab, has become home to former tenants who have successfully outgrown the incubator.

Cranfield University's Aerospace Innovation and Research Centre (AIRC)



Case study
Technology Incubation



Eagle Lab, co-working desks



AVIATE+, Cranfield University

Track record

Being a technology incubator rather than an accelerator, Cranfield Eagle Lab typically keeps its tenants for a period of up to 3-4 years, until they grow too large for the space, rather than a fixed-term measured in months. Since its opening in 2019, it has seen a number of start-ups leave its care and move on to the next stage in their development.

“It’s always a time of mixed feelings,” says Christine. “When a start-up eventually leaves the Eagle Lab and moves on, it’s simply because they’ve outgrown our space and its facilities. It’s sad that they’re leaving us, but they need more space to continue the journey. We’ve just played our own small part in their success”.

“And we’ve been blessed with the opportunity to have helped some really great start-ups along the way, each coming to us with a really disruptive idea and working alongside us to transform it into a profitable business”.

“These businesses include Flare Bright (machine learning for the aerospace sector); Herotech8 (drone-in-a-box technology); Tomorrow’s Journey (mobility business software) and Waam3d (large scale metal additive manufacturing solutions)”.

Christine adds that the Cranfield Eagle Lab incubator is currently running at about 83% capacity – “so there’s still some space!” - and it remains a true haven for a broad range of different technology start-ups, a few of which are briefly introduced in this case study.



Technology Incubation

Volador FlyTech, Cranfield Eagle Lab

Electric vertical take-off and landing vehicles

As an alternative to conventional road and rail transport, Volador FlyTech is creating SS Infinity, an electric vertical take-off and landing (eVTOL) vehicle for intracity and intercity journeys. The futuristic craft promises to be affordable, fast, stylish and safe.

Operating at Cranfield Eagle Labs since its vehicle's inception, Volador is led by co-founder and CEO Sachin Ramesh, an alumnus of Cranfield University with a Masters degree in aerospace vehicle design, specialised in aircraft design and jet engine optimisation.

An ultra lightweight personal aerial vehicle (PAV) for between two and four people, the SS Infinity eVTOL aims to be: pure electric (zero emissions); semi-autonomous (pilot flown or flown by itself); safety enhanced (with multiple redundancy built-in); and pilot's license exempt.



Volador
FlyTech



Surveyar, Cranfield Eagle Lab

Environmental survey by drone

Combining advanced sensing, sampling and monitoring technologies with state-of-the-art unmanned aerial vehicles (UAV), Surveyar enables rapid remote surveying of the built and natural environment.

With its unique toolbag of innovative UAV-based solutions, the company meets the demands of a wide-range of environmental survey challenges, including the assessment of land condition, water bodies and climate change effects and air quality and meteorological measurements.

A complete expert in its field, Surveyar takes a whole-site, science-led approach to arrive at the most effective survey solutions. It works to extract the maximum amount of data that is needed to gain more detailed insights and make better-informed, evidence-based decisions at less cost.

The company owns and operates flexible aerial platform solutions that are designed and built to allow the development of highly integrated and bespoke systems. It can also work as a contractor or build added capacity within an organisation.

Case study

Technology Incubation

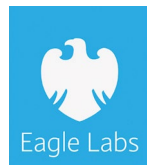
The future

Faced with the inexorable pace of change in aerospace and aviation technology, there is no doubt that the Cranfield Eagle Lab incubator and the new, adjacent AVIATE+ facility will continue to help fledgling tech start-ups grow and move on to success in the wider world.

At the heart of the Cranfield University campus, adjacent to the university's very own research airport, the two facilities are ideally placed to help develop the technologies we need for a safer, cleaner, more efficient and less wasteful world. Cranfield's geographical positioning is an additional benefit for the businesses there - centrally located between Oxford and Cambridge, within a globally significant, high-growth knowledge corridor that offers a wealth of leading-edge research, technologies and expertise.

Cranfield airport developments already in the pipeline, and set to benefit new start-ups, include BVLOS (beyond visual line of site) UAV (unmanned aerial vehicle) flights within its aerodrome traffic zone (ATZ), and a low level UAV zone at a safe location within the airfield, for operational training and sensor testing.

Drones, electric-powered flight, hydrogen-powered flight, urban air mobility, space travel – accessible to all. A bold, sustainable future, driven by net zero ambitions. Cranfield University, Central Bedfordshire, is certainly an exciting place to be.



To find out more about Central Bedfordshire as the ideal location for your advanced logistics business investment, contact our inward investment team at

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