



THE UNIVERSITY  
of EDINBURGH



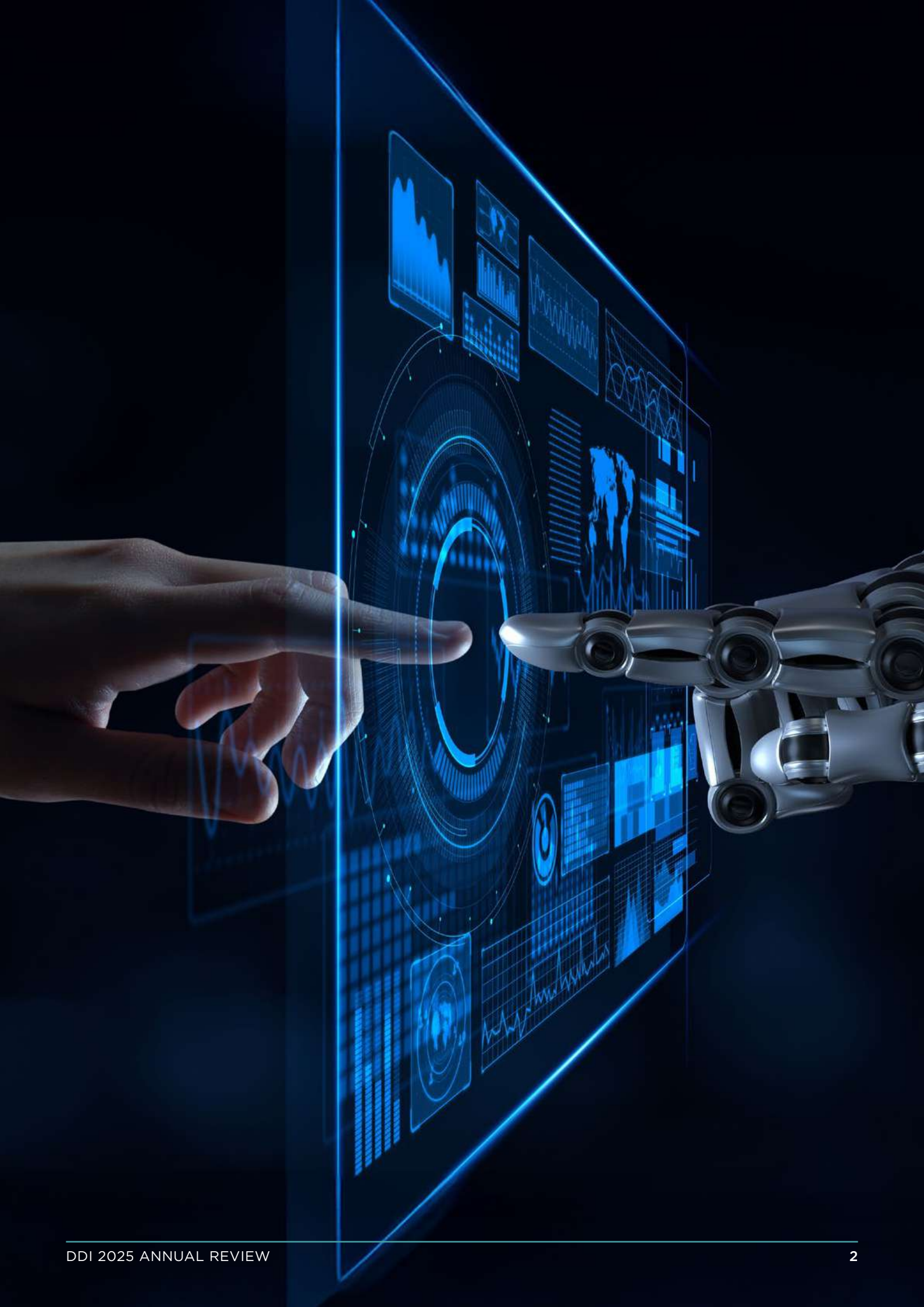
# Data-Driven Innovation

*Part of the Edinburgh & South East Scotland City Region Deal*



# 2025 Annual Review

Using data to innovate



# Contents

## 04 Foreword

## 06 Key performance indicators

## 08 Case studies

### 08 Easter Bush

09 Revolutionising livestock farming

10 Fungi-powered restoration

### 11 Edinburgh International Data Facility

12 Insights into economic wellbeing

13 HPC training from experts

### 14 The National Robotarium

15 Next Frontier in safety

16 Basil, the robot barista

### 17 Usher Institute

18 Impact of cold homes

19 Setting sights on disease prevention

### 20 Bayes Centre

21 Reaching for the stars

22 Accessible quantum power

### 23 Edinburgh Futures Institute

24 Compassionate finance

25 Introducing systems convening

## 26 About us



# Working together to maximise impact



## PROFESSOR KIM GRAHAM, SENIOR RESPONSIBLE OFFICER, DDI PROGRAMME, AND PROVOST, THE UNIVERSITY OF EDINBURGH

We closed 2025 on a high with the exciting news that the Data-Driven Innovation (DDI) programme had been named Collaborative Initiative of the Year at the Institute of Economic Development Awards.

This accolade is well-deserved recognition of the economic power of the partnerships the DDI programme has developed over the years between universities, colleges, industry partners, third sector organisations and the public.

It affirms that place-based investment delivers economic growth, creates highly-skilled jobs, and boosts productivity – benefiting people and organisations across our region and beyond.

The past year marked the conclusion of our investment phase and completion of the final two DDI Hubs. In April, Edinburgh Futures Institute (EFI) was officially opened by the University of Edinburgh Chancellor, HRH The Princess Royal, alongside Jenny Gilruth MSP, the Cabinet Secretary for Education and Skills, the Lord Provost of the City of Edinburgh and other city representatives.

Investment from the Edinburgh & South East City Region Deal, alongside funding from the University of Edinburgh, ensured that the city's historic Royal Infirmary building was beautifully restored and reimagined as a vibrant interdisciplinary hub solving complex global challenges in the arts, humanities, data science, artificial intelligence and technology.

Open not only to the University's staff and students, EFI houses external organisations and provides a thriving social and working space for the public,

reinventing the way the City Region delivers innovation and civic impact, with positive benefit to communities.

In June, we celebrated the opening of the Usher Building at Edinburgh's BioQuarter health innovation district. The event was attended by Dr Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization; Ian Murray MP, then Secretary of State for Scotland; and Maree Todd MSP, Minister for Drugs & Alcohol Policy and Sport.

The Usher Institute brings together academic, clinical, commercial, public and third-sector partners with the shared ambition to improve population and public health in Edinburgh, South East Scotland and beyond. This is achieved by applying data-driven approaches, in partnership with a range of organisations, from the NHS to the World Health Organization.

All our DDI Hubs continue to deliver significant economic benefit, with many examples noted throughout this report. By bringing together strengths across the University of Edinburgh, Heriot-Watt University and our other City Region Deal partners, we are driving inward investment into Scotland, including support to grow emerging companies.

The UK Government's announcement of £40 million to fund a national network of robotics adoption hubs, modelled on DDI's National Robotarium, based at Heriot-Watt University, is welcome endorsement of our approach and will be transformative in building the robotics sector in Scotland and beyond.

In June, our data innovation expertise was showcased at London Tech Week. This coincided with the UK Government's announcement of up to £750 million investment in the UK's next supercomputer, to be hosted at the University of Edinburgh's Advanced Computing Facility. This will dramatically increase compute capacity for services delivered by the Edinburgh International Data Facility, the technical backbone of DDI, accelerating our ambition for Edinburgh to be the Data Capital of Europe.

We remain focused on delivering local impact. One example is the DataLoch partnership with NHS Lothian and Cyrenians, which uses secure data integration to identify patients at risk of homelessness and connect them with tailored support before discharge. This approach has led to a 68% reduction in hospital readmissions and demonstrates how the Edinburgh and South East City Region's focus on data can transform lives while easing pressure on health services.

This report highlights many more exciting case studies from across our DDI Hubs, illustrating the diversity, breadth and impact of our work – from improving children's health to building the future space workforce. We hope you enjoy reading these examples and seeing how our regional collaboration is making a difference. →

→ Our achievements against targets remain impressive:

## TALENT

We **exceeded** our skills delivery target by **15%**, with more than 37,000 completions in 2024/25, helping meet data skills demand in the City Region and beyond through undergraduate, postgraduate and CPD courses.

**37,000** a year-on-year **18% increase**  
**completions**

## ADOPTION ACTIVITY

In 2024/25, we generated

**£20 million**

in **income alone**

This means we have **surpassed** our end-of-programme target by

**79%**



## RESEARCH ACTIVITY

We delivered

**£188 million**

in **research activity** - a **17% increase** compared with 2023/24.



This brings our cumulative total to

**£778 million**

worth of activity, which represents

**79%**

of our total research target

## ENTREPRENEURSHIP

We supported **90 early stage data companies** in 2024/25, exceeding our end-of-programme target by

**53%**



Further achieving nearly **10000%**

of our follow-on funding goal with

**£225 million**

raised by our companies in 2024/25



Delivery of these outcomes requires commitment, imagination and ambition. I am grateful to our DDI staff and students for their hard work and thank our industry, third sector and civic partners, as well as the Scottish and UK Governments, for helping make the Edinburgh and South East City Region DDI programme so successful.

The City Region Deal is evidence that local innovation funding - focused on growing regional sectors through

the application of emerging future technologies - delivers to modern industrial strategies, boosting economic productivity, entrepreneurship and jobs.

We have ambitious plans to go further and look forward to working with you in 2026, delivering even more impact. Please **get in touch** to learn more or discuss how your organisation might partner with our universities or further education colleges.

# Key performance indicators

## Exceeding our targets and looking to the future

The City Region Deal funding is based on projections about the outputs that DDI will deliver to the Scottish and UK economies. These are summarised as Talent, Research, Adoption, Data and Entrepreneurship (TRADE) targets.

### Talent



Stimulate and meet data skills demand for the City Region and beyond, through undergraduate, postgraduate and CPD courses.

### Research



Expand the City Region's data-driven research to provide new economic, environmental and societal benefits, through the use of new or existing products, services and datasets.

### Adoption



Increase the use and adoption of data-driven innovation by the public, private and third sectors in the City Region and beyond.

### Data



Provide secure data storage, analytical capacity and access to data to underpin programme activities.

### Entrepreneurship



Enable entrepreneurs based in the City Region and beyond to develop and grow data-driven businesses (through support for commercialising research, access to talent and data and through legal and business services).



KPI	Actuals (cumulative)	End of programme target	%
Courses	160,837	140,310	115%
CPD & MOOCs	80,355	35,289	228%
Research Income (£)	777,706,000	986,100,000	79%
Adoption Income (£)	97,970,000	54,800,000	179%
Entrepreneurship Companies	674	440	153%
Entrepreneurship Follow on Funding (£m)	499	50	998%

**TALENT**

The programme has now exceeded its course target by **15%**, meaning that the full end-of-programme Talent target has been achieved. In the 2024/25 academic year, we saw more than **37,000** completions – an **18%** increase from 2023/24.

**RESEARCH**

In the 2024/25 academic year, we delivered **£188 million** in research activity – a 17% increase compared with 2023/24. We have delivered **£778 million** worth of activity in total, which represents **79%** of our total research target.

**ADOPTION**

In 2024/25, we generated **£20 million** in income alone, representing **21%** of our total activity to date. We have exceeded our end-of-programme target by **79%**.

**ENTREPRENEURSHIP**

In the 2024/25 academic year, we supported **90** early-stage data-centric companies, surpassing our unique company end-of-programme target by **53%**. We have exceeded our follow-on funding target by nearly **1,000%**, with DDI companies receiving **£225 million** funding in 2024/25 alone.

## EASTER BUSH AGRITECH HUB



Charnock Bradley Building, Easter Bush

## Delivering positive impacts for society



**PROFESSOR MARK STEVENS,  
INTERIM DIRECTOR**

The Easter Bush campus offers nationally important capability in animal bioscience. Our Hub is advancing animal genetics and health and transforming food systems through data-driven research. Recent investments in engineering biology and aquaculture strengthen this focus and connect the Hub to businesses that scale our impact globally.

In addition to the two case

studies featured here, there have been many other highlights in the past year. With the addition of Drs Maria Forlenza and Nick Wade, the Hub's aquaculture capabilities now include a wider range of aquatic species, new research aquaria and expertise in fish and shellfish immunology. Such expertise attracted an £8.5 million prosperity partnership to support Atlantic salmon aquaculture in Scotland and beyond.

In education, a new online postgraduate programme on data-driven breeding was launched and we continued to act as a vibrant hub for postgraduate research, with more than 180 students in doctoral training. Through these activities and Masters programmes in One Health and Global Food Security and Nutrition, we supply knowledge and skills required in the agritech sector.

Other achievements include securing £5 million to establish an Engineering Biology Hub for future farmed animals. This offers nationally unique expertise in

**“A new online postgraduate programme on data-driven breeding was launched and we continued to act as a vibrant hub for postgraduate research.”**

genome editing in farmed animals, while pigs we edited for disease resistance were approved for production in the US this year.

Our Innovation Centre continues to be in high demand, with more than 35 commercial tenants and close partnerships with University researchers.

I'm very grateful to all teams involved in our Hub's achievements and look forward to delivering more positive impacts for our industry sectors and society.

## EASTER BUSH AGRITECH HUB

# Revolutionising livestock farming

A trailblazing research initiative at the Easter Bush Agritech Hub is harnessing engineering biology in farmed animals to help solve global crises such as food security.

Experts at the new Roslin Engineering Biology Hub are exploring how genetic selection and genome editing tools can develop healthier, more sustainable and more productive livestock.

Professor Mark Stevens, Personal Chair of Microbial Pathogenesis and co-lead for the Hub at the world-renowned Roslin Institute, said: "Engineering biology is one of the UK Government's critical technology missions. It's the application of engineering principles to design, build and test new biological systems for useful purposes.

"Our Hub is primarily delivering for food systems but could potentially address environmental solutions and clean growth if we can make animals have less impact on the environment.

"We can only do this thanks to the decades of research at the Roslin Institute. Roslin has produced a vast amount of data on how farm animal genomes are organised, expressed and controlled that now allow us to make precise changes in the genome to confer beneficial traits."

## DATA-DRIVEN RESEARCH

The Roslin Engineering Biology Hub launched in July 2025 thanks to £5 million in funding from the UK Research and Innovation (UKRI) Biotechnology and Biological Sciences Research

Council (BBSRC), the Gates Foundation, Roslin Foundation and as part of the Edinburgh and South East Scotland City Region Deal.

The team's research focuses on:

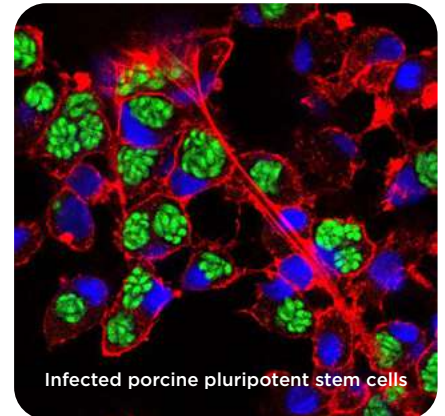
- Target identification of candidates for genome editing;
- Developing cellular and multicellular models to test the impact of edits in the genome;
- Reproductive technologies to introduce genetic variation in breeding schemes;
- Engineering animals to improve their productivity, efficiency and welfare, to control diseases and model diseases that occur in humans.

Senior Research Fellow Dr Finn Grey, the Hub's other co-lead, explained: "There are two main aspects we're looking to deliver with the Hub – ambition and outcomes.

"The ambition side is building on what Roslin does really well but taking it to the next level. Outcomes are key because we really need to have an impact on the food we end up eating."

## ACHIEVEMENTS

Success stories include Roslin's work to engineer pigs that are resistant to porcine reproductive and respiratory syndrome (PRRS) – a disease that costs producers about £1.75 billion every year. The US Food and Drug Administration approved the use of the gene-edited pigs resistant to PRRS in the food supply chain in May 2025. Other successes include classical swine fever-resistant pigs, avian flu-resistant chickens and work



Infected porcine pluripotent stem cells

on African swine fever resistance.

The team is keen to ease any concerns around the ethics of gene editing. Dr Grey said: "African swine fever kills billions of pigs and impacts the economy. There's a huge carbon footprint where those animals are not going into the food chain but still take up resources.

"Now, if you can have a pig that has a simple gene edit that makes them resistant to that virus, why would you not use that?"

"The changes in the genome we've been doing are the sort achieved for hundreds of years through selective breeding."

## BENEFITS

The team is keen to collaborate with other researchers and to partner with animal breeding and health companies.

Another priority is offering training. Dr Lindsay Henderson, Hub Coordinator, added: "The Hub is uniquely positioned to deliver hands-on training in engineering biology, bringing world-leading expertise and cutting-edge facilities together in one place."

Find out more at [vet.ed.ac.uk/roslin/engineering-biology](https://vet.ed.ac.uk/roslin/engineering-biology) or contact the team at [EngBioHub@roslin.ed.ac.uk](mailto:EngBioHub@roslin.ed.ac.uk)



Professor Mark Stevens



Dr Finn Grey

## EASTER BUSH AGRITECH HUB

# Fungi-powered forest restoration

A flourishing biotechnology business based at the Easter Bush Agritech Hub has been awarded £4.5 million in investment to support its innovative approach to forestry and woodland restoration.

The funding for Rhizocore Technologies, announced in November, follows the receipt of £1 million from the Department for Environment, Food and Rural Affairs (DEFRA) in February 2025.

The company's success, expansion and the speed and scale of its growth highlights how support from DDI and the University of Edinburgh can help budding entrepreneurs take ideas and transform them into successful business ventures.

Rhizocore was founded in 2021, beginning as a start-up through the University's

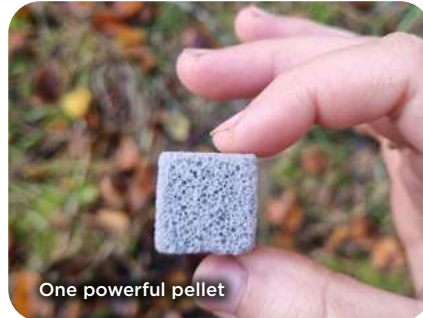
## **Food & Agriculture Science Transformer**

(FAST) programme, which is a joint venture with **Deep Science Ventures** (DSV).

The programme brings together the **Roslin Institute's** world-leading expertise and facilities with DSV's market-led approach to creating science companies.

The FAST programme allowed Rhizocore founder Dr Toby Parkes to spend a year looking at controlled environment agriculture and other areas within agritech to assess room for new ventures.

He discovered that, despite ectomycorrhizal fungi being natural fertilisers for trees, forestry and woodland regeneration groups were not using these organisms. He then launched Rhizocore and RhizoPellets™ – fungal pellets that create essential underground



One powerful pellet

networks to support tree growth.

Dr Parkes said: "PhDs teach you how to solve problems. People generate start-ups when somebody solves a problem that is commercially viable. FAST gives PhD students, postdocs and young career researchers the space to analyse possibilities and consider the kind of companies they might generate with the support of a salary."



Dr Toby Parkes

## **SUCCESS**

Dr Parkes explained that beneath nearly every forest floor is a network of fungi that supplies essential nutrients to trees through their roots. However, when trees are felled, these fungi quickly die – making replanting challenging. This results in slower growth, higher tree mortality rates and reduced carbon sequestration.

RhizoPellets™ are locally adapted mycorrhizal fungi that help improve forest productivity.

At one partner site in North Lanarkshire, trees treated with RhizoPellets™ showed a 97% survival rate after a year – compared with 78% for untreated saplings. Trees grow up to 50% faster and capture 20% more carbon.

Dr Parkes said: "Planting success can be dramatically improved by restoring the below-ground

networks that make forests thrive. The end goal is making forestry generate more quickly so that woodlands can be established faster and be more resilient to environmental stresses."

## **INVESTMENT**

The £4.5 million investment secured in November will support Rhizocore's expansion into North America and fund an increase in production capacity at the company's facility at Roslin.

The funding round was led by the First Thirty, a specialist investor in technologies to improve soil health. It also includes participation from Scottish Enterprise and the Grosvenor Estate.

Additional investors are Sand River, Generation-Re (Regenerative Agriculture Syndicate), Kibo Invest, John Thomson and Old College Capital, the University's in-house venture investment fund.

Dr Parkes said: "This will accelerate our business scaling plans, unlock new markets and advance our mission of protecting, harnessing and restoring fungal biodiversity."

## **GROWTH**

Val Hughes-White, Roslin Innovation Centre (RIC) and Agritech Innovation Director, said: "RIC is delighted to be able to support the continued growth and evolution of Rhizocore Technologies. Dr Parkes actively contributes to the RIC ecosystem, engaging in events and supporting start-ups in the agritech sector with his insight and expertise to enable others to grow and thrive."

Learn more at [rhizocore.com](https://rhizocore.com) and [roslininnovationcentre.com/home](https://roslininnovationcentre.com/home)

## EDINBURGH INTERNATIONAL DATA FACILITY



EPCC's Advanced Computing Facility

## Supporting the growing demand for high-quality and flexible data services



### PROFESSOR MARK PARSONS, DIRECTOR

The Edinburgh International Data Facility (EIDF) is a pivotal part of the Data-Driven Innovation (DDI) initiative, designed to deliver high-capacity, flexible data services.

EIDF has focused on upgrading services to accommodate growing demands and integrate storage

solutions. Key upgrades included a significant software update, adding 160 units to the GPU Service, and enhancing the Cerebras hardware capacity. We added 144 NVIDIA A100 GPUs to EPCC Safe Haven Services to enable AI research on sensitive data.

Monthly applications for EIDF access rose by 30%, with participation from regional and international companies. Five out of six City Region Deal

**“EIDF has focused on upgrading services to accommodate growing demands and integrate storage solutions.”**

Local Authorities subscribed to the IoT (Internet of Things) in Schools Service, while the first year of the NERC-funded Soprano eco-acoustic EdgeAI project was completed, resulting in collaborative research with various organisations.

I'm looking forward to a number of upcoming developments, including linking EIDF to our work as the UK's AI Factory Antenna, connecting to Europe's AI Factory programme.

Finally, I was delighted that EPCC was announced as the first UK National Supercomputing Centre in the Compute Roadmap in July 2025.

Work to support the delivery of this and to support the actions set out in the UK Government's AI Opportunities Action Plan, particularly around access to AI compute infrastructure, is being undertaken.

## EDINBURGH INTERNATIONAL DATA FACILITY

# Insights into economic wellbeing

A pioneering platform is offering unprecedented data-driven insight into the nation's financial wellbeing.

The tool, the Economic Wellbeing Explorer, is now helping policy and decision-makers find solutions to socioeconomic challenges such as child poverty.

The groundbreaking, map-based interface harnesses real-time, de-identified data from more than five million consumer bank accounts – along with available contextual data – to show economic wellbeing across age and income groups, and at local, regional and national levels.

The near real-time data better identifies the impact of economic shocks, fluctuations in earnings or the effect of policy changes than more traditional annual household surveys. It is updated monthly, providing a consistent view of economic wellbeing over time.

Insights from the platform have included that one in seven people spend at least 20% more than their income.

## IMPROVING LIVES

The Explorer was created by the team at the Smart Data Foundry (SDF), founded in 2022. DDI is one of the SDF's key research partners – supporting data-driven research that aims to improve lives.

Rui Cardoso, SDF Head of Public Sector Engagement, said: “The team here is motivated by trying to make a real difference. We're a not-for-profit organisation, so the Explorer's use is all for good causes, nothing commercial. It's available for the public sector, central government, NGOs and for research. There's increasing

interest to access this granular data for studies around things such as poverty and health.”

## SUCCESS STORY

A pilot project with East Renfrewshire Council enabled the local authority to better understand the impact of the cost-of-living crisis. Financial data was integrated with the Council's own information, such as requests for financial support, enabling targeted assistance to be offered to areas with growing need.

When compared with child poverty data from the Department for Work and Pensions (DWP), the Explorer exposed previously hidden areas of deprivation.

Mr Cardoso said: “That was one of the biggest wins for East Renfrewshire. By seeing the near real-time data, they were able to uncover areas where they thought there wasn't much poverty and provide more targeted services and support mechanisms to those communities.

“Because our data is more specific and not just around income but also expenditure, more and more cases of poverty were found at higher income levels.

“Since the pilot, several other local authorities have signed up, with more in the process. We're also speaking to health organisations.”

## DATA PROTECTION

Data is supplied from financial partners such as NatWest Group and Sage and de-identified and aggregated to ensure no individual or household can be identified. The data is securely stored and



Rui Cardoso

Users can search by various metrics and colour-coded pins show the percentage of affected households at local, regional and national level



processed in the University of Edinburgh's EPCC – the UK's first National Supercomputing Centre – which hosts and manages the Edinburgh International Data Facility (EIDF). The EIDF is the high-powered analytics and storage service that hosts datasets.

Mr Cardoso said: “It's a trusted research environment with strict controls for access, which has to be for research and policy purposes. We function under the legitimate interest provision of GDPR.”

He explained that the SDF was eager to have more financial institutions “join us on this journey of data for good”. He added: “Get in touch if you think we can help”.

Contact Rui at [rui.cardoso@smartdatafoundry.com](mailto:rui.cardoso@smartdatafoundry.com) or reach the team at [smartdatafoundry.com/contact](https://smartdatafoundry.com/contact)

## EDINBURGH INTERNATIONAL DATA FACILITY

# HPC training from global experts

Supercomputers solve complex problems and fuel cutting-edge research and breakthroughs in a range of disciplines – from aerodynamics and climate modelling to medical treatments and national security.

EPCC is the UK's first National Supercomputing Centre and home to world-leading experts in high-performance computing (HPC), artificial intelligence (AI) and data science. Its teams are renowned globally for innovation, research and collaboration.

A priority is sharing knowledge, such as providing HPC training.

Dr Julien Sindt, EPCC Commercial Manager, said: "Since 2020 we've run more than 150 training courses on various computational topics, from how to programme and use an HPC system to much more advanced subjects like how to write complicated software that will run efficiently on state-of-the-art compute hardware.

"With computing, being told how to do something is not as useful as trying to do it yourself, so all our courses combine lectures with practical exercises where you can put into practice what you have learned.

"The real advantage of our courses is the access they give to world-leading experts, who are not only teaching but can also answer questions about your specific project or challenges and provide advice."

## SUCCESS STORY

EPCC also provides bespoke training. This has included a hugely

successful course created for the Indonesian government agency for meteorology, climatology and geophysics, the Badan Meteorologi, Klimatologi, dan Geofisika (BMKG).

After implementing HPC infrastructure to enable its teams to run models that will predict rare and extreme weather, BMKG needed to develop the programming knowledge and skills of its researchers and analysts.

EPCC was approached thanks to its global reputation for innovation and excellence and following successful past collaborations, explained Adityawarman, Head of the Centre for Human Resource Development in Meteorology, Climatology and Geophysics at BMKG. He added: "Everyone who attended this training is now sharing their knowledge."

BMKG researcher Wido Hanggoro added: "We needed people who could run and manage the HPC. EPCC is a world leader in computing so we approached them about training, including Python, C++ and Fortran."

Rezky Yunita was one of 20 people from BMKG who attended the three-week course in Edinburgh.

She said: "The course was very comprehensive and we can apply that knowledge to our daily work at BMKG. I learned a lot from it and it was very beneficial."

## DEMAND

Dr Sindt explained that one of the major challenges of creating the course for BMKG was that "they wanted in three weeks what we usually teach our MSc students in four months". But EPCC was happy

to accommodate and embrace the challenge.

Dr Sindt said: "We created a super-distilled programme that was very intensive, with a lot of advanced topics for them to learn.

"We aim to keep the lecturing side of our courses to a maximum of 50% of the content, with the rest of the time spent on practical exercises.

"Mostly our courses are two to three days long, with two world-leading experts instructing a maximum of 20 people.

"An increasing number of companies from different sectors are approaching us for training – and we're keen to grow that number even more."

EPCC is also running AI training to support its role as the UK AI Factory Antenna, which was announced in October 2025. The initiative is to help organisations embrace AI and increase knowledge about the technology and its use.

Dr Sindt said: "This is part of an EU project to help increase the uptake of AI within UK-based companies and to make sure large- and small-scale AI development isn't just restricted to the large tech companies, ensuring there is grassroots support for smaller companies, including training for AI novices."

He added: "Through DDI support, we've been able to fund cloud infrastructure and give UK companies access to a cloud facility, which is available for training purposes and to support research and development."

For more information, visit [epcc.ed.ac.uk/training-courses](https://epcc.ed.ac.uk/training-courses) or email [training@epcc.ed.ac.uk](mailto:training@epcc.ed.ac.uk)



Dr Julien Sindt

## THE NATIONAL ROBOTARIUM

The National Robotarium © Paul Zanre



# At the forefront of fostering ethical and responsible technology adoption



**STEWART MILLER,**  
CHIEF EXECUTIVE OFFICER

The National Robotarium, based at Heriot-Watt University's Edinburgh campus, is the UK's leading facility for robotics and AI. It focuses on bridging science and industry, fostering ethical and responsible technology adoption.

Since its opening in September 2022, the National Robotarium has

established itself as a key player in the UK robotics sector, engaging more than 140 professionals and collaborating nationally and internationally.

The centre has been pivotal in shaping robotics policies, evidenced by the UK Government's £40 million investment in regional robotics hubs. It advises businesses, from SMEs to global companies, on enhancing safety, efficiency and productivity through robotics and AI. The Robotarium's outreach programme aims to increase public awareness and develop skills, reaching more than 27,000 people, including 8,000 young people.

The facility also supports start-ups and spinouts, currently at capacity with companies utilising its resources to advance robotics innovation. The launch in May 2025 of the International Blue Economy Robotarium in Orkney expands its scope to marine-focused robotics, leveraging the area's technological

and environmental strengths to promote sustainable growth in the blue economy.

Recent achievements I'm very proud of include 10 live industry projects, more than 20 new partnerships and 572 media engagements. In excess of 100 companies are exploring robotics solutions with the centre, while the UKRAS-STEP initiative with the University of Leeds is expanding the network of RAS technicians.

The ongoing implementation of the Robotics Revolution policy has solidified the UK's commitment to robotics innovation.

Future milestones include establishing regional outreach partners, launching regional robotics adoption hubs and a maturity model programme to enhance business readiness for robotics and AI.

The National Robotarium is setting a comprehensive agenda for robust industry and societal integration of these technologies.

## THE NATIONAL ROBOTARIUM

# The next Frontier in subsea safety

Navigating the murky depths of the seabed to inspect the foundations of subsea structures is a costly, arduous and dangerous job, even with underwater robots, also known as remotely operated vehicles (ROVs).

However, the process has been made safer, simpler and faster thanks to Frontier Robotics' new technology that provides enhanced perception, automation and autonomy for ROVs.

This was developed as part of the ORCA (Offshore Robotics for the Certification of Assets) Hub. This major UK research initiative ran between 2017 and 2022, aimed at developing AI and robotics for the offshore energy sector. It was led by the Edinburgh Centre for Robotics (Heriot-Watt University/University of Edinburgh), with Imperial College London, Oxford and Liverpool Universities partnering with more than 30 industry firms to revolutionise Asset Integrity Management for offshore energy, using robotics and AI for safer and more efficient inspection, maintenance and repair.

David Wavell, Frontier Robotics' Co-founder and Chief Operating Officer, said: "We call our technology AUIP - Autonomous Underwater Inspection Payload.

"It essentially consists of a pair of specially designed optical cameras combined with a computational unit and our specialist software embedded that can be 'plugged in' to an ROV, upgrading it with advanced sensing and autonomous capabilities. Think of it like the eyes and brains for underwater inspection robots."



David Wavell

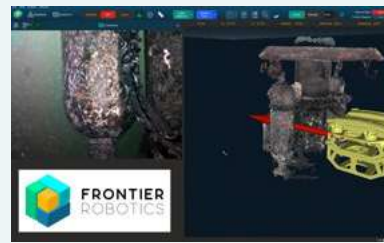
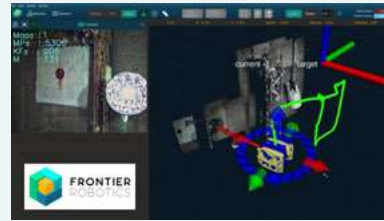
## INSPECTION

During the ORCA Hub project, the team involved in developing AUIP carried out the offshore wind industry's first fully autonomous inspection of an offshore turbine foundation, alongside EDF Renewables in 2021. The industry interest was the catalyst to spin-out the company in 2023 and turn a high-quality research prototype into a commercial product.

Such improved monitoring enables operators to make faster, better-informed decisions about maintenance operations, reducing both costs and carbon footprint.

By leveraging advanced sensor fusion techniques with edge computing, Frontier Robotics' system offers enhanced visual clarity, robust and reliable positioning and 3D mapping through Simultaneous Localisation and Mapping (SLAM) technology.

Mr Wavell said: "SLAM builds a 3D model of the environment the ROV is trying to inspect, then allows the ROV to localise itself within that model. With our



Frontier Robotics' Autonomous Underwater Inspection Payload (AUIP) technology allows for advanced photography, image enhancement, in-situ digital measurement and detailed 3D models and maps of underwater structures

technology, you get the automation of the vehicle and a 3D model of the environment, which gives the vehicle operator a much more comprehensive understanding."

## ECONOMIC VALUE

Since the spin-out, Frontier Robotics has been based at The National Robotarium in Edinburgh.

Mr Wavell said: "Not only does the National Robotarium incubate new start-ups but it also supports new companies trying to take technology into market and, in doing so, creates new businesses, jobs and economic value.

"We all benefit from the support, particularly networking."

Mr Wavell added: "We know from our customers that our technology is better than anything else on the market. However, we don't think the industry is ready to adopt full autonomy just yet. We plan to incrementally add greater levels of automation so our customers have the confidence to send an expensive ROV on an inspection mission without manual control."

Learn more at [frontierrobotics.ai](https://frontierrobotics.ai)

## THE NATIONAL ROBOTARIUM

## Meet 'Basil', the robot barista



'Basil' at work in the care home

Residents in an extra care housing facility in Stockton had a surprise visitor last spring when a robot 'barista' stayed in their community bistro for five weeks, as part of an experiment to see how humans and robots interact in a social setting.

The AI-empowered robot took orders and served beverages to residents through the coffee machine it was connected to, plus engaged people in conversations based on its preprogrammed data bank of local history and the activities coming up at the home.

The residents at Aspen Gardens extra-care housing complex, run by North Star Housing, quickly took to the robot, dressing it up in a catering hat and scarf and naming it 'Basil', after the hapless hotel manager in the *Fawlty Towers* TV show.

**INTERACTION**

But behind the novelty was a serious study exploring how people interact with conversational robots in real-world settings – and what that means for the future of customer service, healthcare support and companionship.

Dr Theodoros Georgiou, Assistant Professor in the

Computer Science department at Heriot-Watt University and part of the National Robotarium, explained: "Robots are increasingly appearing in public places, homes and workplaces but we still don't know much about how people react to them in everyday situations. Our aim at Aspen Gardens was to understand how people interact with robots and look at how aspects such as the robot's personality and storytelling affect how people respond to it.

"We can learn what helps people feel comfortable, what encourages trust and what might put people off. This can guide the design of robots that are easier to use, more helpful and more accepted in society, especially in community care or customer-facing roles."

The study used a Furhat 'head and shoulders robot'. Life-like facial animations enable it to make eye contact, hold conversations and respond naturally to people.

Dr Georgiou said: "We've been testing whether simple narratives can change how engaged people feel, how they relate to their robot and how well they remember information the robot is giving

them. We collected more than 50 interactions from 39 people at Aspen Gardens, with several returning more than once – the only negative comment we had was that 'Basil' did not make hot chocolate!

"Now we have a robot set-up we can reuse for future studies."

**EXPANDING**

Dr Georgiou and his team – which includes Dr David Robb, Research Fellow at Heriot-Watt University, and PhD candidate Bruce Wilson from the Edinburgh Centre for Robotics – are expanding their research to see how other groups of people interact with robots, to expand the existing data on real human-robot interactions.

He said: "The DDI initiative has been pivotal to our research as it has connected us with the right people, helped us access funding and opened the door to running a study in a real community space."

Dr Georgiou added: "We are looking to replicate the experiment in a demographic closer to college age. We're interested to investigate whether narrative can influence small choices and can be persuasive, for example, whether a customer follows a suggestion made by the robot. This will help us to grow our data set and share the results, to help guide new social robots and how they are designed.

"What matters most is that this work isn't just happening in a lab. It's happening with real people, in real places. If we can understand what helps people feel comfortable and engaged with robots, we can design technologies that support them in meaningful ways and take away some of the burden from overstretched services within the health and social care sector."

## USHER INSTITUTE

Usher Building at Edinburgh BioQuarter



## Fostering collaborations to drive health and social care improvements



**PROFESSOR CATHIE SUDLOW,  
DIRECTOR**

The past year included the Usher Building's official opening in June, with Dr Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization, officiating alongside Ian Murray MP and Maree Todd MSP.

Prior to the opening, numerous events and conferences were held,

fostering collaborations across public, private and third sectors to propel data-driven improvements in health and social care.

The Usher-hosted DataLoch project, in partnership with NHS Lothian, compiles health and social care data. Approved researchers can access this de-identified data to find solutions for better care and address health inequalities.

The Institute welcomed more than 100 organisations to explore research priorities and real-world health challenges. Usher emphasises the role of data and digital technologies in improving individual and population health outcomes, uniting experts across disciplines including social sciences, engineering, artificial intelligence and clinical fields.

In addition to the two case studies featured in this report, there have been many other highlights. Kathy Harrison won the Digital

“Usher welcomed more than 100 organisations to explore research priorities and real-world challenges.”

Leader Award for DataLoch, while research by Dr Ahmar Shar urged NHS Scotland to increase treatment capacity by 20% to address Covid backlogs. We also collaborated with high street opticians to create a tool predicting dementia risk from eye tests.

In the coming year I look forward to us strengthening stakeholder relationships, completing partner onboarding, hosting public events – such as the annual McEwan Hall lecture – and enhancing our education programmes.

## USHER INSTITUTE

# Impact of cold homes on child health

Improving the health of Scotland's children is at the heart of a five-year project from the Usher Institute.

The *Homes, Heat and Healthy Kids* study is examining how cold and poorly ventilated housing can harm the wellbeing of young people – and how to make positive changes. The driving force is Dr Olivia (Livvy) Swann, a paediatrician based in Edinburgh.

She said: "I was fed up sending children back to homes that were making them sick.

"We were seeing the same kids, again and again, with chest infections. We were patching up these kids and sending them home. Then they'd come back in again."

Dr Swann spent 18 months creating the data sets she needed to start fixing the problem.

"This involved sending lots of cold calling emails," she added. "I guess you could call me tenacious or stubborn!"

## DETERMINED

Her tenacity is paying off – the data being gathered will paint a clearer picture of the state of child health and guide policy decisions.

The study focuses on children under five. Dr Swann said a five-year-old child in Scotland will have around 25 planned NHS interactions. At each one, their address is recorded, so the study can see where a child has lived and if there are issues related to a particular location.

Chest infections at an early age can lead to lifelong health issues. People have a higher risk of developing asthma and dying from respiratory problems if they

have chest problems in childhood.

Dr Swann's team is producing new data infrastructure – a pathway other people can use. Once the methodology for children has been completed, it could also be used to answer other questions, such as how cold homes affect the elderly, or the impact of poor heating on levels of heart attacks and strokes.

The team is also linking smart meter data from homes and information on a home's energy efficiency. They can see the energy being used and how much should be used.



Dr Olivia Swann

## COLLABORATION

Dr Swann has a wealth of knowledge at her fingertips at the Usher Institute. She said: "It's a great melting pot of different people doing different things. There's a real focus on making society better through health data."

The Usher Institute also works closely with other groups in the DDI, such as **DataLoch**, which brings together health and social care data to improve NHS services.

Dr Swann said: "They are a wonderful group who have helped me produce pilot data to get funding for the project. I couldn't do this study without them."

Another collaborator is the **Smart Data Foundry**, which collects anonymised banking data to show how much is spent by families on food and energy.

An early sign of the high levels of interest in the project came in May 2025, when about 130 people attended the **Healthy Homes, Healthy Kids** event at the Usher Institute. The event featured

discussions about how best to ensure that housing protects children from illness and included personal video stories from families affected by living in cold homes.

Dr Swann has been "blown away" by the interest in the project, adding: "This is a real testament to how strongly people feel about this topic and the desire for change."

## MEANINGFUL

Dr Swann has worked with families with experience of living in cold homes via the Parent Group, which has members across Scotland.

She said: "They have worked with us from the start to make sure we were asking questions that were important to them, not just questions I think are important."

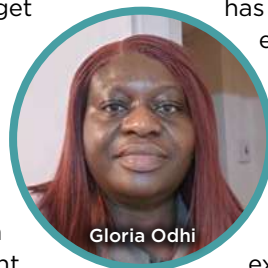
Parent Group member Gloria Odhi lives in Drumchapel, north-west Glasgow. She said: "My daughter has health issues related to cold weather, so this project is personally meaningful."

Ms Odhi has co-produced an **animation** about cold homes and child health and has made a powerful personal **video** in which she speaks about living in cold homes. The Parent Group

has also used its work and expertise for this project to gain an SQF Level 5 in Community Leadership.

Ms Odhi said: "Cold homes affect people's health and wellbeing.

"By sharing real experiences, this study helps everyone to understand the challenges families face. It will make a positive impact on people's lives."



Gloria Odhi

Learn more at [usher.ed.ac.uk/research/medical-informatics/projects/homes-heat-and-healthy-kids-study](https://usher.ed.ac.uk/research/medical-informatics/projects/homes-heat-and-healthy-kids-study)

## USHER INSTITUTE

# Setting sights on disease prevention

The eyes are a window into a person's health: the state of the tiny blood vessels and nerves at the back of the retina gives important clues for doctors to spot signs of a wide range of conditions, such as diabetes, heart disease, stroke and Alzheimer's.

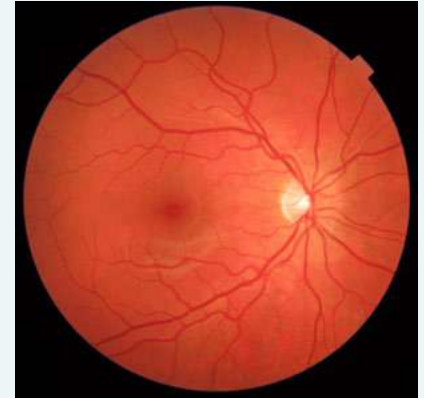
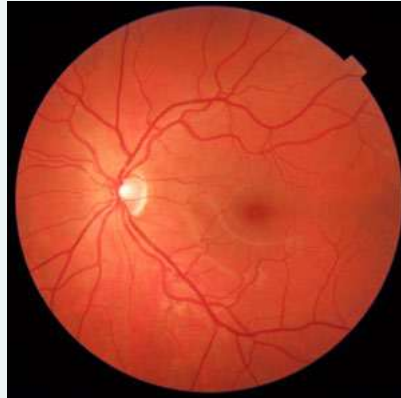
That's why the Scottish Collaborative Optometry-Ophthalmology Network e-research (SCONE) project, led by Professor Baljean Dhillon and Professor Miguel Bernabeu, has amassed 1.5 million retinal images from optometrists across Scotland and moved them to Public Health Scotland's National Safe Haven, a secure data environment.

Here, the SCONE team is using AI and deep learning to analyse these images.

The data is linked to individual health records through unique NHS identifiers, enabling the potential development of personalised risk estimation for diseases and allow early interventions.

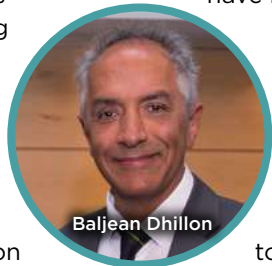
Over the past five years, SCONE has grown into a world-leading project and is now looking at how predictive healthcare can be translated into health pathways in the NHS.

Professor Dhillon, NES Professor of Clinical Ophthalmology at the Centre for Clinical Brain Sciences at the University of Edinburgh, said: "SCONE is a very successful collaborative project. This retinal scan collection – the world's largest dataset at a population level – unlocks a major resource in terms of trying to understand the retina and



Analysis of retinal scans can indicate conditions such as diabetes and dementia

neurovascular health of a large number of individuals over a period of time that would otherwise not have been accessible.



Baljean Dhillon

"Part of the challenge has been around ensuring that we have a pathway across clinical medicine, optometry, data science, informatics and AI that would allow us

to really make the most of this resource, which is why the partnership that we formed with Professor Bernabeu has been so fruitful. He enabled us to



Miguel Bernabeu  
© Andrew Perry

capture the data set, which is sitting in the retinal image, and analyse that in a useful, meaningful and novel way."

Professor Bernabeu, Professor of Computational Medicine at the University of Edinburgh, said: "As my team sits at the Usher Institute, a Health and Social Care Data-Driven Innovation Hub, we are working in an environment which is very rich in expertise and full of like-minded folks interested in innovation in healthcare driven by data."

## BRAIN HEALTH

One of the translational components the team is looking at is prediction modelling of cognitive health based on a retinal photo.

SCONE has the potential to track brain health through midlife via retinal scans. By giving people an individualised risk estimation, they can make lifestyle changes to stop the onset of dementia.

Professor Dhillon said: "It's going to have a big impact on how we approach brain health. You could say ditto for any microvascular disease because the retina is the barometer of microvascular disease in the central nervous system."

Professor Bernabeu added: "Now we need to come together as an interdisciplinary group of clinicians and data scientists and understand how this technology can be translated. It's designing how clinical pathways can be refined, or developing new clinical pathways."

Professor Dhillon said: "We also have to demonstrate the value of our findings to the public and large chains of optometrists that this is of value... [to ensure] it gets used and ultimately preserves and improves health at population level."

## BAYES CENTRE

Bayes Centre



## Surpassing our targets and focusing firmly on securing future success



**PROFESSOR RUTH KING,  
DIRECTOR**

Over the past year, the Bayes Centre expanded its community by welcoming nine new companies, including three international firms setting up UK bases. This growth brings our total members and partners to 37. Collaborations with

these companies have focused on societal impacts, such as improving Edinburgh's cycling routes, tracking endangered seabirds and monitoring biodiversity through birdsong. Bayes also led two significant R&D projects and supported 13 others, generating £9.2 million in income – well surpassing our £1.2 million target.

In collaboration with various university schools and Fife College, Bayes introduced the Space Bridges courses to address skill gaps in the space sector, with the initiative attracting 145 enrolments. Read more about this on page 21.

In entrepreneurship support, we helped 90 company founders and start-ups through programmes such as the Venture Builder Incubator, AI Accelerator and EIE25. The EIE event showcased innovations from Scottish

universities to 276 investors, co-hosting with Tech Tour Growth DeepTech 25 and connecting 120 global investors with 42 European start-ups.

I'm looking forward to a number of our plans for the coming year, which involve the launch of an online Applied Data Science MSc with a focus on practical applications, with the first intake in September 2026.

Bayes also plans to host bespoke innovation Away Days for industry and public sector organisations and to grow its community to 45 units or organisations by enhancing visibility and collaboration within the university.

I hope you enjoy the case studies selected by the Bayes Centre to feature in this year's *DDI Annual Review* but, of course, this is just a small snapshot of what we do.

## BAYES CENTRE

# Learners are reaching for the stars

Ever wanted to do something out of this world? Help to launch a career in the UK's thriving space sector is now being offered as part of an exciting initiative at the Edinburgh Space Hub.

The **Space Bridges** programme offers short, data-driven courses that aim to both upskill and inspire the future space sector workforce.

The training caters to everyone, from office professionals to tradespeople, with a special focus on supporting those who have taken career breaks, such as maternity or care leave.

One of the course leaders, Dr Matjaz Vidmar, of the University of Edinburgh's School of Engineering, said: "For a number of years I had been involved in research trying to understand the skills need in the Scottish and UK space industry. Working with organisations such as Space Scotland, Space Network Partnership and UK Students for the Development and Exploration of Space, we built evidence of what is needed.

"The UK Space Agency also recognised a UK-wide skills gap and offered funding for training.

"Led by the Bayes Centre team and DDI Space Sector lead, we put forward one of five successful bids in a competitive field. Importantly, this is a joint project between Bayes, the Schools of GeoSciences and Engineering and Fife College, which is also offering space sector upskilling."

Space Bridges received £520,000 from the UK Space Agency in 2024 and the team welcomed the first learners that December, with a second intake in 2025.

## COLLABORATION

Space Bridges runs five courses:

- Sensors in Space
- Software and Data for Space
- Spacecraft Systems
- The Business of Space
- Space Data for Financial Services.

Dr Vidmar said: "We have a number of close collaborators from industry who helped develop the courses and worked with experts from Schools across the university.

"There are five to six weeks of content and courses require four or five hours of study a week. We have created videos, interactive graphics and text, plus weblinks to a lot of further information. There's a half-hour quiz every week plus an

hour-long live session, when learners meet the experts, network and work on mini group projects.

If a learner passes all the quizzes, they get a digital badge."

Course participants

have come from a variety of organisations – from leading space companies and space agencies to economic development bodies.

Dr Vidmar added: "We also had learners from very early stage start-ups and individuals with little or no experience but who are keen to enter the space sector.

"We are working hard to make the courses accessible to people with non-technical skills or from lower-skilled backgrounds."

Thanks to the UK Space Agency funding, the courses were offered free to learners in the first year, with all courses oversubscribed.

Short courses fees now apply but the team is hoping that a funding model can be developed to allow for some scholarships, especially

for unwaged career changers and career returners. Dr Vidmar said: "We are also looking to add more courses. We are exploring opportunities to bring in colleagues who, for example, can offer space-specific operations management, as well as space law and regulations."

## BENEFITS

The Space Bridges team is happy to hear from companies that want to learn more about the courses.

Dr Vidmar said: "We're keen to hear from organisations – big and small – to discuss how we can offer bespoke training to fit their needs.

"Space Bridges is a great example of digital education done well.

Through a meaningful but relatively short amount of time with learners and good use of interactive, engaging digital content, we are delivering training that is accessible and transformative for learners. Crucially, they can learn at their own pace, around other life commitments."

## SPACE DATA CAPITAL

Space Bridges – a finalist in the 2025 British Data Awards – also supports Edinburgh's ambition to be Europe's Space Data Capital.

Dr Vidmar said: "The course has been a huge success for the DDI initiative and Edinburgh Space Hub.

"It follows concerted activities over a number of years in development of the space and satellite portfolio across the University. DDI and the Bayes Centre in particular have been a big catalyst for that."

Learn more at [bayes-centre.ed.ac.uk/education/spacebridges](https://bayes-centre.ed.ac.uk/education/spacebridges) and [bayes-centre.ed.ac.uk/spacehub](https://bayes-centre.ed.ac.uk/spacehub) or email [space.edinburgh@ed.ac.uk](mailto:space.edinburgh@ed.ac.uk)



Dr Matjaz Vidmar

## BAYES CENTRE

# Making quantum power accessible

Qinara is delivering tomorrow's performance today. This trailblazing team, who met at the University of Edinburgh, combine classical and quantum computing to enhance the accuracy and efficiency of artificial intelligence (AI) models – delivering data-driven solutions that are spurring breakthroughs in everything from biomedicine and cybersecurity to finance.

Qinara's work means industries can embrace the benefits of quantum technology without the high costs and hardware limitations. AI model performance is enhanced by 40% and computational costs cut by 70%.

Qinara co-founder and CEO Swapnil Deshmukh said: "I can't stress enough how helpful the Bayes Centre has been. The support we've had from the University and its ecosystem, like the student enterprise team and professors at the Quantum Software Lab, has been extremely crucial.

"Our goal is to make quantum accessible. Our first product, Qronos, is a quantum circuit optimiser. It takes big quantum algorithms and compresses them so you can run it on current NISQ

(noisy intermediate-scale quantum) hardware, which is limited. We bring the value of the future to the present by making the circuits smaller and removing the errors.

"Our second product, Q-PRISM, is a cybersecurity product, developed to prepare classical computers to fight future quantum attacks.

"Our third application, Qure, is a drug discovery platform. A family member received a cancer diagnosis in 2016 and has to take a medicine called anastrozole, which has a lot of side effects. My idea was to use a quantum-based inference model to create a drug discovery platform to find drugs with fewer side-effects. We're also looking into enhancing early detection of cancer."

## SUCCESS

Qinara's successes are remarkable – even more so given the company formed only two years ago, after Mr Deshmukh teamed up with friends Satwik Dalvi and Rahat Santosh to participate in the 2024 MSc Challenge, co-hosted by the School of Mathematics and industry partner Space Intelligence.

He said: "The task was to predict deforestation using satellite data. We used quantum SVM (support vector machine), a small algorithm that can work on classical machines. The accuracy was off the charts. With classical, we got 34% accuracy – with quantum, it was 97%."

But while the team showcased the power of quantum computing, the project also highlighted its expense and that it was not yet scalable.

"Quantum is hardware dependent," Mr Deshmukh explained. "Our idea was, while we have small quantum computers, if we apply a certain approach we can make them more accessible."

## GUIDANCE

Qinara's approach led to the development of products Qronos, Q-PRISM and Qure. But the team needed to go from data-driven idea to market-ready business, so in 2024 applied to join the Bayes Centre's Venture Builder Incubator (VBI), which is funded through the DDI programme.

VBI offered strategic guidance and support in areas such as legal and intellectual property.

Mr Deshmukh said: "We've had help in business planning, financial readiness and value proposition.

"Explaining quantum to people and investors who are not familiar with the topic is extremely difficult, so the support to explain better has helped us come a long way."

Qronos released its benchmark results on *Quantum Insider* in November 2025, positioning it as the current global leader in quantum circuit optimisation.

Qinara, based in Edinburgh, is now looking for further investment partners. IBM has expressed interest in Qronos, while funding has been received from Scottish Enterprise.

Mr Deshmukh said: "If you use a quantum computer and train that model for four or five days, it would cost £20,000. If you use Qronos, that would come down to £1,000, while reducing errors.

"One of the major applications of quantum computing will be in cybersecurity. You can also use it to prepare classical computers, which is what we're doing with Q-PRISM.

"Our next steps are to bring quantum power into greater use."

For more information and to contact the Qinara team, visit [qinara.co.uk](http://qinara.co.uk)  
Learn more about VBI at [hub.bayes.ed.ac.uk/programmes/vbi](http://hub.bayes.ed.ac.uk/programmes/vbi)



Swapnil Deshmukh,  
Satwik Dalvi and  
Rahat Santosh

## EDINBURGH FUTURES INSTITUTE



Edinburgh Futures Institute

## Developing technologies for social good and economic development



**PROFESSOR MARION THAIN,  
DIRECTOR**

Edinburgh Futures Institute aims to ensure that the next generation of technologies are developed with social good and human flourishing at their core, leading with solutions rather than running to catch up with unintended consequences.

We do this by connecting technical expertise with an understanding of human culture and society, forging partnerships beyond academia, offering a futures-focused portfolio of training and education, and providing a space where new ideas are incubated, interrogated and translated into real-world impact.

Co-location and collaboration are central to EFI's mission, bringing together more than 300 people from over 50 organisations. EFI facilitates cross-sector conversations, enabling integrated solutions, and engages the public through communications and events to enhance understanding of its contributions.

In addition to the case studies in this report, there are many other achievements I'd like to highlight. These include hosting the fourth

**CreativeTech Scotland Gathering**, with more than 140 practitioners exploring innovation in creative technology. We also launched the Centre for Net-Zero High Density Buildings with £4.5 million funding from UK Research and Innovation (UKRI), aiming to enhance energy efficiency and sustainability in urban properties.

In one of our key target sectors, the Compassion in Financial Services Hub was opened for inclusive, sustainable financial systems, partnering with Young Scot to redesign financial products for young people.

Upcoming targets include conducting a holistic review of the education portfolio, expanding futures-focused professional education in socially responsible technology, and scaling our research ambition.

## EDINBURGH FUTURES INSTITUTE

# Compassionate financial services

The “science of compassion” is being harnessed to help create a more inclusive and sustainable financial system.

The **Compassion in Financial Services Hub**, based at Edinburgh Futures Institute, launched in February 2025 with the aim of providing pathways to reimagine and redesign a financial services sector where compassion drives decision-making, fosters inclusivity and alleviates suffering.

The Hub’s mission is to help financial organisations unlock opportunities for innovation and long-term success while contributing to a more just economy. As part of this, the team has partnered with charity **Young Scot** to ensure that the voices of young people are heard.

Hub Co-Director Professor Liz Grant, also Co-Director of the Global Compassion Initiative at the University of Edinburgh, has been an expert in the science of compassion for the past decade, especially in relation to the United Nations’ 17 **Sustainable Development Goals** (SDGs).

She said: “Compassion is more than being kind. It’s about noticing what’s wrong with the world and responding in a way that creates cohesion and connects people.

“The Hub helps us better understand the role of financial industries in the context of the global crises being addressed by the SDGs.”

Professor Grant added: “A compassionate working environment, a culture where people are seen and heard and where there is active prioritisation of investment decision-making that

improves the wellbeing of clients and reduces the negative impacts of climate change, pollution, waste and biodiversity loss can bring about powerful change.”

## SUSTAINABLE

The financial services industry – including investment firms and banks – “wants positive change”, said the Hub’s other Co-Director, Tobi Schneider, the University’s Financial Services and Fintech Sector Engagement Lead.

He added: “We’re not here to say, ‘do this or that’. What we can do is provide alternative ways of thinking and doing things – working in collaboration with them by using the tools of compassion. “If you want to build a sustainable business, you need to think medium- and long-term.

And in the medium- and long-term, one of the biggest currencies a business has is trust. Compassion is a powerful tool for building trust.

“Our conviction, backed up by research, is that to have a sustainable business model, even in finance, you need a compassionate, long-term, trust-based model.”

For the Hub team, helping bring about change is crucial. Mr Schneider said: “Our end goal is to have fundamentally different products on the market and make a real change to young people’s experience with financial services.”

Young Scot has helped the Hub team, academics and finance

industry decision-makers to hear directly from young people.

Allan Lindsay, Participation and Co-Design Director at Young Scot, said the Hub gave the charity “an opportunity to collaborate on what the future of financial services could and should look like”.

Young Scot involved young people between the ages of 15 and 25 from across Scotland and from a range of diverse backgrounds to share their thoughts and

experiences. Mr Lindsay said:

“Some young people were very aware of the services available to them while others had very limited experiences. There were young people who didn’t know what a pension was, or understand mortgages.

The hope is to co-design products that have been developed with young people at their heart.”

## FINDINGS

The project has involved surveys, workshops and research interviews. This qualitative and quantitative data will be used to help shape the project’s goal of creating products.

Mr Schneider said: “There is a risk that we see a generation growing up where many have the feeling that the financial system is not made for them, that it doesn’t speak their language and that it doesn’t connect with their realities.

“We want to work collaboratively with policymakers, industry partners and academics to understand how we can do better.”

Learn more at [efi.ed.ac.uk/ecosystem/compassion-in-financial-services-hub](https://efi.ed.ac.uk/ecosystem/compassion-in-financial-services-hub)



Professor Liz Grant



Tobi Schneider



Allan Lindsay

## EDINBURGH FUTURES INSTITUTE

# Introducing systems convening

Across Scotland's public services, there are increasingly rich data sets on health, education, housing, justice, poverty and place, alongside expanding technical capability to analyse and share them.

Yet many persistent public service challenges, such as inequality, financial insecurity, health outcomes and entrenched disadvantage, remain resistant to change.

But this is “not a failure of data”, insisted Dr Kristy Docherty, Director of Public Services and Sector Engagement Lead at Edinburgh Futures Institute (EFI).

She added: “Rather, it reflects the reality that data alone is not enough. The issues we are trying to address are complex, interconnected and systemic. No single organisation holds the full picture. No data set, however sophisticated, can resolve competing priorities, align incentives, or build the trust required to act collectively across organisational and sectoral boundaries.”

It was from this context that the *Introduction to Systems Convening* programme was designed and piloted at EFI in January 2025. It focused on the leadership and collaborative conditions that must be in place for data-driven innovation to translate into meaningful, sustained change.

## DATA-DRIVEN INNOVATION

Much of the effort in data-driven innovation focuses on technical challenges – interoperability, governance, ethics, skills and infrastructure. These remain critical.

But practitioners across public services consistently highlight a parallel set of challenges that are more relational, such as fragmented decision-making, low trust between organisations and unclear shared



purpose. Dr Docherty said: “Systems convening is a leadership practice that responds to these challenges.

“It is concerned with how people come together across a system to build shared understanding, strengthen relationships and coordinate action on complex issues. In doing so, it helps create the conditions in which data can be interpreted, questioned and used collectively, rather than in isolation or competition.

“Systems convening supports the shift from data as an input to data as a shared sense-making resource, embedded within relationships, dialogue and joint responsibility.”

## EXPERIENTIAL LEARNING

The two-day pilot programme was designed to be experiential. Rather than teaching systems theory or prescribing tools, participants practised convening in real time.

Dr Docherty said: “A central feature was a live scenario focused on financial fairness in Edinburgh.

“Drawing on real-world data signals, from rising food bank use and pressure on advice services to housing, participants were asked to step into the role of a convening team tasked with shaping a more systemic, long-term response to financial inequality. The scenario made visible a familiar pattern in public service reform – data

highlights unequal outcomes and recurring crises but responses remain reactive and fragmented.

“Participants were not asked to design solutions. The focus was on who needs to be involved and how a group might work together.”

## INSIGHT

The pilot featured participants from across public services, including the NHS and the Scottish Government.

The programme is grounded in Dr Docherty's research on collaborative and collective leadership and structured around four core principles – inquiry, systems, relational and emergence.

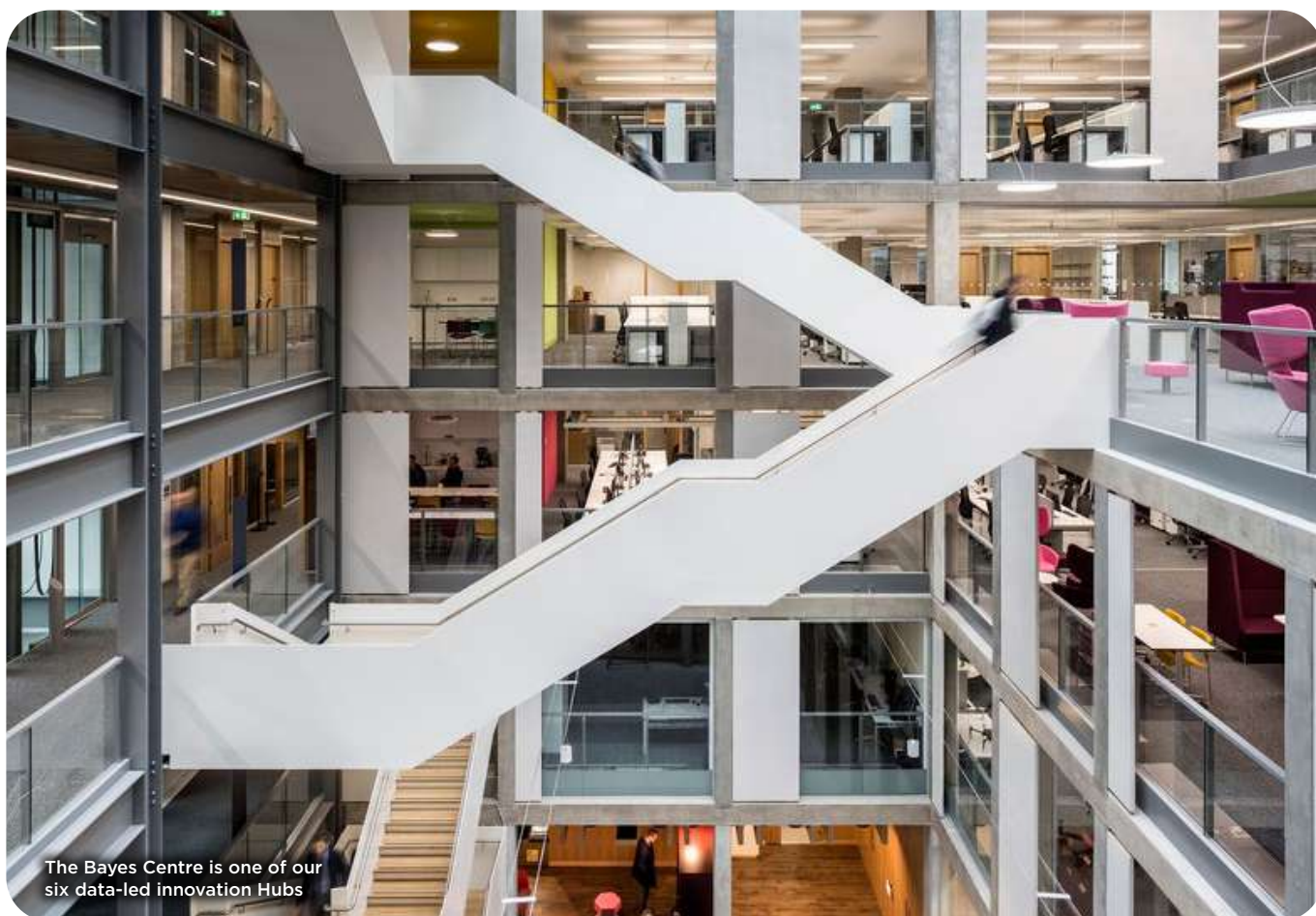
She said: “Participants repeatedly noted that insight emerged not from expert instruction but from working alongside others, noticing group dynamics and reflecting on how trust, power and uncertainty influence decision-making.”

The programme was designed by Dr Docherty and Keira Oliver, Facilitator and Learning Designer, E'len Co-op, drawing on academic research and extensive practice across public, private and third sectors, and supported by Dr Steve Earl, Head of Foresight at EFI.

Dr Docherty said: “The pilot highlighted the potential for systems convening to strengthen data-driven innovation initiatives across Scotland.”



# Collaborating for a brighter future



The Bayes Centre is one of our six data-led innovation Hubs

The Data-Driven Innovation initiative is a cluster of six data-led innovation Hubs at the University of Edinburgh and Heriot-Watt University that bring together researchers and industry to examine some of the world's most pressing challenges.

DDI works to help researchers collaborate with businesses, charities and the public sector, fostering and supporting partnerships that will make a positive impact on society.

The initiative's Hubs house experts and facilities that are helping 10 sectors - Agritech, Creative Industries, Digitech, Financial Services, Fintech, Health and Social Care, Public Sector, Robotics and Autonomous Systems, Space and Satellites, and Tourism and Festivals - to become more innovative through use of data.

You can learn more about these sectors and our Hubs - Edinburgh Futures Institute, the Bayes Centre, the National Robotarium, Usher Institute, Easter Bush and Edinburgh International Data Facility - on our website at [ddi.ac.uk](https://ddi.ac.uk)

“Now in its eighth year, the DDI initiative has delivered more than £777 million in research income and supported 674 start-up companies.”

The £660 million DDI initiative was funded by Edinburgh and South East Scotland City Region Deal, as part of the drive to make Edinburgh the Data Capital of Europe. It is one of the single biggest investments in academic institutions in the UK.

Now in its eighth year, the DDI initiative has delivered more than £777 million in research income, supported 674 start-up companies, with £499 million in follow-on funding generated, and recorded 160,000 course completions.





THE UNIVERSITY  
of EDINBURGH



# DDI Data-Driven Innovation

*Part of the Edinburgh & South East Scotland City Region Deal*

## Data-Driven Innovation Programme

Edinburgh Futures Institute  
The University of Edinburgh  
1 Lauriston Place  
Edinburgh  
EH3 9EF



Learn more about our work and Hubs at [ddi.ac.uk](https://ddi.ac.uk)



Email us [ddi@ed.ac.uk](mailto:ddi@ed.ac.uk)



Subscribe to our newsletter at [ddi.ac.uk/contact-us](https://ddi.ac.uk/contact-us)

Follow DDI on social media:



[linkedin.com/company/data-driven-innovation-initiative](https://linkedin.com/company/data-driven-innovation-initiative)