

2022/23

POWER OF INNOVATION

The annual review of innovation activity
at the University of Edinburgh



THE UNIVERSITY
of EDINBURGH



EDINBURGH
INNOVATIONS



Data-Driven
Innovation

Foreword



Professor Christina Boswell
Vice-Principal of Research and Enterprise

Here at the University of Edinburgh, we enjoy a strong ethos of research without boundaries, be they between disciplines, countries or sectors.

Across our five campuses our researchers are co-located with entrepreneurs, patients and professionals, which creates the conditions for the exchange of ideas and expertise that unlock innovation. Our staff and students come together across a wide range of disciplines and perspectives to address common challenges, and we work with universities, governments, businesses and NGOs from around the world to pioneer solutions to global problems.

Our many partnerships with industry and the public sector are facilitating world-class innovations, which has contributed to the University being ranked 5th in the world for industry, innovation and infrastructure in the Times Higher Education rankings for the second year running. Also in 2022/23, an independent economic and social impact report found that Edinburgh researchers working with businesses and the public sector to address challenges in our focus areas of climate, data and health contribute £350 million annually, to a total £3.2 billion of research and knowledge exchange impact. These numbers clearly reflect our blossoming culture of innovation and entrepreneurship, and our impact.

In 2023 we celebrated 60 years of computer science and AI research at Edinburgh, highlighting the heritage of this extraordinary place as one of the world's leading centres for advanced technology research. Continuing this proud legacy, today Edinburgh is the UK Government's chosen host for the UK's national supercomputer, Exascale. This is a testament to our expertise in managing such world-class facilities, and the depth of global talent in computer science and AI at the University. It also demonstrates that we do not rest on our past accomplishments, instead we are inspired by them to keep driving research and innovation forward.

In these pages you will find some of our biggest projects, partnerships and successes from 2022/23 across our three core missions: shaping the future of health and care; tackling the climate and environmental crisis; and harnessing data, digital & AI for public good. These missions are being brought forward through our new Research and Innovation Strategy 2030, which details how we will build on our strong foundations and marshal our talents and expertise to address some of the biggest challenges we face as a society and a planet.

Our Values

Excellence
and ambition

Diversity
and inclusivity

Internationalism

Relevance to society
and community

Self improvement
and transformation

Integrity

The University of Edinburgh Innovation Ecosystem



RESEARCH & IDEAS

College of Arts, Humanities and Social Sciences

College of Medicine & Veterinary Medicine

College of Science & Engineering

IGNITE

DDI Hubs

The Bayes Centre

The National Robotarium

Edinburgh Futures Institute

Usher Institute

Easter Bush

Edinburgh International Data Facility

Fxascale

FACILITATE

Edinburgh Innovations

Project management

IP licensing

Business development

Industry engagement

Strategic Partnerships

Tech Transfer

School and College innovation support

ACCELERATE

Data Driven Entrepreneurialism

Graduate Enterprise Grant

Digitech Work Placements

Venture Builder Incubator

AI Scale Up Accelerator

Investor Meet up Events

Engage Invest Explnit

Old College Capital

IMPACT

Entrepreneurial staff and students

Industry collaboration

Solutions to the world's greatest problems

Economic growth

Jobs and skills

Global Partnerships

THE SCOTTISH INNOVATION ECOSYSTEM

Incubators

Accelerators

Co-working spaces

Networking organisations

Innovation centres

Entrepreneurial support organisations

Funding

GLOBAL ECONOMY

Our Innovation in Numbers 2022/2023



*Figures are subject to external audit

Maximising Impact

An independent financial study by policy and economics consultancy London Economics found that the University generates an annual economic impact of £7.5 billion per year, bringing an extraordinary benefit to local, regional and national communities.

The study found that **every £1 spent by the University generates £6.90** in economic benefit across the UK, a 34 per cent increase in impact since 2015-16.

The University - Scotland's largest - also supports more than **32,760** jobs across the UK.

From understanding volcanic eruptions to investigating the influence of our genes on disease, 9,200 academics have generated **£3.2 billion** from their research and knowledge exchange activities.

Researchers working with businesses and the public sector to address global challenges in our focus areas of climate, data and health create a further **£350 million** of innovation impact annually.

Through supporting University startup and spinout companies, we have helped our entrepreneurs generate an impact of **£162 million** and support **1,830 jobs**.

By unlocking innovation and driving it forward, we maximise the University's economic and social impact.

£350m
of innovation
impact

£162m
generated by startups
& spinouts

University
companies support
1,830
jobs

£111m
spinouts

£91m
consultancy
services

£51m
startups

£49m
business &
community courses

£36m
contract
research

£12m
IP
income

“

This study strongly indicates the hugely important economic role that the University of Edinburgh plays within Scotland and beyond. We have more than 400 years of excellence behind us, but we're not done yet. Working together, we can make the next 400 years even better.”

Professor Sir Peter Mathieson,
Principal of University of Edinburgh

“

Impact drives everything we do here at Edinburgh Innovations - supporting our students, staff and our partners to find solutions to the world's biggest challenges. These figures tell us that our research and knowledge exchange work contributes to a better world economically and socially, at home and far beyond.”

Dr George Baxter,
CEO of Edinburgh Innovations

Mission: Tackling the climate and environmental crisis

The QS Sustainability Rankings 2024 positioned the University of Edinburgh 3rd in the UK and 15th in the world for sustainability, reflecting our fierce commitment to building a sustainable world. We are marshalling our research, talents and ideas to understand the causes and effects of climate change, and to help communities adapt and mitigate its effects. By integrating pioneering research in a diverse range of areas - from earth systems, biodiversity, farming, energy and manufacturing, to space and satellites, health and inequalities, climate finance and corporate responsibility – we are helping to tackle the climate emergency and address key challenges.



CircHive

The €11.5m CircHive project, funded by Horizon Europe, helps organisations make more informed decisions to protect ecosystems, enhance biodiversity and unlock new opportunities for society and businesses.

As a partner in CircHive, the University will receive £1.2 million to co-ordinate case study research and contribute to developing natural capital and biodiversity footprinting methods.

Two projects will receive funding: one exploring green cities, led by Professor Marc Metzger of the School of Geosciences; and one focusing on investor hubs, led by Dr Theodor Cojoianu of the Business School. They will work with the University's Forests and Peatland Programme to test their biodiversity measuring methods and to support the transition to a circular bioeconomy.

NatWest

The University and NatWest Group continue to build on their partnership to address climate and sustainability challenges with the launch of a new five-year strategic partnership. The Centre for Purpose-Driven Innovation in Banking will bring together the University's research expertise with NatWest's in-depth data and business understanding to co-create multidisciplinary research with business applications.

Innovation activities of the Centre will include skills and talent development for bank staff and university students, and challenge-led research and development activities. The latest academic developments and thinking in data science and AI, climate change, business and the social sciences will be drawn upon to co-develop solutions to societal challenges that can be addressed through the banking sector.

The insights generated will help us translate cutting edge research into real world solutions to benefit society and ensure that the NatWest Group's customer experience is best in class.

The Centre will be led by the Data-Driven Innovation hubs Edinburgh Futures Institute and the Bayes Centre, part of the Edinburgh and South-East Scotland City Region Deal, and will draw on expertise from more than 100 academics across the whole of the University.

CloudEarth

Through CloudEARTH*i*, the new Earth Centred Business Design™ (ECBD) tool has been designed and tested to help startups embed low carbon, circular thinking into their business models and plans at the earliest stage.

The ECBD tool has been piloted with seven startups, many of which plan to make changes to their business models and operations as a result of participating in the project.

The impact of the ECBD tool was recognised with the Scottish Knowledge Exchange 'Making an Environmental Difference' 2023 Award.

The tool will be used by Enterprise Services at Edinburgh Innovations, the University's commercialisation service, to support staff and student entrepreneurs, and is also being licensed for use by other HEIs to increase their capacity to drive innovation in the emerging low carbon economy.

Forests and Peatland Programme

The University recognises that it has a responsibility and an opportunity to help lead on finding solutions to the global climate change and biodiversity crises, as demonstrated by its institutional commitment to become net zero carbon by 2040.

The University's net zero carbon plans incorporate a bold programme of work to sequester its unavoidable emissions arising from business and student travel through a long-term, creative approach to sustainable land management.

The multi-million-pound Forests and Peatland Programme will sequester over one million tonnes of unavoidable CO2 emissions through woodland creation and peatland restoration, in partnership with landowners and other organisations, across various sites in Scotland over the next 50 years.

The Programme has overseen the acquisition of the first of several sites, which will be managed for carbon sequestration and delivery of co-benefits associated with climate change, biodiversity, communities, and the rural economy.

Sites managed by the Programme – on land owned by the University or managed in partnership with others – also represent significant opportunities for research, teaching, learning and innovation. The Programme team will work in collaboration with academics, professional services teams, and external partners to explore these and the scope they have to environmental, economic, social and health and well-being impacts in the region and beyond.

Data for Children Collaborative

A collaboration between UNICEF, the Scottish Government and the University's Data Driven Innovation (DDI) Programme, The Data for Children Collaborative is a specialist unit within the Edinburgh Futures Institute focused on using data and data science to improve outcomes for every child around the world. A recent project Heatwaves & Children was established to mitigate climate crisis-related threats for children in the future knowing that children lack the ability to regulate their body temperatures as adults do.

A report was produced ahead of COP27, urging world leaders to take action by:

- Protecting children from climate devastation by adapting social services
- Preparing children to live in a climate-changed world
- Prioritising children and young people in climate finance and resources
- Preventing a climate catastrophe by drastically reducing greenhouse gas emissions and keep 1.5 degrees Celsius alive

MAXBlade project launches

The MAXBlade project, which seeks to maximise tidal energy generation, was launched in 2022/23 in the presence of the Chancellor, HRH, The Princess Royal at the University's FastBlade facility. The €10 million project – funded by the European Union and UK Research and Innovation – aims to deliver a range of innovations to improve the performance of tidal turbines and reduce costs. It will investigate the full lifecycle of tidal turbine blades, from materials, manufacture and operation, to decommissioning and recyclability. Long-term, MAXBlade's goal is to make the European composite sector the global leader in tidal blade manufacture.

The project will involve a two-year design and development phase, followed by an 18-month build. During the build, the blades will undergo advanced structural testing at the FastBlade facility, a partnership between the University of Edinburgh and advanced manufacturer Babcock, based at the Arrol Gibb Innovation Campus at Babcock's Rosyth facilities in Fife.

Mission: Harnessing data, digital and AI for public good

We are harnessing cutting-edge data, digital and AI research and technologies to unlock solutions to a range of environmental, social and economic challenges. As part of our ambitious DDI within the Edinburgh and South East Scotland City Deal, we have committed to making Edinburgh the data capital of Europe, with a strong focus on entrepreneurship. 2023 marked the half-way point and fifth anniversary of the DDI Programme, and this page includes just some of its many achievements to date; much more is still to come. Our advanced computing capacity and world-leading Informatics research positions us to harness data and computational methods across disciplines, equipping us to address key challenges in a responsible and ethical way.



Quantum Software Lab

The University joined forces with The National Quantum Computing Centre (NQCC) to open the Quantum Software Lab at the School of Informatics. The Lab is under the leadership of Elham Kashefi, who is Professor of Quantum Computing at the School and has been appointed NQCC Chief Scientist. Researchers from the Lab will conduct pioneering research into the development of new quantum software and will work closely with industry partners to understand how quantum computers might help solve their problems.

Innovation Fellows programme

The Bayes Centre launched the Bayes Innovation Fellows Programme in 2022/23. The year-long programme provides early career researchers with a unique and tailored suite of training, guidance and funding, as well as unrivalled exposure to research commercialisation opportunities. The programme will equip and inspire its cohorts to realise their ambitious goals and develop transformative ideas with real impact.

CoSTAR Programme

Building on the success of the Creative Informatics cluster, the University was announced as a core partner in the £50 million CoSTAR Programme. CoSTAR is a technology and data-driven Network Lab that will – in collaboration with Codebase, the UK's largest technology incubator – deliver innovation and enterprise across two centres in Dundee and Edinburgh. This continues support for data-driven innovation in the Creative Industries sector through Edinburgh Futures Institute.

Service and product launches

The Edinburgh International Data Facility (EIDF) completed several successful launches in 2022/23. The Data Science Cloud Service enables access to EIDF's unique combination of Cloud, AI, Machine Learning and Data Services. The EIDF GPU Service, a containerised platform that grants users access to the power of NVIDIA state-of-the-art GPUs to drive their own bespoke software environments, supports scalable data processing and AI workloads. And EIDF's Cerebras CS-2 AI Engine was extended into a Wafer-Scale Cluster and launched for academic and commercial users.

Smart Data Foundry launched aize.ai, a synthetic data engine that provides innovators across the UK with quality, artificially generated data to solve real world problems. It also partnered with trailblazing open banking platform Ozone API to launch the groundbreaking Library for Standards, which helps financial institutions and innovators understand and navigate the complex global open finance landscape.

SPACE

The Scottish Public Sector Analytical Collaborative (SPACE) brings together the Scottish Government, Public Health Scotland, National Records of Scotland and Registers of Scotland in a programme to advance data analytics for the public sector. SPACE seeks to improve delivery of public services in Scotland through better use of data and analytics. EIDF works closely with SPACE to build and host two rich analytical environments for Scottish Government analysts.

New partnerships with the National Robotarium

The National Robotarium, based at Heriot-Watt University, announced several new partnerships in 2022/23. Through its partnership with Tata Consultancy Services, a global leader in IT services and business solutions, the Robotarium has supported a number of fully funded doctoral positions, helping researchers in Robot Motor Intelligence (RoMI) to improve the agility and versatility of quadruped and other legged robots that can be deployed by industries working in hazardous environments. The Robotarium's new partnership with international medical technology company Fourier Intelligence will improve understanding of the use of robotics and AI for assisted living, movement and patient rehabilitation; and a partnership with Built Environment-Smarter Transformation (BE-ST), Scotland's innovation centre for accelerating the built environment's transition to zero carbon emissions, has also been agreed.

Funding injection for Fugro partnership

The National Robotarium was awarded UKRI Impact Acceleration Account (IAA) funding of £1.4 million to facilitate an industry partnership with the world's leading geodata specialist, Fugro. The partners will develop electric remotely operated vehicles (eROVs) to perform maintenance and repair tasks on offshore wind turbines. The deployment of these eROVs will dramatically improve health and safety for workers, reduce carbon emissions and boost efficiency.

The Cost-of-Living Dashboard

Smart Data Foundry has collaborated with East Renfrewshire Council to introduce a pioneering Cost-of-Living Dashboard. Utilising near-real-time deidentified banking data from NatWest, this dashboard integrates financial well-being indicators with contextual information, aiding the Council in comprehending the challenges that citizens face during the current cost-of-living crisis.

Bayes Centre Community in action

The University's Data Upskilling Short Courses (DUSC), delivered by the Bayes Centre in collaboration with DDI Hubs and other esteemed partners across the University, help people to gain new skills to advance in their careers or seize new career opportunities. In 2022/23 1,298 people enrolled across 43 DUSC courses. Bayes also delivered 19 Adoption projects in conjunction with the Bayes Centre Community, as well as delivering 21 events with 1,871 registrants from across the entrepreneurial community.

SME tracker

Smart Data Foundry, Sage, and Cebr launched their quarterly Small Business Tracker, which measures the financial health of UK SMEs. Small businesses, known for their agility and responsiveness, act as early indicators of environmental shifts, making them invaluable in understanding broader economic trends. The report is built on actual accounting data from over 120,000 small businesses and promises to provide unique insights that will transform how we understand the financial health of small businesses in the UK.

Mission: Shaping the future of health and care

From cell and gene therapy to drug discovery, collaboration is key in the complex field of global health. We bring together biomedical and life sciences, physical sciences, and humanities, arts and social sciences in multidisciplinary centres and projects to address challenges of health, disease, ageing, health inequalities and health systems locally and globally. Our research applies cutting edge methods, techniques and data, informed by an ethical and people-centred approach.

Nuvectis

A new drug candidate for hard-to-treat cancers, discovered at the University and licensed by biopharmaceutical company Nuvectis Pharma, Inc., received US Food and Drug Administration (FDA) clearance to proceed to clinical trials. The development programme was led by Professors Neil Carragher and Asier Unciti-Broceta at the Cancer Research UK Edinburgh Centre within the Institute of Genetics and Cancer, marking the culmination of over a decade of research. Clinical trials have since begun.

DataLoch

2022/23 saw the full launch of DataLoch, a data service developed in partnership by the University and NHS Lothian. The service links health and social care data for Edinburgh and South East Scotland, and allows researchers - from private- and third-sector organisations, as well as from academic and clinical settings - to safely and securely access the optimised data it hosts for novel research purposes that are in the public interest. Enabling access to the data will help researchers to develop data-driven solutions to challenges faced by the health and care sector, improving outcomes for people and reducing health inequalities.

Heart attacks diagnosed using AI

New University research, funded by the British Heart Foundation (BHF) and the UK's National Institute for Health and Care Research and led by BHF Professor of Cardiology Nicholas Mills, has found that the AI-developed algorithm CoDE-ACS could be used by doctors to diagnose heart attacks with greater speed and accuracy than ever before. Clinical trials are underway in Scotland with support from Wellcome Leap to assess whether the tool can help doctors reduce pressure on our overcrowded emergency departments.

Roslin Institute joins response to avian flu

The world-leading expertise of Roslin Institute scientists has been called upon to inform the UK Government and Scottish Government's responses to the severe, prolonged outbreak of avian flu. Roslin scientists have formed part of the Scottish Avian Flu Taskforce and the UK Government DEFRA Highly Pathogenic Avian Flu Taskforce. The scientists' insights have contributed to an action plan on managing both current and future bird flu strains.

New courses and programmes for students and care professionals

The Data-Driven Innovation Programme has enhanced the undergraduate medical degree by creating BSc and BMedSci courses in Data Science for Health and Biomedical Sciences, which will prepare graduates for a career in data-intensive healthcare. Also launched were three new Masters' level programmes, 40 stand-alone postgraduate professional development (PPD) courses, and a newly launched continuing professional development (CPD) programme that offers a wide portfolio of short stand-alone courses targeted at working health and social care professionals across Scotland.

Catapult opens at BioQuarter

The Cell and Gene Therapy Catapult (CGT Catapult), an independent innovation and technology organisation specialising in the advancement of cell and gene therapies, opened its first Scottish site at the Edinburgh BioQuarter. The new laboratories and offices were opened by Michael Matheson, Scottish Government Cabinet Secretary for NHS Recovery, Health and Social Care. The CGT Catapult provides expertise, resources and technology to help cell therapy developers improve their manufacturing processes and navigate the complex regulatory requirements involved in bringing their therapies to market.

Chief Medical Officer draws on ACRC expertise

The Advanced Care Research Centre (ACRC) input into the Chief Medical Officer's (England) Annual Report 2023: health in an ageing society, with two recent AIM-CISC papers cited as key evidence, alongside earlier multimorbidity work by ACRC researchers. On a regional level, the ACRC has developed a frailty resource that has been utilised and displayed by a local Health and Social Care Partnership across both wards and General Practice.

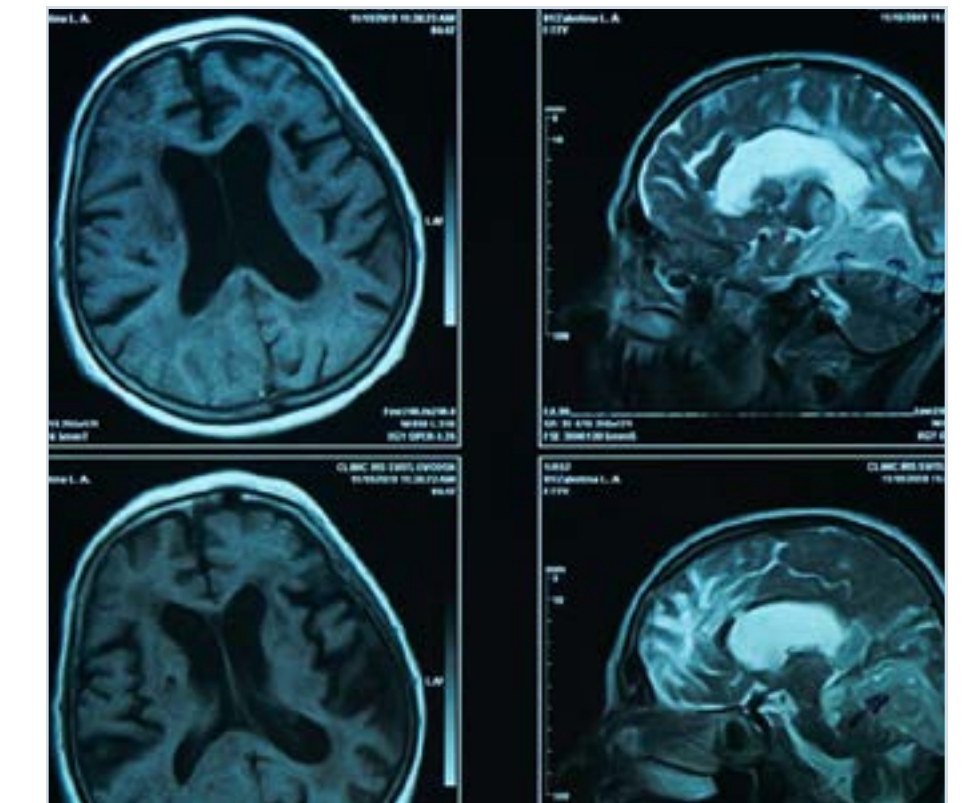
Scottish Prevention Hub

A ground-breaking collaboration between Public Health Scotland, the Edinburgh Futures Institute, and Police Scotland launched the innovative Scottish Prevention Hub to improve national public health and reduce inequalities. This pioneering partnership will draw on the expertise and insights of academics from across 21 schools, innovation hubs including the Bayes Centre, and professional services expertise at Edinburgh Innovations to address some of the nation's biggest health and wellbeing challenges.

Inflammation imaging tool

Researchers from the Centre for Cardiovascular Science have created a new tool that could transform medical understanding of inflammation. As it presents in multiple conditions – including heart attacks, strokes and cancers – being able to view inflammation effectively is crucial for the diagnosis, prognosis and treatment of most diseases. The new Positron Emission Tomography (PET) radiotracer LW223 is the first to be unaffected by the rs6971 polymorphism – a genetic mutation in humans that until now has limited the efficacy of inflammation imaging to around 40% of the population. Following successful trials in human tissue, the team at Edinburgh, working with the University of Glasgow and industry partner Life

Molecular Imaging (LMI), has received £2m from the Medical Research Council's Developmental Pathway Funding Scheme to test the LW223 radiotracer in both healthy volunteers and heart attack patients.



The NEURii collaboration is an ambitious, cross-sector digital partnership involving global

pharmaceutical company Eisai, Bill Gates' private office Gates Ventures, Health Data Research UK, medical research not-for-profit LifeArc and the University that is focused on transforming care for people living with dementia. The partnership launched in 2022/23 with pilot funding of £5.8m over two years. This innovative, international collaboration will translate world-class data, neurology and digital sciences into solutions to improve detection and diagnosis speeds, support evidence-based treatment decision-making, monitor disease progression and protect quality of life.



Impact: Investment

We support the most exciting ideas and technologies emerging from the University. Old College Capital (OCC) is the University's in-house venture investment fund, managed by Edinburgh Innovations.

OCC manages the University's early-stage shareholdings and investment activities, accelerating the journey of startups and spinouts at pre-seed, seed and growth stages. Comprising an experienced team of deep-tech, early-stage investment specialists who work with founders, investor partners and the University ecosystem, OCC is passionate about getting ideas from our staff, students, and research out into the world, where they can make a difference.

A strong year for investment, in total £108 million was invested into 55 University-associated companies in 2022/23. As part of OCC's evergreen model, the University committed to re-invest returns and proceeds from deals back into the next generation of founders. This commitment has allowed OCC to significantly grow its investment activities – in 2022/23 OCC increased commitments by 50% into a record 26 companies, including several at the pre-seed stage as part of the new OCC Launch program.

OCC was pleased to join Innovate UK's investor partner program and to be recognised as one of the top 20, most active Global University Venture Funds by Global University Venturing.

USIT guide

The publication of the University Spin-Out Investment Terms (USIT) Guide will boost the way that the Higher Education (HE) sector spins out new companies, by providing direction and advice on matters such as equity share and IP. The publication is supported by TenU, an international collaboration formed to capture effective practices in research commercialisation and share them with governments and HE communities. The group behind the USIT Guide – which includes venture capitalist firms and the Universities of Edinburgh, Oxford and Cambridge among others – has helped set up 376 new companies in the last five years, raising over £8.6 billion in investment.

Bioliberty

Student startup Bioliberty is the creator of Lifeglov – a soft robotic glove which offers rehabilitation for both the closing and opening strength of the hand. The Lifeglov is accompanied by a digital therapy platform which provides the patient with tailored exercises to help develop natural hand strength. In 2022/23 the company secured £2.2 million in a funding round led by Archangels, with participation from Eos Advisory, OCC and Hanna Capital SEZC.

Roslin Technologies

Roslin Technologies raised £11 million in Series A investment in a round led by Novo Holdings, and later announced further investment from Philippine-based Kickstart Ventures. The joint venture, supported by OCC, will use the funding to continue its mission to become the leading provider of animal cell lines to the cultivated meat sector.

Aveni

Startup Aveni raised £2.3 million from investors, including OCC, to continue product development and to meet revenue growth targets over the next 18 months. Aveni uses Large Language Models (LLMs), generative AI and natural language processing (NLP) to create productivity gains for the financial services industry.

MiAlgae

Biotech startup MiAlgae raised £2.3 million from new and existing investors, including OCC. Established by then-student Douglas Martin, MiAlgae is using whisky distillation by-products to grow a sustainable source of Omega-3 for both human and animal consumption. The investment is supporting company growth and the completion of a commercial demonstrator facility.

Rhizocore

Startup Rhizocore Technologies raised £3.5 million from investors including OCC. Rhizocore harnesses the power of fungal diversity to address major climate challenges, including helping forests to survive and thrive. The company intends to use the funds to build out their team and expand internationally for rapid growth.

Launch50

During 2022/23 OCC committed to invest £50,000 in eight early-stage companies as part of its new pre-seed program, Launch50. These included student startup Danu Robotics, which is revolutionising waste management with a robotic and AI-powered system.

“

I'm deeply grateful for all the support that OCC has put into Blackford over our long journey.”

Case study

Blackford Analysis

Blackford Analysis is a 2010 spinout from the University's School of Physics and Astronomy that applies technology originally built to track stars, to medical imaging. After initially developing its own offering, the company has become a leading platform/partner to hospitals looking to integrate different AI imaging applications, to drive efficiencies and improve patient outcomes. Blackford helps hospitals navigate the AI market without bias, to identify and tailor solutions that best fit their needs. The Blackford platform allows solutions to be quickly adopted, saving processing time for radiologists and allowing patients to receive better-informed treatments, faster.

The University has supported Blackford and its academic founder & CEO Dr Ben Panter, from the initial company setup and license through its subsequent growth. Old College Capital (OCC) has been a supportive and active investor, investing six times alongside lead investor Archangels.

After initially collaborating on a development and license agreement in 2020, Blackford announced its acquisition by global life sciences company Bayer in 2023. OCC's evergreen model allowed it to re-invest the returns from Blackford's acquisition into the next generation of founders. Following the acquisition, Blackford remains headquartered in Edinburgh and continues to operate an independent, arms-length company to preserve its entrepreneurial culture.

Impact: Unlocking Innovation

We are breaking boundaries between traditional disciplines and supporting our researchers to forge exciting new collaborations. Facilitating interdisciplinary work between researchers across Science, Technology, Engineering, Maths and Medicine (STEMM) and Social Sciences, Humanities and Arts (SHAPE) will unlock innovations that can help solve the complex economic, environmental and societal challenges we face.

In this context, we are also providing increased support to early career researchers to create a sustainable innovation pipeline. To advance these aims, we have cleared the path for researchers to find and seize upon collaborative opportunities in two key ways:

UKRI Impact Acceleration Account funds (IAAs) and the Wellcome iTPA, which have individual remits across the Colleges, provide transformational funding and support to researchers and are critical to priming the innovation pipeline. While the IAAs continue to operate within their remits, in 2022/23 the Harmonised Impact Acceleration Account (IAA) was launched to enable ease of collaboration across disciplines. The Harmonised IAA makes funding of up to £60k and 12 months available for impact or translational projects that involve at least two researchers representing separate council remits (BBSRC, ESRC, EPSRC, MRC/Wellcome iTPA). Coordination between the translational funds ensures that ideas with the potential to address an unmet societal need

are identified, nurtured and seeded, combining expertise from across our research community to solve tomorrow's problems.

From achieving Net Zero to harnessing the benefits of AI and designing future health and care systems, SHAPE is equally as important as STEMM in innovating technological solutions to major challenges. In 2022/23 the University developed a tool for mapping the role of SHAPE in technological innovation, a simple online resource for researchers that does two important things:

First, it maps the dimensions of tech innovation that would benefit from SHAPE input – from security, risks and harm through to inequalities and user perspectives, economic impacts, ethics, and regulatory settings.

Second, it identifies key research groupings that can deliver this expertise in our focus areas of sustainability, health and data.

The SHAPE tool effectively acts as a match-making service for interdisciplinary research collaboration, enabling the integration of perspectives from across social sciences, the arts and humanities to shape our research goals, questions and methods from the very start.



Technology Transfer secured licencing income of £3.9m in 2022/23. Strong growth in disclosures, doubling from previous years to 117, demonstrates encouraging growth in academic engagement with IP development and commercialisation.



The Engineering and Physical Sciences Research Council (EPSRC) IAA received a record total of 72 applications, mainly from CSE, in 2022/23. 33 projects were awarded a total of £0.79m from the programme with £0.77m cash/ in kind contributed by partners. Two-thirds of the partner organisations working with these projects were new to the programme.



The Wellcome iTPA fund provided 44 projects with £412k of total funding, including five digital health applications that will be tested with users as part of the first EI digital health app. It also organised and participated in 45 upskilling and translational community building events with a total of 360+ participants. Furthermore, the iTPA team provided tailored support and Entrepreneur-in-Residence mentorship to 157 researchers.



Wellcome iTPA Accelerator



BBSRC IAA



MRC IAA



ESRC IAA



Harmonised IAA



EPSRC IAA

Impact: Staff & Student Enterprise

We invest in our people, place and facilities by attracting world-class talent, supporting innovative spinouts and startups, and creating spaces for collaboration with partners. In 2022/23 13 Scottish Enterprise High Growth projects were supported by Edinburgh Innovations, leveraging a total of over £2.2 million.

Four staff startups were supported to form, and a further four companies were formed with IP that was generated at the University. Staff companies supported by the University secured post-company formation grant awards totalling over £4.3 million. With a dedicated, restructured Staff Enterprise team and a strong pipeline, further success in 2023/24 seems assured.

115 student startups were formed in 2022/23, a record-breaking number that demonstrates the University is top in Scotland for student enterprise, and second in the Russell Group of UK universities. Besides company formation, Edinburgh Innovations has engaged with more than 2,500 students, supported companies to succeed at national competitions, worked with colleagues across the University on enterprise education, and secured eight £100k SMART grants from Scottish Enterprise for student founders. In March, the University's thriving student enterprise activity was celebrated at a dinner held by the Chancellor, HRH, The Princess Royal, at the Palace of Holyrood House.



Startup Summer Accelerator

The agritech, waste management, and healthcare sectors were among those represented in the cohort of 14 companies who participated in the 2022/23 Startup Summer Accelerator, a 12-week online learning and leadership programme designed to get sustainable student businesses with high growth potential investment ready. With a focus on climate and sustainability, the intensive programme is aimed at companies with business propositions that will help to advance the UN's Sustainable Development Goals.

The overall Accelerator "Demo Day" winner was agritech company Raygonal, led by founder and PhD graduate Dr Aliyu Dala, which deploys deep tech to tackle food production challenges in some of the poorest regions on the planet. The 2023 Startup Summer Accelerator was delivered by Edinburgh Earth Initiative and Edinburgh Innovations, with sponsorship from Mastercard Foundation and Santander Universities.

Venture Builder Incubator

The Venture Builder Incubator programme supported 23 early-stage companies founded by PhD students and post doctorates from Edinburgh, Heriot-Watt University and other parts of the UK (working with Cancer Research Horizons) to build their skills and transform their research into a relevant and viable business proposition.

AI Accelerator

The AI Accelerator programme supported 12 innovative businesses and entrepreneurs from around the globe with a focus on using 'AI for good', as well as specific health and climate issues, to scale up their operations.

Exergy3

School of Engineering spinout Exergy3 has developed a "decarbonisation machine" that the company says can replace up to 100 per cent of the fossil fuels currently used in high temperature industrial processes. The company was awarded £3.6 million by the Department for Energy Security & Net Zero for a trial at the Annandale Distillery in Scotland to produce carbon-neutral whisky.

Stimuliver

A spinout co-founded by the Centre for Regenerative Medicine's Professor David Hay announced financing of £1.9 million, which included £255k from OCC and the rest from the BioInnovation Institute and the Danish state-backed fund Vaekstfonden. Stimuliver is developing a regenerative stem cell therapy to treat acute and chronic liver diseases using liver tissue implants made from pluripotent stem cells. If successful, it could provide a treatment which avoids the long waiting times for a donor, reverse liver disease and prevent hospitalisations.

eoSurgical

College of Medicine and Veterinary Medicine spinout eoSurgical builds and designs innovative hardware and instrument tracking software for training surgeons in keyhole surgery. In 22/23 eoSurgical announced it has been acquired by Limbs & Things - a leading, UK-based manufacturer of medical task trainers and simulators.

Impact: Awards success

We champion and celebrate our entrepreneurial staff and students who challenge themselves and put their innovations in the spotlight at competitions, whether on a university, national, or international stage. Below are some of our innovators and partners who have received recognition for their talents and technologies in 2022/23.



Three University-supported student startups took home top prizes at the **Scottish EDGE Awards**, the UK's biggest funding competition for potential high growth businesses. RIVAL SC's tech platform that aims to revolutionise supply chain management for SMEs; Thistle Rocketry's scalable rocket systems for cube satellites; and BioLiberty's robotic physiotherapy glove and digital platform were awarded funding of £100,000 each. Staff startup Mask Logic won a Net Zero Edge prize of £50,000, and another four businesses supported by the University also took home prizes.



University companies scooped three out of seven trophies at the 2022 **Converge Awards** – Scotland's largest company creation programme for the university sector. Undergraduate startup Robocean, which aims to use subsea robotics to rewild the oceans' seagrass meadows, won the Net Zero Challenge; PhD spinout Concinnity Genetics won the Kickstart Challenge with its unique AI technology for gene control systems; and AI chip startup Rigpa took home the Cisco Future Tech Award. A further three companies from the University were named runners-up.



Three University companies triumphed at **Scotland's Life Sciences Awards**: spinouts regenerative medicine spinout Roslin Cell Therapies won the Outstanding Skills Development award; fellow spinout Roslin Technologies won the Health, Agritech and Agriculture award; and Dr Kate Cameron of biotech startup Cytochroma won the Rising Stars: Extraordinary Talent award.



CloudEARTH*i*, a sustainability collaboration between six European partners including the University of Edinburgh, won the 'Making an Environmental Difference' award at the **Scottish Knowledge Exchange Awards 2023**. The University also won in the Multiparty Collaboration category for the Industrial Centre for Artificial Intelligence Research in Digital Diagnostics (iCAIRD) – a pan-Scottish collaboration to apply artificial intelligence to healthcare.



The winners at **Inspire Launch Grow 2023** were EVA Biosystems, which is developing biodegradable plastics for industry use; and Ujamaa Spice, which aims to decolonise the spice trade by working with smallholders in Zanzibar. The awards celebrate the ambition, resilience and accomplishments of the University's student and recent graduate entrepreneurs, and winners were awarded £5,000 each.



Pioneering thermal energy storage specialist Sunamp was recognised with the inaugural **King's Awards for Enterprise**, which celebrates outstanding UK businesses. Sunamp has enjoyed a powerful and longstanding partnership of 12+ years with the School of Chemistry, with the partners developing game-changing technology that can help address fuel poverty and have a direct impact on tackling climate change.



Image credit: Speakeasy Productions Ltd

The Last Word



Dr George Baxter
EI Chief Executive Officer

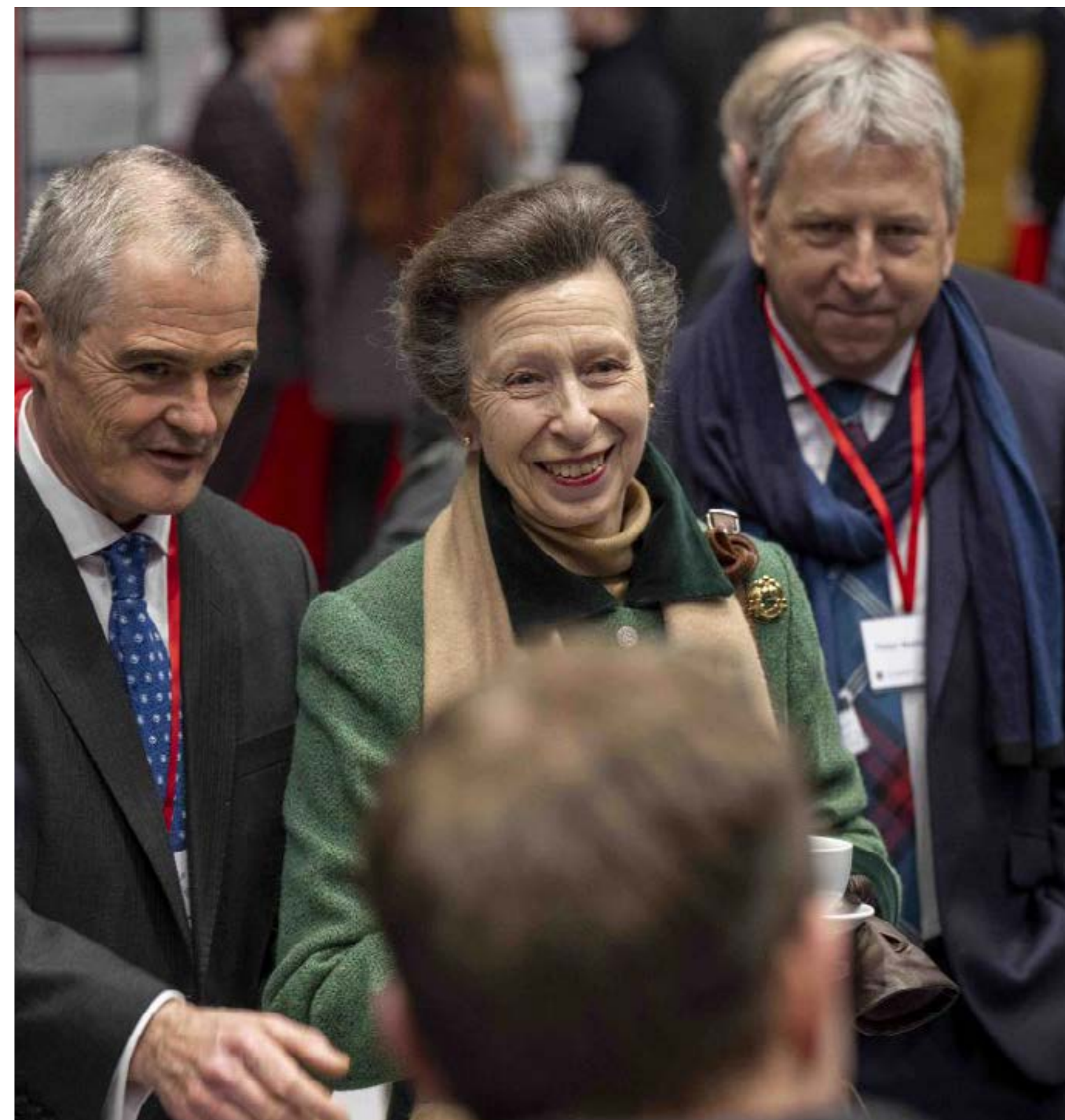
This has been a year in which Edinburgh Innovations (EI) and the University have worked together more successfully than ever before, building on the success and lessons learned over the last seven years.

When I arrived at EI, the University's research excellence was not being matched by an equivalent level of commercialisation, but since that time the service has grown considerably, from just 50 people to a team of over 150 dedicated professionals who cover the full commercialisation pipeline, from consultancy all the way through to strategic partnerships. By facilitating projects and creating opportunities for our academics to shine, we are helping to drive economic, social and environmental impact. Crucially, EI supports the University's ambitions, aligning its focus areas with the University's key missions and challenges to unlock innovation where it matters most.

EI now works across 90% of the University, and we are expanding our strategic partnerships in Scotland, the UK, the US and Asia. In 2022/23 we broke multiple records: industrial and translational awards hit the highest ever level at £91.9 million, we achieved record consultancy income of £13.6 million, investment into spinouts again exceeded £100 million, and a record 115 student startups were launched. These numbers show that engagement with our academics and students is at an all-time high and proves that we are on track to help the University increase and improve its performance on innovation.

The impact of EI was thrown into sharp relief by the publication of the University's Economic Impact Report, produced by London Economics. Our innovation contributes £350 million annually to the UK economy, and through supporting University startup and spinout companies we have helped our entrepreneurs generate an impact of £162m and supported 1,830 jobs. The money is an illustration of our success, but the real benefit is that it powers further research; these numbers have created many new research partnerships that will help improve people's lives.

And we can push this further still. EI has collaborated on the University's Research and Innovation Strategy 2030, which sets out in clear terms how, together, we will enhance industry engagement and commercialisation from research over the next seven years. By promoting innovation as a career pathway with the support of Schools and Colleges, encouraging radically interdisciplinary collaborations, and driving forward our strategic industry and investment partnerships at home and internationally, we will elevate our standing as a global innovation powerhouse tackling some of our world's biggest challenges.



The launch of the MAXBlade project, which was attended by our Chancellor, HRH, The Princess Royal

Innovation Drivers

We break boundaries by taking a one-university approach and focusing on our innovation drivers.



Smart Data Foundry is a data innovation organisation, serving the public, private and third sector. Our purpose is to inspire financial innovation and improve people's lives by unlocking the power of financial data. We aim to be the leading provider of data for research and innovation - supplying real data for research and synthetic data for innovation.

Smart Data Foundry provides synthetic data for innovation, enabling financial services organisations, FinTech's and regulators to develop innovative solutions to industry and customer challenges.



Edinburgh Futures Institute is focused on tackling today's increasingly complex issues by bringing people and disciplines together to spark the unexpected and make better futures possible. Recognising that the biggest challenges facing societies are complex, global, and interconnected, and that insight, innovation and impact come from bringing people and knowledge together.

The Futures Institute connects and collaborates across disciplines to make a positive impact. By creating new environments for data-rich learning, teaching, research and innovation - side-by-side with communities, organisations, businesses and industry. From start-ups to commercial enterprises, from charities and community groups to government bodies, their challenge-led, interdisciplinary, data-driven, co-creative approach lies at the heart of everything they do.



The Edinburgh Earth Initiative is accelerating the University of Edinburgh's response to the climate crisis. Working with our academics, students, staff, and partners, we help ensure the University of Edinburgh is at the leading edge of climate research, teaching, innovation and action.



The Bayes Centre is the University of Edinburgh's Innovation Hub for Data Science and Artificial Intelligence. The technical strengths brought together in the Bayes Centre build on world-leading academic excellence in the mathematical, computational, engineering, and natural sciences in the University of Edinburgh's College of Science and Engineering.

We have a community of over four hundred internationally recognised scientists, outstanding PhD students, leading industry experts and innovation support professionals, working together across disciplines and sectors to advance data technology and apply it to real-world problems.



Nucleated at the Royal (Dick) School of Veterinary Studies' Easter Bush Campus, the Agritech Hub is a dynamic and vibrant innovation environment. World-class facilities equipped with the latest technologies support Europe's largest concentration of animal science research experts and clinicians, as well as co-located industrial partners in our custom-built Innovation Centre.



The ACRC is a multi-disciplinary research programme combining research across fields including medicine, engineering, informatics, data and social sciences. Our vision is to improve the quality and sustainability of care provision in order to enhance the quality of life, dignity and the desired level of independence of people living with multiple conditions in later life. The ACRC is a collaboration between the University of Edinburgh, Newcastle University and University College, London, and was established in 2020 with £20m funding from Legal and General.



Located on Heriot-Watt University's Edinburgh campus, in partnership with The University of Edinburgh, the National Robotarium creates innovative solutions to global challenges, working directly with industry to test and develop robotic, AI and automated technologies and rapidly move pioneering research from lab to market.



The School of Informatics is number 1 in the UK for Computer Sciences research power since 2014, a world-leader in AI research and teaching, with a dedicated commercialisation and industry engagement team to amplify the significant impact and reach of its academic research. Informatics leads on emerging technologies: Autonomous Vehicles, Biomedical AI, Blockchain & DLT, Cyber Security, Privacy & Trust, Generative AI, Machine Learning, Quantum Computing, and Robotics.



Built and operated by supercomputing and data science centre EPCC at the University of Edinburgh, the Edinburgh International Data Facility (EIDF) is a unique and growing collection of compute and data resources designed to create new products, services and research.

EIDF provides a powerful, high capacity, flexible data infrastructure that underpins and enables the Data-Driven Innovation initiative. Core services include on-premises Cloud, data storage and management, Safe Haven facilities, and IoT real-time environmental sensor network covering south-east Scotland.



The Usher Institute works with people, populations and their data to understand and advance the health of individuals and populations through innovative collaborations in a global community. The Programme for Data-Driven Innovation Usher Institute Health and Social Care Data-Driven Innovation Hub supports the use of data and digital technologies to improve outcomes for patients and encourage the adoption of those with the greatest potential to transform health and social care.



Edinburgh BioQuarter is a leading location for healthcare delivery, groundbreaking medical research and health innovation. Our vision is to unlock BioQuarter's full innovation potential, accelerate its growth and become a global destination for pioneering health innovation and enterprise.

Over the next decade BioQuarter will transition into Edinburgh's Health Innovation District - a new mixed use, urban neighbourhood of Edinburgh, centred around a world leading community of health innovators and companies.



The Arrol Gibb Innovation Campus (AGIC) is a global centre of excellence which is transforming large-scale manufacturing through innovation and learning. It will become the first large-scale digitally enabled advanced manufacturing facility for the marine and energy transition sectors in the UK. In a unique collaboration, AGIC brings together Babcock International, the Royal Navy, two universities, the regional college and the government. It offers core capabilities in advanced and large-scale manufacturing, composites, robotics and digital manufacturing, which are all supported by cross-campus skills development and an innovation hub.



We use human genomics and experimental medicine to rapidly find and test effective drugs. We are bold in ambition to transform the speed of therapeutic innovation. We bring disciplines together to solve the hardest challenges: we will use functional genomics to identify effective therapeutic targets, evaluate therapies with high precision using miniturized technologies that will go further and deeper into human lung to find, deliver, sense and see the effects of therapies at the bedside.



The Anne Rowling Regenerative Neurology Clinic is a charitable University of Edinburgh clinical research facility.

We seamlessly integrate the best health care with the best health research as key to discovering and testing new treatments in clinical trials.

We're delivering drug trials, making discoveries and improving quality of life for people living with neurological conditions including MS, MND, Parkinson's and early onset dementias.

Driving success

EDINBURGH INNOVATIONS

Edinburgh Innovations is the University of Edinburgh's commercialisation service.

We bring University of Edinburgh research to industry, working to identify ideas with value, and facilitating the process of bringing them to life in real-world applications.

**WE MAKE IDEAS WORK
FOR A BETTER WORLD**

www.edinburgh-innovations.ed.ac.uk



OLD COLLEGE CAPITAL

Old College Capital (OCC) is the University of Edinburgh's venture investment fund. OCC manages Edinburgh's early-stage investment activities and shareholdings; supporting exciting ideas and technologies emerging from the University. OCC is part of Edinburgh Innovations, the University of Edinburgh's commercialisation service.

www.oldcapitalcollege.com



DATA-DRIVEN INNOVATION

An innovation network helping organisations tackle challenges for industry and society by doing data right to support Edinburgh in its ambition to become the data capital of Europe.

The DDI programme has helped establish six hubs at the University of Edinburgh and Heriot-Watt University – creating a regional powerhouse for collaboration with industry partners, as part of the City Region Deal.

To support the Entrepreneurship strand of the DDI programme on behalf of the DDI hubs, the University of Edinburgh encourages students and staff to take entrepreneurial pathways, encourages the creation of DDI-related companies, supports growth in existing companies and attracts match funding and investment. This is part of a wider range of activities aiming to create and grow over 400 data-driven companies over 15 years, securing significant investment in those companies, and the creation of high value jobs in the city and region, contributing to the vision of Edinburgh as the data capital of Europe.

www.ddi.ac.uk

