Ideas to Reality

UNIVERSITY OF CAMBRIDGE enterprise

#I2R2019

Welcome to Ideas to Reality 2019

A showcase and celebration of our academics' success in commercialising the results of their research and scholarship through consultancy, licensing and company creation.

Event Themes:

Trustworthy Technologies

Social Innovation

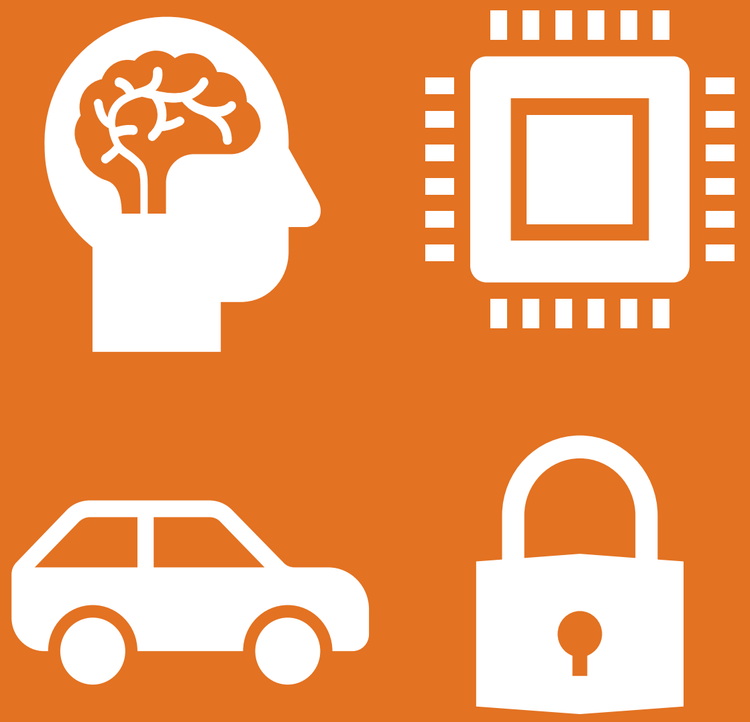
Drug Discovery & Therapeutics

Collaboration & Partnerships

Leading the Way

Global Impact

Trustworthy Technologies



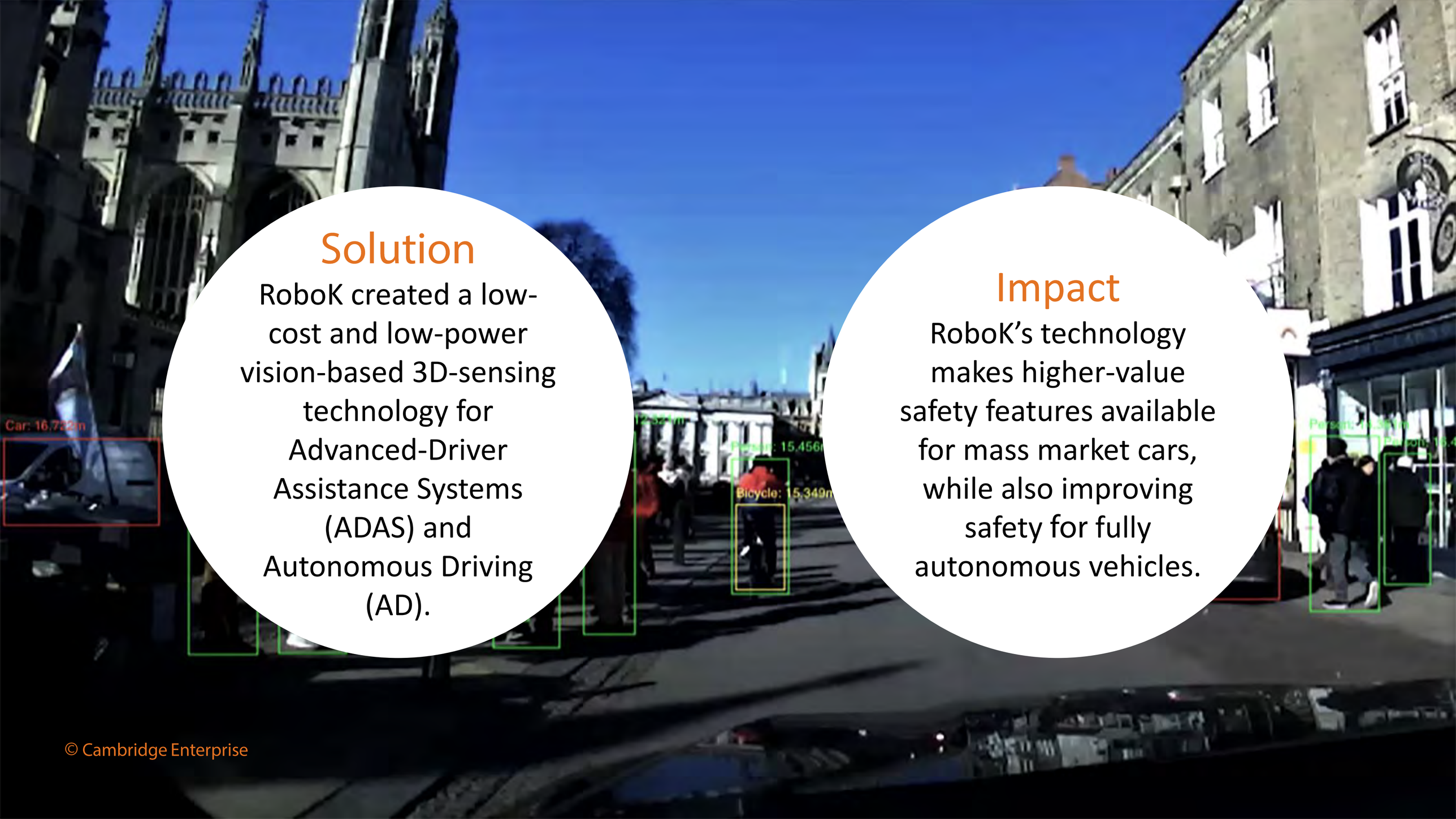
UNIVERSITY OF CAMBRIDGE
enterprise

#I2R2019

Founded in 2017 by Hao Zheng, Liangchuan Gu and Chao Gao
(University of Cambridge)

Challenge

Address the high cost and computational complexity of advanced driving applications



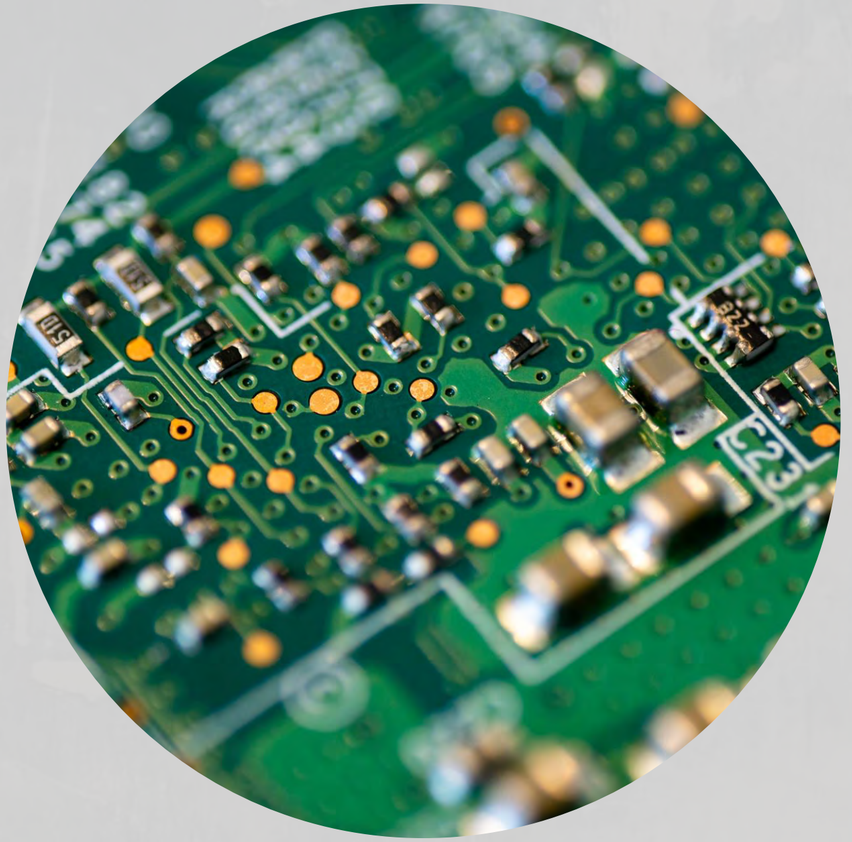
Solution

RoboK created a low-cost and low-power vision-based 3D-sensing technology for Advanced-Driver Assistance Systems (ADAS) and Autonomous Driving (AD).

Impact

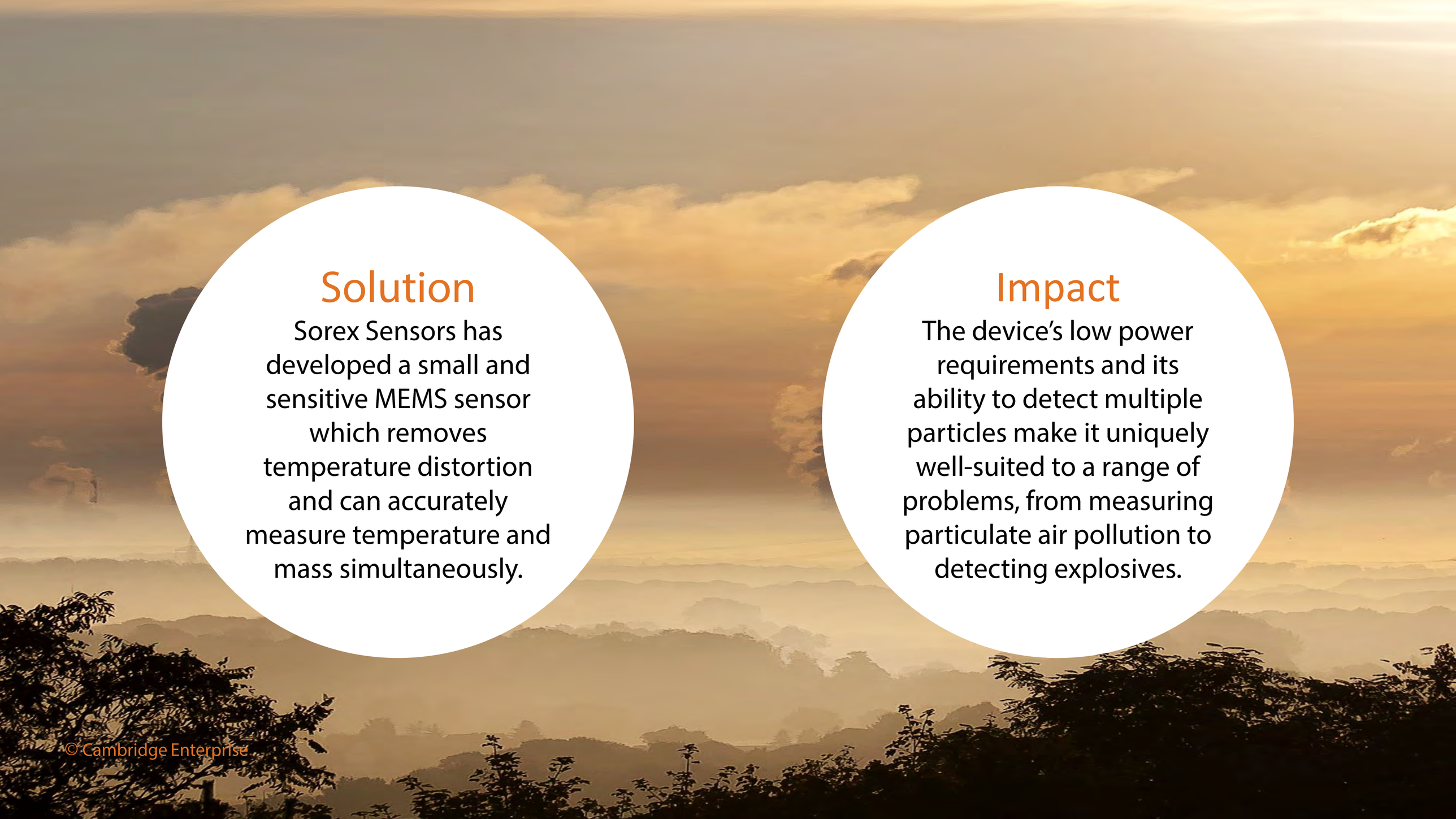
RoboK's technology makes higher-value safety features available for mass market cars, while also improving safety for fully autonomous vehicles.

Co-founded in 2017 by Dr Andrew Flewitt, Professor Bill Milne, Dr Mario De Miguel-Ramos (Engineering) and colleagues from the University of Warwick and the Universidad Politécnica de Madrid



Challenge

Overcome the temperature variations that affect sensor technologies and require expensive compensating electronics



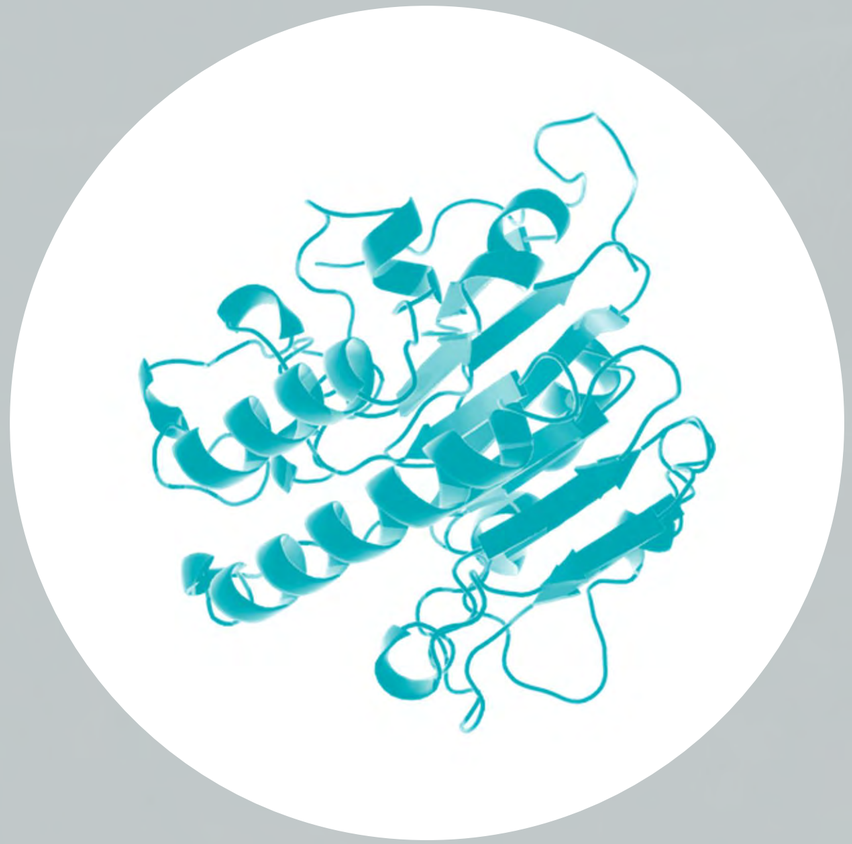
Solution

Sorex Sensors has developed a small and sensitive MEMS sensor which removes temperature distortion and can accurately measure temperature and mass simultaneously.

Impact

The device's low power requirements and its ability to detect multiple particles make it uniquely well-suited to a range of problems, from measuring particulate air pollution to detecting explosives.

Founded in 2015 by Professor Sabine Bahn (Chemical Engineering & Biotechnology)

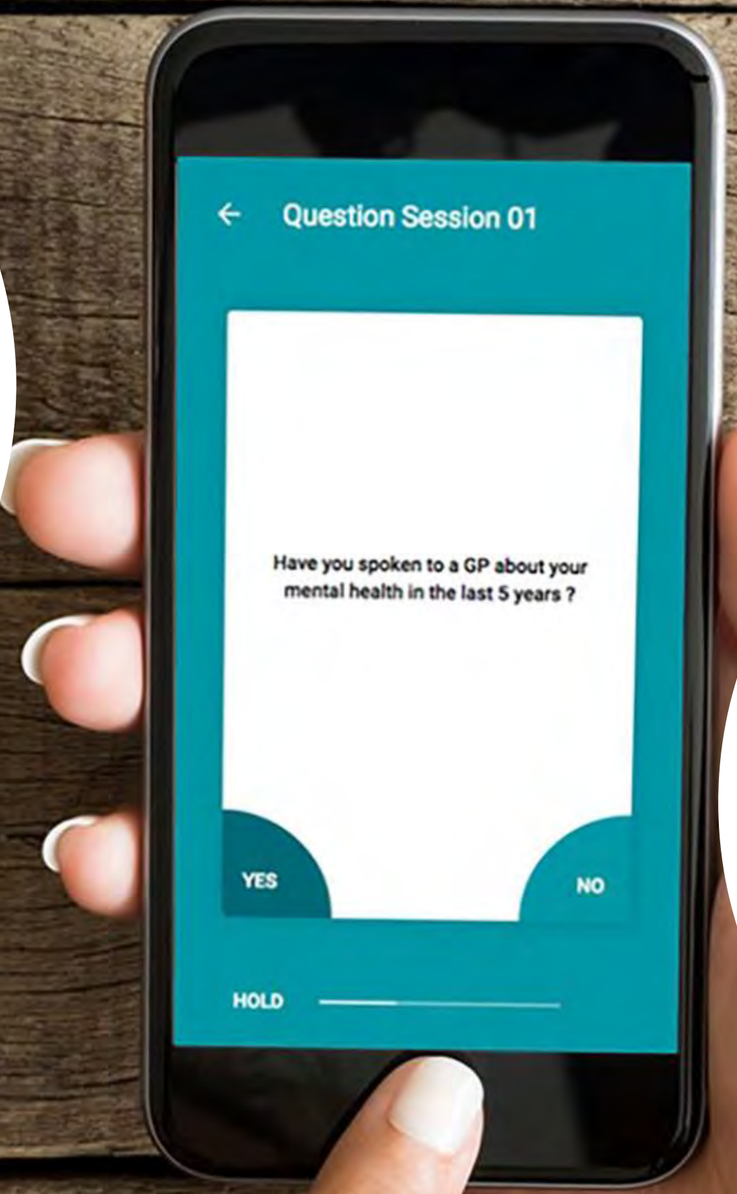


Challenge

Overcome barriers to the effective detection, treatment and prevention of mental health disorders

Solution

Psyomics has developed a unique approach that combines digital profiling with the latest advances in biological research to increase diagnostic accuracy and to recommend treatments.



Impact

Personalised and effective treatment for the approximately 20% of the UK population who suffer from mental health issues.

Social Innovation

UNIVERSITY OF CAMBRIDGE enterprise

#I2R2019

Founded in 2017 by Dr Maximilian Bock (Architecture) following a win at the Cambridge Enterprise & EPOC Business Plan Competition 2016

Challenge

Creating better and more frequent work opportunities for sole traders in Africa

Solution

Netwookie developed an app to digitise word-of-mouth referrals for service providers, including taxi drivers, tailors and chefs.

Impact

Netwookie is providing equitable access to employment in the Kenyan informal economy.

Consultancy for the Cambridge Mosque Trust 2018, Dr Chris Moses (Divinity)

Challenge

Advise the Trustees of the new Cambridge eco-mosque on key sociological, political and organisational issues that might affect the project

Solution

An in-depth report detailing the demographics of Cambridge's Muslim population and best practices among Islamic institutions nationwide.

Impact

Insight into how the mosque might consider unique Cambridge contextual factors to engage effectively with its local population.

Founded in 2019 by Simon Kelly and John Isherwood
(Cambridge Institute of Sustainability Leadership)

Challenge

Increase corporate sustainability by taking a whole-company approach

Solution

Obliquity developed a breakthrough solution to measuring and communicating corporate sustainability by involving, informing and inspiring employees.

Impact

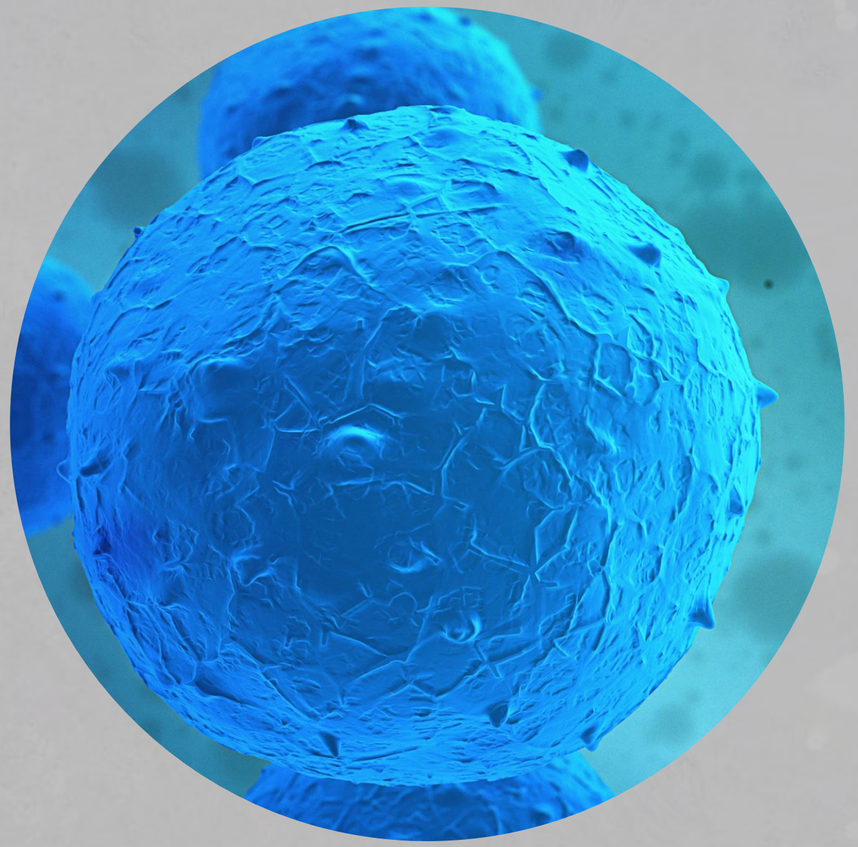
Obliquity empowers organisations to measure sustainability, engage employees and improve operational performance.

Drug Discovery & Therapeutics

UNIVERSITY OF CAMBRIDGE enterprise

#I2R2019

Founded in 2016 by Dr Marko Hyvönen (Biochemistry) and Dr Catherine Elton



Challenge

Address the unreliability of the growth factors and cytokines used in stem cell research and bio-manufacturing

Solution

Qkine devised proprietary technologies and protein engineering techniques to produce exceptionally high purity growth factors and cytokines.

Impact

Qkine's high quality reagents meet a growing demand for stem cells to use in disease modelling, drug screening, precision medicine and drug development.

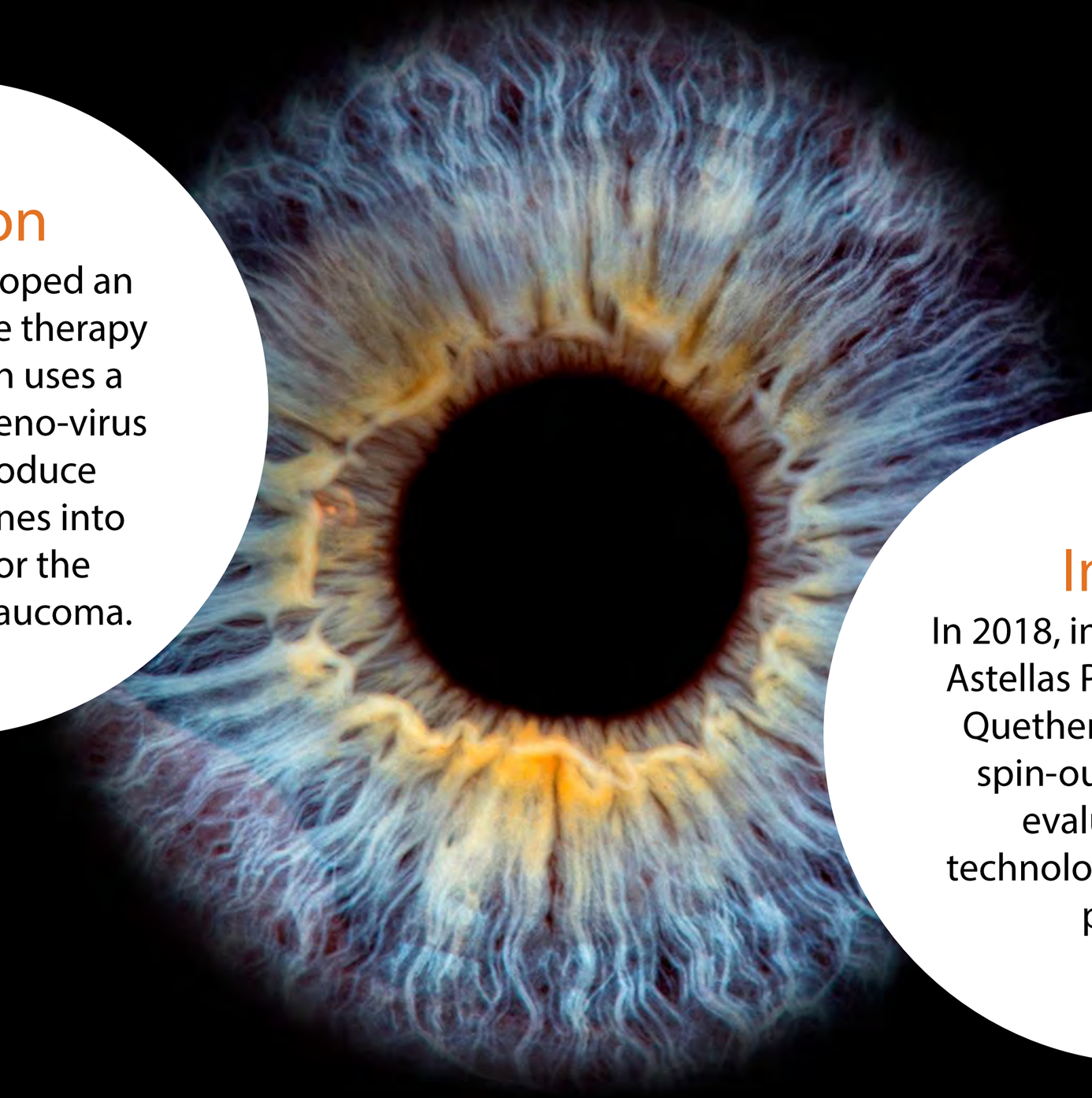
Quethera was founded in 2013 by Dr Peter Widdowson and Professor Keith Martin (Clinical Neurosciences)

Challenge

Develop an effective treatment for glaucoma which can impair quality of life and ultimately lead to blindness

Solution

Quethera developed an ophthalmic gene therapy program, which uses a recombinant adeno-virus vector to introduce therapeutic genes into retinal cells for the treatment of glaucoma.



Impact

In 2018, international giant Astellas Pharma acquired Quethera, enabling the spin-out to speed the evaluation of its technology for glaucoma patients.

PolyProx Therapeutics

Founded in 2019 by Professor Laura Itzhaki (Pharmacology)

Challenge

Tackle cancer targets that have proven untreatable, particularly in lung, colorectal and pancreatic cancers

Solution

PolyProx Therapeutics is developing a new class of drugs, called Polyproxin™ molecules, that selectively target tumour cells and trigger their natural degradation machinery to halt tumour growth.

Impact

With PolyProx Therapeutics established and well- seeded, the company is poised to address the elusive 'hard-to-drug' section of the proteome and ultimately help patients to overcome cancer.

Collaboration & Partnerships

UNIVERSITY OF CAMBRIDGE enterprise

#I2R2019

Launched in 2016 by University of Cambridge,
Imperial College London and University College London with industrial partners
AstraZeneca, GlaxoSmithKline, Johnson & Johnson Innovation

Challenge

Accelerate new drugs towards market.

Solution

A novel collaborative venture created by combining the expertise of world-leading UK universities with global pharmaceutical companies.

Impact

£42.8m
Endorsed project spend

£10.3m
Spent to date

180
Projects reviewed across all three universities

10+
Projects per university

Three Cambridge Projects 2017-18

Professor Clare Bryant (Veterinary Medicine) &
Professor David Klenerman (Chemistry)

Dr Marko Hyvönen (Biochemistry),
Professor David Spring (Chemistry) &
Professor Ashok Venkitaraman (MRC Cancer Unit)

Professor Chris Abell (Chemistry),
Dr Marko Hyvönen (Biochemistry) &
Professor David Spring (Chemistry)

apollo THERAPEUTICS

Launched in 2018 – a partnership among the universities of Cambridge, East Anglia, Hertfordshire, Lincoln and Reading together with John Innes Centre, NIAB and Rothamsted Research

Challenge

Share knowledge and expertise to drive commercialisation of agri-tech research and innovation

Solution

Ceres catalyses early-stage technology transfer from the agri-tech cluster in the East of England in order to drive competitiveness and efficiency in this globally critical sector.

The Ceres Agri-Tech Knowledge Exchange Partnership was awarded £4.8 million by Research England's Connecting Capability Fund in April 2018. Ceres has also secured of over £15 million in funding commitments from corporates and technology investors.

UNIVERSITY OF CAMBRIDGE
enterprise

Cambridge
Social
Ventures

UNIVERSITY OF CAMBRIDGE
Judge Business School

A Social Ventures partnership between Cambridge Enterprise and
Cambridge Social Ventures (part of the Judge Business School), launched in 2017

Challenge

Provide early-stage funding for research and expertise-led social enterprises spinning out of the University

Solution

The partnership combines Cambridge Social Ventures' expert incubation and evidence-led approach to social and environmental impact with the early investment capabilities and business support of Cambridge Enterprise.

Impact

The partnership is driving global societal reform through research, expertise and social entrepreneurship. So far, the partnership has brought to market social innovations in health, finance, employment and corporate social responsibility.

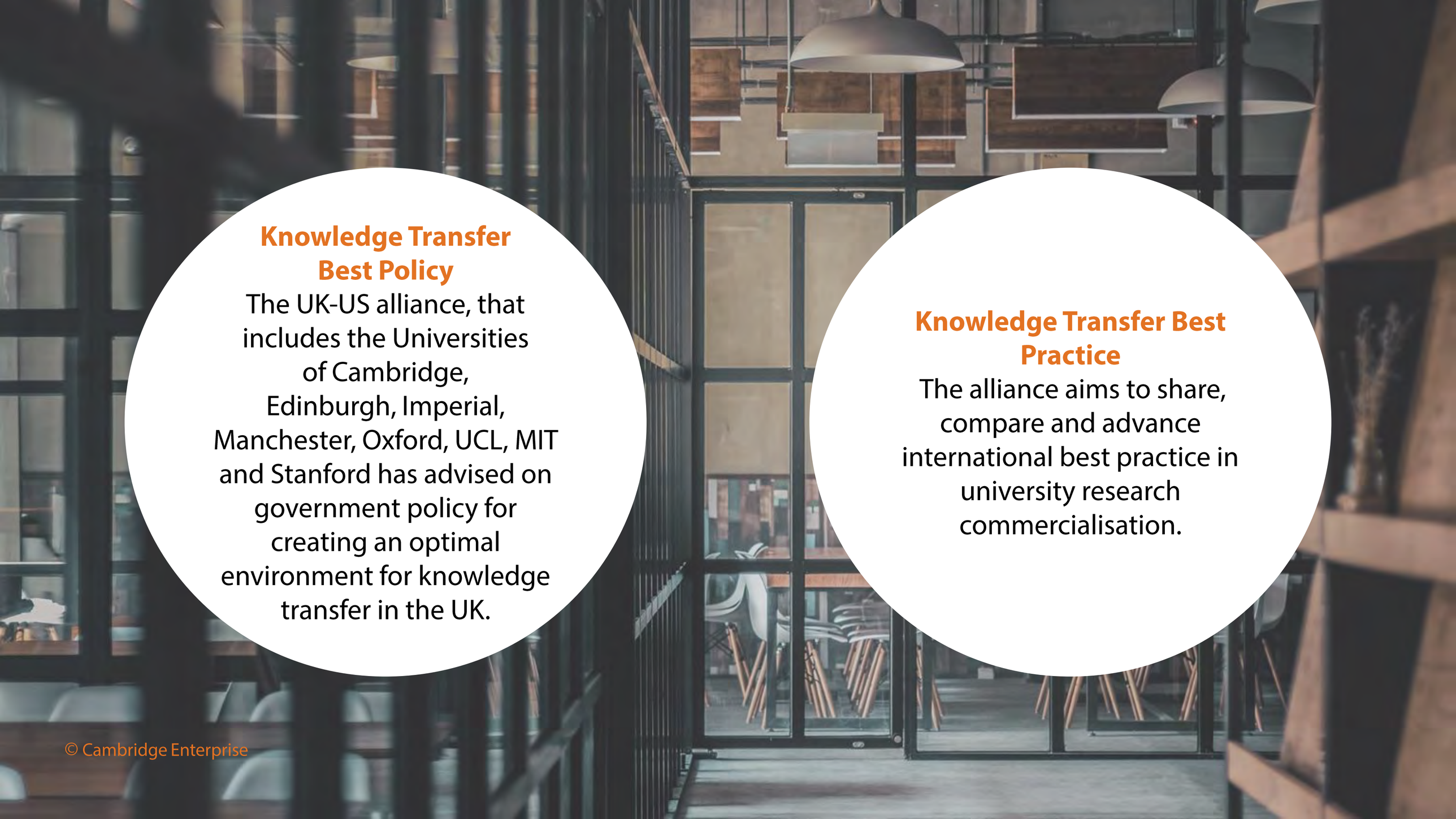
Leading the way

UNIVERSITY OF CAMBRIDGE
enterprise

#I2R2019

Global University Collaboration

In 2018, the offices of leading US universities MIT and Stanford joined their UK peers to initiate a strengthened UK-US alliance in knowledge transfer.



Knowledge Transfer Best Policy

The UK-US alliance, that includes the Universities of Cambridge, Edinburgh, Imperial, Manchester, Oxford, UCL, MIT and Stanford has advised on government policy for creating an optimal environment for knowledge transfer in the UK.

Knowledge Transfer Best Practice

The alliance aims to share, compare and advance international best practice in university research commercialisation.

Supporting innovation and entrepreneurship in Shandong

In 2018, Cambridge Enterprise signed an agreement with Shandong University to encourage innovation and entrepreneurship in Qingdao, one of China's fastest growing high-tech clusters. The agreement will establish the Shandong University School of Innovation and the Innovation Institute in Qingdao.

The school will be supported by Cambridge Enterprise, Shandong University and the Qingdao Municipal Government. Cambridge will bring its expertise in commercialisation to aid technology transfer processes and encourage entrepreneurship in Shandong Province.

International Outreach

Through its International Outreach Programme, Cambridge Enterprise offers its international clients tailored consultancy support, training courses and other programmes.

Since its inception in 2011, Cambridge Enterprise has helped academic and government partners in Brazil, Chile, China, Colombia, the Czech Republic, Finland, Kazakhstan, Mexico, Norway, Pakistan, Poland, Serbia, South Africa, Spain, Thailand, Turkey and Saudi Arabia.

International Knowledge Exchange in sub-Saharan Africa

In 2019, Cambridge Enterprise and Cambridge Global Challenges sought to address lack of capacity in commercialisation and knowledge exchange among universities in sub-Saharan Africa.

Cambridge Enterprise participated in a workshop in Botswana in May and, in June, hosted delegates from Botswana, Mozambique and Namibia in Cambridge for workshops.

PraxisAuril, AUTM & ASTP

Cambridge Enterprise has been a key player in the creation and development of PraxisAuril. It is also a regular contributor to AUTM, a global organisation for technology transfer professionals, and to ASTP, which is fostering best practice in knowledge transfer in Europe.

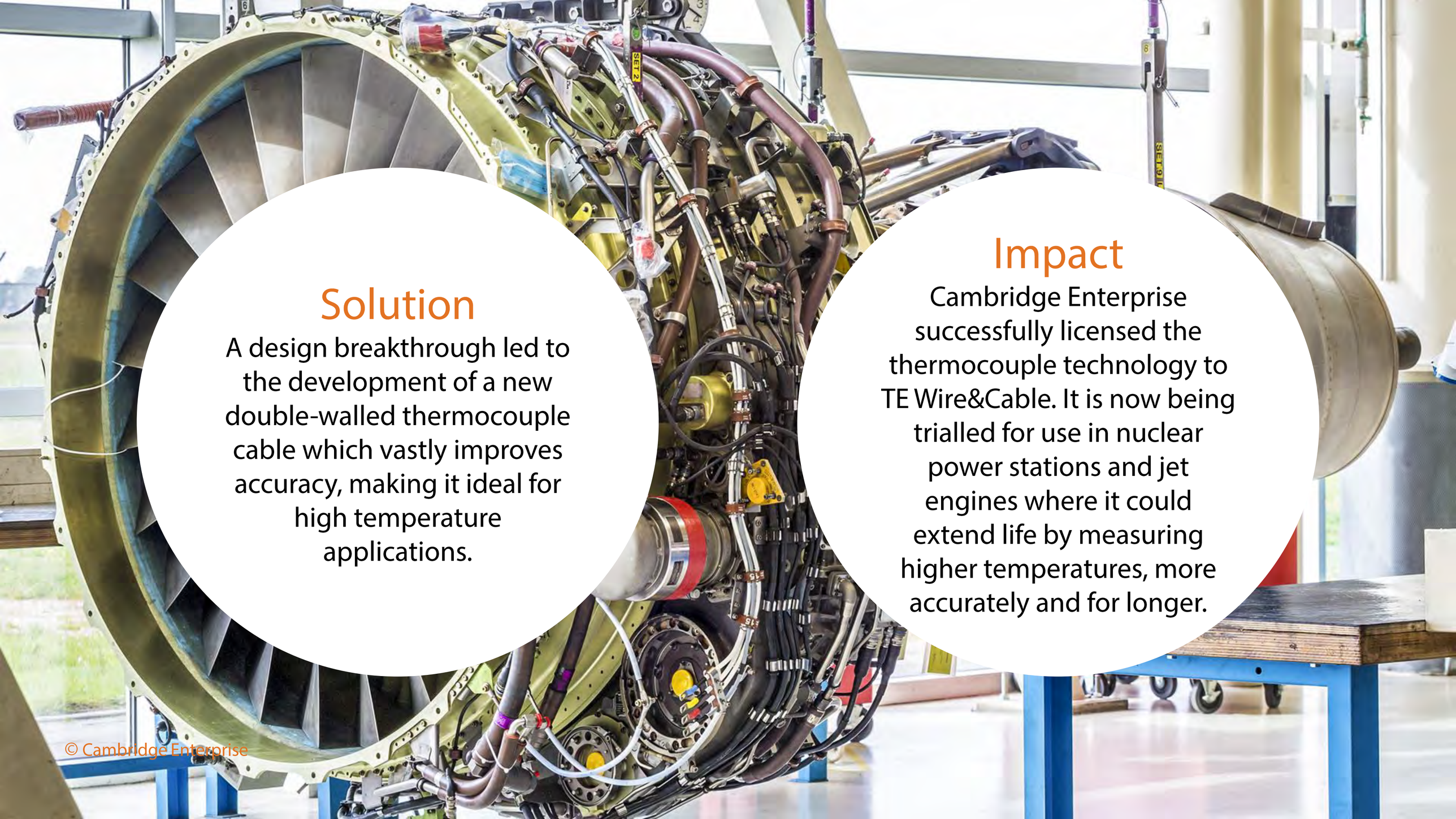
Global Impact

UNIVERSITY OF CAMBRIDGE enterprise

#I2R2019

Thermocouple Cable Technology

Dr Michele Scervini and Professor Cathie Rae (Materials Science & Metallurgy) sought to tackle 'drift' in traditional thermocouple design which produces inaccurate readings when in continued high-temperature use.



Solution

A design breakthrough led to the development of a new double-walled thermocouple cable which vastly improves accuracy, making it ideal for high temperature applications.

Impact

Cambridge Enterprise successfully licensed the thermocouple technology to TE Wire&Cable. It is now being trialled for use in nuclear power stations and jet engines where it could extend life by measuring higher temperatures, more accurately and for longer.

WaterScope

Founded in 2015 by Dr Alexander Patto, Dr Nalin Patel,
Dr Richard Bowman (Physics) and Dr Tianheng Zhao (Chemistry)

Challenge

Giving communities the tools to test the cleanliness of their own water.

Solution

WaterScope's technology is significantly smaller, lighter and cheaper than traditional methods. It can be used on site with minimal training and provides quantitative results of numerous disease bacteria much faster than conventional water testing systems.

Impact

WaterScope's technology helps the one in ten people who lack access to reliably clean drinking water and are vulnerable to bacterial pathogens that currently kill over two million people every year.

Smart Cambridge

Dr Ian Lewis (University of Cambridge), Cambridge City Council, Cambridgeshire County Council and South Cambridgeshire District Council wanted to explore the ways data, emerging technology and digital connectivity could be used to transform how people live, work and travel in the Greater Cambridge area and beyond.

Through Dr Lewis and Cambridge Enterprise, the University has been able to collaborate with three local regional authorities and local businesses to create a highly sophisticated, collaborative and inclusive smart city programme.

ICM+ Software

Developed by Dr Peter Smielewski and Professor Marek Czosnyka (Clinical Neurosciences), ICM+ software is a pioneering solution offering high-resolution multimodality monitoring, real-time analysis and data storage in neurological intensive care environments.

Licensed to 159 hospitals and academic centres around the world, the software draws on over 25 years of clinical research in intracranial dynamics and intensive care of traumatic brain injury. With applications including acute brain injury, clinical research, CSF disorder diagnosis, neo-natal and stroke, ICM+ has become a hub for a worldwide scientific network in brain monitoring.

Cambridge Enterprise has been the exclusive licensor of ICM+ since 2004, revenue from which has funded continuous updates to expand its functionality and compatibility with new medical devices.

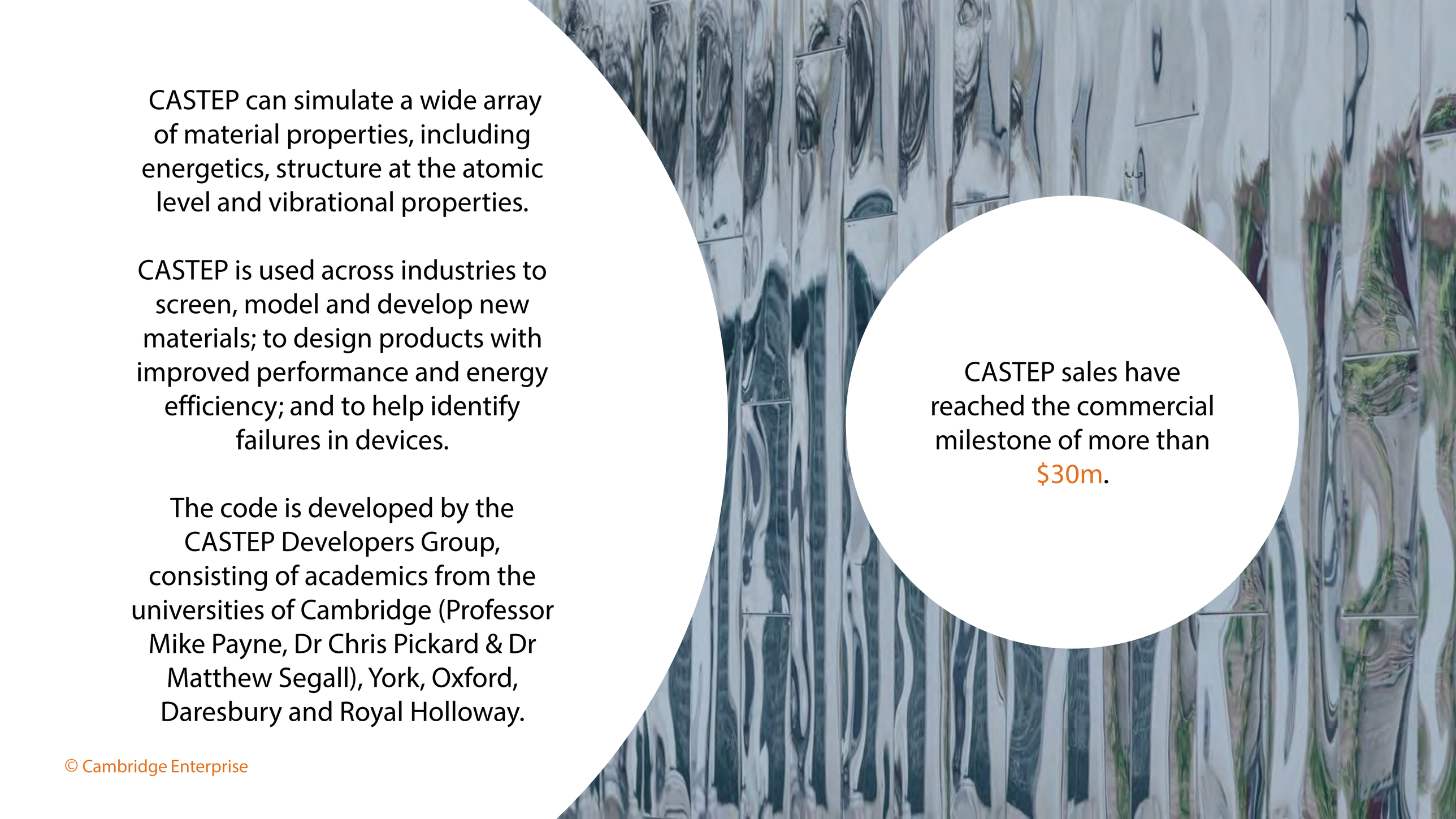
CASTEP

Based on the research of Professor Mike Payne (Physics), CASTEP software utilises the principles of quantum mechanics to model the behaviour and properties of novel materials. It also supports research on material and processes by offering a unique ‘atom by atom’ perspective.

CASTEP can simulate a wide array of material properties, including energetics, structure at the atomic level and vibrational properties.

CASTEP is used across industries to screen, model and develop new materials; to design products with improved performance and energy efficiency; and to help identify failures in devices.

The code is developed by the CASTEP Developers Group, consisting of academics from the universities of Cambridge (Professor Mike Payne, Dr Chris Pickard & Dr Matthew Segall), York, Oxford, Daresbury and Royal Holloway.



CASTEP sales have reached the commercial milestone of more than $30m.

Transfer of IP outward from Cambridge Enterprise

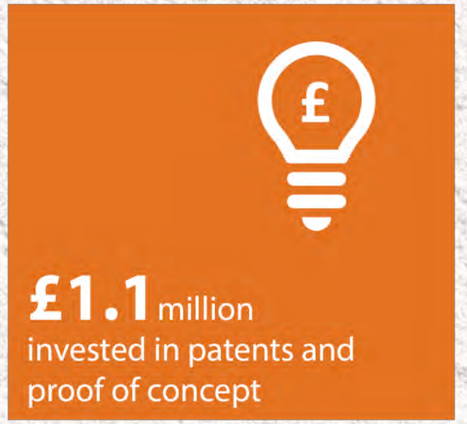
Source: AUTM definition - any agreement under which there is transfer of IP outwards from CE to someone else that has revenue (or the potential to have revenue) greater than $1,000

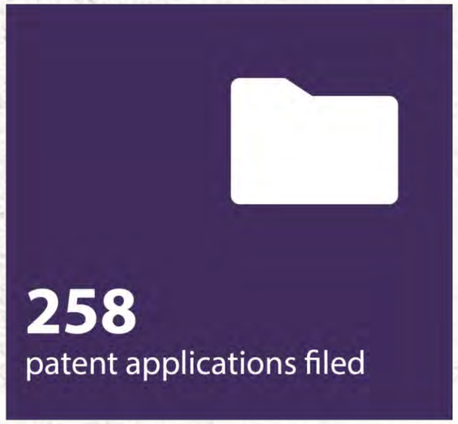
Cambridge Enterprise

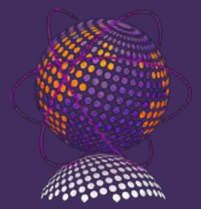
UNIVERSITY OF CAMBRIDGE enterprise

#I2R2019

2017-18 in numbers.







Global University Venturing

Cambridge Enterprise Seed Funds named **Investment Unit of the Year** by Global University Venturing in May 2019

£10m Cash holdings

£20m Investments

4.3x Cash return on realised investments

Emphasis on **beneficial impact** in investment choices

Current Portfolio

86 companies, of which

51 received capital and

35 backed in exchange for equity

Best Employer

Cambridge Enterprise employees completed a survey rating the organisation on a range of areas, including turnover, career progression, working practices and values.

The results placed Cambridge Enterprise in the top 25% of employers in the Eastern Region, with employees feeling more engaged in their work than at least 11,250 who participated.

Tweet, follow and find out more

#I2R2019

www.enterprise.cam.ac.uk

UNIVERSITY OF CAMBRIDGE
enterprise

#I2R2019