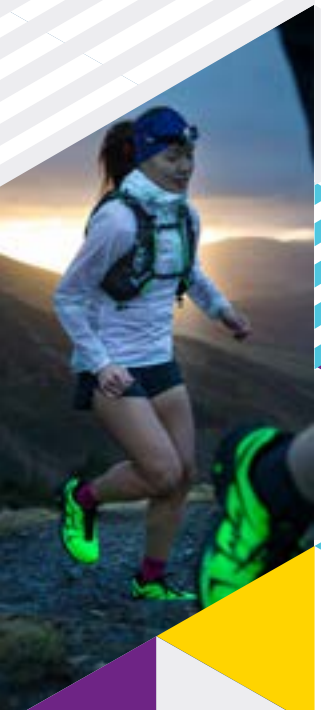
MANCHESTER 1824
The University of Manchester

KNOWLEDGE EXCHANGE PARTNERSHIPS

Funding Guide



FORWARD

Knowledge Exchange Funding supported by UKRI provides universities with an ability to accelerate the development and translation of research to application through partnership and collaboration in a rapid and effective way.

At the University of Manchester, we have utilised these flexible sources of funding with partners to ensure that our world-leading research realises its full potential and finding ways to create social, economic and environmental impact on a global scale.

Impact Acceleration Account (IAA) funding enables us to invest in opportunities to develop our researchers and their ideas and fosters a positive culture of innovation reaching deeply into our institution. Knowledge Transfer Partnerships facilitate the exchange of ideas and expertise with a focus on business need, to the benefit of the entire project team working in partnership with companies from a small regional SME partner through to a large multinational.

The strategic importance of these funds as mechanisms to facilitate long term, mutually beneficial collaboration continues to be a core priority for the University.

CHeadley

Dr Catherine Headley
Head of Business Engagement
& Knowledge Exchange

FUNDING & CASE STUDIES GUIDE

Working in collaboration with our national funding agency

UK Research and Innovation

Innovate UK

UKRI

IMPACT ACCELERATION ACCOUNTS

Advancing the real-world impact of our academic research

Our UKRI Impact Acceleration Account (IAA) provides fast, flexible support to help businesses and other organisations develop mutually beneficial partnerships with academic experts.

In doing so, our IAA aims to foster a culture of innovation that drives organisational growth and impact, through core project mechanisms:

Starter Fund

We want to encourage long-term and beneficial collaboration between external partners and the University by establishing contact and aligning everyone's strategies at an early stage.

Average project length: **6 months** part - time

Maximum award: **£10k**

Pilot Fund

We want to provide support for the very early stage of transforming research expertise into impactful opportunities.

Average project length: **3-9 months**

Maximum award: **£30k**

Advance Fund

Flexible support for translational research projects between The University of Manchester and external organisations that focus on the development and application of university research to deliver impact.

Average project length: **9-18 months**

Maximum award: **£60k**

How to apply

Contact The University of Manchester's Knowledge Exchange Partnerships Team. Our team can arrange an initial meeting to discuss your project, and review and advise on draft applications.

email: kepartnerships@manchester.ac.uk

web: www.manchester.ac.uk/collaborate/business-engagement

IAA Case Study

MANCHESTER UNIVERSITY NHS FOUNDATION TRUST

Innovative PPE respirator for healthcare workers on the frontline of the COVID-19 pandemic

A collaboration between The University of Manchester, Wythenshawe Hospital, and consultancy Designing Science Ltd., resulted in the development of the novel low-cost Bubble PAPR. Bubble is a Powered Air-Purifying Respirator (PAPR), designed to enhance safety for healthcare workers on the frontline of the COVID-19 pandemic.

BUBBLE PAPR

provides a safer environment for clinicians to combat the

Covid-19 crisis

Challenge

The COVID-19 pandemic stressed the need for better personal protective equipment (PPE), with current products being challenging to fit, cumbersome, and restrictive to vision and communication.

Innovation

IAA funding was secured to prototype a low cost, ergonomic and highly functional PPE respirator, named Bubble PAPR.

Bubble was designed to reduce transmission of the COVID-19 virus to healthcare workers while also improving the quality of critical communication between staff and vastly improving overall patient experience.

The team optimised the design for airflow, ergonomics and virus protection through simulation and testing in the hospital.

Impact

This resulted in the novel, low-cost, and patent-protected Bubble-PAPR, an economical, comfortable, practical PPE hood that protects healthcare workers while allowing them to communicate with colleagues and patients.

Links

Video case study: Bubble Papr

IAA Case Study

GREATER MANCHESTER COMBINED AUTHORITY

Empowering local climate change action through the adoption of carbon budgets

Researchers at the University's Tyndall Centre worked with local government and other organisations to provide tools to help set carbon targets and the policies to deliver them.

at least
18%
of the UK population
live in areas that have formally adopted Tyndall-Manchester's carbon budgets

Challenge

In the face of inadequate measures on climate change from global state actors, many local agencies around the world are ready to act.

Research at The University of Manchester provides an evidence base for local action, but knowledge gaps existed around carbon budgets and incorporating climate impacts into resilience planning.

Innovation

IAA funding supported collaboration with organisations such as National Grid, Electricity North West, and Core Cities UK to translate Manchester carbon budget methodologies to sub-national carbon budgets.

Impact

This work has had a major impact across the UK by directly changing how numerous Local Authorities set carbon targets and the associated policies to deliver them.

In Manchester, it contributed to important local strategy including the Greater Manchester Covid-19 Recovery Plan, and the Greater Manchester Local Industrial Strategy.

The methodology has also changed the approach to climate change action in West Midlands Combined Authority, Sheffield City Council and Leeds City Region.

Links

Website: The Tyndall Carbon Budget Tool

IAA Case Study

ROBOTICS FOR NUCLEAR DECOMMISSIONING

Developing robotic systems that enable faster and safer decommissioning of the UK's legacy nuclear facilities

A number of Secondment collaborations between The University of Manchester, Sellafield Ltd. and engineering SMEs have supported the development of novel robotic systems that could be deployed in the decommissioning of the UK's legacy facilities whilst removing humans from radioactive environments.

ICE9

a UoM spin-out, has been created to commercialise further

robotic solutions

for the nuclear, energy, oil, and gas sectors.

Challenge

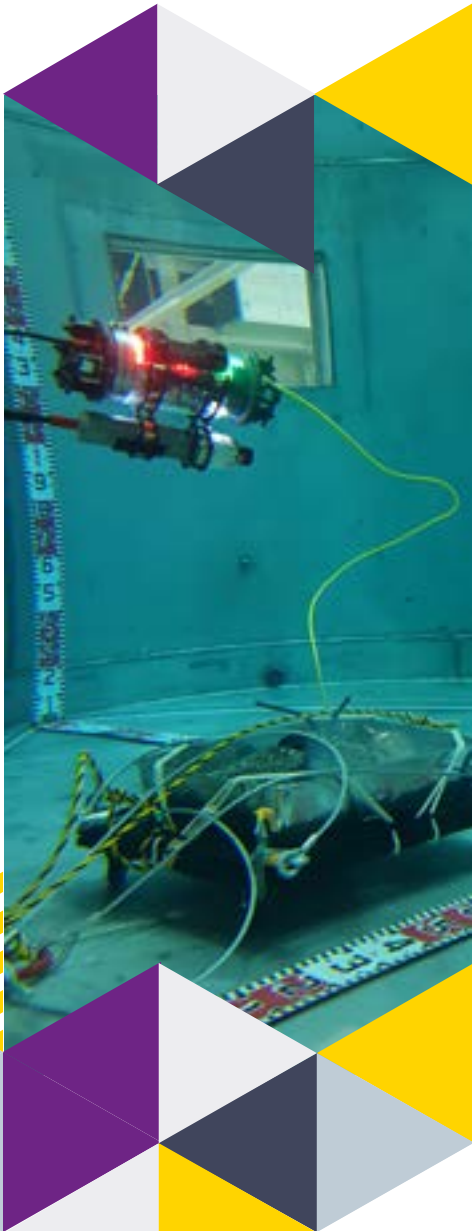
There is significant pressure on the nuclear industry to make a step change in how they operate their processes and manage their waste, as part of the UK's long-term strategy to decommission and clean up legacy nuclear sites.

Innovation

IAA secondment funding was secured to develop world-leading nuclear robotics technology that helps keep people out of harm's way and unlock significant economic opportunities both in the UK and globally.

Impact

Technology developed during the Secondments included the CARMA robot; the first ever fully autonomous robot to be deployed into an active area at Sellafield, and the AVEXIS submersible, the first robot introduced into the most hazardous building on the Sellafield site, and also deployed at the Fukushima Daiichi nuclear plant during decommissioning of the site after the 2011 tsunami.



Link

Website: Robotics for Extreme Environments Group at UoM

IAA Case Study

NATIONAL TRACHEOSTOMY SAFETY PROJECT

A novel positioning device to improve safety and outcomes for tracheostomy patients.

Our researchers worked with the National Tracheostomy Safety Project (NTSP) clinicians to develop a prototype electro-magnetic location system to improve the accuracy and safety of tracheostomy insertion in patients at the bedside.

Team awarded a

£1m

grant from the

National Institute for Health and Care Research

to further develop

GiFT technology

and test in patients

Challenge

Tracheostomies are small tubes inserted into the neck to provide artificial airways and are often performed on the sickest and most complex patients within Intensive Care Units (ICU). It is the highest risk elective procedure undertaken in the critically ill, with misplacement occurring in 5% of procedures.

The clinical preference is for bedside tracheostomy (percutaneous dilatational tracheostomy), as it reduces patient stay on the ICU as well as healthcare costs in comparison to a surgical procedure.

A solution was needed to improve safety and optimise clinical outcomes.

Innovation

The team produced the Guidance for Tracheostomy System (GiFT) with help from EPSRC Impact Acceleration Account (IAA) funding.

This prototype device can be used by clinicians, at the bedside, to ensure the needle is inserted into the correct location in the trachea.

Impact

The pilot prototype GiFT led to:

- 4 x improved accuracy, providing increased safety of tracheostomy insertion in patients at the bedside.
- Improved performance for both novice and experienced operators
- Potential to perform more bedside procedures, avoiding the delays and complexities of surgery
- Generation of new Intellectual Property (IP)

Link

Website: University of Manchester Innovation Factory/projects/gift

NTSP
www.tracheostomy.org.uk
National Tracheostomy Safety Project

INNOVATE UK

KNOWLEDGE TRANSFER PARTNERSHIPS

Helping UK businesses innovate for growth

KTP is a leading UK knowledge exchange programme that applies university research to deliver a strategic, transformational innovation project in a business, charity, or public sector organisation.

Each KTP project recruits a high-calibre graduate, known as a KTP Associate, aided by specialist academic support from The University of Manchester, to embed critical knowledge and capability that helps organisations improve their competitiveness and profitability.

Project Length

Projects can last 1-3 years and are focused on transferring and embedding new knowledge and skills to encourage business growth and innovation.

Average project length: **24-30 months**

Grant Funding

50% for large businesses and public sector organisations

67% for SMEs

75% for charities and SMEs in Wales

Benefits

Businesses achieve an average increase in annual profit of more than £1 million after taking part in KTP. Academic partners produce on average more than 3 new research projects and 2 research papers for each project.

The University of Manchester has an application success rate of **95%**

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web: www.manchester.ac.uk/collaborate/business-engagement

KTP Case Study

inov-8

Global success for the development of award winning high-performance graphene-enhanced footwear

A highly successful collaboration between the University of Manchester and leading terrain footwear brand inov-8 saw the launch of award-winning graphene-enhanced footwear, and created a global hit product.

Graphene-enhanced footwear now accounts for over **55%** of **inov-8's** sales, with continued growth

Challenge

Trail running shoes need excellent grip, but this traditionally requires a soft rubber, compromising the lifetime of the shoe.

Graphene is 200 times tougher than steel but is extremely flexible, giving it the potential to enhance both the grip and durability of rubber, and deliver a step-change in the performance of sports footwear.

Innovation

The partnership developed graphene-enhanced outsoles and foam, increasing the shoes' elastic and hard-wearing properties by 50%, and offering 25% more energy return in the midsole.

This increases the performance and the lifespan of the shoes, reducing their environmental impact while offering athletes a competitive edge.

Impact

Two patent-pending technologies, the Graphene-Grip™ (the world's toughest grip), and the G-FLY™ (graphene-enhanced foam midsoles), have been brought to market.

By 2023, inov-8 had sold over 550k units of graphene-enhanced footwear.

The footwear has since gone on to win multiple awards. The TRAILFLY G 270 and TRAILFLY ULTRA G 300 MAX were both named 'Trail Running Shoe of the Year' in the Runner's World UK Gear Awards for 2020 and 2021 respectively.

Links

Video case study: inov-8

KTP Case Study

SANDON GLOBAL TECHNOLOGIES

The commercial centre of excellence for Anilox technology to the print industry

This collaboration combined precision engineering manufacturers Sandon Global, and the University of Manchester's expertise in materials science and surface engineering, to position Sandon as the commercial centre of excellence for Anilox technology to the print industry.

The KTP has created growth opportunities in excess of **£10m** and empowered **£2m** investment of capital equipment

Links

Video case study: Sandon Global

Challenge

Sandon Global manufacture precision-engineered anilox rollers for the printing industries.

The rollers' ceramic coating is laser engraved with microscopic cells to allow a precise depth of colour to produce high-quality printed packaging.

In partnership with the University of Manchester, Sandon sought to optimise the rollers' chromium oxide coating and become market leaders in quality and innovation.

Innovation

The unique blend of academic knowledge and practical experience has allowed the partnership to challenge much of the established science and technology that have prevailed within the industry for years.

The team developed a coating that is more resistant to wear, eliminates scoring, and enhances the precision of printing; and the introduction of new analytical capabilities has afforded Sandon a new level of understanding at every stage of the manufacturing process.

Impact

Sandon has utilised the partnership to introduce innovation to a market that had been largely stagnant for more than 30 years.

The KTP has presented an opportunity for Sandon to expand globally, taking a new product line to market that offers significantly enhanced performance.

The partnership with the University of Manchester continues to grow, and a second KTP is now delivering digital transformation to the company.

MANCHESTER 1824

The University of Manchester

BUSINESS ENGAGEMENT & KNOWLEDGE EXCHANGE

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Manchester
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Interested in exploring how a Knowledge Exchange Partnership with The University of Manchester can benefit your organisation?

To discuss which funding scheme is appropriate for your project, and for help with applying, contact us at:

email: kepartnerships@manchester.ac.uk
web: visit the BEKE webpages
scan: QR code below
social: follow @UoM_BEKE