



KTP
BEST
OF THE
BEST
AWARDS
2020

9 SEPTEMBER 2020
LAVAL VIRTUAL WORLD



Thanks to

Our keynote speakers:

Dr Alicia Greated	CEO, KTN
Dr Ian Campbell	Interim Executive Chair, Innovate UK
Our Host: Fiona Nightingale	Senior Knowledge Transfer Adviser, KTN

Awards Supporters:



Societal Impact Award



Most Effective Initiative from a KTP Office Team Award
This Award was inspired by the late David Woollard of Manchester Metropolitan University



Future Innovator Award



Partners for 2020 who co-created our first ever Virtual Awards Ceremony



All of our Knowledge Transfer Advisers; and our Judging Panels, listed below:

Gerry Black	Senior Knowledge Transfer Adviser, KTN
James Box	Senior Programme Manager, The Natural Environment Research Council (KTA)
Debbie Buckley-Golder	Head of Innovation Talent and Skills, Innovate UK
Alasdair Cameron	Director, Praxis Auril
Tao Chang	Head of Infrastructure, Arts and Humanities Research Council
Joel Ferguson	Senior Knowledge Transfer Adviser, KTN
Phil Fiddaman	Deputy Director of Business Development, University of Hertfordshire
Terry Gordon	Senior Programme Director, Ashorne Hill
Ruth Greenhalgh	Business Development and KTP Manager, University of Central Lancashire
Hazel Juggins	KTP Manager, Northumbria University
Harry Kerr	Digital, Design and Knowledge Exchange, Arts and Humanities Research Council
Richard Lamb	KTP Programme Manager, Innovate UK
Mark Littlewood	Head of Emerging Technologies and Industries, KTN
Wendy Marcham	Senior Research Portfolio Manager, Engineering & Physical Sciences Research Council
Lorraine Marks	Head of KTP & Business Engagement Programmes, Queen's University Belfast
Susan Matos	Director Knowledge Transfer Centre, University of Reading
Howard Nicholls	Senior Knowledge Transfer Adviser, KTN
Gerry O'Hagan	Knowledge Transfer Adviser, KTN
Leon Ranson	Business Productivity Team, Department for Business, Energy & Industrial Strategy
Jan Stringer	Knowledge Transfer Adviser, KTN
Andy Treen	Senior Knowledge Transfer Adviser, KTN
Steve Welch	Director, KTN
Paul Yeomans	Business Development Manager, University of Nottingham

Awards Presenters

Terry Gordon	Senior Programme Director, Ashorne Hill
Richard Lamb	KTP Programme Manager, Innovate UK
Sean Fielding	Chair, Praxis Auril
Tao Chang	Head of Infrastructure, Arts and Humanities Research Council
Gerry Black	Senior Knowledge Transfer Adviser, KTN





KNOWLEDGE TRANSFER PARTNERSHIPS

Powering Innovation

Right across the UK and in every sector of the economy, Knowledge Transfer Partnerships (KTPs) are quietly delivering major innovation initiatives - economic and societal - in businesses big and small.

The breadth and depth of outcomes from these unique partnerships speak to the endless possibilities that this highly successful knowledge exchange mechanism can achieve. Bringing together businesses, knowledge bases and talented Graduates/Post Grads (the KTP Associates who act as KTP Project Managers), these three-way collaborations benefit the whole team: businesses transform their competitiveness, performance and culture; knowledge bases enrich their teaching; graduates launch their careers.

No wonder that today over 800 businesses and more than 100 knowledge bases are engaged in KTP. Providing access to world class academic knowledge and resources, KTP enables fresh thinking and deep expertise to find expression in myriad positive impacts.

The KTP programme is now complemented by the Management KTP, which links businesses with UK Business Schools to deliver the management skills needed to navigate and succeed in the rapidly changing landscape. KTN is a delivery partner of the KTP programme, helping partnerships succeed at every stage of the project journey - from initial scoping right through to project completion - via its national network of expert Knowledge Transfer Advisers.

KTP BEST OF THE BEST AWARDS CATEGORIES 2020

Best KTP

Honouring the partnership which has excelled in delivering benefits to all three partners, over and above what might be expected.

Future Innovator - supported by Ashorne Hill

For KTP Associates who have shown exceptional skills, above and beyond the normal expectations of a KTP Associate, in driving and delivering innovation strategy; demonstrating great teamwork and outstanding leadership potential.

Business Impact

The partnership that has continued to demonstrate outstanding economic impact.

Engineering Excellence

This Award celebrates the partnership that has demonstrated excellence in the application of engineering skills.

Most Effective Initiative from a KTP Office team - supported by Praxis Auril and inspired by the late David Woollard

For the University KTP team which has executed a ground-breaking initiative that can also be an exemplar for wider adoption.

Societal Impact Award - supported by UKRI

For the Partnership whose KTP project has created significant benefit for society or the environment.

KTPs are funded by UKRI through Innovate UK with supporters, including the Scottish Funding Council, Welsh Government, Invest Northern Ireland, Defra and BEIS. Innovate UK manages the KTP programme and facilitates its delivery through a range of partners including KTN, Knowledge Bases and Businesses. Each partner plays a specific role in the support and delivery of the programme.

“ From The Orkneys to Penzance and from Felixstowe to Aberystwyth, businesses are using KTP to solve strategic challenges by collaborating with the UK’s universities, research organisations and Catapults. I hope the Awards will help inspire those companies looking to do things differently and demonstrate that even during the most challenging of times, there is a positive way forward. ”

RICHARD LAMB, KTP PROGRAMME MANAGER, INNOVATE UK



FOREWORD

Dr Alicia Greated CEO, KTN

“ Almost exactly a year into my role at KTN, we have just published our new strategy and in the run up to that we have been thinking very hard about what we do, how we can really have impact and make a difference.

What we do at KTN is all about connecting.

Connecting people, organisations and ideas to help create new thinking, new innovations and ultimately to drive change – positive change for the economy, the environment and society around us.

And that is also what KTPs are all about. And why we all love KTPs!

You are connecting with other people, making collaborations and challenging our thinking. Innovation is about bringing together diverse minds and ideas to come up with new ways of doing things. And that is what you are all doing! You are creating and developing innovations that will have impact on businesses and society.

And when could it be more important to do this, than now? Now when we have so many challenges facing our economy and the world around us.

The very first event I went to in this job was a KTP event. I left that evening feeling really inspired. Inspired by the impact these projects have on peoples' lives and ways of working.

We have some great examples here of how KTPs have a positive impact on business success and our economy. The Knowledge Transfer Partnerships you are involved in - just like us at KTN - often do more than this. At the heart of our vision for KTN we are thinking beyond the economy

to also include societal and environment impact. We are working across sectors and disciplines, to deliver a broader vision of positive change.

So I am very pleased this year to see the new Award category for 2020: the Societal Impact Award supported by UKRI.

There is so much to celebrate about KTPs but one aspect I want to quickly mention is the mentoring provided, along with a range of other expert support, by KTN's network of Knowledge Transfer Advisers.

The first time I met the Advisers as one group I was overwhelmed by the knowledge and experience in the room but more importantly the fact that they all really care about these KTP projects. The strong relationship between the Advisers, the Associates and the businesses we are working with is very special and important. The ability to share ideas and expertise is the basis of success.

Personally, in my life, I have found mentoring, and providing and receiving support, invaluable. Receiving advice or just having a listening ear to bounce ideas off can be completely transformative.

Advisers make a significant contribution to our future innovation leaders who in turn will shape the ground going forward. Heartfelt thanks and congratulations to you all. ”

This is an adapted excerpt of Alicia Greated's talk at the Awards Ceremony. [You can view a recording here.](#)





INTRODUCTION

Dr Ian Campbell INTERIM EXECUTIVE CHAIR, INNOVATE UK

“ The Covid-19 pandemic has been a catalyst for business innovation, leading many companies to pivot as they quickly seek new ways to engage their markets, fast-track disruptive products or digitise existing services.

This period of unprecedented change makes KTP more relevant, more critical than ever. The businesses that embrace collaborative innovation will not only weather the pandemic - but they may emerge from it even stronger!

To support this, we have been busy enhancing KTP, to extend its reach and better support companies through crisis. A great example of this is the new Management KTP.

Whereas traditional KTPs align businesses with research, often to improve technical processes or deliver new products, Management KTPs (mKTPs) connect companies with business schools to improve business models and customer engagement processes that boost productivity and resilience.

mKTPs quickly became a valuable Covid-19-response tool – we’ve already set up 22 partnerships and demand is growing, leading the government to commit an additional

£25M to further expand this exciting new capability.

We are incredibly proud - not only of the KTP enhancements we’ve made in the past 12 months, which also include international activity - but proud of the solid foundations that have been laid over the past 45 years.

The networks, projects, and frameworks that KTP has built are the envy of the world.

But, of course, none of it would matter, without you. The people. The ideas. The collaborations. The very things that are exemplified by our 33 Awards Finalists! These partnerships illustrate the incredible power that lies at the intersection of industry and academia.

The pioneering ideas that you are bringing to market are not only helping to grow and scale individual business; but, collectively, you are helping to put the UK at the forefront of the industries of tomorrow and ushering a brighter future for us all. ”

This is adapted from Ian Campbell’s Keynote Introduction. You can see the full version in this recording of the event on YouTube.



Turnover grows
£1.8m to £2.7m
 Profit increase
18% to 24%
 EBITD from 2 to 6
 Tenfold increase in company valuation
 Employees from 19 to 22
 The KTP was rated
'Outstanding'
 by Innovate UK.

BEST KTP PARTNERSHIP - WINNER

Aquacheck Engineering Ltd
Manchester Metropolitan University
Dario Chiantello, KTP Associate
 KTP funded by Innovate UK

The humble standpipe turns state of the art in a transformative project

SUMMARY: Using Internet of Things (IoT) technology to transform this company from a traditional standpipe manufacturer into a provider of Smart standpipe technology for improved water management by water companies.

THE CHALLENGE: The design of standard standpipes has remained largely unchanged for decades and its limited functionality (purely mechanical) means that water utility companies cannot not identify the standpipes' location nor the volume of water used.

THE SOLUTION: Aquacheck, a market leading supplier of standpipes to UK water companies, wanted to solve well-known and industry-wide issues through the integration of Advanced Metering Infrastructure. This would allow the water companies to monitor real time data for the location, volume, flow and pressure readings for every standpipe in use.

“ To be nominated for the KTP awards was an amazing achievement for the whole team but, to win The Best of Best award is just outstanding. This award just proves hard work and team work really does pay off. The KTP has taught us...what can be achieved from knowledge sharing. Nothing ventured, nothing gained. A focus on up-skilling the workforce has had such a positive impact throughout the company. We now have willing volunteers within our team wanting to educate themselves with a better mindset...'How can we improve and do this better.' This can-do attitude has improved the overall energy and morale of our team. We now live by Work Smarter, Not Harder! ”
 PAUL CARRINGTON, MANAGING DIRECTOR, AQUACHECK ENGINEERING LTD

KEY ACHIEVEMENTS:

- Developed state of the art Smart Standpipe
- Full order books and expansion of the business to markets beyond the UK
- New capabilities – including Artificial Intelligence and Rapid Prototyping using 3D printing
- Transformation of operational culture, forming a new R&D team (headed by the Associate)
- MMU enriches learning environment and has engaged with companies such as Yorkshire Water, Severn Trent Water and United Utilities
- Outputs from project developed for impact study for REF 2020; MMU invited to join international collaborative research projects
- KTP Associate offered full time job; made a free enrolment offer for a PhD by MMU





BEST KTP PARTNERSHIP - FINALISTS

SC Group Global
University of Exeter
Matt Harvey, KTP Associate
KTP funded by Innovate UK

New hybrid powertrain contributes to decarbonisation

SUMMARY: Accelerating the implementation and integration of electric and hybrid powertrains, helping make military equipment more environmentally sustainable, offering new or enhanced capabilities, and opening up opportunities in marine, emergency response, disaster relief, hazardous environments.

THE CHALLENGE: Additional demands for the All-Terrain Mobility Platform (ATMP)– increased sustainability, stealth, range, speed and flexibility - indicated the need for a new hybrid or electric powertrain: new technology for high mobility and defence vehicles.

THE SOLUTION: Developing a flexible hybrid or electric powertrain suitable initially for the ATMP, and applicable to larger and more complex vehicles.

KEY ACHIEVEMENTS:

- Change in thinking for power systems in the UK defence sector and more widely, including marine, rail, HGVs, and aerospace.
- Partners now recognised internationally as leaders in electric hybrid drivetrains for high mobility vehicles.
- Substantially increased revenue forecast (£5m) with additional opportunities.
- More than 20 businesses are now working with the University in electric / hybrid powertrains.
- University now in consortium winning £30m from UKRI in 'Driving the Electric Revolution' challenge and many more.
- The University formed a new Centre for Future Clean Mobility in 2020, as a national centre for innovation in electric / hybrid powertrains.
- SC Group now employs the KTP Associate, Matt Harvey.

GAMA Healthcare
Cardiff University
Dr Maria Rubiano, KTP Associate
KTP funded by Innovate UK

Delivering key developments in virucidal efficacy

SUMMARY: Leading supplier of antimicrobial wet and dry wipes looks to expand capability and develop new products with virucidal and tuberculocidal efficacy

THE CHALLENGE: A specialist in Infection Prevention Technology, GAMA Healthcare (whose products are used in every National Health Service hospital), wanted to consolidate its market leading position by expanding its range of biocidal products to include claim for virucidal and tuberculocidal efficacy.

THE SOLUTION: A KTP with Cardiff University (CU) enabled a translational project focusing on infection control, a central theme to Professor Maillard's research.

KEY ACHIEVEMENTS:

- Three new products developed with increased microbicidal activity claims (broad spectrum efficacy) and competitive pricing.
- A new intelligent design test (i5-design) developed enabling the testing of 307 formulations and performing 847 individual tests.
- Embedded technology into new £4m GAMA R&D facility.
- Change in current profit before tax directly attributable to KTP: £750,000 and in three year's time: £5,000,000.
- Strong impact case study, contributed to Cardiff University "Way Forward" Strategy and REF income plus journals and publications.
- KTP Associate appointed Head of Microbiology.



“ I got to work on something I was really passionate and excited about and I have definitely grown as a scientist via this KTP. ”

LEONA MCGIRR

FUTURE INNOVATOR - WINNER

Leona McGirr, KTP Associate | Fusion Antibodies | Queen's University Belfast

KTP funded by Innovate UK/Invest NI

Developing fully human antibodies for rapid clinical development

THE PROJECT: The need to better understand antibodies has been highlighted as a result of Covid-19. This KTP between Fusion Antibodies and Queen's University Belfast focuses on creating an innovative software solution for the design of antibody libraries.

THE KTP ASSOCIATE: Leona McGirr (PhD Physical Chemistry) led the KTP project, supporting Fusion's service offering in antibody engineering; transforming capabilities and competitiveness in the antibody discovery space and helping biotechnology and pharmaceutical organisations speed up the development of the best antibodies possible. Ultimately, this will help these organisations accelerate the provision of treatments that improve the lives of patients throughout the world.

KEY ACHIEVEMENTS:

- Created and now leads a major new R&D project (Rapid Antibody Maturation Programme, RAMP) within Fusion Antibodies.
- Established scientific lab offering new service to customers.
- Vision, drive and ambition led this project far beyond expectation, with commercialisation of RAMP ahead of schedule, clients in place and patent pending.
- Ability to anticipate market need led to proprietary, highly desirable product with very positive sales.
- Exceptional organisational and project management skills delivered outputs beyond the scope of the original plan.
- Built a team of scientists and manages and mentors two junior scientists.
- Creation of the affinity maturation platform developed through this KTP rivals the industry's current standard process.
- Represents company at international conferences.
- Agile and adaptable, an excellent presenter, team leader, scientist and project manager. Leona is seen as a respected future leader and innovator by all at Fusion Antibodies.

Award category supported by  ashornehill
Creating growth through people





“ Our KTP is a great showcase for what can be achieved when a small, innovative company links with a university and the two work together. ”
 HARVEY KANGLEY,

FUTURE INNOVATOR - WINNER

Harvey Kangley, KTP Associate | AUS | University of Huddersfield

KTP funded by Innovate UK

The go-to person for innovative thinking, Harvey Kangley exceeds project's financial target by a factor of 4!

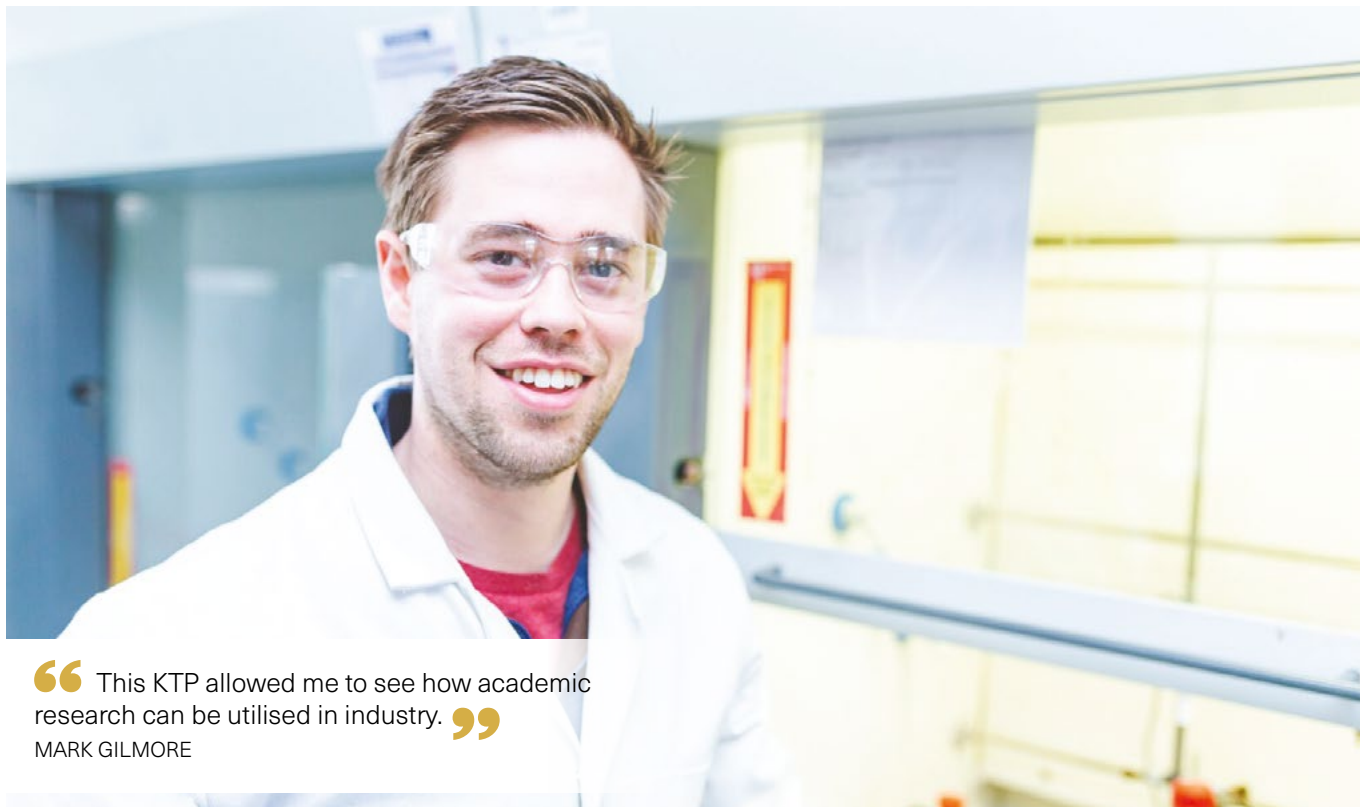
THE PROJECT: AUS is an established and growing business supplying a range of products and services to the electricity distribution and transmission, rail, utility arboricultural, and telecommunications industries. The aim of this project was to develop and establish methodologies for innovative product design, analysis and multi-criteria optimisation, in a highly constrained design environment, and to apply these to the design of novel products for rail electrification.

KEY ACHIEVEMENTS:

- Introduced a new process which incorporates many state-of-the-art tools to ensure that innovative products, which meet customer requirements, are generated and optimised.
- Set up a design department, introducing the company to solid modelling and the benefits of using finite element analysis early in the design process.
- Is the 'go to' person when customers are demanding anything out of the ordinary.
- Helped develop products responsible for exceeding the predicted financial benefit of the project, during the period of the project, by a factor of 4.
- During the project he developed 31 entirely new products and has improved the design of a further 25 products.
- Submitted an MSc by Research thesis focusing on introducing a formal new product development process into an SME.
- Company's technical point of contact with senior staff at Network Rail, HS2 and other key customers and technical authorities.
- Harvey has also taken an active role in industry associations and in encouraging high school students to consider a career in engineering.
- Harvey has undertaken work with students at the University including presenting a Design Challenge.

Award category supported by  ashornehill
Creating growth through people





“ This KTP allowed me to see how academic research can be utilised in industry. ”
 MARK GILMORE

FUTURE INNOVATOR - WINNER

Mark Gilmore, KTP Associate | Kilwaughter Minerals Ltd | Queen's University Belfast

KTP funded by Innovate UK/Invest NI

Discovery of a new class of greener, ionic liquids with potential for use in multiple industries

THE PROJECT: Kilwaughter Minerals is an established quarry and mineral processor, manufacturing innovative limestone products. The objective of this KTP was to develop a new ionic liquid that is more environmentally friendly, with superior water repellent quality for incorporation into a coating for masonry and exterior paint.

KEY ACHIEVEMENTS:

- In-depth knowledge of ionic liquids and understanding of their chemistry.
- Looked beyond commercially available ionic liquids and designed and synthesised bespoke and novel materials.
- Discovery and development of not just one liquid, but a new class of ionic liquids which not only can be used as a masonry coating, but also has the potential to be transferred into other industries e.g. healthcare, marine coatings and industrial pipework.
- Take steps to patent this technology for the company, with the potential to licence it out to other industries, creating further commercial opportunities for the company.
- Design of a selective screening matrix has reduced costs, optimised performance and developed a highly effective, non-hazardous final product.
- Instrumental in the scaling-up of these new products, including leading on the procurement of a new reactor.
- Established new partnerships with external companies to begin production of the products.

Award category supported by  ashornehill
Creating growth through people

 Kilwaughter





“ It’s stressful - but it’s worth it! ”
 KHAI NGUYEN

FUTURE INNOVATOR - WINNER

Khai Nguyen, KTP Associate | FormFormForm Ltd | Queen Mary University of London
 KTP funded by Innovate UK

Sugru, the mouldable glue, gets an innovative new fix!

THE PROJECT: Mouldable glue specialist, Sugru, wanted to improve the cure chemistry of its silicone composite to extend the market for Sugru (toys, food packaging, silicone coatings); and as a result contribute to reducing waste by enabling more fixing than trashing!

KEY ACHIEVEMENTS:

- Identified the potential of thiol-ene chemical coupling for the design of safe and biocompatible silicone materials and composites.
- His results with new super-fast curing formulations led him to identify unique aspects of this chemistry that remain unmet by other curing technologies.
- Thinking outside the box and defying conventions Khai invented a novel formulation that has broad applications from industrial adhesives for complex applications to 3D printing of biomedical chips that can help in the search for improved diagnostics and therapeutics.
- Major contributor to development and launch of a new product (Sugru Family Safe Formula) which has generated sales of over £2.5m since launch.
- Troubleshooting the manufacturing line helping convert batch failure rate from 38% to <3% since implementation – preventing raw materials waste of over £17k pa.
- Networking and generating valuable new leads and contacts leading to commercially profitable collaborations and paving the way to a significant new revenue stream for FormFormForm.
- Disseminating his extensive knowledge and training among team members at FormFormForm.
- Playing a leading role in The International Rubber Conference in 2019.

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Creating growth through people





BUSINESS IMPACT - WINNER

SBS Insurance | Birmingham City University | Jade Watts, KTP Associate

KTP funded by Innovate UK

Revolutionising the jewellery insurance claims process to “replace the irreplaceable.”

THE PROJECT: Using positive “digital disruption” SBS - which handles insurance claims on behalf of more than 23 insurance companies including household names like Allianz, Direct Line, Legal & General and Lloyds Bank - looked to overcome common challenges in the sector: claims being dealt with slowly, little innovation in the claims process and poor customer satisfaction. Via its partnership with Birmingham City University and KTP Associate Jade Watts the project introduced CAD into the claims process (enabling rendered images to be used in the claims process) as well as highly sophisticated 3D printing processes with precious metals technology to replicate and replace lost items of jewellery.

THE IMPACT: As well as now being seen by the insurance industry as the “go-to” company for technology innovation, winning it major new contracts, the financial impact of the KTP on SBS Insurance has been extremely positive.

KEY ACHIEVEMENTS:

Over a three year period:

- Turnover is projected to increase from £21,500,000 to £26,500,000.
- Profit is projected to increase from £825,000 to £1,175,000.
- Local recruitment to increase from 82 to 92 staff.

“ We are absolutely delighted at having won the Business Impact Award. Working collaboratively with BCU has proven to be a successful, rewarding endeavour. Something we hope to repeat in the future and would recommend emphatically. SBS has focussed on an innovative digitisation of the claims process for our Insurance Company clients. KTP has enabled us to progress this digital agenda, reducing cost and timescales, whilst enabling local recruitment and growing revenue and profit for the business. A true win win for all concerned. ”

PAUL FAIRBRASS, TECHNICAL DIRECTOR, SBS INSURANCE SERVICES



BUSINESS IMPACT - FINALISTS

Viper Innovations
 University of the West of England
 Kim Mahoney, KTP Associate
 KTP funded by Innovate UK

SUMMARY: Diversification of subsea engineering cabling specialist into new sectors: rail, airports, power and communications.

This established provider of industry-leading products for integrity monitoring of electrical cabling in subsea oil and gas production needed expertise to exploit the potential of its access to spread-spectrum time domain reflectometry (SSTD), a measurement technique used to identify faults in electrical wiring.

THE CHALLENGE: To realise its vision of becoming a global leader in the design and innovation of cable monitoring products (particularly for new sectors beyond oil and gas where the consequences and cost of failure is high e.g. rail, airports, power and communications), Viper needed new knowledge to develop products/services outside the oil and gas sector. This would be critical to the company's ability to enter new markets.

KEY ACHIEVEMENTS:

- Through extensive research the KTP project has identified and directed the market opportunities and priorities of the company.
- The learning and outputs from the KTP have formed the basis in scoping Viper's diversification strategy for its CableGuardian™ products and services for the next 5 years and the financial impact looks very impressive.

Martec Engineering
 University of Edinburgh
 Keith Milne, KTP Associate
 KTP funded by Innovate UK

SUMMARY: Transforming new product development (NPD), using architectural design and digital fabrication (steel products/door-frames etc) for this established supplier of steel goods to the construction industry.

THE CHALLENGE: Martec wanted to create its next generation of products, expand its market into new sectors, enhance support for clients and specifiers using architectural and digital technologies such as BIM and 3D modelling and embed new knowledge and technology within the business.

KEY ACHIEVEMENTS:

- **Dramatic growth in New Product Development and re-positioning of company.**
- **Created Premier Vision Entry System, a complete system, unique in the marketplace.**
- **Geographic as well as market and sector expansion.**
- **New range of products developed as a result of the KTP Associate's background in architecture.**
- **Development of new supply chains, as a result of the NPD.**
- **Substantial growth in turnover and full order books.**
- **Creation of 10 new jobs.**



ENGINEERING EXCELLENCE - WINNER

Masonry Support Systems Ltd (IGMSS) | Queen's University Belfast

Emanuele Scarabino, KTP Associate

KTP funded by Innovate UK/Invest NI

Model delivers 9000 person-hours in 25 seconds and eliminates human error.

SUMMARY: Ground-breaking design of a calculation suite for designing masonry support systems.

The challenge: looking to increase both market share and profitability through improved design of its core masonry support façade system, IGMSS wanted to focus on product quality and company productivity.

THE SOLUTION: After completing over 250 physical structural tests and merging these results with theoretical analysis, the KTP Associate, Emanuele Scarabino, created a bespoke mathematical model capable of designing masonry support façade systems delivering predicted deflections within 0.1mm with 98% confidence. The Partnership believes this is the most sophisticated model of this nature in existence for the design of masonry support systems.

“ The KTP has been a revolutionary programme, enabling the business to completely standardise the design process with the added luxury of achieving high accuracy at a high speed.

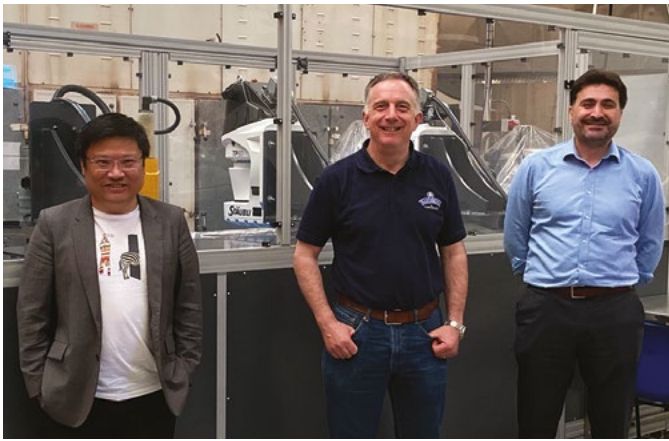
PAUL GRAHAM, IG MASONRY SUPPORT SYSTEMS GENERAL MANAGER, IRELAND

I believe the aim of every KTP project is to push the boundaries further and further...and we can't progress if we don't change the way we do things. ”

EMANUELE SCARABINO, KTP ASSOCIATE

KEY ACHIEVEMENTS:

- The ability to predict physical behaviour with such accuracy has transformed product design with material savings of over 25% and remarkable improvements in efficiency.
- In just over 60 seconds this model delivers the output of 9000 man hours and eliminates human error.
- The Associate further simplified the model, reducing the number of variables from 14 to just 4 by introducing “temporarily constant parameters”. This model can analyse a total of 1.4 million permutations with just 4 variables delivering the optimum solution with high accuracy.
- Associate created a bespoke automatic solver (written in C++) that would act as a user-interface and provide digital security to this valuable IP.



ENGINEERING EXCELLENCE - FINALISTS

Rakusen's Ltd
 University of Bradford
 Yang Lan, KTP Associate
 KTP funded by Innovate UK

SUMMARY: Improving production control and quality consistency of traditional cracker manufacturer, Rakusen's, using Industry 4 technologies.

THE CHALLENGE: For traditional food manufacturing, new machinery does not guarantee producing the same quality products that customers have enjoyed for generations. Achieving Industry 4.0 often relies on investing in new technology, machines or automaton equipment – a huge financial barrier for SMEs.

KEY ACHIEVEMENTS:

- Delivered a state of the art data-driven intelligent process control system by using Industry 4.0 technologies including Big Data Science, Machine Learning, Cloud Computing, Cyber Physical Systems and Internet of Things.
- This new smart manufacturing approach has transformed the production processes to produce good quality products based on real-time data-driven decision-making models.
- The system is fully integrated into the company's existing production facilities (for the first time since the production started over a century ago) enabling transformation from a traditional workshop to a modernised assembly factory.
- The dissemination and exploitation of the results will help maximise the effect of the modernisation of traditional factories with Industry 4.0 technologies.
- The KTP provided an effective mechanism to develop, deliver and embed innovation leading to enhanced processes, efficient use of resources, change in behaviour and operational environment, and new growth opportunities.

Aquacheck Engineering Ltd
 Manchester Metropolitan University
 Dario Chiantello, KTP Associate
 KTP funded by Innovate UK

SUMMARY: Using Internet of Things (IoT) technology to transform this company from a traditional standpipe manufacturer into a provider of Smart standpipe technology for improved water management by water companies.

THE CHALLENGE: To solve well-known and industry-wide issues through the integration of Advanced Metering Infrastructure. This would allow the water companies to monitor real time data for the location, volume, flow and pressure readings for every standpipe in use.

KEY ACHIEVEMENTS:

- Design segregates communication and power to ensure no electromagnetic compatibility (EMC) issues.
- Communication module is a cellular modem replaceable using other technologies (or hardwired) at almost no design cost.
- Power supply unit uses rechargeable batteries using a common USB charger.
- Battery pack is part of the modular design approach so can be extended or eliminated (hardwired).
- Modularity implemented in the external case; generous flexibility expands horizon to new possible applications at almost no extra design cost.
- Sensors integrated into a board; can be replaced for different features.
- Basic version integrates a bespoke capacitive sensor, a gauge to measure the water temperature, a temperature sensor for battery safety, an accelerometer for vibration detection and an inexpensive meter for water flow and direction; and has a flow bore completely free and full dry electronic components.
- Smart standpipe introduces new paradigm: separates data, device and product allowing the separate management of generated data, the standpipe, and billed water.





MOST EFFECTIVE INITIATIVE FROM A KNOWLEDGE BASE TEAM - WINNER

Aston University

Maria Chli Martin May
Emily Wakefield Zaheda Teladia
Magda Kosmopoulou Lana Amosova

KTP is strategically important to Aston, and its portfolio of programmes is growing rapidly. Aston is now the 9th most active institution in the UK and expects further growth towards a total of 30 KTPs by the end of 2020.

Its academic excellence in Computer Science and Data Analytics plays a crucial role in its KTP portfolio, with 45% of partnerships currently from this discipline. These partnerships have played a pivotal role in helping to co-develop the Computer Science Industry Club (CSIC) which harnesses cutting-edge industry expertise to generate high-level graduate opportunities enhance the skills of students and develop new research opportunities.

The 'CSIC's pilot activities were exclusively drawn from companies with existing or historic KTP projects with Aston (Keynetix Ltd, Majestic 12 Ltd, Rimilia Ltd, Zen Zero Ltd and Integrated Geotechnical Integration Ltd) but has now grown to include other innovative SMEs and much larger businesses including Tata Consultancy Services, Arcadis, Dignity plc and Beazley Group.

The CSIC has both enhanced the impact of existing KTPs and provided a platform for new KTP projects creating strong two-way benefits. CSIC has received internal and external recognition through awards and cited as best practice.

“ It's wonderful that Aston University has been formally recognised as sector leaders for KTPs, reflecting the scale and quality of our programmes. The award is recognition of our recent growth in KTPs.

The team has worked exceptionally hard to introduce this new approach to Knowledge Exchange (KE), and is further recognition for the College of Engineering and Physical Sciences and the Computer Science Industry Club which are now regularly cited as sector best practice for both KE and employability. ”

MARK SMITH, EXECUTIVE DIRECTOR OF BUSINESS ENGAGEMENT AT ASTON UNIVERSITY

Award inspired by the late David Woollard and supported by  PRAXIS AURIL



MOST EFFECTIVE INITIATIVE FROM A KNOWLEDGE BASE TEAM - FINALIST

North of Scotland KTP Centre

Robin Brown
 Laura Dee
 Sarah Stott

Emma Craig
 Alison Reith

This initiative saw the North of Scotland KTP Centre take advantage of the knowledge and expertise in Medical & Life Sciences of its network of Knowledge Bases (it represents six); and use KTP as part of a catalyst for regional economic growth in Life Sciences.

This objective fitted in well with Opportunity North East's ambition to develop a life sciences cluster that is recognised nationally and internationally for excellence in biologics, by delivering innovative projects that aim to grow the sector and double the number of life sciences businesses in the region.

Judges felt that this was a good commercialisation opportunity and an initiative that could be rolled out by other KTP teams.

This Award category was supported by Praxis Auril and inspired by David Woollard. Director of Strategic Engagement at Praxis Auril, Alasdair Cameron, said "Supporting the 'Most Effective Initiative from a KTP Office' award is not only about helping to find the most impactful and innovative approaches. It is also about supporting best practice and shining a light on excellence within the KE practitioner community, wherever it might be. Alongside our own KE Awards, PraxisAuril is committed to celebrating the work of KE practitioners who work tirelessly to facilitate and support the impact agenda."

The late David Woollard, who died in 2019, made a remarkable contribution to KTP during his illustrious career at Manchester Metropolitan University. He was responsible for vastly increasing its KTP portfolio, which currently places it within the top 10 Universities for the number of KTPs in the country and will not only be remembered for how he helped enhance the University's reputation through outstanding KTP performance rankings, but for his overall contributions to the KTP community".

Award inspired by the late David Woollard and supported by 

North of Scotland KTP Centre





“ Inspire is thrilled that our KTP has won the Societal Impact Award. As part of a mental health charity, our aim is to support those most in need and our KTP project provided us with the opportunity to build an innovative IT solution that significantly enhances our services in collaboration with the fantastic team in Ulster University. ”

GAVIN MEGAW , ASSISTANT DIRECTOR OF PROFESSIONAL SERVICES

SOCIETAL IMPACT - WINNER

Inspire Workplaces | Ulster University | Gillian Cameron, KTP Associate

KTP funded by ESRC / Invest NI

Empowering employees to manage their mental wellbeing

SUMMARY: The aim was to create a web-based platform - the Inspire Support Hub - to offer access to mental health screening and support to employees of companies at risk of secondary traumatic stress as a result of curating disturbing digital media as part of their job. However the scope of the KTP broadened, making the new Hub available to all employees seeking mental health support.

SOCIETAL IMPACT:

- The project exceeded its original brief, extending to the charity's wider remit of providing workplace wellbeing services to organisations across the UK and Ireland. The anticipated reach of the Inspire Support Hub now has a potential end-user base of 800,000 lives.
- Enables and empowers employees to manage their mental wellbeing and build resilience.
- The hub's preventative approach helps keep employees and their families well and in work/education, by giving them 24/7 access to education and coping strategies to mitigate any mental health issues they may be experiencing.
- The scalable nature of the hub enables dissemination of mental health support to a wide population. Embedding digital counselling tools, such as Video Counselling and WebChat improves accessibility.
- Over 30,000 engagements since September 2019 and in the past month, 1 in 4 users have accessed the support hub more than once.
- Profits derived from this KTP gifted to the parent charity of Inspire Workplaces which aids people with mental illness, addiction, autism and intellectual/learning disabilities. Inspire supports people through supported accommodation, floating support, day support, recovery-focused services and advocacy services.
- Research findings shared through presentations and publications at conferences and events in many locations, such as London, Belfast and St. Petersburg, Russia; and via knowledge exchange workshops in Glasgow and Belfast with Addaction, one of the UK's leading drug, alcohol and mental health charities.

Award category supported by  UK Research and Innovation





SOCIETAL IMPACT - FINALISTS

Positive Steps
Manchester Metropolitan
University
Anna Jones, KTP Associate
 KTP funded by ESRC / AHRC

Orbital Media / My Spira
University of Suffolk
Thomas Andrews, KTP Associate
 KTP funded by Innovate UK/ AHRC

Paraid, a division of
Evac+Chair International Ltd
Birmingham City University
Alex Round, KTP Associate
 KTP funded by Innovate UK

Improved life chances via the youth justice system

In Manchester, positive change has been achieved by creating a new framework for youth justice practice, called Participatory Youth Practice (PYP). PYP consists of eight theoretically informed principles, including 'let young people participate', 'develop ambitions' and 'acknowledge limited life changes'. This represents the first time that practice has been co-produced with young people in the youth justice system in the UK and has led to more positive experiences and engagement for justice-involved young people across the region together with reduced reoffending rates and improved life chances.

The KTP also developed a new standardised out-of-court assessment tool (OOCd) for young people which takes a problem-solving approach to diverting young people out of the formal Youth Justice System.

Gamifying asthma inhaler usage for children

This KTP aimed to create a revolutionary app that combines augmented reality (AR) with gameplay to help children use their asthma inhalers correctly.

Over one million children suffer from asthma in the UK and it is one of the leading causes for paediatric hospital admissions – often down to poor management of the condition. To address this, the KTP developed a medically approved augmented reality healthcare tool to engage children with the learning material, achieving significant learning outcomes and potentially saving hundreds of lives.

Finally, fuelled by the COVID pandemic, the company behind the app has provided free access to MySpira for every child in the UK for a period of 12 months.

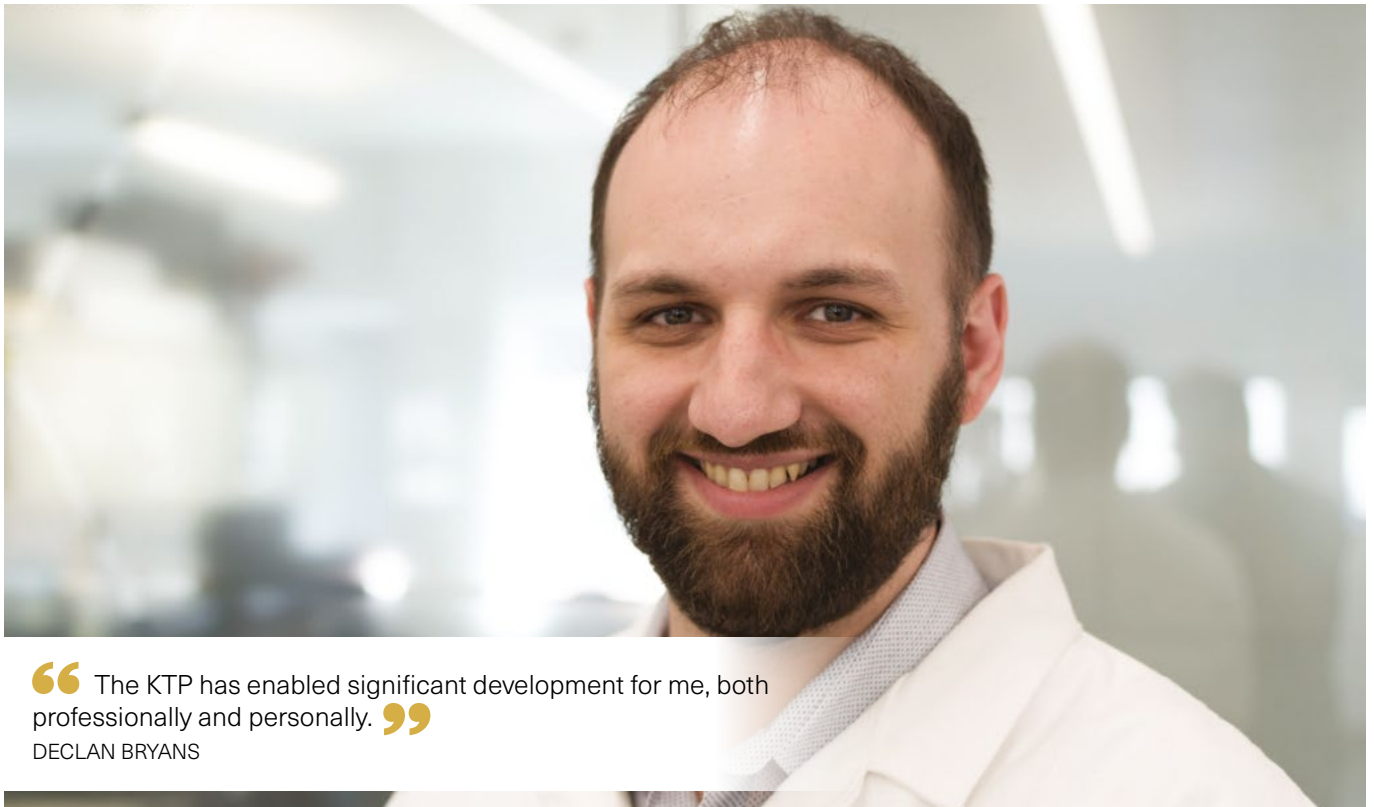
Reducing the risk of brain injury during ambulance transfer

With the aim of preventing damage affecting brain function (encephalopathy) in ambulance transfers, this Knowledge Transfer Partnership between Evac+Chair, Birmingham City University and KTP Associate Alex Round set out to design and develop an impact resistant interface system (IRIS).

The IRIS aims to reduce the risk of brain movements within the skull under heavy acceleration and deceleration. To facilitate this valuable research, Birmingham City University used new simulation software to determine the strength/stress analysis of the IRIS and other ancillary Evac+Chair products in the event of an ambulance crash, increasing productivity and yielding significant cost-savings.

Award category supported by  UK Research and Innovation





“ The KTP has enabled significant development for me, both professionally and personally. ”

DECLAN BRYANS

FUTURE INNOVATOR - WINNER

Declan Bryans, KTP Associate | Mersen UK | University of Strathclyde

KTP funded by Innovate UK

Green energy: key innovation leads to enhanced energy storage

THE PROJECT: Mersen is a global expert in electrical power and advanced materials. From 2012, Mersen Holytown invested in new continuous carbonisation and graphitisation processes. Carbon and graphite felts were successfully introduced to the market at the end of 2014 and the strategic development of battery-grade materials started in 2018, spearheaded by the KTP project for development and implementation.

KEY ACHIEVEMENTS:

- Developed a key innovation to activate Mersen's material for use in flow batteries. As a result the material's performance as an electrode substantially increased, leading to enhanced energy storage.
- This activation process means that the electrolyte can access the material's internal structure much more easily. This allows more of the electrode material to be exploited while reducing the power required to pump the electrolyte through the felts, increasing performance efficiencies above 90%.
- This was achieved 1 year ahead of schedule due to Declan's development of a "Design for Experiment" methodology which allows three variables to be optimised simultaneously, dramatically reducing time and number of experiments required – from 350 to 25 – with obvious benefits for project completion timescales.
- Declan's presentation at the prestigious International Flow Battery Forum hosted in Lyon, July 2019, to an audience of prospective clients and academics, was very well received.
- Declan recently won the Young Professionals Green Energy Innovation Award.

Award category supported by  ashornehill
Creating growth through people

 **MERSEN**
Expertise, our source of energy

 University of
Strathclyde



“ This project has meant that big professionals in their industry started to believe in me and my ideas. ”
 DMITRY BOGACHOV

FUTURE INNOVATOR - WINNER

Dmitry Bogachov, KTP Associate | Sandon Global Engraving Technology Ltd (Sandon Global) | The University of Manchester

KTP funded by Innovate UK

Balancing the possible with the practical to deliver materials science innovation

THE PROJECT: To develop, embed and exploit expertise in materials science and surface engineering in order to enable Sandon Global Engraving Technology Ltd (Sandon Global) – a leading manufacturer of anilox rolls and cylinders for the flexographic, lithographic and metal decoration print industries – to progress as the commercial centre of excellence for Anilox technology.

In 2019 Sandon was awarded an Innovate UK grant to develop laser technology capable of engraving the new coatings developed during this KTP.

KEY ACHIEVEMENTS:

- Introduced changes to both manufacturing methodologies and powder composition leading to substantial increase in products passing through quality assurance and a reduction in non-compliance rejects due to coating failures .
- Proactive approach, modifying the project plan to maximise commercial opportunities.
- Embedded new thermal spraying technique: significantly improved tribological properties of Sandon Global's products.
- Translated in-depth research & analysis into commercial opportunities and influenced major investment in new thermal spraying systems and a powder manufacturing facility, enabling Sandon to transform itself into a company with innovation at the very centre of its culture.

Award category supported by  ashornehill
Creating growth through people





“ Via the [KTP Associate's] personal development budget I've met people who have a lot of interesting things to say - and I've travelled the world to hear it. ”

ELLE PERSCHKE

FUTURE INNOVATOR - WINNER

Elle Perschke, KTP Associate | British Salt | The University of Manchester

KTP funded by Innovate UK

New consumer product to help counter iodine deficiency

THE PROJECT: British Salt (a B2B company) identified several years ago that there is potentially a little known health issue in the UK caused by iodine deficiency, an issue which has been tackled in most countries around the world by the introduction of salt fortified with iodine. This KTP sought to develop a B2C product to fill this gap in the UK market.

KEY ACHIEVEMENTS:

- Led nationwide market research exercise to inform all aspects of new product and brand identity.
- Managed the manufacturing process for the new product within British Salt and the full supply chain including packaging providers, 3rd party fulfillment.
- Identified and appointed specialised external sales force to target supermarkets.
- Responsible for costing the product to meet the company's profitability expectations.
- Negotiated international export deals and organised national retail sales.
- Created a brand new B2C product and revenue stream in a traditional B2B company.
- Managed multiple and varied processes and stakeholders whilst delivering academic outputs of the highest order.

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Creating growth through people

BRITISH SALT

MANCHESTER
1824
The University of Manchester



“No day has passed without learning something new. The embedded freedom to learn and deploy appropriate methods and tools, is certainly a recipe for rigorous and robust application of modern scientific knowledge to industry.”

MUDDASAR ANWAR

FUTURE INNOVATOR - WINNER

Muddasar Anwar, KTP Associate | FP McCann Limited | Queen’s University Belfast
KTP funded by Innovate UK/INVEST NI

New SuDS device helps reduce flood risk and environmental impacts

THE PROJECT: The continued impact of flooding on the built and natural environment has reached a breaking point for many communities. FP McCann identified the need to design sustainable drainage systems (SuDS) for these communities and to do so the company needed a new understanding of complex flow systems comprising multiphase flow (air, water, oil) coupled with discrete particle (sediment) tracking.

KEY ACHIEVEMENTS:

- Developed an advanced hydrodynamic separator. This state-of-the-art product – now already in market – will remove gross pollutants (sediment, hydrocarbons, rubbish) from stormwater runoff before it enters nearby water courses to prevent environmental damage.
- Separator operates without any mechanical components or power sources, increasing sustainability, reliability and reducing lifetime maintenance costs.
- The separator excels at treating high flow rates, allowing the system to be installed in the main drainage line and continue performing during flood events – a demand which is becoming increasingly more important in the UK due to urbanisation and climate change.
- Implemented sophisticated optimisation techniques (surrogate modelling and machine learning) to wider company processes beyond the scope of his KTP.
- His cross-disciplinary thinking has led to the establishment of multi-disciplinary project management teams as standard.
- His leadership has delivered greater manufacturing efficiencies and ultimately a more cost-effective product for the market.
- FP McCann has invested heavily in a state of the art research facility specifically to enable Muddasar to continue his work, and he will lead a team dedicated to solving the most critical issues in our industry.

Award category supported by  ashornehill
Creating growth through people



“ ... an amazing virtual event. ”

CAROLYN MCFALL, KTP MARKETING OFFICER, QUB

“ The virtual awards experience is weird, and fun, and brilliant!
Thanks KTP for trying something new and innovative. ”

RICHARD ROBERTS, COMMUNICATIONS MANAGER, STRATEGIC ENGAGEMENT, UKRI/INNOVATE UK

“ It took me half an hour to pick the hat! ”

DARIO CHAINTELLO, KTP ASSOCIATE, AQUACHECK ENGINEERING,
WINNER, BEST KTP AWARD AND FINALIST, ENGINEERING EXCELLENCE AWARD



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