



FINALISTS



Welcome to the Knowledge Transfer Ireland Impact Awards 2020. These awards showcase the success in Irish knowledge transfer carried out in Ireland's Higher Education Institutions and publicly funded research organisations for the wider benefit of the economy and society.

Across three categories the awards recognise top performance in industry engagement and the commercialisation of research and they pay tribute to the business and research performing organisations involved in knowledge transfer. The awards also acknowledge and celebrate the technology transfer offices and their staff who make this knowledge transfer happen.

FINALISTS ARE LISTED ALPHABETICALLY
BY HIGHER EDUCATION INSTITUTION (HEI)

KTI Impact Awards 2019 Judging Panel

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Executive Director of MSU Technologies,
Michigan State University, USA

Brendan Hogan

Senior Vice President of Engineering
& Operations,
Aergoen Ltd, Ireland

Laura MacDonald

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Richie Paul

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COMMERCIALISATION IMPACT

The Commercialisation Award category acknowledges the success achieved from either the licensing of intellectual property or the creation of a spin-out company from publicly funded research performing organisations. Commercialisation success includes products or services active in the market or a significant event achieved by a spin-out, in 2019/2020. The underpinning licence or spin-outs transactions may go back several years.





Cork Institute of Technology & AudioSourceRE

AudioSourceRE is a spin out company founded on intellectual property developed by Dr Derry Fitzgerald at Cork Institute of Technology (CIT). Based on sound separation algorithms, the company has developed technology with the capability to isolate and remove vocals, instruments or backing track layers from pre-recorded sound or music files, a process that has long been a “holy grail” audio engineering challenge. This puts AudioSourceRE at the cutting-edge of audio reverse engineering.

Following a request from The Beach Boys in 2012 to use his technology to remix some songs, Dr Fitzgerald was inspired to look into the commercial application of his research and undertook two Enterprise Ireland Commercialisation Feasibility Studies to examine the music industry and audio forensic markets. This in turn led to an EI Commercialisation Fund project to develop the company's first product and to the company forming as AudioSourceRE in July 2018. The same year, the company released its first three products that are used in the broadcast and audio industry including audio and music production and digital music creation.

In 2019 the company closed a seed round of over €1 million with Enterprise Ireland and the Atlantic Bridge University VC Fund. This funding has been used by the company to recruit additional, highly specialist staff to improve its technology platform. Located at CIT's Rubicon Centre, AudioSourceRE employs seven staff. The capital has also facilitated the company's entry into Asian markets where growth potential is significant, the Chinese karaoke market alone being valued at €12.7bn.

Company clients range from the music recording industry to broadcasting to digital publishers who increasingly wish to manipulate existing music and audio assets and repositories for maximum creativity, reuse, and monetisation. AudioSourceRE is currently trialling a range of prototype solutions to extend its offering.

AudioSourceRE has been supported through its commercial journey by CIT's Innovation and Enterprise Office (IEO) - the Institute's technology transfer office. Prior to the company spinning out, the IEO developed and co-managed the Enterprise Ireland funded feasibility studies. The office supported subsequent funding applications and managed intellectual property protection. It also introduced seasoned entrepreneur John O'Connell, an EI Business Partner, who became company CEO and guided the founders through the CIT spinout approval process. The IEO negotiated a range of supporting agreements such as shareholders agreement, licence and follow on seed investment.

For more information, click the links below

[AUDIOSOURCERE](#)

[CIT TTO](#)





University College Cork & PrecisionBiotics Group Limited

PrecisionBiotics discovers, develops and markets probiotics (live bacteria) with rigorous scientific credentials to improve health in humans and animals. Formed in 2001 as Alimentary Health Ltd., the company was spun out from UCC to commercialise a portfolio of intellectual property created from UCC's research in microbiology, gastrointestinal medicine and surgery. This IP was exclusively licenced to the company by UCC and has been the key platform for subsequent commercial development.

Since its foundation, the company and UCC have enjoyed over two decades of sustained partnered innovation that has positioned PrecisionBiotics to secure significant funding from local and international sources and bring its products to market. The company's products include Alflorex® for the treatment of irritable bowel syndrome (IBS) and Zenflore® for the treatment of stress and mental fatigue.

In June 2020, the Danish global biotechnology company Novozymes A/S acquired 100% of the equity of PrecisionBiotics Group for an upfront sum of €80 million plus an additional performance based earn-out. It is anticipated that being part of Novozymes will drive the internationalisation of PrecisionBiotics product roll out, expand market opportunities and develop new product lines combining enzymes and probiotics. With PrecisionBiotics employing 33 staff at sites in Cork and Fermoy, the acquisition looks set to protect high value jobs in Cork and further strengthen collaborative links between the company and UCC. The university saw a significant capital gain on the sale of its shareholding in the company and intends using a significant proportion of this to support the University's innovation agenda.

Research collaboration continues and the main currently active project between the company and university is the multi-year, multi-million euro 'Microbe Mom', an SFI/company co-funded Spoke project in the area of pregnancy, microbiome and probiotics.

UCC Innovation - the technology transfer office at the university - has had a key role working with PrecisionBiotics from the outset. Initial development of the IP, licensing and company formation was followed by managing the IP aspects of sponsored research agreements between the company, the University and government agencies, including identifying and protecting commercially relevant patentable results leading to further licence deals. UCC Innovation managed the revenue bearing licences and administration pertaining to UCC's shareholding in the company up until the sale to Novozymes. It also managed its tenancy agreements when the company was based at UCC.

For more information, click the links below

PRECISIONBIOTICS GROUP LIMITED

UCC TTO





University College Dublin & SiriusXT

SiriusXT is a UCD spin-out company founded in 2015 by Fergal O'Reilly, Dr Kenneth Fahy and Dr Paul Sheridan from UCD School of Physics with Tony McEnroe, a serial entrepreneur, to develop the world's first laboratory-scale soft x-ray microscope for application in disease and drug research. The company employs 17 highly skilled physicists and engineers and its working prototype soft x-ray microscope, called SXT-100, is being validated in collaboration with leading biomedical research institutes in advance of customer trials and product launch in early 2021.

The SXT-100 produces high resolution, 3D images of the whole internal structure of intact cells. These images can reveal, in unprecedented detail, the effects of drugs and disease at a cellular level in a way which was not previously possible in a laboratory setting. This disruptive and innovative solution for whole cell imaging will help accelerate progress in fields of disease research and drug discovery and will be a powerful tool in the global war against cancer, neuro-degenerative diseases such as Huntington's and Alzheimer's and extending to COVID-19.

Until now, the illumination required for soft x-ray microscopy has only been available at selected, football-stadium sized facilities of which there are just four worldwide with over 12 month waiting lists. The SXT-100 positions SiriusXT to target a market of thousands of research laboratories worldwide focused on disease research and drug discovery meaning vast sales potential for the product.



To date the company has raised over €12M in grant and equity funding, most recently €4.5M in June 2020 provided by the European Innovation Council Accelerator Pilot programme to help tackle the COVID-19 pandemic. This funding will allow the company to pilot the SXT-100 at leading corona virus labs and centres across Europe. The company has won many awards including Best Early Stage Company and the InterTradeIreland All-Island Seedcorn Investor Readiness Competition. The company's CEO was the inaugural winner of Enterprise Ireland's high potential start-up founder of the year.

Nova UCD, the TTO at UCD, played a central role in supporting the project team from the time of original application for research funding under the EI Commercialisation Fund, managing patent filings and associated licensing. Not all commercialisation runs smoothly and Nova UCD maintained its faith in the technology and the inventors, working together to decide the optimal strategy that pivoted the initial business model to establish SiriusXT to target the soft x-ray market.

For more information, click the links below

[SIRIUSXT](#)

[UCD TTO](#)





INDUSTRY ENGAGEMENT

This category recognises successful research collaborations or consultancy projects between publicly-funded research performing organisations and the business community. Through working on research problems of mutual interest there will have been a demonstrable impact both for the company and the research organisation. Successes have been demonstrated in 2019/20 while the collaboration itself may have occurred in prior years.





RCSI with Trinity College Dublin & Integra Lifesciences

Royal College of Surgeons in Ireland (RCSI) and leading medical technology firm Integra have enjoyed a longstanding research relationship. In 2015, the company began a fully funded study with RCSI, co-ordinated through the SFI Centre for Advanced Materials and Bioengineering Research (AMBER) hosted at TCD, to develop new biomaterials-based nerve repair devices. The study sought to address the issue of peripheral nerve injury which remains a major clinical problem and affects more than 1 million patients worldwide annually.

The collaboration has grown to become a co-funded project worth more than €1M and involving PIs Prof Fergal O'Brien from RCSI and Prof Conor Buckley from TCD. Work to date has resulted in the successful development of two technologies, with a third having been recently disclosed, that have been proven highly effective in repairing damaged nerves in pre-clinical trials. Between 2019 and 2020, there were three patent filings and two commercialisation outcomes – an assignment agreement and an option and evaluation agreement.

The results from this collaborative research are expected to underpin the next two decades of clinical therapies for peripheral nerve repair. The programme has allowed Integra to explore concepts for nerve regeneration and technologies that were unlikely to have had the opportunity to be tested in a corporate research environment and will be critical to ensuring that Integra remains at the cutting edge of nerve repair research and maintains its competitive advantage. As such the ongoing collaboration allows Integra to secure and build on their position as market leaders in peripheral nerve repair while benefiting patients and society.

The TTOs of RCSI and TCD have together played critical roles throughout this longstanding collaboration. They have supported the development of the relationship with Integra from initial execution of the Material Transfer Agreement that seeded the first engagement, through to conclusion of the AMBER consortium agreement, and negotiated specific agreements to facilitate collaborations on the peripheral nerve repair projects. New IP has been identified and protected and licensed to the company. The company supports RCSI beyond the collaboration itself, with Integra's Chief Scientist presenting at the RCSI quarterly innovation seminar series.

For more information, click the links below

[INTEGRA LIFESCIENCES](#)

[RCSI TTO](#)





Trinity College Dublin & Intel Ireland

Intel is the world's largest semiconductor chip manufacturer. Headquartered in California, Intel employs approximately 4,500 in manufacturing, research and design in its European manufacturing facilities in Leixlip, which are the largest outside of the US. Intel engages with academic partners worldwide to seek out exceptional scientists in key research institutions which enables the company to drive innovation.

Intel has a long-standing innovation partnership with TCD. It was a founding partner of the TCD-led CRANN-CSET (Centre for Research on Adaptive Nanostructures and Nanodevices) and is a key strategic partner within the SFI-funded research centre AMBER (Advanced Materials and Bio-Engineering Research Centre), which is hosted in TCD and involves, amongst others, researcher teams in both UCC/Tyndall and DCU.

This partnership has led to around 50 scientific publications since 2008 and has seen Intel fund 15 research projects with AMBER to the tune of €1.9M with an additional €3.7M in-kind contribution. As part of the collaboration, Intel also embeds several employees in AMBER institutions who contribute to the collaborative research and are also on the lookout for new talent. In the last 10 years Intel has hired numerous post-graduate and post-doctorate researchers from AMBER.

In 2019, the AMBER Centre was renewed with SFI funding for a year period. A significant aspect to this renewal was the overhaul of the collaborative research agreement with Intel in line with evolving best practices. This was a challenging negotiation over 3 to 4 months that involved numerous complex bi-lateral and multi-party discussions (including UCC/Tyndall and DCU). It required strong leadership from the TCD TTO to navigate compliance with EU rules and the National IP protocol, while meeting both the Intel requirements and the partner Institutions policies. Successful conclusion of the AMBER 2 collaborative research agreement ensures that Intel remains a major strategic industry partner until 2025 and immediately protected company funding for two projects that might otherwise have been lost overseas. Furthermore, the clear agreed models for IP management within the agreement will assist the company in securing further potential Intel R&D funding and will mean that continued world class fundamental collaborative research within Ireland can take place.

For more information, click the links below

[INTEL IRELAND](#)

[TCD TTO](#)





Waterford Institute of Technology & Keltech

In 2019, the Waterford-based components and assemblies' supplier, Keltech, began supplying reservoir tanks for hydraulic oil systems to the Original Equipment Manufacturer (OEM) Atlas GmbH in Germany. As part of their consultative approach, Keltech undertook a review of the hydraulic circuit into which their tank is fitted with the aim of identifying areas for optimisation.

Keltech identified the possibility of replacing three internal return pipes with fabricated channels. These return pipes supply oil to the tank in a controlled manner but have a long, 16-week lead time and high cost. As such, there was an opportunity for significant cost and lead time savings if it could be shown that fabricated channels could match pipe performance in delivering oil to the tank.

To investigate this, Keltech approached SEAM Research Centre at Waterford IT, known for its expertise in Computational Fluid Dynamics (CFD), to analyse and demonstrate the performance of fabricated channels. SEAM built two computational models of the hydraulic reservoir tank and demonstrated that the channel design did indeed match pipe performance, providing Keltech with the evidence to recommend a modified tank design.

The WIT TTO worked with SEAM throughout this project to ensure quick and effective contract negotiation to meet both parties' expectations. The office also focused on the management of the project and the mechanisms behind IP management arrangements.

Successful implementation of this design optimisation is expected to achieve significant cost and lead time savings and will influence future hydraulic tank designs enabling increasing cost effectiveness and efficiency. Despite being a significant deviation from convention, it is expected that the new design will be in serial production by the end of Q1 2021 and following this, the approach should be rolled out to other tank designs. The work has strengthened the highly valuable strategic supply relationship with Atlas GmbH and since the completion of this project, SEAM has assisted Keltech in the evaluation of an alternative articulated dump truck fuel tank design, subjected to impact loading. The project has also substantially enhanced Keltech's reputation in the field, a significant value-add for the Waterford company that employs a growing staff of 250 in its automated 15,000 m² facility. The partnership between Keltech and SEAM also demonstrates their combined effectiveness as a centre of excellence in hydraulic tank design in the South-East Region.

For more information, click the links below

[KELTECH](#)

[WIT TTO](#)





COVID-19 RESPONSE

This special award for 2020 demonstrates how the Technology Transfer Office (TTO) has supported its research performing organisation to develop appropriate commercialisation strategies directed to new solutions for a wide range of challenges presented by the COVID-19 Pandemic.





NUI Galway for ICU FamilyLink

Hospital visiting restrictions introduced in early March 2020 led to distressing circumstances for patients in ICU care, for their families and for frontline workers, all of whom were prevented from interacting with each other and caring for each other as they previously would have done. While video calls may be a common solution in many healthcare settings, the ICU presents a unique challenge, as video calls need to be conducted in an appropriate, confidential, secure and sensitive manner.

To address this the ICU Team in Galway University Hospital contacted academic partners in NUI Galway. NUI Galway, in turn, reached out to industry contacts at Cisco and IBM and quickly assembled an expert team that developed a bespoke, state-of-the-art video call system specifically for the ICU setting - ICU FamilyLink- which enables remote contact between families, patients and the clinical teams providing care.

ICU FamilyLink has several key features addressing the particular needs of an ICU setting including ease of use for frontline workers in Personal Protective Equipment. It also features high audio quality, even with noisy ICU equipment; high picture quality; and an easy to use touchscreen. Crucially it allows security and privacy protocols to assure patient confidentiality and caters for multiple ICU bed spaces with one low-touch device.

Throughout the project, the team consulted with the NUI Galway Innovation Office seeking solutions to enable broader adaptation of the system by documenting and sharing the results of the research project so as to allow other hospitals replicate the service. As there were multiple contributors to the project and the team had no formal structure and no single owner, the Innovation Office worked to catalogue the material and contributors. Once completed, the Innovation Office could then recommend the most appropriate licensing strategy, that would meet the four core respect criteria that had been agreed with the team - to respect the contributors, the societal need, the urgency and the content.

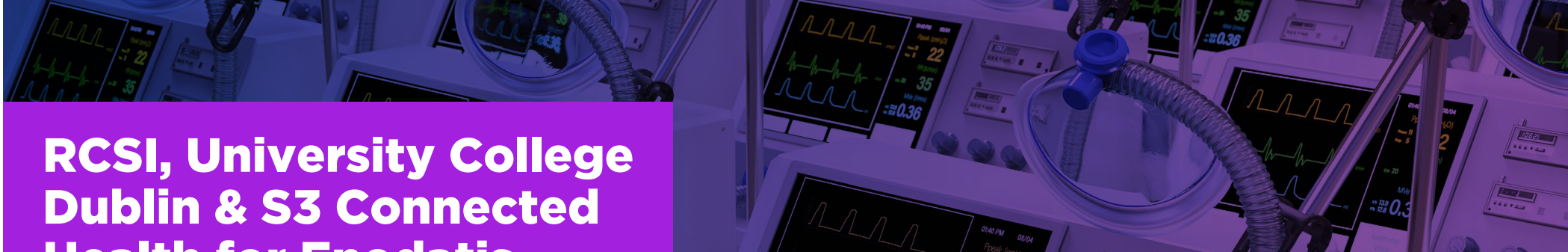
The recommendation was to pursue an open access strategy, placing the material in the public domain to make ICU FamilyLink accessible for other hospitals and leaves open the path to further research in this area. As a result of moving quickly, manuals and templates are now available online to support other hospital settings in adopting the technology and multiple hospitals have embarked on projects to replicate the FamilyLink success. The open access IP strategy has proved a crucial component in securing additional funding to extend the research.

For more information, click the links below

[ICU FAMILYLINK](#)

[NUIG TTO](#)





RCSI, University College Dublin & S3 Connected Health for Enodatis

In March 2020, Professor Richard Costello, Professor of Medicine at RCSI, was tasked with developing technology-enhanced care pathways for COVID-19 patients attending Beaumont Hospital. Acutely aware of the lack of Electronic Patient Record infrastructure in the Irish Healthcare System, Professor Costello assembled a multi-disciplinary team including Professor Garrett Greene of the Maths Dept in UCD, Professor Oran Rigby, Consultant Intensivist, and the Dublin-based digital company S3 Connected Health with a view to working together to develop an easy-to-use mobile application for optimised care.

The result was Enodatis, a web based clinical support tool that incorporates a risk-assessment score for COVID-19 patients which allows healthcare professionals to treat and monitor the progression of their condition. Compared with other established clinical deterioration scores, the risk assessment function in Enodatis, known as the COVID Critical Care Index (CCCI), has been shown to predict with greater accuracy which COVID-19 patients are most at risk of adverse outcomes. CCCI is highly predictive of the need for patient ICU admission over 24 hours in advance and can help estimate future ICU bed demand, facilitating earlier and more effective treatment as well as better resourcing and planning during the COVID-19 outbreak. The ability to more accurately stratify patients and predict outcomes helps ensure that valuable and finite resources such as specialist respiratory clinicians, ICU beds and ventilators are utilised optimally, and deployed to treat the patients with the greatest need.

The RCSI Innovation team advised throughout the project. They supported Professor Costello's search for technology partners by facilitating introductions to S3 Connected Health and to Prof Oran Rigby. The office provided IP management support in assessing different aspects of the CCCI and its potential future applications, protecting the IP generated under the collaboration and engaging with all of the non-RCSI parties involved to ensure clarity on inventorship and IP ownership prior to using the recently released KTI COVID NERF template agreement to provide access to the IP to S3 Connected Health as the commercialising partner.

Where similar technologies would usually take a year to deploy, in response to the urgent need, Enodatis was rapidly developed on top of S3 Connected Health's Affinial platform and was put into production in less than a fortnight. Since then, it has been used in six hospitals by 300 doctors with nearly 3500 patients registered. The way in which it helps optimise the treatment of specific patient cohorts presents clear opportunity for similar solutions to be implemented in broader disease settings. Enodatis was CE marked and registered as a Class I Medical Device just seven weeks after the initial meeting.

For more information, click the links below

[ENODATIS](#)

[RCSI TTO](#)





Waterford Institute of Technology for CoronaVRus



COVID-19 has brought a change to the normal ways of life and work. For children, in particular those with Autism, dealing with such change and complying with COVID-19 regulations can often be difficult and can lead to stress, frustration or even fear. Virtual Reality (VR) technology and tools are increasingly being embraced by teachers, parents and autism therapists to help individuals with autism to connect, gain a better understanding and learn necessary skillsets to enhance their communication abilities.

Against this backdrop, the VR/AR team in TSSG at Waterford IT has developed CoronaVRus - a virtual reality application aimed at children. The application is Autism Spectrum Disorder (ASD) friendly and offers a fun method of education to build awareness in a safe and interactive environment addressing the key aspects of COVID-19 safety. It provides three VR experiences to showcase, educate and demonstrate such safety guidelines in an intuitive manner, such as hand washing and social distancing as well as providing a pandemic overview and HSE guidelines. As such, it provides a medium for autistic people to encounter varying stressful situations so they can learn how to adapt and deal with such scenarios.

The TTO at Waterford IT worked with the TSSG team to develop the appropriate route for protecting and licensing the technology. Making this VR experience freely available to the general public was a driving and it was agreed to develop and launch the technology using open source. The app has gone on to be downloaded nearly one thousand times, with nearly 5,000 views and has been rated 4.3 out of 5.

The CoronaVRus app not only provides a valuable resource for those who use it, the technology now provides a platform for commercial entities to develop products to support learning in particular circumstance where traditional media is not effective. This is the case in point for WIT/TTSG multinational pharmaceutical clients, where VR safety modules were developed akin to the CoronaVRus.

For more information, click the links below

CORONAVRUS

WIT TTO

