

Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
THIRDFORT LIMITED	Using Open Banking and Data Technologies to prevent money-laundering in the UK property market	£338,755	£237,128
City University of London		£118,388	£94,710
TBD LEGAL LIMITED		£42,857	£30,000

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Project description - provided by applicants

UK property is increasingly becoming the 'money-laundry' of choice for the world's criminals [\(BBC-Panorama-'Following-the-drug-money'-2019\)](#). Transparency International pinpointed £4.4billion of UK properties bought with laundered funds, a sum it said was "the tip of the iceberg" [\(Financial-Times-2019\)](#).

Property provides a safe harbour for fraudsters to integrate large sums of 'dirty money' into the legal economy in a single transaction, fuelling crime throughout the UK and internationally. Consequently, regulators have ramped up oversight and pressure on property professionals (lawyers/estate-agents/mortgage-brokers/mortgage-lenders) leading to slower property transaction times and worsened experiences for professionals and homemovers.

The gatekeepers to prevent money-laundering in property are property-lawyers. Money-laundering regulations require them to combat money-laundering by completing detailed and costly checks to confirm homemovers' identities and sources of wealth/funds.

These checks are performed manually, which is slow (20-days), costly (£150) and ineffective. Lawyers spend £150 of time collecting ID-documents, bank statements and supportive evidence from homemovers, then assessing them to establish if they are using non-laundered purchase funds. This is very difficult to do smoothly and accurately.

With no technological solution, property-lawyers have no alternative other than to throw more manual processes at preventing money-laundering. These processes are ineffective at stopping money-laundering because falsifying any document is easy to do and hard for the untrained eye to detect. Frustratingly for the homemover, manual information gathering cannot be securely shared with others who need it, such as estate-agents, mortgage-brokers and mortgage-lenders, meaning they must have their financial affairs assessed from scratch multiple times.

Thirdfort is changing this. After a friend was defrauded out of £25k during a property purchase and having been through painful anti-money-laundering ("AML") checks multiple times, co-founders Jack and Olly set up Thirdfort to streamline identity and AML-checks in UK property. Thirdfort has built a mobile-app to automate ID-checks using electronic verification and will now automate these painful and manual money-laundering checks. Using Open-Banking technology, Thirdfort will enable instant access and analysis of bank statement data. A report is then generated for the property-lawyer to assess and share with estate-agents/mortgage-brokers/mortgage-lenders.

Thirdfort will relieve property-professionals of the manual burden of collecting documents and provide a better, more accurate way to identify illegitimate funds. The checks can be done without the need for paper, empowering homemovers to carry out checks via their phone, speeding up property transaction times and reducing legal fees. This frees up lawyers to give better service and provides a robust tool for preventing UK property money-laundering.

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LAB GROUP SERVICES LIMITED	IBVA - Intra Browser Vulnerability Assessment	£424,792	£297,354

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Project description - provided by applicants

Significant detriments have been suffered by very large numbers of vulnerable people using online financial services, leading to ongoing consultations, fines and regulatory action. However, methods of detecting vulnerability are exclusively face-to-face or phone-based. No online vulnerability assessment methods exist. This is becoming a significant impediment to introducing the regulatory reform needed to protect these vulnerable consumers and democratising online financial services: vulnerable people are just as entitled to use online financial services as anyone else, and should be able to do so safely.

In this project, LAB intends to develop an intra-browser vulnerability assessment methodology that can be applied to financial service organisations' online platforms and thereby help them better identify and serve vulnerable customers.

To identify vulnerable individuals, the methodology will deploy behavioural biometrics. Currently, behavioral biometrics is applied in next-generation user security solutions for online banking, e-commerce, payments and high-security authentication markets. The method is used to identify individuals based on the unique way they interact with computer devices like smartphones, tablets or mouse-screen-and-keyboard. LAB will also detect the unique way individuals interact online, but not to identify individuals or prevent fraud, instead looking for indicators of vulnerability.

Once identified, these vulnerable consumers will then be better served using the latest intelligent personalisation techniques from the marketing world to guide and signpost them appropriately using journey adaption, interventions and nudges.

Improving vulnerable customer protection and experience online will allow these customers to safely enjoy the same benefits of digitised offerings the rest of the population enjoy, potentially impacting 10 million+ people in the UK alone.

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CAMADD LTD	ADditive manufacturing productiVity enhANCEment (ADVANCE)	£499,647	£349,753

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Project description - provided by applicants

Additive Layer Manufacturing (ALM) or 3D printing of metals has seen steady growth in technology development and a growing list of applications over the past 25 years. ALM technologies offer users the opportunity to produce complex parts quickly, in any metal, and at lower costs compared to traditional routes such as machining. The current commercial ALM systems technology does however suffer from low production rates, lower resolutions, and quality limitations when compared to conventional production routes. The growth rate of the ALM sector has been affected by these limitations. With the growing interest in ALM from a range of sectors such as aerospace, automotive, biomedical, and general fabrication, there is a pressing need to solve the current limitations of ALM. This industrial research project sets out to advance the levels of ALM implementation by delivering new generation of ALM system technology that can break the barriers of productivity, quality and cost, thereby expanding the capabilities and application scope of metal-based ALM systems across all industrial sectors.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
AMPHIBIO LTD	Amphibio: Development of a physical gill to enable humans to breathe underwater for longer	£295,848	£207,094

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Project description - provided by applicants

Throughout history, humans have pushed the boundaries of possibility. Notably, last year, the dream of personal flight was achieved by French inventor Franky Zapata, who crossed the English Channel on a flyboard powered by a kerosene-filled backpack.

Yet, when it comes to breathing underwater, most people can only survive for a few minutes without bulky and expensive life support equipment. Self-Contained Underwater Breathing Apparatus (SCUBA) provides breathing air/oxygen from high-pressure compressed air tank(s) and expels exhaled air (through a regulator) into the surrounding seawater (as noisy and visible bubbles). Compared to SCUBA systems, rebreathers offer longer dive times (at any depth) by recirculating the exhaled air, removing the carbon dioxide, and replenishing the air with breathing gas/oxygen from a tank. Rebreathers provide silent, bubble-free diving and are predominantly used in professional diving; for example, in scientific research and military applications.

Carbon dioxide removal is a critical step for rebreathers and relies on a canister containing soda lime, known as a scrubber. The soda lime absorbs carbon dioxide from the exhaled air, but requires regular replacement, approximately every 2-3 hours of diving time. If water comes into contact with the soda lime, a highly corrosive liquid is formed, known as a "caustic cocktail". This can cause significant injuries to a diver's face and airways and even prove fatal.

Gills have proved an inspiration to inventors hoping to overcome the limitations of existing underwater breathing equipment by extracting dissolved oxygen from seawater. But, the challenge for humans is to develop a gill that is able to extract sufficient oxygen from seawater to support breathing.

Nevertheless, the gill concept has the potential to revolutionise existing underwater breathing apparatus. Inventor Jun Kamei, a designer and material scientist, has developed a concept for a gill that will enable humans to breathe underwater for longer, inspired by the physical gills used to support underwater respiration by air-breathing diving insects and spiders. His start-up, Amphibio, has received funding from the Royal College of Art and the Defence and Security Accelerator to complete the initial design work and laboratory study, validating the potential of his patent-pending wearable gill approach.

With funding from Innovate UK, Amphibio will develop a gill that can extend dive times by replacing the carbon dioxide scrubber in rebreather diving systems, while supplementing the oxygen-tank supply with dissolved oxygen extracted from seawater. Amphibio's novel approach has the potential to revolutionise human life underwater.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
OSLER DIAGNOSTICS LIMITED	An innovative universal point-of-care diagnostic platform delivering cost-effective, high-sensitivity and multiplexed testing targeting rapid detection and diagnosis of sepsis	£499,892	£299,935

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Project description - provided by applicants

Sepsis, a dysregulated immune response to infection leading to organ failure, is the leading cause of preventable death in the UK. Annually there are ~250,000 sepsis cases resulting in 46,000 deaths at a cost of ~£1.5Bn to the NHS and ~£11Bn to the UK economy.

Early detection and treatment of sepsis significantly improves patient outcomes, with >50% reduction in mortality and morbidity if treated within 1 hour of hospital admission.

Procalcitonin 'PCT', realised during organ necrosis, is the leading clinically validated biomarker for sepsis. PCT is frequently tested in combination with biomarkers such as C-reactive protein 'CRP' (inflammation) to provide a putative diagnosis.

For reliable detection/diagnosis, PCT assays require high-sensitivity measurement within the hospital laboratory. Such tests are slow, delaying access to urgent care. Currently >37% of sepsis patients do not receive treatment within 1hr resulting in 14,000 preventable deaths.

Whilst some devices exist enabling rapid (<15 minutes) PCT testing at point-of-care (PoC), these devices fail to deliver laboratory quality measurements thereby limiting clinical usefulness.

These devices are also restricted to only a handful of biomarkers with limited multiplexing capacity (restricting follow-up/alternative testing) and are expensive.

Osler seek to overcome these challenges through development of the world's first universal PoC diagnostic platform delivering real-time, high sensitivity, high multiplexed and cost-efficient testing for any of the majority of clinical biomarkers from a single drop of blood. The platform is enabled through a portfolio of advanced electroanalytical techniques.

The project will further develop and demonstrate the platform for rapid high-sensitivity measurement of PCT and CRP.

Key areas of focus include PCT assay development, biosensor development incorporating the PCT and CRP assays, development of the PCT/CRP test cartridge, integration of the novel test cartridge with Osler's existing measurement instrument, and demonstration of performance in comparison with conventional laboratory testing using patient blood samples.

The global market for sepsis diagnostics is forecast to reach £742M by 2025 at a CAGR of 9.8%.

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TCC-CASEMIX LIMITED	HOSP: Hospital Operations for Sustainable Productivity	£131,782	£92,247
Salford Royal NHS Foundation Trust		£2,348	£0
SNOMED INTERNATIONAL LIMITED		£24,474	£17,132
University of Plymouth		£39,766	£39,766

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Project description - provided by applicants

The major issues addressed by HOSP.

* HOSP is to be an exemplar of transformational change in NHS hospitals by driving substantial improvements in productivity, and revenue generation. There is much comment in the media about long waiting lists for surgery and winter demand exacerbating this. But behind the statistics lays another perspective: that of poor productivity in England's operating theatres.

* The productivity challenge was first raised by the Carter Report in 2016, the focus of which was raising the level of productivity in non-specialist acute hospitals. In the intervening years little seems to have changed.

* February 2019: The NHS Improvement report \[_Opportunities to Reduce Waiting Lists_] concerning the management of surgical waiting lists identified that nearly 300,000 patients each year had their urgent operations cancelled, directly because of poor planning. This also leads to a loss of revenues for all 156 acute trust of £1.25b annually and about £7.5m for each acute trust (using NHS Reference Cost datasets).

**How will HOSP solve the problem?*

* HOSP offers a transformational new approach by addressing a fundamental need for a new dataset in surgery focused on productivity, work or effort. Uniquely it will use a coding strategy that will provide an internationally accepted coding structure aligned to the new dataset. This will create whole new insights for the forecasting and planning of surgical procedures so that productivity of operating theatres is optimised.

* The innovation will also enable NHS trusts to use the new data to analyse financial performance of their surgical divisions through profit and loss accounting. NHS Health Episode Statistics do not currently recognise the concept of work or effort.

**Will HOSP deliver value for money?*

For every £1 spent on HOSP technology licence fees, £6.36 of benefits realisation will be accrued by the trust.

The HOSP team.

* The project will be led by a new start-up: TCC-CASEMIX Limited under the direction of Dr Bacon, who has extensive experience across Europe of surgical performance improvement. Sub-contractors will provide specialist skills to support this work.

* A primary partner is the Northern Care Alliance NHS Group with 5 hospitals and 63 operating theatres. The group is to be a 'digital exemplar' for England's 156 NHS trusts. The group has recently announced a partnership with Hitachi to develop a trust wide clinical information system. TCC-CASEMIX is to be an exemplar of a new generation of med tech enabling flow of data across the connected enterprise.

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DESIGN LED PRODUCTS LIMITED	PROMOTION – PRinted electronics: cost & Materials Optimised LED Lighting SoluTION	£140,311	£98,218

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Project description - provided by applicants

SME DesignLED's have a patented LED lighting technology which enables the uniform backlighting of overlay materials such as veneers or cloths. PROMOTION will deliver a scalable, cost-optimised revision delivered by a significant reduction in LED quantity.

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ORIBIOTECH LTD	Development of Integrated In-Process Monitoring to Enable High Throughput Cell and Gene Therapy Manufacturing	£495,466	£346,826

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Project description - provided by applicants

Ori are developing the next generation of solutions for manufacturing cell and gene therapies (CGT) at commercial scale.

CAR-T cell therapies are a type of CGT that have been shown to be incredibly effective in treating life-threatening conditions, including blood cancers and holds great hope in solid tumours; however, there are huge problems in the way these therapies are manufactured.

These problems are leading to patients having limited access to these potentially life-saving therapies. This project focusses on the development of technology that will allow therapies to be made with maximum efficiency and to the highest quality, with the fastest throughput. This will address huge challenges currently encountered with manufacturing CGT and specifically, CAR-T cell therapies.

Ori's vision is to enable access to these life-saving therapies for patients suffering from aggressive forms of cancer and other serious conditions. Ori technology will enable this access by improving how manufacturing is carried out and reducing the cost, which is currently extremely high (about £175K per therapy dose made).

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LABGENIUS LIMITED	LabGenius: Discovery and design of orally available next generation therapeutic candidates using a proprietary machine learning-driven evolution engine (EVA)	£498,791	£349,154

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Project description - provided by applicants

****The Company****

LabGenius is a drug discovery company that develops protein therapeutics using its novel drug discovery platform, EVA. This next-generation protein engineering platform integrates several cutting-edge technologies from the fields of synthetic biology, robotics and Machine Learning. EVA can design, conduct and learn from experiments to discover novel therapeutic assets that the lifescience industry is currently unable to achieve and to progress to pre-clinical and clinical trials.

The biologics drug discovery market is valued at approximately £9.2 billion, of which the phase of lead optimization was valued at about £4.6 billion (Statistica, 2019).

****Project Motivation****

LabGenius aims to use the novel EVA platform to deliver a first-in-class oral delivered drug for the treatment of Inflammatory Bowel Disease (IBD), a gastrointestinal condition comprising Crohn's disease (CD) and ulcerative colitis (UC). IBD is a chronic disease that affects 0.5-1% of the population with an estimated 620,000 affected in the UK. The average annual care cost is over £4,600 per patient in the UK.

Gold standard treatment is with biologic therapeutics. However, biologic drugs can only be administered systemically as the harsh conditions of the stomach and small bowel result in rapid degradation.

This project would result in protein antibodies resistant to the pH, proteases and temperature of the GI tract. If successful, it would allow biologics to be delivered orally and would not only be a paradigm shift for the treatment of IBD but also open an entirely new method of administration of antibodies which are currently only administrable parenterally. The chosen drug target is a valid one as there is already a successful injectable drug on the market that is directed to it.

This project is anticipated to deliver transformative effects for LabGenius opening new markets, generating revenues and team growth, and driving R&D investment - benefiting the UK economy.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
QV BIOELECTRONICS LTD	Industrial Research Project to develop implanted electrodes to treat brain tumours	£114,800	£80,360

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Project description - provided by applicants

Glioblastoma multiforme (GBM) is the most aggressive form of brain cancer. Even with the best available treatment, patients are only expected to live 14 months post-diagnosis. GBM is very difficult to treat, with the 5-year survival rate at 5%; by comparison, this figure is 89% for breast cancer. GBM patients are in desperate need for more effective treatments, and at QV Bioelectronics our goal is to develop an electrotherapy device to provide pain-free, side-effect free treatment to improve the clinical outcomes for GBM patients.

This Innovate UK funded project aims to conduct industrial research to support the development our medical device. The outputs of this project will be used to lay the foundations of the eventual clinical translation of our technology, bringing benefits to brain tumour patients worldwide.

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OCTOPODA INNOVATIONS LTD	Innovation in Effervescent Product Manufacturing and Packaging	£96,411	£67,488
HEALTH INNOVATIONS (UK) LIMITED		£94,652	£56,791
University of Bradford		£67,480	£67,480

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Project description - provided by applicants

The effervescence producing products are popular in nutritional supplement, pharmaceutical, food, detergents and agrochemicals. The fizziness is caused by acid and base such as citric acid and sodium bicarbonate reacting in the presence of water. Citric acid in effervescent products absorbs moisture when exposed to air and a reaction between acid and base starts to produce water and carbon dioxide. This water further destabilises the product by helping further reaction between remaining acid and base. To prevent citric acid from absorbing moisture during manufacturing, the manufacturing area is maintained at low humidity conditions. The products are packed in moisture resistant packaging such as plastic tube with silica to absorb moisture, this adds around 18G plastic to the waste per 20 tablets. This collectively makes manufacturing and packaging expensive and damaging to the environment.

We have developed EfferShield technology uses non hygroscopic cocrystal form of citric acid. The moisture resistant cocrystal of citric acid does not react with the base till it is added to the water. The moisture resistant behaviour of EfferShield allows packaging in the water soluble edible seaweed or polymer film. This will significantly reduce plastic waste issue. Another issue with effervescent products is high level of sodium which may be bad for blood pressure and heart conditions. As EfferShield does not react at low humidity it requires less sodium bi-carbonate and in turn has less sodium levels. We aim to develop EfferShield with at least 50% less sodium and packaged in edible seaweed sachet. This will provide significant health and environmental benefits apart from manufacturing advantages.

Octopoda Innovation, an innovation based start-up which has licensed-in the patent rights of EfferShield from University of Bradford is leading this proposal. Health Innovations will scale-up the process of manufacturing of EfferShield. The outcomes of this proposal will provide commercialisation confidence and open up opportunity for new export markets.

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YOURTOUR VENTURES LIMITED	YourTour-360 Immersive Video Engine	£150,301	£67,635

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Project description - provided by applicants

Imagine being able to 'experience' a place without having to be there... a property you might consider buying or a hotel you're looking to stay at. Beyond curiosity and impressed, what would that mean for you? Would you feel more confident about making better, more informed choices and decisions?

Now imagine being able to immerse yourself in the experience on your phone or tablet -- with or without a Virtual Reality headset. This is called a '**virtual tour**'. In a fully immersive virtual tour experience, you are able to walk through a premise, explore and interact with your environment, getting a realistic feel for the space.

YourTour is an award-winning company that specialises in the creation of immersive and interactive virtual tours, with clients including _the National Trust, the Wallace Collection and Invest in Nottingham_. Founded by a highly skilled team and led by the founder of the hugely successful Lovestruck dating app, **YourTour's mission is to revolutionise digital storytelling - for _everyone_, regardless of age, physical health or location**.

YourTour combines the best parts of 360 Experience and 2D video tours. The result is an astonishing combination of fluidity, interaction, immersion and storytelling. An important part of the unprecedented experience achieved is through the application of smart algorithms to remove objects that affect immersion, such as views of the cameraman, reflections and shadows.

YourTour have produced an ecosystem of tools for the creation of immersive 360 video tours. The missing piece is the DIY desktop creator app, _YourTour-360_, empowering users to cost-effectively create their own tours.

No existing application allows users to benefit from the immersive and storytelling potential of 360 video for virtual tour creation. By improving the computation time and automating the process of upgrading a raw 360 video into an immersive tour, _YourTour-360_ will be truly innovative and will pave the way for a widespread adoption of 360 and VR technology.

Welcome to the future of immersive storytelling -- with YourTour, you'll explore like _never_ before.

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CAROCCELL BIO LTD	Controlling inflammatory response: Using innovative peptides and nanoparticle technology to significantly reduce the damage and impact on skin of 2nd and 3rd degree burns	£390,874	£273,612

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Project description - provided by applicants

NHS Burns Services treated more than 15,000 patients for burns and scalds in 2017 with costs exceeding £20million and the most severe burns costing £95,000 to treat. The true cost (hospital treatment/operative costs/dressings/staffing/lost productivity/physical and mental health implications) can reach ~£126,000/patient, totaling £1.9billion/year for the UK economy.

The resultant acute inflammatory response, whilst fundamental to the healing process, when prolonged can be highly detrimental and lead to scarring and fibrosis which can be disfiguring, functionally restrictive and may require revisionary surgeries. Severe burns may display chronic, persistent inflammation long after initial injury and can even result in multiple organ failure due to systemic inflammatory response syndrome. Therefore, it is imperative that inflammation is effectively managed following burns injuries. Additionally, whilst burn injuries are sterile at time of injury, rapid blistering and necrosis of the injured tissue soon opens the wound up to pathogens and infection risk.

The global burns care market is experiencing significant growth (£2.5billion by 2026), dominated by dressings (collagen/hydrogel), traditional burn creams and anti-inflammatory drugs. These current solutions focus only on treating the side-effects of burns, with currently available anti-inflammatories either poorly effective, toxic, causing GI upset, liver/kidney failure and other serious side effects. There is a clear unmet healthcare need for a safer, more specific/effective inflammatory therapeutic.

The proposed project seeks to develop a novel peptide medicine delivered using a patented, safe nano-particle delivery technology. Unlike competing solutions this will switch off and prevent the inflammatory response with exquisitely specific inflammation blockers, so only tiny doses will be required to cure serious inflammatory diseases. This will generate significant socio-economic impacts e.g. reduced time and cost of burn treatment to the NHS and patients, reduce the amount the NHS spends on ineffective inflammatory disease treatment and reducing costly health complications.

Work to date has focused on initial in-vitro testing demonstrating the lead compound is highly specific, switches off inflammation, prevents activation of inflammation and that nanoparticles are safe in humans' cells. Bridge Biotec have already gained strong interest from mid-level/large pharma placing them in a strong position for licensing and revenue generation within 6 years. It is now critical Bridge Biotec technically advance the solution with this project focusing on development to TRL4 to assess its efficacy in human ex-vivo tissue studies.

The project will deliver significant export led growth for Bridge Biotec, a substantial ROI, increased employment and further opportunity for R&D investment.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
VIVIDQ LIMITED	Development of a first-of-its-kind Augmented Reality Holographic Headset prototype demonstrating the potential of computer generated holography to revolutionise AR and digital display industries, through best-in-class optics and ergonomics	£477,122	£333,985

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Holography is considered the ultimate display technology and appealed to the imagination of millions through science fiction franchises such as Star Wars. While physically possible, the tremendous computing requirements to create full-depth holographic display made it unreachable for commercial applications. VividQ has developed and patented the world's first software framework to enable commercial applications of real-time holographic 3D display in Augmented Reality/Mixed Reality (AR/MR) headsets, smart-glasses, automotive head-up displays, and consumer electronics.

A key hardware constraint to delivering fully immersive holographic display today is achieving full (i.e. 120°), 3D, colour, binocular, high-resolution field of view (FoV). The current state-of-the-art supports only 20°-30°. Therefore, the aim of this industrial research project is to create a proof-of-concept demonstrator headset with as wide a FoV as possible.

The focus of the project will be creating three proof-of-concept demonstrators where the third iteration could be used as the basis for 3rd party demonstration and evaluation kits. The key innovations will be:

- * Integration of the latest research in secondary (image projection) optics, reducing the size and mass of the head-set, addressing key barriers to user adoption, and approximately doubling the FoV;
- * Use of novel techniques to expand the eye-box in which the holographic display is visible, with a corresponding significant improvement in head-set ergonomics.

The central project benefit is addressing the key barriers to adoption of holography as a display technology, demonstrating that:

- * The specific holography FoV challenges can be overcome to deliver a solution matching the best in alternative technologies;
- * Significant steps forward have been made in image quality, with the potential to match the best alternative display technologies can offer;
- * Ergonomic issues with holography in the size of the eye-box can be effectively resolved, putting consumer-acceptable solutions within reach.

It provides VividQ with a platform to demonstrate the capabilities of their cutting-edge algorithms and advantages of holography compared to other display technologies, helping to secure the UK's position at the forefront of the next display revolution.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
FUEL ACTIVE LIMITED	iFuelActive - Smart diesel fuel solutions for the low carbon transition.	£498,249	£348,774

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Fuel becomes contaminated over time and contamination is mainly a result of either water, bacteria and/or particulates settling to the bottom of the tank and then being extracted by standard fuel pipes. Water in diesel fuel is the leading cause of contamination, causing pump and injector failures [Parker, 2018]. It is also the toughest to combat, with no universal solution for prevention as water precipitates to the bottom of the tank [Axi International, 2019].

Fuel contamination can lead to engine damage, machine downtime and reduced productivity, particularly in sectors such as construction (currently the least productive sector in the UK) and agriculture. Research in the industry and from existing clients (Volvo, Komatsu, GroundHog) indicates that there is an unmet need for monitoring fuel within fuel tanks and the identification of contamination levels. Currently, the only method to address this is to manually check the inline filters and conduct regular fuel tank cleaning which requires expensive, bulky tools.

Fuel Active Ltd (FAL) are building on proven success in the fuel contamination market, having developed a floating fuel extraction pipe to ensure that the cleanest fuel is delivered to the engine, mitigating the risk of injector damage and engine failure. This proposed project is focused on developing **FuelActive**, a smart fuel extraction unit which uses in-tank sensors and telemetry to remotely monitor fuel quality (levels; water content; temperature; flow rate, particulates) and report on any issues to equipment users. The reporting will be done via a control unit which sends data to equipment owners and users who can then incorporate preventative maintenance into their scheduling, whilst more accurately monitoring fuel levels across assets. This data-driven decision making will ensure reduced downtime and efficient fuel management within fleets. As the supply of cleaner fuel allows diesel engines to operate more efficiently, harmful emissions from exhaust gases are reduced, which helps these energy-intensive markets reduce carbon emissions, and assist the UK in achieving its goal of net-zero emissions by 2050.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
NEWROTEX LIMITED	Development of tubular silk conduits for housing nerve-regenerating silk fibres	£246,795	£172,756

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Damage to peripheral nerves through trauma and cancer surgery results in loss of function and significant morbidity worldwide. There are currently no implantable devices for peripheral nerve injury (PNI) as effective as the gold standard autologous nerve grafts. However, these are expensive to perform, require sacrificial nerves from a donor site in the patient and have limited success. Thousands of these procedures are performed each year and cause harm through the loss of the donor nerve and carry high risk of morbidity for transplanted nerves and chronic pain from tangled nerves. In addition, there are many cases, particularly where PNI is from direct trauma, where it is not possible to use an autograft, but an alternate off-the-shelf stent could be used.

Our first (IP protected) product is a peripheral nerve repair bridge with a standardised design that will be available off-the-shelf in a range of lengths. Stents 3 cm in length will be compared to autografts (2-3 cm as standard) with the option for longer lengths (<5 cm). The bridge is an all silk biocompatible tubular silk conduit surrounding silk fibres of bespoke dimensions. These luminal fibres have proven nerve-regenerating properties with the sleeve tube designed to protect the growing nerves and encourage vascularisation.

Given that peripheral nerve fibres are the same everywhere in the body we provide a new approach to treating patients for injuries caused by trauma or invasive surgery that would currently face absence of treatment options or suffer the morbidity of autograft repairs.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
IO-CYTE LIMITED	Triple-action treatment for improved outcomes for slow-healing leg ulcers, pressure sores and diabetic ulcers	£496,894	£218,633

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Around one million patients in the UK are treated every year for complex, slow-healing leg ulcers, diabetic ulcers or pressure sores. They need their wound dressings changed at home or at their local practice, sometimes once a week and sometimes every day. The goal of the project is to develop a wound treatment in dressing form that addresses the major challenges in caring for these complex non-healing wounds, improving the lives of patients and saving some of the estimated £5bn per year that the NHS spends on wound care. With the UK's aging population, the rise in obesity and the epidemic of Type 2 diabetes there is increasing need to treat slow-healing leg ulcers, pressure sores and diabetic foot ulcers at home or in primary care.

This project combines multiple benefits for healing wounds in one treatment in a dressing with a long wear time that can be used in community setting. Wounds are often "stuck" in a chronically inflamed state and are likely to have bacterial biofilms that slow down or stop the healing process. Our research carried out to date shows we can combine in a single dressing an anti-inflammatory compound that can speed up wound healing with an ability to reduce the recurring infections in wounds and absorb large amounts of fluid from the wound. This promises to be a break-through solution for the societal needs identified above.

Io-Cyte Ltd ([www.io-cyte.co.uk][0]) is a new woundcare technology company that has been spun-out from Xiros Ltd, an established company specialising in orthopaedics. The work comes from research done in Xiros' biomaterials research facility. The product that Io-Cyte will develop and bring to the market is based on patents that we have filed as a result of the biomaterials research.

[0]: <http://www.io-cyte.co.uk/>

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DSCIENCE LTD	Detecting the presence of invasive plant species: More quickly, cheaply and safely using AI and machine vision	£95,043	£66,530
NERC Centre for Ecology and Hydrology		£23,606	£23,606

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Invasive Non-Native Species (INNS) are organisms introduced into areas outside their native region where they then threaten ecosystems. They are regarded as one of the top five threats to biodiversity worldwide (IPBES, 2019), as well as having significant economic impacts, with companies in various sectors such as transport and utilities spending considerable time and resources to identify and remove them. Current methods for identifying the presence of INNS rely on ecological surveys, which are time consuming and costly, especially within road and rail infrastructure. Keen AI, the UK Centre for Ecology and Hydrology (CEH) and Time-Lapse Systems are combining their expertise in Artificial Intelligence (AI), INNS and image collection to provide a faster and more efficient method of conducting surveys of this kind.

Keen AI has expertise in providing AI solutions to companies such as National Grid, helping to streamline their visual condition assessment process. CEH have a long track record of research on invasive species and are pioneering image recognition services for Japanese Knotweed with the conveyancing sector. Time-Lapse systems are experts in capturing imagery for specialist applications. Our complementary experience, skills and resources provide an opportunity to develop a novel AI platform for detecting the presence of invasive species.

Current solutions for surveying an area for INNS include sending ecologists to perform a manual survey, which is time-consuming and costly, or the manual review of photographs taken from high definition digital cameras attached to drones or planes. Using AI technology, our proposal would reduce the time it takes to conduct an ecological survey of this kind, producing cost and time savings for the customer, and providing location specific information to support decision-making and management actions.

Our project vision is to assess the feasibility of developing an AI platform for detecting the presence of invasive plant species within linear infrastructure. This innovation will provide a rapid, high quality vegetation survey methodology, which will result in cost and time savings for our customers, and result in an increased understanding of market requirements for an AI innovation of this type. The project will have four key objectives:

1. Collection of vegetation imagery of sufficient quality;
2. Training of AI algorithms to identify INNS in the image dataset;
3. Processing high volumes of images to locate INNS geospatially; and
4. Evaluation of the AI model performance.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
IMSPEX DIAGNOSTICS LIMITED	Fighting Antibiotic Resistance with Point of Care Breath Analysis	£350,769	£210,461
University of Warwick		£149,171	£149,171

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Due to the over prescription of antibiotics in cases where they do not help people get better, some bacteria have become resistant to them. To slow down this resistance, doctors need to prescribe less antibiotics in cases where they will not help. One way to do this is by developing a test to detect if a patient has a bacterial infection or not. This test should be quick, cheap and simple to undertake both at a GP surgery and in hospital and with no inconvenience a patient and preferably non-invasive.

There is a need for a point-of-care (POC) diagnostics device to assist clinical decision making in the administration of antibiotics. Simply being able to identify if a patient is suffering from a bacterial, viral or fungal infection could produce a significant reduction in drug administration -- the key is to provide the clinician or GP the confidence NOT to prescribe a drug

IMSPEX Diagnostics Ltd will further develop their Breathspect(r) device, which has already been successfully trialled on patients with respiratory tract infections. The developments are needed to make the Breathspect(r) device compliant with legislation for medical devices. As this is a complicated process, IMSPEX will have help from leading research scientists from Warwick University, specialist design engineers and the NHS. Creating a cost-effective, quick and easy-to-use test for deciding if patient have a bacterial or viral chest infection.

IMSPEX Diagnostics Ltd will bring to market a diagnostic tool that can assist in antibiotic stewardship and rule out inappropriate antibiotic use. This will give both patients and doctors confidence in the decision to prescribe antibiotics or not. This concept is so innovative that there is currently no other company actively developing an AMR test that uses breath analysis. This means that there is an opportunity for IMSPEX Diagnostics to be first to market with such as test.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
UNIMAQ LTD	Torch 2	£254,557	£178,190
INNOVAL TECHNOLOGY LIMITED		£78,832	£39,416

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Project description - provided by applicants

Most of the plastic manufactured has been discarded as waste, causing environmental and social damage of €2.2 trillion/yr and pollutes the oceans whereas aluminium has a high recycling rate that for beverage cans, is 49.8% in the US compared to 29.2% for plastic (PET) and 26.4% for glass. Bloomberg reports that Nestle SA and Unilever have announced plans to make packaging recyclable or reusable and Coca-Cola will package its Dasani water brand into aluminium cans.

With high-speed canning lines producing up to 2,400 cans/minute 24/7 even small improvements in efficiencies and material downgauging can generate significant savings. Unimaq and Innoval will work together on this project to develop a novel process which promises significant improvements in can body manufacturing efficiencies. In conducting this project Unimaq will partner with Innoval Technology who have specific expertise in aluminium metallurgy and the thermo-mechanical processing of can making alloys.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CONSTRUCTION INDUSTRY RESEARCH AND INFORMATION ASSOCIATION	Making B£ST better: taking the blue-green infrastructure Benefits EStimation Tool online	£394,024	£275,817

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

It is essential that blue and green infrastructure (BGI) is integrated into our towns and cities to enable communities to adapt to the impacts of climate change and to provide resilience to extreme weather. BGI provides an array of multiple benefits that include: improved health and well-being, reduced flood risk; improved air and water quality; natural cooling; enhanced biodiversity and carbon sequestration.

As with any infrastructure project, decision makers need to understand the costs and benefits involved to decide when to invest the time and money required to implement BGI. Many benefits of BGI can be difficult to quantify in monetary terms (e.g. carbon sequestration) and are unfamiliar items to add to balance sheets designed for more traditional infrastructure projects.

The Benefits Estimation Tool (B£ST) is used by water and sewerage companies, local authorities, environmental regulators, flood risk managers, developers, communities, environmental bodies, urban designers, engineers and land use managers to robustly assess and monetise many of the financial, social and environmental benefits of BGI.

Drawing on robust evidence, the results of B£ST's analyses enable users to understand, quantify and monetise the wider value of BGI. This can support investment decisions, help identify stakeholders to enhance discussions and source potential collaborative funding routes for new development and urban regeneration projects.

The current version of B£ST is in spreadsheet format and is free to download and use. The project proposed is to translate B£ST to an online application and a spatial format. The long-term aim is to enhance the tool's usability and functionality, and to provide it in the same or similar format as other planning and decision making tools already in use by the target audience.

B£ST in its existing format has been in use for some four years, with over 3,000 downloads. Moving to an online application will take the technical learning, knowledge and user feedback from development of B£ST and apply it to a new, easily accessible and user-friendly format.

The basic version of B£ST will remain free to use. Licensed versions of the application will be subsequently developed which will be available for purchase by different types of advanced user. This will fund access to data sets and regular updates to online B£ST which will retain its robustness and reliability.

The vision is a user-friendly, online application which supports the implementation of BGI by demonstrating the monetised value that its multiple benefits bring.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
AUDIOTELLIGENCE LIMITED	iHearBetter - a revolutionizing assistive listening device for hearing-impaired individuals	£352,072	£246,450
University of Cambridge		£147,831	£147,831

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

According to the charity Action on Hearing Loss, hearing loss is the second most common disability in the UK, affecting approximately 11 million people. Action on Hearing Loss estimate that this number could increase to 15.6 million by 2035. Hearing loss causes difficulties understanding speech, especially in noisy environments such as restaurants and pubs. As a result, people with hearing loss often start to avoid these environments and can become isolated. Some people are fitted with hearing aids, which work by amplifying speech sounds. However, they can be difficult to get used to and many users continue to struggle in background noise, with some giving up using them.

Technology has been developed to address this problem. One example is loop systems, which function by feeding sound from a microphone into an electrical wire fitted around a room or in a desk. Hearing aids have a programme that picks up sound from the loop system, making it easier to hear sound that is further away; for example, at an event. This relies on the loop system being switched on and functioning correctly and does not help with hearing every-day conversations. Another example is microphones that connect to hearing aids via Bluetooth. They can be positioned close to a sound source and can allow the user to hear that sound better in background noise. Some users have difficulty using this technology and find that it does not completely resolve the problem. In a meeting, for example, several people may start speaking at once and the microphone cannot separate out the voice that a user wants to listen to.

AudioTelligence is a company working with the University of Cambridge to develop a new device to improve the way that people with hearing loss hear in background noise. AudioTelligence have already developed technology that can separate out several different sound sources in noisy environments. The aim of this project is to develop an easy-to-use device that can take these different sound sources and work out which of them a person wants to listen to, based on cues such as eye movements or head turns. As a user turns to look at the person speaking, the device will automatically focus on that signal, blocking out other voices in the room. The device will connect to hearing aids and cochlear implants via Bluetooth and the researchers will work with users to ensure it is fit-for-purpose.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ATLANTIC THERAPEUTICS UK LIMITED	Development and Commercialisation of safe, effective, non-invasive, long-lasting and SMART therapy treatment for stress urinary incontinence	£499,240	£349,468

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Weak or inactive pelvic floor musculature can result in a number of complications for the sufferer. The most common of these problems is that of urinary incontinence - for example 'stress urinary incontinence (SUI)'. This is when the sufferer experiences urine loss on lifting, sneezing, laughing etc. SUI, while not a life-threatening condition, has the potential to have a negative impact on the psychological health of women and to hinder aspects of daily living, thereby having a detrimental effect on quality of life

This development is proposed to enable an extension of our current product INNOVO which is used to improve development and performance of the pelvic musculature. The proposed development is intended to capture both information relating to the performance of the treatment system and also user demographics allowing an analytical approach towards improvement in performance of the therapy and also greater patient compliance. Such information would be a powerful resource when progressing the therapy into other important areas of treatment - for example vaginal prolapse, fecal incontinence etc.

The development also enables simplification of the user experience, with a transformational approach to therapeutic electrode placement and mode of operation (the therapeutic garment resembles standard cycling shorts, easy to don and doff and comfortable when wearing and in use) and also moving the controls for the therapy to a users smartphone, and capturing demographic treatment and performance data on data secure servers.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PATHIOS THERAPEUTICS LIMITED	Rapid translation of small molecule GPR65 inhibitors for cancer immunotherapy	£323,894	£226,726
University of Oxford		£129,911	£38,973

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Project description - provided by applicants

****Pathios Therapeutics**** is a company that specialises in developing molecules that alter the signalling of cell-surface receptors in the immune system that detect changes in pH. The company has particular expertise in the understanding of a receptor called GPR65 and is currently seeking to make drugs that block or 'switch off' the signalling of this receptor to treat diseases like multiple sclerosis and ankylosing spondylitis. Recent scientific evidence suggests that drugs that block GPR65 could also enable the immune system to attack certain types of cancers. Pathios now plans to team up with cancer researchers at the University of Oxford to further capitalise on its expertise around GPR65 and exploit this important additional therapeutic opportunity.

In recent years, immunotherapy agents that target so-called T-cell checkpoints have led to dramatic survival benefits in some cancer patients. However, the majority of patients still do not respond adequately to these new treatments. This is because tumours are able to put up multiple barriers to prevent immune system attack and many of these are not addressed by currently approved therapies. Therefore, new forms of treatment are needed that target these additional immune evasion mechanisms.

One of the key additional barriers to immune system attack that has come to light in recent years is the ability of tumours to disarm specialized cells in the innate immune system called tumour associated macrophages (TAMs), via the creation of a low pH (i.e. acidic) local microenvironment. It is well known that tumours can be more acidic than normal tissues because they rely on a different form of metabolism for growth and survival that creates lactic acid as a by-product. It has also long been known that this altered metabolism, which can be readily detected by a specialized blood test, strongly predicts that patients will respond poorly to current immunotherapy. This is particularly marked in advanced melanoma, a serious form of skin cancer. Recent ground-breaking data has now provided an explanation for this link by showing that tumour acidity disables TAMs by activating the GPR65 receptor and its signalling pathway, leading to significantly worse melanoma outcomes. Therefore, a drug that blocks GPR65 could achieve potentially game-changing results in melanoma. A collaboration between Pathios and the University of Oxford is ideally placed to progress such a drug into clinical development as it brings together cutting-edge knowledge of the GPR65 receptor with an unparalleled clinical understanding of treatment-resistant melanoma patients.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RECYCLEYE LTD	Automated, Digitised and Decentralised Circular Waste Sorting	£499,117	£224,603

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Given all material has value, waste should not exist -- simply materials in the wrong place. Yet, 485m tonnes of material p/a is still not recycled in the UK but sent to landfill, exported abroad, or even worse ends up in the ocean. Currently, the recycling industry relies on large-scale material recovery facilities (MRF) which sort recyclables into usable material (purity = value). However, these require years of planning, large capital investment, numerous expensive machines and still use an agency workforce to manually sort materials. Smaller-scale facilities use manual labour entirely to sort waste as the capital cost for a minimal working MRF is too high.

With this project, Recycleye will disrupt the waste management industry by creating a rapidly deployable, decentralized, scalable, digital & fully-automated sorting solution - mini material recovery facilities (mini-MRF). Recycleye has already developed a state-of-the-art computer vision system using recent advances in deep learning and AI capable of classifying items by material type and brand. The project's key objectives are to augment this vision-system with a robotic arm. A conveyor will carry waste towards the system where the vision unit will detect the different types of recyclables. Then, using a robotic arm the waste types will be sorted into respective piles providing a sorted/pure stream of recyclables that can then be re-injected into the UK economy/ sold to reprocessors.

The project will focus on replicating uniquely human abilities - which machines have up until now not been able to match. The eye: The Recycleye vision system is able to, for example, understand that a piece of cardboard is pizza box (and hence likely food contaminated) even if it is torn, half-hidden by another item and covered in dirt. The arm: A mechanical arm is the most efficient way of removing target materials without having to rely on a material's physical characteristics (densities, ferrousness, form factor, etc). The project will build and test a fully operational mini-MRF ready for mass production.

By developing the low-cost and data-driven sorting solution the recycling industry desperately needs, Recycleye is building the UK's future waste management infrastructure and accelerating the country's transition towards a circular economy.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
WLUPER LTD.	Conversational AI: Domain-specific end-to-end Dialogue System for Transport and Navigation	£499,956	£349,969

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>
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Project description - provided by applicants

When you are thinking of intelligent assistant like Alexa, Siri or Google Home, the only time you will believe if they are really good, is to see if they understand you properly. Most of the time, they simply cannot. It is not the speech recognition or logic part that fails; it is the missing focus of these systems.

Because, they all can do a lot of things reasonably well, but nothing perfectly. Obviously, their goal is a different one: they want to create a general AI, sort of the voice-over for our lives. And to achieve that ambitious goal, we need intelligent agents that are created for a certain purpose, now.

This is exactly what Wluper does: we build Conversational Artificial Intelligence for the transport and navigation space, which does one thing, understanding everything transport-related, but that one thing perfectly.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
ATDBIO LIMITED	Advanced Oligonucleotide Capture Beads	£268,856	£188,199
University of Oxford		£100,776	£100,776

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Single-cell RNA sequencing (scRNA-Seq) techniques are emerging as a tool that can support unprecedented cancer diagnostics.

scRNA-Seq techniques are critical for evaluating tumour heterogeneity at a single-cell level, providing rich data about the varying expression of genes within the 3D tumour environment. This feat is currently unobtainable using the whole-tissue transcriptomics investigational methods that are commonly deployed within hospital laboratories for diagnostic purposes, and by academic research groups for investigational purposes.

As such, scRNA-Seq holds the key to unlock cell-by-cell diagnostics that are needed to fully realise the ambitions of precision medicine.

Droplet-based scRNA-Seq (Drop-Seq) leads the emerging scRNA-Seq techniques. Drop-Seq deploys microfluidics to conjugate individual cells to oligonucleotide-barcoded capture microbeads, which are then encapsulated into aqueous droplets within an oil emulsion.

However, innovations in Drop-Seq and wider scRNA-Seq methods are limited by a worldwide shortage of the microbeads, which are currently manufactured by a sole global supplier.

This project will support ATDBio to develop microbeads exhibiting superior quality to the current microbeads offering, that perform better than the current state of the art, and that have additional uses outside of scRNA-Seq.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ADAPTIX LIMITED	Developing medical imaging technologies to enhance sensitivity in fault detection for safety critical composites used in aviation	£481,697	£337,188

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

****Background**:** Non-destructive evaluation and testing (NDE/T) of components and particularly of components containing composites is challenging. For example, delamination is a mode of failure where a material separates into layers. A variety of materials including laminate composites can fail by delamination. In laminated composites, the adhesion between layers often fails first causing the layers to separate. For example, in fibre-reinforced plastics, sheets of high strength reinforcement (e.g., carbon fibre, fibreglass) are bound together by a much weaker polymer matrix (e.g., epoxy). In particular, loads applied perpendicular to the high strength layers, and shear loads can cause the polymer matrix to fracture or the fibre reinforcement to de-bond from the polymer.

Waviness in composite material is almost unavoidable in thick parts during manufacture. It can originate from a variety of sources and have a very significant impact on static and fatigue failure -- through thickness strength can be reduced by $\gt 50\%$; tensile strength reduced by $\gt 30\%$; and, compression strength reduced by $\gt 30\%$.

Currently successful composite non-destructive testing (NDT) techniques for small laboratory specimens, such as radiographic detection (penetrant enhanced X-ray) and hydro-ultrasonics (C-scan), are impractical for large components and integrated vehicles. It is clear that new reliable approaches for damage detection in composites need to be developed to ensure that the total cost of ownership of critical structures does not become a limiting factor for their use.

****Vision**:** We will apply novel techniques developed for medical imaging to NDT to transform the sensitivity and the speed of test, and hence transform maintenance economics for aviation. We will apply concepts from medical imaging to better identify known failure modes in composite manufacture, specifically wrinkles in the fibre and delamination. We will allow the scaling of such tests such that they could be used on large aviation components such as sections of wing or entire composite turbine blades.

****Focus**:** We will focus on identifying delamination and wrinkles as these are the failure-modes with greatest safety and economic relevance. Specifically we will achieve this using imaging techniques which will be economically practicable and can be used during manufacture and routine maintenance.

****Innovation**:** We will apply novel Digital Tomosynthesis (a technique used in breast screening) to imaging composite structures which will go beyond Laminography in the ability to detect key failure modes. We will develop novel fiducials to increase sensitivity to key failure modes. Doing the later will also allow verification of provenance.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ORIGIN PACKAGING LIMITED	Development of the next-generation intelligent medical packaging - using advanced micro electronics, Cloud-based IoT and big data technology to tackle medical non-adherence.	£489,948	£342,964

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

****Problem****

Medical adherence is a global epidemic which needs to be addressed - from elongating recovery times and waste, to helping viruses develop resistance to drugs and the Opioid crisis - the consequences of patients not correctly taking their medication are extremely damaging and costly.

The ultimate cost is loss of life; in the EU alone an estimated 200,000 (125,000 in the US) people die prematurely as a result of not following their medication regime properly.

The financial costs are staggering also, globally, medical non-adherence costs healthcare providers £487bn [(Source- Healthprize)][0]. In the UK the [Adherence-Lets Take Care][1] of it campaign states non-adherence is draining a cash-strapped NHS £500m/annum. Money that could be used to hire extra staff, fund vital surgery or cover some of the costs of life-saving cancer therapies.

****Origin's Solution****

Origin Pharma's vision is to create "next-generation intelligent blister packs"- the concept is to wrap medication blister packaging with our Digital Wallet (created via Patented technology), the Digital Wallet will communicate with our cloud-based data platform as and when blister cavities are opened.

The data will then be utilised by our Patient Engagement & Data platform to track and trace the interaction between the patient and the meds, 24/7. This time critical information will allow HealthCare providers to engage with patients proactively to ensure medication adherence and offer many wider benefits to the industry and society(see outputs).

****Project Focus****

Utilising advanced micro electronics, Cloud-based IoT and big data technology, we will create a prototype TRL5 digital wallet (miniaturised/agile/scalable) that will be sealed (tamper evident) around a blister pack, transmitting real time data notifications to an industry standard AWS cloud based data platform.

The prototype will then be trialed via an NHS led clinical trial to test the robustness and positive potential of the innovation; create proprietary data and demonstrate technical feasibility to the NHS/healthcare providers.

****Outputs****

- * A TRL6 (post trial) Digital Wallet technology-modular, agile, sustainable
- * Independent validation by NHS
- * Reduction of loss of life to vulnerable patient groups
- * Reduction of clinical trial patient attrition from ~30% to <5% (improve time to market\> saving lives)

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

- * Reduction in financial loss of medical non-adherence - currently £487bn globally
- * Improved industry-wide insight into medication adherence via proprietary-data generation
- * Waste prevention(Environmental)- In Wales, more than 250 tons of out-of-date, surplus and redundant medicines each year
- * Reduce the burden on loved ones/cost of assisted adherence

[0]: <https://healthprize.com/blog/medication-adherence-pharmas-637-billion-opportunity/>

[1]: <http://www.letstakecareofit.com/wp-content/uploads/2015/10/The-True-Cost-of-Medication-Non-Adherence-Report.pdf>

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GRAVITY SKETCH LIMITED	GS-SUBD	£456,225	£319,358

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

VR has the potential to revolutionise the creation process in the Film/Gaming industries (£4.6bn opportunity) by enabling immersive real-time collaborative creation.

Designers in Film/Gaming often work remotely as freelancers in individual silos, although their work is brought together at the end for the final product (film scenes/game levels). This is because there is no collaborative creation software currently available, and this leaves room for miscommunication/inefficiencies.

Also, designers use multiple types of 3D modelling techniques. Currently, design software each only focus on one modelling technique, so designers have to use several software packages for creation (e.g. Maya, 3DSMax, Blender). This is inefficient, as it requires the designer to import/export data between programs, and results in data translation errors and manual rework. Each program also has different user interfaces (UI) and user experience (UX), so designers must spend significant time mastering multiple tools to be able to stay competitive.

Immersive real-time collaborative creation software which allows users to model seamlessly using both SubD and NURBS would allow designers to create using one software, reducing the time spent manually fixing data translation. Also, designers would only have to learn one software, leading to the democratisation of 3D modelling amongst the design community. Finally, enabling stakeholders to review work remotely in real-time will enable regional UK businesses without overseas offices or large travel budgets to more effectively compete for international customers.

Gravity Sketch will conduct deep R&D to engage the market and prototype GS-SUBD, an immersive, collaborative all-in-one 3D modelling software. This would allow users to switch seamlessly between SubD/NURBS and conduct remote, immersive reviews with other stakeholders in real-time.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VALUE CHAIN LAB LTD	FLOX - Freight Collaboration feasibility study	£108,249	£75,774

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Freight in the UK is a £85bn industry that chronically suffers from capacity underutilisation, environmental damage and worsening transport congestion. The 2050 CO2 reduction target to Zero demands radical approaches to management of logistics. Project FLOX aims to assess feasibility to develop a truly innovative 'Freight Collaboration Platform' that will significantly simplify and actively facilitate inter-company collaboration through real-time identification of load matching and capacity sharing opportunities. Industry has, for years, been trying to address this challenge with a variety of initiatives that have to-date delivered limited results. Only recently have the Cloud and Big Data innovations paved the way for potential solutions. That is why VCL, in collaboration with Oxford and Cambridge universities, wants to initiate this project and build a prototype of this revolutionary cloud-based platform. Our industry partners have already expressed interest in supporting the project with their data and user feedback which will ensure usability, required functionality, performance and the target benefit delivery.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TIKA DIAGNOSTICS LIMITED	An innovative system for diagnosing tuberculosis in children	£95,001	£66,501

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

A quarter of the world's population are already latently infected with Mycobacterium tuberculosis (MTB). In 2018 the WHO reported 1.1 million children became ill with TB leading to 205,000 child deaths. Accurate diagnosis is critical to deliver effective treatments, limit spread and support global eradication.

There are several TB diagnostic test types - radiographic methods, culture methods, nucleic acid testing, phage assay, cytokine detection test, detection of drug resistance, and Mantoux test. Culture methods remains the gold standard for confirmation of diagnosis and determination of full antibiotic resistance patterns.

Unfortunately, in children, 40% of lung TB cases have such low MTB numbers present that culture confirmation is never achieved. Improved culture diagnostic tests are urgently needed.

Tika is developing a game changing TB diagnostic culture enhancement kit that uniquely increases the capability of Mycobacterium tuberculosis (MTB) to grow, be detected and typed for antibiotic resistance in conventional media. The kit also offers a novel method for sample preparation from faeces that will transform sample collection from children, enabling much higher detection rates without the distress of current techniques. Nothing like this currently exists in the market.

WHO estimates 60 million TB tests including 3-4 million MTB culture tests are performed annually. Culture based tests lead the TB diagnostics market and this is likely to continue on account of the ability to accurately diagnose and confirm active tuberculosis. (Transparency Market Research). The market segment for MTB culture is \$600 million and estimated to grow by 4% CAGR over the next 4 years. WHO is applying pressure on the market through their global "End TB" strategy.

Tika has a world leading team of TB experts developing the products, with a clear roadmap to take them to market. The outputs of this project will guide product development, support further development of the business plan / routes to market, and underpin the raising funds to finance the development. The project provides excellent value for money, both economically and for patients.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SWITCHEE LIMITED	Switchee: Improving lives through smarter energy and asset management	£496,896	£347,827

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Switchee is the market leader in IoT-enabled data analytics for the residential landlord market. Our mission is to help landlords access the information they need to deliver exceptional homes to their residents while reducing carbon emissions generated by the housing sector.

We are currently working with over 50 housing providers. Our initial market focus has been on UK social housing, but we have big ambitions to help improve the quality of other sectors of the housing market in the UK and beyond.

What makes Switchee stand head and shoulders above any other competitors is our access to multiple real time, accurate data feeds, coming directly out of the properties we help to manage.

Switchee installs internet-connected devices in each property. Our unique equipment allows residents to make better use of their heating system. It also provides the raw data feeds Switchee uses to generate real time analytics on how the property is performing.

This project aims to expand the scope of services and analytics that Switchee can offer to landlords by building on top of our novel hardware.

When this project is completed, Switchee will be able to:

- * help landlords quickly identify if a property is suffering from damp and mould
- * enable facilities managers to target the properties with high risk issues
- * determine if a boiler is going to break down and quickly get it fixed before it does

Our data feeds open up massive opportunities for social landlords to get smarter about how they manage their properties, and huge public health benefits from ensuring that insulation, heating and ventilation matches the occupancy demands in the property.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
OCCUITY LTD	OccuLook - a non-invasive blood glucose meter for diabetes care	£206,180	£144,326

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Diabetes is a long-term disease that occurs when the pancreas stops making insulin or when the body cannot effectively use the insulin that is produced. People with diabetes have an increased risk of developing serious health problems including heart disease, blindness, kidney failure and lower limb amputation

Diabetes is increasing at an alarming rate throughout the world. The International Diabetes Federation says that 463 million people now live with the condition and that number will grow to 700 million by 2045. According to Public Health England there are currently 4.5 million people in the UK with diabetes and the cost of treatment is £10 billion per year; nearly 10 per cent of the NHS's entire budget.

Self-monitoring of blood glucose is essential to maintain healthy glucose levels. The main method involves pricking the finger with a needle and putting the blood obtained on a test strip. Worldwide more than 44 million tests are performed daily, at a global cost of over \$14 billion per annum. By making these measurements patients are able to adjust their diet and medication.

Despite the measurement need, the finger stick method is widely disliked as:

- * It is invasive and carries the risk of infection
- * Continuous pricking of the fingers causes hard skin
- * The process is not pain free
- * It has an ongoing cost of around £400 per patient per year.

The purpose of this project is therefore to develop a non-invasive meter that will replace finger sticks. The instrument will overcome the problems highlighted above by using light to analyse the fluid in the eye. This fluid is primarily blood serum so has a glucose composition directly related to that of blood and, as the eye is transparent, it is possible to measure it optically.

The Occuity team have previously developed prototype meters and performed clinical trials that gave very promising results. The previous measurement technique, however, looked at an effect of glucose changes on the eye and was subject to variability due to other changes. A new technique has now been invented that measures direct changes of glucose level and therefore has the potential to be significantly more accurate. The purpose of this initial project phase, for which a SMART grant is being requested, is to review market and user needs, build a prototype meter that uses this new technique and to prepare for a clinical evaluation.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
XYZ REALITY LIMITED	HoloSite Gen 2	£499,896	£349,927

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Did you know that up to **20%** of construction costs are wasted due to **inefficiencies** arising from the conversion between the architect's **3D model** and the builder's **2D drawings**?

HoloSite is a project that has one goal: to allow public and private sector developers to build more, in a shorter space of time, at a lower cost. XYZ Reality, one of TechWorld's top 3 Construction Tech start-ups, is using Augmented Reality (AR) to enable all construction stakeholders including builders, to work from the same 3D model, without the need for 2D drawings. This innovative 3D workflow is considered globally by experts to be the holy grail of construction and significantly reduces both construction costs and lead times.

HoloSite enables clients to perform real time validation, **reducing out of tolerance errors by up to 95%**.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
UPGRADE TECHNOLOGY ENGINEERING LTD	Chimera: an intelligent battery management architecture for next-generation electric vehicle batteries using multiple cell chemistries	£166,726	£116,708
ASPIRE ENGINEERING LIMITED		£51,324	£35,927
Cranfield University		£87,404	£87,404

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Across all electric vehicle applications - including fully battery powered electric vehicles, plug-in hybrids and fuel cell variants - the battery is critical to overall vehicle cost and performance, especially over the full lifecycle. However, despite Lithium-ion continuing to dominate the EV domain, no single cell chemistry is optimised across all of the battery characteristics targeted by vehicle manufacturers, including:

- * Energy density
- * Power and impulse resilience
- * Operating temperature range
- * Cycle life
- * Susceptibility to thermal runaway
- * Cost

Electric vehicle batteries based on single chemistries therefore cannot reconcile the conflicting requirements for size, power and operational temperature versus predictability, lifespan and cost. With safety the underlying priority, the resulting design compromises inevitably impact performance, with increasing reliance on cells with high rare earth content (e.g. Cobalt). This presents significant barriers to OEM electrification programmes and end-user adoption.

In response, Upgrade Technology Engineering are developing a novel battery management system with potential to practically integrate multiple cell chemistries within a composite battery module: the Multi-Chemistry Battery (MCB). With each cell chemistry selected to mitigate the others' weaknesses across all key metrics, MCB unlocks a significant UK supply chain opportunity by overcoming challenges of balancing chemistries and power regulation.

Now Upgrade Technology Engineering, with Cranfield and ASPIRE Engineering target the hardware and model-driven embedded software developments to realise a full-scale modular prototype, as the basis to prove hardware switching scalability to multiple chemistries and support UK supply chain engagements.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
FISCHER INSTRUMENTATION(G.B.)LIMITED	High speed weld inspection system for EV battery manufacture - (SLIPSTREAM)	£209,350	£104,675
Brunel University London		£139,808	£139,808
LASER ADDITIVE SOLUTIONS LTD		£149,992	£104,994

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Project description - provided by applicants

With a shift in focus of automotive manufacturers to produce more electric/hybrid vehicles, battery manufacturing has seen a sharp increase. Producing a battery pack requires the welding of hundreds of smaller battery cells to an interconnecting plate, both of which have very small thicknesses, typically no more than 0.3 mm. The integrity and quality of these "micro welds", each less than 0.5 mm in diameter, is essential to optimise performance and safety. Unfortunately, beyond rudimentary inspection techniques, no effective means exist to properly inspect and ensure that each weld is adequate.

The ****SLIPSTREAM**** project will develop a miniaturised inspection probe consisting of magnetic and XRF sensors, coupled to an artificial intelligence (AI) data processing platform. The system will be able to precisely estimate the penetration depth of the weld using AI algorithms developed using the data acquired during this project. The algorithm will be embedded in a user-friendly interface, incorporated into the manufacturing line of any battery module manufacturing facility for end-of-line testing. The innovative system will be able to rapidly and precisely identify the location of any defective welds.

We plan to commercialise the system within 18-months of project completion and exploit it globally, selling to manufacturers of batteries, both within the EV sector and other application fields. As a result of the ****SLIPSTREAM**** project, we will go on to generate £35.7 million new revenue with £21.4 million profit over 5 years, creating 118 new UK jobs and a return on public investment in this project of 12:1\.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GOODSAM LIMITED	Use of Instant-On-Scene Video Triage to Improve Patient Care and Efficiency in Emergency Care	£152,019	£83,610
London Ambulance Service NHS Trust		£16,286	£15,472

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

A huge part of emergency services work is decision making rather than intervention - deciding what resource is required, and which hospital if any should the patient go to? [GoodSAM][0] has developed "_Instant-on-scene_" - the ability to see a patient or scene; which is already radically changing emergency response. Video technology in emergency dispatch offers unparalleled opportunities to transform the ubiquitous smartphone into a life-saving device.

****How it works:****

An Emergency Service Control Centre sends a text to a caller's smartphone during an emergency call. The text contains a link, which, when clicked, instantly streams video and provides location of the caller. The call continues as audio passes both through the phone call and through the video simultaneously- see brochure [here][1]. Importantly, unlike Skype or FaceTime, with GoodSAM there is no App to download to open the video and it works on any smartphone instantly. Video streaming enables the process of 'hear-and-treat' to become 'see-and-treat'. The video stream is highly innovative, containing in-built pulse rate detection technology. This video can be shared amongst Emergency Services and personnel across organisations who are enroute to scene. In healthcare, the system can be used to assess patients (how sick they are, measuring their pulse) and the scene (mechanism of injury). Clinical hubs can dispatch appropriate resources confident in their assessment of need. Video can also enable the call handler to advise the caller (e.g. to hold an airway open). The system has been trialled successfully with Air Ambulance Service partners delivering promising results ([publication][2] here).

Through this project we will work with London Ambulance Service to trial Instant-On-Scene in three focus areas:

- 1\ Video assess acutely unwell patients (Category 2) requiring an emergency response - determining how quickly a patient needs a response and the most appropriate pathway.
- 2.Video assess less urgent patients in a Clinical Hub (e.g. Category 4 calls).
- 3\ Video assess acutely unwell patients requiring remote consultation -- enabling paramedics to stream video to senior clinicians.

****The Project:****This project is to utilise GoodSAM Instant-On-Scene in London's Ambulance Service to demonstrate benefit, improve product and to roll out the platform not just across UK Ambulance Services but all emergency services globally. In addition to building the governance framework for use, we will have a robust economic analysis of benefits of the system to patients, individual ambulance services and at a national level to public expenditure.

[0]: <http://www.goodsamapp.org/>

[1]: <https://goodsamapp.org/assets/pdf/Brochure.pdf>

[2]: https://www.goodsamapp.org/assets/pdf/HEMS_GoodSAM.pdf

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
DOBOOK LIMITED	MATCHarity:	£438,224	£306,757

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

The UK general public is well aware of big-name charities due to recent scandals, however, smaller charities and their locally impactful activities are virtually silent. Indeed, our smaller, local charities struggle to obtain resources (e.g. financial donations) to maintain their activities, as the largest UK charities -- 1.5% of the total -- access 70% of the sector's income.

Although a number of foundations provide grant opportunities aimed at charities, these are difficult to find and time-consuming for small charities to access. At the same time, businesses (small medium enterprises to large corporates) recognise the importance of giving back to their community and are thus increasingly looking for local charities to support. However, the majority of charities in the UK are poorly visible. Identifying and comparing local charities is thus highly time-consuming and demanding. As a result, both charities and companies find it difficult to match their needs, and charities spend vast resources on fundraising. Further, the difficulty to obtain useful impact reports can somewhat reduce companies willingness to donate.

An advocate for transparency founded in 2016 (see [<https://vimeo.com/341628588>][0]), DoBook Ltd has developed WhatCharity: the minimum viable product (MVP) of an online platform that aims to empower the whole charity sector and to re-equilibrate the imbalance in resources, by giving local charities an opportunity to be seen and heard while pointing businesses willing to donate to them in their direction.

Currently, the platform is using data from the Charity Commission to provide a location-based search engine for donors to identify charities by keyword/local radius; and provides charities with the possibility of creating requests for specific resources. Its contribution to the market is already recognised (see [<https://about.whatcharity.com/in-the-press>][1])

The aim of project MATCHarity is to explore the methods through which charities can be intelligently and more accurately matched to donating businesses while delivering automated impact reports of their donations. As a result, this solution will bring exposure to smaller charities and give them access to funds they were previously unaware of while helping companies to give back to their local communities and communicate their charitable activities to the wider public. By doing this, whatCharity expects an increase in the number of businesses donations to charities, and this will be monitored during the project.

[0]: <https://vimeo.com/341628588>

[1]: <https://about.whatcharity.com/in-the-press>

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DISGUISE TECHNOLOGIES LIMITED	DISGUISE VP	£457,172	£274,303

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

The whole model of entertainment media production is changing. Small scale players are being replaced by 'Bulk' producers, who are generally recently launched ventures.

These include Netflix, Amazon, Apple, Disney +, BritBox etc. More are appearing almost daily.

The model of these organisations is to 'bulk' produce high quality media, but (ideally) at a fraction of the costs of today. One way of doing this is to cut out (or minimise) the amount of time, money, and uncertainty that Post Production / conventional Visual effects brings. By developing and adopting Virtual Production techniques, it can be possible to 'sign off' a shot in the studio, and move onto new scenes, rather than reviewing it again often several months later, only to decide it needs reshooting.

Many players are coming from non-real time computer graphics, attempting to keep the desired quality in real time.

We offer a different route, coming from the live entertainment business, primarily with technologies for spectacular rock shows. To us, real time always means real time!

It is beyond doubt that the UK leads the world in the quality of its audiovisual staff, both artistically and scientifically. Our project will allow this community to be at the point of seeing great expansion of media production, enabled by these developments.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CAMVERTEC LIMITED	Compact ultra-efficient low-cost silicon carbide inverter technology for electric vehicles	£98,056	£68,639

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Disruptive power device technologies based on compound semiconductors such as Silicon Carbide (SiC) have become increasingly attractive for various applications because of their ability to operate at substantially higher temperature, power density, voltage and switching frequency than those of silicon devices, leading to significant inverter cost and weight reductions and reliability and efficiency improvements.

Camvertec have developed a compact low-cost SiC traction inverter technology incorporating an ultra-fast drive circuit combined with an ultra-efficient integrated inverter topology with a unique thermal management that eliminates the need for a second cooling loop i.e. it uses engine coolant for power electronics cooling. The technology has compact and lightweight design and has enabled the inverter cost to be competitive to mainstream silicon-based traction inverters.

This project aims to prove the feasibility of the technology by design, build and testing of a credible-sized 50 kW inverter for EV powertrain applications.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ADAPTAVATE LIMITED	Breathaboard - high performance, environmentally sustainable, gypsum plasterboard alternative.	£349,995	£244,996
THE BIORENEWABLES DEVELOPMENT CENTRE LIMITED		£48,586	£48,586
University of Bath		£99,975	£99,975

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Adaptavate Limited is seeking to disrupt conventional building materials within the construction industry, through the development of a world-first gypsum plasterboard alternative created from agricultural crop waste, **Breathaboard**.

Breathaboard responds to a number of challenges associated with traditional manufacture and utilisation of gypsum plasterboard, including performance limitations, dwindling gypsum supplies/rising raw material prices and environmental damage from production & disposal.

This project explores cutting edge production methods, combined with waste valorisation analysis to enhance Breathaboard's performance and environmental capabilities into an optimised, commercially viable, circular economy product, ready for mass production and adoption across the UK, Europe and worldwide.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
WARWICK ACOUSTICS LIMITED	Developing a new, global standard for delivering in-car entertainment in Partial Hybrid and Zero and Low Emission Electric Vehicles (PHEVs & ZLEVs)	£419,053	£293,337
University of Warwick		£79,065	£79,065

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

The automotive industry is undergoing massive transition to electrification. EU legislation (2019/631) requires car manufacturers (OEMs) to reduce fleet CO2 emissions by 15% by 2025 and 35% by 2030 & requires OEMs to sell 15% Zero-Low Emission Vehicles (ZLEVs) by 2025 and 35% by 2030\.

In developing market attractive ZLEV/PHEV's (Plug-in Hybrid), OEMs must save power & weight in every subsystem. OEMs, including Ford/JLR/VW, are also seeking green solutions.

Technology decisions for 2025 will be made over next two years, so innovation in this area needs to happen now.

Limitations to current state-of-art (power usage, weight, acoustic quality, etc.) present a significant opportunity for Warwick Acoustics (WAL) to establish a new global standard in audio delivery with a disruptive high-efficiency, low-weight, green, (also high-acoustic quality, design-enabling) electrostatic speaker modules (ESM).

WAL have completed initial prototypes of Premium-ESM modules, however to enter the non-premium market, and for the benefits of the solution to be wide-reaching, WAL need to undertake R&D work to reduce the manufacturing costs of ESM.

Work completed to date suggests that WAL in collaboration with the University of Warwick (UoW), can produce simpler ESMs with acceptable performance for low-line audio-systems at significantly reduced cost & weight.

The collaboration is now seeking £372,402 of IUK funding to undertake a 15month Industrial Research project of modelling, electronics and structure re-design of their P-ESM to develop a lower cost ESM validated through testing to bring this early stage concept closer to market.

Success would provide platform to industrialise the technology, market-entry, bringing associated economic benefits to the Midlands and the rest of the UK. This complex R&D project will advance state-of-the-art through technical innovations in:

- 1.electronics drive unit design variations
- 2.cell structure
- 3.materials composition (including adhesives)
- 4.manufacturing processes

Success of the project would see the revolution of the in-car cabin environment: meeting environmental agenda across broad range of vehicles with power efficiency improvements of >50%; weight reduction of up to 50%; no use of Rare Earth Metals; significant cabin design flexibility, and in-cabin noise & audio quality improvements.

Ability to meet cost targets across all audio tiers will enable WAL to access most of the emerging economical/mid-priced PHEV/ZLEV market (£2.92BN opportunity), leading to increased company revenue and headcount.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Warwick Acoustics expects to pay >£8.6MN in Corporation Tax by 2027, giving an excellent taxpayer ROI of >£23 for every £1 of Taxpayer money granted. Job creation creating additional tax income.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>
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Participant organisation names	Project title	Proposed project costs	Proposed project grant
EPSILOGEN LTD	Next generation antibody treatments for ovarian cancer	£497,885	£348,520

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

IGEM Therapeutics Ltd aims to develop new platform technologies for creating therapeutic IgE molecules with enhanced anti-tumour activities. The Fc region of IgE has been engineered to introduce additional functionality with a view to improving anti-tumour responses, in particular for treatment of solid tumours. An immediate output of the project will be a FRA-targeting variant IgE antibody with superior anti-cancer activity. It is expected that a cohort of ovarian cancer patients who are presently poorly served by targeted therapies will be early beneficiaries of such a modality. More generally, the project addresses the pressing need to provide better outcomes for patients with solid tumours. IGEM aims to attain a leading position in the global immune-oncology market which is forecast to reach \$28 billion by 2025.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
WEWALK LIMITED	Developing, Implementing, and Verifying the Integrity of an Indoor Navigation System for Visually Impaired People	£198,656	£139,059
ASTRA TERRA LIMITED		£180,662	£126,463
Imperial College London		£100,996	£100,996
ROYAL NATIONAL INSTITUTE OF BLIND PEOPLE		£19,612	£19,612

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Project description - provided by applicants

There are an estimated 250million visually impaired individuals worldwide(Ackland\et al\ 2017), many of whom use a cane to help them get around. The most familiar type of cane, known as a "long cane", is used by visually impaired individuals with extremely restricted or no vision to help them find their way and avoid obstacles. However, a long cane can only detect obstacles below knee height and within approximately 1 m of the user. This makes it particularly challenging for visually impaired individuals to navigate safely in busy urban areas, especially where cars, bicycles, and pedestrians are found in close proximity.

To address this challenge, WeWALK have developed a revolutionary "smart" device that screws onto a user's existing cane. Our cane detects obstacles(e.g.,trees) at knee-to-head height and uniquely connects to a user's smartphone(Android/Apple) to provide audio-based navigation via integration with Google Maps.

However, our existing audio-based navigation relying on GPS cannot be used indoors and does not provide sufficiently high spatial resolution with the level of confidence(integrity) required to help visually impaired individuals independently navigate indoor urban spaces such as transport hubs and shopping centres.

Recent indoor navigation systems rely on detecting Bluetooth signals transmitted from "beacons" installed across an indoor space. Beacon signals are detected by smartphones and other Bluetooth-enabled devices and can be used to locate the user, warning them, for example, when they are approaching escalators, ticket barriers, and platforms. Such beacons have been trialled with Transport for London since 2015\ . However, to date, they have not demonstrated adequate system performance(accuracy/reliability/usability) for use in a safety-critical application such as enabling a visually impaired user to navigate, avoiding hazards, around a tube station using beacon signals alone.

Here, WeWALK in collaboration with Astra-Terra (a London-based SME specialising in intelligent transportation systems), the Centre for Transport Studies at Imperial College London, and the Royal National Institute for the Blind will address the technical/safety challenges that have prevented widespread uptake of beacons for indoor navigation. We will build on the existing installed base of beacons and the available open standard by developing a novel integrity-monitoring layer (providing safety-critical functionality) and usability framework, detecting the beacons signals directly with our smart cane to provide high-accuracy, turn-by-turn indoor audio-based navigation. This project has the potential to play a vital role in ensuring that the rising numbers of visually impaired people have full access to the urban spaces where we live, work, and play.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VOICEIQ LTD	Using advanced AI and Machine Learning to identify and detect signs of vulnerability, wellbeing and mental stress over the phone	£387,300	£271,110

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

By combining leading research in psychology and linguistics (developed as part of a KTP with Manchester University) with advanced Natural Language Processing (NLP), waveform analysis and machine learning in our platform, we intend to develop a highly advanced, highly accurate vulnerability analysis tool that will help Contact Centres organisations better serve their customers, prevent non-compliance with vulnerability legislation and help monitor the mental wellbeing of call operatives.

Although calls are recorded as a matter of course in all contact centres, at present there is no automated system to detect vulnerability, general wellbeing using voice data, with on average only a 2% sample analysed manually. By developing a system that can detect the signs of vulnerability both in the tone of voice and in the language used, the innovative technology, will provide the following positive impacts;

****Client benefits****

- * Improved accuracy in detecting stress and vulnerability.
- * Provide an automated, cost effective solution to an expensive, manual process.
- * Monitor 100% of calls rather than <2% call presently.
- * Reduce the risk of fines & penalties for non-compliance
- * Intelligent customer service process - building in emotional intelligence into the relationship.

****Consumer benefits****

- * Prevent misselling/pressured sales to vulnerable people
- * Improved customer service/satisfaction.
- * Reduced incidents of misselling/cancelled orders during cool-off/fines.
- * Compliance with FCA Consumer Vulnerability legislation.
- * 90% saving (time and cost) assessing vulnerability.

We see this as a £47m opportunity by 2026 and chance to develop a cutting-edge, best in class technology, with genuine global appeal - addressing a clear, global business need (inefficient manual processes), creating a number of high-value UK R&D jobs, boosting UK exports and helping companies address a defined regulatory requirement they have so far struggled with.

Although initially focused on financial services and call centres, with significant wider technology potential in the mental healthcare sector once fully developed, the project represents a step-change innovation and a opportunity for the UK to take the lead in the development of mental health technology.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ORI INDUSTRIES 1 LIMITED	A pioneering edge cloud platform that will federate diverse compute resources over multiple environments and distributed geographies.	£429,997	£275,198

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Edge computing brings the capabilities of cloud close to the end-user or end-device. We are focusing on one sub-category - telco edge compute, which includes workloads running on customer premise equipment and other points of presence at the customer site. Telco edge is best thought of as distributed compute, managed by the operator, which may extend beyond the network edge and onto the customer edge. It is a very attractive opportunity for our project because of the current pain points.

We at Ori empower developers and networks to build future applications. These new applications are posing unique challenges for global infrastructure: from smart cities, immersive worlds, autonomous machines and industrial automation, the way we connect is changing. The scale of this challenge requires a more intelligent approach to distributed computing - one that involves getting more out of what we have and making the most out of what we build. We believe that the way physical infrastructure interacts with software needs to evolve significantly - we are on a mission to change that, paving the way for a more autonomous, smart and immersive future.

This project will undertake research to create a dynamic, intelligent cloud platform, which coordinates virtualised resources to optimise the capabilities of geographic distribution, wide area presence and localised compute resources.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CRAFTSMAN TOOLS LIMITED	Intelligent tool-holding with feedback control for metal-cutting machine tools	£189,833	£132,883
University of Huddersfield		£80,494	£80,494

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

This project will create a new product that will automatically improve the surface finish of boring operations in production machine tools. It combines mechanical design for optimising sensor location with advanced modelling to ensure optimal and robust correction values.

It builds on the successful Innovate UK project, "Intelligent tool-holding for metal cutting machine tools" where both partners showed the feasibility of predicting the surface roughness of a turned bore when using inputs from a vibration sensor mounted in the tool holder.

The innovation in the new project is that we are mounting sensors in the tool holder for deep hole boring on turning operations that will provide feedback for automatic adjustments of machining parameters, as opposed to an experienced operator having to manually adjust during the process. This will lead to improved productivity in the machining process.

The main areas of innovation, in order of importance, are:

1. To take the advanced surface prediction algorithms and produce corrective models that are robust in manufacturing environments and targeted at improving surface finish.
2. To produce a generalised approach to the data acquisition, modelling and feedback to prove that the technology can be used for automatic control with different sized tooling and on different machines.
3. To improve the existing state-of-the-art models to allow control based only on data from the tool holder, rather than expensive tool-mounted sensors, which are not commonly available in industry.

The project will deliver five demonstrators to show the ability of the system to be applied on different machine tool types and boring bar sizes.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
STACK CONTENT DISCOVERY LIMITED	ReviewHub: Reinventing peer review in the digital age	£498,077	£224,135

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

****Reimagining the peer review process****

ReviewHub combines the knowledge of Researchers' one million strong global community of academics and scientists with cutting edge Academic Natural Language Understanding to:

- * Cut costs and time with a scalable, digital-native review platform
- * Build trust with a transparent and open review process
- * Remove biases with reviews from a worldwide academic community
- * Democratise academic publishing with an affordable peer review service.

Designed by academics, for academics. Researcher is a platform which makes sure you never miss important research. Trusted by over one million academics from 180 countries, we make it easier to discover research that matters.

We currently have 15,000+ journals across 10 different research areas in sciences, social sciences and humanities. We add thousands of papers every week to help you stay on top of the literature.

ReviewHub will build on Researcher's philosophy of using technology to help academics speed up the cycle of important discoveries. It will allow users to submit their assessments of the papers they view on our platform every month, and aggregate the wisdom of the community into trusted peer-reviews.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CUFFLINK.IO LTD	Cufflink - Secure and Share Personal Information	£405,844	£182,630
Bangor University		£79,369	£79,369

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

The project aims to redress the balance of Personal Information (PI) control and management away from large multinationals and put it back in the hands of the people who own it.

Whenever someone uses an App or visits a website, their device can send out Personal Information including device IDs, location and browsing information to thousands of AdTech companies.

In June 2019, the UK's Information Commissioner's Office found that the £1.5bn ad-tech industry, underpinned by Google, Facebook and other billion-dollar companies, was operating illegally. According to a damning report from the UK's data protection regulator, a report reviewing how adverts across the web are bought and sold in real-time auctions, it was found that personal Information is widely used in the process without any consent (ICO, 2019).

People have accepted the sharing of PI with online companies in return for free access or use of sites or Apps. As the use and value of their personal information continues to grow, consumers are adapting their online habits, becoming more careful and increasingly wary of what, with whom and why they share it. Additionally, advances in the use of 5G + Augmented Reality, Artificial intelligence, Internet of Things and Facial Recognition all stand to exacerbate the issue with the the EU already planning sweeping regulatory changes in response (ft.com, 2019)

Considering this increasingly data privacy conscious environment, there is an opportunity to create a mutually beneficial relationship between individuals and organisations by bringing benefits to both parties, underpinned by Blockchain and distributed storage technologies.

Cufflink will do this by developing a free, easy-to-use, safe and trustworthy App for individuals to store, access and (should they wish) share their Personal Information.

Organisations will likewise have access to a more secure, transparent and accurate way of managing PI via a complimentary SaaS (Software as a Service) application and framework, thus easing the associated risks, regulatory burden and, ultimately, saving money.

They will store only a reference to an Individual (rather than the raw PI) thus mitigating both data loss penalties and regulatory compliance costs in classifying, updating and cleansing their data.

By collaborating alongside world leading authorities on data privacy from Bangor University we aim to ensure and develop an ethically informed and privacy-centric application with the aim of providing Individuals with a clear choice, and indeed defined standard, as to how they will in future manage, share and control their personal information.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
BYOTROL TECHNOLOGY LIMITED	The development of a new, highly- efficacious, 100% natural, anti-viral active ingredient	£345,028	£241,520
The University of Manchester		£135,240	£108,192

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Despite rapid advances in healthcare and medical technology, viruses continue to pose a major threat to human, animal and plant health, costing economies hundreds of billions each year. Easily transmitted and immune to antibiotics, viruses (particularly non-enveloped) such as Norovirus, Polio virus and Adenovirus are very difficult to eradicate and even more expensive to treat through a limited number of antiviral solutions (£53.9bn global spend by 2025 [Grandview Research][0]). Norovirus alone kills 219k people per annum and sickens nearly 700m globally, costing £44bn per year in healthcare and lost productivity (£115m NHS cost pa) ([Telegraph][1]). Furthermore, they are becoming increasingly resistant to the current antiviral agents.

Leading state of the art antiviral solutions on the market are either based upon bleach (5% active, synthetic, corrosives, hazardous to touch) or ethanol (c60% active, synthesised, requires high concentration, short-lasting benefit, dries skin out).

Working in close partnership with the Department of Virology at Manchester University and based upon 4 years of research, we intend to explore and harness the highly efficacious properties of seaweed as a new, 100% natural, sustainable antiviral active ingredient for cleaning products (medium term) and medicines (long term).

[0]: <https://www.grandviewresearch.com/press-release/global-antiviral-drugs-market>

[1]: <https://www.telegraph.co.uk/news/2016/04/26/norovirus-costs-the-world-some-44-billion-per-year-says-new-stud/>

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
AINOSTICS LIMITED	Advanced non-invasive imaging biomarker for use in drug trials	£463,189	£324,232

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

In healthcare, timely and personalised interventions have a crucial role in the ultimate effectiveness of both current and future treatments for a wide range of diseases. Rapid correct diagnosis is key in unlocking personalised approaches for degenerative diseases such as dementia and other neurodegenerative conditions, where stratification is mandatory for correct treatment. Early detection of these diseases would result in a significantly improved patient prognosis but there is a dearth of diagnostic options in these indications. AINOSTICS' technology represents a breakthrough that would provide an automated, extensible, and personalised healthcare platform for assisting the clinical diagnosis of tissue modifying diseases using multi-modal imaging and non-imaging MRI data; useful for both the treatment of patients, and importantly, in the development of novel therapeutics.

AINOSTICS' technology can automatically and intelligently analyse scans to provide sensitive and accurate micro-structural information about key tissue and organ structures then compare this with information from healthy populations to detect the signatures of disease. We intend for AINOSTICS' software to become a routine part of clinical practice and drug development as the results of our intelligent analysis will provide clinicians, researchers, and imaging centres a convenient and cost-effective means to get reliable, quantitative and objective diagnostic data.

For serious global diseases, AINOSTICS' technology has the potential to save time during patient assessments, accelerate clinical pathways, standardise the quality of care and improve patient outcomes in addition to making important contributions to the development of disease modifying therapeutics.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
OZONE INDUSTRIES LIMITED	O3Preserve	£85,729	£60,010
University of Greenwich		£33,684	£33,684

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

O3 Preserve

A system for introducing ozone into the pack atmospheres of retail fresh produce, packed across a range of packing systems, which can be precisely and consistently controlled to meet the specific requirements of the products concerned in achieving a quality maintained, extended shelf life.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
LIGHTRICITY LIMITED	High efficient III-V on Silicon Energy Harvesting devices for low cost battery-free IoT applications	£282,756	£197,929
INTEGRATED COMPOUND SEMICONDUCTORS LIMITED		£167,469	£117,228
IQE PLC		£363,354	£181,677
MICROCHIP TECHNOLOGY CALDICOT LIMITED		£186,378	£93,189

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

The consortium comprising Lightricity (Lead partner), ICS, IQE and Microsemi aims to produce ultra-efficient and cost effective III-V on Silicon energy harvesting devices that can be tailored for cost sensitive miniaturised IoT applications.

Utilising technology developed through many years of innovation, Lightricity's technology already delivers world leading efficiency (>30% efficiency) in low light level indoor environments. Design and transfer of that technology onto large Silicon substrates (up to 12 inch) will leverage existing Silicon-based mass production facilities. IQE has many years of epitaxial experience growing Ge on Si templates for III-V overgrowth.

Combined with innovative wafer-level processing techniques developed at ICS and embedded die packaging technology at Microsemi, this project will drastically reduce the manufacturing costs and enable rapid scale-up of Lightricity technology into cost sensitive and size-constrained applications (asset tracking, industrial IoT), or more power-hungry applications (e.g. gas sensors, imaging devices).

The key deliverable is a low cost miniaturised III-V on silicon energy harvesting device that will provide renewable power to two proof of concept demonstrators covering two main IoT segments: industrial and retail. The partners will demonstrate applicability of the newly developed low-cost Energy Harvesting component on a self-powered wireless Bluetooth Low Energy (BLE) tracker and Electronic Shelf Labels prototypes.

Route to market and future exploitation of the technology within the retail industry will be supported by unpaid end-user Ahead-of-the-Curve, a spin-out from Unilever. Wireless connectivity will be supported by device manufacturer Dialog Semiconductor (unpaid partner), providing ultra-low power and small footprint wireless BLE chipsets.

Beyond the energy harvesting field, this project will also open up new opportunities for deployment of reliable and high performance III-V devices into low cost sensors and consumer electronics.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

Total funding awarded is £20,010,139 across both streams.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
SYNALOGIK INNOVATIVE SOLUTIONS LIMITED	Synalogik: Identifying and Tackling Counter-Terrorism Finances (CTF) Through Investigation Automation	£434,105	£303,874
University of the West of England		£64,838	£64,838

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

SYNALOGiK Innovative Solutions Limited is a UK based technology company, founded by experts in data science, intelligence, security and investigation. The company is founded on the vision to tackle the increasing challenge of terrorist financing through traditional banking, cryptoassets and internet activity across the UK and globally; a problem that costs the UK in excess of £35bn annually.

In collaboration with the University of West England, Synalogik seeks to develop a unique solution, at the cutting edge of revolutionary intelligence management, to automate the identification and detection of terrorist financial activity in a matter of minutes, saving time and resources for counter-terrorism departments and improving the speed and efficacy of terrorism detection and prevention through the development of the SCOUT Platform.

This Platform, SCOUT, increases the efficiency, capability and capacity of organisations who rely on information to make intelligent and evidence based operational decisions in the Counter Terrorism Finances (CTF) environment.

With current processes reliant on manual investigation, Synalogik provides a disruptive technological solution to a variety of commercial, intelligence, security, investigation and UK Government related challenges. Core to this is the automation of data analysis that draws intelligence on demand from disparate data sources, providing organisations with actionable intelligence in a fraction of the time, and at a fraction of the cost of current approaches.

This project will focus on developing the capabilities of this technology, through cutting-edge R&D, integration expansion and testing of increased Platform functionality, operating over multiple UK and Foreign datasets to better predict and identify terrorist finances across private and public sectors. Synalogik's objective is to R&D and fully integrate the first international 'collaborative intelligence systems' used in the UK, Europe and globally specific to CTF.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

Competition Code: 1910_SMART_GRANTS_OCT

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Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
CARNAUDMETALBOX ENGINEERING LIMITED	CANVOLUTION: Smart can bodymaker evolution	£911,971	£455,986
COMPUTER CONTROLLED SOLUTIONS LIMITED		£260,461	£182,323
THE DATA ANALYSIS BUREAU LTD		£322,764	£225,935

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Carnaud Metalbox Engineering Ltd, Computer Controlled Solutions Ltd. and The Data Analysis Bureau are developing a Networked Intelligent Bodymaker (NIBm), incorporating advanced sensor, communication and data analytics hardware and software, to confer the benefits of Industry 4.0 on the traditional can-making industry. The proposed innovations will provide solutions to the challenges of improving productivity and efficiency faced by can-makers. This will be transformative for Carnaud Metalbox Engineering's customers. It will help the project partners increase their export potential and market share over foreign competitors and cement their reputation as world-class innovators.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
APS BIOCONTROL LIMITED	Dri-Lyse: Stabilised Bacteriophage Formulations for Sustainable Plant Protection and "Foodprint" Reduction	£223,344	£156,341
BRANSTON LIMITED		£7,981	£3,990
STABILITECH BIOPHARMA LTD		£205,489	£143,842

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Bacterial pathogens of fresh produce are responsible for substantial losses through disease, damage and failure to meet market specifications, with no specific controls. Diseased crop and waste-food disposal, plus additional agricultural land and water required to achieve sufficient marketable yields all add up to increase the carbon footprint of food production ("foodprint") and more efficient agricultural systems, with less wastage are a priority to meet UK and EU targets of increased food productivity and reduced waste.

****Bacteriophage**** are viruses; they are the most abundant organisms on earth. As naturally-occurring bacterial enemies, they are attracting considerable attention as targeted agricultural antibacterial-control products. They are completely safe for the consumer, highly host-specific and have zero environmental or non-target impacts. APS Biocontrol has made good progress in demonstrating their potential in reducing bacterial plant disease but product commercial viability is limited; liquid products have limited thermal-stability, requiring low-temperature storage and transport, which impacts on their cost, shelf-life and storage. The project's ****key objective**** is to address these limitations, developing thermally-stable, dry bacteriophage products (Dri-Lyse); achieved through working with Stabilitech BioPharma, an established UK developer of vaccines and therapeutics, with platform technologies to significantly enhance product stability, including for viruses and based around unique, safe, small molecules ("excipients") which are naturally present in foods. In pilot studies, their technology has given promising thermal stabilisation of sample bacteriophage, forming the background to this project.

The project will focus on the UK and wider European potato market; through previous Innovate UK support APS has developed an effective bacteriophage mix ("BPSRE") against bacterial-induced "Blackleg" of potatoes, responsible for £50M UK total losses p.a. and £750M worldwide. APS has also developed a liquid bacteriophage product (Biolyse) to target the downstream losses caused by this disease; most frequently realised in the pack house as rotting potatoes. The focus of the ****technical Innovation**** will be creating an optimised excipient mix to maintain the activity of the BPSRE mix.

Our vision is to switch from liquid bacteriophage mixes to a tableted/powdered form, rehydratable at the point of use. Benefits will be a longer shelf life, making the products more manufacturable. Also, removing the need for chilled storage and transport, they become more attractive to the customer and significantly better placed to address export markets for business growth and globalisation. Once proven in the potato market, the longer vision is to address other high-value fresh-produce markets, both in the UK and globally.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ZEAL INNOVATION LTD	DEVELOPMENT OF ULTRA- HIGH CUT-RESISTANT COMPOSITE MATERIAL FOR DIVERSE SECURITY APPLICATIONS	£592,492	£414,744
Swansea University		£243,348	£243,348

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Zeal Innovation market two product families under the LITELOK brand, these are the world's lightest Sold Secure Silver rated bike lock range - available in three sizes, starting from only 630g; it's flexible, easy to carry and wearable. Our flexible Sold Secure Gold rated bike locks weigh from 1.1-1.4Kg and were awarded a "Best Buy" by The Independent in 2018 and Red Dot Design award 2018\ . They are the lightest, flexible Gold and Silver standard bicycle locks on the market, which harness the unique security properties of multiple innovative materials meaning it can withstand sustained attack from tools like crowbars, bolt croppers and hacksaws.

This project is to develop a new ultra secure technology plus associated manufacturing processes for new diverse security applications beyond bicycle locks. The project is led by Zeal Innovation Ltd, partnering with Swansea University.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GENERIC ROBOTICS LIMITED	Brain Computer Interface driven rehabilitation of upper limb weakness of stroke survivors - (NeuRestore)	£686,708	£480,696
CASTALIA INNOVATION LIMITED		£304,159	£212,911
University of Essex		£406,230	£406,230

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Stroke is the leading cause of acquired disability in adults, and as such occupies a special place amongst the different types of brain injuries. Problems with arm function (upper limb impairments) are very common after a stroke. Existing advanced neurorehabilitation techniques (physiotherapy being comparatively limited and subjective) share a range of limitations including limited understanding of the underlying mechanisms. The NHS spends 4-6% of overall budget on stroke rehabilitation. Upper limb "circulatory" disorders account for 9% of primary care consultations and present a 55-90% admission rate to hospitals.

The **NeuRestore** project proposes to significantly address these limitations by exploring a unique non-invasive brain-computer interfaces (BCIs) approach to exploit electroencephalogram (EEG) patterns to trigger feedback or an action output from an exoskeleton. **NeuRestore** achieves this at a cost of £98k/licenced unit/year (just under the average salary of 2x NHS Advanced-Physiotherapist), while crucially reducing physio waiting times (and resources can be spent elsewhere).

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DARWIN EVOLUTION TECHNOLOGIES LTD	SCALE - Soft Computing to Accelerate fulfilment & Logistics Efficiency - Bezos and Liverpool University	£757,451	£530,216
University of Liverpool		£188,773	£188,773

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

****Business Need**** - E-commerce is rapidly increasing as a % of retail, driven by SME retailers. However, SME e-commerce retailers are under pressure due to increasing demand for fast/free delivery, low margins associated with e-commerce and complex/fragmented logistics systems.

****Innovation**** - Bezos have developed an MVP of a cloud-based Fulfilment-as-a-Service platform for SME e-commerce retailers, connecting existing assets in logistics and fulfilment systems.

To dramatically increase last-mile logistics efficiency, Bezos will facilitate a novel form of delivery method (combining vans, bikes and walkers) they term 'multimodal mobile logistics hubs'. These hubs will increase delivery speed, whilst reducing cost and emissions.

The SCALE project enables Bezos to collaborate with Liverpool University and expert subcontractors to develop a platform to support 'multimodal mobile logistics hubs'. The platform will combine strategic logistics distribution network optimisation and tactical logistics fleet and route optimisation to significantly increase the efficiency and productivity of fulfilment and last mile logistics.

****Opportunity**** - UK SME e-commerce Logistics Market forecast at £17.9bn by 2025 and European market worth £38.4bn by 2025\.

****Exploitation**** - SCALE outputs (Bezos prototype including logistics distribution network, fleet and route optimisation) offer UK Micro-SME Bezos a step-change in capability and significant competitive advantage for rapid commercialisation post-project, meeting UK needs and providing opportunities for international exploitation.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Results of Competition: Innovate UK Smart Grants: October 2019

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Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
CHESTNUT NATURAL CAPITAL LTD	Supporting a major climate change solution whilst reducing forestry plastic pollution	£89,743	£62,820
CENTRE FOR PROCESS INNOVATION LIMITED		£150,138	£150,138
GLENDALE COUNTRYSIDE LIMITED		£35,901	£17,950
IMPACT LABORATORIES LIMITED		£98,336	£68,835
REED THERMOFORMED PACKAGING LTD.		£99,500	£69,650
TREES PLEASE LIMITED		£29,492	£20,644

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

This project will look to overcome environmental plastic pollution that is very likely to arise from tree-planting activities, particularly in the forestry industry in the developed world (e.g. US, EU and UK).

It will do this by providing more environmentally compatible products, with better end-of-life options, to the global tree-planting community (e.g. climate change mitigation) & commercial forestry.

The product developed in this project is intended to deliver greater tree-planting productivity, particularly in developing world markets where developed-world best-practice is rarely adopted.

It is the intention of Lead Partner, Chestnut Natural Capital Ltd, to promote best practice to global tree-planting communities, through exploitation activities and future global sales arising from project outputs.

The consortium is developing new materials that are truly biodegradable on land and in the sea. These will be used in the manufacture of new sustainable products that replace existing non-biodegradable plastic products. This project will, therefore, prevent the release of persistent plastics into the natural environment.

The project will create jobs, support UK Government strategy and help to meet UK Government targets for climate change, by; (1) planting trees in the UK and in developing-world markets (e.g. offshoring tree-planting targets), whilst (2) limiting plastics pollution arising from domestic and global tree-planting activities.

Licensing of the technology, and technical services provided by the Lead Partner, Chestnut Natural Capital Ltd, will deliver a platform for rapid scale-out into foreign markets (Africa, South America and Asia), supporting the adoption of better and more sustainable tree-planting practices worldwide with the World Agro-forestry Association (ICRAF).

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
EFFECTIVE CNC SOLUTIONS LTD	Concept universal 5 axis machine	£330,122	£231,085
G.B. ENGINEERING (NANTWICH) LIMITED		£159,470	£111,629

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Machine Tools currently on the market are traditionally split into 3 main categories, milling, turning and grinding, plus the newer category of additive manufacturing, with a limited number of machine designs that offer a cross-over between 2 of these categories, for example mill/turn, mill/grind, turn/mill and now mill/additive. All these cross-over designs have significant limitations to their versatility mainly due to the standard format of the basic machine. i.e. a standard format 5-axis milling machine has limited turning capability due to the turning tool being held in the milling spindle. Furthermore, limitations are found in many designs in the way that the tool spindle is moved around in order to achieve the full extent of the 5-axis milling capability, requiring large linear movements to create a relatively small change in angle or rotary position.

The aim of this project is to prove out and identify the strengths and weaknesses of a machine design concept that addresses these limitations in a way which, while embracing established machine tool design and construction techniques, provides a game changing solution facilitating extremely flexible high speed 5 axis milling, accurate medium and low speed turning, versatile cylindrical grinding and 3D printing / additive manufacturing capabilities in a single highly efficient, versatile, flexible and maintainable unit.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RESPIRE DIAGNOSTICS LIMITED	ReCare - A Smart Point-Of-Care Breath Analyser	£289,121	£202,385
Imperial College London		£69,370	£69,370

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

Chronic Obstructive Pulmonary Disease (COPD) is the **third leading cause of death** according to World Health Organization (WHO). Patients are vulnerable to infections which lead to **exacerbation** of the condition and **hospitalisation**. Early warning of exacerbation would enable **early intervention** in the community, thus leading to better patient outcomes and **reduced costs** of treatment. Reliable **diagnosis** and **long-term monitoring** are therefore essential to **improved patient quality of life**, improved **life expectancy** and more timely and effective treatment.

Hydrogen peroxide levels rise during exacerbation, Timely detection would enable **prompt intervention** before the patient's condition deteriorates to the point of requiring hospital admission.

We have developed a **low-cost portable device** for measuring lung inflammation through exhaled breath. This could be used in the doctor's surgery, pharmacy and by the patients themselves. Our device shows **excellent performance** against standard methods, enables **reliable results** to be obtained in **minutes** with minimal discomfort or inconvenience. We are now at the point where clinical evaluation and user feedback are required to optimise manufacturing, design and operating protocols.

This project will support **production scale up** and the development of **operating protocols** in collaboration with healthcare professionals, healthy volunteers and patients. These outputs will enable us to proceed to **full scale clinical trials** with our clinical collaborators at the Royal Brompton Hospital, National Heart & Lung Institute (NHLI), fast tracking our device to patients and clinicians.

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
WINVIC CONSTRUCTION LIMITED	Computer Vision and IoT for Personalised Site Monitoring Analytics in Real-Time (CV-SMART) towards Behaviour-Based Safety	£148,434	£74,217
ONE BIG CIRCLE LTD		£411,573	£288,101
University of the West of England		£239,992	£239,992

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants

The "One Death is too Many" (Donaghy, 2009) catchphrase for the UK zero-harm agenda shows that no fatal accident is admissible on construction sites. Modern H&S problems can only be solved from a combination of cultural, social and technical perspectives. A lot of work has been done from cultural and social perspectives, but the technical perspective has been massively ignored (particularly the use of digital technologies). There is a need to take a closer look at how social and technical systems overlap, and how the growing overlap influences H&S on construction sites. However, current approaches address the socio-technical overlap of H&S management separately despite the evidence that suggests that the Zero Harm target and H&S best practices cannot be achieved without effective digitisation in addition to appropriate social interventions (NBS, 2018). The consortium will, therefore, leverage state-of-the-art in computer vision and deep learning (convolutional neural networks and recurrent neural networks) to develop a Computer Vision and IoT for Personalised Site Monitoring Analytics in Real-Time (CV-SMART) for behaviour-based safety in confined construction sites.

CV-SMART will automatically detect, recognise and track diverse interacting heavy machines, building components, site activities, and site workers in real-time to (i) enforce H&S best practices and (ii) identify H&S risks and unsafe site practices such as failure to wear safety gadgets (helmets, harness, and personal protective equipment PPE), congested work areas, improper movement of heavy equipment, and improper working positions). CV-SMART will provide a digital visualisation platform, which will employ state-of-the-art in advanced visualisation for Intuitive user interaction and reporting. CV-SMART will alert on-site workers, safety managers, and site managers of H&S best practices and impending risks at the forefront of onsite operations with a minimal human intervention using IoT-enabled devices.

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