Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
thelittleloop	Making circular-retail viable and scalable for the children's clothing industry.	£220,656	£99,295

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

Funders Panel Date: 04/08/2020

Project description - provided by applicants
The circular economy, in which items are given multiple lives, and ultimately recycled to reduce the overall impact of their production, is fast emerging as the future of retail. Consumers are changing habits and demanding more sustainable ways to shop and the US rental market is projected to reach $4.4billion by 2028\. However, in Europe, the circular economy has not yet reached mass commercialisation. Our research and consumer trial have shown an appetite from British consumers for a circular retail experience which offers value, convenience and quality, alongside environmentally-positive outcomes. And conversations with over 20 brands have confirmed that they too are seeking ways to participate in the circular economy, in a commercially-viable manner. We believe that thus enabling brands to directly participate in rental, and reap commercial reward for doing so, will incentivise them to improve their manufacturing practices, design clothing for the longest possible lifespan, and drive a widespread shift from linear to circular business-models within the fashion industry. This project will enable thelittleloop to build, test and launch data-driven inventory forecasting software, and a brand management platform, designed specifically to facilitate this. The interface and data tools will make engaging in the circular economy easy to manage and appealing for brands. And the garment management algorithms will guarantee maximum usage of each each garment. This will secure brand profitability, further enticing brands of all sizes to participate, and enable keen pricing of the service to provide the essential value needed to drive a change in consumer habits. Finally, it will guarantee the best possible positive environmental outcome. Ultimately, we anticipate that the outcome of this project will transform thelittleloop into a viable commercial proposition in the UK, bringing the circular economy to both brands and consumers, creating jobs and injecting money into the UK economy.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
KYMIRA LTD.	FEELERS - Fabric Embedded ELEctronics for Remote Sensing: e-strips embedded in fabric for remote bio-sensing	£115,637	£80,946
CENTRE FOR PROCESS INNOVATION LIMITED		£124,521	£124,521
DYCOTEC MATERIALS LTD		£175,554	£122,888

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
Smart wearables are becoming increasingly pervasive, driven by sustained advances in miniaturisation of electronics, improvements in sensors and connectivity, and a growing capability to embed electronics in a variety of products. The next generation of wearable electronics will include smart garments where the electronics are embedded within the textiles themselves and are therefore invisible to the user. These wearables would be used in a variety of different applications, including sports for improved monitoring and performance, medicine for easy to use, continuous health monitoring in the home, and by the military. Through this project, the consortium aims to solve challenges related to the scaled manufacture of such garments to create flexible, durable, and comfortable textiles for future wearable applications.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TWRG HOLDINGS LTD	BidMart	£392,934	£275,054

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
BidMart has been designed to inject new life into the UK's IT sector, by proactively matching candidates seeking new opportunities with relevant IT projects. BidMart will provide an innovative trading platform, where candidates are alerted to new client projects via our virtual recruitment consultant (VRC) module, powered by Artificial Intelligence (AI) and Robotic Process Automation (RPA) technology, based on details contained within their record card and CV/document attachments. Candidates will then be invited to make a 'bid' if they believe there is a potential fit, based on their specific situation at the time. They can either choose to place a bid or 'pass' on the opportunity. Issues such as rate, location and availability play a major part in deciding if a project is a fit, however, currently, there is no provision for candidates to apply on this basis or indeed for clients to consider them. We believe that when candidates/client are presented with a good fit, they are prepared to flex on one, or maybe more, of the key elements. Fact is, sometimes waiting a bit longer, paying a bit more or allowing someone to do the work remotely are viable options if other elements of the application are particularly strong/relevant. Additionally, if clients are able to secure the right level of candidate but at a lower cost - perhaps because the location is ideal or the candidate has been out of work for a while, then both parties can benefit. Historically these options are not considered, usually because the perfect candidate is always deemed to be the one that best matches the original job description. However, only after exploring all the options, can clients and candidates truly know what is the best project fit - BidMart will enable each party to do this.

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
WALKER SUBSEA ENGINEERING LTD	Subsea Axial Flux Motor - Proof of Concept	£408,079	£285,655
OFFSHORE RENEWABLE ENERGY CATAPULT		£91,570	£91,570

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
Walker Subsea Engineering are developing the next-generation _subsea electrical motor_ to deliver a step change in performance for marine technology. The new unit features **2.2x power to weight ratio** of the nearest equivalent machines and is equipped for **continuous operation in seawater** depth up to 1000m. Design and build of this machine will be SME-led in North East England, using local engineering expertise in subsea and automotive applications.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DB GROUP (HOLDINGS) LIMITED	LOCOWAG - low carbon concrete for use within aggressive ground	£303,200	£151,600
BUILDING RESEARCH ESTABLISHMENT LIMITED		£160,890	£160,890
CENTRUM PILE LIMITED		£72,369	£43,421
J. MURPHY & SONS LIMITED		£64,426	£32,213

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
Global demand for concrete, the primary volume construction material for most structural applications, continues to grow. The majority of concrete relies on use of Portland cement (PC) as the only economic binder meeting performance and durability requirements under the wide range of conditions in which concrete is used. However, **PC manufacture accounts for c.5-8% of global CO2 emissions** so alternatives are urgently required. 50% of ready-mixed concrete is used in foundations below ground and must be carefully designed to resist chemical attack (e.g. sulfates as described in BRE Special Digest 1, Concrete in Aggressive Ground), often increasing the amount of cement used in the foundation and consequently the environmental impact. LOCOWAG will develop and assess (via laboratory testing and site pilots) innovative concrete formulations in which PC is replaced with novel 'Alkali-activated cementitions material' (AACM) 'Cemfree' (manufactured by UK SME DB Group (DBG)). Cemfree has potential to reduce the CO2 associated with a concrete foundation relative to PC. Cemfree concrete is also more resistant to chemical attack, derisking the use of concrete in the ground. LOCOWAG will enable DBG markets to grow. It will also unlock markets more widely for AACMs in critical construction applications, creating a high- volume market for AACM (and low carbon cement manufacturers more widely). However Cemfree (and AACMs generally) are not covered by existing concrete standards and therefore unable to be widely used. The project will: 1. Develop, assess and demonstrate Cemfree-based concrete formulations meeting user needs for foundations (buildings and infrastructure). 2. Demonstrate and assess use of Cemfree in piling to de-risk adoption. 3. Carry out laboratory tests to assess durability of Cemfree-based concrete formulations in sulfate-rich conditions (and other key performance characteristics), and compare with those of PC-based and other AACM-based concretes. 4. Assess and address barriers to market (especially the need for industry-wide guidance and acceptance, such as BS8500 and BRE SD1). The 2-year project will be led by DBG, together with a supply chain orientated consortium piling contractor (J Murphy and Sons, (JMS)), precast pile manufacturer (Centrum). BRE (an impartial centre of expertise that also develops application guidance for the construction industry) will carry out laboratory testing essential for updating guidance and support DBG in project management. We will work with standards bodies (BSI, Green Construction Board) to address key standards-related barriers to market uptake. An Industry stakeholder group (regulators, manufacturers, end-users) will help guide outputs (e.g. BRE documents) and address barriers to mainstream use.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RENOVOS BIOLOGICS LIMITED	Renovite - pioneering use of synthetic nanoclays in regenerative medicine	£144,863	£101,404
University of Southampton		£61,925	£61,925

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
Musculoskeletal conditions are the leading contributor to disability worldwide, with the most common and disabling conditions such as arthritis, back and neck pain, fractures and injuries. The UK currently spends over £2 bn/year on bone fractures alone and this cost is set to increase as the UK population ages. In fact, by 2030, it is expected that 23% of the UK population will be aged over 65\. Many bone fractures lead to orthopaedic operations that, in approximately 10% of cases, need to be repeated due to inadequate healing. While the prevalence of musculoskeletal conditions increases with age, younger people are also affected, often during their peak income-earning years. Current bone healing agents are very effective at stimulating new bone growth but rely on very high doses which have been associated with some dangerous side effects such as excess bone growth outside of skeleton, inflammation and sometimes nerve damage when used in the spine. An important limiting factor is the current inability to localise the bone agent close the site of bone repair, and its cost. Innovate UK funding has allowed Renovos, a young orthopaedic regenerative medicine company, spun out from the University of Southampton in 2017, to convert decades of government funded musculoskeletal research at the University into an exciting, innovative product, enabling the use of bone-healing agents in a more precise, localised manner, increasing their safety. This novel product, Renovite, based on a synthetic nanoclay biomaterial, allows use of the therapeutic agents at much lower doses for the same effect. Furthermore, because these agents are only released upon contact with cells, they can enhance healing in a more targeted manner to improve clinical outcomes with greater safety and at a lower cost. With this Innovate UK funding, Renovos will accelerate development of Renovite as a therapeutic by creating further data required by the regulators in non-clinical models before the product can progress into first in-man trials. Ultimately, we anticipate our new product will provide a novel solution for tissue regeneration for difficult-to-treat fractures and bone fusions, providing a range of benefits to the UK economy and for increasingly active, younger demographics requiring tissue regeneration, as well as an ageing population.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
LEGAL UTOPIA LIMITED	Legal Utopia Engine	£101,186	£45,534

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
This project seeks to implement successful research development outputs undertaken in 2018 and 2019 to establish a commercial application to benefit the lower-means demographic of legal consumers in need of legal support in the UK. At present, a comprehensive legal assessment of an individuals legal problem is unsustainably and disproportionately inaccessible to the lower-means demographic. The project will use a researched and feasibility tested legal problem diagnosis process that leverages machine learning algorithms to identify legal problems by consumers simply explaining or describing them. The commercial application will be delivered in the form of a mobile application direct to consumers in need to provide a new, greater degree of access to legal guidance, services, resources, legal aid and more.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PLEXAL (CITY) LIMITED	Community Travel Platform	£177,730	£124,411

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
Shared transit, such as public transport, is key to getting people around and maintaining our economy. It is vital in reducing our impact on the environment. UK cities have well-developed public transport infrastructure, but effective mass-transit solutions are disparate outside of large cities. Transport providers are under increased pressure to deliver vital improvements, whilst simultaneously being faced with reduction in funding and a subdued economy. For example, TfL's budget shows a £700m annual reduction in government funding, requiring tighter financial management and efficiency trade-offs. 78% of the 808 billion passenger kilometres travelled in the UK each year are made by car, and the average car journey has only 1.6 riders, indicating that there is scope for increased vehicle utilisation. Transport is the UK's biggest contributor towards greenhouse gas emissions in the UK and reducing our vehicle usage would significantly help the UK's goals to lessen the effects of climate change. Much of the conversation around the Future of Mobility is around technology breakthroughs. We believe that in order to meet the UK's Industrial Strategy, innovative business models are just as crucial. The only realistic solution in the short-to-medium term is the better utilisation of existing transport infrastructure, but for a number of reasons this has not worked. Public perception towards shared transport options is poor, namely due to cost, difficulties in planning, trust and the inconvenience associated with multi-modal transport. These factors mean that people are driven towards making ill-informed, expensive and unsustainable travel decisions. This six-month feasibility study will evaluate the potential of a platform solution that aims to incentivise and encourage sustainable and community-focussed mobility. This feasibility study will focus heavily on understanding the UK's shared transit landscape (including public transport, micro transit and carpooling provisions), the barriers to uptake, including consumer appetite, and whether a platform proposition could encourage greater utilisation of the UK's existing transport infrastructure. Understanding these characteristics will be particularly important in light of the Corona Virus pandemic, where attitudes towards sharing have changed drastically, and it is unclear on whether this shift will reverse following Covid-19\. We will assess the market, operational, technical and economic feasibility of such a solution, particularly focussing on any identifiable strengths, weakness, opportunities and threats. The outputs of this study will support stakeholders in deciding whether to undergo an additional phase of work which looks to develop, test and scale solutions with a view to commercialisation.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
NETTITUDE LTD	Disruptive Cyber Assurance	£394,302	£138,006

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 research and develop a continuous, AI assisted cyber assurance penetration testing platform for web and mobile applications. The outputs will also consider wider applications of AI/ML within other cyber domains.

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
FOX ROBOTICS LIMITED	Fox Robotics Soft Fruit Logistics AMR Solution	£128,494	£77,096

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
Fox Robotics is a start-up robotics company established in late 2017\. We have designed a family of autonomous mobile robots (AMRs) engineered to promote innovation and enhance productivity within the logistics function of any company. Our robots are quick to set up and easy to use and web-enabled through the Cloud. This allows SMEs to use automation to enhance their competitive position, avoiding the upfront infrastructure investment required by other technologies on the market. Fox Robotics uses advanced machine learning/AI to provide easy-to-use, flexible and cost-effective robots, allowing small and medium enterprises to automate their material handling operations. This will increase operational efficiency and allows staff to avoid repetitive trips transporting goods in order to focus on higher skill activities. The innovative software technology driving the robots has been designed to be flexible and adaptable for a wide variety of industries that pick and move goods within their sites. In 2019 we completed a working prototype, the Hugo 250, capable of transporting up to 250kg, which was demonstrated to a number of prospects with on-site warehouses. One particular sector showing interest in our solutions was agriculture, where manual operations in harvesting, packaging and despatch can greatly benefit from this type of automation. This solution does not focus on replacing pickers, but rather on letting pickers keep picking without having to stop, interrupt the flow and and transport the produce. Our robot's capability to transport produce from the harvest and allow the picking process to proceed without interruption, is reckoned to yield a significant gain in productivity. Given the projected shortage of labour for this sector in the coming years, there is a great demand for any strategy to improve this type of working productivity during harvest. We have a significant demand pull for our solution, if we are able to adapt it to work outside in agricultural spaces effectively. This project will allow Fox to complete the technical redevelopment of its robot, and progress to customer tests in response to strong demand for from the agricultural sector. The Project will thus contribute to the economy and accelerate the process of innovation within the UK, particularly the under-served agribusiness.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BIOME TECHNOLOGIES PLC	Polymerisation method development for the manufacturing of novel, high-performance, compostable and recyclable hetero-aromatic bioplastics for the packaging industry (BioPolyMet)	£252,668	£176,868
University of Nottingham		£96,103	£96,103

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
An estimated 8.3 billion tonnes of plastic waste has been generated globally since the 1950s (Science, 2017) of which approximately 80% remains in landfill or loose in the environment. Global greenhouse gas emissions from the production and disposal of plastics is more than double that of air travel (Nature Climate Change, 2019). In line with current demand, oil-based plastics are produced at a rate of ~330mtpa. While useful, they have been developed focusing on function than end-of-life performance and their environmental impact. Recycling alone is not the complete answer to the "plastics problem". These include cost, food contamination, polymer degradation and environmental leakage. Bio-based and biodegradable plastics are an important part of the solution. This collaborative project between Biome Technologies plc and Nottingham University's Chemical Engineering Department will accelerate manufacturing process development optimisation and scale-up of three novel bioplastics from Biome's current research in partnership with existing commercial customers. The project's outcome will enable the commercial deployment of a new range of sustainable and biodegradable materials within 2 years of launch, reducing landfill and the environmental burden of plastics whilst increasing productivity and growth for the wider UK (bio)economy.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
2G BIOPOWER LTD	Humberside Tyre Pyrolysis FS	£41,624	£29,137
OPTIMUS SERVICES LTD		£244,728	£171,310

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
The UK generates about 450,000 tonnes of used tyres each year. Some can be re-used and re-treaded, but 400,000 tonnes have to be disposed of. These are not allowed to go to landfill. Some are reprocessed in the UK into rubber crumb for use in (for example) play surfaces and artificial turf. A proportion is also turned into shred for use in cement kilns. Due to the low cost of international shipping and historically low barriers an increasing amount has been exported to India reaching 263,000 tonnes in 2018, largely for low-technology pyrolysis to produce crude and polluting fuel oil. Both the UK and Indian Governments are seeking to eliminate exports which have adverse health and environmental impacts. Furthermore the UK has to pay to export its waste. More sophisticated pyrolysis processes have been developed than used in (for example) India. These produce a better quality oil and some recover the Carbon Black in tyres. However, almost non can produce both Tyre Pyrolysis Oil (TPO) of a quality that can be directly refined into transport fuels, and recover Carbon Black (rCB) that can be re-used in tyres. Scandinavian Enviro Systems (Enviro) has developed an environmentally sound process that, almost uniquely, produces both high quality TPO and rCB. 2G BioPOWER has been working with Enviro for several years. TPO is partially renewable due to the natural rubber in tyres. 2G BioPOWER is now working with the UK fuel sector to use TPO from Enviro's technology to produce renewable transport fuel called 'Development Fuel'. This new category of waste-derived fuel will increasingly be used in the UK and presents a unique opportunity for the Enviro technology. Furthermore Enviro has now established a partnership with Michelin opening up the use of rCB from a UK project in tyre manufacture. The purpose of the project is to define how to deploy Enviro's technology at large scale in the UK. Such deployment will both reduce (and potentially eliminate) UK tyre exports, improve the UK's balance of payments, provide employment in the UK and also reduce UK GHG emissions, particularly in transport.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PELUCID LIMITED	SPARK (Scaling business through Prospect identification using Ai and Realtime market Knowledge)	£393,684	£275,579

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
Project Vision - To scale nationally and internationally SMEs and large businesses must identify and market their products and services to new customers ("prospects"). However, understanding unknown prospects in any region is expensive, inefficient and risky (especially considering COVID-19). Processes (identifying prospects, understanding prospect value, targeting, marketing and understanding internal knowledge) are complex and challenging, even for large enterprises and especially for SMEs, resulting in just 9.8% UK SMEs exporting (FSB, 2018). Artificial Intelligence (AI) and Machine Learning (ML) have the potential to revolutionise the process of scaling businesses to new markets and export. With Innovate UK support, Growth Intelligence has developed a platform allowing UK businesses to identify any UK-registered company that is likely to buy their product/service. To expand internationally, SPARK must radically innovate the platform with advanced AI/ML to predict both SMEs' and large enterprises' most suitable worldwide prospects and marketing channels for maximum return-on-investment (RoI). **Key Objectives -** Industrial Research to develop and validate a platform that SMEs and large enterprises can use to quickly and accurately identify and target prospects.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
T.J.SMITH AND NEPHEW,LIMITED	Automated Markerless Robotic Assisted Orthopaedic Surgery	£746,335	£373,168
DCSL SOFTWARE LIMITED		£389,026	£233,416
Imperial College London		£389,019	£389,019

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

In the UK, the total number of Total Knee Replacements(TKA's) per year has increased from 13,546 in 2003 to 98,147 in 2019 costing the NHS an estimated £585m per year\[1\]. During the same period the number of TKA revisions increased from 630 to 5,932, the majority of these (\>60%) attributed to malalignment, implant wear/fracture and aseptic loosening\[2\].Robotic-assisted surgery has the potential to reduce these complications providing a more natural-feeling knee and increasing implant survivorship\[3\]. In the UK, robot-assisted TKA surgery(r-TKA) is becoming more frequently used. Evidence from national joint registries has shown that people who have undergone r-TKA suffer lower blood loss during surgery, reduced hospital stay and improved joint function\[3\].

A major limitation of the current generation of surgical robots is the need for an infrared optical tracking system to monitor the position of the patient , surgical instruments and robot in theatre. To achieve this, a marker has to be attached to each target. However, if these markers become occluded during surgery, they cannot be detected by the camera, which results in loss of data. Attaching rigid markers to the patient is also time consuming and invasive increasing the risk of complications such as infection and fracture \[4-5\].The average cost of a TKA in the UK is £12,000, however, post-surgical complications, e.g surgical site infection, increases this cost by between £1618 and £2398 per patient\[6\].Marker-based navigation also requires several instrument trays that increases sterilisation burden in hospitals, amounting to £4.1m per year globally based on the current utility of S&N's robotic system.

Our consortium, which is comprised of Smith&Nephew Ltd, DCSL Ltd and Imperial College London,is pursuing Innovate-UK funding to carry out an ambitious and innovative project that is focussed on developing markerless and automated registration and tracking of the patient's limbs tailored for robotic-assisted orthopedic procedures using structured light technology assisted by deep learning to continuously capture the patient's anatomy during surgery.This new platform will be integrated within S&N's commercially available robotic platform"NAVIO," which was previously supported by I-UK funding, and will obviate the need for percutaneous markers reducing set-up time, cost and complexity during surgery.

The consortium will utilise public funding to advance the automated markerless tracking technology from initial proof of concept\[7\] to practical demonstration in a surgical theater in live surgeries with patients over a 28month period in order expedite market adoption within 3yrs.

\[1\][https://www.mirror.co.uk/news/uk-news/knee-replacement-operations-cost-nhs-6009303][0]

\[2\]T.Peters-and-K.Cleary,Eds.,Image-Guided-Interventions:Technology-and-Applications.Berlin,Germany:Springer-Verlag,2008\.

\[3\]National-Joint-Registry.http://www.njrcentre.org.uk/njrcentre/default.aspx.

\[4\]Wysocki-et-al,Femoral-fracture-through-a-previous-pin-site-after-computer-assisted-total-knee-arthroplasty.The-Journal-of-Arthroplasty,2008,Apr1:23(3):462-5\.

\[5\]Kamara-et-al.,Pin-site-complications-associated-with-computer-assisted-navigation-in-hip-and arthroplasty.The-Journal-of-Arthroplasty.2017Sep1;32(9):2842-6\.

\[6\]NICE(2008a)Surgical-Site-Infection:the-preventions-and-treatment-of-surgical-site-infection.http://guidance.nice.org.uk/CG74\.

\[7\]Rodriguez-&-Liu-Automatic-Markerless-Registration-and-Tracking-of-the-bone-for-Computer-Assisted-Orthopaedic-Surgery-IEEE-Access,Vol.8,Feb,2020,42010--42020\.

[0]: https://www.mirror.co.uk/news/uk-news/knee-replacement-operations-cost-nhs-6009303

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
JASPER THERAPEUTICS LIMITED	Novel Nanodrugs for Pancreatic Cancer Treatment	£464,422	£325,095

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 has the lowest pancreatic cancer survival rates among developed countries. According to Panceratic Cancer UK, 10,150 people were diagnosed with pancreatic cancer in 2018 in the UK, out of which, 7714 (76%) died within 12 months of diagnosis. Alarmingly, 50% of all deaths occurred in patients with 70-90 years of age. Surgery is the preferred first treatment for pancreatic cancer, but it's not widely applicable because the majority (95%) of pancreatic cancer patients are diagnosed in late stages. These patients carry multiple tumours that are difficult to remove surgically due to abnormal tumour size and/or intricate tumour location. Chemotherapy is the most clinically used first line therapy for pancreatic cancer treatment. Existing chemotherapy drugs exhibit low efficacy and non-specific toxicity in patients. Low efficacy leads to uncontrolled cancer spread and tumour growth, and non-specific toxicity leads to serious adverse effects. The adverse effects are most prominent and severe in older patients. The project aims to develop nanodrugs, a 'state-of-the-art' first line chemotherapy drug product. The drug product is a tumour-specific nanomedicinal agent capable of tumour-targeted drug delivery in pancreatic cancer patients. The drug product will offer significantly higher efficacy than existing drugs and will not cause non-specific toxicity, therefore, the products will greatly improve mortality rates and quality of life of pancreatic cancer patients across the United Kingdom.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
GREENER WORLD LTD	Research & development of a powerful sustainability platform for SMEs	£62,959	£44,071

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
Greener is an innovative online sustainability platform which provides small and medium sized enterprises (SMEs) with tools to calculate and monitor their environmental impacts, and communicate their results with other parties in their supply chain and their customers. SMEs shape 98% of the UK's economy and account for over 70% of industrial pollution. Yet, the current sustainability solutions in the market are not suitable for SMEs. The majority of market offerings in sustainability solutions are provided through sustainability consultancy reports. Naturally these offerings are expensive, resource intensive, and require months or years of in depth assessment for specific processes and products. These reports, although detailed, are only suitable for larger corporations and not appropriate for SMEs. This issue is compounded by the fact that both SMEs and large corporations are subject to the same environmental regulations. However, due to various economies of scale present within large corporations, SMEs often face more challenges when meeting targets and improving performance. Large corporations are able to relocate operations, afford world-class administrators, and access experts & environmental advisers. SMEs can't do any of these things. Furthermore, many SMEs are actively trying to improve their performance and minimise impact, but simply can't due to lack of information and resources. The Greener platform will change this. Greener provides SMEs with a clear understanding and visualisation of what and where their environmental impacts are and how they have changed over time, as well as providing AI-driven recommendations for changes. This will provide our users with a chance to make informed decisions to reduce their impacts and track their progress in relation to both themselves and the industry as a whole. The benefits of the platform are: 1. allowing users to understand and visualise their environmental impact in an intuitive and cost effective way, which is currently not possible. 2. enable users to utilise their Greener progression as a marketing tool to communicate their environmental impacts with their consumers to drive more sales. This is particularly impactful as it is projected that a "€966 billion opportunity exists for brands that make their sustainability credentials clear" (Unilever, 2017). 3. Enabling users to communicate and collaborate with other supply chain members through the Greener platform. Greener aims to build a transparent and interconnected ecosystem which encourages information sharing and communication to lower supply chain impact. This will allow our users to create transparent and traceable supply chains, jump-starting progress towards the zero-carbon economy.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
RECO MEDICAL LTD	Wireless Intracranial Pressure Monitoring System	£499,932	£349,952

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
ICP measurement and monitoring is an extremely important part of the neurosurgical care for both acute events such as traumatic brain injury (TBI), stroke and cancer patients as well as chronic diseases such as hydrocephalus or benign intracranial hypertension. Current ICP monitoring systems involve a surgical procedure - introducing an intracranial probe through the skin and skull while the external end is connected to a monitor. The benefits of this analogue system are offset by the significant risks of serious, potentially life-threatening, infection of the brain, particularly when the ICP recording is prolonged. It necessitates restricting mobility, particularly difficult for children and elderly patients - two groups commonly requiring prolonged ICP monitoring. Wireless ICP systems remove the infection path. Raumedic Neurovent-P and Christoph Miethke Sensor Reservoir, offer wireless continuous ICP monitoring but use bulky sensors and external readers of high prices that limit their applications. After 12 years R&D at Imperial College, the team has developed a portable platform technology suitable for ICP monitoring, consisting of an implantable miniature wireless sensor, a battery-powered electronic reader and a small flexible external patch antenna. The currently unmet patient needs and excellent system performance encouraged the team to commercialise the product for the benefit of patients and health care systems. The implantable sensor is made from highly stable crystal quartz and other biocompatible materials used in implants for many years. The sensor is equipped with a thin antenna with minimal risk of complication and works in a licence-free band available in Europe, USA, China and most countries. The unique combination of the technologies allows for small and low profle implant as well as reader antennas. The reader is light weight (120g), battery powered and designed for 12 hours continuous ICP monitoring on a single charge. It is equipped with Bluetooth and GSM wireless interface for data transmission to smart devices as well as healthcare servers. It is also equipped with visual feedback (LED lights) for optimal positioning of the external antenna. A recording regime can changed remotely by the clinical team. The interrogator hardware and flexible external antenna are ready for use. The project will cover the complete sensor production process, interrogator software modification, conducting animal trial and preparing for the first human clinical trial. Parallel processes will obtain patient input for system ergonomic assessment and level of engagement with the available data and clinical user requirements for defining data presentation and usage.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
CAMBRIDGE SMART PLASTICS LIMITED	Smart Polymer Bonding	£175,776	£123,043
University of Cambridge		£69,572	£69,572

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
While the wasteful use of single use plastics is regulated out of existence, the importance of plastics to modern industry is growing. The vehicles of the future, the aerospace sector and many others, rely heavily on this lightweight, strong and cheap material. Unfortunately, the same characteristics that make plastics so attractive, also present a fundamental challenge to its use. This project aims to resolve one of the most well-known issues: the fact that solid plastics do not stick to each other, and cannot be welded like metal. This means that bolts, screws and fasteners are typical today. Where this is not possible, industry has invested in heavy, energy intensive workarounds. This makes production costs higher and increases the carbon footprint of plastic parts. If a simple bonding agent (a "glue") could be produced, then production lines could quickly and efficiently build up plastic cars, airplane wings, and much more. This would drive down the cost of vehicles, their weight, and the resulting range and emissions. Our process is also less energy intensive, and therefore more environmentally friendly than the status quo. Cutting edge research at Cambridge University has now reached the point where just such a product could be made. This project has the goal to bring the state-of-the-art research in polymer science from the Cavendish Laboratory (the place where the electron and DNA were discovered) to the market through a collaboration between top scientists at the University and a local advanced materials start-up. We will work on a new bonding solution that will mean in a few short minutes, any standard plastics can be strongly and permanently bonded. This will allow for complex products made of structural plastics to be assembled quickly and with better environmental credentials than any comparable material. There is already strong interest and support letters from major manufacturers, and with this grant, the UK will continue to cement itself as a technology and advanced manufacturing leader.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ONE PLAN LIMITED	OnePlan: The Future of Event Planning. End-to-end visibility and a single source of truth for every stakeholder in the event lifecycle.	£313,702	£141,166

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
* 100's of millions of events take place each year. There is no centralised, scalable, integrated planning platform to support the site planning and operations of these events. OnePlan is this platform. It will give event planners a set of advanced integrated tools combined with sharing, collaboration and procurement functionality. It will provide end to end visibility of the event planning process for all stakeholders with a single source of truth. It is a step change in the site planning and operations of events. A major leap in efficiency, collaboration, cost reduction, safety and security. * We have conducted 12 months of in depth industrial research across our full spectrum of potential customers. Using a MVP version of OnePlan we have been working closely with the International Olympic Committee, FIFA, Glastonbury, INTERPOL, Great North Run, IRONMAN, Chicago Marathon and many less well known agencies, and events. We have in total engaged over 600 event professionals across 40 countries to understand their needs, wants and problems. They have made the demand for OnePlan clear. * COVID - 19 has resulted in a surge of interest and we are now at 900 as a result of the release of our prototype social distancing tools, and webinar demonstrations. We conducted surveys across the entire group, holding discussions with key organisational personnel to understand need. As an example we spent 2 days in meetings with the Glastonbury Festival team. * Some key data below to understand the market and the unmet business need: * 87% of event planners are unhappy with their current planning options. * 73% - No centralised system. * 87% - No dedicated tools or platform for event site planning. * 67% - No consistent style of planning * 82% - Site plan is static - Plan out of date on creation. * 91% - Sourcing up to date maps and satellite imagery is a major challenge. * 70% say they are not aware of a system designed for event site planning. * 48% say they will adopt OnePlan when the upgrades are completed. 35% will strongly consider.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
INVENTOR-E LIMITED	Modular iVend Scale (Mod-iVend) - a modular weight-based Industrial Vending Machine (IVM)	£431,864	£194,339

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
Opportunity Industrial Vending Machines (IVMs) can significantly increase workplace efficiency by dispensing high value assets, components and personal protective equipment (PPE) directly to workers. However, the currently dominant technologies (cheap locker and helix-coil IVMs) have significant limitations. The use of weight-sensor technology in IVMs, which would address these limitations, has been limited primarily due to the high cost of component technology. Additionally, with existing weight-based IVMs, once a system is ordered in a set configuration of shelves, drawers and/or bins, due to the internal wiring and mechatronics, the system cannot be changed easily, resulting in poor flexibility for meeting changing customer needs. **Objectives** This 18-month experimental development project supports Inventor-e, a UK SME with expertise in stores and asset management to develop an innovative, low-cost IVM to disrupt the status quo. "Mod-iVend" will develop a new IVM to include novel, cheap weight sensor-based item bins. Utilising wireless technology, a range of sizes and shapes of bins, along with the ability to reconfigure shelves in-the-field will also ensure the solution is modular and reconfigurable - firsts for the industry. Furthermore, we will leverage Inventor-e's novel IoT technology (SMARTIE asset tags) to track/control asset usage and deployment to specific job codes and SOURCERER, our inventory software. This will provide automated check in and check out of assets from the vending machine using Bluetooth Low Energy (BLE) SMARTIE tags and BLE gateway technology. **Benefits** Mod-iVend will help to reduce costs for end-users by preventing theft of goods, ameliorating inappropriate issuance of high-value items, accurately tracking assets, and logging employee asset responsibility as well as ensuring workers are kept safe through monitoring PPE compliance to specific job roles.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TRANSFORMIFY LTD	Transformify HR Suite	£494,069	£222,331

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
Trusted by business clients from 150+ countries, Transformify HR Suite is the seamless, fastest way to hire, assign projects and transfer payments to remote workers, independent contractors and freelancers. COVID-19 Response: Sustainable Remote Jobs tackles unemployment amid coronavirus outbreak and Industry 4.0\. Transformify will leverage its cutting-edge technology to: * Help people laid off amid COVID-19 outbreak identify and outline their transferable skills; * Outline jobs requiring those transferable skills; * Help employers create temporary and part-time remote and flexible jobs for people laid off amid COVID-19 outbreak. At least 7,500 sustainable remote jobs will be created by the end of 2020 as part of Transformify's pledge to the Digital Skills & Jobs Coalition of the EU Commission. [https://pledgeviewer.eu/pledge/initiative/242][0] https://www.transformify.org/blog/whats-hot/transformify-launches-sustainable-remote-jobs-initiative-to-tackle-unemployment-amid-coronavirus-outbreak **Project Objectives** (i) to develop powerful algorithms identifying the transferrable skills of job seekers who are unlikely to find a job within the same industry amid massive layoffs (aviation, hospitality, tourism, automotive, etc.); (ii) match job seekers' profiles to jobs requiring those transferrable skills; (iii) suggest relevant e-learning courses to the job seekers to increase their chances of getting hired; (iv) leverage predictive analytics to suggest an alternative career path to people whose jobs have been permanently cut off due to Industry 4.0, process automation, COVID-19 outbreak, etc. (v) help employers create sustainable remote jobs for people living in areas with high unemployment rate or people who commute daily to limit the carbon footprint and revitalize local communities. **Project KPIs** Help create 7,500 sustainable remote jobs by the end of 2020\.

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

Transformify has been recognized as a disruptor by Virgin and the Digital Skills & Jobs Coalition of the EU Commission. The company has been awarded the 2017 First Women Award, 2018 Female Entrepreneur Enterprise Award and ranked in Top 10 Fintech Innovations in the UK in 2019\.

[Transforming the way people get jobs | Virgin][1]

[0]: https://pledgeviewer.eu/pledge/initiative/242
[1]: https://www.virgin.com/virgin-unite/transforming-way-people-get-jobs

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
EPSILOGEN LTD	Preclinical validation of a novel cancer immunotherapeutic	£703,636	£492,545
King's College London		£294,111	£294,111

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
Epsilogen (formerly IGEM Therapeutics) is developing a novel HER2-targeted antibody EPS 201, selected on a number of key attributes that sets it apart from marketed competitors. The project seeks to move EPS 201 closer to the clinic through development of product quality assays, _in vivo_ models for GLP toxicology and efficacy, and a manufacturing cell line for progression to GMP. IgE provides a completely unique anti-cancer mode of action which enables our products to be clearly differentiated from IgG-based therapies.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VOCHLEA MUSIC LTD	Live vocal recognition for music making on mobile devices	£439,269	£197,671

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
Vochlea Music is a creative technology company. Founded in 2017, we work at the cross section of music and technology. In 2019 we launched award winning AI vocal recognition technology, The Dubler Studio Kit. The Dubler Studio Kit is a ground-breaking innovation in music technology; it allows users of mac and PC computers to create, control and manipulate audio samples and software instruments live, using their built-in tool for audio expression -- the voice. However, our vision goes beyond a single product to a whole new way of making music and controlling real-time interfaces. We truly believe that real-time vocal control for music, and gaming, is going to be massive, and a fundamental change to tech interaction! Kids in playgrounds all over the world will be beat-boxing out drum beats and humming bass-lines. Musicians on tour will be sketching out ideas using their voice, and artists on stage will be performing live using our software. To make this vision possible we need to make our products more accessible, and bring our ground-breaking technology to most ubiquitous computer -- the smart phone. That is the core of this project, and it requires radical innovation.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
HUMANITY V2 LTD	ML Enabled Food Recommendations For People With Special Dietary Needs	£189,593	£132,715
The University of Manchester		£35,000	£35,000

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 World Health Organisation (WHO) estimates 3%-7% suffer from a food allergy globally which translates to 220-500 million people. This project aims to aid food allergic, intolerant and people with special dietary preferences in deciding what to eat when eating out by applying machine learning techniques to a domain-specific knowledge graph. In collaboration with The University of Manchester, this project will create disruptive technology to support decision making for people with special dietary needs, along with increasing transparency, trust and reducing food safety risk at food outlets. The outputs of the project will help to test the 'feasibility' of the solution and de-risk early-stage R&D by co-designing, building and testing the technology with the target demographic. Acting as a catalyst for future research and investment for the partners involved. The long-term potential will have a significant impact on the UK economy by improving health and wellbeing through personalised nutrition and behaviour change, via cloud, mobile and IoT technologies. Additionally, exporting the technology to a global scale from significant investment from impact-driven venture capital firms.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
EUROPEAN THERMODYNAMICS LIMITED	KiriTEG - Innovative manufacturing approach to making flexible thermal energy harvesting devices	£307,156	£215,009
Queen Mary University of London		£131,166	£131,166

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
KiriTEG is a novel approach to producing enabling materials and process technology for self powered wireless sensors and systems. ETL and QMUL in collaboration, have submitted a patent on the manufacturing process. We are now at a unique point to develop this process, build on, and exploit our IP on thermoelectric materials knowledge developed in previous work. The project will undertake industrial research of both organic and inorganic thermoelectric materials to enable flexible devices, and the development of the manufacturing process to allow 3D products to be formed from 2D shapes but focused on nearer term exploitation of temperature gradients for thermal energy harvesting. We will leverage certain large area electronics techniques where applicable, to allow shorter routes to commercialise product development. The manufacturing process will enable new routes for other harvesting devices using different methods for heat, vibration, and motion. The materials and process will both enable improvements in mechanical durability and robustness, and with their flexibility allow uptake into the wearable products sector. We will specifically target a low cost route to allow ubiquitous uptake for both marine, automotive -- specifically electric and autonomous vehicles, industrial and consumer products, supporting the Internet of Things (IoT). Future IoT products especially in remote locations have increasing attraction if they are "fit and forget". Through this project, we will create flexible, and durable thermoelectric materials, develop the manufacturing process, and demonstrate in a prototype thermal energy harvester, establishing a platform for next generation energy harvesting device manufacturing.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
EZE TRUCK COMPANY LTD	Electric 12 Ton Medium Duty Delivery Vehicle Feasibility Study	£477,600	£334,320

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
Public Description EZE Truck is developing an all-new electric medium duty vehicle (e-MDV) in the 12 Ton weight class for zero-emissions urban deliveries. It is widely recognised that the movement of goods within urban environments presents a number of significant challenges. A major opportunity exists to create a game-changing, purpose-designed e-MDV offering a zero emissions, cost effective solution for 'last mile' deliveries in urban locations. The UK's Industrial Strategy for future mobility identifies a need to create new solutions that can profoundly change the way that we move goods around our towns and cities. In London, regulations and financial penalties already exist for conventionally-powered vehicles and similar schemes are now confirmed to follow in other cities around the UK and operators need viable cost-effective alternatives. EZEs' e-MDV will address key items in the strategy set by the Mayor of London in the TfL Freight and Servicing Action Plan. * Vision Zero -- the aim being to reduce the number of people killed or seriously injured on London's streets to zero. * Congestion Reduction -- Silent operation enables 24 hour deliveries to reduce day-time traffic congestion. The Mayor aims to reduce the number of HGVs and LCVs entering central London in the morning peak by 10% by 2026 * Congestion Reduction - Consolidation -- Use of one large urban truck to replace up to 6 smaller vans * Clean Air - TfL are seeking to introduce a zero emission zone in central London by 2025 and in inner London by 2040 * Incentives -- TfL and the London boroughs will introduce regulatory and pricing incentives to support the transition to the use of ULEVs in London. No purpose-built, affordable production solution is currently available to vehicle operators in the medium duty (12 Ton) commercial vehicle sector. There are currently a small number of very low volume vehicle converters offering products; however by their nature, conversions of this type are compromised due to loss of payload capacity and high cost. The e-MDV will satisfy demand from logistic and delivery operators for a zero emissions vehicle that will: * Offer a lower Total Cost of Ownership (TCO) than current diesel vehicles. * Give a safe, pleasant working environment for drivers. (Driver recruitment and retention is a major challenge for operators.) * Offer a payload capacity equivalent to a current diesel vehicle of the same GVW. * Give the opportunity for 2 or 3 shift operation to maximise use of the asset.

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
SMART COMPONENT TECHNOLOGIES LIMITED	SMART-W: Smart Assets to reduce the cost of delivering Offshore Wind	£434,900	£195,705
OFFSHORE RENEWABLE ENERGY CATAPULT		£45,423	£45,423

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
Clean growth is at the heart of the governments Industrial Strategy. To meet the UK's 2050 net zero target, the UK must increase energy production from renewable sources by fourfold. For Offshore Wind to fulfil this demand, innovations are needed to reduce the cost of delivering this source of energy. Specifically, wind farm operators are actively seeking remote condition monitoring technologies to continuously monitor the mechanical integrity of safety and performance critical bolts. This collaborative project between Smart Component Technologies Ltd (SCT) and the Offshore Renewable Energy Catapult (ORE) will develop, test and evaluate a new version of the Smart Washer for the Wind industry, from TRL 3 to 7\. The Smart Washer is a first-of-a-kind condition monitoring solution that measures the preload of safety and performance critical bolts. The Smart Washer is fitted as a member in the bolted connection and monitors bolt preload using a proprietary and patented clamp force sensor. The sensor data is wirelessly transmitted to a cloud service where it is stored, analysed and visualised.

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: January 2020

Competition Code: 2001_SMART_JANUARY

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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
OXFORD LASERS LIMITED	(LAND) Laser drilling guideplAtes for semicoNDuctor wafer test	£499,432	£349,602

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
LAND will develop ultra-high precision laser drilling in ceramic components for next generation devices. High hole count ceramic plates are required with more than 60,000 laser drilled holes per plate with several plates needed per final device. Oxford Lasers (OL) has been a world-leading supplier of the ceramic drilling technology since 2001 and plays a critically important role in major industrial supply chains. Each year devices get smaller and the technical challenge is to drill ever smaller holes on ever tighter pitches. The project will develop new hardware prototypes and advanced laser drilling recipes to progress current state of art and demonstrate reduced hole size, increased aspect ratio and faster production rates. The project will lift developments from TRL level 3 to 6\. Oxford Lasers will build on existing expertise in this field and deploy our R&D team and dedicated hardware to the project building on 29 years laser drilling experience. We expect this project to enable Oxford Lasers to continue its dominant presence in critical, rapidly growing export markets and increase market share as mechanical drilling is fast dwindling as a competing solution. Keywords: ceramic laser drilling, semiconductor wafer test, Probecard

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ROMAX TECHNOLOGY LTD.	RUBICON - ultRa-dUraBle electrIC pOwertraiNs	£386,164	£231,698
CENEX (CENTRE OF EXCELLENCE FOR LOW CARBON AND FUEL CELL TECHNOLOGIES)		£42,255	£42,255
EMPEL SYSTEMS LIMITED		£57,458	£34,475

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 reduce the ecological and economic costs associated with the ownership of Connected and Autonomous Vehicles (CAVs). CAVs are widely anticipated to disrupt the future of transportation -- with estimations of adding up to £62Bn in economic growth to the UK economy by 2030\. This is driven by intense interest surrounding the introduction of high-utilisation mobility solutions, such as Shared Mobility and Mobility as a Service (MaaS). Ecological and societal impacts are also widely predicted, with decreased congestion, increased leisure time, more urban space (due to higher vehicle utilisation), and reduced emissions. This future will only be realised if our new vehicles provide a net economic and ecological advantage over existing mobility solutions, something which is not necessarily guaranteed given that additional driverless equipment may negatively impact vehicle efficiency, production cost and production carbon. \[see appendix 2, exhibit A1\] In this study we will benchmark existing passenger vehicles based on their lifecycle economic \[£/km\] and ecological \[gCO2e/km\] cost. Then, by means of a trade-off study, we will propose a novel vehicle design which achieves significantly lower lifecycle costs compared to the best existing benchmark. Our hypothesis is that by increasing vehicle service-life relative to production cost/carbon, we can achieve much better economic and environmental outcomes for CAVs across their lifecycle. We see the trade-offs for this being higher manufacturing costs and vehicle weight -- exactly the opposite of current automotive design trends which favour low build cost (and hence low service-life) designs. This is a novel approach to passenger vehicle design, and is perhaps much more akin to a commercial vehicle methodology. This new approach to passenger vehicle design also makes sense commercially. As passenger vehicles transition from consumer goods to capital assets, key purchasing drivers for CAV fleet owners will be economic-cost-per-km \[£/km\] and life-carbon emissions \[gCO2e/km\], both of which will be optimised in this study. We will consider a top-level vehicle overview then proceed to explore the vehicle powertrain in quite some detail. The powertrain (Drivetrain, Motor, Inverter, Battery) is the most expensive and carbon intensive life limiting vehicle component, so this is where we allocate the largest project effort.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
DEGOULD LIMITED	Carboosh - Disrupting used car sales with an inspection and selling service powered by Artificial Intelligence	£499,349	£349,544

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
DeGould is an award-winning innovative engineering company aiming to apply their AI-based inspection expertise and proprietary technology to disrupt the used car sales market. They currently offer imaging services for the automotive sector, supporting clients to streamline their processes by combining technical engineering, digital software, with smart automation and cloud-based data exchange. This project aims to develop an innovative solution that builds on DeGould's current automotive inspection technology to disrupt the used car market. The solution will enable easy, automated and professional online advertisement, increasing profitability and stimulating transparency in the sector.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SERELAY LIMITED	Bootstrapping Trust on Mobile Devices	£324,282	£226,997

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
Bootstrapping Trust on Mobile Devices

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ISPANIEL LTD	SMall Affordable Robust RealTime Tracker (SMARRTT) - Bringing IoT Tracking to the Masses	£240,754	£168,528
University of Warwick		£60,017	£60,017

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
iSpanel SMARRTT is an IoT device that is small and affordable, yet is very robust and functional with an exceptional battery life. When activated and attached to an asset it will provide near real time data on its location, temperature and contents, thus providing smart asset tracking and product quality/handling data for businesses that need to track and monitor small and low value assets. Areas of innovation will be in the miniaturisation of the state of the art, and development of novel antenna designs and power saving techniques.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
BREATHDX (UK) LIMITED	Transforming the management of Urea Cycle Disorders using non-invasive breath ammonia monitoring	£365,156	£255,609
University Hospitals Bristol and Weston NHS Foundation Trust		£22,012	£22,012
University of Bristol		£69,927	£69,927
University of the West of England		£32,969	£32,969

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
Urea Cycle Disorders (UCDs) are genetic conditions which lead to severe lifelong disability and early death. They cause a buildup of ammonia, which is toxic, and result in serious and permanent brain damage. They tend to go undiagnosed at birth until the onset of illness, before damage has already occurred. These conditions are very difficult to manage, requiring regular visits to specialist care centres, which is extremely stressful and disruptive to family life. It has been described as "like living with a time bomb". Currently, ammonia can only be measured effectively in the hospital. There is no way to manage these conditions in the patients' homes. Having a way for patients and families to measure and monitor their ammonia at home would lead to significant improvements in the management of UCDs, and lead to significant improvements in patient quality and quantity of life, while also reducing the burden on the healthcare system. **BreathDX is working with its regional partners, UWE Bristol, University of Bristol and University Hospitals Bristol and Weston NHS Trust to bring its AmBeR breath ammonia measurement technology to UCD patients**. AmBeR is a simple to use, non-invasive means of measuring ammonia levels using breath. It has the potential to eliminate the unpredictability of managing UCD, reducing the heavy care burden and costs associated with lost income and time spent accessing health services. It also has the potential to improve the quality and quantity of life of sufferers, by improving both acute and chronic care management. It would also reduce the burden on the health service, reducing costs and improving efficiency and workflow.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
INTERPAC LTD	ColdCor-flex: A cold corrugating process enabling a disruptive business model for sheet converters and box makers with significantly reduced carbon footprint, capital and operating costs.	£307,789	£215,452
M & K TRADING LIMITED		£166,251	£116,376

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
Legacy manufacturing approaches for the production of corrugated board are hugely wasteful of energy and water. They are also extremely capital intensive, and lack the flexibility required to meet the complex demands of modern B2B and retail supply chains. With increasing overall demand from online retail, the cardboard market is growing by a CAGR of 4.4%. However, due to the capital and operating cost burden of existing manufacturing technology, sheet converters (corrugated packaging producers) are limited to a very few suppliers, themselves wedded to use of the largest format paper feedstock, and unable to offer their customers less-than full lorry load quantities at cost effective prices. With existing board producers thinly distributed, the environmental and economic cost of storage, and shipping a board product, consisting of ~50% air, sometimes 100s of miles is not sustainable. These cumbersome legacy technologies lack the flexibility to meet today's customer demands efficiently, cost effectively and with minimal environmental impact. We have developed to prototype stage a revolutionary corrugator technology which requires no process water, uses significantly less energy, occupies much less space and requires a fraction of the existing capital expenditure. Where before a sheet converter could never contemplate the flexibility of on-site board manufacture, with the Interpac corrugator, ColdCor-Flex**,** cost-effective and flexible production of board can now become a reality. In order to develop our solution to a pre-production prototype for demonstration to stakeholders, we have some key technical challenges to overcome. With a long-standing relationship, the two partners of the project have assembled a strong team to deliver this carefully planned work. Total costs for the 18-month project are budgeted at £475,031 of which we are requesting £332,521 of grant funding. The project will output prototype drying and corrugating technology, installed on our existing pilot line, together with the results of board and box testing, and a formal impacts and benefits analysis

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GREYPARROT.AI LTD	Integrated artificial intelligence and robotic system for plastics recycling	£260,728	£182,510
BPR GROUP EUROPE LTD.		£36,130	£21,678
Middlesex University		£111,666	£111,666
ST ROBOTICS LTD		£91,076	£63,753

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
GREYPARROT.AI LTD is a high tech software development company with expertise in waste recognition software that enables the intelligent sorting of waste types. GREYPARROT is collaborating with ST ROBOTICS (which specialises in design and development of affordable and user-friendly robotics), BPR GROUP (a waste management company operating materials recovery facilities (MRF)) and MIDDLESEX UNIVERSITY LONDON to develop an Artificial Intelligence based technology for sorting and recovery of plastics in MRF. The project outcomes will significantly impact our businesses and stakeholders throughout the supply-chain: (i) the technology will enable end-users to make over 50% cost savings related to cost of acquiring commercially intelligent technologies for recycling; (ii) the technology will improve the recycling of plastics, alleviating pressure on ecosystems to provide resources; and (iii) the technology will also enable securing existing jobs and creating at least 25 new jobs within 5 years post-project.

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Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ORBITAL ASTRONAUTICS LTD	Project Thea: Hybrid RF-Optical Inter-Satellite Communications System	£453,922	£317,745

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
OrbAstro will develop to TRL5 a complete solution for optical inter-satellite communications, compatible with standard nanosatellite platforms, decoupled from nanosatellite ADCS, targeting the constellation markets.

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: January 2020

Competition Code: 2001_SMART_JANUARY

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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
MCCOOEY ENGINEERING LIMITED	Stage V Exhaust Emission Certified Diesel Engines for Marine and Hazardous Area Applications	£478,338	£334,837

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 emissions from diesel engines have been in the headlines for some years for all the wrong reasons. New regulations have seen the development of cleaner and more efficient diesel engines in all applications for on-road and off-road markets, which now require the engine to be fitted with aftertreatment that reduces harmful emissions even more. There are two markets where this technology has not been adopted due to several technical challenges addressed in this project. The major OEM's have not developed the technology as they do not see the full potential of the market or cannot see the return on investment required to undertake this development. The two markets are Stage-V Marine and Stage-V Hazardous area engines. The EU Regulation 2016/1628 requires all new and re-powered vessels designed to work on Inland Waterways, (lakes, canals and rivers) to be Stage-V compliant. However, there are no Stage-V engines with aftertreatment available today in our engine platform sizes. Our project is to produce a range of engines that comply with the marine classification regulations so that vessels can be built or re-powered with cleaner Stage-V engines to meet the Inland Waterway Regulations for the UK and EU markets, while complying with or exceeding other worldwide regulations like USA's EPA. The Hazardous area applications are using engines without aftertreatment and so do not comply with current emission regulations. Equipment manufacturers state that the engine technology is not available for them to build their equipment to the required hazardous standard at Stage-V emissions. We can develop and bring these engines to market working with UK manufacturers to develop and adapt technology for this project along with our in-house knowledge, expertise and testing facilities. These two markets both face some complex technical challenges which are very similar yet different, making them suitable to work on together to maximize the return on investment and to give the UK a leading edge in this technology. The UK is still very active in these markets. Hazardous engine applications are exported worldwide by several UK OEM's. We are projecting sales of £8 million by year 2-3, with strong UK sales and exports. We will produce these engines from donor engines in our UK facility. These sales will provide skilled jobs for the local area, and support growth in manufacturing and innovation for our UK supply chain. While reducing the exhaust emissions from these applications and improving air quality.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ADAPT INTERNATIONAL LTD	Production and validation of prototype Adaptive-media® based remote soft skills training tool	£330,597	£231,418
INSTITUTE FOR EMPLOYMENT STUDIES		£27,923	£27,923
NACRO		£26,956	£26,956

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
Nacro Education supports disadvantaged young adults, including young offenders, offering a variety of personalised study programmes, including certified vocational training and work placements. Learners often have low esteem, lack confidence and while they may be developing hard skills, they might easily fall at the job interview hurdle if they don't have the necessary soft skills. To make matters worse, lockdown has highlighted the inequalities disadvantaged young people face learning from home. Soft skills will be one of the advantages humans maintain over machines, so it is vital everyone in society has the opportunity to acquire them. We are going to prototype a remote soft skills training tool to help disadvantaged young adults develop a good set of soft skills they can use at interviews to complement their hard skills and dramatically increase their chances of getting a placement or job. We are going to use a cutting-edge AI-based British innovation to help them. Adaptive-media technology is a new immersive digital video format that uses artificial intelligence to adapt video content naturally to the viewer in real-time, based upon how they appear and how they react, just as humans instinctively adapt to each other. It can read the viewers facial inputs through their device camera (e.g. any smartphone, tablet, PC with modern web browser) to analyse the person in real-time and then serve the viewer appropriate content, based upon human factors such as emotion, attention and demographics, usually in the form of digital video. To use a simple analogy, it is like when we meet someone for the first time, we don't need that person's personal information or data to have a conversation, we just adjust and adapt to the person in front of us by analysing their face and reactions. Adaptive-media fully conforms to GDPR and is NOT doing facial recognition! All users must always first allow their camera to be used and there is no recording or storing of biometric data on any server. The Adaptive-media based remote soft skills training tool project will be the first adaptive-media pilot to solve an important and urgent learning requirement. It will create interview role play scenarios and evaluation for young adults to practice and acquire the soft skills they need to perform better in interview situations, even when they are unable to attend a physical school or college. The project will hopefully validate the Adaptive-media format, opening up many possible applications.

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Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
GLIMPSE PROTOCOL LIMITED	Glimpse Protocol: a disruptive new data model to safeguard personal data privacy	£498,734	£224,430

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
Glimpse Protocol is a new privacy technology, based on cutting-edge cryptographic and distributed ledger techniques, to re-establish a user-centric data model for the next-generation internet. The primary use case is in digital advertising due to its pervasive abuse of consumer data, the current legislative focus, and to act as a focus for further adoption across other applications. The first commercial application will establish an ethical system to deliver personalised digital advertising, guaranteeing the privacy of consumers' personal data while significantly improving value to advertisers and publishers, and fully complying with current and future privacy legislation. Glimpse uniquely solves the paradox of delivering effective, personalised advertising while respecting privacy. This is achieved while also giving transparency to brands, rewarding consumers for their data and dramatically reducing fraud. Glimpse's product is fully compliant with GDPR regulation, the UK's Data Protection Act 2018 and future legislation, including the EU's ePrivacy regulations and legislation in a number of US states. It entirely addresses the challenges described in the Information Commissioner's June 2019 report on digital advertising, which articulated HMG's position that the current system of real-time bidding in digital advertising contravenes GDPR and is illegal. The project will develop the product from a feasible architectural theory into experimental production, through early trials and development towards a technical MVP and to the point of readiness for commercialisation. The project aims to deliver a highly disruptive and innovative product. It harnesses and integrates a number of new technologies into a novel, innovative architecture to replace the existing, complex system, which the ICO and EU have stated is illegal due to the invasive breaching of consumer data rights. Our product aims to disrupt a $60 billion global market and it can be commercialised rapidly. It will support the UK's thriving creative industry of advertising and publishing by offering greater effectiveness, lower costs and higher revenue, thereby improving the productivity of a key UK industry. It will also allow them to comply fully with legislation and is attractive to the industry as it acts to de-risk and hedge the impact of tightening privacy legislation.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VRGO LTD	VRGO fYt	£108,900	£76,230
University of Wales Trinity Saint David		£0	£0

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
Low back pain (LBP) has been identified as one of the costliest disorders among the worldwide working population. Sitting with poor posture has been associated with risk of developing LBP. When you use incorrect posture, several areas of stress may develop within your muscle tissue, spinal joints (lumbar facets), and discs. These stresses may ease with posture corrections or may worsen with no adjustments, slowly weakening the affected parts. Addressing musculoskeletal disorders linked with prolonged periods of sitting, either at work or at home, is a significant challenge. fYt aims to change how users interact with their seat through developing a set of smart sensors that contain multimodal pressure and motion sensing technologies, to monitor the user's movement and posture. These combine with haptic feedback to provide unique valuable posture data insights for users to counter sedentary lifestyles through encouraging postural alignment and seated movement, empowering users to take responsibility for their own health and wellbeing. fYt is our vision for transforming the dynamic seating market, making it affordable and accessible for all. The fYt sensor unit will be simple to integrate into all chair types at point of manufacture, providing an affordable and adaptable alternative to conventional posture and back pain chair solutions. Additional benefits are possible through fYt units supplying health and safety summary reports on posture and movement data to management teams for employee monitoring and care. Further expansion is possible into other sectors with sedentary activities, i.e. healthcare patient sector.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
METADVICE LTD	Metadvice Lipid Management AI application for doctors to manage patients at risk for developing heart disease	£328,328	£229,830
King's College London		£118,389	£118,389

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 recent report on AI in the NHS highlighted the importance of AI to advance effectiveness with which doctors make decisions (AHSN, 2018). While many novel applications of AI have moved forward to support the NHS's 1500 pathologists and 3000 radiologists in interpreting clinical images, we believe in an even bigger impact of aiding the more than 40,000 GPs to utilise AI for the benefit of millions of patients. Metadvice is a digital health technology that uses AI tools, notably "neural networks' to mimic certain functions of the human brain. We are applying AI to a major disease burden, cardiovascular disease (CVD), which includes heart attacks, strokes, and congestive heart failure, and has massive implications for the NHS, costing billions of pounds in mis-managed care. A major risk factor for CVD is uncontrolled high lipids (fats, cholesterol) in the blood. Yet up to 50% of patients who develop CVD have consistently elevated and poorly managed lipids despite standard therapy such as statins, and are at high risk of severe events such as stroke (Ray, 2017). Part of this shortfall is due to low personalisation of therapies, and patients' poor understanding of benefits and adherence to therapy. Many are cared for by GPs who struggle to keep up-to-date with rapidly changing clinical guidelines and drug treatment options, amongst a major workforce shortage and a constant barrage of new information. Metadvice (1) provides doctors with information about elevated risks, (2) helps select correct individualised therapies, (3) provides evidence and support of clinical recommendations, and (4) allows doctors to 'be present with' the patient, rather than engage with the complex medical record on their computer. This 12 month project will develop and refine Metadvice's 'AI engine' that powers the clinical interface and connects with the electronic medical record containing patient history, for high lipid management. We are partnering with GP practices in Lambeth, South London to extract relevant new information with the aim of providing unique insights for identifying high lipids earlier and more effectively, to enable better diagnosis and treatment of CVDs. Refinement of a user-friendly clinical interface for doctors will show the 'patient journey' over time, and displays risks and treatment options based on deep knowledge of the individual patient. Our early work has been greeted enthusiastically by GPs who have commented that no similar clinical decision tool exists, and are excited at the possibility of utilising our technology.

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Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
STABLEPHARMA LIMITED	Development and commercialisation of world changing invention for the stabilisation and delivery of vaccines	£437,069	£305,948

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

Vaccines save ~3million lives globally by preventing many infectious, serious and potentially deadly diseases (smallpox/polio/measles/diphtheria) by ~99.9%\[NHS,2019\]. Vaccines are normally supplied in liquid form which requires constant refrigeration between 2-8 degC. Global cost of delivering this cold-chain is £328million/annum. Repeated episodes of temperature variation outside recommended range can result in an irreversible cumulative loss of potency. Currently ~50% of all vaccines are wasted due to insufficient and suboptimal cold chain capacity \[WHO,2019\], leading to reduced availability of vaccination which causes ~1.5million/annum childhood deaths globally. Vaccine wastage costs ~£15billion/annum to global economy.

Cold-chain failure stems from limited access to electricity/equipment, large distances in developing countries adding more pressure to cold-chain process, and common human-errors (~37% of healthcare providers in developed world keeping vaccines too-warm/too-cold). There is currently no cost-effective vaccine thermo-stabilisation method available. State-of-the-art solutions (HydRIS, Arestat and Stabilitech) have disadvantages of high costs related to cold-chain, wider temperature range (-20 to 45degC), shelf-life of only 12months and bespoke modifications requirements for individual vaccines. Microneedles patches and solid-dose/tablet vaccine delivery methods don't comply with WHO protocols.

We, Stablepharma Ltd, are developing world's first solution 'StablevaX' which will stabilise any vaccine against temperature fluctuation of up to 45degC - eliminating need for refrigeration/cold-chain and eradicating vaccine wastage. StablevaX is the only patented (EU-2806854, USA-14/372146) product that stabilises vaccines at room temperature for 24 months (and potentially longer) and complies with WHO vaccine administration protocols.

Building upon last 6 years of self-funded iterative R&D, we have proven that StablevaX version of Tetanus vaccine delivers same level of antibody response as existing fresh vaccine produced by leading pharmaceutical companies- as confirmed by an independent assessment by UK's National Institute for Biological Standards and Control-NIBSC.

Through this 18 months 'industrial-research' project, we aim to further develop StablevaX formulation for Td, optimise sponge material/design, establish ISO13485 manufacturing process to produce 1000 pre-loaded syringes, conduct pre-clinical trials to achieve \>95% vaccination yield at CRO (Covance) and gain regulatory approvals (CE marking, ISO14155, ISO14971).

StablevaX will become part of global vaccine market which was valued at £46billion in 2019 and expected to grow @CAGR of 7% till 2023\. Stablepharma are not a manufacturer/developer of vaccine but a provider of a unique system which can deliver existing vaccines in a unique way without the need of cold-chain, therefore we aim to commercialise StablevaX in partnership with vaccine manufacturer/pharmaceutical-companies using a model based upon 'fixed fee per unit delivered'.

Results of Competition: Innovate UK Smart Grants: January 2020

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Total available funding is £50 million

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
MEALHUB LTD	Smart, autonomous hubs: the future of restaurant distribution	£177,051	£123,936
V2 STUDIOS LIMITED		£95,049	£66,534

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
Mealhub and V2 Studios are working together on a project to transform the restaurant industry, creating new technology to group orders and streamline processes. Food delivery services have remained an infrequently used luxury despite their convenience, with considerably higher prices than most of us can comfortably afford. This project will create a state-of-the-art, thermally insulated hub for meals to be delivered to, in high density areas such as hospitals, offices, and apartments. This allows the costs of delivery to be shared amongst hundreds of orders rather than a single order, reducing the cost of delivery by over 95%. This revolutionary piece of hardware will be integrated with advanced Machine Learning models that predict consumer behaviour, to create a system that delivers meals from your favourite restaurants from as little as £5, with no additional delivery fees. Once ordered from Mealhub's mobile application, delivered meals can be seamlessly collected from the hub at the tap of a button, having paired automatically with the user's smartphone. This pioneering platform is expected to increase restaurant revenues by £60,000 per annum; with significantly higher demand for delivered meals at this £5-6 price point.

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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
HUMANVENTURE LTD	Transparent donation distribution and impact measuring platform	£255,485	£178,840

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 multiple studies, up to 40% of global donations are lost on the way to their assigned purposes due to corruption, intermediaries, and general donation system inefficiency. Moreover, due to lack of transparency, according to Fidelity Charitable, almost two thirds of donors would donate more if they knew exactly where their donations went and what impact they created. Lack of transparency leads to lack of trust among donors, charities and recipients and thus reduces potential of the donations market.

At the same time, poverty remains an acute challenge. According to Joseph Rowntree Foundation, 22% of the UK population (14.3 million people) lived in poverty in 2017 including nearly half of children in lone-parent and one in four in full families.

HumanVenture **tackles the problem of trust** among donation stakeholders ensuring donation transparency, accountability, and distribution towards designated purposes. It is a transparent donation distribution and traceable spending platform built on a blockchain technology and servicing charitable organisations, their donors, and recipients.

Our aim is to disrupt the charity market by making charitable giving **100% transparent** and **100% earmarked for specific purposes**, while **impact 100% traceable and measurable**. It is reached through several **innovative aspects:**

* one of the first blockchain applications for donation transparency not based on a cryptocurrency
* impact measurement, verification, and detailed reporting for platform stakeholders
* improved cost-efficiency of donation management
* applicable for unbanked people and people without smartphones
* free for charities and donors -- thus 100% aid reach aid recipients.

HumanVenture card used by donation recipients just as a regular credit card provides freedom of choice for purchasing goods and services facilitating higher inclusion vs. widely used aid in kind and encouraging recipients to overcome challenging life circumstances.

Successfully launched in Austria in 2019, HumanVenture won Austrian digital e-Award 2019 and was selected by Global Entrepreneurs Programme to develop its global hub in the UK. The objective of this project is development of a strong base for further UK market entry through:

1) feasibility study, including market research and customer development,

2) regulatory and legal clearance

3) digital platform technological adaptation based on the results of conducted study

4) development of business and market acquisition strategy

The 6-months project is designed to adapt the existing platform to the UK market, thus setting a base for further commercialisation and market acquisition strengthening HumanVenture's position in the market of transparent digital donation and impact measurement solutions.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
OCEANIUM LTD	Oceanium: Seaweed-based, home-compostable, marine-safe biopackaging	£500,000	£350,000

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
Oceanium, a biotech start-up based at the European Marine Science Park in Oban, is developing home-compostable, circular lifecycle biopackaging derived from sustainably farmed seaweed using innovative green chemistry and proprietary biorefinery technology. The demand for circular life-cycle bio-packaging in the UK greatly exceeds supply. Oceanium's zero-waste biorefinery approach maximises the value of whole seaweed, allowing development of seaweed-based, home-compostable/marine safe packaging to replace fossil-fuel based plastics. Our seaweed biorefinery extracts maximum value from sustainably farmed kelp, creating a "pyramid of value"(Cefas_2016) ranging from added-value commodities such as food ingredients and biopackaging to high-value nutritional products. Oceanium's circular life-cycle seaweed based material is designed to be disposed of with food waste for compost for soil health or anaerobic digestion for energy, which dovetails with the UK Waste Management strategy calling for commercial/residential food-waste collection throughout the UK by 2023\. With funding from Innovate UK and Sky Ocean Ventures(105400), we have demonstrated experimental proof-of-concept(TRL3) for the conversion of seaweed-based biopackaging compounds into products: home-compostable film and board as a replacement for packaging with no end-of-life solution(e.g., contaminated with food). We have developed a patentable packaging formulation and will file patents in summer 2020\. Here, with support from Innovate UK, and working with established converters, we will scale up our biopackaging process to pilot-scale production of biopackaging film and board products. We will optimise the technical performance of our home-compostable seaweed-derived biopackaging products and integrate our seaweed biopackaging material into existing packaging production plant/converter facilities, demonstrating that we can deliver sustainable packaging at scale. Our products will be 100% home-compostable and marine-safe according to EN 13432, ASTM D6400 and Vincotte OK Compost Home standards. Importantly, unlike competing land-based bio-feedstocks, farmed seaweed does not require cleared land, fresh water, insecticide or fertilisers and is sourced regionally. Oceanium's impact mission is to enable sustainable seaweed farming in the UK. Seaweed farms sequester carbon and absorb excess nutrients, bioremediating ocean acidification and eutrophication, while also providing alternative livelihoods for fishermen and creating jobs across the value chain in coastal regions. With its extensive, nutrient-rich coastline and world-leading expertise in biotechnology innovation, marine science, and aquaculture, the UK has the potential to lead the development of the sustainable seaweed farming industry in Europe. With Innovate UK support, Oceanium will support the UK's ambition to become a world leader in sustainable packaging, tackling plastic-waste and climate crises, and catalysing the growth of the UK sustainable seaweed farming industry.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
KIMBERLEY1 LIMITED	Customer insurance vault - liberate and control your data	£178,074	£124,652

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
Onceand1 is a start-up providing infrastructure services to distributors of personal asset insurance. Through the application of AI, machine learning and Big Data they create a digital and portable customer insurance vault for a customer which holds all the customers insurance data and documents. They develop marketplace matching algorithms to enable distributors to propose insurance solution to their customers based on the data in the vault.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PHOTOCENTRIC LIMITED	Electric Vehicle Battery Manufacturing with Novel Multi-Material 3D Printer - BattMan 3D	£683,404	£410,042
ADDIONICS LIMITED		£327,900	£229,530
TWI LIMITED		£229,333	£229,333
University of Leicester		£197,983	£197,983

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 BattMan3D we will develop innovative new industrial 3D printers for the manufacture of battery cells designed for electric vehicles. By improving manufacturing techniques, we will support the UK in establishing world-leading capabilities in state-of-the-art battery production. Our industry-specific formulations and printers will be designed to produce electrodes with complex geometries, with improved energy density. Our process will print entire battery cells, from anode through electrolyte to cathode, including the casing. We will demonstrate the technology during the project using typical lithium-ion battery cell chemistry, but our printers will be designed to be ready for future battery technologies, with capabilities to print a range of cathode and anode materials as well as solid-state electrolytes. By the end of the project we will have developed: * A 3D printer for battery cell components, suitable for commercialisation at a retail price below £250k * Printable formulations, utilising functionalised nanoparticles, to produce cell electrodes and separators * Demonstrator battery pack, validated and benchmarked against conventionally produced batteries This will have significant benefits for the battery industry: * Replacement of a 4-step process (coating, drying, calendaring, notching) with simple deposition and cure, thus reducing the fabrication time by a factor of 10 * Reduction of production costs for a 40kWh auto battery by more than £1255 * Removal of environmentally damaging N-methyl pyrrolidone (NMP) solvents from cell production process * Up to 85% reduction in waste management expense In this way we will improve vertical integration in the cell manufacture process, improving UK capabilities and resilience of supply. We will also remove high-energy processes and high-risk materials from the manufacturing chain, while benefiting from the cleaner energy mix of the UK grid to improve the overall environmental footprint of automotive battery manufacture.

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Results of Competition: Innovate UK Smart Grants: January 2020

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Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
AVALON SCIENCES LIMITED	EXCALIBUR - Example of Coherent Amplified Light for In-Borehole Microseismic Recording	£393,930	£275,751

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
With the global drive to increase the proportion of energy generation through renewable sources, geothermal energy has attracted recent attention for its ability to produce both heat and electrical energy without a dependence on environmental factors such as wind or solar output. A geothermal power station extracts heat deep from within the Earth's crust where areas of rock typically reach 240°C. Creating geothermal power stations in "hot rock" areas requires drilling boreholes into the Earth's crust and creating pathways for water to flow through hot bedrock. This drilling activity requires careful monitoring to ensure the intended water pathways are correctly created and to satisfy strict environmental monitoring (especially in the UK) for micro-seismic activity to ensure that larger seismic events are not induced by this deep drilling. Vertical Seismic Profiling (VSP) with micro-seismic sensors is used to achieve this monitoring in addition to monitoring the ongoing health of a geothermal station during its lifetime. Avalon Sciences Limited (ASL) is a world-leading manufacturer of VSP systems which have been used predominantly in the oil & gas industry for exploration for the past 35 years. With ASL's in-house research & development centre, innovation in sensor design has enabled reliable operation of their electronic and optical VSP systems at 200°C. However, these systems cannot survive for long in the excessively high temperature geothermal wells. In this project, ASL will develop a bespoke all-optical (no electronics) micro-seismic VSP prototype capable of operating up to 300°C for long-term micro-seismic monitoring for the geothermal energy industry.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MONODRAUGHT LIMITED	Development of a market ready, ultra-low energy, compact cooling and decentralised ventilation unit utilising PCM and a heat pump targeted at office applications	£437,383	£262,430

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
Climate change and global warming drive a rapid increase for air-conditioning worldwide. Buildings account for 37% of CO2 emissions. The Energy Performance of Buildings Directive (EPBD) sets low carbon building design standards. The F-Gas Directive is deploying lower GWP refrigerants, with average GWP 900 in 2022\. These are flammable, with building design complexities, and release long-term environmental compounds bringing serious health concerns. Commercial buildings need to decrease energy usage, carbon footprint and indoor refrigerants. Cool-phase Hybrid 2 with PCM technology is a single unit natural cooling/heating and heat recovery ventilation system solely designed by Monodraught. Developed from the award-winning Cool-phase Hybrid, the new market-ready development offers faster return-on-investment (ROI), lower building CO2, and lower cooling/heating running costs verses traditional VRF/MVHR. It is designed for office applications across wider geographical export markets. Latest generation PCM chemistry and panel design optimised for office applications offers improved thermal performance. Encompasses a heat recovery fresh air ventilation core to reduce energy losses. A purpose-built mono-block ASHP is uniquely integrated, providing optimal room temperature control and eliminating risks associated with flammable low-GWP refrigerants. A remote cloud control system delivers real-time optimisation. The product footprint is smaller, and product efficiency is increased by reducing air flow paths. Encompassing all key HVAC equipment, the single unit allows new integrated controls to manage cooling/heating/ventilation modes. Indoor air quality, thermal comfort, running costs and CO2 savings are optimised. Discomfort issues that are associated with separate cooling and heat recovery systems that are common in non-domestic applications in UK are avoided. The new Cool-phase Hybrid 2 is specifically designed for office applications and offers a sustainable alternative to VRF/MVHR systems without refrigerants inside the building. Common in offices today, VRF air-conditioning technology uses large quantities of high GWP refrigerants (R410a, GWP 2088) with negative impact on the environment. Approximately 10,000 VRF systems are installed in UK offices every year, leaving a long-term environmental legacy. Monodraught's building engineers design HVAC systems using simulation software, e.g. IES. Our experts will analyse weather files from across key European markets to optimise the PCM panels for export markets. Almost 90% of global Building Automatic Control Systems (BACS) software uses local servers and BACS is adopted in our current products. With the growing interest in Cloud services, we will develop new solutions enabling engineers to remotely monitor installations, check, optimise and provide real-time operating reports -- a first for a PCM HVAC product.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
META ADDITIVE LIMITED	Hierarchical Binderjet Printing Process	£713,610	£499,527
EPIVALENCE LTD		£289,503	£202,652
The Manufacturing Technology Centre		£244,998	£244,998

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
Additive Manufacturing (AM) is a $9.5Bn industry with 80% growth in the sales of metal AM-systems in 2017\. Meta-Additive-Ltd (Meta) have invented and patented a new additive manufacturing process which takes the benefits of standard binder jet printing and enhances it making it suitable for mass manufacturing. Meta is founded on the invention of a series of proprietary novel hierarchical binder systems. Taking the existing process of creating metals parts through binder-jet printing and making them faster, offering more material choice and resulting in better material properties including higher density, improved shrinkage, feature definition and surface finish.

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
SMARTIFY CIC	Museum Explorer: AI Wayfinding Companion	£248,344	£173,841
CCD DESIGN & ERGONOMICS LIMITED		£137,491	£96,244

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
As museums begin to reopen post-COVID 19, new innovations will come into place to enable safe visits for museum staff and audiences alike. In addition, traditional museum challenges, such as the simple act of finding your way around, still stand. Whilst wayfinding initially seems a simple obstacle in comparison to social distancing and museum's potentially facing an 80% drop in visitor numbers, these hurdles actually come hand in hand. Effective wayfinding helps prevent overcrowding, provides greater accessibility through step-free routes and most importantly, delivers enriching experiences where visitors can easily find works that interest them. All of these moments reinforce the economic resilience of publicly funded museums through the increased likelihood of a visitor recommending a museum and spending more money in the cafe and shop which are key income sources. Current options for museum wayfinding are not only a potential health hazard; with rented devices and stacks of paper maps potential bacteria spreaders, but fall way behind innovations in other sectors. Only a small proportion of 23-38 year olds use physical maps with apps like Citymapper becoming the default route finding option for many; and a third of museum visitors reporting inaccessibility in confusing museum buildings (MuseumNext). Existing software solutions for museum wayfinding are time-consuming and expensive to develop and maintain. And on top of this, no existing museum wayfinding tools are personalised to visitor interests. By 2021, 75% of commercial apps will incorporate AI and over 50% of consumers will interact with AI (Information Age) - museums are already behind expected functionality. CCD and Smartify have come together to produce the world's first Artificial Intelligence assisted wayfinding tool for museums - 'Museum Explorer' which combines navigational and creative content. Museum Explorer will have a front-end navigation experience within the Smartify app and a corresponding management platform for staff to review analytics; visualise journeys; manage content and send push notifications. Personalised wayfinding will offer audiences an easy way to explore a museum, view busy hotspots to avoid, and immerse themselves in the cultural experience. For museums personalised wayfinding offers an opportunity to collect important data on visitor habits and increase visitor confidence in returning to museums in a post-COVID 19 world. It will also convert casual visitors to spend in the shop, cafe and as members.

Results of Competition: Innovate UK Smart Grants: January 2020

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ANTIBODY ANALYTICS LIMITED	IndEx-2 and dependent immuno-oncology assay services	£481,764	£337,235

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
Antibody Analytics (AA) is a Contract Research Organisation dedicated to advancing drug development by providing primary cell methods and bioassays complemented by a wide range of binding capabilities to help progress customers' therapeutic candidates from early discovery and throughout clinical development. Bispecific antibody (BsAb)-based oncology therapeutics are promising therapeutic modalities, but their multi-specific nature introduces layers of complexity when trying to demonstrate efficacy and safety. There is a lack of appropriate _in vitro_ systems to assess the impact of the relative levels of cell-surface protein levels of the respective targets on efficacy and safety. This is vitally important for T cell engagers and CAR-T cells, which are hampered by 'on-target/off-tumour' toxicity towards healthy tissues (_J. Immunotoxicol._ **17**, 67--85). This side-effect is often not observed until the clinical trial stage, at which point significant financial investment has been made. Our innovation will address this by developing IndEx-2, a cell line platform in which the expression of multiple antigens can be independently controlled. Comprised of a 'landing pad' cell line (enabling rapid genome-directed integration) combined with novel inducible promoters, this will provide independent fine tuning of expression of two distinct antigens that can be quantified and correlated with antigen expression levels in healthy and tumour tissue. IndEx-2 will allow drug developers to rapidly and cost-effectively determine the precise antigen density activation thresholds of their candidates. Coupled with AA's immuno-oncology (I-O) assay services this will provide a complete picture of a candidate's mechanism of action (MoA) and safety profile. By enabling selection of candidates with improved efficacy and enhanced safety profiles at the discovery stage, the risk of failure at the expensive toxicology and clinical trial stages will be reduced.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
INNOTURE LIMITED	Validation of a sterile process in manufacturing of microneedles	£89,329	£40,198

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
Innoture Ltd, a Swansea-based medical device developer, and has patents in the production of unique microneedle-based, transdermal drug delivery technology. This takes the form of a flexible patch which can be adapted for the self-administration of a variety of medicines. The microneedles painlessly make small channels in the skin allowing rapid uptake of a drug. This is especially advantageous as most drugs are poorly absorbed by the skin or in some cases not at all. Production of the micro-devices can be complex. However, the Innoture method removes complexity, can be mass produced simply, and uses safe materials. The efficacy of the technology was successfully applied in a clinical investigation in 2018 and in 2 other trials regards its cosmetic products. We are now aiming to demonstrate that the unique production process can sterilise the devices when produced. This project provides the funding to establish a clean area, develop new processes and gain independent data proving that the process does affect how clean the product is when leaving the production line. Once complete we will have a unique position in the field of microneedle based micro-devices, strengthens our position and credibility in the industry. This significantly reduces the risk of technology adoption providing a strong negotiating platform when we seek to licence our technology to large pharmaceutical companies regards. In addition, the project will reduce the need for road based transport of product to and from service providers reducing carbon emissions and road traffic.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Versed AI	Using AI To Reduce Uncertainty And Risk In Supply Chains	£221,574	£155,102
University of Cambridge		£91,769	£73,415

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 is a collaboration between Versed AI, an award-winning artificial intelligence company which has recently spun out of the University of Cambridge, and Cambridge's world-leading Institute for Manufacturing. The project creates a platform for corporate supply chain risk management using data generated through artificial intelligence, specifically natural language processing. Using NLP, Versed AI can extract buyer-supplier relationships from text documents, which will then be mapped into a large knowledge graph, with a user interface providing insights and analytics. This 'outside-in' supply chain information will materially improve transparency and risk management. The University of Cambridge will generate management research into the application of novel technologies in supply chain management.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ENTEROMICS LTD	GUTLAB – A SMART PILL FOR REMOTE HEALTH MONITORING VIA THE GUT MICROBIOME	£105,000	£73,500
University College London		£43,370	£43,370

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
Enteromics are addressing the unmet challenge of longevity through developing a platform that enables remote health monitoring via the gut microbiome. The gut microbiome is crucial to health -- it affects your metabolism, immune system and even brain function. The food we eat, medications, exercise, sleep and stress all affect the gut microbiome and can cause it to become disrupted, leading to many diseases such as obesity, gut problems and even Alzheimer's. Enteromics is providing an ingestible smart sensing pill that tracks the microbiome and provides feedback to a smartphone App, in real-time. Enteromics is a start-up founded in 2019 by Phoebe Heseltine, a materials scientist and Mariam Elgabry, a biotechnologist. They are developing a range of smart pills to monitor and detect chronic diseases, beginning with Inflammatory Bowel Disease (IBD). Through this innovate UK Smart Grant, the core components of the ingestible device -- developed through the co-founders' initial research -- will be evaluated for safety and performance, in partnership with University College London. The work carried out in this grant is key to developing a strong IP position and determining the next steps to manufacturing, which will enable Enteromics to bring this technology to market. Exercise, nutrition, sleep and other lifestyle factors, as well as drug treatments offered, have an immediate effect on the gut microbiome and this provides a window of opportunity for better management of chronic conditions through continuous microbiome monitoring. If successful, the technology will outperform existing methods of sampling the microbiome such as faecal sampling, which are inconvenient, expensive and slow to provide results. The product will first launch in the UK to serve sufferers of IBD, a chronic relapsing gastrointestinal disorder for which there is no cure. IBD prevalence in the UK is second highest in the world, costing the NHS £720 million a year. Following successful launch in the UK the technology will be sold in North America, the fastest growing market for both ingestible sensors and microbiome products. Many sufferers seek repeated medical care for flare-ups, with frequent invasive medical exams, prescription of ineffective treatments and surgery. In IBD patients there is a very strong link between gut microbiome changes and disease flare-ups. With Enteromics' technology, individuals will be able to monitor their condition in a way that is medically safe, convenient and effective. Enteromics see their technology expanding into management of other chronic conditions as well as in consumer applications.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BIOFAB LTD	A rapid multi-parameter POCT platform to combat Covid-19 and other infectious disease outbreaks	£393,069	£275,148

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 Covid-19 pandemic has highlighted how vulnerable society is to the spread of infectious disease. Novel viral and bacterial strains can quickly spread through communities unprotected by existing vaccines and therapeutics. New vaccines and therapeutics can take years to develop and hence cannot help during the most critical, early stages of an outbreak. On the other hand, diagnostic tests can be developed relatively quickly. Implemented correctly, they can be incredibly effective at containing an outbreak and preventing further transmission. However, such tests generally require trained personnel and specialised equipment and facilities to be run. The patient either needs to travel to a testing facility or have a sample transported to such a facility. The increased turnaround time delays both the decision making of whether to isolate the patient, and the tracing of recent contacts who may have been exposed. It also risks further spread of infection during the patient or sample transit. Rapid, simple blood tests do exist, but they tend to perform poorly. High rates of false positives and false negatives prevent effective decision making when used in non-clinical settings. Our project aims to develop an easy-to-use diagnostic device to allow such tests to be performed quickly by untrained personnel such that effective outbreak control can be implemented efficiently. It will be capable of running several types of test depending on the requirements of the situation. One test will be developed for highly sensitive and specific detection of infection in the early stage. Another test will be developed for rapid screening of mid-late stage infection and to determine if a patient has been previously exposed to the virus and subsequently recovered. This will be particularly useful for asymptomatic carriers who may have passed on the disease despite having no symptoms and also to identify individuals who have acquired immunity. In addition, once a vaccine has been developed, this platform will be able to confirm vaccination status. Such a device could be deployed in many key situations for effective outbreak control. E.g. airports and transit hubs, educational establishments, community care centres, mobile screening vehicles, etc. We believe such a tool will prove highly effective at combating the spread of infectious disease and help alleviate the societal burden of containment measures such as social-distancing and business closures. As well as the Covid-19 pandemic, this platform can be readily adapted to combat future outbreaks of both viral and bacterial infections.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SG INSIGHTS LTD	ListenFirst: Leveraging natural language processing to amplify underprivileged women's voices for global development funders	£100,000	£70,000

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
ListenFirst's project is to develop an interactive natural language processing (NLP) and text analytics platform that aggregates and analyses text from grassroots organisations' interviews with underprivileged women in South Asia, making first-hand accounts available to development finance institutions, foundations and gender smart investors in the UK and Europe who deploy billions for gender equity in emerging markets. Global aid and private funding for gender equity have rapidly increased in the last few years, but this is not making a proportionate difference to women's lives on the ground. This is because well-intentioned funders are far-removed by distance and lived experience from the vulnerable women they seek to empower, and lack the firsthand data they need to make effective interventions. At the same time, millions of scattered grassroots organisations are in continuous dialogue with vulnerable communities but lack the incentives and resources to fully utilise this unstructured data for themselves or others. Current modes of data collection are slow and resource-intensive. Each time a query arises, funders typically have to engage local intermediaries, who in turn engage grassroots organisations to collect data in person. Much is lost in translation in this time-consuming, expensive and person-dependent analysis process, and hours of recorded conversations are discarded after a single use, though they may contain many insights relevant for other purposes. It is therefore no surprise that two-thirds of the data needed to achieve Sustainable Development Goal 5 on Gender Equality is unavailable, despite estimates that a household in India is surveyed 10 times a year on average. ListenFirst bridges these gaps by aggregating rich unstructured data from grassroots organisations' recorded conversations with women onto a single digital platform, and using text analytics and NLP to derive actionable insights for global funders. While NLP and text analytics are routinely applied to better understand consumers and improve FMCG product design and marketing, these technologies are relatively unfamiliar to the development sector despite an arguably greater need for nuanced, cost-effective analysis of diverse community needs. We believe that this project can have wide-reaching social impact, by amplifying women's voices and creating a culture that values their opinions on interventions that seek to serve them. With women and girls forming 70% of the world's poorest 1.5 billion, and 80% of people displaced by climate change, their social inclusion is pivotal to move the needle on global development.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
DIGITAL TRAINING SOLUTIONS LIMITED	Enhanced immersive learning to support police training for criminal investigations	£345,073	£241,551

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
From domestic violence through to Cyber-crime, front line Police officers face a complex array of societal challenges daily. Maintaining a training environment that helps better prepare officers for the complexity of modern Policing against a backdrop of continued budget cuts is one of the greatest challenges for today's law enforcement trainers and an area where emerging immersive technologies can play a key role by creating a simulated 'real-world' training environment unparalleled by traditional training techniques. The ability to recreate truly complex situations using immersive technology is of particular value in preparing officers for investigation-style scenarios, an area of police training that is hard to replicate effectively and an area unfulfilled by current eLearning technologies. It is this market gap that the proposed project seeks to address through the development of an enhanced interactive video authoring tool that will allow the user to create complex immersive learning scenarios across customizable topics and modules, with unique in-scenario interactions, data capture, reporting and analytics with the following potential impacts. -Enable officers to better to test potential decision-based outcomes/approaches around complex investigations, improving problem solving and decision making in a safe learning environment. -The ability to better track performance and learning based outcomes, supporting an improved knowledge base and sharing of best practice. -Improve the cost-effective scaling of training through digitization. -The ability to customise content with an authoring capability applicable to complex scenarios ranging from fraud investigation, through to terrorism, pandemics and major disasters. With Innovate UK support, the delivery of the project will be accelerated, enabling the Bolton based Near-Life to exploit a UK wide market need. If successful the arising product will be exploited to Police Forces globally with relevance also to fire services, wider emergency respondents and the insurance sector for improved training around complex investigative scenarios.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
INFIX SUPPORT LIMITED	Testing of a digitised process of healthcare patients waiting for treatment.	£165,417	£115,792

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
In Scotland alone, data indicates that NHS theatre lists for operations are running at below 60% of capacity due to a number of factors but primarily because of the widespread use of manual systems for input through paper-based and electronic spreadsheets. Infix is a clinician-led, cloud-enabled technology platform targeting significant improvements in theatre efficiency in the NHS. Incorporating high levels of security and privacy, Infix aims to automate and harmonise existing NHS legacy systems within the NHS with an intuitive digital interface that can be accessed by a single, secure web-based access portal. Internal forecasts indicate that operating theatre efficiency could be increased by up to 50% - saving the NHS hundreds of millions of pounds per annum, reducing the reliance on the private sector, improving low levels of morale in the NHS and, most importantly, saving lives. The NHS is facing financially unsustainable positions and, to make matters worse, Covid-19 is only going to exacerbate the situation and add even greater complexity. Overall and most alarmingly, the upshot is that patients face worsening health conditions and increased mortality rates because of an out-of-date system that requires a radical overhaul. We have developed a product to optimise the NHS's own data in order to make theatre scheduling vastly more efficient. We will do this with a technology platform which integrates with existing NHS systems and completely automates the generation of theatre lists. Infix will also allow other systems to link into our product such as bed capacity software, equipment tracking software, resource management systems and pre-operative assessment tools. Utilising artificial intelligence, machine learning and the cloud, Infix will bring about a new level of consistency across the NHS, facilitating knowledge sharing, nationwide benchmarking and the production of much more actionable data. The Infix team sees particular demand for its product as the United Kingdom moves through various phases of the coronavirus pandemic and the ensuing and exacerbated waiting list backlog, and all the related financial and social costs that will result. While the focus of our first phase of development and growth concentrates on NHS Scotland, we see the application extending to NHS England, the rest of the UK and, further down the line, export potential in terms of take-up in international healthcare markets.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GTT ANALYTICS LIMITED	Global Trade and Transport Analytics and Agent Based Simulation - Prototype	£350,000	£245,000

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
GTT Analytics Ltd. is an ambitious new UK company that will supply simulations and forecasts for the global trade and transport maritime sectors. It will deploy advanced analytics and AI to make insights and analysis available for every port, every fleet, every ship and every cargo, based on existing and emerging data sources. The exploitation of data-driven analytics at a global scale, over the short term (from days to months) and the long term (from years to decades), is not currently advanced. This concept represents a unique opportunity for the UK to become a leading player, as the availability and transparency of data transforms the maritime sector for ever. This project will develop a software prototype that establishes compelling business value for this innovative approach to maritime analytics. The project outcomes will be evaluated by industry actors, and will de-risk future investment, R&D, translation, and go-to-market plans for GTT Analytics Ltd.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BLACKSTAR AMPLIFICATION LTD	Market Redefining Public Address System	£350,195	£210,117

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
With the support of an Innovate UK Smart Grant, Blackstar aims to research technology relating to an innovative Public Address (PA) System. The technology will make it quick and simple for musicians to achieve a professional live sound. This technology will include: 1. A unique and intuitive User Interface (UI). 2. Unique sound-shaping features. 3. Intelligent connectivity to make set-up easy. 4. Musical sound reproduction. The technology will be realised in a physical format that is ergonomically designed and portable - to be usable in the maximum number of environments (pubs, clubs, schools, exhibitions etc.). The global Musical Instrument market-related PA market is worth (£1,400M).

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BRITISH LITHIUM LIMITED	Producing Lithium from UK Granites; A unique process for producing battery grade lithium from micaceous granite in UK	£499,775	£349,842

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
Our goal is to establish in UK the world's first quarry and refinery producing battery grade lithium chemicals from unconventional lithium-mica granites, using our sustainable, novel technology. BLL was the first company to drill granites for lithium in UK and discovered a substantial lithium-mica-granite deposit in Cornwall, and first to begin research and development. We have developed proprietary technology for separating mica from the granite and extracting lithium from that mica. This Project is designed to prove the technical and economic feasibility of commercialising our technology to the level required to de-risk the project and attract commercial funding. Over the past two years we have drilled out millions of tonnes of lithium mica granite, completed hundreds of metallurgical tests and thousands of assays demonstrating the potential of our extraction technology to produce a high-grade mica concentrate and to extract battery grade lithium from that mica. Lithium has never been produced commercially from granite, so there is no state-of-the-art process. Earlier, largely academic work proposed froth flotation and sulphuric acid leaching which would produce millions of tonnes of contaminated residues. BLL's novel beneficiation and refining process doesn't require toxic chemicals for beneficiation or leaching, potentially offering the lowest environmental footprint of any world lithium producer. European governments have mandated the switch from hydrocarbons to electric mobility. Lithium-ion batteries are essential for this transition, yet no battery grade lithium is produced in Europe. China dominates technology for production of lithium, cells and batteries. In 2018 Britain produced 1.5m cars, employing 823,000 people producing revenue of £82 billion (_Society of Motor Manufacturers_ 2019). With the sale of internal combustion vehicles prohibited in UK from 2035, this industry will be lost if not transitioned to Electric Vehicles (EVs). Illustratively, the first EV designed in UK (Jaguar's I-Pace) is made in Austria, with its Polish batteries accounting for 40% of its cost. Even the iconic British Mini Electric uses drive trains and batteries made in China. Carmakers co-locate with battery makers -- witness the world's largest EV maker Tesla building lithium-ion cells, batteries and cars under one roof. Without _Gigafactories_ (large lithium-ion battery plants) the UK could lose its car industry. Recent coronavirus shutdowns further highlight the risks of long supply chains. We offer potential UK battery and EV makers a competitive advantage over Europe with UK's only delineated lithium Resource and the potential to be the first high quality lithium chemical producer in Europe.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
FISHTEK MARINE LIMITED	SharkGuard: The World's First Commercially Effective Shark Bycatch Mitigation Device	£330,277	£231,194

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
Every year an estimated 100 million sharks are inadvertently caught in commercial fisheries, threatening shark species with extinction, and interfering with normal fishing operations. Bycatch, as this problem is known, doesn't just affect wildlife: it costs fisheries a lot of money. That's because sharks can scare away the types of fish that fisheries are targeting, such as tuna. In addition, when the sharks get accidentally caught on the hooks it damages fishing gear and reduces the number of target fish that might otherwise be caught. Currently there is no solution to this urgent problem. Now, a British company called Fishtek Marine is developing SharkGuard; an entirely new, game-changing device fitted to fishing hooks which uses electric pulses to deter sharks, whilst not interfering with the catching of target species which can't detect this electric field. In 2019, sea trials with SharkGuard in the Mediterranean demonstrated a 100% reduction in shark bycatch in a typical commercial longline fishery (albeit based on a limited overall shark sample size). However, fishers using SharkGuard in the field encountered some practical difficulties and reported a reduction in catch rates for target species which we found was due to the device's size, in-water weight, and positioning next to the hook. This funding will support critical investigations to provide the new knowledge required to resolve these challenges. This will enable development of a second stage prototype and statistically confirm its efficacy through planned sea trial research to ensure the prototype fits both technical and commercial requirements. SharkGuard will benefit both conservation and the worldwide fishing industry, while growing our business and cementing our global reputation Relatively inexpensive and convenient to use, SharkGuard has the potential to become the first and only truly effective shark bycatch mitigation technology for the world's longline fishing industry. Countless sharks will be saved and a number of the UN Sustainable Development Goals will be supported. Meanwhile, the fishing industry will benefit and, within five years, Fishtek Marine, a British company, will hire an additional 27 staff, boost turnover by £3 million, and reinforce its profile as a world leader in bycatch reduction technology.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SEQUESTIM LIMITED	Contraband Detection in Prisons Using Safe, Continuous, Passive Terahertz Imaging (SafeJail)	£352,556	£246,789
Brunel University London		£146,944	£146,944

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
Prisons in the UK and globally are facing continued and increasing drug and contraband problems. At least 15,000 mobile phones or SIM cards were confiscated in English and Welsh prisons in 2017 (one for every six inmates, a 50% increase in 3 years). Drugs were found 13,119 times in prisons in England and Wales in 2017 (35+ incidents per day, 3x increase from 2014), with smugglers resorting to technologies such as drones for delivery. Staff smuggling is also exacerbating the situation. The value of UK prison drug market is an estimated £100m, according to the Prison-Officers-Association. All this is leading to unrest in prisons, compromising prisoners' health and compromising the safety of all prison stakeholders. There is an urgent need for enhanced scanning techniques that can offer safe and non-invasive scanning of prisoners on a daily basis, without interruption to normal prison routine. Existing solutions require prisoners to be stationary during a scan, are time-consuming and cannot detect contraband items smaller than 5cm by 5cm. SafeJail is an 18-month project that seeks to develop and demonstrate a novel technique for the safe and continuous non-interruptive scanning of prisoners, visitors and staff as they carry out their normal activities. This project will develop a passive (non-emitting) imaging camera with robust object recognition capability provided by machine learning algorithms. The successful exploitation of the technology will result in cumulative revenue of £58m after 6 years in the market.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ALL STREET RESEARCH LIMITED	ESG RoboFactory	£785,922	£550,145
University of Cambridge		£198,180	£198,180

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
ESG RoboFactory aims to build ESG focused Cognitive Robots at scale. An automated machine learning (ML) approach is the only viable way to retrieve the most up-to-date and relevant ESG information contained within the vast data lakes of narrative information. All Street has developed a unique AI technology in which Cognitive Robots, instantly run hundreds of complex queries to identify the most relevant information embedded in unstructured data sources. These software robots provide financial analysts with an improved means of accurately researching and assessing ESG investment opportunities.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VEINSENSE LTD	VeinSensor™: An innovative medical technology for the treatment of venous leg ulcers	£399,836	£279,885

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
Venous leg ulcers (VLUs) are wounds affecting the lower part of the legs linked to deep vein thrombosis (DVT) and varicose veins, in turn creating 'venous hypertension' (associated with a build-up of blood, fluids and proteins in the affected parts). The skin breaks down and frequently, the wounds become infected, oozing, and offensive smelling. Patients suffer considerable pain and distress for prolonged periods, often for many months or years, and become increasingly socially isolated. Furthermore, globally, VLUs absorb significant financial and nursing resources. Graduated compression therapy using tensioned, elasticated bandages is the accepted 'gold standard' treatment for VLUs. Success relies heavily on nurses achieving the exact prescribed compression profile; however, research shows that nurses are significantly incorrect in \>70% of cases (and so seriously wrong as to cause more harm in \>10% of cases). Over-tightening remains the most common problem causing more pain, additional skin damage, and non-compliance with treatment. The inability to achieve accurate and reproducible graduated compression with bandages means ulcers do not heal, potentially become far worse, and patients continue to suffer. Health Services' costs spiral as patients have to be treated for much longer, often years. Improvements in the treatment of VLUs will increase patient wellbeing and outcomes, un-burden nursing services and reduce healthcare systems' expenditure on this costly, chronic condition. To address this challenge, VeinSense Limited are developing a novel medical device to help nurses achieve accurate and reproducible graduated compression profiles 'first time, every time', irrespective of bandage-type used, circumference or shape of limb, or nurse experience. 'VeinSensor' is an optical-based, multi-point pressure sensor strip (placed on the patients' leg under bandaging being applied), connected to a small electronics-processing-unit that displays in real-time onto a mobile/tablet/laptop, the graduated compression levels being applied. The concept has been proven using basic, bench-top, multi-piece prototypes, with significant interest shown from various VLU nursing groups. This project will build upon this early achievement to design and develop prototypes into a low-cost, single piece, mass-producible design, and undertake 'healthy volunteer' testing to achieve initial technology validation. Project outputs will inform next stages of R&D (commercial prototyping, randomised clinical trials) prior to commercial launch. Benefits include: (1) improved patient outcomes for VLU healing rates, quality of life, and treatment compliance, positively affecting all VLU sufferers of which there are \>20m globally, and; (2) significant NHS/healthcare systems' cost-savings (VLUs currently cost £2.2bn/year overall in the UK (and \>$20bn/year in the USA).

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VIRIDIAN CONSULTANTS LIMITED	IAIN Integrated Alpha INstrument	£95,932	£67,152
SELLAFIELD LIMITED		£20,000	£0

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
IAIN -- **I**ntegrated **A**lpha **IN**strument is an innovative, integrated tool which allows us for the first time to measure and characterise alpha activity remotely, more specifically plutonium on a range of materials such as concrete, The tool permits alpha activity to be measured and sampled providing complete characterisation in <150 seconds. This project integrates the ViridiScreen alpha detector and the ViridiScope laser sampler into a single tool with flexible and robust deployment options giving significant advantage over existing, largely manual approaches. IAIN is safe, clean and is designed with easy disposal of component parts which could become radioactively contaminated. It can be operated in difficult to access areas such as voids, cells and pipework and can be pre-programmed to carry out a sampling campaign, across a wall for example, with the realistic capability to sample and analyse up to 80 samples per day something which would currently take many months to achieve. No scaffolding is required and IAIN can be operated at heights up to 20m from the ground IAIN will use an integrated light detection and ranging system (Lidar) to record sampling positions and therefore has the potential for 3D alpha imaging permitting truly informed, interactive characterisation, something which is currently not available. IAIN will change the way characterisation plans are made in a wide range of nuclear decommissioning areas and has particular application in areas where nuclear fuel has been fabricated, stored or reprocessed, and in plutonium storage areas.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ENTOTEM LIMITED	Range-IT Asset Location and Data Interchange Platform for Hospital Equipment	£490,703	£343,492

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 accurate tracking of assets enables greater security, improved operational efficiency and reduced wastage in hospital settings. In the UK alone, lost/missing equipment is estimated to cost £2bn, with a 5% impact of delayed surgery hours, per annum. Convert's solution, Range-IT can transmit data by a secure data channel, in addition to accurate location of the item. Convert Technologies possesses the electronics, software and system-engineering skills, expertise and facilities to deliver this project, and are already collaborating with potential end-users of the technology.

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Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CAMBRIDGE PHOTON TECHNOLOGY LIMITED	SAPPHIRE Solar Amplification for PV by Photon enhanced IR Emission	£497,582	£348,307

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
SAPPHIRE will deliver a world-first demonstration of a photon multiplier film working on a silicon solar cell. This technology has the potential to boost the power output from silicon photovoltaics by up to 20% and further reduce the cost of solar generated electricity.

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
ENIAN LTD.	Disruptive platform to accelerate renewable energy with machine learning and grid data analytics	£419,252	£293,476
University of Edinburgh		£178,989	£178,989

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
Investment in renewable technologies will need to rapidly increase in order to meet the world's future energy supply while reducing the associated greenhouse gas emissions. The Committee on Climate Change estimates that the installed renewable energy (RE) capacity needs to be quadrupled to achieve net zero. However, renewable energy projects are capital intensive and the costs and returns depend on a large number of factors such as location and renewable resource. A major barrier to successful interconnection of renewable energy (solar/wind/storage) projects is the lack of information on the grid network/conditions and unpredictability of capital and operational costs. This means investors must estimate the connection cost of projects which is risky and inaccurate and leads to major investment uncertainty. To address this challenge, Enian, in collaboration with academics from the University of Edinburgh, have developed a RE Deal Management and Collaboration Platform which helps streamline project qualification and uses proprietary algorithms to predict RE project costs (LCOE, annual energy output, technical, economic metrics). Although proving useful, to meet expressed industry demand and overcome major investment barriers, it is critical that that the technology is advanced. The proposed project will build on this early achievement to develop the capability to enable power grid data to be digitally captured, calculated and visualised to produce cost prediction models for single interconnection points/integrated networks using machine-enhanced automated processes, thus providing the first data-driven RE analytics platform that enables operational costs of grid-connected solar PV, wind and storage to be rapidly and accurately determined, offering a unique scalable solution for improved and de-risked RE planning and investment. Early feasibility has been investigated, this project advancing the concept to TRL5\. Impacts include improved, de-risked, and accelerated decision making leading to increased investments (~30% more RE projects supported); valuable time and cost savings in project due diligence (20 weeks, £500k per year per company); \>1M tonnes CO2e saved over 5 years due to more RE projects gaining investment. Wider applicability to other power (waste-to-energy, hydro), commercial property/land, waste management/recycling, electrified transport (EV charging networks). The project will deliver significant export led growth for lead applicant Enian, a substantial ROI, increased employment and further opportunity for R&D investment. Project partner the University of Edinburgh will gain crucial commercial knowledge to be applied to future R&D.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
COAXIAL POWER SYSTEMS LIMITED	FREDA - High-Efficiency RF Generator for Induction Hardening	£180,290	£126,203

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
Coaxial Power Systems Limited (CPS) has identified the opportunity to overhaul industrial radiofrequency (RF) generator technology for induction hardening, addressing inefficient legacy generator designs, improving the process quality and efficiency of induction hardening plant. The FREDA single-company industrial research project delivers a step improvement in RF-generator technology for induction heating/hardening processes, addressing a gap in the global RF-generator market, enabling higher process speeds with reduced power consumption and reduced maintenance, to bring disruptive improvements in process efficiency, product quality and hardening equipment reliability. Solid-state RF electronics bring high-efficiency and a compact physical size, at reduced system weight and with reduced plant ancillary service needs. Alongside anticipated operational cost and reliability benefits of this FREDA architecture, its enhanced process-control enables real-time data capture and improves product yield, quality and service life of the finished workpiece, in both new and in remanufactured products (re-hardening of re-machined products) -- essential for information-enabled manufacturing, and a key driver of the Circular Economy.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BLUE TAP CIC	Development of a Household Chlorine Doser for Commercialisation	£81,770	£36,796

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 many developing countries tap water is still a major source of illness due to the viruses and bacteria it still contains. Blue Tap propose to reduce consumer risk by delivering a simple, cost-effective chlorine doser. By 2050, nearly 70% of the world's population will be living in urban environments. A huge number of these new residents will be rural-to-urban migrants, people moving to cities in search of a better quality of life and more job opportunities. Many houses in developing countries now have access to "improved water services", however, they still can't drink their tap water. Although the water is clear, it still contains harmful pathogens meaning people become ill or have to resort to buying bottled water. Diarrhoeal disease, which is mainly caused by contaminated water, is still the second leading cause of deaths of children under 5\. Our chlorine injection ensures that all consumers, from infant to adult, have a quality of water they can trust. The Blue Tap team met at the University of Cambridge and have designed a chlorine doser which is simple, durable and contains no moving parts to function. It inserts the correct amount of chlorine into a clear water supply in order to make it safe to drink in accordance with the World Health Organisation's guidelines. The product is ideally suited for rainwater harvesting systems, or municipal water supplies to kill bacteria and viruses. We consider it important to ensure that our product meets a real need and we have made multiple visits to Uganda to understand the issues. This project aims to take the chlorine doser from technology readiness level 5 to level 9, after which the processes of commercialisation, mass manufacture and exporting can occur. Blue Tap has made a phenomenal amount of progress with our founding team making three practical visits to Uganda. We now want to step up our research efforts to full-time, ready for commercialisation after 14 months.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SIXFOLD BIOSCIENCE LTD.	TARGET: RNA nanotechnology delivery platform for gene therapies, towards commercialization in cancer	£342,650	£239,855
MEDICINES DISCOVERY CATAPULT LIMITED		£144,889	£144,889

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

TARGET aims to preclinically validate Sixfold's Programmable Oligonucleotide Delivery System (PODS) for delivery of short interfering RNA (siRNA) gene silencing cargo to specific cells. By taking advantage of the interdisciplinary and complementary expertise of the partners --Sixfold and Medicine Discovery Catapult (MDC)-- the project allows for rapid scientific and commercial progress.

Compared to small molecule or antibody-based drugs, siRNAs can act on virtually unrestricted choice of --otherwise "undruggable"-- therapeutic targets, with high specificity and potency; while their easy manufacturing allows for rapid lead optimization \[1\]. As such, siRNAs have the potential to provide effective treatment options for a variety of diseases including cancer. The first regulatory approvals of Alnylam's siRNA therapies for liver disorders in 2018-19 \[1-2\] have validated the clinical and commercial opportunity for such therapies. However, the major limiting factor for their further success remains the lack of safe and effective systems for systemic delivery of siRNAs to specific diseased cells \[4\]. Current approaches, primarily GalNAc-conjugates, lipid nanoparticles and viral vectors, are sub-optimal given their limited cell targeting specificity, cargo loading capacity, high toxicity, and complex/expensive manufacturing that limit the type and number of addressable disease indications.

PODS can address this drug delivery challenge given their modular design based on a central nanoscaffold, which can be functionalised with therapeutics and targeting molecules that recognise biomarkers on cancer -but not healthy- cells. Sixfold's first-generation PODS demonstrated promising results.

TARGET expands PODS utility and creates an intelligent and versatile delivery system that goes beyond the limitations of current standards. As such, PODS represent an attractive opportunity to capture a significant portion of the thriving gene therapy delivery market and could accelerate other Advanced Therapy Medicinal Products (ATMP), through improved safety, efficacy and reduced cost of goods, especially compared to viral technologies. By bringing MDC's unique expertise in advanced preclinical imaging, TARGET allows for completion of a comprehensive preclinical datapack to pharmaceutical industry standards, for rapid commercialization and clinical advancement.

Sixfold's broad IP portfolio and business strategy engage the entire biopharmaceutical supply chain, providing diverse benefits to the wider UK life sciences sector.

\[1\]Lam_J.K.W_et_al._Mol_Ther_Nucleic_Acids_2015_4(9):e252.\[2\]Alnylam_Press_release_10_August_2018\[3\]Alnylam_Press_release_20_November_2019.\[4\]Payne_D_Nature_574_S1_2019\.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
THETA TRADING TECHNOLOGIES LIMITED	THETA aims to build a cloud-based SaaS platform that will lead the revolution to redefine trading technologies in capital markets for institutional investment manager.	£498,319	£348,823

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
Unmet Need The combination of fee competition, rising costs and asset growth is creating never-before-seen pressures on asset managers. Within the last few years, there has been a clear trend towards greater 'electronification' and more automated trading in the financial markets. Aggregated pre-trade information and pricing is critical to smart context-based investment decision making. There is a clear need in innovations that would increase connectivity of investment managers to banks in terms of pre-trade information (Fixed Income Leaders' Summit Oct/2019). **Solution Proposed** THETA was founded by Abdullah Hiyatt, a trading solutions architect and consultant, Paul Wallace, a head of trading, and Peter Meddemmen, a trading systems technology chief. THETA is solving a substantial inefficient outdated trading systems need that could lead the revolution to redefine trading in capital markets. THETA solution includes: * Support for multi-asset trading covering Currencies, Fixed Income (Bonds), and Equities (Stocks) products. * Aggregation of trading channels by connecting directly to the banks in addition to trading venues. * Support for multiple trading models and strategies. * Aggregated pre-trading information This industrial research project aims to assess feasibility of creating a cross-platform chat messaging broker interoperating with standard enterprise messaging tools and underlying technology stack, to assess regulatory requirements, and to prepare for launch.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SWANBARTON LIMITED	Minute by Minute (MxM)	£82,414	£57,690

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
Many businesses are deterred from installing renewable generation technologies such as solar PV or wind power, because the per-kWh prices for electricity export now offered by electricity supply companies are too low to justify the investment. Businesses that install renewable generation find themselves exporting energy at very low prices but, at other times, importing energy, from the same supply companies, at high prices. Swanbarton is working on a product to address this problem by applying real-time management to energy flows within a business campus

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MUELANER ENGINEERING LTD	BriefBike – A Better Bicycle for City Transport	£130,946	£91,662
University of Bath		£50,014	£50,014

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
We believe the future of city transport is clean, healthy, and always with you. We're creating an e-bike that's as easy indoors as a roller-case, with room for whatever you need to carry, and it flicks open instantly, ready to ride with a reassuring 'clunk''. This will eliminate concerns over storage and theft, which we have found are major concerns for people who would like to cycle more. We want to change transport behaviour: Reducing climate change and respiratory disease; helping people get active; and making our cities socially connected places where we move past each other at a human level. Electric cars alone can't solve these problems. We need to find more efficient and healthy ways to move around our cities. We believe that our BriefBike is the answer -- an e-bike you can conveniently keep with you, ready to ride whenever you feel like it. Working with experts in design and manufacturing, we're creating a series of mock-ups and working bikes that we can test -- both in the lab and with real users. At the end of the project, we'll have a patented design that we know works and that people love. Our product will make it much more practical and appealing to travel by bike. Bike sales are already growing rapidly across Europe, driven primarily by the growth of e-bikes. For example, last year total bike sales grew 34% in Germany and 25% in the Netherlands. Currently, the UK produces less than 0.5% of the 20 million bikes sold in Europe each year, but this isn't because they're all produced in Asia, 65% of them are produced in the EU. We will work with existing automotive and aerospace supply chains within the UK to produce our bikes using modern, automated, and scalable methods. The time is right for the UK to lead the most rapidly growing transport sector -- e-bike production

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SWEEP ONLINE LTD	Sweep ARIA	£456,484	£319,539

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
Sweep is a UK-based FinTech start-up. Sweep specialise in developing financial facilitation services for SMEs and entrepreneurs, catering to their specific finance, travel, expense, and book-keeping needs. There are 5.9 million SMEs in the UK, employing 16.6 million people, contributing to 52% of revenue to the UK economy (Federation of Small Businesses, 2019). SMEs spend on average ~120 working days a year on administrative tasks; for SMEs, 41% of these admin resources are dominated by accounting activities - this figure rises to 46% for small companies and up to 51% for micro firms (Sage, 2018). Accounting tasks are so burdensome to SMEs that 22% of them are willing to leave finances unreconciled and unidentified at the end of each month (Soldo, 2018). Sweep are aligning unique Machine Learning and Intelligent Robotic Process Automation to develop, ARIA, a solution that provides automated financial processes, analysis and insights, helping SMEs and self-employed people to make the most of their data and their time, releasing them from these administrative burdens. ARIA will support SMEs through: 1. Robotic Process Automation (RPA), automating financial reporting tasks to save time, increase accuracy and reduce error rates 2. Machine Learning-enhanced financial analytics, providing tailored insights for each client, and providing up to date, actionable financial reporting 3. Cloud-deployment, making ARIA scalable available as an app or software, without having to build costly infrastructures and re-architect legacy 4. Fraud Prevention using Open Banking (licensed and monitored by the UK Financial Conduct Authority) to minimise protect consumers against fraud and other abuses. This project will see the development of a world-first approach to using financial regulations of the Open Banking Framework to develop solutions addressing SME needs. Sweep's ARIA project will create a financial process, reporting and insight solution in the UK for 5.9million SMEs to be better able handle their financial reporting, cash-flow planning, and give them financial confidence in uncertain times.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
WEIR GROUP PLC(THE)	High Productivity Wire Arc Additive Manufacturing (HPWAAM)	£254,619	£127,310
BOC LIMITED		£204,496	£102,248
Cranfield University		£496,888	£496,888
FOSTER + PARTNERS LIMITED		£208,663	£104,332
STEELO LIMITED		£147,358	£103,151
WAAM3D LIMITED		£165,430	£115,801
WINTWIRE LIMITED		£248,625	£174,038

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

Additive Manufacturing (AM) also known as 3D printing is a process where objects are produced by adding and depositing material in layers. AM offers significant advantages over traditional manufacturing namely design freedom,lead time reduction and lightweighting resulting to increased performance, cost reduction and new business models-digital inventories.

Most AM systems comprise of a motion system, heat source and feedstock(raw material). Wire Arc Additive Manufacturing (WAAM) is the combining of a robotic manipulator, using an electric arc as the heat source and wire as the feedstock. WAAM also offers the distinct advantage of being able to produce near-net shape designs in a large scale \\\>1m long.

Currently WAAM is focused on high value parts weighing a few tens of kg made out materials such as titanium for the aerospace sector. Current build rates for WAAM are quite low at 2-3 kg/hr. Other industry sectors such as mining, energy and construction use lower value materials e.g. steels and are showing interest in WAAM application. In these industries the production processes are casting, forging combined with machining and/or fabrication reliant on manual operations. Parts often weigh several hundred kgs or even tons, with lengthy production time frames. To make a viable business case for WAAM in these industries, the deposition rate needs to increase dramatically to \\\>15kg/hr for steel, whilst maintaining precision and low recurring costs.

In this project a new High Productivity Wire Arc Additive Manufacturing Process (HPWAAM) will be developed to manufacture large scale parts and structures used in engineering and construction industries with high quality and deposition rate of up to 15 kg/hr. To help achieve this new high-quality shaped filler wires (Wintwire-SME) and overall heat control using cryogenic cooling (BOC) will also be developed.

Aim Demonstrate a new High Productivity Wire Arc Additive Manufacturing process for manufacturing large components and structures for mining, oil&gas and construction industries.

Objectives

Industrialise the HPWAAM process for large-scale engineering components,featuring full thermal control and variable resolution (CU, WAAM3D-SME).

Upgrade existing planning and control software to commercial grade enabling implementation of HPWAAM in an industrial environment.

Demonstrate the capabilities of HPWAAM for production of \\\>100kg steel components for mining and construction applications.

Led by Weir Group this challenging project consists of a consortium covering all aspects necessary for industrial implementation of HPWAAM; process technology development (CU, BOC), supply chain (WAAM3D, Wintwire), end users (Weir, Fosters+Partners) and steel fabrication supplier (Steelo-SME).

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ETIQ AI LIMITED	A software solution to tackle algorithmic bias	£430,483	£301,338
University of Bath		£67,482	£67,482

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
ETIQ is a software solution that helps companies identify and mitigate bias in their automated decisions. Whether it's in policing and sentencing, recruitment or financial products, people's lives are being affected by these automated decisions on a daily basis. We are strong advocates of advanced technology such as machine learning and firmly believe that if the technology is used correctly, it will provide a fairer process and more equal opportunities to everyone. Our goal is to ensure that the algorithms we use produce decisions that are consistent with our expectations. When we find evidence of algorithmic bias, we aim to adjust these algorithms to obtain fairer results. Financial companies aim to start using richer data and more sophisticated algorithms to optimise their automated decision making further and thus improve their bottom line. However in the lack of a bias assessment and bias mitigation plan and solution they are unable to put into production their improved algorithms due to regulation, desire to be sustainable and ethical. Furthermore, using a bias identifier and mitigation solution that's off the shelf means faster time to market and shorter testing times for an algorithm deployment.

Results of Competition: Innovate UK Smart Grants: January 2020

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
INDUCTIVE POWER PROJECTION LTD	VHF Wireless Power Transfer	£152,830	£106,981
Manufacturing Technology Centre		£24,932	£24,932
University of Warwick		£20,676	£20,676

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
There are wide sociopolitical issues concerning road transportation's greenhouse gas emissions, and the UK's strategy is to encourage wide adoption of electric vehicles (EVs). Cable-free wireless power transfer (WPT) (also known as inductive power transfer) can potentially overcome the drawbacks of wired EV chargers, and represents a potentially transformational method for improving the EV operation and user experience, especially with opportunity charging, for example for a van in a loading bay. Aside from its convenience, WPT can enable significant downsizing of the onboard EV battery, and has the potential for dynamically charging EVs on the move. Significant snags for WPT exist. The power transfer efficiency is highly reliant on precise alignment of the transmitter coils (usually buried in the ground) and the receiver coils on the vehicle. Heavy-duty EVs also require much higher charge rates than WPT can currently offer. Increasing the operating frequency of WPT systems increases the power density, solving both these issues and making WPT far more attractive all-round. State-of-the-art systems work at 85 kHz for a host of reasons including the use of ferrite cores, the skin effect, and available power electronics. Inductive Power Projection Ltd have recently invented and protected a new way to create VHF magnetic fields for different applications. We're not frequency-limited and so operate in the VHF band (loosely defined as 30MHz-300MHz). After consulting with the Advanced Propulsion Centre, we realised the potential value for VHF-WPT for charging EVs, and following a technical peer review with Warwick Materials Group, it became clear that by using VHF we avoid a "difficult frequency region" above 85kHz. With our present understanding, our VHF-WPT charging method can project in excess of 400 kW per module, easily to 800 mm at very high efficiencies (\> 99% for the wireless part); this compares with current state-of-the-art WPT systems where 50 kW/module is considered excellent, and an ambitious target for reach is 300 mm. A tough target of 500 mm lateral misalignment has been identified, which we can exceed even without a large vehicle-side receiver coil. However, the feasibility of VHF-WPT needs to be studied and tested in order to better understand the limitations, and this project does that, using the equipment we already own, and techniques developed during our previous work. There's a significant market opportunity for our solution, but two identified technology gaps will be worked on by our two research organisation partners.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GMC LIMITED	Maintenance free connection systems to replace bolted flange connections on wind turbines	£114,848	£80,394
OFFSHORE RENEWABLE ENERGY CATAPULT		£39,913	£39,913

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
Feasibility study to revolutionize Inspection, Repair and Maintenance, (IRM) by removing the service of retorqueing bolts out of the equation on fixed and floating wind farms. The study will focus on the location, function and maintenance requirements of bolted flange connections that are currently used for both fixed and floating wind structures and the alternative options available from the Oil and Gas Industry via the use of proven reliable maintenance free connection systems.

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: 2001_SMART_JANUARY

Total available funding is £50 million

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
HEALTHSHARE LIMITED	Digital Joint Pain Advisory Clinic	£498,728	£174,555

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

Uncontrolled demand and delays in NHS Musculoskeletal (MSK) / Physiotherapy services creates catastrophic long-term health, wellbeing and biopsychosocial consequences for society e.g.

* Physical deterioration/additional-co-morbidities/immobility/obesity/care-dependency
* Mental Health crisis/anxiety/depression/relationship-breakdowns/alcoholism/suicide
* Pain/drug/opioid-dependency(effecting 12.8%-of-population)
* Falls/trauma/premature-death
* Unemployment/poverty/benefit-reliance
* Emotional/financial-burden on families/carers

2-years ago Healthshare pioneered group-based Joint-Pain-Advisory-Clinics(JPAC) to meet burgeoning NHS MSK demand, improve patient health-literacy and elevate patient's self-management capability. We now want to use this expertise and learning to provide a **'virtual/digital journey'** for patients with MSK symptoms, conditions and pain by digitalising JPAC as **Digital-JPAC.** Our project research is aimed at designing, evaluating and evidencing a way to use Digital-JPAC to ease burgeoning NHS MSK patient demand, drive exemplar clinical-outcomes and achieve high-levels of satisfaction to a potentially limitless volume of patients by providing the following 'game-changing' integrated, digital MSK service/programmes online:

* Responsive **24/7 digital access to state-of-the-art online MSK services** via a unique, secure, interactive, digital-platform, available to patients as soon as MSK risks/symptoms/concerns are detected
* **24/7 automated assessment and diagnosis using an AI led Digital Triage Tool** to assure diagnostic accuracy and selection of the right treatment and rehabilitation pathways
* **Daily online access to** **'live' group-based strength-training and rehabilitation classes** led by expert MSK Rehabilitation, Pain Management and Biopsychosocial Specialists
* **Real-time online interaction and dialogue between patients and expert clinicians** during 'live' group-based sessions
* Responsive **same-day tele-medicine** follow-up for patients from relevant Clinicians via **'Ask the Expert'**
* **24/7 patient access to best-practice, motivational** **Education and Wellbeing Modules** delivered via Pre-recorded Condition-Specific Exercise and Wellbeing Videos/Podcasts/Presentations/infographics and Patient Guidance to support people improve their health-literacy, support healthy life-style choices and engender personal accountability to maximise individuals prevention, health and wellbeing
* An intuitive, accurate way of measuring patient's individual rehabilitation and wellbeing-progress via an **Electronic Wellbeing Diary,** where patients can set goals and track their own physical/mental-health/wellbeing-journey and clinicians can oversee their recovery progress
* A secure **MSK** Webchat, where patients can talk, share experience with peers and motivate each other

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MONITOR COATINGS LIMITED	Design of High Entropy Superalloys Using a Hybrid Experimental-Based Machine Learning Approach: Steel Sector Application	£252,776	£126,388
BROOMHAUGH MANAGEMENT LIMITED		£81,236	£56,865
Northumbria University		£181,991	£181,991
TRL9 LIMITED		£130,000	£91,000

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
End users in high value and other manufacturing sectors report low confidence in the long-term performance of both coatings and their processing as a barrier to the introduction of new products dependent on surface engineering and advanced coatings. Responding to this market need this project aims to shift the paradigm from "apply the material you have" to "engineer the material you need" developing significant global markets through increased confidence in surface engineering technology. High entropy alloys (HEAs) provide a transformative opportunity in this direction enabling high-performance manufactured goods that are competitive in the international marketplace through extraordinary material properties and unique property combinations. The new High Entropy Superalloys will be engineered around the Al-Co-Cr-Cu-Fe-Ni alloy system promoting both the face-centred cubic phase and the wear resistant nano-oxides phase. To achieve rapid material development, the consortium will devise a hybrid R&D approach combining high throughput experimentation and a neural network software that would allow a computer to sift through more than a million possibilities in search of promising mixtures tailored to the operating environment characteristics. The new approach aims to "discover, manufacture, and deploy advanced materials twice as fast, at a fraction of the cost. The new technology will be first demonstrated to the steel sector that is under ever increasing pressure. Steel mills in the UK will benefit from the project outcomes helping them to maintain and increase their workforce. A successful project outcome will result in jobs created and retained in the supply chain. The project will have a major environmental impact through the substitution of carcinogenic hexavalent chrome and the reduction of cobalt based materials excessively used in hard facing applications worldwide.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ISANSYS LIFECARE LIMITED	Non-contact technology for vital sign monitoring in neonate and paediatric populations	£178,776	£125,143
University of the West of England		£70,191	£70,191

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 the UK, approximately 100,000 babies (1 in 8 of all live births) require admission to a neonatal intensive care unit (NICU) annually. The global picture shows a similar trend. NICU admissions in the US are close to 500,000\. This project will develop a key technology to help neonatal care teams deliver optimum outcomes for preterm and sick babies and ultimately for screening all newborns as a standard test in the first few hours of life. Accurate physiological monitoring is a prerequisite of high quality and safe modern neonatal care but obtaining accurate vital sign data from newborns is difficult and all current methods are sub-optimum. Monitoring of heart rate at birth is particularly important. The most widely used method currently is pulse oximetry or PPG (Pulse Plethysmography -- a non-invasive measure of blood flow and oxygen content) which has significant drawbacks in terms of signal quality and accuracy. Increasingly ECG (measuring the heart's electrical signal) is being recommended by neonatologists for more accurate measurements. Although ECG can provide better and more useful clinical information, current ECG systems face a number of issues in the neonatal setting including poor adhesion, and physical inconvenience of placing multiple electrodes (and cables) on a small infant during the first minutes of life. Isansys currently (and uniquely) offers a neonatal version of its Lifetouch ECG wireless "smart patch" sensor as part of the Patient Status Engine advanced patient monitoring platform that addresses several of these issues. The Isansys technology is at the heart of a major study in two Northwell Health hospitals in New York to redefine neonatal care by providing ECG measurements of all newborn babies, and while the Lifetouch wireless sensor represents a leap forward in monitoring technology and allows unimpeded mother-baby skin to skin contact, it currently uses standard ECG electrodes that must adhere firmly to the baby's very delicate skin. The "Holy Grail" device will be a wireless patch sensor that doesn't require firm galvanic adhesion to the skin and could simply be placed on the baby, held in place by the vernix and for the first time, provide this much needed ECG data within the first minute of life. This project will develop the contact free ECG capability, integrate it into a Lifetouch ECG sensor and have it tested by neonatologists in a major UK hospital. Full clinical evaluation and regulatory approvals will follow on completion of this project.

Results of Competition: Innovate UK Smart Grants: January 2020

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Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MIMIC INC LIMITED	3DMMA - 3D Capture with Measured Material Acquisition	£479,445	£335,612

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
Computer Graphics has progressed over the past 30 years from a scientific technique to being ubiquitous. It is a key part of Feature films, with ever increasing realism in battle scenes, aliens, and nearly realistic human like characters. Games are also in a similar state of being impressive, but 'not quite' real yet. Interesting demonstrations of Virtual Reality, involving the user wearing a headset, and Augmented Reality where the user sees a combination of the real world. augmented by CGI, are now possible. However this market, potentially worth half a trillion dollars in 2025 (Bloomberg prediction 13th February 2020) has stalled. Looking back at market predictions, success in always five years away. We have identified a key bottleneck, which is the creation of accurate and detailed 3D models that are needed across Film, Games, AR / VR experiences, and eCommerce. Currently the state of the art is to 'model' the item out of primitive shapes. This is very time consuming. The items created need to have not just the right 'shape' and contain the necessary detail, but the right 'appearance' - such as shiny steel, reflective marble, dull copper, fur, hessian, linen, and so on. Furthermore, this appearance needs to be convincing under many lighting conditions. A 3D artist can currently easily spend 1-2 weeks making even only a medium detailed model. Scanning techniques have been developed to try and increase the efficiency of making 3D models. However to date, no-one has managed to successfully demonstrate capture of both shape AND visual appearance in one pass. M-XR have developed a novel way of detecting and recording the visual properties of materials, based on a Machine Learning Approach. M-XR have built a crude prototype scanning system to indicate 'Proof of Concept'. Our project 3D Capture with Measured Material Acquisition (3DMMA) will develop a turnkey system for an automated scanning system that will record properly visual material properties. Initially this will be a 'service bureau scanning service', but later we will move into the sales of scanners to Media and Fashion companies. Beyond the end of our project described here, we believe that when a Machine Learning corpus of significant size exists, it will be possible to relax on the detailed object parameters that describe the object, and that one or more mobile phones could form the basis of a future system, being much cheaper and easier to handle.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
OVON TECHNOLOGY LTD	5G Development of Smart Heating and Environmental Monitoring System	£203,419	£91,539

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
Ovon's smart radiator valve system provides room-by-room control and saves you up to 30% off your energy costs. Traditional Radiator Valves do not provide accurate heating control. There are an estimated £9.5B unrealised annual savings in heating costs in the UK alone and 200M households globally with radiator heating that could benefit from Ovon's system. Ovon's smart system comprises of a smart radiator valve including patent-pending technology to eliminate the need for batteries, a micro-thermostat with full environmental sensing capabilities, an app supported by the latest in cloud technology, and a boiler controller capable of remote diagnostics. Ovon's wants to make sure Ovon's products are accessible to the widest possible market. As such our vision for the project is to create 5G versions of our products that are suitable for vulnerable households and council properties without Wi-Fi connectivity or IoT gateways. Our products will allow these users to save energy and money and ensure their building is in a liveable condition, with our boiler controller additionally detecting and preventing breakdowns and expensive repairs. By adding 5G functionality we are creating the world's first 5G room-by-room smart heating system.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
BERAN INSTRUMENTS LIMITED	Machinery Health State Detection (mSTATE) supporting Future Net Zero Energy Generation	£276,944	£166,166
EDF ENERGY NUCLEAR GENERATION LIMITED		£17,176	£8,588
University of Bristol		£96,184	£96,184

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
Next-generation Machinery Health State Detection (mSTATE) product - combining state-of-the-art digital signal processing hardware and novel mathematical algorithms for future net zero energy generation. This 18-month collaborative project will result in a step-change in the value of existing machinery protection systems through the development of innovative and adaptive machinery failure state detection processing and algorithmic technologies, to improve machine safety and reliability through earlier fault detection and avoidance of false alarms. The resulting diagnostics will permit enhanced decision-making, enabling meaningful and timely maintenance actions within industrial market sectors. The technology will be applicable for monitoring of all critical rotating machines where failure may impair safety, incur significant costs, adversely affect electricity supply or violate environmental standards. The consortium, led by Beran Instruments Ltd. (a UK-based SME), includes EDF Energy Nuclear Generation Ltd. and University of Bristol (UoB).

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
NUM TECHNOLOGY LTD	NUM - efficient, privacy-focused alternative to WWW for storing & retrieving structured data	£495,208	£222,844

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
NUM is an alternative to the World Wide Web for storing and retrieving structured data from the internet. The Namespace Utility Modules (NUM) protocol uses the Domain Name System (DNS) to convert human friendly domain names into machine friendly data like contact information. NUM makes it possible to dial a domain name instead of a telephone number. This project will expand that functionality so that users can pay a domain name instead of using bank account / PayPal / cryptocurrency details. Each use case (e.g. contact/payment data) is known as a module, modules are open source and can be created by anyone. NUM is an open standard that domain name owners can adopt independently by storing NUM records in their own DNS. Our NUM Server technology allows anyone to adopt the protocol using a simple, user-friendly interface -- this is particularly useful for people without the technical expertise to edit their own DNS. Our NUM Spider automatically populates the NUM Server with NUM records using public data -- e.g. contact information found on company websites. This project will allow us to internationalise our NUM Spider so that we can launch the technology to the world. Our vision is to establish NUM as a core internet protocol that hundreds of millions of people use every day, the vast majority of them without even realising it -- just like DNS

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
LAPLACE INSTRUMENTS LIMITED	Development of an innovative digital EMC receiver	£309,084	£139,088

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 is the development of a new EMC receiver. EMC is Electro-Magnetic Compliance. Compliance is a legal requirement virtually worldwide. It applies to all electrical or electronic products placed on the market. Measurement of compliance is defined in international standards. This compliance is a measure of how much electrical and radio interference the product creates, and how it performs in the presence of external interference. In the modern world which is becoming dependant on electronic communications, the issue of interference is increasingly acknowledged as a critical factor. At the core of any interference measurement system is the 'EMC receiver'. The specification of this is defined by international standard CISPR16\. Conventional measurement techniques that meet the requirements of the specification are time consuming and slow. A single measurement can take up to an hour or more, and typically, each product will require many such measurements. This has significant cost/time consequences for any new product development. Our market is focussed on manufacturers, all of whom are required to ensure that their products meet the internationally specified mandatory limits for emission of interference. This new receiver will considerably reduce the time required to take the necessary measurements, thus reducing time-to-market. The advent of very fast and powerful digital processing components has made possible the prospect of achieving these measurements in seconds rather than hours. Overseas competitors have already introduced receivers that utilise similar technology, but at high cost. The purpose of this project is to develop an advanced, high performance receiver that will match the performance of existing systems, whilst remaining price competitive. In order to achieve these aims, we have identified components thatcan provide the essential high speed signal acquisition, signal processing, memory and comms links that can form the basis of a cost effective solution. Such advanced technology will require specialist expertise for the development of the required software and digital logic. We aim to partner with De Montford University who have proven experience and expertise in these fields. The end result is planned to be an advanced EMC receiver that utilises the latest high speed and high bandwidth components now available. The intention is to create a market leading world class product. This will ensure that the UK remains a prime supplier of interference measurement systems to the global market. It will also establish a close link with UK academia to promote industry-university partnership.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
VERTICAL FUTURE LIMITED	CEA Heirloom Optimisation & Pathogen Control for Seeds (CHOPS)	£372,703	£260,892
National Inst of Agricultural Botany		£188,793	£188,793
ZAYNDU LTD		£257,533	£180,273

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
Conventional and organic agriculture are highly dependent on various agro-chemicals to ensure that field grown crops are free from disease and satisfy production volume needs. Controlled Environment Agriculture (CEA) has moved growing crops for consumption away from fields and the disease pressures that come from the open air and soils. This has massively reduced the need for agro-chemicals but there is still some way to go. It is still uneconomical to produce seeds in CEA facilities and so these are produced outside. The result is that the outer shell of the seed is now the main source of diseases that enter CEA production. When a disease takes hold in CEA, it can be devastating as the conditions that a plant thrives in, are the same as those a fungus or bacteria will. It is possible to treat seeds with agro-chemicals to remove these pathogens, but that is not desirable for both environmental and consumer driven needs. One of the focuses of our project is to scale up and further develop a non-chemical seed pre-treatment method that uses only air and electricity to kill any fungi or bacteria on the surface of the seed without harming the embryonic plant contained within it. Reducing the disease pressure isn't all that is needed. As many crops have been extensively bred and selected for field growth, the key characteristics that breeders have focused on are generally to make the plant resistant to diseases which reduces crop losses for the farmer. As these characteristics are less important to CEA, we can take this opportunity to select varieties that have better characteristics for the grower and the consumer such as higher yielding, more nutrient dense varieties. We will do this by carrying out crop trials as well as using DNA sequencing techniques to allow us to pinpoint molecular signposts in the genetic code of CEA suitable varieties. By looking at the DNA, we will be able to translate our discoveries in spinach into other plants more easily. When these two approaches are combined, a more nutritious, CEA focused crop can be grown free from threat of disease and use of agro-chemicals. The advances made within the project will also benefit the UK economy as well as the consumer as the partners that have come together also market technology and solutions to the global agricultural industry.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
CYBERVECTOR LIMITED	Digital Security by Design – Developing complexity based, un-crackable, high-efficiency mass information and data security products	£287,348	£201,144
XPERTEX LTD		£77,789	£54,452

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
Is your data in the Cloud? Do you know how well it is protected? You've heard of encryption, and perhaps you use it, but even then only for a fraction of your data. Perhaps you think that the custodians of your data are using some form of bulk security protection. So why are there still data breaches? Social Media posts get sold to news outlets. Bank data is used by criminals to buy stuff you've never requested. Official Secrets are posted on WikiLeaks. The truth is that data custodians such as Facebook, Amazon Web Services, Azure, Instagram and many others including government departments rarely, if ever, apply some form of high-grade security protection to 100% of the data that they manage. Commonly, less than 10% is protected in that way. There are a number of reasons for this. Existing products may require careful management of cryptographic keys or security certificates. This is cumbersome and the products are expensive. The methods used by these products are process hungry, so computer CPUs work harder, using more power. The datacentres containing the computers need more cooling, and that's not good for the environment. And that all costs money. Additionally, the data custodians are rarely fined a materially painful sum when a breach occurs. There's too much stacked against high-grade data protection. Our Security Product protects data completely differently from all other existing methods. We use mathematical complexity to noisily jumble up the data when it needs to be stored securely, and use other concepts of reversibility to un-jumble and remove the noise when the data is used or needed. The process is highly computationally efficient, to the degree that we believe that 100% of the data stored in a datacentre can be protected, whilst lowering the CPU load, reducing power consumption and delivering environmental benefits. The Security Product works in a manner that means a breach by theft or accident is just a theft of a lot of randomly noisy jumbled up fragments, that can't be un-jumbled and the noise removed without knowing how complexity has been used, and where in all the noise to find that information, or what that information looks like. So, breaches can be a thing of the past. The custodians of your data can reduce their operating costs, improve the environmental impact of their datacentres and protect 100% of the data, your data, that they manage.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
INGRAM TRIBOLOGY LTD	Development of a Simple Tribometer to Accelerate and Widen the Availability of Friction Testing	£51,952	£23,378

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
One third of the energy created is lost through friction. An obvious way to reduce energy use and CO2 emission is then to reduce friction. At the moment the people who work on reducing friction sometimes find it difficult to access good machines to help their research. This hinders the development of lubricants, coatings and materials which could save energy, CO2 emissions and money for consumers. This project will produce a new type of friction testing machine, one that is relatively low cost, easy to use and accurate. Giving innovative scientists the tools needed to identify new materials, coatings and lubricants, which could become new ways of reducing friction and saving energy.

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: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
HOLIFERM LIMITED	HiProSoph – High productivity Sophorolipid manufacturing for rapid market expansion	£1,221,181	£720,497
STAR BRANDS LIMITED		£97,856	£58,714
The University of Manchester		£414,855	£414,855

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
There is increasing industrial, regulatory and consumer sentiment towards to the use of greener alternatives for a range of everyday products with a particular focus on formulated non-food items (with over 73% of eco-consumers researching environmentally-friendly credentials of household cleaning and personal care products, compared to only 61% for food products, GlobalWebIndex, 2018). It is a key strategy for the government, associations and manufacturers to provide bio-based alternatives to surfactants as a key components in such cleaning and formulated products. Bio-based replacements for synthetic surfactants (petroleum/vegetable/animal-derived) have existed since the 1990's, however, their current production process suffers from a range of limitations including low productivity (<2 gL-1h-1), high energy costs, high water usage, significant waste-water production and downstream processing requirements that lead to a high price point, limiting the full potential of market adoption. Holiferm aims to test the feasibility of their larger-scale novel gravity separation technique by designing a demonstration plant for the production of sophorolipids (key target molecule in synthetic surfactant replacement activities in household cleaning and laundry applications) at a cost-effective price point with a facility capable of producing 1000t per annum before building an industrial-scale plant. Alongside this, The University of Manchester will undertake feedstock development work to reduce dependence on food-grade feedstocks, focussing on lower-grade or even waste-streams. Holiferm's technology enables a step-change in the cost of sophorolipid production, allowing manufacturers of formulated products to overcome current adoption barriers, passing savings onto potential users and consumers. Holiferm have engaged with Star Brands, a leading household cleaning and laundry care formulation company, to undertake initial preliminary formulation work, testing and validation to ensure market viability for material produced within the demonstration plant. With market need validated (through discussion with end-users such as Dow, Henkel, BASF and Star Brands) and building on a prior Innovate UK ICURe proof of concept study, this project will proceed to validate a pilot scale process. This novel solution has the potential to completely revolutionise the way in which sophorolipids are manufactured, allowing wide-scale adoption of biosurfactants through a reduction in price for low-value high-volume applications. Holiferm's technology is also inherently applicable to a range of biofermentation process for biosurfactants and other molecules including Mannosylerythritol Lipids (MELs) and Rhamnolipids, providing large cost saving potential. This innovative solution has the potential for global exploitation in a range key sectors and will reduce the environmental impact of synthetic surfactants whilst being cost-competitive.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
COMPOSITES EVOLUTION LIMITED	Ambient storage prepreg for composites with reduced cost and environmental impact (Ambipreg)	£242,980	£170,086
PRODRIVE COMPOSITES LIMITED		£70,065	£42,039
R-Tech Services Ltd		£153,666	£107,566

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 objective of this project is to develop a composite prepreg that has an exceptionally long shelf-life at room temperature while retaining the ability to cure at low temperature. This will leverage major competitive and environmental advantages over incumbent materials which require frozen storage, expensive transport and careful production management. Prepreg materials typically consist of fibres (either textile or unidirectional) pre-impregnated with a resin. The resin system contains a hardener that, upon heating, crosslinks and forms a solid cured composite. However, most prepregs cure slowly at ambient temperature - typical 'outlife' 3-30 days depending on the specific formulation - so must be stored in freezers. This creates significant costs, production challenges and inefficiencies for manufacturers. Materials stored or used improperly inevitably become scrap or, worse, non-conforming/unsafe products. The ambitious aim of this project is to break the link between outlife and cure temperature, specifically to produce tacky, reactive prepregs that cure at low temperatures without necessitating frozen storage. This will be achieved through key innovations in formulation chemistry and prepreg processing to produce novel materials with completely different behaviour. The novel prepregs would represent a significant breakthrough in composite manufacturing, and provide major cost savings and productivity improvements for moulding companies. This technology will also reduce the amount of waste prepreg going to landfill and eliminate the need for frozen storage, which have significant economic and environmental consequences. In addition, the materials will be able to be shipped further afield, opening up opportunities for UK exports, creating new revenue and jobs.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MONUMENT THERAPEUTICS LIMITED	A novel approach to treating neuroinflammation	£496,764	£347,735

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
Over recent years it has become clear that inflammation in the brain may be a key factor contributing to many psychiatric and neurological conditions such as Alzheimer's disease and depression. Unfortunately, standard anti-inflammatory drugs such as ibruprofen do not help, because the way they are formulated stops them from being able to get into the brain, which is surrounded by a special protective layer called the blood-brain barrier. We have accessed a new formulation of a widely-used anti-inflammatory drug which has been specifically designed to have increased brain penetration. In this project we will show that this formulation can reduce brain inflammation in mice, and that it can penetrate the blood-brain barrier in human cells. If successful, this evidence will justify trying the newly formulated drug in humans, with first studies expected to start in 2022\. These first human studies will be for people undergoing elective surgeries such as hip replacements, which tends to cause a short-term inflammation in the brain as well as other parts of the body. As part of this project, we will develop a digital tool that allows us to detect who is at highest risk of developing cognitive problems as a result of these types of surgery. This will be used to select patients for future studies of the drug, and also to help doctors and patients understand and prospectively treat the brain-related risks associated with elective surgeries.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DRAYSON TECHNOLOGIES (EUROPE) LIMITED	Baseline Smart Card Energy Harvesting for Plug-and-Play Integration	£254,804	£114,662

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
Rising levels of financial fraud and public concerns about personal control of identity (particularly biometrics) have driven the need for a new generation of smart cards (with biometrics, dynamic CVV, etc). Unfortunately, as the NFC technology that underpins contactless payments has been around for some time, current solutions do not meet the power requirements for this new security and functionality, without significant redesign or replacement of the installed point-of-sale and reader base. Freevolt's leading energy harvesting technology is able to provide the necessary power to facilitate on-card biometrics (or other advanced security measures) as a drop-in solution for contactless cards, utilising existing industry-standard communications chips and readers, without requiring on-card batteries. All of this for a very small additional cost (pennies), and without compromising the form-factor or mechanical requirements for smart payment cards. This technology can also be adapted for entry cards (e.g. access control) or secure IDs (e.g. e-passports), enabling advanced security measures and higher data throughput, without costly infrastructure or ecosystem upgrades. In the same way mobile phones became a one-stop-shop for photography, GPS, music, etc., the next generation of smart cards can become a single solution for all identity, access and payment needs - all enabled through Freevolt's patented and patent-pending RF energy harvesting technology.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CLEVERSTEIN LTD	Modular Circular Footwear	£55,809	£25,114

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

Project description - provided by applicants
Cleverstein is leading the development of a modular circular footwear solution for urban women with active lifestyles, who have restrictions on storage at home and on luggage during travel. The company is on a mission to eliminate waste in the footwear industry. To achieve it, they are creating a modular circular shoe capsule collection that any woman can adapt to her taste and wardrobe, keep for a long time and recycle afterlife. The key project objectives are: 1. Develop a detachable alternative to stitching/glue. It is an attachment mechanism, which allows adding fashionable decor to shoes. Once improved and tested, the mechanism will be patented. Future variations of this invention will allow making shoes multi-size and cross-seasonal. 2. Develop and test classic shoe styles using recycled and recyclable materials that will last a long time, will be comfortable and will have a reasonable production cost in the 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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Competition Code: 2001_SMART_JANUARY

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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
REVIVE INNOVATIONS + LIMITED	Technical feasibility for the Revive + Adrenaline Auto-injector	£272,386	£190,670

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
An adrenaline auto-injector (AAI) is prescribed to people who are susceptible to severe allergies that put them at risk of anaphylaxis -- a life threatening allergic reaction. Despite medical advice to carry the injector on person at all times, our user studies show: 1. People do not carry them nearly as much as they should 2. Not receiving adrenaline for an anaphylactic reaction is the biggest common factor in fatalities as adrenaline is the only drug known to prevent death due to anaphylaxis. Revive is a new AAI concept developed as a graduation project at the Royal College of Art (RCA). This project seeks to extend the promising results of this prior phase wherein a proof of concept(PoC) was developed. Designed with the patient at its centre, it's much smaller size makes it easy to carry and its form makes it discreetly fit within a patient's life. These combine like never before to counteract the identified problems of being too large to practically carry continuously and adverse impacts on quality of life from an obvious medical form and associated stigma. Revive achieves this through a fresh examination of how a syringe should be designed for an AAI. The proprietary needle injection system concept has been awarded InnovationRCA's support and is patent pending in the UK. We have developed a PoC where we tested functionality and medicine dosage. Revive also has simplified instructions designed to improve accurate use. Revive, unlike most current offerings in the market, incorporates a variety of needle lengths. Now, the team seeks to extend this achievement by conducting a technical feasibility study through the engineering audit of the concept.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
POLYSOLAR LIMITED	Long HBar 2 - Lead-free halometallates – the next generation hybrid photovoltaic absorber materials	£316,334	£221,434
JOHNSON MATTHEY PLC		£307,344	£153,672
University College London		£249,745	£249,745

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
Cheaper, more efficient photovoltaics with improved aesthetics and form factors are required to enable further mainstream adoption of renewable energy in domestic and commercial environments. However, this requires a step change in the materials, device architectures and processing techniques employed, a capability that is currently unmet within the industry. In the LONG HBAR project, Polysolar Ltd leads a consortium of world-renowned academics and industry partners, spanning the entire supply chain from the development of new materials, the scale up and integration of the materials into novel device architectures to installation and grid deployment. The consortium will leverage a new class of photoactive materials and commercially ubiquitous processing techniques with cutting edge design, to introduce lightweight, conformable, affordable, flexible and efficient solar cells with low embedded energy costs, while also expanding the knowledge, capability and visibility of these global businesses and the UK research base. As an enabler for a lower carbon future it is envisaged that initial applications for this new technology will be in automotive and architectural glass, providing an enhancement for electric vehicles and greener, self-sufficient buildings. The project will deliver inward investment opportunities and strengthen UK capability in 3rd generation photovoltaics by integrating new materials into existing lightweight photovoltaic technologies and developing knowledge to deliver a new UK supply chain at a globally significant scale for cost competitive renewable energy.

Results of Competition: Innovate UK Smart Grants: January 2020

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
LITTLE TUMMY LIMITED	Optimisation of a range of nutritionally targeted smoothies for young children aged between 18-48 months based on Recommended Nutrient Intakes (RNI)	£36,110	£25,277
University of Greenwich		£12,254	£12,254

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 National Child Measurement Programme (NCMP) almost 25% of reception aged children are overweight to include obese (9.6%) (National Statistics and Digital, 2018). This implies that most excess weight gained in childhood can occur before starting school. Currently, there is a noticeable gap in the UK market in relation to the commercially available genuinely healthy and nutritionally balanced snacks for young children and toddlers, who are transitioning from the weaning period to preschool age. Children should have about 5 meals per day - breakfast, lunch, dinner and two 'snacks'. Unfortunately, the children snack market is overcrowded with unhealthy choices low in nutritional value. Most of the recipes are also not very satisfying (e.g. rice puffs or dried veggie sticks). Pure fruit purees are full of sugar, which gives children an insulin peak and makes them hungry after a short while. Most brands sell this to parents as 'low-calorie' snacks, trying to imply that this is a healthy choice, when they are really not. A truly healthy snack should be satisfying (it has to keep a child active until their next meal) and be nutritious at the same time. This is why LT aims to develop in-between meals to fill the gap in the market, where every 'snack' has a purpose. With the undisputed impact of early life's diet on the long term health and development of dietary habits, LT aims to fulfil this gap by providing a range of low in free sugar smoothies, designed and formulated specifically to meet the nutritional requirement of the target age group required for their development (18-48 months), whilst maintaining the right balance of nutrient such as sugar, fat and protein, in order to prevent unhealthy snacking. The recipes will subsequently be minimally processed, using enabling technologies such as High Pressure- Homogenisation (HPH) and High-Pressure Pasteurisation (HPP), in order to retain the essential nutrients such as vitamins and minerals, prevent liberation of reducing sugars and at the same time avoiding the growth of microorganism. These processes are key innovations in delivering step change improvements over currently available products. The packaging will be designed in a playful way, to make our healthy meals fun for children. It will also include collectible items, to make children stick with the meals for longer and incentivise their healthy choices.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
RESPIRATORY ANALYTICS LTD	AI driven inhalation technique and adherence support device with data aggregation platform for remote monitoring of asthma	£455,548	£318,884

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 global cost of asthma is high and rising with an expected 400M sufferers by 2025 and 1000 deaths every day. The UK has one of the highest prevalence and mortality rates in Europe. Over 5.4 million people in the UK have this complex condition which is often difficult to manage. Around 1400 people die each year in the UK and up to 70% of these deaths are preventable with better symptom control. In the UK alone costs are over £1.1B. Uncontrolled asthma remains a stubbornly intractable problem. Outcomes have plateaued in the last 20 years despite major pharma investment in new drugs and costly drug delivery technologies and Metered Dose Inhalers (MDIs) remain the mainstay of treatment. Symptom control by inhaler devices can be adversely impacted by incorrect inhaler technique and poor adherence. Innovation has focused on Apps and 'smart inhalers' that prompt adherence (not inhalation technique), and monitor inhaler usage to try to improve symptom control. Evidence of benefit from these first generation smart inhalers has been limited and reviews point to the need for a second generation to deliver clinical, physiological and behavioural data insights including the identification of inhalation technique and environmental interactions, to improve self management and ensure optimum symptom control. The latest smart inhalers and platforms deliver _some_ of this functionality but fail to identify, integrate and correct the critical steps of correct inhalation to support self management. Building on the expertise gained building a previous CE marked inhalation device, our proposal will give detailed, real-time visualisation of each inhalation step, _for the first time._ Our R&D will deliver a cloud based, AI driven data aggregation and analytics platform to permit real time reporting to a new App and healthcare professional (HCP) dashboard, generate risk notifications and test in a synthetic population, ready for UK clinical trials. The application of Machine Learning algorithms to the aggregated clinical data, air quality measurements, weather and epidemiology data, combined with clinical expertise, will support hyper personalised self management via data insights and identify 'at risk' patients for HCP intervention. Delivering these real-time data insights to users and HCPs will reduce the cost burden of avoidable HCP visits and hospital admissions. Throughout the duration of the research we will work with closely with Asthma UK, clinicians and user focus groups to refine the design of the product and the app in an iterative way, to ensure user acceptability.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
GREEN SOLUTION ENGINEERING LIMITED	Reducing the 'levelised cost of energy' in offshore wind through a disruptive fault diagnosis technology, SmartCMS	£271,068	£189,748
University of East Anglia		£113,808	£113,808

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
Reliability is vital in the growth of wind power, especially offshore installations, currently generating 7.7% of UK electricity. Preventive maintenance, enabled by condition monitoring systems, increases reliability and availability of wind farms as well as reducing maintenance costs, leading to a lower 'Levelised Cost of Energy' (LCOE). Green Solution Engineering Ltd has developed SmartCMS, a unique condition monitoring technology which utilises the electrical measurements available in the converter to detect and diagnose both mechanical and electrical faults in the wind turbine drivetrain (i.e. gearbox, bearings, generator and converter). Having been successfully tested on a laboratory test bench, this project aims to take SmartCMS to the next phase of exploitation through assessment of its technical and commercial feasibility through testing in a pilot wind turbine drivetrain and study of the economics with respect to net reduction in the LCOE.

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: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MOCEAN ENERGY LTD	Blue Star FEED	£351,805	£246,264
Newcastle University		£37,858	£37,858
SUPPLY DESIGN LIMITED		£100,036	£70,025

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 is the front-end engineering design (FEED) of Mocean Energy's Blue Star Mk2 ocean wave energy converter (WEC). FEED is an intermediate stage of engineering design, between concept development, and prototype building and testing. Blue Star is a shipping-container sized, 15-kW, hinged raft (two hulls connected by a hinge). Wave forces and the hulls' dynamics cause a reciprocating rotation about the hinge that drives a power take-off system (PTO), converting the motion into electricity. Blue Star will be used in the offshore energy industry to power subsea equipment, saving offshore O&G companies millions of pounds in capital and operation costs, lowering CO2 emissions and supporting the industry's transition to green energy. The project will raise the technology readiness level from TRL 5 to TRL 6 by developing the concept into engineering design, enabling Mocean to pursue commercial relationships, raise funding for the next stage of development: the build and at-sea testing of a full prototype. The entire Blue Star concept is innovative. The WEC has a unique, patent-pending, geometry, developed via AI-optimisation, that increases wave forces and alters dynamics so that the machine produces eight times more energy per size than the current state-of-the-art. The project will reduce the technology risk by solving key engineering challenges through design, numerical modelling, and small-scale physical modelling. The engineering design objectives include: * The integration of a novel PTO, comprising a ground-breaking direct-drive generator: a Vernier Hybrid Machine (VHM) from Fountain Design, optimised by Newcastle University, incorporating bespoke power electronics designed by Supply Design. These systems will ensure that Blue Star is efficient, reliable, and can survive extreme seas. * Development of a simple, robust, and easy-to-install mooring and umbilical system with associated offshore operations supported by domain expert, InterMoor. * An integrated system with a robust structure that floats as designed and withstands fatigue and ultimate loads experienced at sea. The project will follow the recognised Technology Qualification process: new technologies are proven by developing requirements into a series of tests or design goals around which work is structured. A strong emphasis is placed on commercial engagement working with customers throughout the design process to incorporate their feedback into requirements.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
CODEM COMPOSITES LIMITED	Troposcatter Antenna Development	£366,941	£256,859

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 explores the optimal manufacturing technique and composition of materials of a 2.4m carbon fibre antenna capable of military application as part of a troposcatter communication system. Tropospheric scatter is a method of communicating with microwave radio signals over considerable distances (around 800km). Although it is a reliable form of radio communications that can be used regardless of the prevailing tropospheric conditions, the signal strengths are normally very low and the project focuses on providing a high quality, sensitive and accurate receiving antennas using innovative manufacturing processes. Troposcatter systems provide a lower cost communication system to alternative satellites communications and the project has the capability of providing a viable and secure alternative.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SYSTEM1 GROUP PLC	Adcumen: An AI-Enabled Platform for Intelligent Video Advertising	£349,943	£209,966
University of Warwick		£149,901	£149,901

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
System1 Group, a UK-led medium-sized enterprise, and **University of Warwick WMG Data Science Group ('UoW')** request **a feasibility grant of £359,866** to develop **Adcumen, the world's first AI-enabled platform for intelligent video advertising (total project cost £499,843 over 18 months)**. Adcumen has the potential to equip every brand with the skills of a seasoned Creative Director to create effective video ads that lead to long-term profitable business growth. System1 Group was founded in 2000 as BrainJuicer and rebranded as System1 in 2017\. System1 is headquartered in London with 14 international offices in the UK, Europe, Australia, Asia-Pacific and Latin America. A PLC listed on the AIM, System1 delivered FY2018/19 revenue of £26.9M and employs 142 staff. UoW is a global leader in state-of-the-art artificial intelligence research. System1 develops and tests marketing concepts, supporting marketing leaders to deliver return-on-investment (ROI) for their businesses. It has pioneered the application of behavioural sciences to predictive marketing, turning behavioural economics and psychology from theories into practical tools. System1's clients range from major international brands to SMEs in every sector. Clients include the world's leading social media platform, a global mobility provider, an international soft drinks corporation, leading software and hardware providers, a leading insurer and a globally operating homeware store. Clients use System1's metrics, marketing research methodologies and consultancy to make better marketing decisions, delivering marketing ROI for their businesses. System1's strategy is to use data-driven, digital technologies to predict the long-term effectiveness of advertising, creating new, intelligent products from its existing IP to accelerate business growth. Adcumen will deliver unrivalled economic and societal impact to the UK creative industry and AI sectors, delivering new jobs, skills, international export opportunities and a substantial return to the taxpayer from the initial public investment.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
BONNET LTD	Aggregated Charging Network for EVs	£106,366	£74,456

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
Bonnet allows EV drivers to charge at any public charger with a single app and monthly subscription. It will disrupt the complicated, predatory and fragmented EV charging market in the UK. Bonnet specifically targets EV owners and potential EV owners who live in cities and/or do not have access to off-street parking. For this group, easy access to public charging is imperative for EV ownership. As a solution, Bonnet incorporates three core innovations: **ACCESS** Bonnet provides a single-point-of-use for EV drivers to access all charge networks without multiple subscriptions. **CHEAPER & HARMONISED PRICING** Bonnet provides standardised tariffs across the market - a constant price per kWh with no extra plug-in fees, overstay fees, etc. We are also \>20% cheaper than any other charger-aggregating competitor because we integrate directly with CPOs without going through costly third-party roaming hubs. This brings down cost of ownership, making it more fair for drivers with no access to off-street parking/home charging. **INFORMATION** Through direct integration with individual CPOs, Bonnet provides CPOs with valuable information about charger usage, driver behaviour and insights about where to place further chargers. Suggestions/issues/comments are directly transferred from the drivers to the owner of a charge point and are resolved more rapidly. Drivers receive full information about their charging such as the energy mix breakdown, CO2 saved, money saved and much more. GDPR-compliant data insights can also be provided to the National Grid, DNOs and government bodies to offer energy flexibility and crucial information for infrastructure expansion.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
CAL GAVIN LIMITED	THERMIX, novel adaptable heat exchanger inserts for ultra-efficient heat transfer in viscous complex fluids	£351,417	£245,992
University of Birmingham		£103,693	£103,693

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
As we move to a decarbonised world, the focus on energy efficiency in the process industry becomes ever greater. This industry alone uses at least 11% of the UK's heating energy demand with the focus now narrowing on making every step of the process as efficient as possible to reduce energy use and carbon dioxide emissions. The process industry largely uses heat exchangers to heat and cool process fluids or to recover energy. CALGAVIN specialises in the research, design, specification and manufacturing of in-tube heat transfer enhancement devices for process exchangers which it sells worldwide. In-tube inserts are in general metal structures that are installed into the tubes and manipulate the fluid flow to improve the heat transfer between two fluids and that allow heat exchangers to be smaller, less expensive and more efficient. However, some fluids have properties that make them difficult to enhance. Such fluids can be highly viscous which gives them a thick, honey-like texture that severely inhibits the effectiveness of heat transfer. Other types of fluids are comparatively little studied, "complex" fluids that change how easily or otherwise they flow, depending on how much stress is applied to them. High viscosity and complex fluids are used in a huge variety of products including petrochemicals, plastics, polymers, paints/coatings, food products and fast-moving consumer goods. Currently insert geometries, established for use in mixing fluids inside tubes, are also used for enhancing heat exchanger performance but not having been optimised for this use, they carry a high penalty in terms of large pumping power needed relative to the limited heat transfer enhancement gained. CALGAVIN will use the now available, state-of-the-art technologies for measurement, in conjunction with the University of Birmingham, to further develop insert technology made specially for high viscous and complex flows. Each process has varying characteristics, requiring unique designs and for which clients require process guarantees. The resulting joint research, development and testing programme will lead to CALGAVIN expanding its range of unique products and technical solutions to satisfy its growing list of processors 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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Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
HEXR LTD	Development and commercialization of ultra-safe 3D printed motorbike helmets	£252,479	£176,735
Imperial College London		£106,324	£106,324

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
Motorcyclists are among the most vulnerable road users. Traumatic brain injury (TBI) is the most common injury that motorcyclists sustain in road traffic collisions, which can often be fatal and have life changing consequences. TBI is predominately caused by rotational motion and currently the certification standards only test for linear motion. If rotational motion could be reduced by 30%, nearly half of fatalities caused by TBI would be eliminated. Hence there is a significant opportunity to improve motorbike helmets. Our understanding of the biomechanics that cause TBI has grown significantly thanks to brain simulation and modelling. Also development of complex lattice structures using 3D printing is more affordable with a wider range of suitable energy absorbing materials. HEXR has developed the world's first custom fit bicycle helmet using 3D printing. Imperial College are the world leading experts in TBI and helmet testing. Through this 18-months industrial research project, HEXR Ltd and Imperial College London are collaborating to developing a motorbike helmet that provides the lowest chance of TBI, potentially saving thousands of lives and reducing the £15 bn economic cost of TBI to the UK economy.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MINT DIAGNOSTICS LTD	Hormonix: fully automated low-cost salivary hormone monitoring	£463,340	£324,338

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
Mint Diagnostics is redefining how data on hormone levels can be monitored and used to improve human performance. Combining our proprietary salivary testing and analysis technology with advanced data interpretation, we enable precise monitoring of performance within a variety of contexts, from elite sports to health and wellness. Our project is supported by a broad range of relevant stakeholders across industry and academia, who have already been engaged with Mint Diagnostics from the early stages of development. This project represents a fundamental step towards the successful commercialisation of the Hormonix concept. We will seek to further refine our technical approach, delivering a user-friendly and fully integrated testing system, while introducing our technology to pilot user groups within the elite sports sector. This will provide high-quality user feedback, which will enable us to ensure that user requirements are met.

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: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ENSPAN INNOVATIONS LTD	New Generation Supply Chain Financing Platform	£338,700	£152,415

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
Small and Medium-sized Enterprises (SMEs) make up the majority of the U.K. Supply Chain (\>98% in manufacturing) and 3/5ths of the U.K. workforce driving £2.2T of U.K. GDP. And yet, the very engine of U.K. economic output has extremely narrow access to capital and remains at the mercy of their larger customers when it comes to receiving payments for product/service delivery. With the advent of COVID-19, this is only getting worse. The impact of this is that companies remain small, struggle to take on and commit to larger projects that would see them grow, and forgo job creation altogether. Not to mention that due to COVID-19, many larger customers are elongating payment to a point at which smaller companies may no longer be able to sustain. Yet, in private markets, there are large pools of capital looking for yield in a virtually yield-less world. Presently, these pools of capital have no conduit to real SME economic need. Traditional finance, albeit important and functional, has not seen small and medium-sized loans as attractive due to the high cost of due-diligence versus loan compensation. The only alternative for SMEs is Invoice Factoring, which has its own challenges - one being the high cost of participation. With current technology, financing doesn't have to be so rigid, time-consuming, and expensive. We believe that we can take supply chain financing to the next level - technology will predict that an SME is going to receive an order for a product, work out when it will manufacture and deliver it and when its customer will pay, and let SME have the money upfront so SME can finance the work. Additionally, with technology and data, there is no reason why funding can't be optimized for the product itself. If a history of a product's quality and performance, (average manufacturing time, average delivery time, rate of returns/quality issues, etc.) is available to investors, investors can choose to finance different assets at different rates to be fairly compensated for the risk they are taking on. In its turn, SMEs always knows which assets can be funded and on what terms. We call this "Synchronized Supply Chain Financing" and believe it is the future of powering the nation's economic engine room into the future.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
AI OWL LIMITED	'My Nest Box' - A data-drive AI-powered online home selling portal with automated valuation.	£233,819	£103,947

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
My Nest Box is an artificial intelligence (AI) powered web portal which will provide (1) extensive and focused property market insight and (2) property adverts for UK-based home purchasers. The application will use big data technologies to provide granular information which has never previously been available to home buyers and many professionals in one place. The vision for our map-based, data-driven, online advertising space and game-changing market analysis tool, is to take the rhetoric out of property sales and empower the buyer with unbiased information only previously available to data and property professionals. Notably, our platform aspires to: (i) reduce a buyer's number of property viewings; (ii) minimise the number of failed home sales; (iii) simplify residential property advertising and (iv) reduce a buyer's overall search time. Our tool will discriminately price to allow for revenue streams from property professionals who require more data than the average home buyer.

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
GREEN RUNNING LIMITED	Verv Connect: High-definition fault-finding technology for the next generation of smart, sustainable appliances	£381,694	£267,186

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
Eco-design policy has traditionally focused on improving energy efficiency of household appliances, rated from A+++ (highest energy efficiency) to D (lowest energy efficiency). Taking tumble dryers as an example household appliance, models with lower energy ratings typically have cheaper upfront costs (sale price: c£150-£300) compared to top-rated models (sale price: c£350-£1,000). However, under standard usage conditions (defined as 160 drying-cycles/year), a C-rated tumble dryer may consume more than three times the energy of a top-rated model, meaning that over a 10-year lifespan, a C-rated model can end up costing hundreds of pounds more than an A+++-rated model, while also being responsible for three times more carbon dioxide emissions. With modern heat-pump technology delivering highly energy efficient tumble dryers, attention has recently switched to making appliances easier to repair and longer lasting. Under current practice, tumble dryers typically have manufacturer warranties of only 1-2 years. Customers can pay for extended warranties (e.g., for 5 years), but large household appliances invariably fail without warning, and when they do, replacement tends to be easier than repair. Indeed, UK's leading specialist warranty provider for household appliances replaced rather than repaired more than half a million broken appliances in 2017 alone (Domestic&General_2017). Appliance manufacturers are under increasing global pressure to shift to a repair-over-replace culture; 77% of European consumers would rather repair than replace their goods (European_Commission_2014). However, today, we do not have the required monitoring technology to enable fault diagnostics and prescriptive maintenance of household appliances. With Innovate UK support, Verv, working with a leading UK-based appliance manufacturer, will create a new device that sits between an individual household appliance and the wall socket, analysing changes in the power draw of the household appliance as an early indication of fault progression. This data will transform how we view our large household appliances, enabling accurate fault detection at an early stage (pre-catastrophic failure), when it is still economical to repair these appliances. By avoiding untimely/sudden appliance failures, our monitoring device will reduce appliance downtime (improving user convenience) and also significantly improve the safety of household appliances, which can be a significant fire risk. By enabling proper maintenance, customers will further benefit from reduced running costs (lower power consumption), while modern, smart household appliances will also potentially be suitable for software updates to improve energy efficiency without replacing the entire product. Thus, supporting the transition of household appliances towards a sustainable future.

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Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PREDICTABLE NETWORK SOLUTIONS LIMITED	Cloud Network Emulator	£99,668	£69,768
PAZZBY MOBILE LTD		£37,681	£26,377

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
Ever more aspects of modern society depend on software that consists of several pieces that communicate over broadband, such as web browsers/servers. As the capabilities of the software increase, moving into virtual/augmented reality, remote control of robots, remote medicine/surgery etc., and everyday activities become increasingly broadband-based, it becomes ever more important to be able to test that the inherent variability of broadband networks does not adversely impact the performance of the software. Such testing is currently difficult and expensive, particularly for smaller companies looking to deliver innovative applications. This project aims to deliver a facility for testing the impact of network variability on application performance that is cost-effective and easy to use. It will do this by building on earlier work (partly funded by Innovate UK) that produced a stand-alone network emulator, usable by specialists. This project will turn this into an accessible testing platform suitable for small to medium-sized software development companies by: 1. 'Virtualising' the platform so that it can be run in the 'cloud', making it accessible to companies who cannot afford the investment in a piece of test equipment and easy to integrate with cloud-based applications; 2. Developing an intuitive management model and user-interface for the platform.

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
SIRIUS CONSTELLATION LTD	Autonomous Maritime Data Analytics	£405,085	£283,560
University of Portsmouth		£93,691	£93,691

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
As an island nation, the sea offers the UK an important line of defence to protect it from unwanted visitors. However, the marine domain is a notoriously difficult and dangerous environment in which to operate which makes traditional patrolling surveillance methods expensive. As a result, the country's maritime monitoring capabilities are now quite limited at a time when there is increasing need to have situational awareness of UK territorial waters. SiriusInsight has developed a capability to use artificial intelligence to analyse remotely sourced data (both satellite and terrestrial) which avoids the need for human involvement in either the data collection or its processing. SiriusInsight will use its Innovate grant to develop further this capability, bringing together and enhancing current state-of-art approaches from other domains, and train its algorithms in pattern of life analysis so that it can be used for monitoring and alerting in a way which will greatly enhance coverage at minimal cost relative to the alternatives. This technology has a wide range of monitoring applications and potential users: e.g. sea safety (Coastguard), illegal migration and smuggling (Border Force) and fishery protection (DEFRA). Real-time situational awareness based on the SiriusInsight product can also be used to enhance collision avoidance for commercial shipping with particular application for vessels with restricted ability to manoeuvre (like survey vessels) and autonomous shipping. There are also applications for enhanced pattern of life analysis in planning for offshore developments like wind farms. Combining artificial intelligence with the marine domain brings together two areas where the UK has the opportunity to continue as a world leader. This Innovate grant will not only secure employment in the UK for leading AI engineers but also help SiriusInsight maintain the country's leading position in this field.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
CRISTAL HEALTH LTD	Akrivia Health: Instrumentalising mental healthcare data with AI (DOMI)	£499,822	£349,875

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

Summary

Akrivia Health (Akrivia) is pioneering the development of a world-leading digital health platform, utilising the Electronic Health Records (EHR) data-sets held within "CRIS" (Clinical Record Interactive Search); an established platform that has the potential to transform mental health diagnosis and treatment. Akrivia is aiming to support researchers, scientists and industry to develop new treatments, better understand disease and manage healthcare services, whilst protecting the data privacy of patients and the integrity of NHS data.

Akrivia's database is potentially the largest, deepest and most comprehensive dataset specifically for mental health worldwide. No other dataset includes narrative text completed by clinicians together with communications between healthcare providers alongside extensive structured data. Akrivia provides access to ~3 million de-identified patient records from 12 NHS Mental Health Trusts, ~1/3 of all secondary healthcare in NHS England and with plans for greater coverage and extension into devolved nations.

The data governance model provides a safe and secure environment to engage both the public and private sectors. The de-identified patient-level data includes all clinical/patient interactions and interventions in both structured and unstructured data formats and with linkage to a wide range of other de-identified datasets, including UKBioBank.

Vision

Despite the spiralling unmet need, increasing costs to society and families, mental healthcare and research has historically been under-funded. The use of observational healthcare data has been limited due to this data being fragmented, unstructured and limited in size/scope. Clinical studies/trials are notoriously problematic in psychiatry as participants are hard to identify and keep engaged.

In other therapeutic areas, real-world observational data is increasingly important to drug development and accelerating the development of effective therapies in cancer, cardiovascular medicine, and more recently with COVID-19\.

Akrivia fundamentally believes that this should also be true in mental health. Akrivia intends to provide this missing data, giving all stakeholders the ability to access and derive information from mental health records, whilst having data security and privacy foremost.

Akrivia's vision is that researchers armed with the right information can rapidly accelerate the development of new treatments. Akrivia itself intends to become the largest and most comprehensive mental health data bank globally. In this project, Akrivia is seeking to translate one of the world's most significant mental health datasets with cutting-edge AI to derive deep clinically relevant information from unstructured data. This will allow Akrivia to provide insights for clinical trial design, drug efficacy improvement, post-market surveillance and treatment pathway optimisation.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SPARKBOX LIMITED	Merchandising Insights Solution	£107,354	£48,309

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
Project involves the creation of a merchandising insights tool that integrates retailer data, market data, and ML-based prediction and recommendation to provide retailers with timely product insights and recommendations around purchasing, pricing, marketing and allocations. Areas of innovation focused on driving insights from large retail data sets using ML, AI, business logic and business goals.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ENGINSOFT UK LIMITED	Developing a Leak Prediction System (LeaPS) using Data Mining, Machine Learning & Neural Networks	£231,463	£162,024
MWH TREATMENT LIMITED		£78,193	£39,096

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
Developing a Leak Prediction System (LeaPS) using Data Mining, Machine Learning & Neural Networks. This project has a clear vision: revolutionise the way in which WaCos (Water Companies) reduce leakage. The Water sector is being challenged (by Ofwat, the industry regulator) to understand how Artificial Intelligence (AI) can be utilised in this major worldwide societal challenge. Leakage has wide ranging impacts; customers facing higher bills, climate change, WaCos penalised for not complying to strict Ofwat targets, businesses and the general public suffering due to water outages. Reducing wasted water is of utmost importance not only to UK but worldwide. We must treat our natural resources as finite and invest to save. An innovative and cost-effective method is proposed, combining AI technology with historic data to develop a Leak Prediction System: LeaPS. The collaboration between EnginSoft UK (ESUK) and MWH Treatment (MWHT) and will lead to a promising and sophisticated technology demonstrator ready for the next stage of commercialisation. The outcomes will be presented (via a cloud-based platform) via an analytics dashboard and a leak predictor heat map. LeaPS will prove to be an asset to the Water sector worldwide as it will enable WaCos to meet regulatory targets and avoid penalties whilst reducing wastage. In short, LeaPS provides the route to a more efficient, cost-effective and environmentally friendly Water Industry.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
PLUMIS LIMITED	Exploring the integration of fire suppression, life safety and wellbeing technologies for UK social housing	£499,324	£349,527

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
Plumis wants to spearhead the innovation of the next generation of fire safety systems that provide more value than just operating in an emergency, like outdated fire sprinklers. Using usually dormant temperature sensors to capture patterns of potentially dangerous behaviour, such as an elderly resident frequently forgetting to turn off the hob after cooking, alerting the social landlords of vulnerable individuals who might need to be referred to social care and allowing them to intervene before a fire occurs. This also means we can provide smart thermostats' functionality, translating into carbon footprint reduction, and make building management services available to landlords, without the need for an additional capital investment. This is aligned to the environmental agenda and the government's strategy on housing. Our objective is the extended deployment of technology we already master for these objectives to be met in a smarter and more cost effective way.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SPICA TECHNOLOGIES LTD	Project WEX: Delivering Innovative Digital Workplace Experiences	£474,933	£213,720

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

88% of business leaders rate the employee's experience of their workplace as either important or very important, but only 22% report that they are using Digital tools to create differentiated employee experiences. They quote:

"Employees look at everything that happens at work as an integrated experience that impacts life in and out of the workplace. They expect a better-designed experience where every element of their employee experience can be accessible and easy to use on their mobile device." (Deloitte Insights)

There is an increasing focus on the part of people who operate and maintain our workplaces to use the Digital Workplace Experience to improve the quality of our working lives whilst we are at work. As people that work in these workplaces, we are increasingly looking for tools that help us to adopt agile working principles and work more efficiently. For many of us though, this sums up our experience:

"It's a Brave New World --- or rather a Smart New World --- at least in the world where employees live outside the workplace. Then they arrive at the office and it's like taking a step back in time, where even the simplest of tasks can seem effortful and frustrating." (Gartner)

We believe there is a need for solutions to this problem that are available to companies of all shapes and sizes, not just the preserve of the largest or wealthiest organisations. This project will deliver a technical framework and a large field demonstration of an app that will help businesses:

* Make the workplace a source of competitive advantage, especially in the war for talent, by using technologies like indoor positioning, IOT sensing, gamification, and machine learning to deliver an exceptional digital workplace experience
* Improving productivity and removing workplace "pains" (e.g. finding/booking available meeting spaces, finding assets and resources, reporting workplace issues, getting workplace support)
* Dealing with the increasing complexity of work by helping people work in communities of like-minded people, finding working environments (hot desks, focus booths) that suit the task in hand
* Benefit the wellbeing of workplace users by monitoring and influencing wellbeing factors (e.g. environmental conditions) and encouraging "well" behaviours
* Helping people contribute to the sustainability goals of the built environment in which the business operates
* Gaining better insights into how people use the workplace and how to optimise it.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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	Data driven artificial intelligence engine for use in drug trials	£396,828	£277,780

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.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
HILIGHT RESEARCH LTD	BM TIA: Ten gigabit Burst Mode Optical Line Transceiver Integrated Circuit for PON applications	£494,511	£346,158

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 April this year, Openreach saw data transmissions on its network reach 10 PetaBytes per hour, and average data consumed double since the end of January. Existing communications infrastructure is struggling to keep pace with this demand for data. For example, the current Covid-19 pandemic is seeing content providers across the world throttle data rates to maintain services. The data explosion highlighted above, and the UK government's universal broadband service commitment, will only exacerbate this situation. Major infrastructure upgrades, such as implementing 10G Passive Optical Networks (PON), are disproportionately expensive with current technology, and providers are thus desperate to maximise bandwidth available on current infrastructure. A key bottleneck is the conversion of electrical signals to optical laser pulses (via an Optical Line Transceiver - OLT), and back again (via multiple Optical Network Units -- ONUs). Current transceivers use expensive and power-hungry Silicon-Germanium (SiGe) architectures, making moving to 10GPON uneconomic. At HiLight, we have successfully demonstrated that lower-cost and more energy-efficient CMOS technology can be used to create ONUs. However, creating a CMOS OLT is significantly more complex as it must be able to rapidly switch communications between up to 128 ONUs. This project will overcome key technical challenges in CMOS sensitivity and settling time to enable a next-generation OLT that is 22% more power efficient, provides 100Mbps more transmission bandwidth and is significantly lower cost than SiGe alternatives. HiLight is a global leader in using CMOS technologies in optical networks, making us perfectly placed to deliver this challenging project. SQW estimate that the economic impact of faster broadband speeds (i.e. throughput) will add £17 billion to the UK's annual Gross Value Added (GVA) by 2024\. This project will allow us to capture a significant market, currently dominated by US suppliers. Within 5 years of completing this project (2026) we expect to generate cumulative profits of $31.2m (£23.8m), and create 22 highly skilled world-class jobs. We expect to generate a return on investment of 17:1\. Compared to current technology, we will save 17GWh and transmit 2.1 petabits per second more information each year, 5 years post-project.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
Sano Genetics Limited	Development of patient-centric digital biobank for world-leading chronic disease research: using AI to uniquely map genomic, clinical and longitudinal health data	£450,209	£315,146
PATIENTS KNOW BEST LIMITED		£23,819	£16,673

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 COVID-19 crisis has thrown into sharp focus the global inability to predict personalised disease progression i.e. why do some people suffer more severely than others or respond differently to treatments. The reason is complex and due to a combination of genetic, demographic, and phenotypic factors. For nearly every common and rare disease, there is no central repository nor tools/mechanisms for researchers to quickly access/harmonise/interrogate this data. This drastically reduces our ability to accurately identify those most at risk and to develop new medicines/treatments.

To address this and tap into a fast-growing £50bn+ market(alliedmarketresearch:2018), we intend to build a patient-centric, chronic disease digital biobank of genomic, clinical, and longitudinal health data.

As the market for personal genetic sequencing- both public and private (£19.2bn by 2025;19% CAGR-[Allied Market Research][0]:2017)- continues to grow, as does the volume of personal health data stored, which in turn opens up new opportunities for drug discovery, quicker access to target patient groups and reducing patient recruitment costs in medical research.

Artificial Intelligence and Machine Learning in particular have the potential to dramatically speed up the discovery of novel biomarkers for patient stratification and novel drug targets using multiple data-types including genomic, clinical, and patient-generated longitudinal data as input.

Medicines supported by genomics are 2-3x more likely to succeed, but accessing the right data is a major challenge. Using AI and Machine Learning approaches to statistical genetics, combined with big-data architectures, Sano Genetics, in partnership with Patients Know Best, C4X Discovery and BenevolentAI will develop the patient-centric digital biobank platform of genomic, clinical, and longitudinal health data (TRL6) that will allow users and to quickly identify phenotype-genotype patterns, in order to discover novel biomarkers to stratify patients and to discover novel drug targets and compounds.

To help build the platform, we have chosen to initially focus on Ulcerative Colitis(a form of [Inflammatory Bowel Disease][1])- a market worth £17.4bn by 2026, that affects over 8m globally and that has significant available data- before looking to scale the platform to address the same data-access/analysis challenge in other chronic conditions and emerging threats such as COVID-19, where our ability to predict the diseases impact and severity in patients has created significant challenges in planning, resources and policy.

[0]: https://www.alliedmarketresearch.com/dna-sequencing-market
[1]: https://www.crohnscolitisfoundation.org/sites/default/files/2019-02/Updated%20IBD%20Factbook.pdf

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
POLYMATHS R&D LIMITED	Solving Biological Complexity to Engineer Medicines	£491,537	£344,076

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

Drug discovery R&D is in a productivity crisis. It takes 10-15 years to bring a medicine to market, costing $2.6bn, yet just 5% make it to market. Less than 30% of drugs entering clinical trials make it to phase 3; over 40% of drugs fail phase 3, by then $1.4bn has already been invested. Reasons for late-stage failure are attributed to 50% of drugs lacking efficacy and 30% lacking safety. Attrition rates vary according to therapeutic area. Oncology medicines experience a 97% failure rate.

We don't fully understand why the majority of drugs fail or succeed. We need to understand how medicines are working. If we understand the therapeutic mechanisms more deeply and holistically, then we'll be in a better position to engineer medicines that treat illnesses effectively.

The crisis stems from the failure to understand mathematically, biological complexity. Biological theories haven't reached the level of generality and power currently evidenced in physics or chemistry. We need to develop mathematical theories of disease biology and therapeutics; however, there are significant technical challenges to developing such insights because modelling biological systems is exceptionally hard.

The behaviour of biological systems are characterised by nonlinear dynamical processes, functioning at multiple levels of organisation - cells, tissues, organs - in space and time; we don't yet have the mathematical or computational tools to describe this level of complexity into overarching models.

We're developing a technology to help us do just that.

In this project, we're developing a computational system augmented by AI to help us understand how medicines work at different levels and scales in the human body. Such a holistic understanding will give us a fuller picture of how to both understand disease biology and how best to treat disease.

Taking multiple myeloma as our case study, we aim to build quantitative systems models of the disease biology and how medicines impact the disease. Based on these mechanistic models, we use AI to make predictions about multiple myeloma therapies.

We aim to generalise the methods from this project and apply them to all medicines - to tackle diseases, which are having the greatest impact on human health.

The project seeks to disrupt how we model and understand biological complexity, by building a novel computational system augmented by AI, thereby enabling us to create a new paradigm in drug discovery and development - to engineer biology and program medicines that transform human health.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
XIGXAG LIMITED	UK-led digital reading revolution	£144,909	£65,209

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
At xigxag, we want everyone to enjoy more books. We are creating a radical new version of a digital book, which indexes a traditional audiobook to the corresponding e-book, offering users a market-leading integrated listening/reading experience. We are disrupting the traditional model of siloed content consumption, where users must choose to read or listen. We offer users the ability to listen when they are 'on the go' and read when they are at home -- or to do both simultaneously. This enables far more efficient reading (driving book consumption) and improves comprehension and retention. Indexing human narration to the associated text dramatically improves the experience of listening: users can see illustrations, figures and tables, visualise dialogue and sentence structure, lookup words and save quotes. We have global ambitions, but support for British publishing, British content and British-narrated content are core to our positioning and differentiation. Users can download a free working prototype of the app at https://xigxag.co.uk. The focus of this project is to develop the unified backend services that will enable us to commercialise the opportunity. These include the following objectives: * Innovate novel DRM techniques to protect the rights of authors and publishers while enabling more flexible user consumption * Innovate our first generation audio-text alignment engine to operate at scale * Develop a scalable content processing system to securely and efficiently ingest, convert, process and deliver thousands of titles per week * Develop a multimedia advertising platform that integrates third party promotional content * Build out a scalable reporting infrastructure that satisfies content supplier standards and enables cost effective customer acquisition * Develop a robust user management model to enable user management, subscription, payments and invoicing.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SOTER ANALYTICS LTD	A Musculoskeletal Reliability Model For Monitoring Core Body Movements Leading To Risk Evaluation In The Workplace	£351,829	£246,280

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
Injuries and illness in the workplace are commonplace. 41% of such incidents can be attributed to musculoskeletal injury (498,000 in the UK alone last year), and results in 6.9m workdays being lost in the UK every year across sectors including logistics, construction, aviation and agriculture. This is a cost that has to be shouldered by the employer and, in the EU and US alone, costs $50bn and €80bn respectively. The primary form of risk management control is conducted through various types of training and assessment intended to reduce work related health incidents by identifying potential risks: * The most common technique is manual handling training in a classroom setting, unfortunately that is often quickly forgotten. * One-to-one coaching is much more effective but is very expensive. * Task redesign/profiling is costly, fiddley and not well received by the workforce. * Kinematic trackers can also be used to log movements, but are often considered obtrusive and become irritating after a short period of time The founder of Soter Analytics has experience in the mining industry where he noted the dedicated care and attention that was given to specialist engineering equipment; regular maintenance and monitoring ensured optimal performance, output and longevity. He also observed that such care was not given to employees. Therefore, an innovative solution has been proposed to apply an holistic model based on the principle of '_Workforce Musculoskeletal Reliability'_. The system is geared towards a proactive not reactive behavioural change in workplace health, wellbeing and productivity with the SoterSpine kinematic tracker at the heart of human movement analysis. Currently, there are no solutions able to continuously monitor a workforce with the intention of influencing their behaviour and predicting/reducing the likelihood of injury. This project intends to overcome these barriers as well as addressing any negative perceptions and rejections from the workforce. A series of work packages have been developed in line with the following goals: **1\.**Research undefined movements **2\.**Redesign and develop hardware for continuous operation, ease of use and enhanced experience. **3\.**Research and address user perceptions of the system **4\.**Predictively diagnose injury **5\.**Improve productivity/output As a result of the above, businesses will see improvements in their productivity and output with a workforce that has enhanced physical and mental health. Staff retention levels will increase and the aforementioned lost days and associated business costs will fall -- our partners in case studies have seen a 55% drop.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
FAR-UK LTD	Modular multi-material crash-box for tailored impact energy absorption during low-speed collision (PROTECT)	£505,565	£353,896
Brunel University London		£213,975	£213,975
COMPOSITES EVOLUTION LIMITED		£247,593	£173,315
RIVERSIMPLE MOVEMENT LIMITED		£149,577	£104,704
TWI LIMITED		£170,506	£170,506

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
Low-speed (20 mph) accidents saw year-on-year increase of 31% (2016-2017, Department of Transport); injury increase was broken down as fatal (+79%), serious (+47%), and slight (+42%). A crash box is a thin-walled structure attached between the vehicle bumper structure and the side rail to improve crash performance in low-speed accidents. The determination of the crash box geometry is important to absorb the impact energy, since the installation space of the crash box is not very large. Conventional crash boxes (i.e. those manufactured from steel or aluminium) exhibit high-peak force and have no way of controlling the rate of deceleration following a crash. Composite alternatives are limited in use due to unpredictable failure. PROTECT is an innovative new crash-box with better impact energy-absorption capabilities; enabling minimal damage to the vehicle itself, its occupants, and other road users. In the event of a low-speed collision, PROTECT will help reduce damage to the vehicle, its occupants and the wider public. This will result in safer roads and vehicles, along with minimised repair costs. As a result of this innovative solution, the consortium partners expect to create 227 jobs and generate cumulative revenues of £51.6 million by 2029\.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
Fintuity	The Fintuity Virtual Adviser – Revolutionising Digital Consumer Access to Financial Advice	£291,788	£204,252
City University of London		£106,594	£106,594

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
As the economy adapts to COVID-19 realities, the outlook remains difficult with some 10 million-plus furloughed workers, struggling SME's and with the Manufacturing PMI seeing the most severe contraction ever - the economic outlook is bleak; pension-holders/individuals/investors are looking for ways to safeguard their assets. The IFA-sector is critically important to the financial wellbeing of the UK as it imparts essential support to help protect individual & family finances. According to the FCA, 6M people use IFA services each year, however the industry remains technologically poor with increased operational costs, low profit-margins and higher service fees. As the COVID-19 crisis rocks the global and UK economies, the need to gain cost-efficient, regulated and sound financial advice is now more important than ever. With many seeking financial advice from the UK's Independent Financial Adviser (IFA) community, many are out off by the seemingly high fees associated with gaining advice on an individual or family's financial portfolio -- traditional and often preferring a face to face engagement, the IFA sector provides an essential but technologically poor service. What is needed is a consumer platform that supports consumer access to financial advice across a range of sectors including mortgages, insurance, savings, pensions and tax planning to name a few - the Fintuity Virtual Adviser will be a free-of-charge service/tool that will provide a comprehensive of tailored and compliant advice to the consumer. With some 12 million people seeking advice in the UK the platform has the capacity to significantly disrupt the market by making advice and support open to all regardless of savings -- now more than ever this technology is needed. Driven by proprietary AI the Virtual Adviser will connect consumers regardless of location, age and income bracket with the advice that they need to make the right decisions during this difficult time.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
miiCare ltd	AI-based Assistive & Passive Technology for non-Invasive Elderly care (ADAPTIVE)	£349,916	£244,941
Bristol City Council		£0	£0
East Kent Hospitals University NHS Foundation Trust		£0	£0
University of Kent		£149,665	£149,665

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
miiCARE Ltd aims to develop a non-wearable assisted living healthcare solution through the ADAPTIVE project, incorporating novel AI-based machine learning capability to learn about the acoustic characteristics of elderly subjects' footsteps in order to predict the likelihood of falls, the changes in postures relating to other health conditions or the progression of cognitive issues such as Dementia. The solution is specifically developed to address an unmet need among People Living With Dementia (PLWD). Existing technologies for ambient assisted living are not designed specifically for dementia and require users with dementia to adapt to the technology by wearing devices that indicate falls (after they have happened). ADAPTIVE extends miiCARE's innovative IoT solution (miiCUBE) and uses emerging techniques in acoustic events detection to predict fall risks among PLWD, enabling preventative measures to be taken early and prevent escalation. This is the first time such technology is being used to improve the quality of life of PLWD within their own homes. miiCUBE's feasibility has been proven through trials with elderly households (not with dementia) across Kent, demonstrating several successful use cases. The ADAPTIVE project will give miiCUBE audio monitoring capabilities by developing novel AI to specifically assess fall risk and monitor other distressful behaviours in PLWD that would help improve the delivery of dementia care as a whole. Initial trials will be conducted on a mix of 50 elderly people with and without dementia in the Bristol communities. Following initial trials and iterations, ADAPTIVE will be deployed in the Dover Harmonia Village, a controlled environment with 30 residents with dementia, which aims to make use of telecare solutions for residents' benefit. East Kent Hospital NHS Trust will manage the trial in a multi person environment at the Harmonia Village and provide clinical input, yielding further data to train our AI algorithms. The qualitative and quantitative data analysis will be undertaken by the University of Kent to determine clinical and functional outcomes of the project. ADAPTIVE will enable people with dementia to remain in the comfortable, safe environment of their own homes, whilst giving peace of mind to carers and families and improving safety in care environments by reducing unnecessary alarm calls and supporting a new care model respectively. It aims to reduce the £26.3bn cost of Dementia to the UK economy (£8.8bn of this is combined state social and health care costs), as well as cost of dementia-related falls to the NHS.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
CELLULAR SYSTEMS (GRANTHAM) LIMITED	FungiMAX	£47,237	£33,066
AGRIFOOD X LIMITED		£130,220	£91,154

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: Materials derived from chitin (e.g. chitosans, chitooligosaccharides (COSs) and glucosamine) are of growing importance in biomedicine, cosmetics, healthcare, packaging and agriculture. Discussions with IVC Brunel, (the leading white-label supplier of supplements to UK supermarkets) and IVC Nutrition Corporation revealed that the:

* Supplements industry is under increasing consumer pressure to provide sustainably produced, non-animal, locally sourced products.

* Most chitin-derived materials are imported from Asia, with concerns about traceability, purity, sustainability and the environmental impact of their production methods.

STATE-OF-THE-ART: Most chitin-derived products are manufactured from crustacean shells using large quantities of toxic chemicals, generating environmentally damaging wastes. Products containing these materials must also be allergen labelled. Some chitosan is now produced commercially from fungi such as _Aspergillus niger_, whilst glucosamine can also be produced by fermentation of corn. Frequently, the purity of products is unreliable; our testing showed significantly lower levels of glucosamine than stated. Laboratory studies have demonstrated that enzymes can potentially replace chemical processing of chitin, providing the desired product specificity and quality, whilst minimising environmental impact**\[1,2\]**.

THE TECHNOLOGICAL CHALLENGE is to translate laboratory-scale batch production methods to industrial-scale continuous manufacturing, with competitive unit costs. Waste from edible mushroom production (e.g. button mushroom, _Agaricus bisporus_) is a cheap, abundant chitin source (UK; \>15,000 tonnes waste annually). Exploitation will provide local, high-value, high purity, allergen-free chitin-derived products.

The performance of candidate enzymes immobilised on solid supports will be evaluated and optimised, an approach suitable for at-scale bioreactor processing and enabling efficient recovery and re-use to control costs. When combined with tangential-flow membrane micro-filtration and nano-filtration (technologies used for recovery of high-value chemicals from other agri-food by-products**\[3\]**), continuous separation of lower molecular weight reaction products (chitosans/COSs/glucosamine) will be achieved, increasing process efficiency and enabling 'one-pot' non-stop production. **This technology combination will be disruptive, enabling cost-effective production at-scale which will be patentable to enable licensing.**

THE MARKET OPPORTUNITY for glucosamine and chitosan are estimated to be $1.2Billion and $6.8Billion, respectively**\[4,5,6\]**. IVC Brunel use over 200 tonnes of glucosamine annually costing them $6million/year; satisfying their requirements alone with a competitive animal-free, allergen-free glucosamine would provide the consortium with UK revenue \>$15 million over 5 years. A 5% share of the European glucosamine and chitosan markets through IVC Nutrition Corporation would generate revenue \>$282.M over 5 years. Oligosaccharide market data (galactooligosaccharides, $860M) suggests revenues from COSs \>$5M over 5 years**\[7\]**.

1Ly_et.al(2017)_DOI:10.1039/c6gc02910h

2Kaczmarek_et.al(2019)_doi:10.3389/fbioe.2019.00243

3BBI-H2020_project_https://www.activatec-bi.com/projects

4Technavio(2019)_ https://www.technavio.com/report/glucosamine-market-industry-analysis

5GrandView Research(2019)_https://www.grandviewresearch.com/press-release/global-glucosamine-market

6GrandView Research (2019)_https://www.grandviewresearch.com/industry-analysis/global-chitosan-market

7Grandview Research(2019)_https://www.grandviewresearch.com/industry-analysis/galacto-oligosaccharides-gos-market

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
DOUBLE TAPP LTD	DoubleTapp: Crowdsourcing the Long Tail of Nano-influencers	£170,147	£119,103
University of Sheffield		£49,047	£49,047

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 will develop an innovative product for social media marketing based on DoubleTapp's novel 'crowdsourcing nano-influencers' (crowd nano-influencing) model that extends the already successful 'nano-influencer marketing'. Powered by cutting-edge big data technology and mobile computing, the product will, for the first time: empower the 'long-tail' of consumers - those with little influencing power - in their purchase decision-making; and enable affordable nano-influencer marketing for the 'long-tail' of businesses - SMEs often operating in local communities with limited or no access to this powerful marketing channel. Influencer marketing involves the use of 'influencers' that have established credibility in certain fields to promote products via their social media. Traditionally, influencers are often celebrities. Nano-influencers are people with a much smaller social sphere but are willing to advertise products on social media. They can generate nearly seven times higher engagement level than traditional influencers \[1\]. However, they are the 'long-tail' that is difficult to identify \[2\], particularly for SMEs operating in 'micro'-communities with local customers, or with limited resources to manage influencer marketing themselves. Also, existing products are only available to large influencers with a recognisable follower-base, or to large businesses with a large customer base. Invented by DoubleTapp.co.uk, 'crowd nano-influencing' refers to crowdsourcing influencers of any size for any business. After securing its first investment, in May 2019, DoubleTapp piloted its first (minimum viable product) mobile app that brings businesses and influencers of any size to a single platform. Businesses create adverts that describe the type of Instagram interactions they reward (e.g., sharing a photo of dining in the cafe), and reward customers who engage in such interactions through the app. During the pilot in Sheffield alone, it has worked with 40 business venues, and enabled an estimated 1,000,000 reach (an industry standard for influencer marketing pricing) - 4 times more effective than traditional influencers. With the large amount of user and interaction data collected, it is now a crucial time to develop: 1) data analytics capabilities to discover insights from such data, and 2) a new product powered by such insights to enable customer personalisation at a wider geographical scope. This is essential for DoubleTapp to improve the effectiveness of its model to grow its revenue, to scale its product to, and beyond the national level, and securing the market leader position. \[1\] Crang, W. (2019). Why You Should Focus on Long-Tail Influencers for Your Performance Program. talkinginfluence.com

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
XERION HEALTHCARE LIMITED	Intratumoral injection of nanoparticles for cancer treatment - translation to clinical practice	£83,995	£58,796
ACTIVE NEEDLE TECHNOLOGY LTD		£99,268	£69,488
MEDICINES DISCOVERY CATAPULT LIMITED		£74,620	£74,620

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
Although great progress has been made in the treatment of some common cancers there remain many indications where there has been little improvement in care over decades. The most difficult tumours tend to be inoperable with treatment options limited to chemotherapy and radiotherapy. Chemotherapy is administered systemically and a balance between toxicity and tumour dose is hard to achieve. Radiotherapy is more effective as it can be targeted to the tumour. However, it relies on the presence of oxygen to generate cell killing free radicals, meaning that aggressive oxygen deficient (hypoxic) tumours cannot be treated without unacceptable off-target toxicity. Recently, nanoparticles have begun use as radiosensitisers to enhance the efficacy of radiotherapy treatment. Direct intratumoural injection is currently under active investigation as a method of reducing systemic toxicity but presents a threefold challenge for clinicians. Firstly, direct real-time imaging of the needle tip into the tumour is difficult, particularly for deep tumours in, for example, the pancreas. Secondly, it is not known how far from the needle tip the active ingredient disperses into the tumour. Thirdly, conventional injection provides little control of the distribution of the nanoparticles within the tumour. Consequently, it is very difficult for the clinician to devise an effective clinical intervention strategy for intratumoural injection. This project brings together collaborators with broad and deep skills in the area of nanoparticle development, fluid delivery and medical imaging. This programme will develop the basis of a clinical intervention strategy for cancer treatment of human patients using intratumoural injection.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
FLOX LIMITED	FLOX-box - On-Prem AI-Driven Poultry Welfare, Performance & Ammonia Control	£353,058	£247,141
BENTLEY GROWERS LIMITED		£13,244	£9,271
COLE AGRI-TRADING LTD		£24,517	£17,162
University of Bristol		£26,162	£26,162
University of Chester		£81,726	£65,381

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 Covid-19 pandemic has greatly exacerbated an endemic labour shortage in the UK broiler industry while underscoring the very real biosecurity risk of human/livestock interaction. In leaving Europe, the UK is opening itself up to cheaper, low-welfare chicken from the USA. This has put a lot of pressure on UK broiler farmers who either need to race to the 'welfare bottom', or find a solution to compete while maintaining and improving their welfare standards. Increased demand for poultry has also meant farmers are building nearer residential locations and vulnerable SSSI ecosystems. This is particularly the case in the two largest poultry producing regions -- Hereford and Shropshire. The recent advances in, and falling costs of sensor systems, automation, data science and image processing algorithms enables a radical rethink of conventional farming. This project aims to make high-welfare chicken production more cost effective and help the UK chicken industry continue to grow -- sustainably.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
STOREGENE LIMITED	World's first Cardiovascular specific whole genome analysis service, Resource for Life	£77,031	£53,922
NOVOGENE (UK) COMPANY LIMITED		£0	£0

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 World Health Organisation, 31% of all deaths are due to CardioVascular Disease (CVD), up to 80% of which can be avoided by supplying people at risk with vital preventative information to change lifestyle (KTN Horizon Toolkit) Storegene currently provides a preventative genetics service. This assesses DNA across 19 Single Nucleotide Polymorphisms (SNPs) to provide personalised reports on CVD risk. Our vision is to revolutionise this cardiovascular genetics test process using whole genome sequencing and machine learning techniques. This will sequence 3.2 billion base pairs of data, storing an individual's whole genome, and deploying machine learning to digitally provide multiple reports required by physicians. These will automatically be updated every day and available instantly in an intuitively accessible secure online portal. This will combine four specific reports using a single genome test to cover The current process requires four different patient tests each at a cost of £250 taking a combined circa 6-10 weeks turnaround. This is inconvenient for the clinician, costly for the hospital and uncomfortable for the patient. It will be transformed using a lower cost all in one test that is significantly more reliable. Key objectives are * To research, develop and evaluate in a proof of concept the random forest machine learning process applied to whole genomes to assess CVD risk. * To evaluate the reports interface with an expert Cardiologist * To assess efficiency of delivery of the developed Resource for Life platform Main areas of focus are to lead industrial research in * Accuracy -- applying machine learning algorithms to improve polygenic risk score accuracy * Infrastructure -- database and processes * Interfaces -- emphasis on GDPR informed consent Innovation arises through * More accuracy - random forest machine learning to generate model * Business model - the Resource for LIfe report centre will automatically provide reports to physicians and patients * Complete dataset, for life - whole genome sequencing for all 3.2 Billion base pairs is all information now and forever, in one test.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
COMPOSITES UK LIMITED	PRoGrESS (Products from Recycled Glass fibre at Economic and Sustainable Scale)	£170,639	£119,447
Cubis Systems		£80,613	£40,306
GRP SOLUTIONS LTD		£30,866	£21,606
Stormking		£1,063,328	£531,664
SUEZ RECYCLING AND RECOVERY UK LTD		£55,548	£27,774
University of Nottingham		£18,001	£18,001
University of Strathclyde		£580,868	£580,868

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

There is an urgent need for high-value recycling routes for glass reinforced polymer composites (GRP). At present almost all of around 80 kt/yr \[1\] of thermoset GRP scrap generated in UK and around 530 kt/yr \[2\] in Europe goes to landfill or energy from waste. The volume of GRP scrap will increase substantially, with end-of-life wind turbine blades likely to reach over 20 kt/yr \[3\] in UK by mid 2030s. Recyclability and recycled content are increasingly important in construction and automotive, and limited recycling options are already damaging the GRP industry, though in many cases increased durability and lower weight would make GRP a far more sustainable solution in the long term.

Processes for recycling GRP by cement co-processing and grinding are down-cycling and neither is available at scale in UK. A higher value route, retaining the embodied energy in the fibres, is essential as we move to a more circular economy.

PRoGrESS will scale up and commercialise a unique, patented process developed at lab scale by University of Strathclyde (UoS) for thermal recovery and post-treatment of glass fibres from GRP scrap to achieve near-virgin quality short glass fibres. The project will scale up fluidised bed recovery as a continuous process, including practical add-ons such as emissions treatment, heat recovery, waste handling, processing of recycled glass fibres (rGF). It will validate the process with steady-state continuous operation, trialling wastes with varying constituents from different sources.

PRoGrESS will develop intermediate rGF products with lower energy input (est. 6 MJ/kg rather than 23 MJ/kg) such as random and aligned mats, rGF/thermoplastic commingled mats, bulk moulding compound and thermoplastic injection moulding compounds. The focus will be on usability, creating products as close as possible to virgin, to avoid disruption to existing processes. Demonstrators will be produced in applications across several sectors.

Theoretical calculations indicate that the process could be economical above around 6,000 t/yr. PRoGrESS will seek to drive down cost at every stage, and to provide data and demonstrators to give confidence for commercial scale-up.

PRoGrESS is led by Composites UK, with Stormking as commercialisation lead, SUEZ for waste management operations, GRP Solutions as material distributor, Cubis Systems to develop bulk moulding compounds, University of Strathclyde (Advanced Composites Group and Lightweight Manufacturing Centre) as primary academic partner, and expert input from University of Nottingham and short-fibre material expert Eco-Composites.

Data extrapolated from \[1\] Composites UK; \[2\] EuCIA; \[3\] Zero Waste Scotland.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
Mole Solutions Ltd	Guidelines on Standards and Procedures to enable Underground Freight Transport systems.	£228,691	£160,084

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 seven month collaborative Project seeks to identify guidelines for the Standards and Procedures required to design, build, operate and qualify an Underground Freight Transportation (UFT) system.

Whilst UFT systems are being actively and increasingly considered on a global basis, associated specific SP's have yet to be identified, compiled or published. The key and disruptive innovation of this Project is that it identifies, for the first time SPs for the novel UFT system that will define the freight transport infrastructure of the future.

UFT systems are a 21st century, smarter method of transporting goods than trucks. They address and align with the government's 'Grand Challenges' of 'Future Mobility' and of 'Clean Growth' and its' Zero Carbon 2050 target.

UFT goods move in autonomous, electrically powered capsules travelling in an enclosed conduit, normally underground. They offer major cost, socio-environmental and sustainability benefits compared to other freight movement modes and would be beneficial during pandemics such as COVID-19 by providing an unmanned delivery service. Design principles are scalable and so can transport tote bins, palletised goods, shipping containers and bulk products.

Project lead Mole Solutions Limited (MSL) has undertaken UFT study projects in the UK, China, Europe and the USA and is recognised as a UFT global leader. They provide the detailed inputs on UFT requirements.

Project Collaborator ARUP is a tier 1 Civil Engineering company. They provide details of the feasibility of the tunnelling engineering and how challenges such as crossing key infrastructures (highway, rail and utilities) can be overcome.

Consultation with appropriate government departments and institutes will form a major part of the project. A steering committee of leading academic and industry experts will advise.

UFT concept is of global interest -- a 2018 international conference in Beijing included papers from China, Holland, Switzerland, USA and the UK. It was agreed a set of international standards are needed. At a presentation to DfT's Scientific Advisory Council in 2019 it was also proposed and agreed that a set of standards for UFT was urgently need.

This project's deliverable is a formal report and an SP portfolio that will provide the basis of national, and potentially, international standards. It will provide a key role for the UK in the development of this globally important disruptive innovation, and enable the enormous world-wide market for UFT to materialise.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
YUVOH LTD	Project Tomlinson: Yuvoh Analytics Platform	£397,889	£278,522
City University of London		£101,464	£101,464

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
Incorporated in 2018, UK-based SME Yuvoh provides sophisticated data-driven property and asset valuation technology. The Yuvoh Analytics (YA) team has a proven track record of success in managing mortgage and credit assets, property valuation, and developing property and asset data points. YA's technology will develop a step-change innovation to transform the real-estate and mortgage industry, bringing highly-sought innovation and business intelligence needs to a currently underserved market critically lacking technological innovation. This project's unique consortium also includes internationally renowned academic and research institution City, University of London. Collectively, the project partners will expand on YA's work-to-date incorporating novel Artificial Intelligence and Machine Learning capabilities and Big Data approaches in an ambitious solution. Bringing deep industry, academic, and technology experience, the consortium will develop a next iteration of modelling performance, accuracy, and explainability to address a growing real-estate challenge causing lack of confidence in the industry and significant delays and loss of revenue, made even more urgent with current COVID-19 working conditions. Furthermore, the project will bring significant wider economic benefits (incl. generation of additional corporation tax, VAT revenues, exports, and job growth), social benefits (tackling fraud and bias and building transparency and confidence in an industry considered the cornerstone of a healthy economy), and environmental benefits (cuts to CO2 emissions) to the UK. The project also aligns with the UK Government's Grand Challenge to put the UK at the global forefront of the Artificial Intelligence and data revolution \[UK Government, 2019\] and the European Commission (EC) Action Plan regarding Non-Performing Loan build-ups in the industry \[ECB, 2019\]. Moreover, the technology will provide a contactless approach to valuations to align with current UK/international guidelines regarding social distancing related to the current COVID-19 pandemic \[UK Government, 2020\]. YA and its Project Partner have the experience and internal technical expertise for the development of this solution. With powerful commercial relationships and evidence of strong-market pull, the company is perfectly positioned to develop and bring this innovation to market quickly after project completion.

Results of Competition: Innovate UK Smart Grants: January 2020

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
COCOON CARD LTD	Cocoon 'buy now, pay later' platform development	£271,800	£190,260

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
Buy now, pay later (BNPL) means a consumer can buy something today and pay for it in the future. This is great for both consumers and businesses: consumers can spread the cost of high-value items into easy-to-manage instalments and, because of this, businesses that offer BNPL see up to a 30% increase in sales. Businesses work with a BNPL finance provider who fund the purchase and collect the repayments from the consumer in the future. Many businesses offer BNPL interest-free to consumers -- the business pays the interest and this cost is offset by the increased sales they experience. This is a win-win for businesses and consumers: businesses generate more sales and consumers have access to interest-free credit. To determine which consumers they should provide BNPL terms to, finance companies perform 'credit checks' on potential consumers. A credit check is used to check a consumer's credit history and lets lenders know a consumer has used credit responsibly in the past, giving them an idea of how likely the consumer is to make future repayments. However, there are 10-14m consumers in the UK (20-25% of the adult population) that find it difficult to access credit from mainstream BNPL providers (PWC). This is because these consumers might, for example: not have previously applied for credit or have a mildly adverse credit history. These consumers are often rejected for interest-free BNPL even though they might be creditworthy and able to make the repayments. This is bad for businesses and consumers: businesses lose out on extra sales and consumers lose access to interest-free finance, often seeking alternative sources of high-interest finance to fund their purchases. The aim of our project is to R&D a technology platform that will use alternative sources of data, only recently made available through open banking, and machine learning to enable businesses to determine if they can provide BNPL to consumers rejected by existing providers. Our product disrupts BNPL by cutting-out the lender, providing a lower cost service to businesses. In our model, the merchant provides interest-free credit and takes the lending risk to benefit from the extra custom, using our technology to make decisions in a risk-managed way. From our feasibility study, we estimate that using open banking transaction data coupled with machine learning will allow businesses to serve up to ~20% more consumers profitably with BNPL. This would facilitate an additional £2bn of spending in the economy.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BITBLOOM LTD	Sift AML (Accessible Machine Learning): Rapid and Robust Automated Analysis for Wind Farms	£179,634	£125,744
OFFSHORE RENEWABLE ENERGY CATAPULT		£42,604	£42,604

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
As the world turns away from fossil fuels, wind power will become an increasingly significant contributor to the global energy supply system in the coming decades. By harnessing the power of Machine Learning (ML) and Artificial Intelligence (AI), Sift AML transforms the mountains of data produced by wind farms to actionable knowledge that helps to increase their operating efficiency, reliability and maintenance. By doing so, they operate at a higher capacity for longer, saving us all money on our electricity bills. Wind farms create vast quantities of data. A modern offshore wind farm may comprise a hundred or more wind turbines. Each turbine produces hundreds of data signals that contain crucial information about the state of each sub-system and the condition of the thousands of individual components. There are also several support systems that also produce data, such as substations, array cables, service vessels and meteorological masts. In total, a modern offshore wind farm may generate in the order of 10 petabytes of 1Hz data and 15TB of 10-minute statistics annually. Hidden within these data is critical information about component wear and pending failures. When utilised correctly, these data can be transformed into knowledge that can help owners to improve efficiency and reliability, optimise maintenance regimes and reduce operating costs. Most wind farms are connected to central data warehousing systems with web portals where the owners and operators can analyse the information for monitoring purposes. Generally, however, the capabilities of these systems to provide in-depth technical analysis and prognostics are very limited. Sift AML is a simple to deploy, in-depth analytics and prognostics system that enables energy producers of any size to build advanced analytics on top of their existing data warehousing solutions. Using state-of-the-art developments in ML and AI, Sift AML provides access to these revolutionary technologies to everyone, not just data scientists and software programmers. By using Sift AML wind turbine operators can gain rapid access to advanced analytics that turn data produced by plant machinery into actionable insights, including guidance on pending component failures and opportunities for increasing power production. In power production, even small increases in efficiency can generate significant returns at scale for operators, lowering the cost of electricity and protecting the planet by accelerating the shift toward carbon-neutral energy production across the world.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ZAIKU GROUP LTD	Secure Data Mining of Genomics Datasets using Homomorphic Encryption	£75,056	£52,539

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 demonstrate the feasibility of Zaiku's cutting edge Homomorphic Encryption research, which aims to ensure the most sensitive, valuable data can be safely stored, updated and shared in its encrypted state, so that data is never vulnerable. The feasibility study will also focus on establishing the commercial opportunity for Homomorphic Encryption across NHS services in England, selected export markets, and also in the banking and financial sectors. From the NHS England "Five Year Forward View" to the National Information Board's "Personalised Health and Care 2020", data capture, mining, analysis and sharing are rightly seen as the essential keys to transforming health outcomes for patients and citizens. This creates positive pressure for healthcare organisations to be paper-free and unlock the value of data, and poses tremendous challenges in protecting the security and confidentiality of sensitive patient information. The potential value of health data is huge. Cyber criminals prize health data highly, as it allows them to create very convincing false identities which, unlike credit cards they cannot be cancelled. The public is also highly concerned that their personal health information could be misused by businesses such as insurers, which they believe could expose them to discriminatory practices. Homomorphic encryption is a novel form of encryption theory, intended to allow searching and changing encrypted information without first decrypting it, as is currently required. The results of changes made should be the same as if they were applied to unencrypted data. This is highly innovative, especially in healthcare, where it could ease safe and appropriate sharing of sensitive data, enhancing service innovation and patient outcomes without compromising data security.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PERVASID LIMITED	Game Changing 99+% Accurate Directional RFID Portal Integrated with Wide-Area IoT Analytics	£467,047	£210,171

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
To date, the tracking of individual products and components in applications such as industrial, retail, healthcare and manufacturing has been challenging to achieve in a commercially viable way. Active (battery powered) tags, although allowing a long-read range, are expensive, while reliably detecting cheap compact and ultrathin passive (battery free) tags is difficult, particularly over a distance of more than 2-3 metres. PervasID, a Cambridge University spin-out, has developed a robustly patented product that enables highly reliable reading of standard off-the-shelf passive RFID tags over wide areas, using a fixed infrastructure \[1\]. This technology has been installed by major UK & European retailers, Aerospace manufacturing companies, EU, US and Asian integrators and healthcare providers (including the NHS) around the globe and has been found to outperform all other passive systems on the market, including that from technology giants, such as Intel. A <1% error rate is achieved even for densely packed devices. This technology is now generating sales revenues of \>£1M per year to major companies such as Stanley Black & Decker. Although PervasID is confident that its patented technology is technically world leading, we have identified the need to enhance the wide-area system architecture to provide virtual wireless boundaries with highly accurate bidirectional movement information at portals. We have identified a solution to achieve this using a combination of steerable tag suppression technology with data analytics that will achieve very high accuracy even for a large number of tags. Analysis by potential customers has shown this could reduce stock shrinkage by around £100,000 per annum per facility. The new solution will aim to deliver an ROI of just 1 year for customers such as this and allow PervasID to address much larger markets. A successful project will enable PervasID to build the RFID systems (via OEM agreements), which will be sold to end customers and system integrators along with other services such as data analytics, installed system design, installation support, service and operational support. \[1\] S. Sabesan, M. Crisp, R. V. Penty and I. H. White, "Wide Area Passive UHF RFID System using Antenna Diversity Combined with Phase and Frequency Hopping," IEEE Transactions on Antennas.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MO-SYS ENGINEERING LIMITED	SMARTLENS: Closing the gap between real and virtual filming through smart high end lens calibration	£401,900	£281,330
MEDIA RESEARCH PARTNERS LIMITED		£95,880	£67,116

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 SMARTLENS project leverages Mo-Sys' leadership in studio-quality virtual production and opens up broad new markets to affordable high-quality video production. Video is ubiquitous, comprising 82% of all Internet traffic and displacing other forms of media in advertising, in education, news and beyond; attracting professionals from across the creative industries (£268 Bn) to explore and participate in new forms of content production. 'Virtual Production' technology allows filmmakers to combine images captured on camera with computer-generated elements. The SMARTLENS project creates a new automated method of essential lens calibration, allowing significant cost-saving (and carbon-saving), as production teams no longer need to travel to remote locations to capture difficult shots. This is a collaborative project building on long-time collaboration with Professor Simon Julier (UCL/TMI), innovating novel AI-based automated lens calibration. All lenses distort the path of light in some way: changing the focal length changes the field of view of the lens, and straight lines in the real world do not necessarily look like straight lines in the image plane. Failure to account for this distortion means that the virtual graphics do not line up with the real world, and any notion of the graphics being anchored in the real world is lost. Conventional lens calibration techniques are slow and cumbersome, requiring the operator to manually measure targets and camera movements repeatedly. SMARTLENS develops a set of algorithms and techniques which will automate the calibration approach. First, a suitable model of lens parameters will be chosen. Conventional computer vision models do not describe effects such as depth-dependent radial distortion for out of focus images. Therefore, we will chose a suitable model from the photogrammetry literature. Second, we will develop the back end optimisation techniques which will fit the parameters to suitable data. Third, we will investigate the use of various kinds of calibration targets, including points and lines to see which ones are most robust over the range of operating conditions. Finally, we will investigate suitable practices which give the best performance. Mo-Sys is the largest virtual production technology provider today, with a substantial IP portfolio and a sophisticated high-end customer base (Sony, Warner Bros, Disney, Netflix, BBC, NHK, Fox, ESPN, Sky, CNN). Credits range from BBC's Match of the Day to films such as Gravity and Life of Pi. Through this project, this collaboration now continues to innovate and extend lens calibration and tracking systems,

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RHG CONSULT LTD	Signmatters- a tool to connect the deaf and hearing impaired to signers	£164,886	£74,199

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
Signmatters is an app that will safely connect the deaf and hearing impaired community to British Sign Language (BSL) interpreters. We aim to disrupt the current administration led services that are costly and dysfunctional. Through our game-changing innovation we aspire to be the leading app for the deaf and hard of hearing community. Our vision is to expand to other special needs sectors including assisting anyone with a disability or long-term health condition to connect to community support workers and the Access to Work scheme. Expansion will be to take either or all of these special needs to the global level. There is also the potential to roll out the service to cover the entire language services support system The simple aim has a huge social impact - we describe it as _"Uber for interpreters"._

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MATERIALS I.P. LTD	Fire Resistant Rainscreen Cladding	£178,223	£124,756

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
Following the Grenfell Tower fire the industry sector concerning cladding of high-rise buildings has been endeavouring to find alternative cladding materials that are both safe and financially viable. The technological challenge is to find a solution that is fire resistant, lightweight, durable, thermally insulating and will support its own weight (sufficiently robust /engineeringly substantial). This combination of properties is not easily achieved using conventional materials. Currently the industry standard is a composite panel with aluminium skins and a polyethylene core, whilst this fulfills the requirements of cost, durability and weight, it lacks sufficient insulating capabilities (therefore requiring it to be used in combination with an insulating layer) and fire resistance. The latter property is most important given recent events where the polyethylene core has been observed to melt and ignite the flammable insulating layer below the panel. The proposed project will use a material to make cladding which does not burn, melt or produce noxious or poisonous fumes when exposed to flame and high temperatures. This material is non-oxidising hybrid carbon-carbon, a variant of a material that is used in high performance braking systems. The proposed system will use two flat sheets of this material separated by a ceramic foam filled gap that will provide the insulating performance and through which water may be conducted to provide additional cooling. The simple and slimline construction will provide a cost-effective solution through the reduction of installation costs and the non-requirement for an insulating layer. This will offset the higher cost of manufacture of the new panel. The project is planned to last six months and take the product from small scale testing through to a full scale demonstration in an industry recognized test. A successful project will produce significant export and licensing opportunities for UK companies in what is projected to become a $15bn market in 5 years time.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
VIRTUALSPEECH LTD	Learning 4.0: Live Collaborative Learning in Virtual Reality	£94,300	£42,435

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
Sending employees to in-person training sessions has always been expensive for the company (paying for travel, venue hire, accommodation, etc.) and time consuming for the employee (travelling to a venue and time away from office work), and now there poses a health risk due to Covid-19 too. In a world which is shifting to remote work and remote learning, we are focused on the future of learning and how we can use emerging technologies as a catalyst for more effective, efficient learning. Our objective is to create a collaborative, remote training tool in virtual reality (VR), which enables employees to participate in live training sessions from anywhere in the world and provides organisation with detailed metrics for ROI. The trainer and trainees would put on a VR headset from their homes, and enter a training session in VR, where they would be immersed in realistic virtual environments such as meeting rooms, a lecture theatre, and press conference. They could also upload their own presentations and notes into the session, receive instant AI-powered feedback as well as peer reviewed feedback, and trainers/ managers could monitor their progress through our analytics dashboard (which is pre-built backend and used with our existing products). Given that the majority of learning and development training is conducted face-to-face and most of this has been cancelled for at least 2020, our tool aims to help businesses transition to a remote training method. We can work with SMEs to help them adapt to (and survive) this new world of learning, as well as with larger organisations who train their employees in-house. Crucially, employees can still attend training that's essential for their personal and professional development, in an effective, experiential way and with a level of presence that can only be replicated using VR.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
COCATALYST LIMITED	Rapid and sustained rail adhesion improvement through enhanced water addition	£51,572	£36,100
SCB ASSOCIATES LIMITED		£51,472	£36,030

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 aims to address the problem of low adhesion in the rail industry. The problem is most severe in Autumn when track-side leaf fall contributes to very slippery conditions on the railway. Each year, the so called problem of "leaves on the line" leads to massive disruption across large parts of the UK rail network. The problem forces the industry to undertake complex and expensive countermeasures; special trains jet the rails with millions of litres of water, Autumn timetables frustrate and confuse rail users and line-side tree felling challenges the green credentials of the rail industry. Despite these mitigations, the problem still costs the UK rail industry and broader society up to £345 million each year. For the railway to operate efficiently all year round, there is a need for a simple, low cost, environmentally friendly solution which can be easily introduced. We discovered that the issue doesn't occur at all on days with heavy rain, even during Autumn. Our current solution simply creates "rainy day" conditions on the track by spraying a small amount of water from the train when a slippy rail is detected. In this project, we aim to research solutions which boost the effect of water addition for a faster and more sustained friction improvement, increasing the benefits the system delivers. In particular, we think there is an opportunity to achieve a full cleaning effect, i.e. a "clean rail", while maintaining the low environmental impact, simplicity and affordability of our current system. If successful, this project will deliver a new way to achieve rapid and sustained rail adhesion improvement, leading to greatly optimised rail operations.

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Total available funding is £50 million

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
PINWELD LTD	Development and testing of an electronically controlled preproduction prototype Pinweld plastic repair tool	£288,067	£201,647
RAINBOW MEDICAL ENGINEERING LIMITED		£49,894	£34,926
TWI LIMITED		£142,325	£142,325

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
Many engineering and structural components are made of plastic, when previously they would have been made from metals or even wood. A potentially vast and multi-sector marketplace, this is particularly true for the automotive sector, where plastics are increasingly used for panels, components and bumpers. The focused challenge we are addressing is that it is currently virtually impossible to repair cracks in most plastics without damaging them further due to the excessive heat required in existing repair processes, a view which has ultimately led the target industry to pursue the unfortunate and unsustainable methodology of 'replace not repair'. The environmental impact of this is significant, take just bumpers in the UK. Our research shows that repairing just one bumper saves in excess of 31kg C02e. This figure doesn't include disposal or downcycling of the damaged bumper, or the packaging, storage and shipping of a replacement. Our purpose is to make a positive impact on the environment and to help other countries do the same. _Repair rather replace_. Pinweld's unique solution maintains the high value of these components by quickly and discretely 'removing' almost all trace of a crack. A completely novel method of plastic welding, it has been met with great enthusiasm by automotive repairers and insurers alike. Early welds tested at the University of Bath (UoB) recorded encouraging results in excess of 90% strength. At this weld strength, our repairs do not require support materials like meshes and staples in order to be effective, a feature of environmental merit during later recycling. But the story doesn't end there. Working closely with our key partners this new weld technology can be transferred to many other sectors, helping reduce material waste, providing more secure and accurate welds especially for pipes (water, gas, oil) and manufacturing opportunities with robotics Everything Pinweld does is focused on developing this weld technology_---_ all with the eventual goal of contributing to less waste, lower emissions and increased use and reuse of plastics enabling moving away from traditional unsustainable material usage.

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Total available funding is £50 million

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
VISIONABLE LTD	Visionable: Connected Medic :Next generation telecommunications for the Emergency Medical Services	£494,705	£346,294

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
Visionable is a pioneering UK-based company that provides robust and secure multi-stream clinical telecommunication solutions to the healthcare sector. Visionable's mission is to make healthcare more interdisciplinary and accessible to every person on the planet. Visionable's solution enables healthcare providers to diagnose and treat patients in real-time by enabling the reliable, seamless streaming of encrypted high-speed data and clinical grade images through their unique, patented native resolution imaging platform. Global ambulance services face significant challenges, lacking the necessary resources to meet rising demand. Governments worldwide are consequently seeking to improve the cost-efficiency and decision-making capabilities of their emergency services through the use of digital technology, including telehealthcare. Beyond the COVID-19 pandemic, the ability to have the necessary high quality data streams and secure video/telecommunications to diagnose and treat patients using remote panels of experts is set to become critical. Visionable will develop proprietary wearable devices and in-ambulance telemedicine capabilities , 'Connected Medic', with a 'touch and go' system to enable multiple video and data streaming by paramedics allowing clinical consultation by remotely located medical experts. Medical grade image quality can be provided through peripherals such as endoscopes, ECG, spo2(oxygen), temperature and pulse. Connected Medic could also be used by nurses in A&E to perform rapid triage with a decision making consultant on patients that need urgent treatment or by care home nurses to determine if hospitalisation is required.

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Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ZAMNA TECHNOLOGIES LIMITED	Self-sovereign Identity technology using blockchain for customers, airlines and border authorities	£432,542	£302,779

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
Currently, airlines are unable to share data about passengers and rely on repeated one-off document checks. This challenge is exacerbated by the fact that, on average, passengers are only 50% accurate when filling out the information required to fly. This means that airlines not only waste time and resources checking each passenger's documents multiple times in the airport, but they also spend time and money correcting that information. Government fines mean that failing to check this information diligently creates further costs for airlines, and there are increasing demands from governments for airlines to provide more accurate passenger information. Zamna is an award-winning software company named by IBM Security as providing "GDPR compliant identity-as-a-service". We work with airlines and border authorities in the UK, UAE, etc to verify accurate passenger information. Our blockchain-powered data verification technology improves airport security and immigration-related information, while delivering a seamless passenger experience. Our current software technology is already integrated with British Airways global IT systems, commercially active in British Airways, with pre-COVID-19 volumes of ~100,000 daily passenger passport checks. This project will extend the technology by adding an innovative model of identity management which will put the passenger in control of their data, whilst solving GDPR and data accuracy challenges, and securing value for the enterprise validating passenger data - without exposing the commercial or competitive advantages of that enterprise to others. To achieve this, we need to conduct significant technical research using multiple computation techniques, before testing can take place with the early adopters and stakeholders, which we have already engaged with.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ALT AVE LIMITED	Sustainable Distributed Ledger - Durable Medium Repository	£160,155	£112,108

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
Have you ever wondered why banks & other financial service providers use printed terms and conditions in branch and send them through the post... The digital delivery of T&C's is heavily regulated, complex and expensive, and in most cases does not meet the strict criteria which results in printed versions being used. While the regulations are designed to protect the consumer, they are failing our planet with an estimated 4.8 billion A4 pages being printed and distributed in the UK alone. Never before have consumers attitude to the preservation of the environment been so front and centre and with online banking penetration in the UK recorded at 73% in 2019 *, this adoption is not being transferred to account completion and the on-boarding process. In parallel there is increased demand & pressure for banks to lower on-boarding costs and meet sustainability targets. Using the latest hashgraph technology ALT/AVE's solution 'DMR' (Durable medium Repository) will be perfectly positioned to offer an alternative to banks that that is compliant, cheaper, sustainable and digitally safer for us all. *United Kingdom (Great Britain); Office for National Statistics (UK); 2007 to 2019;

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
EXACTMER LIMITED	Accelerating Nanostar Sieving - ACCELOSTAR	£470,373	£329,261

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
Polymers are long molecules comprising repeated chemical units known as monomers. Some polymers, such as polyethylene glycol (PEG), comprising ethylene glycol (Eg) monomers, are very useful parts of sophisticated nanomedicines, because they regulate the way that a medicine is transported around and retained in the body. Other polymers, including oligonucleotides (oligos) are used as therapeutic agents. It is extremely difficult to make polymers such as PEG and oligos accurately, because chemical techniques often add a few more or a few less monomers to the chain. For example, in making Eg112, a PEG polymer with 112 repeated units and a molecular weight close to 5kDa, current processes also make Eg111, Eg113, Eg110, Eg114, and so on, so that the material is known as polydisperse. This is a problem for use as part of a medicine, because the different chain lengths can act in different ways in the body, and analysis of multiple species is harder to do accurately. EXACTMER is a start-up company which has licensed a breakthrough new technology invented at Imperial College London- Nanostar Sieving. A hub molecule with three or more arms is used to form a macromolecular Nanostar. Monomers are added to each of the arms, one by one, to form polymers with an exactly controlled sequence of monomers. After the addition of each monomer, all the debris are removed by molecular sieving through a specially designed membrane. The process is repeated over and over until the desired number of monomers has been added, and then the polymers are cut off the hub and recovered, with all polymer molecules having the same, exact number and sequence of monomers. During 2019 we have sold small quantities (1g) of PEGs, and have carried out paid trials to show that Nanostar Sieving can produce purer oligos than conventional technology. We generated £235K in revenue, indicative of strong interest from a range of customers. Now we must quickly capitalise on this by innovating to make our process more efficient, and using it to make 10-20g batches. Success in this innovation project will provide the technical basis for EXACTMER to invest in 1kg scale manufacturing in 2022, rising to 10kg scale in 2023/24\. It will establish Nanostar Sieving as a competitor to the current state-of-the-art, expensive solid phase synthesis. Exactmer will strive to become the dominant global producer of exact, high value polymers, based in the UK.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
Refeyn Ltd	Accelerating analytics for gene therapy using enhanced mass photometry	£259,275	£181,492
CELL THERAPY CATAPULT LIMITED		£107,564	£107,564

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
Gene therapy holds huge promise for many conditions that have been difficult to prevent or treat using conventional drugs, including inherited, rare and age-related diseases, and cancers. As the industry grows, there is an urgent need for more efficient, effective technologies for quality control tests. Technologies developed for traditional drugs have major limitations when applied to complex gene therapies, such as adeno-associated virus (AAV) gene therapies, which use virus particles to deliver genes that can help treat or cure disease. For AAV therapies, one important factor is how many vector particles are carrying the target gene, but current approaches for measuring this are expensive and time-consuming, and usually need to be outsourced. This creates a processing bottleneck and means the measurement is usually done only at the end of production, even though such information is highly desirable throughout development and production. Separate assays are needed to measure contaminants, creating further inefficiencies. As another important limitation, no available technology can distinguish partially loaded particles from full ones. In this project, we propose to address these challenges using mass photometry, a technology we developed that measures the mass of single particles using minimal sample. We believe this technology could be a game-changer in this area because preliminary experiments show it can outperform the current state-of-the art. It can measure the percentage of loaded particles while simultaneously measuring amounts of smaller contaminants, and it is up to 15-fold faster and 100-fold cheaper than current approaches. Here, we plan to benchmark mass photometry against existing approaches and also make improvements, to better tailor our approach to the requirements of AAV vector characterisation. The project is a collaboration between Refeyn Ltd (the world's sole producer of mass photometry technology), who will develop the instrument, and the Cell and Gene Therapy Catapult, who will provide AAV material and conduct benchmarking. If successful, this project will deliver a transformative technology, helping accelerate the development, production, approval and safe use of promising gene therapies. It will advance the gene therapy sector, bringing economic and other benefits for the UK and beyond. Targeting a rapidly growing market with a superior, innovative technology, this project represents a sound investment. It is also timely; regulations are now being formed in this area, creating an opportunity to embed this technology in production and quality control processes.

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Total available funding is £50 million

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
SINGULAR INTELLIGENCE LIMITED	An agent based modelling solution for reliable decision making in crisis and market turmoil in consumer retail	£204,276	£142,993
Loughborough University		£56,758	£56,758

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
The project aims to build business decision support techniques for market crisis and turmoil with a focus on consumer goods and retail Industry. Existing solutions for the stable state do not work in these times due to challenges of data and modelling techniques. The project is an Industrial research project that plans to apply new developments in Artificial intelligence for building dynamic market simulation and anomaly detection capabilities that will enable reliable and explainable decision making with proactive business optimisation ability in times of uncertainty, which now occur quite often and last several months and sometimes years. The project is led by Singular Intelligence Limited who have an existing Applied AI platform for Consumed Goods & Retail. The academic research collaborator is Loughborough University, who has deep experience in AI research and Agent-based modelling. The project is expected to have a game-changing impact by enabling survival, growth and business innovation in a disrupted Retail Industry. As a consequence, the efficiency gains, asset optimisation, the waste reduction will also create a positive broader impact on society and the environment. The technology will also have applications in other industries; eventually, an initial idea of which is also stipulated to be established in the later part of this project.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TAX INCENTIVISED SAVINGS ASSOCIATION	Federated Digital ID for the UK	£484,837	£339,386

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 Federated Digital Identity for UK Consumers aims to be the prime means by which consumers securely identify themselves to UK private sector (initially financial services) and public organisations . It will enable consumers and services providers to meet all consumer regulatory verification obligations meaning that, once created, consumers will be able to re-use their verified digital identity to access different private sector services and public organisations. This will deliver benefits to the customer, product providers, Fintech's and the country. TISA believes that developing a secure digital identity will transform how consumers understand and manage their personal data online as well as accessing services in an easier and more secure manner. For financial services, it will lead to increased competitiveness amongst providers allowing consumers to benefit from lower charges, stimulate the development of innovative new online services and enhance personal financial wellbeing. The scheme will initially focus on Financial Services, who will be able to save on the costs of on-boarding customers, better protect their customer's personal data against identity fraud and create new revenue streams through the development of new products and services, which utilise digital identity (such as trust brokerage services, behaviour based insurance). The Federated Identity scheme will be applied across other sectors. Importantly, the Digital ID will be foundational to the digitalisation of financial services and the move towards an Open Finance environment comprising new developments such as the pensions dashboard and other online applications and services. This will benefit all consumers, including the most vulnerable and help secure the UK's position in the growing, global digital financial services marketplace. The Project is overseen by a Governance Steering Group that is made up of senior representatives of each of the participating organisations including TISA, Barclays, HSBC, Santander, Lloyds Bank, Aviva, Zurich, Experian, Fidelity, LexisNexis, SS&C, Yoti, Accenture and Northern Trust. This Group has oversight of delivery of the Project (budget, risks, dependencies and outputs) and makes key strategic decisions relating to the Project. Stakeholders also include HM Treasury, Government Digital Service (Verify) and the FCA. The project will also seek to collaborate with all the major trade bodies (Innovate Finance, UK Finance, ABI, PLSA, City UK etc). The Digital ID is designed to align with the Government's identity service to deliver an interoperable private sector equivalent. The vision is for the Digital ID to be applicable for use by other (non-financial services) sectors.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CORRIE ENERGY PARTNERS LTD	Towards subsidy-free solar: a revolutionary hybrid solar tracker	£220,262	£154,183

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 is committed to achieving net zero emissions by 2050, requiring solar generation of at least 60GW p.a. (from 13GW today) (Aurora Energy, 2019). However, UK deployment of Solar PV (PV) fell from 4GW to 0.4GW between 2015-2019 as a result of subsidy reductions, with a subsequent loss of 25% (2.4k) of jobs (STA, 2019). For the solar industry to thrive without subsidies, project economics need to improve (STA, 2019). Solar trackers - devices used to orient PV panels towards the sun - can significantly improve project economics by increasing energy yields and the average price of electricity achieved. However, existing solutions are predominantly 'single-axis trackers' (track the sun in one direction) and are most effective at lower latitudes (below c.40 degrees latitude) where the sun's elevation does not vary significantly between seasons. The few 'dual-axis trackers' systems that do exist are expensive and remain a niche market. We therefore developed a hybrid tracking system that optimises solar tracking for a significantly reduced cost. This project will be used to build on our existing prototype, to implement a series of design changes and test the new systems on a live client site.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
THERMULON LTD	Thermulon – non-combustible high performance building insulation	£443,390	£310,373
ARBOREAL ARCHITECTURE LIMITED		£5,500	£3,850
BEST OF LIME LTD		£34,026	£23,818

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
Thermulon is a deep-tech start-up based in the North East of England and London working on industry-changing insulation materials. Created in part in response to the Grenfell Tower tragedy of 2017, Thermulon is developing ways to make homes both energy efficient to meet our climate goals, and fire-safe. The UK government has pledged to achieve Carbon neutrality by 2050, but with over 30% of the UK's carbon emissions originating from fossil fuels used to heat homes and offices; energy-efficient buildings are a key component of the strategy. Plastic-based insulation materials are used in construction due to their high thermal efficiency (minimising layer thickness) however they are combustible. Especially in taller buildings, this can have dire consequences, as was the case for Grenfell Tower; resulting in the government banning all combustible materials in tall-buildings (5 storeys / \>18 m) in Dec-2018\. Thermulon is developing methodologies to significantly reduce the thickness of insulation required in walls whilst also maintaining excellent thermal and fire performance. With current materials often needing over 30 cm per wall, this can add up to huge floorspace losses, especially in cities, resulting in cramped homes. By increasing floorspace with fire-safe materials, residents benefit from warm, safe and ultimately more affordable places to live.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ARDEN'S HEALTH INFORMATICS LIMITED	Ardens Workforce	£464,940	£209,223

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
One of the challenges that GP Practices face is how to make sure that people with a long term health condition, like diabetes or asthma, are seen by the right clinician. This isn't always a GP, it may be a skilled practice nurse, health care assistant or pharmacist. However, it is not easy for GP practices to predict how many people with each condition they will see, especially as the population changes over time. There are also other factors, like the recent COVID pandemic which change the needs of local people. Ardens Workforce will give practices a secure tool that they can use to better predict this demand. By matching data collected from GP clinical systems with staff records, Ardens Workforce will provide GP Practices and groups of GP Practices with a report which will enable them to ensure that demand meets workforce capacity, focus resource and ultimately improve quality of care delivered to patients. This report will be based on national guidance, making sure that everyone is receiving the best possible service from their practice. We have experience in supporting and increasing the efficiency of over 2,500 GP Practices across the UK through our existing product and as GPs ourselves, we always ensure that the needs of primary care clinicians are at the focus of our work. As the NHS faces a shortage of staff, it is vital that every member of a GP team is using all of their skills to their full potential to improve patient care.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CLARITY BIOSOLUTIONS LIMITED	Novel, miniature, ultra-low cost, lateral flow reader and application to personal/home testing and disease surveillance.	£273,862	£191,703
DAVLEC LIMITED		£69,000	£48,300
RADE NEW MEDIA LIMITED		£89,181	£62,427

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 funds the development of a low-cost lateral flow test reader to address a growing need for cost-effective and portable analysis of lateral flow tests. These tests are growing in popularity and application, not least in low-resource markets where the need for low-cost disease diagnosis is greatest. Current solutions to this need are too high to make them readily accessible to the markets we envisage will benefit most from the product from this project. The output from this work has the potential to completely change the range of diagnostic tests available to a range of market sectors, including home use, by taking the guesswork out of interpreting test results, giving clear and unambiguous feedback to the user about the test result and next steps in diagnosis/treatment.

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: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CROWDHAÜS LTD	Crowdhaus Retail Property SmartSigns	£87,259	£39,267

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
Our vision is to have a high street that isn't cluttered with estate agent boards. Crowdhaus are developing a SmartSign that will instantly communicate information about a property to potentially interested property hunters. Whenever someone passes a property that falls within their search criteria, they will be instantly notified and be able to browse further information via the crowdhaus app. This is done via bluetooth and geofencing technology. 70% of people will pass a property in the street that they like and then search for that property when they get home. This is because traditional estate agent boards provide virtually no useful information. Our SmartSigns will instantly notify you should you pass a property that you may like and give you the information you want, when you want it. We also tackle the "street clutter" that is For Sale signs and help improve the visual amenity of the high street and local community.

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: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
IGROWING LIMITED	iGrowing DC based Smart Growing System (iSGS)	£194,219	£135,953
EXTREME LOW ENERGY LIMITED		£92,180	£64,526
PLANT RAISERS LIMITED		£113,991	£68,395

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
iGrowing and their partners Extreme Low Energy and Plant Raisers Ltd have developed an innovative smart growing system which has significantly reduced energy demand and is compatible with renewable energy solutions including solar panels and battery storage allowing off-grid solutions in remote areas. It has the potential to revolutionise crop growing in the UK, the West and globally. This project tests the system against industry standard LED growing systems, such as those used in vertical farms, and conventional glasshouse growing, to evidence power saving and improved growing performance. The project is timely, ensuring that the UK can become more self-sufficient in food production in a period when Brexit requires reduced reliance on EU imports and the impact of coronavirus has led to reduced food production and harvesting capacity.

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
LIFE NINJA EDUCATION LTD	Life Ninja Engagement Platform	£57,448	£25,852

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
Life Ninja believes that quality primary school education technology should be accessible and engaging for all students, not just those from schools or homes that can afford it. Through an innovative engagement and financial model the Life Ninja Engagement Platform connects parents, students and teachers in meaningful and gamified ways enabling schools to access high quality edtech without spending a penny. Students (and parents) will be able to view the various home learning areas assigned to the students and earn rewards for achievements and participation. Parents are able to participate in incentivising their children through boosting rewards set by teachers on a class and individual level, and even create their own incentives for their child within the home learning application. Students can spend their rewards on the personalised avatar themes and other custom incentives that can be created in the home learning app store by teachers and parents. The Life Ninja Engagement Platform has a completely free core offering of Message Ninja (a comprehensive communication app) and Learning Ninja (a unique home learning app) into which paid for content apps like Zap Maths are integrated. In the fundraising area of Message Ninja parents are able to earn coins to use to incentivise their child's learning activities. In the process of earning these coins the parents are raising funds for the school which can fully subsidise all the schools Edtech needs and even generate surplus revenue for the school. Gamification, psychological growth mindset theory and proven scientific learning methodologies run through the heart of the platform creating opportunities for connection and interaction around the child's life and learning between students, parents and teachers. The platform is designed so that third party education apps can be plugged in, benefiting from the engagement features which include the platform wide avatar, school managed single student account. The Life Ninja quick-start library allows third-party apps to take advantage of the scientific-learning methodologies to help enhance their learning experiences. Life Ninja understands the challenges facing schools, parents and students in a busy world. We are developing a platform that not only makes keeping up to date and connected simple but also engaging for everyone, and dare we say it, fun.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
HUMN.AI LTD	Data Driven Autonomous Vehicle Insurance Solution	£497,593	£348,315

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 prospect of widespread use of autonomous vehicles will change urban mobility significantly. Projections indicate they will significantly outweigh non-autonomous vehicles between 2040 and 2050\. The rapid emergence of autonomous vehicles presents the insurance industry several challenges and will cause dramatic changes in how insurance premiums are generated. Humn plans to be at the forefront of this change and will develop, test, and optimise an autonomous vehicle insurance solution.

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
OXFORD ENDOVASCULAR LIMITED	Next Generation Flow Diverter for the Treatment of Intracranial Aneurysms	£499,999	£349,999

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
Annually 6,600 UK citizens suffer a subarachnoid haemorrhage (SAH) resulting from the rupture of an intracranial aneurysm (IA), of whom 40% will die and 40% will suffer severe disabilities. However, SAH's are entirely avoidable through early intervention. Over the last decades clinical interventions have increasingly moved from invasive, risky, and expensive open surgeries (clipping) to less risky and cheaper minimally invasive endovascular coiling. Here coils are used to fill the aneurysm and prevent growth/rupture. However, for wide necked aneurysms, coils can dislodge and migrate into the parent artery leading to risk of thrombosis and stroke. To address this challenge stents are placed over the aneurysm neck. However, this is expensive, has limited efficacy and introduces new risks (clot formation). Flow diverters (FDs) are an emerging endovascular device (mesh structure) that is placed over the aneurysm to divert blood flow away, thereby prevent growth/rupture and enabling natural healing. By their nature, FD have the potential to effectively treat complex and wide-necked aneurysms. However, existing FDs have failed to live up to expectations, reporting performance inferior to coiling. Limitations are inherent to the FD mesh design that drives weak and non-uniform radial forces, resulting in incomplete opening, poor vessel apposition, variable porosity and device coning, and leading to suboptimal IA occlusion, FD migration and risk of thrombosis/stroke. OE seek to overcome these challenges through development of a novel 'origami inspired' engineered FD.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
COMPOSITE BRAIDING LIMITED	AMICABLE (Anti-microbial lightweight grab poles)	£129,558	£90,691
BIOCOTE LIMITED		£19,684	£13,779
Health and Safety Executive		£30,083	£30,083
PROMETHEAN PARTICLES LIMITED		£83,845	£58,692
Transport Design International Limited		£104,162	£72,913
University of Warwick		£112,681	£112,681

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 use existing technologies not previously combined to achieve components for public transport use that will: *Incorporate proven anti-microbial materials that act as an effective barrier against bacteria and help reduce viral transmission (even eliminate them in some cases), helping both with public health and customer perception issues; *Incorporate these materials into lightweight structural recyclable composite materials that will reduce the component weights by over 50%, thereby reducing emissions, improving performance and greatly enhancing environmental and sustainability credentials; *Be able to produce these components in the UK at volumes and costs equivalent to the currently imported steel components; and *Have components that can be installed on new vehicles, but that can also be easily and cost-effectively retrofitted into existing vehicles. This is a massive, game-changing opportunity to improve the acceptability of public transport post-Covid, and has huge domestic and export potential.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
UNITARY LTD	Shear: The next generation of video understanding technology to automate content moderation across the internet.	£379,771	£265,840
University of Oxford		£120,000	£120,000

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

In this project, Unitary Ltd and Oxford University will develop novel algorithms to address the core challenges of video moderation. This technology will form Unitary's new product, _Shear_, to automatically detect harmful video content online.

Automated moderation is desperately needed to ensure both speed and accuracy, and protect moderators' mental health. Current solutions treat each video as a series of frames and apply image analysis. The audio is analysed separately to detect keywords. But any understanding of time (the order of frames), or awareness of context, is lost. **Videos carry fundamentally more information than images, and consequently there is an enormous volume of harmful videos for which this approach completely fails.**

Below are some types and examples of videos which are currently impossible to detect with automated means:

1. Videos in which understanding **interactions** is essential

E.g., an individual frame containing a gun would not necessarily give away whether this involves a real-life massacre, computer game or movie scene.

2\. Videos which require an understanding of **motion** or awareness of time

Videos depicting animal cruelty are unfortunately common. In one example, a dog is seen next to a man holding a baseball bat. The bat swings, the screen goes dark and a horrible crunch is heard. This is an extremely disturbing video, but no individual frame can raise alarm.

3\. Videos in which **multiple** **signals** must be interpreted **together**

Videos designed to influence and harm children often include popular cartoons which have been manipulated so that the characters ask the audience (i.e. children) to do dangerous things, such as "Turn the oven on" or to play with electric wires/sockets. The images alone show nothing but familiar cartoons, and the audio itself is not cause for concern -- there is no profanity, and in fact it might be mistaken for an adult's DIY video! But the combination of this audio inside a cartoon is what makes it unacceptable.

4\. Videos in which **context** is key

Visually similar content can be harmful or benign depending on other factors: e.g. a nude portrait could be posted alongside a feminist message or narration by a sexist troll.

This project will result in breakthrough technology that can interpret a variety of signals to enhance understanding of time and context, enabling improved detection of videos such as those described above. We aim to disrupt the moderation industry, one which is currently extremely manual and ripe for innovation.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SAMUEL TAYLOR,LIMITED	Development of an Advanced Cold Cladding Process for Electrification Applications (ColdClad)	£366,909	£220,145
TWI LIMITED		£132,533	£132,533

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 aims to establish the feasibility of developing a process that STL can use to manufacture aluminium and copper bimetal connectors for both the electrification and power supply markets. Currently, these materials or connectors are not available from any UK source and it is doubtful if they are available from any European producer at the sizes STL hopes to make. In the EV sector, material circa 2mm thick is required and this technique could also allow for different thicknesses to be developed. Aluminium is considerably lighter than copper and sufficiently conductive for major parts of the circuit. Copper generally is needed for cell battery terminations but not for bulk current carrying. EVs have up 7000 cells per unit, the halving of the number of welds needed by the use of pre-bonded material would give considerable reliability and cost benefits when considering the alternatives. Laser welding and wire bonding are used in the EV sector and known to have a number of constraints including poor reliability: the fewer joints there are the more reliable the product. And the lighter the better. As far as is known this technique is not practiced by any competitor in this specific field. Variations of the technique are known of in the USA & Europe but this proposal of integral bonding and further processing within one facility is believed to be unique. TWI have some experience in this field but have not yet bonded aluminium to copper and have no facility to do so in such a way, nor any facility to realise the end product. If the technique can be proven to work reliably and that a real market exists, then STL will scale up the bonding into a more hygienic industrial scale process. Alternative cladding and bonding techniques exist, including an embryonic diffusion bonding route from STL. However, the diffusion approach has serious difficulties and constraints for production scale supply. STL has actual business within the EV sector with a customer using stamped mono-metal busbars for a hypercar project and serious interest from others within the start-up and prototype market. From there leverage can be used to address the market for mainstream applications within Europe.

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Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SSE RENEWABLES DEVELOPMENTS (UK) LIMITED	RapidWeld - Advanced manufacturing of offshore wind steel structures using Reduced Pressure Electron Beam Welding	£107,052	£26,763
Aquasium Technology Limited		£870,722	£304,753
Sif		£655,975	£0
TWI LIMITED		£365,860	£365,860

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
RapidWeld will use a novel electron beam welding process, Reduced Pressure Electron Beam welding (RPEB) to fabricate welds on offshore wind foundation monopiles. These will be 'First-in-Class' globally establishing this UK innovation as world-leading technology, with substantial benefits to UK energy consumers, UK offshore engineering, the associated offshore wind supply chain and the UK's high value jobs market. RPEB uses heat generated by a beam of high-velocity electrons to make a high strength and durable welded steel join in a clean and efficient way. The project aims to be disruptive to existing welding technology and reduce the costs of future offshore wind foundation monopiles by up to 20%. With monopile type foundations accounting for over 90% of foundations used in UK projects, RPEB could realise significant cost savings on future projects. The RapidWeld project team comprises: SSE, the UK's leading offshore wind developer; Aquasium Technologies (trading as CVE), the SME designer and manufacturer of the RPEB equipment; SIF, a global leading fabricator; and, TWI, the UK's foremost welding research establishment.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THREAT STATUS LIMITED	Real-time Internet Authentication Weakness Inspection Service	£79,175	£35,629

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
End users often choose poor quality secrets for their passwords, and frequently re-use them across multiple applications. This means that compromise of an application from one system can have knock on impact to other applications through credential stuffing attacks. Technically, this could be mitigated to some degree with two factor authentication, but application providers risk subscriber drop off (particularly when dealing with the public) if they add logon complexity, and are therefore reluctant to enforce additional authentication steps. This project will aim to defuse the potential for credential stuffing / password reuse attacks by delivering a real-time, highly secure leaked credential checking protocol and service which will enhance the security of application authentication systems without the need to add additional verification steps for the user.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
HOUNDSTOOTH WIRELESS LIMITED	Detecting Drones: low cost, plug and play, mass market	£60,176	£42,123

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
Prisons, aviation, utilities, borders, government estates, public events and individuals are increasingly seeking cost effective drone detection technology to counter the reckless and hostile use of consumer drones. Our product uses radio frequency (RF) sensing to detect signals emitted by the drone and controller to identify intrusions and the location of the operators to mitigate the threat. It features a high probability of detection and low probability of false alarm. The main motivation for our project is to increase the technology readiness level (TRL) of our product to the point where it is suitable to commence a joint venture with a commercial partner. We propose to improve the user interface, complete a system installation at an early adopter site, reduce IP and hardware related risks, and production of a detailed marketing strategy.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
STIX MINDFULNESS LTD	Stix Final Prototype	£179,230	£80,654

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
Children with Attention Deficit Hyperactivity Disorder (ADHD) are stigmatised and disenfranchised from many everyday activities because they do not conform to the norm; impulsivity, inattention and hyperactivity are three behaviours that often differentiate children with ADHD from this norm and can cause severe disruptions to their everyday life. Research* has demonstrated that the practice of mindfulness and other focused activities, such as balance and deep breathing games, can have long term beneficial effects on children living with ADHD; in particular, they can enable the child to develop better concentration and more self-control, reducing impulsivity. The challenge is how to enable children with ADHD to practice mindfulness given that they can be the total opposite, impulsive, inattentive and hyperactive, to what is required, being restful. Our solution is to introduce some fun into the experience without deviating from the focus of participation in mindfulness; we introduced gamification and Stix emerged. Stix is an interactive hardware product encouraging mindfulness through engaging activities such as meditation, deep breathing and balance. These activities are designed in such a way, with rewards, to encourage completion and long-term usage, adherence, thereby delivering therapeutic benefits. Stix will provide parents with a new intervention from their parenting toolkit and children with a tool enabling them to self-manage. The need for these interventions has amplified with the Covid-19 pandemic. *"Meditation and mindfulness improve symptoms because of the learned skill to control attention and focus on specific purpose or action". Mind--Body Therapy for Children with Attention-Deficit/Hyperactivity Disorder - Herbert A, Esparham A. (2017)

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Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MICROPROPAGATION SERVICES (E.M.) LIMITED	Sphagnum Farming UK - First Steps to Commercial Peat-Free Growing Media	£355,987	£249,191
FRESH GROWERS LIMITED		£52,347	£36,643
Manchester Metropolitan University		£51,894	£51,894
MELCOURT INDUSTRIES LIMITED		£39,023	£27,316

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
Commercial extraction of peat as a growing media is unsustainable and mandated by DEFRA to cease by 2030\. Exploited peatlands are a net source of carbon dioxide emissions through oxidation of the unsaturated peat layer, equating to between 18.5 to 23 MtCO2e/year in the UK, equivalent to 4% of annual UK CO2 emissions. Peat remains in high demand as alternatives, meeting commercial horticultural performance, are unavailable at scale. MPS have developed and patented a world-first in-vitro production system to produce BeadaGel (trademark) for propagating and seeding Sphagnum at scale for commercial scale farming to harvest and process as a peat alternative growing media product - BeadaGro (trademark). The only alternative method to seed Sphagnum is to translocate Sphagnum plants which is damaging for fragile ecosystems, many of which are legally protected and unsustainable at large scale. The aim of this collaborative project, with farmers and commercial growing nurseries, is to develop and demonstrate all aspects of commercial viability for Sphagnum Farming. The project includes developing plant clones to maximise growth and size for yield optimisation, as well as biological control methods to prevent disease and weed infestation. Machinery and protocols will be developed and trialled for large scale field seeding, harvesting and crop processing. Horticultural growing trials will demonstrate the effectiveness of the harvested sphagnum as a peat alternative growing media. Sphagnum farming also offer an opportunity to restore carbon balance, absorbing carbon dioxide through photosynthesis, during the trials Manchester Metropolitan University will monitor carbon dioxide capture.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
LOXHAM PRECISION LIMITED	Robust rotary bearing technology for next generation machinery	£117,645	£82,352
POETON INDUSTRIES LIMITED		£15,639	£9,383

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 undertake the necessary research, analysis, design and testing to create a high performance digital controlled precision rotary motion unit. This unit will be applied within new era digitally integrated machines and motion (robotic) systems. The newly proposed UK rotary units will have incredibly low levels of friction, error motion and dynamic vibration. Through application of direct drive and direct measurement techniques a high performance motion and tracking capability will be afforded.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
HAWKCX LTD	TXAnywhere	£153,746	£107,622

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
TXAnywhere, addresses the need for broadcasters to enable remote working for their technical teams. Currently, transmission of all broadcasters' TV and radio channels is managed by teams of operators in centralised control rooms. TXAnywhere will aim to enable broadcasters to break away from this traditional, inflexible and outdated centralised model, satisfying three significant and immediate needs as follows.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
FUJITSU SERVICES LIMITED	CitywellnessLink	£121,283	£60,642
barts health nhs trust		£19,700	£19,700
DOCOBO LTD		£53,510	£37,457
East London NHS Foundation Trust		£3,000	£3,000
European Knowledge Tree Group (EKTG)		£60,166	£60,166
WM MORRISON SUPERMARKETS P L C		£10,000	£5,000
Z/YEN GROUP LIMITED		£14,000	£9,800

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

CitywellnessLink envisions a future where it is easy and enjoyable for employees to take responsibility for their health, getting access to the right resources at the right time, thus enabling an increasing proportion of the older work-force to remain in productive employment until retirement age.

The proportion of the adult population aged 50+ is projected to increase from 42% to 50% by mid-2030s.

Given an older workforce with probable early exit from the labour market for health reasons, the future UK economy is likely to face significant challenges in areas such as the financing of State Pension and maintaining labour supply.

Long-term health conditions are more prevalent in older people and some 9M people over 60 (of the 52.4M (2018) UK adult population) will potentially carry or develop them.

The London population swells with commuters every working day.

Although, there are approximately 10,000 residents in the City of London, the daytime population is 522,000 (2019) with 243,000 employees travelling from the rest of London, others from further afield. 100,000 travel to Tower Hamlets (pop397,000). Pre-COVID-19, 5M passengers annually use London City Airport in Newham (pop 306,102)

About 50% of travellers to central London are over 50 therefore about 18% (226,000) have the potential of living with or developing a long-term condition with risk of other co-morbidities: consequently, ceasing to work before retirement age.

Health-related lost productivity cost the UK economy an estimated £91 billion*(ONS data). While adding 1 year to everyone's working life could increase GDP by 1% pa.

Accessing GP services is challenging during working hours. So many people resort to local health and fitness services, or a myriad of unregulated "health" apps and lifestyle fitness devices with data stored in unconnected places and relying upon user self-assessment.

Coordinating digital health services offered by approved local health and fitness providers would enable older employees to better maintain health and wellness, This greatly benefits them, the economy, and their employer.

The CitywellnessLink study will determine the feasibility, acceptability and conceptual architecture of a digital platform to allow people to use different apps and services as needs and tastes change.

We envisage that the scalable platform could be integrated with an approved digital health remote monitoring platform to provide clinicians consolidated access to health and wellness data.

Rather than requiring people to seek their own resources, we envisage the platform will engage and influence the selection according to their needs.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MAGNA POWER EQUIPMENT LIMITED	The Metal-ID separation system: A new approach to recovering non-ferrous metals using multi-frequency metal-detection and machine learning.	£289,455	£202,618
The University of Manchester		£123,413	£98,730

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
Describe your project in detail, and in a way that you are happy to see published. Do not include any commercially sensitive information. If we award your project funding, we will publish this description. This could happen before you start your project. Your answer can be up to 400 words long. This is a feasibility project: We aim to, (1) establish the feasibility of the Metal-ID technology (TRL ~3) in a full, near-to-market separation solution (TRL~7), and (2) obtain commercially-relevant performance statistics. Our tests on a lab-based sensor suggest promise. Establishing true commercial feasibility, and interest from customers, requires a full system, cognisant of material, outlay and operating costs, and tested on large quantities of real scrap material. The Metal-ID technology is an innovative new approach to scrap metal classification, resulting from original research on multi-frequency metal detection by UoM. The technology will create a new product -- an 'advanced' induction separation system that presents a radical departure in terms of design and capabilities from existing induction separators, and threatens to compete with high precision technologies at a much lower-cost. We are the first to demonstrate this technology and we have taken the lead on its development. We have put forward a clear business case. We are responding to a need for improved separation for non-ferrous metals, as legislation, trade-barriers, and market demand for these metals drives-up recycled product quality, and drives down quantities left to landfill. We estimate our technology could increase the value of mixed-metal recyclate by up to 30%, potentially adding £50m to the value of the 250kt material available annually in the UK. This work foments a new partnership. It combines our strengths of research into electromagnetics and instrumentation, with expertise in manufacturing and engineering for magnetic separation, and strong relationships with customers providing first-hand intelligence for assessing market needs and commercial value. Agreements for exploitation are in place between both parties. We have set-out a realistic 18-month timetable for the work, that provides contingencies for technical risks (failure or poor performance), operational risks (work-stoppages, lock-down), and commercial risks (poor value and take-up). The pieces are in place to deliver in the near term a new product which combines UK research with an ambitious UK engineering business, to create value in an important sector and impact the global economy.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
FAIRACRE SUPPORT LIMITED	By ICU Clinicians: Patent-pending device to reduce ICU nursing staff workload in managing patients coming off ventilation focussed on reducing lifting and transmission risk	£39,818	£27,873

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

Context: Due to COVID-19 each ICU nurse is now looking after at least 3 patients when they are taken off a ventilator, rather than the pre-COVID-19 recommended maximum of 1 nurse for every 2 patients.

The attrition of nurses due to being exposed to COVID-19 (i.e. less nurses available) along with increased workload resulting from more cases, creates a need to use new working methods/technologies to reduce nursing workload.

Vision: To develop a simple mechanical device to ensure patients remain in the best position to optimize the mechanics of their breathing (ventilation) and hence oxygenation, improving patient outcomes while reducing the need for nurses to physically move patients.

Reducing the need to reposition patients reduces the physical stress from repeated lifting (a major cause of injury to nursing staff) and reduces direct patient contact (important in reducing transmission risk).

Objective: To complete development of a device for trial in a National Health Service ('NHS') Intensive Care Unit (ICU) that will **maintain patients in the optimal breathing position for oxygenation and workload when they are 'extubated'** (i.e. come-off artificial ventilation) and reduce nursing workload and the risk of transmission.

Focus: When patients are extubated they are frequently extremely weak due to a combination of factors (illness, injury and the drugs used in their treatment). To improve the mechanics of breathing, they are sat up in their ICU beds which bend in the middle to facilitate a reclined upright position. Often however, due to their loss of muscle strength, the patients are unable to maintain this position and slide down the bed. This can then compromise their breathing and cause their oxygen saturation to drop.

In an ICU or High-Dependency Unit (HDU) one often hears the blood oxygen saturation meters alarming. Ordinarily one of the nursing team will assess the patient and, in many cases, all that is required to reposition the patient to restore the optimal position for efficient ventilation which typically takes 2 nurses 5 minutes each.

Focus: Reduce/eliminate the need to reposition patients in order to reduce nurse workload.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
RESPIRA LTD	AI development of self-supervised fluency therapy for people who stammer: micro-randomisation haptic feedback research study	£384,763	£269,334
THE BRITISH STAMMERING ASSOCIATION		£0	£0
University of Reading		£104,891	£104,891

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

Up to 3% of the population stammers (British Stammering Association, 2019). This condition can have distressing symptoms that deeply affect social and professional interactions and can define the life choices of those People Who Stammer (PWS): 60% of PWS suffer from Social Anxiety Disorder (SAD) (McAllister et al., 2017). Even if it is not currently possible to cure stammering, once it is established in adulthood, there exist a series of practices that, when mastered, help PWS to gain fluency levels similar to those of people who don't stammer.

For many PWS, the largest problem is not learning the techniques themselves, but turning these practices into habits, as this requires patience and support with ongoing practice. We believe that technology can help in this endeavour: BeneTalk is the first wearable device, which helps People Who Stammer (PWS) to establish and maintain fluency enhancing techniques learned in the initial therapy process. This is achieved through a novel application of digital technologies that enable the first implementation of an out-of-the-clinic therapy, supported by real-time feedback and performance history tracking. As a treatment centred on a wearable device, BeneTalk emerges as a new product linked to an innovative digital service that helps PWS to be in control of their own therapy. BeneTalk delivers a long-awaited solution to an old therapeutic problem with the potential to demonstrate significant step-changes in efficacy, speed and cost. BeneTalk acts as a virtual coach for PWS; as a therapeutic tool for speech and language therapists (SLTs); and a scientific instrument. We have filed a patent for the innovative technology behind BeneTalk as it is the first of its kind. Detailed information about BeneTalk can be found on [www.benetalk.com][0].

This project will validate BeneTalk using scientific and technical evidence, enabling the British Stammering Association (BSA) to endorse BeneTalk therapy as valid and close contact with PWS will help us to better understand commercial requirements. Consequently, BeneTalk will be in a stronger position to raise private funding and commercialise the product.

This project will enable the University of Reading (UoR) to publish the results of the first out-of-the-clinic real-time feedback assisted fluency therapy. Publications will be based on an unprecedented quantity and variety of data that may redirect future fluency research.

[0]: http://www.benetalk.com/

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SCI-TRON LIMITED	Development and commercialisation of dual resist technologies for fabrication in compound semi-conductors	£469,976	£324,283

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

Use of III-V compound semiconductors (CS) in a range of applications including high speed/power electronics, lasers, power amplifiers for mobile phones, RF/microwave, space-tech and photonics is on rise due to their superior light receiving/emitting functionality, very high frequency signal generation capacity, at-least 100-times more power than their silicon counterparts, high-speed signal processing, low voltage operation and magnetic/heat sensitivity.

CS patterning utilises following two major lithographic tools followed by an etch step (where the written pattern is transferred into the CS substrate):

* Photolithography(PL)--widely used, working at 365, 248 and 193nm for production of Integrated circuits (ICs); shorter wavelengths are only available for largest manufacturers (e.g. Intel/Samsung/TSMC/Global Foundries) but a large industry depends on fabrication at 365nm.
* Electron Beam Lithography(EBL)--used for key steps in electronics (e.g. mask-making) and more widely in smaller foundries to produce micro/nano-structures

III-V CS hardness presents significant technical challenges to etch thin deep features at high resolution (<100nm) and to etch through multilayer structures required for high-end future applications such as micro Lasers/LEDs, nanoscale spectrometers, sensors and wireless communications.

State-of-the-art solutions include positive (ZEP520A-chloroacrylate/styrene copolymer) and negative (HSQ-hydrogensilsesquixoane) tone solutions. ZEP520A gives an etch selectivity of 5:1\. which is insufficient to write deep thin structures, or to etch through multilayers of CS. HSQ can achieve etch-sensitivity of 7:1 but has drawbacks of requiring skilled chemist/lithographer, limited shelf-life due to degradation over time and damage to CS surface through adhesion.

Building upon outputs of Innovate-UK project (\#104747) and our expertise in making Heterometallic-Ring-Complexes as building blocks, we have already developed a lab-scale manufacturing process with a throughput of 0.5litres/day of resists which can be used with silicon nanostructures (9nm wide and 330nm high).

Driven by global end-user manufacturers' (Jet Propulsion Laboratory, CST, Microsemi, NASA, Ryan Briggs, Hughes Research Labs) demand of etching thin deep features at higher resolution and to be able to etch through multilayer structures; we can produce proof-of-principle quantities of (ca. 0.3litres) high-etch resists to be used with CS.

This 18months industrial-research project aims to design and build a flexible manufacturing facility producing high-etch resists (capacity=50 litres/annum @ production cost of <£400/litre) to enable fabrication of thinner deeper structures and multilayer structures of differing CS in many fewer write-develop-etch steps.

Project success will generate a catalogue of resists, made in small batches by Sci-Tron but all ready for contract manufacture. Sci-Resists will offer competitive advantages to all adopters and help growth of UK's vital high-tech sector.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
COMPACTGTL LIMITED	A novel small-scale Waste-to-Liquid system for production of liquid fuel	£905,019	£633,513
ASH WASTE SERVICES LIMITED		£134,240	£80,544
COMPACT SYNGAS SOLUTIONS LIMITED		£869,116	£608,381

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
Waste-to-Fuel conversion technologies (i.e. gasification, liquefaction, and pyrolysis) as alternatives to incineration, will help address renewable energy mandates such as the UK's Renewable-Transportation-Fuel-Obligation (RTFO) and government policies to improve resource efficiency and divert waste from landfill, create green jobs and meet local solid waste management needs. In the UK, the gasification industry is focused on the generation of a synthesis gas suitable for power generation. The alternative is gas-to-liquid (GTL) conversion using the synthesis gas in a Fischer-Tropsch (FT) reactor to produce a high-quality synthetic crude from sustainable waste and residues such as refuse derived fuel (RDF) and municipal solid waste (MSW). This sulphur-free crude can be upgraded to high quality diesel and naphtha products for conversion into transport fuel, supporting the UK Government's drive to reduce overall GHG emissions for sectors of the economy that are difficult to electrify (e.g. aviation and freight). Many key players (e.g. British Petroleum, Shell, Sasol) have invested substantial time and resource into GTL technology developments, primarily using the FT conversion process. However, their use is limited to large-scale operations due to high capital and operating costs. This project brings together a consortium of waste management, gas clean-up, gasification and GTL process expertise to develop a small-scale, modular and skid-mounted mobile waste-to-liquid (WTL) system offering substantial process improvements and significantly reduced capital and operating costs. Building on the state-of-the-art gasification and FT technologies of partners CompactGTL Ltd and Compact Syngas Solutions Limited, and RDF processing expertise of ASH Waste Services Limited, the project aims to explore technology integration opportunities and prove the whole value chain from waste preparation, to improved gasification performance, synthesis gas clean-up and liquid production, delivering a prototype system ready for scale-up and demonstration. The robust facility design will offer a commercially-viable solution for waste management facilities, as operators of commercial plants, to produce liquid hydrocarbons on-site from a range of waste and renewable feedstocks supported by gate-fees (net £55+ per ton) and Renewable Transport Fuel Certificates (up to £1.60 per liter for development fuels).

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
COLORIFIX LIMITED	A modular synthetic biology pipeline for the engineering of next generation sustainable and bioactive dyes	£350,237	£245,166
The Genome Analysis Centre		£147,902	£147,902

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

Critical for the success of any brand in the Textile industry is the dyeing process with a requirement for colours to demonstrate uniformity, resistance and economic viability. These requirements however come at a significant environmental and societal cost with the industry globally recognised as one of the most environmentally polluting Industrial processes, consuming \> 1.3 million tons of dyes and pigments p.a, the most common of which are synthetic azo dyes derived from petrochemical sources. These dyes are however highly toxic and bioaccumulative with some 200K tons lost annually in effluent, most escaping conventional wastewater treatment with textile dyeing accounting for over 20% of global industrial water pollution The industry is also one of the largest industrial water consumers with over 5.8 trillion litres of water consumed p.a.

Failed attempts to ban certain Azo dyes and control the release of toxic wastewaters, have placed significant pressure on the Textile industry for alternative dyeing methods as part of a global consumer and increasing regulatory demand for greater sustainability in production techniques. As a result, the market has seen a flux of 'natural dyes' growing rapidly in the $9.8 billion/year dye market. However, such dyes are rarely 'low-impact' often using mordants to "fix" colour onto the fabric and still consuming large quantities of water.

Based on advancements in synthetic biology, Colorifix offer an ecological and sustainable alternative to conventional dyeing techniques by converting low-cost commonly available agricultural by-products such as sugar molasses into high-value pigments and dyed textiles. All of this can be done without any acids, heavy metals or solvents as required in conventional dyeing. The Colorifix process also uses 10 times less water and up to 80% less energy.

With significant brand interest secured, and with Innovate UK support, Colorifix aim to deliver 18-month programme of Industrial Research in collaboration with the Earlham Institute to investigate the potential to scale production using industrial_Pseudomonas_ species as a replacement for traditional_Escherichia coli_ -_Pseudomona__s_ offering a metabolically versatile bacterium and an exceptional host for the expression of complex natural products but limited in its inability to degrade sucrose-based renewable feedstocks. These activities will enable Colorifix to truly scale the process and capitalise upon the Global market opportunity available. The arising knowledge also add significant value and open new opportunities to manufacture antiviral and antimicrobial dyes due to the reported therapeutic potential of anthraquinones.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
MOLEY SERVICES UK LIMITED	Development of intelligent, semi-autonomous robotic apparatus capable of automatically reacting to changing paramaters in real-time	£489,961	£342,973

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
Through our successful Innovate UK Smart project (Application Number: 23797), we have completed the development of a production demonstrator of the industry leading Moley Robotic Kitchen. In collaboration with Schunk, we developed a fourth-generation low-cost hand for Robot Chef, with the necessary grip to lift 1.8kgs pans with required degrees of movement. We have built our list of potential clients; large care-homes, hotels, commercial kitchens. However, existing robotic hands are limiting the functionality of the Moley Robotic Kitchen, as they require intricate manual programming to carry out complex cooking tasks and are unable to react to any changes made to a pre-determined cooking environment such as multiple objects of different shapes, weight and orientations. The aim of this project to redesign and upgrade firmware and software to create a game-changing, intelligent, robotic apparatus, including hands, capable of automatically adjusting to changes in the environment/parameters in real-time. This will have wider application in food processing/packaging and pharmaceutical, chemical and biotechnology (including cell cultivation) laboratory environments.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
THE ACTIVE HANDS COMPANY LIMITED	The sixth digit	£37,178	£16,730

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 team at Active Hands propose to develop a multi-function stylus tool (The Sixth Digit) that will be worn on the little and ring finger of one or both hands of those who otherwise struggle to use touchscreens, keypads, keyboards and trackpads. Its lightweight design will allow it to be put on and removed easily although it could also stay attached to the user for longer periods if required and would not interfere with pushing a wheelchair or using other mobility devices. The stylus will enable the user to press keys or interact with touchscreens when non-working fingers would otherwise make this job frustrating or impossible. The device will have a removable stylus tip that can be replaced or cleaned easily to prevent contamination risk when using some touchscreen or keypad devices in public spaces. Getting assistance with these tasks has become increasingly difficult in recent times, and many disabled people are forced to become more independent as risks of contamination restrict close social contact. For those needing to access benefit information, book online shopping, operate technology, apply for jobs and continue to be part of society being able to independently use modern technology is even more essential now than ever before.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
Biomex	ZAPPT – An AI-powered tool for reduced OA knee pain	£177,947	£124,563
Imperial College London		£75,724	£75,724

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
We have developed novel technology that enables directed, timed application of functional electrical stimulation to activate a subject's muscles in real time, as they move. Our system is based on simple motion sensors combined with advanced AI algorithms to process and understand movements in real time. Targeted muscular activation has various uses in rehabilitation and physical medicine. We have developed our technology for two initial groups of patients: those with injury to the anterior cruciate ligament (ACL) of the knee, and those with osteoarthritis of the knee. In the former group, targeted muscular activation enables dynamic bracing of the knee, stabilising the joint and allowing intensive rehabilitation to proceed. In the latter, precisely timed activation can enable knee joint unloading, which has been shown to be associated with reduced pain and improved prognosis. A unique feature of our technology is the ability, using algorithms developed using Artificial Intelligence (AI), to apply the stimulation during multiple different activities, and not just walking, making it a truly wearable device.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
WINVIC CONSTRUCTION LIMITED	AI System for Predicting Embodied Carbon (ASPEC) in Infrastructure Projects	£250,000	£125,000
COSTAIN LIMITED		£102,520	£51,260
EDGETRIX (UK) LTD		£207,480	£145,236
University of the West of England		£240,000	£240,000

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 government has set 2050 target for achieving a net zero greenhouse gas emission (Department for Business, Energy & Industrial Strategy, 2019). In the construction and infrastructure sector of the economy, the government has also set a target of a 50% reduction in carbon emissions, through the Construction 2025 strategy to transform the sector (UKGBC, 2017). Following the BREEAM sustainability requirements, construction organisations and clients have continuously worked to achieve the carbon emission reduction target set by the government through the use of various embodied carbon estimation techniques. The construction organisations over the years learnt a lot about embodied carbon performance on projects. These lessons learnt have continue to influence the way organisations address the issue of embodied carbon on infrastructure projects. The current methods for calculating embodied carbon of infrastructure projects is tedious and requires a lot of man-hour (Embley, 2019). In addition, existing methods do not provide design support for driving down the embodied carbon and carbon footprint of projects.

This project will develop an AI system for Embodied Carbon Analytics and prediction of infrastructure projects based on BIM designs, materials carbon data and lessons learnt on past projects. The embodied carbon data of past projects will be used to train and develop deep learning models (such as deep neural network, convolutional neural network). Advanced big data analytics techniques will be used to develop the embodied carbon analytics platform.

The proposed system will have the following components:

1\. AI-based Embodied Carbon Calculator(ECC): This subsystem will use historic embodied carbon data from previous construction projects to develop machine learning models to predict the embodied carbon based on construction project design. Parametric data from the construction project design will be used to train and develop the machine learning models.

2\. Embodied Carbon Analytics and Simulation Platform(ECAS): The ECAS will provide a platform where what-if analysis of embodied carbon of projects will be carried out with the aim of identifying alternative design specifications that reduce embodied carbon of the project. The tool will use advanced big data analytics method that include predictive analytics, prescriptive analytics and visualisation.

3\. BIM-based Design Support Tool for Embodied Carbon Analytics(B-DST): The B-DST will provide a platform to support the design team at the design stage of infrastructure projects. The B-DST functionality will be provided through the ASPEC's Application Programming Interface(API) that will be available as a plug-in to the existing BIM development software(e.g. Revit).

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
RINICOM LIMITED	Six Axis Monitoring (SAM) local position reference system for dynamic positioning for safer offshore wind installation, servicing and maintenance operations.	£233,723	£163,606
EDDA SUPPLY SHIPS (UK) LIMITED		£117,700	£82,390

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
With global energy demand set to increase by 40% by 2030 and climate change issues mandating a reduction in non-renewable energy sources, wind energy has become the leading candidate for energy production. Offshore wind energy production offers the potential for wide-scale energy production due to its advantages over its onshore counterpart including less visual pollution, less competition with agricultural operations, more/stronger consistent winds. However, offshore wind generation suffers from an increased Levelized Cost Of Electricity due to a range of factors; increased operational, installation/maintenance costs, significant safety issues and limited operating conditions. A key focus of the UK government is to reduce the costs associated with offshore energy production mainly associated with operating in a marine environment, which includes the need for a recognised dynamic positioning solution for monitoring two objects in motion efficiently and safely. Rinicom aims to further develop and validate their Six-Axis Monitoring (SAM) technology in a relevant environment using existing video analytics and machine vision algorithms to a novel offshore wind use-case using off the shelf components to ensure ease of integration and a cost-effective solution. This project will also leverage the expertise of Edda Supply Ships (a subsidiary of Østensjø Rederi) to test and validate the SAM technology. This technology offers a step-change with respect to marine-based dynamic positioning and monitoring systems, with improved accuracy, low latency, lower costs and ease of retrofitting and integration into existing vessel systems, enabling the reduction of costs associated with operational and maintenance aspects of offshore wind energy generation, benefitting society as a whole. With market need validated (through discussions with end-users including Edda Supply Ships) and building upon previous proof of concept in-house laboratory studies that presented promising accuracy results (acceleration/velocity accuracy: <99%, displacement accuracy: 5cm at 50m), this project will further develop the SAM technology and validate a prototype in a relevant environment. This novel technology has the potential to completely revolutionise the way in which installations and maintenance is undertaken on offshore energy infrastructure in order to reduce the cost of operation, increase number of operational days and increase the safety of operating heavy machinery in challenging conditions. This innovative solution has the potential to be exploited across the globe in a range key sectors (including oil and gas, passenger ferries, etc.) and will reduce the overall Localised Cost of Electricity for offshore wind energy.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
TRADE IN SPACE LIMITED	Satellite Brokered End-to-End Commodity Trade	£80,426	£56,298

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
Coffee is the world's most consumed beverage, and the people of the UK drink an estimated 95million cups per day. Whilst directly fuelling approximately 210,000 jobs in the UK alone (most of which are furloghed at time of writing - May 2020), coffee businesses produce a direct GVA of £9.1 Billion per year approximately 80% of which is retained in country, with the indirect value and value of induced multipliers estimated to raise the value of the sector to £17.7 Billion. But there are huge challenges and threats to the sector around the world, most of which stem from the fact that coffee supply chains are complex; risks include volatile weather and climate effects in the tropics where the crops are grown; unsustainable often loss-making farming practices, and now, COVID-19 induced pressures on the retail sector. Trade in Space has developed technology which can improve the profitability and value of each part of the coffee supply chain and value chain, by automating and shortening the administrative burden and tracability of coffee as it makes it's way from Brazil to Birmingham, or from Guatemala to Glasgow.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
1-VIA LTD	Enabling Clean Growth of Hyperscale Datacentres	£478,893	£335,225

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
1-VIA is developing high-performance, low-power semiconductor solutions for the datacentre, enterprise networking and high-performance computing markets. 1-VIA aims to enable next-generation 400GbE datacenters by providing energy-efficient, high-speed links and transceivers using state-of-the-art, integrated circuits (IC's). 1-VIA's overall strategy is to leverage its chip design expertise to deliver low-carbon technologies for next-generation datacentres, enabling datacentres to achieve significant improvements in cost and energy-efficiency, thus creating significant value whilst improving the UK's sustainability. 1-VIA aims to contribute towards reducing global warming by increasing power efficiency in datacentres, reducing carbon emissions by **57 Million** **tonnes of CO2,** in turn reducing global warming by **74.19 µ°C** over 5 years (2025-2029). Lower energy consumption would result in a smaller and therefore cheaper renewable or low-carbon energy system, which would enable countries worldwide to further de-carbonise their energy systems which is critical for countries to reach their climate objectives in 2030 and 2050\. 1-VIA will place the UK at the forefront of leading the world to move towards clean datacentres, representing a market opportunity of over **£4.5 Billion**.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
STORE PERFORMANCE LIMITED	The Store Analysis Machine Project (SAM)	£195,952	£137,166

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
Successful Quick Service Restaurant (QSR) performance is based on a clear understanding of location, footfall, and its customers. We were approached by a global QSR business to capture store and contextual level data and intelligently use the data to promote menu items. Two other QSR chains concurred that this is a genuine need. Store Analysis Machine (SAM) collects data, analyses it and promotes on in-store digital menus in real-time the right product based on current context and feedback from previous promotions. SAM monitors and links current data in-restaurant and additional customer centric data including demographic, footfall, weather, events etc. Using business rules and machine learning, SAM promotes through in-restaurant and digital channels to increase revenue and reduce waste. This project creates a unique machine learning engine that works with SAM to provide real-time restaurant-level demand-based promotion in-restaurant and on other digital channels.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
LEXBLOCK LIMITED	Artists Ahead	£248,096	£173,667

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
Artists Ahead is researching a blockchain-enabled digital asset, data and royalty management solution for music creators and songwriters that will transform the way digital income is collected and processed and allow music creators to take control of their own destiny for the first time in the history of the music industry. There is a pressing need to reduce the cost of collection of royalties arising from the digital exploitation of songs, particularly streaming, and improve the speed of collection, transparency of accounting, and protection of the underlying intellectual property. The lack of a formal copyright registry in the UK means creators can face difficulties when trying to prove provenance of their work. Despite consumption being digital, obtaining usage data remains difficult. The current system for paying music royalties to artists is not fit for purpose and there is an extreme lack of control for the artist over their own music and income. Even the biggest names in music face the same problem. Typically multiple intermediaries sit between the source of the royalty and the recipient. Many of these intermediaries employs complex and often manual collections processes to handle the data and money that were not designed for the digital world, resulting in: * high commissions * multiple errors * long delays * sometimes a complete lack of financial reporting * low visibility and transparency * lack of trust Blockchain is the perfect technology for solving these problems as it can: 1\. Immutably record ownership of the IP in the public domain 2\. Deal with the complexity and huge volume of micro royalty transactions in a scaleable and efficient way with a clear audit trail for participants. We will provide a radically more efficient way of aggregating complex datasets and making them easily available to our customers, and paying royalties directly, correctly, transparently, and in real time.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
BARRACUDA SYSTEMS LIMITED	Klevoya: A Cybersecurity solution for WebAssembly based distributed ledgers	£134,573	£94,201

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
Over the last several years there has been a growing interest in distributed ledger technologies (DLTs - which include blockchains such as Ethereum and EOS). One powerful aspect of DLTs that is fueling this interest is that of smart contracts, which are software programs that execute on distributed ledgers. Smart contracts are used to i) control the flow of digital rights (e.g. funds and assets) between several parties and, ii) encapsulate the business logic (i.e. the rules for how a business operates; e.g. a bank policy limiting how much can be transferred in one transaction) for modifying a record in a distributed ledger. The transactions that a smart contract controls are stored in an immutable fashion on the distributed ledger without requiring a central authority to validate them. Ensuring that smart contracts are free of business logic errors and vulnerabilities is extremely difficult as they have open and exposed APIs and are immutable once deployed. This results in an exponential number of scenarios to be tested, making it difficult to verify their correct operation. The growth in DLTs and difficulties in testing them has brought about an attendant interest from bad actors in exploiting - for financial gain - applications deployed on DLT platforms. These bad actors actively seek out new vulnerabilities that are unknown to DLT application developers and use that knowledge to attack and exploit DLT applications. (Such newly discovered vulnerabilities are termed "zero-day" vulnerabilities, as the exploit of the vulnerability takes place before or on the first (or "zeroth") day of a developer's awareness of the exploit.) Klevoya is developing a new cybersecurity solution that will enable developers of DLT applications to ensure that their applications are free from vulnerabilities prior to being deployed on a public distributed ledger application platform that uses the WebAssembly (WASM) virtual machine (e.g. EOS, or Ethereum version 2's Ethereum WASM - eWASM). This project aims to conduct applied research into techniques to perform fuzzing of DLT applications to uncover zero-day vulnerabilities and bugs in their implementation. Securing applications deployed on DLT platforms will be critical to the UK's success in positioning itself as a leader in the DLT sector. The UK is well known for its cybersecurity expertise. Through this project, we will be able to leverage those skills; applying cutting edge cybersecurity technology to DLTs and enabling the UK to become a world-leading global provider of secure DLT applications.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
GELMETIX LIMITED	A Novel Therapeutic Gel Option for Improvement of Joint Function in Osteoarthritic Patients	£478,722	£335,105

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
Osteoarthritis is a significant global healthcare challenge. It is a long-term chronic disease, is characterized by the thinning of synovial fluid and subsequent deterioration of cartilage in joints which results in bones rubbing together and creating stiffness, immobilising pain, and impaired movement. Osteoarthritis most commonly affects seniors and is expected to sharply increase with an aging population. This project seeks to fully study the preclinical feasibility process of employing a novel therapeutic gel for the improvement of joint function in osteoarthritic patients. It will investigate translating the use of a patented microgel targeted for use in the spine, and assess the idea of leveraging the physical capacities of this 'SXM' gel to create intra-articular cushioning. The gel would be introduced to the joint through a small needle without creating further damage. As the gel swells it becomes viscous and can visco-supplement the joint allowing natural motion with reduced pain. Gelmetix Ltd, who is developing the SXM gel, will simultaneously develop a full commercialisation Business Plan containing full market details, commercial strategy and estimate the economic benefits to patients and healthcare providers.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
IMSPEX DIAGNOSTICS LIMITED	Early Detection of Biocontamination by Fast GC/IMS	£177,635	£106,581
Aliaxis		£20,000	£0
IMPERIAL CHEMICAL INDUSTRIES LIMITED		£20,000	£0
Nouryon		£54,310	£0
University of South Wales		£84,126	£84,126

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
Biocides are used to control harmful and unwanted organisms and microorganisms and are used in many manufacturing processes to reduce the risk of bio-contamination in products. This can have a negative effect on the environment and so in the future here will be less and less biocides used. Although good news for the environment, manufacturers are finding it difficult to know when they have bio-contamination in their products. Bio-contamination in manufacturing processes, can ruin product ready for sale, costing manufactures millions of pounds in spoilt product or recalls. This project will develop a new analytical system for detecting and warning of unwanted biocontamination in water-based industrial systems. This project will be carried out using technology called GC-IMS to look at the key fingerprint biomarkers identified in the first stages of the project as potential early warning signals for industrial biocontamination events. Different type of mixtures will be tested to evaluate a wider range of industrially relevant samples. IMSPEX Diagnostics Ltd will further develop their GC-IMS device, which has already been successfully deployed in industrial settings. The developments are needed to make the GC-IMS sampling even more sensitive. This will advance the current instrumental detection limits by a factor of 1000\. IMSPEX will have help from leading IMS application development scientists from the University of South Wales. Creating a cost-effective, robust and easy-to-deploy biocontamination testing system to deliver a more robust alarm for biocontamination in under 30 minutes will be of great benefit, when compared to what is currently available of which can only yield results in days rather than minutes. After the project IMSPEX aims to bring to market a tool that can assist in not only significantly lowering the risk of catastrophic biocontamination events occurring in manufacturing environments but also lower the overall use of biocides, increasing sustainability of water-based manufacturing processes. There is an opportunity for IMSPEX Diagnostics to be first to market with such as system.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
EVRYTHNG LIMITED	A scalable automated machine learning framework for supply chain integrity	£454,990	£318,493
MACDONALD & MUIR LIMITED		£44,870	£22,435

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

From bottles of spirits to handbags to tee-shirts, billions of products are getting connected to the Web and digitally coming to life. This means they can be tracked and authenticated throughout the supply chain, providing new levels of transparency. Each item is given a unique identity, applied physically via a serialized label (e.g., QR-code or NFC/RFID tag), with a digital-twin in the cloud.

At every stage in the product journey, the physical item is scanned, and the digital twin is updated. From the factory gate, through networks of distributors, and to the retailer, product journeys are recorded. This extends to the point-of-sale, and even into the hands of the consumer when they scan products' QR-codes or NFC tags using their smartphone. EVRYTHNG tracks each individual product, allowing us to build up a detailed picture of every item's journey.

EVRYTHNG uses standardised formats (e.g., GS1 DigitalLink, which EVRYTHNG co-chaired), with serialized identifiers encoded as URLs. This is an open format and can be read at point-of-sale, and by consumers (e.g., smartphones). Most track-and-trace solutions focus only on the supply chain, and stop at the checkout; therefore do not leverage an important set of events: consumer scans. Our approach crowd-sources part of the work to consumers who will scan products, providing valuable data. As shown by both pilots and rollouts we worked on, a significant fraction of consumers scan items when incentivised by brands (e.g., customer-loyalty programs, detailed product traceability, etc.). By leveraging consumer scans, we break down barriers between the supply-chain and consumers, providing greater opportunities for the use of data-driven approaches to determine product authenticity.

Analysing these large and complex datasets, however, is a challenge. The volumes of data are simply too large for manual methods, and changes in context are too frequent for rules-based methods (e.g., promotions, new sales channels, etc.,). Machine learning can identify complex patterns in vast datasets. EVRYTHNG is building automated machine learning tools, providing a scalable solution that allows business users to analyse their data, and detect supply chain integrity issues. This represents a step-change in visibility over supply chains, providing consumers with a new level of confidence in product authenticity, and brands with unprecedented insights on issues with the integrity of their supply chains.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
DBS MUSIC HOLDINGS LIMITED	Talkback: Voice Control of Software for the Creative Industries	£67,972	£47,580

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

We will combine cutting edge Artificial Intelligence and Natural Language Processing with the industry standard method of digital control in music production, MIDI (Musical Instrument Digital Interface). For 40 years, MIDI has been the standard computer 'language' for passing instructions between digital music hardware/software such as "Play Note Middle C". It can also send commands to DAWs, to add a track or change the values of controls. Since all DAWs communicate with MIDI, Talkback can be implemented with whichever DAW a user is most familiar.

Thus, with Talkback, a visually impaired user could be playing their guitar and simply ask the software to "Create a Guitar track with my favourite settings, and start recording, now."

In addition, because of its widespread adoption and simplicity, using MIDI means that similar non-musical applications could potentially access the same opportunities for voice control, like film editing and graphics software.

Talkback is a project to improve accessibility and workflow in the creative industries by providing voice command functionality to the specialised digital music software millions of professional and educational users employ. It also addresses important accessibility concerns with this software which at present relies exclusively on screen-based interaction and the attendant visual and mobility requirements of operating keyboard and mouse.

Music production employs specialised Digital Audio Workstation (DAW) software which combines music composition/generation and audio recording/mixing into one screen-based system. A project comprises separate 'tracks' for instruments or sounds, with modern techniques requiring upwards of 20 and sometimes as many as 200 tracks. Each track may be a microphone recording or a digital instrument generated within the software, but each have many different controls, thus many thousands of separate parameters must be correctly set within the entire project.

DAWs use drop-down menus and graphical controls which are highly visually reliant so without seeing the screen they are virtually impossible to use. Even commercially available physical control surfaces require excellent physical mobility and fine motor control so support for people with visual and/or mobility impairments is highly limited. Even non-disabled users cannot operate these systems while playing their instrument since doing so precludes using the mouse.

Talkback returns the act of musical creation to its origins in human communication, by placing DAW controls back into the domain of naturally spoken requests. When playing in a band we simply say "the guitars should be louder": DAW control should operate the same way.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
Syrona Women	Feasibility study for detection of PCOS in novel sample	£337,684	£236,379

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
Syrona is an online digital clinic for women's health providing screening and support service with an app to monitor symptoms and book gynaecologist consultations online. 1 in 5 women in the UK suffers from PCOS. There is an increase in misdiagnosis and long waiting times with women often having to visit the GP 3 times on average before testing begins. Therefore a home-test based screening service would achieve higher uptake due to convenience, simplicity, privacy and a non-invasive sample collection method. The feasibility studies will include both clinical and non-clinical work packages. The clinical work package will demonstrate biomarker performance against the gold standard and the non-clinical work package will help software development to support online gynaecologist consultations and patient symptom monitoring. We envision the commercialisation of this innovation in the format of a home-kit (sample collected at-home) which will act as a screening tool for women who are at risk of having PCOS. All results will be in the format of a risk analysis which combines both the biological (lab results) and digital patient-recorded symptom data sets (App). Further diagnosis such as scans (TVUS) will then be conducted by a registered physician. Our future ambitions will see our platform expanded to secondary markets beyond the UK and sustainable financing of future innovations in other women's health conditions such as endometriosis for instance.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ZIVOT IO LTD	Data-sharing techniques for UK pensions	£281,336	£196,935

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
Every new job and employer now means a new pension for a saver. So there's a rocketing number of small pension pots left behind, with an average of 11 forecast per person by retirement. Having multiple, small scattered pots offers poor value for money, with some eaten up by administration charges and many likely to be forgotten (1.6 million lost pots are thought to be worth £20bn). The importance of pensions in ageing societies has never been greater. But a lack of consistent data is one of the greatest obstacles to finding and consolidating pensions and offering helpful insights to savers on how to achieve a secure retirement. In this project, we apply state-of-the-art cryptographic technology so that the pensions industry can securely share data for actionable insights, and streamline processes around finding and consolidating pensions.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
ECHOBOX LTD	Automating social media management with artificial intelligence	£495,905	£347,134

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
UK SME Echobox is developing a revolutionary artificial intelligence (AI) software to address current challenges faced by the news publishing industry. With a globally renowned team of employees, investors and advisors, and a global client base, Echobox seeks to further advance its patent-pending technology through this Industrial Research project. Currently, most news publishers manually share their content on social media (Facebook, Twitter, Instagram, Snapchat, Youtube, TikTok, LinkedIn etc.), using manual data analysis to decide what content to share, when to share it, and how to share it. Their aim is to generate as much attention on social media as possible, which they then monetise through advertising. Social media has become a crucial distribution channel, generating a significant share of the advertising revenue that finances modern journalism. Manual data analysis and content distribution are costly and inefficient. Echobox's technology is a world-first, with the capability to automate 100% of social media posts by news publishers and generate massive amounts of additional traffic and thereby revenue for them. This transformative solution provides publishers with a strong alternative to the current outdated market provision and will enable them to recover their financial sustainability, which has been undermined by the disappearance of print advertising revenue. As well as forming an industry-leading team of developers, data scientists and company advisors, Echobox has previously secured venture capital investment from the UK and North America and is already selling software products to leading news publishers in over 40 countries, demonstrating a capability to deliver this game-changing innovation to a global market within months of completing this Industrial Research project.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
J C M OPERATIONS LIMITED	Smartphone Low Volume Blood Test	£374,810	£262,367

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 aims to create a simple Pinprick blood test system that runs on any smartphone allowing anyone using it to predict whether they are going to show symptoms of COVID-19 up to two weeks earlier than PCR tests can. It gives the potential for everyone worldwide who has access to a smartphone be able to self-test cheaply and frequently as often as they like. This means that lockdown can be released far earlier globally and due to the flexibility of the test means the new waves and even new mutations and strains can be detected as they arise and individuals can be quarantined accordingly stopping the emergence of second and subsequent waves.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
GITSTUDIO LTD	GitStudio Ltd aims to create a hassle-free, user-friendly version control system for the world's designers to simplify their collaboration with developers and markedly improve project completion times by 15%.	£440,406	£308,284

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
Unmet Need The majority of designers are not familiar with the concept of version control, and very few designers use versioning tools in their work. Current version control systems (VCS) use a command-line interface and are not user-friendly in their workflow. They have limited tool and software integration, and do not have the visual capabilities required by artists, designers, and creative teams. (Goel, 2017). Most version control systems are built to handle source code and are marketed more towards development teams. **Solution Proposed** GitStudio Ltd (GitStudio) was founded by Nic Johns: a serial entrepreneur and software developer with prior experience in the film and games industries. GitStudio is solving a substantial non-user-friendly, text-oriented software version control need that could reduce team project completion times and costs by 15%: an innovative and user-friendly version control system for designers to improve productivity by 20%. **Opportunity** GitStudio has been explicitly designed to help creative teams work together on the large-scale digital art files required for next-generation productions. This industrial research project aims to complete proof-of-concept work and obtain user experience data.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DRAINAGE MANAGEMENT SERVICES LIMITED	mmWave Device for Sewer Monitoring	£136,074	£61,233

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 goal is to create an electronic sensor device, to be built into a sewer access cover, that is able to transmit and receive Extreme High Frequency (EHF) radio signals, known as Millimetre Wave (mmWave). This will allow it to measure the depth and flow of the foul-water beneath, along with other conditions of the access chamber, in order to predict and thus prevent foul-water overflows in a variety of sewer environments. This will (i) cut sewer maintenance costs, and regulatory penalties, (ii) ensure greater infrastructure safety, (iii) avert property damage and public disruption, and (iv) reduce environmental damage. mmWave/EHF frequencies are increasingly being utilised in a variety of applications, but they have not thus far been applied in the context of closed sewer networks. Our design would thus be the first smart-city initiative of its kind and offers a 'step change' from current state of the art technologies. Sewer networks are regularly prone to overflow. This is generally due to excess water (from heavy rainfall) or blockage (caused by obstructing bodies, such as natural debris or human-generated waste). At present, overflow is predominantly addressed post-event, i.e. when an overflow has already occurred and is reported by members of the public. Overflow prevention is both costly and manual, being dependent on routine inspection rounds. Our project will yield a new technology capable of identifying a prospective overflow _before_ it occurs. The mmWave sensor will detect changes in water levels, as well as indicative change (or halting) of flow rate. Data will be transmitted using the company's existing ultra-low power, cellular-based IoT electronics to the sewer operator via an online dashboard or data integration, alerting the operator of the impending overflow event and allowing the operator to promptly attend to the blockage _prior to_ the overflow. Even in cases of heavy rain causing 'hydraulic overload', the mmWave sewer sensor device will alert the operator to areas in the sewer network needing the most imminent attention, improving response capabilities and reducing the overall severity of the event. Our project will not only help water companies develop more efficient maintenance programmes and avoid large regulatory fines, but will also have a profound impact on communities: improving safety, preventing property damage, and protecting watercourses from contamination.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
IO MEDIA GROUP LTD	Live News Systems	£215,000	£150,500

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 iOMedia Group Ltd has developed the Live News & Sports System, which uniquely provides virtualised live production systems deployed and managed in the Cloud, while also offering automatic data and content transfer from linear media rundowns to digital apps and web pages, under patent. The initial project planning, data ingest, scripting, editing, graphic referencing, sequencing, timing and playout can not only all be handled in the Cloud, but also on site, if and when inter connectivity and localised latency may be an issue. Virtualising the process allows for any and all of the functions involved in the creative and technical production line to be remote from one another, while also being simple enough to operate, to allow creative skills to dominate over technical skills and allow a greater attribute of creative output. The patented process also allows non linear publishers to control their own production and output to smartphones and web pages. Utilising additional functions such as of Chyron virtual reality and animated graphics, together with their VidioGo automated production control system, LNS provides a unique, end-to-end live and pre-record, multi-platform production system, for linear and non-linear output. Developed with the assistance of Innovate UK and the UK Government, LNS is available through local representatives world wide, from its head quarters in Chiswick Park, London. www.livesystems.io & www.iomediagoup.eu

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
TECMAN SPECIALITY MATERIALS LTD	Industrialising DAAT®, a novel structural adhesive bonding tape	£339,392	£237,574

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
Adhesives capable of bonding structural components and subsystems are a key enabler for automotive OEMs to achieve emissions reductions. This is because they have unrivalled potential to simplify introduction of new lightweight composite and advanced metal materials into these safety-critical applications. However, most current structural adhesives are elastomer-based epoxy resins, which are applied in liquid form using 6-axis robots. These adhesives typically have long curing times, during which components must be securely clamped in jigs because the adhesive can still flow until the cure is complete. As well as high production cell Capex, the process footprint and corresponding real estate cost to adopt these existing processes at scale restricts the realisation of wider automotive lightweighting strategies across OEMs of all sizes. Consequently, new structural adhesive films and tapes are gaining significant OEM traction, as they address the fundamental challenges of liquid adhesive application, pre-cure flow and curing times. However, few provide sufficient shear strength for application in the most demanding structural applications. Critically, the requirement for costly clamps and jigs also remains, due to these films and tapes also lacking: * Tack: to resist separation after initial contact * Green strength: to resist adhesive flow and joint deformation, fracture and movement during curing No existing approach bridges the gap between pressure sensitive adhesives in tape-form and structural adhesives. In response, Tecman Speciality Materials is developing Dual Action Adhesive Tape (DAAT, registered trademark). Uniquely introducing novel pressure sensitive bonding chemistry into a thermally-activated structural epoxy, DAAT yields: 1. An instant bond on contact, capable of self-supporting structural components and sub-assemblies 2. World-leading post-cure strength Building on their core R&D and scale-up initiation, TSM now seek to develop and validate a volume-ready continuous manufacturing protocol for DAAT, to realise the exceptional commercial potential in automotive applications.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GETMYEQUIPMENT LTD	Vimba Construct Ltd: Connecting the construction industry, leveraging smart contracts, to make equipment rental easy, fast, reliable and trustworthy.	£100,000	£70,000

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
Vimba Construct Ltd's project is to help to improve the productivity of the construction industry by developing a digital platform to connect construction companies with equipment rental companies, to make equipment rental easy, fast, reliable and trustworthy. Sharing economy platforms such as Airbnb and gig economy platforms such as Uber have realised huge success in the consumer sectors, however these technologies have not yet transitioned to business-to-business industrial sectors such as agriculture, mining, oil and gas and construction. Startups that have attempted to bring these solutions to industrial sectors are generally at a very early stage and have not yet proven the commercial scalability for industrial use cases. The aim of smart contracts is to provide security that is superior to traditional contract law and to reduce transaction costs associated with contracting. Smart contracts technologies have had some success in tracking goods or documentation through supply chains such as in the shipping industry however the technology has not yet transitioned to industrial sectors such as agriculture, mining, oil and gas and construction. These industrial sectors have generally been very slow to adopt new digital technologies and have followed many of the same procedures in their supply chains for decades. Startups in this space are generally at a very early stage and have not yet proven the commercial scalability for industrial use cases. Smart contracts tend to work well for cryptocurrencies because the execution of payment instructions is for a digital currency. In order to realise the benefits of smart contracts in industrial sectors, since the sectors are highly unlikely to revert to cryptocurrencies in the medium term, innovative solutions are needed to integrate smart contracts into third party ERP systems. The construction sector has lagged in productivity compared with other sectors for decades and maintains significant inefficiencies in supply chain management, contracting, collaboration, and asset utilisation. The industry is under increasing pressure to adopt digital technologies and new ways of working to improve productivity. In order to respond to this need, Vimba is leveraging the sharing economy and smart contracts technology to develop a digital platform which will help to improve the productivity of equipment rental. It will do this by reducing the cost and time to source equipment, manage contracts, pay suppliers and by increasing utilisation.

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Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
FACTMATA LIMITED	Explainable AI-Based Multi-Lingual Content Moderation System	£439,211	£197,645

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
Existing moderation tools are based on keyword lists or blacklists of sites maintained by teams every day. These are slow and painful to maintain, and also embed the biases of moderators by their very nature of existing, often being biased against certain races. Alternatively, platforms like Facebook spend up to £2.5bn a year and employ 30,000 individuals to manually check social media posts, facing major risks to mental health. Most tools do not account for the separate policies that different brands, agencies and advertising networks have towards misinformation, hate speech and new forms of harmful content The project will produce an innovative dashboard for advertising professionals and human moderators monitoring websites on their inventory network, and in their target site lists. The system will detect propaganda, hate speech, threats and more across French, Spanish, Italian, Portuguese and German, and provide explanations for any high or low classification scores. The core innovation is building an ensemble zero-shot transfer learning and machine translation AI model which is trained on nique, culturally specific, training and test data for propaganda detection in local dialects. To obtain this data, Factmata will work with key communities such as the French Licra (International League Against Racism and Antisemitism). The project will help any platform that hosts content to build tailored models to take down or flag harmful content in multiple languages, and auto-train systems based on their own preferences and rules. Factmata has experience in the fields of automated fact checking, natural language processing ("NLP"), data annotation and more; and has successfully built algorithms to detect hate speech and propaganda language. It already has two major customers within the syndicated media network and programmatic advertising space, who have asked to use the product proposed. The team has experience selling into the content moderation industry and has built a successful service moderating propaganda in the English language only. The project will deliver significant export-led growth, a substantial ROI, increased employment and further opportunity for R&D investment.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RASIC LTD	Improving Passenegr safety through the provision of Crowding information on all British RailwayTrains	£230,638	£161,447
9Q LTD		£266,586	£183,944

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
RASIC Ltd has been researching how to predict rail demand to improve operational responses to train delays and long-term timetable planning to better meet passenger needs. Even in today's technological world that rail operators and passengers often rely upon legacy systems to help them plan the timetable (short and long-term) and manage the flow of information. This means train operators rely on forecast models to plan future timetables (often as long as two years in advance) and struggle to make timely decisions in real-time during perturbation which, leads to passenger dissatisfaction. We identified that there was a need to gather data and predict demand and the likelihood of crowding at stations and on-trains so that we can improve decision-making in real-time and in the future. This need will be greater in a post-COVID19 transport system in order to make travelling by public transport safer. We have developed a tool that will allow railway operators to access real time passenger demand and travel behaviours to allow demand-responsive timetabling in response to COVID19 and future pandemics. The product has been developed for the infrastructure and railway operators in the U.K. We are now creating a new customer facing version for journey planners and websites. The focus of our product will be to launch a new tool in assisting getting populations back to economic activities (work and education) but, doing so in a safe manner and, also in a sustainable way by supporting and encouraging the use of public transport. Our product aims to make the traveller safe in a post-COVID19 environment and put them in control of how and when they made their journey through the use of predictive analytics and artificial intelligence. In continuing to support recovery from the COVID19 pandemic it is imperative that we continue to encourage public transport. A significant reason for this is the need to build on the recent reductions in air pollution and aid recovering COVID19 survivors.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PAPERCUP TECHNOLOGIES LIMITED	Highly expressive voices for machine video content localisation	£488,974	£342,282

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

Imagine any video available in any language, with both the unique qualities of the original actors' voices, and the unique way in which they delivered their lines, preserved in the new language. This is the ambitious vision that Papercup will make reality by harnessing the latest developments in the world of machine learning.

In 2016, Google's Deepmind created the WaveNet vocoder. This was a revolution in speech synthesis. Prior to this, speech synthesis models were either concatenative (meaning that they work by glueing together short audio samples of recorded speech) or modelled methods, which generate speech "from scratch" using a model of how the human speech production system works. Concatenative synthesis typically resulted in more natural sounding voices, but with unnatural flow because the audio samples come from unrelated sections of speech. Modelled methods tended to produce better flow, but the voices sounded robotic. WaveNet is a deep-learning method, trained directly on audio samples, and combines the natural variation of modelled methods with the natural sound of concatenative methods. This development means that speech synthesis could become essentially indistinguishable from human speech.

A vocoder (such as WaveNet), however, is not even half the story. You still have to tell it what to say, and how to say it. For a computer to achieve this, we must first recognise what was said in the original video, by whom, and in what way. Papercup exploits the latest developments in deep learning and has developed a patent-pending method for analysing the unique acoustic features of each speaker, and the way in which they delivered their lines. This is encoded by our algorithms using an internal learned representation, which enables the stresses, intonation, and emotion to be transferred across languages, in a manner analogous to the way translation tools translate text from one language to another.

In this way, Papercup's approach replicates the unique vocal characteristics of the actors, and replicates their delivery. This has the potential to revolutionise the voiceover translation industry by creating faithful voiceover translations that accurately convey the original content in additional languages, and do so at scale with significantly lower costs than using traditional voiceover translation services with voice-actors.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CREATE TECHNOLOGIES LIMITED	Sensorium: Fully-Sensed Virtual Reality	£70,836	£49,585
CREATEC ROBOTICS LIMITED		£32,534	£22,774

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
The focus of the project will be on how to use an arbitrary number of commercial off-the-shelf sensors to stream a real-time 3D view of a scene in VR to be useful in remote operations, for example, the control of robotics in hazardous places such as found in nuclear decommissioning. The innovation will be focused on novel techniques for efficiently processing the large amounts of data produced from multiple 3D sensors and how to send the data to multiple users in VR, giving them a reliably high quality and low latency virtual presence in a remote scene. The project will contribute to producing a module that is usable out-of-the-box allowing users to easily combine any number of 3D sensors for the purpose of sensed VR 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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Results of Competition: Innovate UK Smart Grants: January 2020

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Total available funding is £50 million

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
TENZO LIMITED	A.I. forecasting to reduce food waste	£494,474	£222,513

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 hospitality industry generates over 1 million tonnes of food waste each year, equivalent to approximately £3 billion in cost and over 4.5 million tonnes of CO2\. At the same time, UK restaurants yield a meager 3-5% average profit margin, making it one of the least profitable industries in the country. This economic struggle has been dramatically exacerbated by the COVID crisis. Through effective food waste reduction, restaurants can boost profitability by up to 2pp, while drastically reducing the environmental impact of their operations.
 	
The key to reducing food waste lies in accurate demand forecasting. Restaurants order their perishable inventory days and weeks before selling dishes to their customers. Given that most restaurants rely on rigid 4-week demand averages and gut instinct to make their procurement decisions, food orders are routinely in excess of real demand - creating food waste.
 	
Tenzo will research & develop a cutting-edge forecasting tool, which will allow restaurant businesses to accurately forecast customer demand. Utilising powerful artificial intelligence algorithms, the tool will achieve the following objectives:
 	
* Generate accurate restaurant sales forecasts based on historical sales, weather, public events and other features
* Split daily forecasts into item-level and hourly projections
* Provide those forecasts to frontline workers (chefs, section managers, etc.) within a user-friendly mobile app - enabling them to know easily how much food to:
  * prepare and when (e.g. how much chicken to grill every hour); and
  * order and when (e.g. how much fish to order for next week).
 	
Tenzo's project will focus on finding the most accurate forecasting algorithms and combining them with a user-friendly software interface to ensure frontline workers are empowered to reduce food waste in their day-to-day operations. By 2024, our tool could reduce annual UK hospitality food waste by over 38,000 tonnes, CO2 by over 175,000 tonnes and restaurant costs by over £20 million.

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: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
C2 TECHNOLOGY LLP	C2 Technology: Micro-turbine Based Modular Energy Conversion Systems (MECS) Feasibility Study	£81,198	£56,839

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
C2 Technology (C2) is a company that develops innovative solutions for energy recovery, saving and storage as well as renewables to help industries meet demands for a low carbon world. C2's main field of activities lies in the area of recovery of low-grade energy waste that is, otherwise, released into the environment in a variety of processing industries such as chemical, food and drink, manufacturing, cement etc. Low power (<300kW) waste energy recovery in particular is widely overlooked by the larger service operators as it is technically difficult to recover and less profitable than recovery of high-power energy waste. Over 25% of the energy used in the above-mentioned industries as well as during pressure reduction in distribution networks of gaseous media, i.e. natural gas and steam, is lost as low-grade heat waste contaminating the environment. There is now a critical impetus for enhanced energy efficiency due to the concerns of greenhouse gas emissions, energy affordability and energy security. To be in-line with these needs many industries started to examine ways of recovering low-power low-grade energy waste they produce while operating. A key concern with the current market offerings for energy recovery systems is their high cost with comparatively lengthy payback (\>3-5 years) on investment. C2 believes that the modular concept along with their innovative low-cost gas bearings will give a significant market advantage and lead to more efficient recovery of waste energy across a range of industry sectors. C2 intends to implement a cost-effective design of a modular energy conversion system (MECS) that can be configured off-site from a finite number of interconnectable modules. The MECS is implementable as a direct pressure-to-power system for pressure let down applications as well as the main part of closed loop heat-to-power systems. Part of this study involves systematising client requirements and feeding them into front-end engineering (FEE) of the MECS. The MECS is to be assessed by key opinion leaders (KOLs), who will form the advisory board, and optimised for the needs of the clients from different sectors. This project will allow C2 time and scope to complete a feasibility study of this complex and varied marketplace and produce a front-end engineering assessment of MECS, its development and costing plan as well as a commercialisation strategy to guide the next development stages.

Results of Competition: Innovate UK Smart Grants: January 2020

Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
CLEARPOOL LTD	Unlocking the potential of cryptoassets to enable ease of regulation and position the UK as the home of financial service digitisation and innovation	£484,124	£338,887

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 unique properties of cryptoassets have promised solutions to a variety of problems in financial markets. Properties such as fractional ownership and decentralised settlement which could offer the possibility of sweeping, positive changes in the delivery of services within the wider financial ecosystem. Last April, the government's _UK Fintech - State of the Nation_ report, reiterated its position in support of the use of cryptoassets in the delivery of financial services and several key policy movements have since been made by the Financial Conduct Authority (FCA) and others. The government recognises the value of distributed ledger technology and cryptoassets, and would like to see the UK at the forefront of innovation in this area. Commonly referenced aspirations in favour of using cryptoassets cite better access to financial services, more robust infrastructure, and broader adoption as key benefits of digitisation. However the past few years have shown that, when compared to the existing financial services ecosystem, the opposite would appear to be the case. Specifically we see two parallel ecosystems forming. The traditional regulated ecosystem, with cumbersome but effective interoperation as a truly global market, and another highly fragmented set of competing crypto ecosystems with minimal adoption and almost no regulation. In response the FCA identified three major harms that need to be addressed: to consumers, to market integrity, and financial crime. Addressing these would encourage future beneficial innovation in the space. To support this, regulators and associated legislation must establish frameworks to help ensure financial services can be appropriately regulated and delivered in a way that minimises those harms. For that framework to be effective it must be possible for incumbent service providers as well as new innovators to easily identify and achieve the authorisations needed to meet their obligations. However, cryptoasset technologies have two serious limitations. First, they conflate ownership and custody, which means any attempt to achieve authorisation is extremely difficult as clearly delineating the responsibilities a service requires authorisation for is not possible. Second, existing technologies are extremely slow, by several orders of magnitude, meaning purported benefits can only be realised in very niche settings. As a service provider wishing to seek FCA authorisation as a Multilateral Trading Facility this project will develop new technology that allows separation of ownership from custody on a public blockchain while also anchoring off-chain activities to that chain in such a way ensuring we are not constrained by the chain's performance.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SPOKE SAFE LTD	SPOKESAFE - Interconnected network of secure smart bike lockers	£95,000	£42,750

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
SPOKESAFE is an urban mobility platform of interconnected smart bike lockers which give cyclists instant access to a network of secure parking spaces at the click of a button. We work with public and private sector stakeholders to manage and monetise under-utilised and redundant space, thereby leveraging existing infrastructure to open up cities and support sustainable modes of transport.

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: January 2020

Competition Code: 2001_SMART_JANUARY

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
INTEGRATED TRANSPORT PLANNING LIMITED	TransitExplorer: a bus network analysis tool	£40,769	£28,538

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
Improving public transport networks in developing countries relies upon a detailed understanding of what already exists. This can be captured in timetable data formats, the most common being the General Transit Feed Specification (GTFS). Current technology available to work with these formats is focused upon transport _operations_ -- franchising, payments, etc. -- or analyses from only a 'top down' view of how accessible city regions are in terms of travel time. Such technology is also designed for the back-office, and often requires large amounts of training. We have begun to develop simple technology that records GTFS timetable data using the local street network (drawn from the free worldwide OpenStreetMap project), which in turn offers a potential step change in online analysis tools for understanding individual city streets, transport routes, or neighbourhoods. This analysis can take a series of bus or transit routes (captured as stop locations) and, by estimating their routing on the local road network, analyse the routes that traverse every single section of road in a city. This granularity is incredibly powerful, as it allows aggregation to build a picture of * the busiest streets visited by a particular route, indicating where performance may be problematic or capacity is constrained * the most congested transport routes in a neighbourhood, identifying priority areas for improvements * the aggregation of route data for a whole city, confirming the corridors and routes that need the most significant investment or identifying 'bottlenecks' in specific major roads. This online, _interactive_ analysis using a combination of road network data and bus or transit routes in GTFS format is incredibly powerful for planning local public transport, and can be used in conjunction with a number of derived statistics: number of vehicles (per time period), seat capacity by route, seat capacity by road corridor, or vehicular emissions. Aggregating these statistics in different ways is a key part of accurate, evidence-led transport planning, but current tools available require large amounts of geographic or mathematical expertise to operate and may take many days to produce usable outputs. The simplicity of the proposed software instead means query data can be calculated in real-time. Improving these processes to the point where we could train local partners in developing countries to benefit from interactive analytical tools would both improve the efficiency with which we could complete transport planning projects as a company, and have knock-on effects for clean urban transport around the world.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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
SEMANTICS 21 LTD	NEXUS: Next-generation Evidence eXamination Underpinned by Semantics — A First-of-a-kind AI Platform for Digital Forensics Investigations	£442,473	£309,731

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 police face an uphill struggle against criminals. This struggle is aggravated by globalisation and the widespread availability and increasing capabilities of the Internet, and the mass market for digital technology, which put advanced devices and rapid communication in the hands of criminals, at affordable prices. Police budget cuts compound the struggle. Hence, a significant backlog of evidence, waiting to be reviewed by the police, has built-up across digital forensics units in the UK and elsewhere. The number of child sexual abuse (CSA) videos and images has increased hugely in recent years. High volumes of material have been seized by the police, who are struggling to review the evidence due to insufficient human resources and tool deficiencies. Because of technological limitations, most digital forensics tools do not provide adequate support for investigating such evidence efficiently and effectively. Hence, digital forensics investigators need better tools, which are underpinned by technology endowed with machine intelligence, for reliable examination of photograph or video files, in particular. There is, for example, a significant need for intelligent assistive tools for: the identification of CSA victims; investigations of serious organised crime or terrorism; and moderation of social media content. This project aims to move towards addressing this market need, by delivering a cutting-edge configurable software platform (as an important novel component of an intelligent and transparent assistive tool for CSA or other investigations). The project will also integrate the platforminto an exploratory prototype, which will include significant components of state-of-the-art software for the examination of digital media, to provide functionality for victim identification. The project will allow the company to conduct cutting-edge research and gain advanced knowledge which will help it to develop (in a subsequent project) new products which will be ahead of the curve and well differentiated from the competition. These will boost the competitive advantage of the company and enable significant growth in the UK and worldwide. The integration of project outcomes into novel products will enable the company to expand its product range, and consequently increase its market presence in the UK and gain a stronger foothold in overseas digital forensics markets, through export. The new products are anticipated to bring in significant sales revenues, which are expected to rise with increasing adoption. Turn-over from the new products is projected to grow by about £6.2M within the first five years, and enable the creation of 30 skilled jobs in that period.

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Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CALL HANDLING SERVICES LIMITED	An autoscaling IaaS platform for cloud-hosted real-time communications	£496,103	£347,272

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
Established in 1999, Call Handling Services (CHS) is a market leader in the provision of Multi-Channel Unified Contact Centre as a Service (UCaas) Solutions. Our customer-base consists primarily of UK charities, SMEs (mostly retailers) and government departments. CHS delivers managed solutions to enhance communications using our state-of-the-art-cloud contact centre technology. Our Clients can benefit from feature-rich omni-channel call centre solutions free from the burdens of capital expenditure and hardware costs. CHS provides services to many of the UK's most well known charities, as well as numerous smaller retailers, and government departments. We provide cloud-hosted UCaaS services, eliminating capex costs, and freeing our customers from having to host and maintain physical infrastructure. CHS has been at the cutting edge of the transition from traditional telephony networks to cloud-hosted UCaaS services, developing our own data centers, and more recently transitioning to the use of third-party cloud infrastructure such as AWS. This provides us with a unique in-depth understanding of the particular challenges of providing real-time communications (e.g., audio and video), which has gradually evolved from the use of dedicated routes for individual calls, to exploiting internet-based technologies. The problem is that internet technologies and cloud computing infrastructure were not designed to handle real-time communications such as phone calls, and Zoom meetings. The way in which this cloud infrastructure is employed is incredibly inefficient: the industry is wasting billions of pounds and needlessly consuming billions of KWh of electricity, because the existing methods of managing cloud-hosted servers cannot cope with the particular demands of real-time communications (i.e., audio and video calls). This project will develop a new infrastructure management platform that addresses these problems. By exploiting the latest developments in open-source technologies we will enable a step-change in the efficiency of real-time communications.

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Competition Code: 2001_SMART_JANUARY

Total available funding is £50 million

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
NOBACZ HEALTHCARE LIMITED	Antimicrobial paint-on bandages for Digital Dermatitis	£483,351	£217,508

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
Bandages have two primary roles: firstly, they cover a wound to stop it getting dirty and infected and secondly they allow any ointments or other applied treatments to be 'locked in', so that they don't get rubbed off and can have their effect where needed. However, bandages do not do well in the wet- such as the bath, the shower or just outside in the rain. They generally should not touch the wound directly but, instead, a sterile dressing is used and all of this is time consuming to take off and replace, on a regular basis, as the wound heals. Our company, NoBACZ Healthcare Ltd, has developed liquids that can be painted or squeezed directly onto wounds where they rapidly set, forming robust barriers that naturally degrade and shed over time and can be re-applied as required. These paint-on bandages do very well in the wet as they repel water, do not need an under dressing and are designed to repel bacteria. They could be used for any trauma wounds or surgical wounds in humans or animals, but we have identified a particularly unmet need in a disease of dairy cattle, called 'digital dermatitis'. Here, cattle get painful ulcers on their feet, which are infected with slurry-dwelling bacteria, and these are terribly hard to treat. The cost to the farming industry in the UK alone is about £60 million per annum. Worldwide it is well over a billion pounds per annum. In a small study at the University of Cambridge farm, we showed that these liquid bandages adhere well to digital dermatitis wounds, have no obvious adverse effects, promote healing and overcome associated lameness one week after a single application. We now plan to show in a large farm trial that there is a convincing case on the grounds of treatment effectiveness, animal welfare and economics for the adoption of our liquid bandages by the dairy farming community, worldwide, for the management of digital dermatitis.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
LIFEPSYCHOL LIMITED	Transformative children's social care	£249,815	£119,911
THE ANNA FREUD CENTRE		£80,515	£80,515
The Commissioning Alliance		£25,505	£17,854

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
Coronavirus has reduced access to already scarce resources in children's mental health and social care. The most vulnerable children in the UK are more isolated than ever, and foster/residential carers and adoptive parents have less support to meet the psychological needs of their children, which have often been exacerbated by the pandemic and resulting lockdown. We propose to bring to market a transformative suite of psychological screening, training and support products, born out of clinical expertise and a decade of research and development with Looked After Children. We will pilot and evaluate the new products with over 1000 children across 15 local authorities, in a partnership between a clinician-led small tech business, the Commissioning Alliance of Local Authorities, and Anna Freud National Centre for Children and Families. We can improve the lives of vulnerable children and their carers whilst making significant cost savings for the public purse. Demonstrating this at scale will spread uptake across the UK and open up international markets. More than £9billion/year is spent on children's social care services in the UK, but very little is known about children's needs or what is effective in improving their outcomes, although it is clear that children who have been in Care do much worse than their peers, with a 50-fold increase in the rates of imprisonment, substance misuse, homelessness, inpatient mental health stays, and their own children being removed into Care. This leads to excess lifetime costs of £2million to the public purse per Care leaver. Despite very high levels of mental health problems amongst Looked After Children, no reliable outcome metrics are used with this population. We have developed an innovative digital tool set (BERRI) to identify the needs of individual children, in terms of their behaviour, emotional-wellbeing, mental health, development, risk to self/others, and ability to form relationships. It is the first properly validated measure able to assess the main psychological risk factors for the child's trajectory, and can provide individualised reports with advice for caregivers. We can then support carers with training and video consultancy, improving care and preventing placement breakdown. The data gathered can be used to advise commissioners about what placements/services are required, and track which are effective. Pilots have shown improved outcomes for vulnerable children, coupled with potential savings of £22,000/week or £1.14million/year in one local authority. Proof of concept at scale has the potential to cause a sea-change in children's social care.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THEOLYTICS LTD	A novel platform for arming of candidate oncolytic viruses targeting immunologically cold metastatic ovarian cancer	£499,978	£349,985

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
Ovarian cancer (OC) is the 6th most common cause of cancer death. Annually \>7,443 women are diagnosed (\>240,000 globally). Mortality rates are \>65%, with most patients succumbing within 5-years. OC is frequently diagnosed at a late stage making it difficult to treat. Whilst initial response to chemotherapy is high, most patients (\>80%) quickly acquire (platinum-)resistance and relapse. Second-line chemotherapies/targeted-biologicals offer only marginal benefit in slowing progression. Emerging immunotherapies empower the patient's immune system to fight cancer and offer hope as effective second-line treatments. However, most (\>85%) OC tumours are devoid of essential immune cells/processes, making them unresponsive to immunotherapies. Oncolytic viruses (OVs) act by selectively infecting/destroying cancer cells, whilst simultaneously stimulating strong immune responses (recruiting immune cells/lifting cancer-associated immune suppression). A key strength of OVs is the ability to arm them with one/more synergistic therapeutic transgenes that may be expressed directly within the tumour (enhancing efficacy/bypassing toxicities). However, existing OVs are derived from re-purposed/common laboratory/wild-type viruses that are not evolved for oncolytic use nor systemic delivery, but instead developed/validated using laboratory cell-lines or mice that poorly reflect patient tumours. Typical arming strategies select 1-2 transgenes (from thousands of options) using a 'best-guess' approach on basic models (often de-selecting candidates with efficacy in real tumours, and poorly synergising with the virus). They give little attention to optimising transgene position within the virus (a critical variable for effective transgene expression). Theolytics seek to overcome these challenges through application of their disruptive OV Platform.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RELATIVE HEALTH TECHNOLOGIES LIMITED	CAPE - Cardiac Analysis for Pressure Establishment	£289,256	£202,479

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
CAPE is a Machine Learning Project using Artificial Intelligence to probe the world of ECG signals. We use the power of Google's Deepmind to probe, analyse and pattern match almost 100,000 publicly accessible ECG signals. The aims of CAPE are to establish if there are hidden bio-markers within the ECG signals that can help us understand the cardiovascular system better. This could be understanding how the vascular system is operating in terms of arterial elasticity, blood viscosity etc. CAPE builds on the companies works to date of establishing multiple physiological parameters from wearable technologies such as smart-watches and fit bits. We use the latest Artificial Intelligence thinking to look for patterns from one physiological parameter to another, which may not have been recorded. This enables us to create a system where the whole health of the individual may be recorded continuously and trended allowing for true performance scoring to take place. Using data visualisation software from F1 Motorsport we link the data that CAPE is processing to a realisation system allowing us to visualise how one part of the physiological system is affecting the other. The outputs of CAPE are simply an algorithm, but one that can see predict physiological performance based on the ECG system data being fed into it. This is novel and is very applicable to the smart-watch market with Apple enabling the Apple Watch 4, in Europe, to record ECG in the last few months. We all live in a busy world where getting to see a doctor and having readings on our physiology performed in the doctors surgery are getting harder to achieve owing to demand our stripping supply. We believe that the works undertaken as part of the CAPE project will allow for some of these performance physiological markers to be recorded on smart-watches and uploaded to the cloud to provide trending and analysis that can then be reviewed online by your GP or family doctor. We are in effect through CAPE working to optimise the way in which we acquire and present physiological performance data to our clinicians. We still have a long way to go, but CAPE provides an exciting look into the world of physiological monitoring and using Machine Learning to see if there are aspects of the ECG signal - the hearts electrical system - that we currently do not understand or even realise that they are there.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
WORLDR TECHNOLOGIES LIMITED	Worldr - Intelligent & Secure team communication.	£399,931	£279,952

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
Worldr is a user-friendly, reliable and secure communication platform designed specifically for professional use. The software works particularly well for organisations that need to adhere to stringent regulations and security compliance requirements. This is because we provide our clients with complete control over their data, giving them greater operational flow and functionality. Data ownership, data security and corporate compliance all play a crucial role in today's world and our digital communication systems. Due to the current global pandemic, on every continent, companies of all sizes, government bodies and intergovernmental organisations are having to pivot towards a digital business model. This inevitably raises many questions, most of which have not been properly addressed. Can they trust third-party apps with their sensitive data? Where is this data stored and is it protected? Who has access to their encryption keys? Can their data be audited? Trust is a common issue when it comes to using third-party apps and this presents a challenge for many companies. Worldr is a fully deployable application with source code that is completely open for our clients' inspection and due diligence. At Worldr, we set ourselves apart by providing our clients with complete sovereignty over their data; our access to this information is completely barred as a matter of principle. Recent events have forced millions of employees to suddenly and unexpectedly cope with an exponential growth in the volume, speed and complexity of their communication data. It is no longer viable to rely on legacy tools which often create bottlenecks and lead to disruptions. Worldr's compelling UI/UX reduces latency, cognitive load and ensures operational flow so that team members can operate efficiently and effectively even from a distance. _We currently have almost 200 companies signed up for our Beta, ranging from small startups to teams within Banks and Consultancies of employees in the 10,000's. We are launching this summer in the UK, São Paulo and Hong Kong._

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TRAJECTURE LTD	Market Entry Strategy & Prototype for PopulationLeap™ in the Immuno-Oncology Market	£136,819	£95,773

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
We all understand each other to be unique. It is of little surprise that diseases such as Corona Virus affect people differently. In controlled studies otherwise health and identically selected people also show markedly differing immune responses. Having platform technologies that can repeatedly clarify what is happening at the molecular level in the immune system is important not just to understanding which patients will have poor outcomes from viral infections, but also who will response well or poorly to modern cancer treatments which use the immune system to attack the cancer cells. Current state-of-the-art technologies have mostly focussed on using larger numbers of patients with the hopes of extracting out meaning from the complex number of underlying molecular events that are involved. However, all have suffered from high level of base-line patient-to-patient variability. Our innovation takes a fundamentally different approach to those above. The innovation uses data algorithms to enable clearer read-out from deep sampling studies and identify biomarkers. We have developed the innovation from concept, own completely, and have already used it to reveal previous unknown details of therapeutics' action in in vitro systems, and in clinical blood sample analysis through collaborative projects. The platform has been packaged into a collaborative offering called PopulationLeap(tm), and Trajecture is currently collaborating with several organisations to develop the technology, which has brought new insight into immune response with implications for immune-oncology trials and understanding how otherwise identical people have markedly different immune responses. We seek funding to develop our market entry strategy to the economic problem of targeting immuno-therapies in a market expected to be worth $125-130Bn by 2026\.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
FRUPRO LIMITED	FruPro bringing the offline fresh produce industry online	£74,715	£33,622

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
FruPro is "changing the world" by developing the world's first smart platform for the fresh produce industry. FruPro is web/app platform that will give clarity, connections & community for the fresh produce industry. FruPro provides an end-to-end community for the global Fresh Produce industry and offers greater transparency for its consumers. FruPro is innovative because it aims to digitally replicate the fresh produce industry using a combination of communication tools, video broadcasting and Instagram stories, providing users with a more engaging experience than what is currently used (i.e WhatsApp). Developing a centralised platform for food will ultimately enhance consumers' relationship with fresh produce and understanding their choices on consumption. The way we farm the way we eat, the way we shop for food and the way we consider our impact on the environment are changing faster than ever before. FruPro wants to innovate the fresh produce industry, changing to make sure our partners and our consumers don't just see what's on their plate but understand every step it took to get it there. Currently, the system has too many complex, fast-moving and unpredictable elements in the supply chain, a lot of that information gets lost along the way. Now though, with FruPro, every business in our industry will have a dedicated smart platform for making information more transparent, credentials more accessible, marketing more targeted and connections more rewarding, fundamentally impacting the efficiency of a typically inefficient system.

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Hera	Feasibility study: Maternity finances product as a trigger to improve women's financial resilience	£58,589	£41,012

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Project description - provided by applicants
Women and men have different life experiences - which ultimately impact on their finances. Becoming a parent is one such event which disproportionately impacts women's financial capabilities - the 'motherhood penalty'. The gap between male and female hourly earnings grows steadily in the years after parents have their first child. By the time this child reaches 20, mothers earn about 30% less per hour than similarly educated fathers (Institute of Fiscal Studies). Ultimately, this leads to reduced income and propensity to save, feeding into the Gender Savings Gap. Where women earn less than £10k per year, pension payments are not compulsory, further contributing to the Gender Pension Gap. It does not have to be like this. Our vision is a world where motherhood does not negatively impact a woman's financial capability. Our mission is to create microfinance products designed around women's specific needs and behaviours, which firstly make women aware of this penalty, and secondly break down the inertia barriers, so that they are empowered to be part of the change to overcome it.