Results of Competition: Smart Round 3 2015-16 - Proof of Concept

Competition Code: 1507_SmartRnd3_PoC

Total available funding for this competition was £7.5M from Innovate UK

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Quiver Software Ltd	Artificial Intelligence for Email Security	£167,248	£100,000

Project description - provided by applicants

For most organisations email is the main artery of communication and a channel across whichhighly sensitive information is communicated and shared. Email is a highly vulnerable facetof an enterprise's overall information infrastructure given the frequency and ease by whichworkers send emails every day and entire cyber security initiatives can be rendered redundantby a simple misaddressing error. Founded by a team of Imperial College trained engineers, ex-Investment Bankers and currentfinalists of the 3D Fintech Challenge 2015, CheckRecipient is an email security platform usedby world-leading organisations to prevent confidential information being sent to the wrongperson. Currently, there are two modules, CheckRecipient RuleBuilder, which allowsorganisations to design and implement customised, rule-based email communication policiesand CheckRecipient AI, which performs a historical analysis of a sender's email account tolearn sending patterns and predict when an incorrect recipient may have been copied in on anemail by mistake. Having developed and sold both of these products to a set of early customers, we are nowlooking to substantially transform CheckRecipient AI by incorporating natural languageprocessing and machine learning technologies applied to the textual content present in emaildata to improve both the accuracy of predicting misaddressing errors and also develop thefunctionality of the product to protect against other email security risks. There is a strong market demand for an email security platform that is both able to workautonomously and with minimal disruption to the end user. Currently there exist a number ofplatforms on the market that look for predefined, specific text patterns (such as presence ofsocial security numbers), but there are no products currently available that are analysingcomplex and unstructured textual content in emails to infer meaning and determine sensitivity and appropriateness for a set of recipients.

Note: you can see all Innovate UK-funded projects here

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Plaquetec Ltd	Proof of concept study on a novel	£166,954	£100,000
	manufacturing process and design		
	features for a coronary artery liquid		
	biopsy system		

Project description - provided by applicants

Proof of Concept application for R&D on the design and manufacture of a novel, intra-arterialcatheter used to sample biomarkers associated with coronary artery disease (CAD). Initialclinical studies with the device have uniquely shown that high concentrations of biomarkersexist at sites of CAD. These biomarkers allow biological processes underlying the progression of CAD to be better understood. PlaqueTec's business model is to sell access to its coronarybiomarker IP & to provide bespoke studies to Pharmaceutical companies as a tool to a)discover new drug targets and b) greatly de-risk the development of both novel and in pipelineCVD drug therapies. The applicant has regulatory approval to market its catheter in Europe and currentlymanufactures the catheter using a short run batch release process. This is a largely manualprocess that results in high production costs & limited throughput and this restricts broadermarket uptake. The applicant seeks to simplify the production process using innovative design& manufacturing technologies but at this stage the concepts are unproven. The enclosedproject seeks to provide the body of R&D needed to identify design/process improvementsthat can deliver significant improvements in cost and throughput without compromising compliance with medical device regulations. This project is a study on the most safety critical element of the catheter, the deployablemixing structures (termed 'baffles'). It will explore latest innovations in biomaterials, plasmatreatment, micromachining, joining & other manufacturing technologies to address threemain challenges 1 ' can design improvements deliver equivalent clinical performance tocurrent baffles at lower cost/higher throughput; 2 ' Can technology and processimprovements (e.g. semi automation) deliver the current baffle design more efficiently and 3' Can methods be developed to demonstrate equivalence in baffle performance (post changes) without requiring clinical trials.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	A novel low-cost and compact solution for neonatal care by mOm Incubators	£225,350	£100,000

Project description - provided by applicants

The World Health Organisation (WHO) estimates that 1 million children die needlessly everyyear due to the complications of premature birth. 75% of these deaths can be preventedovernight with simple treatments such as incubation. Current incubators are incredibly large,needlessly complicated and expensive. mOm was designed to overcome these issues andtherefore increase access to incubation services for premature babies world wide.mOm is a low-cost, robust, easy to use compact and energy efficient inflatable infantincubator. Whilst mOm was inspired as a solution for refugee camps, it also has applications in the developing world, in disaster relief zones, during hospital evacuation procedures, intransportation and for use as a precautionary device in geographically disparate areas.We plan to prove the feasibility and safety of the mOm concept in a clinical evaluation that will be carried out in the environment that it is designed for. This will enable us to learn moreabout how it will be used and whether or not it meets the requirements of an infant incubators that we can make necessary changes to reach design freeze, achieve regulatory approvaland turn mOm into a commercially available product.mOm aims to be a recognised British medtech company that develops and exports novelsolutions to solve big problems around the world.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DigitalMR Ltd	Automatic Theme Detection from Social Media Images using Deep Learning (DEEPTHEME)	£165,188	£99,111

Project description - provided by applicants

DigitalMR proposes to investigate methods of determining themes in collections of imagesthat accompany social media posts. The methodology is inspired by recent advances in deeplearning that have benefited from the availability of large training data sets along withincreased computation power through heterogeneous computing. The concept operatesunsupervised and leverages the 'deep learning framework' to determine themes and establishtheir relevance to brands or organisations using hierarchical structures. The concept alsoassigns labels to identified themes (topics) and determines ways that describe the theme suchthat it can be applied to market research and insight management tasks, such as sentiment andsemantic analysis. The target outcome of the project is to discover the potential and to reservethe capability of theme detection in image collection for commercial applications. Thiscapability will ultimately enhance listening247, a social media listening and analytics system(text based) whose effectiveness has been proven by a range of private and public sectororganisations. The core R&D tasks include methods for learning imbalanced datasets, deeparchitecture selection, deep learning via dedicated classifiers and ensemble formulations. Theproject will make use standard datasets for training and testing. The DigitalMR team willbenefit from systematic input by a specialist UK academic team (subcontractor) as well asuser feedback from corporate challenge partners.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Research	NuAIR stent: A respiratory stent inspired by nature, achieved through cutting edge architecture and engineering	£126,792	£76,075

Project description - provided by applicants

Airway obstructions cause breathlessness and difficulty swallowing. They occur in up to 30% of lung cancer patients, where prognosis is often poor and palliative treatment the only option. Additionally, there were over 2,000 patients suffering from tracheomalacia (collapsed airway) and stenosis (abnormal narrowing of the airway) in the UK last year. The current gold standard treatment for airway obstruction is surgical resection. However, surgery is an invasive, time consuming procedure and complications such as infection mayarise during recovery. An alternative is to use Airway stents, hollow cylindrical prosthesesthat provide support. They can be deployed without surgery and provide significant relieffrom the discomfort associated with an obstructed airway, a marked increase in quality of life, and in many cases a prolonged lifespan. There are a number of Airway stents on the market, including silicone, metal and hybridstents. Each of these have significant shortcomings. Silicone stents tend to migrate and requirere positioning. Metal stents have a risk of airway perforation and are very difficult to removeor reposition. Hybrid stents are significantly more expensive than either silicone or metalstents. There is a growing, unmet need for the perfect Airway stent. We propose to create NuAIR, an Airway stent customised for patients that possesses all thecharacteristics of the perfect stent. It will be made using biocompatible collagen and asynthetic polymer to meet the physiological demands of the trachea. The design will beinspired by structural architecture found in nature. This will result in a stent that is strong yetflexible, using the minimal amount of material. NuAIR will be made by 3D-printing, a fastand cost effective method. Most importantly, this will allow customisation of stents based oncomputerised-tomography (CT) scans of individual patients. This will reduce unwantedmovement and increase comfort 'key components of the ideal stent.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MIATech Biosolutions Ltd	Detection of Hepatitis E virus in slaughterhouse pork.	£138,609	£83,165

Project description - provided by applicants

International trading of food from animal sources is very intensive. Regulations decree thatthe production of animal products is free from zoonoses that can affect humans. Hepatitis Evirus (HEV) can cause liver disease in humans and the chain of transmission from pork meatto humans has been well established. The WHO report that worldwide every year there are anestimated 20 million HEV infections, over 3 million acute cases of HEV and 57,000 HEVrelateddeaths. HEV is usually self-limiting but may develop into fulminant hepatitis, casuingacute liver failure. HEV is transmitted via the faecal-oral route. Prevalence is highest in Eastand South Asia, where mortality is between 1% and 4% and in pregnant women can reach25%. There is no treatment for acute hepatitis; prevention is the most effective approachagainst the disease, hence the need for a cost effective detection system at the slaughterhouseto avoid zoonotic infection via the food chain. Building on and developing MIATech's previous work in food contamination, this projectaims to demonstrate the feasibility of a magnetometer lateral flow (MLF) assay for the rapiddetection and confirmation of HEV in pig meat at the slaughterhouse. This will offer theadvantage of immediate, on the spot results, avoiding inventory awaiting positive release and significantly reducing the risk of costly product recalls. The new magnetometer immuno-assay(MIA) system is based on a unique combination of immuno-magnetic capture of paramagnetic particles (beads) with highly sensitive magnetometer instrumentation to detect and quantifyHEV. The project will also investigate the potential for a loop-mediated isothermalamplification (LAMP)-based HEV confirmatory assay, which will immediately be able toconfirm suspect positive samples at the slaughterhouse and avoid the potential for costly falsepositive results.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	XIM: Ximvision - non-contact preventative health monitoring for older people	£165,398	£99,238

Project description - provided by applicants

Conventional methods of monitoring older people's health either rely on labour-intensivemanual checks or alarm systems which are often too late to receive healthcare interventionthat could save a life. For older users in particular, wearable devices can be complex,inconvenient and uncomfortable, and for those with dementia can easily be forgotten. By combining state of the art computer vision techniques with data analytics xim is aiming tocreate a prototype technology that will predict a heart attack up to 24hours before it occurs without the need for wearable devices or expensive specialist equipment. In this project, Xim will create a basic prototype and in conjunction with University HospitalSouthampton, perform pre-clinical tests to validate this technology. This technology has significant potential to solve a global problem of providing early preventative alerts for older patients at low cost. The technology also has high potential fortransferability in sectors such as security and general wellbeing.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
The Hiring Hub Ltd	"iCReS" - Integrated Cloud Recruitment System	£162,667	£97,600

Project description - provided by applicants

Large companies use enterprise recruitment software to manage their recruitment suppliers and processes. However, this software is too expensive and complex to serve SMEs and there is no true equivalent software on the market to meet the needs of the 102,340 SME companies with between 20-499 employees in the UK. As a result, the SME community uses ad hoc and inefficient methodology to manage recruitment. The Hiring Hub Limited is a UK tech company that has built a successful innovative online recruitment marketplace connecting UK SMEs to over 1000 specialist recruitment agencies. The objective of this Proof of Concept project is to develop an advanced software suite that will provide intuitive tools to support these SMEs in managing the complete end-to-end recruitment process. HH will develop the Integrated Cloud Recruitment System (iCReS), a novel candidatesourcing and recruitment data management engine for desktop and mobile devices, creating a bespoke algorithm to interpret volume data from a variety of sources and stack candidate applications in order of relevance. iCReS will enable SME companies to: source suppliers, store and manage applicants; rank candidates; collaborate with colleagues; integrate with social media feeds; design automated workflows; integrate SME software/tools like Outlook, Gmail, iCloud; measure everything; and mine, use, and exploit'big data'. Better recruitment decisions equate to a reduction in costs, increase in productivity and staff morale, lower staff turnover and an overall impact on company performance, with a corresponding impact on the economy. Poor decisions lead to absenteeism and stress that have an impact outside of the workplace, on the individual employee, their families and their social circle. Poor hiring also contributes to work related stress associated with a range of health issues estimated to cost British society £1.3bn each year.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
eCow Developments Ltd	Milkalyser	£149,992	£89,995

Project description - provided by applicants

This project will design and build a prototype to prove the concept of integrating biosensorsinto milking systems to detect dairy cow disease and fertility.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Emteq Ltd	ALERT- Adaptive Learning	£166,808	£100,000
	Eyeware & Remote Tracking		

Project description - provided by applicants

Fatigue causes reduced mental or physical performance. It can be caused by sleep loss, extended wakefulness, 'body clock' mismatch (jetlag) or excessive workload. It can lead toerrors, sometimes with grave consequences. Workers operating in safety-criticalenvironments, such as pilots and surgeons, have strictly enforced rules governing workinghours. Surgeons should not work longer than 48 hours per week. However, there are exampleswhere legislation to avoid fatigue does not exist. Private motorists and light vehicle driversrepresent a far greater number of the total UK population and fatigue for these people too canhave serious consequences. Analysis suggests that driver fatigue contributes to ~20% of roadtraffic collisions (RTCs) that result in death or serious injury (KSI). 50-70% of those affectedare aged 15-35 years old and require expensive long-term care. Through KSIs, fatigue couldcost the UK economy up to £1.4Bn per year. Current methods of measuring fatigue are either highly subjective, self-reports by driversthemselves, or using technology to measure bodily changes. This includes cameras that trackdrivers' blinking and head position. However, these methods are inaccurate in poor light anddo not allow the use of sunglasses, limiting wider adoption. This project offers an alternative to these limited ways of measuring fatigue. ALERT is afatigue monitoring device incorporated into one of the oldest examples of wearabletechnology, a pair of glasses. ALERT will measure additional indices of fatigue, including blink parameters as well as heart rate, facial muscle tone, head posture and temperature. ALERT will enable the first individualised, objective assessment of fatigue. This will allow usto attract partners for a second project to commercialise ALERT. These partners could beinsurance firms or large fleet operators, who increasingly realise that they have a legal duty ofcare to protect staff and the public from fatigued drivers.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	pECM Systems Ltd: Advanced PECM machine tool & Components	£193,738	£100,000

Project description - provided by applicants

Electro Chemical Machining (ECM) has advantages over conventional manufacturing(milling/turning) i.e. less material waste, able to machine any conductive metal & higherquality surface finish. pECM systems Ltd (PSL) believe ECM technology could be advanced. Current cathode development is lengthy & high cost, machined to high surface finish frommaterials like copper/tungsten, requires much iteration till final production cathode geometry achieved capable of producing finished components. There are few manufacturers of ECM equipment; machines are typically single axis (machineone side at a time) & custom built to repeatedly manufacture identical components. ECMprocess requires 2-3mm additional material on roughed components, enabling removal ofdefects after ECM to achieve final geometry, wasting expensive material. Pulsed ECM (PECM) offers increased efficiency, improved energy use, better surfacefinishing allows components to be nearer net shape pre process, thus less wasteful ofexpensive material. This is critical for industries such as aerospace, where expensive alloysare used. The problem facing PECM/ECM is that machine tools are bespoke & single axis. PSL believethat current art can be significantly advanced with the proposed project.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Constellation Lighting Ltd	Safeled	£131,352	£78,811

Project description - provided by applicants

Whilst AC LEDs are common in homes and offices, heavy industry and specialist commercialorganisations use DC LEDs. DC LEDs are heavy because of their drivers and these driversare often prone to failure resulting in a reduced LED lifespan and/or increased maintenancescheduling and costs. This is often aggravated due to the height, remoteness or hazardouslocation of the lights. Since 2013, we have supplied high gantry lights for container cranes and hoists in ports andoil and gas platforms in the UK and USA. We carried out market research with the quarryingand below ground mineral extraction industries i.e mines and tunnelling and found thatorganisations already using DC LEDs expressed a need for lighter LEDs with greaterreliability and less complexity for easier installation and maintenance; easier to move andmanhandle in confined spaces with more focus on safety, particularly damage from debris andreduced risk of fire and explosion. Many of these industries use traditional metal halide andSON lights but are often resist LEDs because of their higher initial cost, even though theirSons and MH regularly fail because of vibration issues. Therefore, Constellation lighting is keen to prove the concept of a modular AC powered LED(no driver required) with an integrated hardwired PCB. This would significantly reduce theweight and complexity, and hence improve installation time and in service life. A sealedexplosion proof lens would enable the LED to be used in hazardous and confined spaces. Weaim to produce a module weighing ~1.5Kg producing ~60W, that can be joined to othermodules to create a range of bespoke' lighting solutions. We aim for a competitive manufacturing price, which would result in a very competitive salesprice when compared to traditional and other LED lighting systems. The system would becalled SafeLED.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Spectromics Ltd	Rapid antimicrobial susceptibility diagnostic	£292,937	£100,000

Project description - provided by applicants

We are developing a 10 minute diagnostic test to help doctors effectively chose antibiotics totreat urinary tract infections (UTI). The test will be simple to carry out and low cost. Providing results for a range of antibiotics so that the most effective one is used, protectingour more important antibiotics, which are needed for more severe infections. Today, prescription of antibiotics for UTI is essentially guided by a doctor's best guess' atwhich will be most likely to treat the infection. More importantly, there is limited testingcarried out to show that the UTI is caused by bacteria, so antibiotics may be given when theyare not needed, i.e. when the symptoms are not caused by bacterial infection. Our 10 minute point-of-prescription test will advise the doctor not only whether there is abacterial infection, but also which antibiotic/s from a panel of 8 will be effective against thebacterium causing the UTI. Such a test will allow us to use our precious antibiotics selectivelyand wisely, ensuring they are only given when it is known they will eradicate the bacterialinfection. If we do not develop these new tests and continue to use antibiotics on patients withoutbacterial infections, or on patients where the particular strain of bacteria has resistance to thefirst choice antibiotic, the prevalence of resistance will continue to increase. Our test will allow cost-effective treatment: it will guide the use of a single active drug, onlywhen the patient requires an antibiotic. There are many complex ways that bacteria can become resistant to antibiotics and bacteriaare always evolving new ways to quickly outsmart antibiotics. Our test being phenotypic willkeep up with bacterial mutation unlike genotypic tests.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	Proof of concept for a new insecticidal soap	£99,982	£59,982

Project description - provided by applicants

Insecticidal soaps, based on natural fatty acids, have been known for many years and areapproved for use in controlling a wide range of insects. However, their application is severelylimited by the fact that, if they are applied at a concentration above 2 %, they can causeextensive damage to the plant itself. In some markets, such as the US, this has meant that theiruse has been severely restricted, and often there is no alternative available, particularly for'organic' crops. We have developed a novel modified insecticidal soap and shown that it isequally effective in controlling a range of insects, but that it causes no phytotoxicity at 4 - 6 %application levels. We have carried out a detailed market survey of potential applications, have been provided with support in patenting the invention, and identified potential partnercompanies keen to take the product to market. This award would allow us to take the initialsmall scale formulation work and field trials we have already done to provide a completedproof of concept that the product can be produced at a commercially acceptable cost, that it is very effective insecticide (against a range of species such as mites, thrip, aphids andwhitefly), that it shows low phytotoxicity (towards a number of sensitive plants such as vines, peach, nectarine, cucumber, ornamentals, peppers, aubergine) and that there is a clear route tomarket, with partner companies in place to provide security of supply, and distribution intomarkets in the UK, Europe, US and the developing world.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	Metal containing resists for next generation photolithography	£166,746	£100,000

Project description - provided by applicants

Irresistible Materials (IM) is developing next generation photo-resist materials for thesemiconductor industry. A photo-resist is a material that undergoes a change in physical orchemical properties when exposed to radiation. Within the semiconductor industry, siliconsubstrates are coated by a photo-resist, the resist is then selectively exposed to radiation usingan'exposure tool' to create a pattern (photo-lithography). The resist is then treated such thateither the exposed or unexposed areas are dissolved. The remaining resist patterns serve as abarrier that protects the underlying substrate, and once the substrate is processed, the resistlayer is stripped leaving lines that function as the'wires' within modern day micro-chips.Resists are thus critical to the semiconductor industry, and the ever-decreasing size ofmicroelectronics is possible only through continuous advancements in lithography and resisttechnologies. The progression to decreased size is mapped out in the International TechnologyRoadmap for Semiconductors (ITRS), revised annually by a worldwide panel ofsemiconductor experts, which sets out performance goals for the industry. Existingphotolithography (where the radiation used is 193nm wavelength light) is reaching its limit(the wavelength is too large for the target feature sizes), and next-generation lithographies(NGL's) are needed. The leading NGL candidate is extreme ultraviolet lithography (EUV),where the wavelength of the radiation is reduced to 13.5nm enabling higher resolutionpatterns, and thus smaller micro-chip wires. However, there is presently no resist solution that meets industry targets for the planned EUVintroduction in 2018, creating a major need within the semiconductor industry. IM hasdeveloped a patented EUV resist material that directly addresses this need, and which has thepotential to continue to address industry targets through 2022 and beyond.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	An new approach to creating light-	£165,877	£99,526
	weight plastic parts with good surface finish using tap water to		
	create structural foam mouldings -		
	Streamould -		

Project description - provided by applicants

The global structural foam market is expected to reach \$31.9 Billion by 2020, with annualizedgrowth of ~6% between 2015 & 2020. US & Asian markets dominate, while EU market shareis ~23% of this (\$7.4bn by 2020). Demand & growth is driven by the automotive &construction sectors. The major materials used are polyethylene, polypropylene, polystyrene, and polyurethane. Structural foam moulded parts have a cellular foamed core with a relatively solid skin outer, produced by a form of injection moulding using a chemical blowing agent or gas such asnitrogen, butane or carbon dioxide. The process usually employs low pressure. Structuralfoam is significantly lighter than solid plastics, with high strength-to-weight ratio and lowercost tooling. The automotive sector is the main driver to structural foam growth as lifetimeenergy & CO2 savings drive the need for light weight components. So there is growingdemand for thick & thin section foam mouldings with good surface finish.Problem ' Chemical blowing agents cause ozone depletion & will be phased out under theMontreal Protocol. Gases such as butane & pentane are an inherent fire risk, while N2 & CO2are relatively expensive to use, require storage alongside the mould m/c. Structural foam partssuffer from relatively poor surface finish especially when low injection pressure is used. Partsurfaces have a characteristic swirl pattern caused when the blowing agent becomes trappedbetween the mold surface & skin of the part.Our Big Idea - Streamoulding is an innovative new process to make structural foam mouldedlight-weight parts. It uniquely uses tap water to foam polymer. Our patented process producesa foam structure by controlled expansion of water to steam. Water is introduced into the meltduring the injection phase of the moulding cycle through a specially designed retro-fitreplacement mixing nozzle. Streamoulding offers up to 40% weight saving, 40%+ cycle timereduction & 30%+ energy savings.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Avalon Behaviour Ventures Ltd	CAPTAIN	£163,684	£98,210

Project description - provided by applicants

CAPTAIN is designed to create the first information technology product in the aviationindustry that will achieve substantial fuel savings, CO2 reductions, and cost savings forairlines. It will improve fuel efficiency in aviation by directly influencing airline captains'decisions--a radically new way of promoting sustainability. In his latest research, project-leadSME Avalon Behaviour Ventures' co-founder Dr. Robert Metcalfe showed that personalisedfeedback to airline captains increased fuel efficiency by 10-20%, saving the airline beingstudied £5.5m and reducing approximately 1.2million kg of CO2 emissions. This grant willfund the technological scaling of this research into a Software-as-a-Service (SaaS) through theacquisition of new knowledge and skills. This research and development project specificallyaims to provide proof of technical feasibility through the development and testing of a basicprototype that will: (i) integrate and analyse revealed fuel-use data; (ii) deliver personalisedand actionable behavioural solutions to captains; (iii) build in scientifically robustexperimentation methodology.

Note: you can see all Innovate UK-funded projects 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: Smart Round 3 2015-16 - Proof of Concept

Competition Code: 1507_SmartRnd3_PoC

Total available funding for this competition was £7.5M from Innovate UK

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
	Protection of IP in Supply Chains Proof of Concept	£166,212	£99,727

Project description - provided by applicants

Manufacturers increasingly rely upon development in the supply chain; e.g., a typicalautomotive company has 60% of components manufactured in the supply chain. IP protectionand tracking is essential for securely managing supply chains. A significant level ofresistance, to sharing and enforcement of IP, is damaging supply chain partnerships and themanufacturing production processes that rely upon them; costs to industry estimated at~millions (NFF Symposium, 2013). This project, spanning 12 months and costing £166,213,will build on the success of the Innovate UK funded IPCRESS project in the development of aproof of concept with basic prototyping of a novel solution for protecting intellectual propertyacross enterprise boundaries and will support the creation of the Ascema for Supply Chainssolution, based on a patented core technology to protect high value information and IP acrossenterprise boundaries. To support trusted sharing and enforcement of rights relating toinformation contained within digital content across enterprise and jurisdictional boundariesthere must first be a solution to infringement detection and data tracking that assures theenterprise that their IP is secure 'Ascema offers a potentially disruptive solution. This projectwill develop a scalable hybrid and multi-tenanted proof of concept prototype of Ascema forSupply Chains verifying the technological, practical and economic viability of a novelAscema for Supply Chains data loss prevention platform. A planned Stage 2 project willprovide a pre-production prototype of a digital information fingerprinting and trackingmechanism across enterprise boundaries that will support the take up of this novel platformwithin supply chains - a platform that has won GeoLang the title of UK's Most InnovativeSmall Cyber Security Company 2015 and the predicted savings to UK PLC are estimated tobe millions of pounds.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	Metail - Project Mother - Advanced photography appliance to automate 3D garment photography	·	£100,000

Project description - provided by applicants

Metail is the leading provider of body shape and garment visualisation tech for onlineretailers. Our system, in use by major retailers in the UK, Brazil and India, allows onlineshoppers to generate images of their own body and dress the model to provide a visualisation of a garment/outfit - giving a virtual fitting room experience and addressing issues that hindermore online clothes shopping. The current system, whilst valuable to shoppers, and reducing returns and increasingconversion for retailers has limitations in two areas: (1) Need for increased garmentthroughput in photography stage to support largest retailers with lower capital costs and simpler operations, (2) High level of manually activities needed to produce a digital garmentbefore visualisation. To address these issues, Metail completed two previously funded projects. Through Vestis &Scrydan Metail has productionised 3 technologies: (1) Automatic separation of garmentimages from the photo background, (2) Automated creation of 3D models of a garment from the captured images, (3) Real-time 3D visualisation of the garment. These advances, reduce manual processes and improve realism, but require additional photography and thus reduce garment throughput. Project Mother will solve this by developing an automated photography/digitisationappliance, embedding Vestis & Scrydan. The integrated machine has four features: (1) embedded Vestis and Scrydan technology, (2) automated mannequin loading and queuing, (3) automated and standardised photography, (4) use of a single system by multiple userssimultaneously to increase throughput. Project Mother will devise solutions to the hardware, photography and operational challenges, conduct component bench tests, develop an integrated prototype, and test in a commercial environment. This PoC provides a solution which will accelerate growth, including higher garmentcoverage and larger user base, and enable scope for working with the largest retailers.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Dolphin Computer Access Ltd	accessibility-enabled Health (aHealth)	£176,455	£100,000

Project description - provided by applicants

The risk of many health conditions (e.g., diabetes, dementia, AMD) can be mitigated and theconditions managed in part by living a healthy lifestyle. Unfortunately, the incidence of healthrelatedconcerns amongst blind and visually impaired (VI) people is higher than that of thegeneral population. Devices (e.g., generic wearables such as Fitbit and Jawbone, and morespecific devices such as heart monitors) and associated apps for smartphones/tablets exist tocollect and monitor health-related information in support of guided healthier lifestyles andmonitored wellbeing. Such technologies are not sympathetic to the accessibility needs ofblind/VI people, meaning that a core subset of the population which could significantlybenefit from the use of these technologies is currently excluded from their effective use. Thefocus of the aHealth project is to develop an innovative technology that will act as anaccessibility layer or service for existing health and wellbeing-related technologies such thatthey are made accessible to blind/VI people. The aHealth project will:1) adopt innovative participatory methods to identify and respond to the requirements ofpeople blind/VI and engage them directly in the design of (2); and2) develop a unified accessibility service which enables the blind/VI community to access andthus benefit from existing and future health technologies. The use of participatory design will empower members of the target market to help directhealth technologies that are of value to them, leading to greater long term technologyacceptance. The accessibility service will enable blind/VI people to finally realise all thebenefits afforded by health technologies with anticipated positive impact on their health (eyeand related), independence and wellbeing. Longer term, it is anticipated that the accessibility service will support social and collaborative networks that will also offer appropriate at-adistancecommunity support.

Note: you can see all Innovate UK-funded projects here

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Arecor Ltd	Ultra-Long Acting Insulin Glargine	£99,429	£59,657

Project description - provided by applicants

The aim of the project is to use innovative formulation technology to develop a proof-ofconceptfor insulin product with a consistent, ultra-long release profile. Formulations will firstbe validated with the use of an in vitro model before demonstrating the ultra-long releaseprofile in a relevant animal model. Arecor is a biotherapeutic formulation company with atechnology that has the ability to elongate the time action profile of insulin whilst maintaining a product stability profile suitable for commercialisation. The duration of action for currentlymarketed products is less than 24 hours in at least a third of patients, which increases the riskof severe life-threatening hypoglycaemic episodes. A consistent, elongated release profile willoffer reduced hypoglycaemic risk, whilst in turn improving dose flexibility resulting inimproved patient compliance, health benefits and savings for the healthcare provider.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Blackstar Amplification Ltd	SoundShaper PoC	£154,079	£92,447

Project description - provided by applicants

We aim to develop new technology that will enable Blackstar to enter a new market - HomeAudio. As designers and manufacturers of guitar amplifiers and guitar pedals, Blackstar havegained an international reputation for innovation and engineering quality, with several patents. The Soundshaper project creates a set of unique features that allow a portable wireless speaker to achieve the best quality of performance in any size room, wherever the speaker is placed. We will achieve this through a simple App control interface that allows sophisticated audio Equalisation so the user hears a full frequency-balanced sound at all volumes, balancing EQpatterns to the parameters of the room. We will combine Dynamic EQ features with ourinnovative potentially patentable SuperWide Stereo, (currently used in the ID:Core series of electric guitar amplifiers), to create an increased perception of width providing an immersiveaudio experience. As well as proving the concept for the above through both hardware and softwaredevelopment, Blackstar will complete testing and trials to judge the effectiveness of Soundshaper technology in different situations and to develop comparisons with potential competitors across mid-range portable, and high-end multipart audio systems. At project end, we expect to have identified new patentable IP for Soundshaper, proven the tech concept, evolving the strategy for further development. Blackstar have proven success with a TSB grant previously funding the innovative tech in ourID; Core range. As a result sales of our digital amps have grown to 50% of our revenue(transitioning us from a primarily valve amp manufacturer) positioning us as 2nd best sellingguitar amplifiers in US and UK. Soundshaper offers a massive opportunity to diversify ourmarket and build a brand presence in Home Audio. At \$15b the global Home Audio market isfar larger than the \$544m global guitar amp market. This PoC (following a PoM) will be the 2nd step on this journey.

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Results of Competition: Smart Round 3 2015-16 - Proof of Concept

Competition Code: 1507_SmartRnd3_PoC

Total available funding for this competition was £7.5M from Innovate UK

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 Ltd	Oxford Lasers high accuracy laser micromachining	£165,981	£99,589

Project description - provided by applicants

The project is to prove that an advanced laser micromachining system can be built with athree-fold improvement in accuracy over current, world leading designs. The main targetmarket will be the microelectronics sector.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Your Hydro Ltd	Virtual Turbine Environment	£166,961	£100,000

Project description - provided by applicants

Your Hydro designs, manufactures, installs and commissions small-scale hydro powerturbines that covers the full range of head and flows up to 5 MW capacity including low-headaxial flow and Kaplan turbines, medium-head Francis and cross flow machines and high-headPelton and Turgo turbines. Your Hydro identifies a market need for improved hydrology andenergy modelling in response to policy pressure on the viability of UK hydroelectric schemesand in order to build its business in value-added engineering services covering the feasibilityand development of hydro sites 'worldwide. Your Hydro will work with modelling and simulation specialists CFMS and WIKKI Ltd to create a new and customised Virtual TurbineEnvironment for the hydroelectric sector. This will include models for the engineeringassessment of sites and the installation effects of specific turbines. Use will be made of thelatest in computational fluid dynamics simulation, developed for the aerospace sector, runningon supercomputing facilities provided by CFMS at the Bristol and Bath Science Park.

Note: you can see all Innovate UK-funded projects here

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Competition Code: 1507_SmartRnd3_PoC

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	Innovative, upscalable and ecological process to produce wildtype silk protein solutions	£129,935	£77,961

Project description - provided by applicants

This 12 months project aims at developing a new economically viable process to produce nonmulberrysilk solutions and to offer scaffolds with increased tissue regenerative potential. Silksolutions extracted from the domesticated Bombyx mori can be assembled into a wide range of materials, from hydrogels, films to sponges and composites, all particularly suited tobiomedical applications due to their protein composition. Several varieties of wildtype (or nonmulberry)silkworms have a range of mechanical properties closer to native tissues as well ascellular adhesion motives naturally occuring in their protein sequence, both significantlyenhancing the potential to repair or replace damaged tissue. However the exploitation of their protein solutions has been limited so far, as extracting the proteins from their highlycrosslinked fibres requires extensive and hazardous chemicals treatments, preventing futuremanufacture. Under this proof of concept project, OBM will develop a new, ecological process to produce non-mulberry silk solutions, with potential for upscale and commercialisation.

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Results of Competition: Smart Round 3 2015-16 - Proof of Concept

1507_SmartRnd3_PoC **Competition Code:**

Total available funding for this competition was £7.5M from Innovate UK

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		
RentProfile Group Ltd	RentProfile - rent with confidence	£167,000	£100,000		
Project description - provided by applicants Development of technology and tools to increase transparency in the rental market with thesim to eradicate rental fraud.					

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	Far-UK Crash Structures for Low Weight Vehicles Including L7	£159,250	£95,503

Project description - provided by applicants

There is a developing and growing vehicle segment based around small light vehicles. Examples of this include the Renault Twizy and the Toyota iRoad plus numerous vehiclessuch as the autonomous vehicle trials in, for example, Milton Keynes. Although these vehiclesare seen as the future there have been a number of instances where the crash performance of these vehicles has been questioned by, for instance, private crash test organisations such as ENCAP. This project looks to build on existing technical knowledge to produce a crashstructure for these low weight vehicles. Although a growing market, current market sizes are relatively small in automotive terms and this brings further cost challenges that will also beaddressed.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
ESB Developments Ltd	ESB – Manufacturing Process	£166,442	£99,865
	Innovation		

Project description - provided by applicants

ESB Developments, a dynamic, UK-based SME, specialises in the development and commercialisation of innovative health products. The team has many years' experience ofworking in the area of Vitamin and PUFA (Polyunsaturated Essential Fatty Acids) nutritionand has a strong track record in the development and commercialisation of novel products, particularly those suitable for vegans and vegetarians. ESB's portfolio includes Opti3, an award-winning Omega-3 product suitable for vegans and arange of other unique nutrient supplement products developed specifically for non-meateaters. In the proposed proof of concept project, ESB intends to evaluate the feasibility of developinga new source of an essential nutrient molecule utilising a novel and innovative approach. The company will work with UK-based partners to explore potential sourcing and processing options that have the potential to support rapid scale-up and launch. A successful project would have a transformative impact for ESB as it would improve both the scalability and potential capacity of this novel product. This would enable it to satisfy asignificant unmet market need and to rapidly capture market share both in Europe and on aglobal basis. This additional revenue would catalyse further investment in UK R&D (particularly to expandon its portfolio of novel ingredients) and UK-based manufacturing facilities, including supporting staff.

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