

Results of competition: Smart - Round 6 - Proof of market

Total available funding for this competition was £9.4m from the Technology Strategy Board.

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
3Rings Care Limited	3rings Smart PlugLinear Rocket Motor - LRM	£41,987	£25,000
Project description - provided by applicants			
<p>Is my ageing Mum or Dad OK today?, is a question more families ask each day. In the UK 10m people are over 65. Impacts of the age wave are becoming apparent to many people. Pressure is increasing on families to provide care for ageing loved ones but hectic lives & distance is not always conducive to that need.</p> <p>The '3rings Smart Plug' project is a method to evaluate the potential of connecting unconnected elderly relatives to their Internet enabled families to introduce Distributed Family Care. The '3rings Smart Plug' has two components:</p> <ul style="list-style-type: none"> - A hardware device that allows a domestic appliance such as a kettle or TV to be plugged in and then it is in turn plugged into the mains. When the domestic appliance is turned on the 'Smart Plug' 'signals' the 3rings cloud based ecosystem via the built in GSM circuit. - The cloud based software ecosystem is an event monitoring system that communicates activity or lack of activity to defined family & friends using Internet and telecommunications protocols such as push notifications, web, email, SMS & Calls. <p>The key to acceptance & success is to introduce technology in a way that is familiar to the ageing relatives removing the 'fear' of technology but simultaneously providing an ecosystem to communicate activity to their Internet enabled families. The base assumption is there would be no requirement for the Internet at the ageing relatives.</p> <p>Power usage can indicate activity, activities such as making a cup of tea, watching the TV can provide a valid signal that 'Mum is Up', unusual activity can indicate areas that may need investigation. By monitoring 'activity' or lack of it, events can be communicated to the families to make them aware of their loved ones status, regardless of distance. This proof of market project will enable us to undertake in-depth market analysis to scope the investment case and roadmap to bring to the market a product designed to enhance the lives of the ageing population & their families.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Amaryllis	Linear Rocket Motor - LRM	£42,356	£25,000
Project description - provided by applicants			
<p>ABBS has developed unique, patent-pending Linear Rocket Motor (LRM) technology which provides a remarkable combination of extreme performance characteristics which cannot be obtained with conventional rocket motor system designs, and therefore enables applications which have not previously been physically possible.</p> <p>The basis of the design is that the motor efflux emerges from transverse slots along the full length of one side of the motor tube rather than from one end, which allows a very compact design and the combination of:-</p> <ul style="list-style-type: none"> • Extremely rapid initiation and rise time to full thrust. • Very high thrust. • Very high total impulse. • Very short duration. • High footprint area which reduces local loading on lightweight structures. • Uses very safe, stable composite propellant system. • Uses an ultra-safe Exploding Foil Initiator system which cannot be set off by such as a lightning strike. <p>The project is designed to explore both the technical and commercial parameters relating to the identified potential applications made possible by the new technology, and consider whether any others may exist. Analysis of the potential opportunities will be used to determine the viability of a development and exploitation proposal which will form the basis of future research & development and commercial activity of ABBS.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Amaryllis	Reuse of MFC Board	£26,901	£16,141
Project description - provided by applicants			
<p>Melamine faced chipboard (MFC) is an important material for the mass production of furniture. MFC is widely used for the production of office furniture, such as desks, pedestals and storage units, because of its hard wearing surface properties, uniform appearance and low cost. Office furniture generally has a long product life (9-12 years); however, furniture may be replaced before the end of its functional life, for example, due to an office move or corporate rebranding.</p> <p>The current disposal routes for MFC are incineration as biomass for energy recovery or landfill. While energy recovery is higher up the waste hierarchy than landfill, this route does not adhere to the principles of a circular economy where material is preserved and not destroyed. However, remanufacturing and reuse (R&R) could be strategies to reduce MFC waste streams and the environmental impacts of energy recovery or landfill.</p> <p>The economic case for MFC reuse and remanufacture is challenged by the low cost of new, imported furniture. For any R&R model to work, the associated costs must be competitive, and/or there must be additional benefits to pursuing R&R products over new. Amaryllis has remanufactured office furniture for 10 years and recognises a potential opportunity to add value to the waste MFC stream through remanufacturing.</p> <p>This project will explore innovative markets for remanufactured and reused MFC board and identify opportunities to connect these markets with the supply of MFC feedstock from both end-of-life office furniture and manufacturing scrap. The project will investigate the readiness level of key joining, finishing and cutting technologies that could facilitate remanufacture of MFC. The overall aim of this project is to identify the potential size of the market for remanufactured MFC from the office furniture sector and to estimate the potential economic and environmental benefits from diverting the waste stream from disposal.</p>			

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Archipelago Technology Group Limited	Archipelago - Power Drop	£41,326	£24,795
Project description - provided by applicants			
<p>Archipelago Technology Group's Power Drop Technology is a new means of depositing liquids in which the deposition rate is significantly higher than other means of droplet ejection such as inkjet. The technology will also have applications for jetting viscous fluids.</p> <p>Inkjet technologies have been extremely successful for high resolution colour imaging in applications such as graphic arts. However, these technologies have been developed precisely for ejecting the small volumes (sub 100pl) and low viscosity (sub 10mPas) materials required by imaging applications.</p> <p>There is now increasing demand for inkjet technologies to be applied to an expanding range of applications; however, in many of these new applications, inkjet cannot deliver the required materials at the required deposition rates. Moreover, inkjet is not scalable, and so is not easily adapted to deliver the performance required.</p> <p>Power Drop will enable jetting of liquids at higher deposition rates than inkjet technologies. It will also be capable of jetting viscous liquids. Applications include:</p> <ul style="list-style-type: none"> • ejecting paint for the decoration of objects at large scale (for example buildings, aeroplanes, trains). • civil engineering applications for deposition of materials such as concrete for decoration or structure creation. • deposition for digital manufacture where current technologies cannot eject the volume of material required in a reasonable time (for example for texturing decorative laminates, or for making larger components of metal, plastic, glass). • textiles, where inkjet struggles to eject the volume of material required. 			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BigDNA Ltd	IP and commercial assessment of a novel cancer therapeutic	£43,532	£25,000
Project description - provided by applicants			
<p>BigDNA is a vaccine development company, using bacteriophages to deliver DNA vaccines. Arising as an additional output from a previous TSB SMART Proof of Concept project, the Company has identified a novel non-vaccine peptide-based cancer therapy which it believes may have significant clinical and commercial potential. This novel peptide combination has the potential to greatly increase clinical efficacy over existing therapies, and may offer a fast track route through to regulatory approval.</p> <p>BigDNA wishes to perform a full analysis of the intellectual property position surrounding this novel therapeutic, as well as a full commercial assessment of the opportunities available to such a product. This will also cover a detailed competitor and licensee analysis. If a positive Proof of Market analysis is obtained, then full technical development of this novel product can begin.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Brainboxes Limited	Future-proofing manufacturing hardware communications FINAL	£44,000	£25,000
Project description - provided by applicants			
<p>The Internet of Things is predicted to comprise 30 Billion connected devices by 2020, see IDC report. Brainboxes believes that if this is to come about in just over 5 years then the bulk of these devices exists already but are not connected. Brainboxes will provide the connectivity for the installed base of industrial devices to allow them to connect to IP networks.</p> <p>Established in 1984, Brainboxes designs and manufactures electronic interfaces that allow the interconnection of peripherals etc to Personal Computers. We intend producing devices that will connect to the vast array of sensors and Programmable Logic Controllers (PLCs) in use across industry today, in utilities, major manufacturing industry and transportation networks, bringing them on line by providing both the physical connection to the sensor output and also providing the protocol conversion required to make the fragmented multi “standard” PLC systems compatible with the IP network that is the backbone of the internet.</p> <p>Brainboxes exports in the region of 70% of our products and we intend selling these new devices in our established export markets, in EU, USA and Japan.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BTS Holdings PLC	Corporate Telephony Delivered on Mobile Android Devices	£41,400	£24,800
Project description - provided by applicants			
<p>Corporate telephony (CT) is an essential means for communicating and directing calls and messages within organisations using an internal numbering scheme. CT can be delivered on legacy systems (older phone systems using telephone lines with a primary rate interface) as well as Voice over Internet Protocol (VoIP).</p> <p>The market is dominated by large enterprises e.g. Unify, Avaya, Cisco in a multi-billion pound sector which is steadily growing at 2.2% p.a. There have been noticeable recent market trends:</p> <ul style="list-style-type: none"> • heavy discounting, particularly for global telephony deals, with vendors offering bundling of telephony functions into a single licence • unified communications (UC) <p>These are adversely impacting our SME telephony business and we need to respond. Current CT uses a monolithic platform with a centralised server providing a range of services, on a highly complex basis, with implications for costs which are passed on to users.</p> <p>We have identified a gap in the market for a simpler, highly innovative, more resilient CT, for which the project name is TOAD. TOAD is expected to drive down the costs of CT by 50%. We expect TOAD to open new and wider market opportunities for BTS.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DML ABLogics	A point-of-care assay device integrating diagnosis of respiratory infections with information technology	£41,149	£24,689
Project description - provided by applicants			
<p>This proposal seeks funding for assessing the market value and the strategy to market for an innovative point-of-care assay device concept of minimal complexity designed to enable individual patients and doctor offices to promptly identify the cause of infectious diseases while providing wireless connectivity to generate spatial temporal dynamics maps of disease progression at the population level.</p> <p>The market analysis will assess the need of patients and doctors for the proposed assay and its suitability for guiding the implementation of surveillance measures and the mobilization of resources in response to the threats of epidemics. This assay will have the capability to detect respiratory virus infections, discriminating different influenza A and B subtypes and respiratory syncytial virus as working example and first application.</p> <p>The objective is to generate a flexible and effective point-of care assay for the differential diagnosis of major respiratory infections that functions as a wireless device transmitting the coordinates of assay results to a data-base for monitoring diseases prevalence in the population. The availability of such an assay will translate into better and appropriate care for patients and provide national and international public health agencies with an unprecedented and powerful information technology tool to increase the surveillance and control capability against infectious diseases epidemics.</p> <p>The proposed work will transfer idea-design concept into a business plan to identify risks and opportunities as well as the overall financial need to bring the technology to market. For this purpose we have planned a number of logically linked and temporally coordinated activities that address the following objectives:</p>			

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- i) set system design and specification;
- ii) assess and validate business opportunity;
- iii) challenge intellectual property position;
- iv) evaluate different financial models.

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Evance Wind Turbines Limited	DRES	£50,788	£25,000
Project description - provided by applicants			
<p>We wish to investigate the feasibility of developing a renewable energy system which enables the owner to generate electricity for self-consumption and for export to the grid. PV and wind energy provide a variable electricity source which could be combined to make a more effective and consistent electricity source. In addition, the load demand from a typical user is also highly variable and we believe we can improve the match between generation and load demand, in a manner that makes economic sense.</p>			

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Fennaco Limited	Innovative Braking System	£25,400	£15,240

Project description - provided by applicants

This is all about brakes – the Fennaco brake – which will deliver significantly improved braking to all types of vehicle. The concept is novel, simple, and highly adaptable. It is protected by worldwide patents and patent applications held by Fennaco Limited. Brakes on vehicles are very important. We all rely on them every day to work correctly. When you apply the brakes on a vehicle, the brakes slow the vehicle down by converting kinetic energy of the vehicle into heat. When you slow down or stop a vehicle using brakes, all the energy of the moving vehicle is converted into heat. The job of brakes is to lose this heat energy fast enough that the brake doesn't overheat. If brakes overheat, the friction surfaces within a brake become glazed (i.e. slippery) and the brakes stop working properly. If this happens, every time the driver needs to slow down, he has to brake harder and harder and the vehicle takes longer and longer to stop.

Fennaco has identified a disruptive approach in the market that takes cooling of brakes a quantum leap forward. Instead of relying on air flow over or through components to remove heat, as in existing designs, the Fennaco brake actively pumps heat away into the surrounding air. Experimental tests at Bath University have shown remarkable results - the Fennaco brake loses heat roughly twice as fast as current brake designs. Vented disc brakes start to perform comparatively at very fast speeds - but the Fennaco design still outperforms by a very large margin.

The novel approach we propose has potential to transform the performance, safety and reliability of braking systems and create further market growth. We aim to explore the market opportunities, challenges, barriers and constraints within key growth areas of heavy vehicles in Commercial, Military, Rail and Air markets to ensure our future brake designs meet the needs of a wide range of applications.

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Feynlabs Limited	Feyncodes	£41,550	£24,930
Project description - provided by applicants			
<p>Feyncodes is an innovative method of accelerating the early stages of learning of computer programming, aimed at educators and young people. Feynlabs proposes to develop software that will open up the 'universal language' of Computer Programming for learners, providing an architecture of understanding that will allow the learner to comprehend the implementation of different computer languages. This gives the student a huge head-start when they move on to learning specific programming languages.</p> <p>Feyncodes will, in a sense, be the grammatical primer, a Rosseta Stone of computing pedagogy. The Feyncodes programme will be available to use on desktops, laptops, smartphones and tablets. This device is being developed by renowned technologist Ajit Jaokar, through his educational resource company Feynlabs.</p> <p>Feynlabs is a company set up to innovate coding and wider ICT educational methods. Ajit Jaokar is the managing director. He has worked in the digital technology sector for many years, founding Futuretext, which specialises in identifying and researching cross-domain technology trends. He also conducts courses at Oxford, mainly in the area of next generation telecoms. Ajit is also member of the World Economic Forum's 'Future of the Internet' council. Forbes published an interview with him in June 2013 about the Feynlabs coding education concept and the Miami Herald recently published an article in March 2014 concerning the project.</p>			

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GnoSys Global Limited	Biomass Storage Combustion Sensor System - Prometheus	£41,453	£24,871
Project description - provided by applicants			
<p>There have been many recorded incidents of fires starting in biomass storage facilities. Once started, these fires are difficult to manage and extinguish. They result in significant risk to human health and business interruption and ultimately financial loss.</p> <p>This project aims to show that there is a clear market need to provide early warning of a fire starting inside a biomass storage facility such as wood pellets in a large silo. This will enable measures to be taken to remove or damp-down the specific part of the silo contents at risk, thus reducing the risk of a whole silo fire. The early warning will be based on temperature and gas mixture measurement and profiling in space and time, within the biomass pile, with near real time reporting.</p> <p>This project spans the Technology Strategy Board Priority Areas:</p> <ul style="list-style-type: none"> • Resource efficiency • Energy • Electronics, sensors and photonics 			

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Magic Milestones limited	TeamGenes	£42,399	£25,000
Project description - provided by applicants			
Magic Milestones Ltd delivers Project Management Office support to organisations that do not have the capability or else require a holistic approach. Magic Milestones wish to develop a digital service “Team Genes” that can be used to profile and create an ideal team for a project based on their psychological profile and previous experience. This will optimise and streamline the selection of teams and ensure the right people are deployed on the right project at the right time.			

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Nanomedpharma Limited	Novel nanomaterials as antimicrobial coatings	£40,659	£22,986
Project description - provided by applicants			
<p>The antibacterial properties of composites containing silver, copper and zinc nanoparticles have been known for many years and a wider range of applications in healthcare settings is expected particularly in the control of biofilm infections. The properties of nanoparticles depend on their size, shape and chemical surroundings. When synthesised, it is very important to control not only the particle size but also the particle shape and morphology as well. However, this has been recognised as a key challenge to achieve better applications and finetuning properties (El-Keshen, 2012), particularly to achieve cost-effective environmentally friendly mass production (Mary, 2011).</p> <p>Initial research from Nanomedpharma (NMP) has demonstrated the feasibility of developing a novel in-situ one step manufacturing process for the low cost, simple and effective production of bespoke nanomaterials attached to various biocompatible solid supports. This process will enable the production of novel antimicrobial coatings which are more efficient and cost effective.</p>			

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Punk Couplings Limited	Assessing the market and commercial viability of innovative torque coupling – “the Punk Coupling”.	£40,631	£24,378
Project description - provided by applicants			
The project aims to carry out market assessment activities to inform future research and development and assess the commercial viability of the innovative “Punk Coupling”, an alternative to the Universal Joint and other Torque Couplings.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PushPull Technology Limited	An assessment of the commercial viability of a client-to-client, multi-party, real-time application data sharing platform.	£23,922	£14,000
Project description - provided by applicants			
<p>An assessment of the commercial viability of a client-to-client, multi-party, real-time application data sharing platform. Our proposed approach will tackle many of the privacy, security and data consistency issues facing existing cloud-based file and data-sharing systems. Resolving these issues will further increase the size of the market for such platforms and potentially lead to the development of new business models.</p> <p>During this Proof-of-Market project, we will:</p> <ul style="list-style-type: none">• assess the potential size of the market• determine which of our proposed functionality will be most important to customers• decide our approach to Intellectual Property protection• plan the route to commercialisation of our product			

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Rescon Limited	Wearable Acoustics	£43,924	£25,000
Project description - provided by applicants			
<p>Rescon’s wearable acoustics Proof of Market project is an investigation into the commercial feasibility of our wearable acoustics technology. This builds on a successful Technology Strategy Board funded technical feasibility project that investigated the development of a wearable microphone system that detects sounds associated with health and wellbeing. We developed wearable hardware and analytics technologies that proved the feasibility of microphones, both wearable and ambient in detection of coughing, choking and heavy breathing. Rescon, in collaboration with Milner consultants, are going to profile the market.</p> <p>Firstly we will research target sectors including key respiratory and cardiac diseases, future trends in these diseases, long-term sector trends, and other important areas that emerge from the research. We will investigate the best technology format for market introduction.</p> <p>Secondly we are going to profile target regions looking at barriers to entry. These profiles will include country demographics and regional factors affecting our technology take-up.</p> <p>Thirdly we will profile key competitors, with a comparative summary of functionality.</p> <p>Competitor strategies will be identified based on current and future portfolio mixes and regional focus. Competitor pricing for similar products and services will be collected where possible. Milner will develop a bespoke Excelbased market model for Rescon. Rescon will complete IP searches to clarify position and potential for submission of patents based on previous work. Rescon will also forecast costs for project stages including building of prototypes and taking the acoustic sensor technology to market.</p>			

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Collaboratively, a final proof of market report will be written summarising the market opportunity over the next twenty years. The market will be described in volume and value terms and split by sector and by region. This will be used to develop strategic options and recommendations covering suggested routes to market and brand positioning.

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Scanning Solutions Limited	Scanning Solutions (SS)	£41,720	£25,000
Project description - provided by applicants			
<p>This project intends to investigate a new fault finding/data capture and predictive analytics concept, consisting of innovative retrofitted devices and a data processing platform that will allow faster detection of issues, faults and damage on electrical, mechanical and digital baggage handling systems (BHS) at large airports. This issue cost the global airline industry £1.56bn in 2012 (SITA report 2012).</p> <p>Scanning Solutions (SS) will consist of 3 products, a portable device that can be put into any point of the system by staff, and a retrofitted product that fits on to tubs and carts within an automated material handling system such as airport BHS and a platform for the analysis of data for the end user. The system can also be used for other industries that use automated material handling systems, for example, modern warehouses, distribution centres, parcel and postal sorting facilities.</p> <p>These devices will use a combination of existing and emerging technologies underpinned by the development of a platform that collects data from the device, processes the data and alerts site teams to faults in real time. It also has the ability to predict, inform and indicate faults and failure prior to an event, with significant potential to reduce resources (time and cost) currently taken up eliminating problems and creating high levels of process control.</p> <p>The main focus of this investigation will be on identifying specific technological issues and market needs within the airport BHS. This proof of market will also identify other industries for the device, investigate wider demand and uptake, assess the wider commercial potential and technical challenges that these markets might also present. Development of this concept utilises mechanical and electronic engineering innovations as well as challenging digital technology and software development to offer a package of products as a holistic solution for clients.</p>			

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Seeper Limited	seemove	£47,140	£25,000
Project description - provided by applicants			
<p>SeeMove is a gestural interface SDK which can see intricate detail from a distance, enabling tracking of objects as well as people, whilst not being limited to the desktop, a specific camera, operating system or device. It is a next-generation middleware solution developed by experts from the games & camera vision industries. It has the potential to transform the user's relationship with their computers across a range of industries, by giving programmers the tools to integrate a completely new type of user interaction into their applications, utilising our advanced tracking engine.</p> <p>Built with everyone in mind, SeeMove can be used with any operating system and nearly any camera. We provide the toolkit, so end users can decide how, and what to make. Using a range of supported depth-sensing cameras, SeeMove is unique in allowing users to train the system to recognise any gesture, pose or object. These can then be turned into actions within computer applications.</p> <p>The system is not limited to the desktop, a specific camera, operating system or device. It can be trained for any number of new users, who can personalise application responses to their own data and develop bespoke software. The more the system gathers data the better it becomes at distinguishing between gestural input, making SeeMove an adaptive application.</p> <p>Seeper would like to release SeeMove as a Middleware product, allowing developers to create their own experiments and applications. The range of different applications that will arise shall depend on the developers who embrace the technology.</p>			

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SensorHut Ltd	SensorHut Ltd - Proof of market for a new chemical sensor technology	£24,860	£14,916
Project description - provided by applicants			
<p>The global market for chemical sensors is projected to reach US\$26.4 billion by 2018, primarily driven by continuous technology developments, product innovations and expanding application areas. At SensorHut we are developing a new gas sensing approach based on a nano-structured optical element that adsorbs chemical substances so that they can be optically analysed to determine their chemical composition. The advantages are higher sensitivity and miniaturization and lower cost than conventional instruments based on absorption spectroscopy.</p> <p>This technology can be applied to a large number of industries and gases, and therefore we need to narrow down initial focus to some high value markets where the key advantages of this sensing principle are most needed. This is a platform technology and with the Technology Strategy Board Proof of Market Funding we are identifying high value markets, where the key advantages of our sensing principle are most needed. These markets will be our initial focus for device development and sales.</p>			

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Singer Instruments Company Limited	Singer Instruments Smart Lab - Proof of Market	£48,443	£25,000
Project description - provided by applicants			
<p>Singer Instruments is a 3rd generation family business based in Somerset. The company develops, manufactures and exports precision instrumentation and laboratory automation equipment to a global customer base in over 55 countries, including 9 of the world top 10 universities.</p> <p>Singer are market leaders in yeast lab automation for scientists using solid agar and have pioneered new research methods with several influential yeast biologists. With support from the Technology Strategy Board and an international group of research scientists, Singer is now embarking on a project to develop next-generation lab automation. This will facilitate the work of university research labs, cancer research institutions, pharmaceuticals companies, biotechnology companies and biofuels companies worldwide and increase Singer's share of the rapidly growing, multi-\$bn lab automation market.</p>			

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Sustainable Ventures Development Partners Limited	Sustainable Ventures Development Partners - COD system project	£41,246	£24,500
Project description - provided by applicants			
<p>Company: Sustainable Ventures Development Partners (“SVDP”) works with clean technology investors, entrepreneurial managers and corporates to create, build and grow startup companies.</p> <p>The proposed system is an energy harvesting, smart carbon monoxide (CO) detection (COD) device that can be used to remotely monitor the CO level in domestic boilers providing data for boiler maintenance. Boiler inefficiency is a very important factor – it can lead to increased energy use, enhanced CO₂ emissions and dangerous level of CO production.</p> <p>The main advantage of the technology is that it requires no additional energy source, such as batteries or extra wiring as it uses temperature difference between surfaces to generate the required energy level. The COD device is fixed to the inside of the flue using a magnet and it sends out signals once an hour, creating a boiler efficiency profile. The data will be analysed and an automatic boiler maintenance request will be sent out to the user or to the boiler maintenance provider. The device can be monitored via a user-friendly smart-phone app/secure website, smart phone or the internet. The existing household Wi-Fi hub co-ordinates data transfer and controls signals between these components and a secure, cloud-based proprietary control system. This allows accurate profiling of the boiler and provides an extra safety measure to the household as it will set off the alarm if the CO level rapidly increases. The same COD technology can be used equally effectively in commercial premises.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
The Dearman Engine Company Limited	Proof of Market: Japan	£65,120	£25,000
Project description - provided by applicants			
<p>The Dearman Engine Company (DEC) is a UK based technology developer. The Dearman Engine is an innovative heat engine that converts ambient or waste heat into shaft power using liquid air or nitrogen as a working fluid. The technology is the subject of multiple collaborative research and development projects financed through various combinations of government and private investment exploring its application to transport refrigeration, waste heat recovery and zero-emission vehicles.</p> <p>Up to 20% of diesel consumed by a refrigerated truck is used for cooling. Along with the direct fuel cost, CO₂ emissions are ~50 tonnes per year per truck from cooling. The Dearman Engine can be used in transport refrigeration applications by extracting “coolth” from the low temperature working fluid (liquid air), which boils at -196°C and using the resulting shaft power to drive a refrigeration cycle.</p> <p>A consortium of DEC, MIRA, Air Products and Loughborough University is currently 6 months into a Technology Strategy Board IDP8 project to build and test a Dearman engine refrigeration system fitted in a commercial vehicle for demonstration in 2014. The technology will move to field trials in 2015 and low volume manufacture by 2016. Other projects are underway to develop waste heat recovery applications.</p> <p>This proof of market project seeks to explore the opportunity for developing an additional exploitation path for the technology in the Japanese market. Japan is the world’s third largest economy and invests \$3.9bn a year in energy technology R&D. It has an extensive cold chain that generates more than \$1.6bn a year in revenue that operates in a manner that is distinct from European models utilising different vehicles and distribution models creating the potential for further innovation. Japan also offers the opportunity of being the base for a further exploitation route into the rest of the Asia pacific region.</p>			

Results of competition: Smart - Round 6 - Proof of market

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 Zap Corporation Ltd	Market study of the commercial viability for using cross platform data to improve consumer targeting	£40,000	£24,000
Project description - provided by applicants			
<p>The proposal is to examine the market demand for building a cross platform analytics tool which will seek to pool and analyse internet , television and mobile data for targeting purposes. The method is to demonstrate the potential for using the consumption and transaction patterns of individual consumers in a way that delivers a more holistic approach to subscriber profiling. The commercial rationale will suggest that enhanced profiling can provide network operators with a way to monetise consumer data by on selling refined analytics. These will have much value as targeting mechanisms for advertising purposes.</p> <p>Zap will use an existing draft business model and a technology demonstrator which it has recently created to show how this could actually work in practice. It uses basic TV audience viewing data and builds out targetable clusters which can then be used for enhanced advertisement delivery.</p>			

Results of competition: Smart - Round 6 - Proof of market

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Thinkinnovate Ltd	IoT Scanner	£41,670	£25,000
Project description - provided by applicants			
<p>This project wants to investigate the viability of creating an Internet of Things security scanner that can be used both in professional and home environments by non-security experts. Internet security threats have been around for years and much time and expense is spent preventing and thwarting attacks. A new area has come to prominence about the security of the "Internet of Things".</p> <p>At the beginning of 2014, the first documented attack was identified, made up of Internet of Things connected objects as well as home routers and identified the prospect and likelihood that linked IoT objects were being comprised across the world. With expected increase of devices connected to the Internet both in the home and office, there will be greater security concerns and need to prevent compromising devices. The market is already educated about the need for security through use of anti-virus software on PCs and smart phones.</p> <p>This project wants to establish that there is a need for a specific security scanning mechanism to protect and identify breaches of security of the IoT/smart objects in the home or office as well as establish the most cost effective way of creating a the scanner either as a new device or a smart phone. Finally the project will identify whether such a device is commercially viable.</p>			

Results of competition: Smart - Round 6 - Proof of market

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TMT First Limited	Trader Platform	£42,479	£25,000
Project description - provided by applicants			
TMT First has developed a suite of server based software tools that enables it to analyse the potential faults with new and second hand mobile phones. We believe that we can offer (via a new trading platform) fully graded mobile phones and realise the full economic value of those phones. We are seeking Technology Strategy Board funding for a Proof of Market project to determine the business opportunity for our technology and how best to exploit it.			

Results of competition: Smart - Round 6 - Proof of market

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Vertogen Limited	Variable Pitch Vertical Axis Wind Turbine	£38,538	£23,122
Project description - provided by applicants			
<p>Small scale horizontal axis wind turbines (HAWT) and vertical access wind turbines (VAWT) are unable to handle high winds or turbulent conditions. At very high wind speeds wind turbines shut down. Existing designs focus on external mechanical and electrical systems to reduce the output rather than exploit the attributes of low and high wind conditions.</p> <p>Turbines with static blades cannot effectively capture the direct wind energy for all the blades. Existing designs rely on a small proportion of the total blade area and typically feature a symmetrical profile (equal profile each side). Existing vertical axis machines have an inherent inefficiency because while one blade is working well with the wind, other blades are effectively pulling in the wrong direction – causing them to behave as a brake. Vertogen Ltd have identified a gap in the market for a variable pitch VAWT.</p>			

Results of competition: Smart - Round 6 - Proof of market

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
Xylostream Technology	Video Monitoring Proof of Market Project (VMPOM)	£41,820	£25,000
Project description - provided by applicants			
<p>Xylostream Technology (XTL) has identified other areas where its core technology offer across three domains of expertise can be applied in the professional Video Monitoring market. XTL believes that the Video Monitoring market, in its various guises, will ultimately migrate with an evolutionary approach to Ultra High Definition (UHD) for improved image resolution, to High Efficiency Video Coding (HEVC) for improved network efficiency, and to more targeted video processing solutions to increase levels of automation. XTL plans to investigate the possibility of a more rapid transition in the Video Monitoring Proof of Market project (VMPOM).</p> <p>This project is based on the hypothesis that XTL can bring significant technological advantage to the video monitoring market and then take commercial advantage of the opportunity created.</p>			