

## Results of competition: Materials & manufacturing Launchpad

Total available funding for this competition was £2m 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
<b>2DHeat Limited (Lead)</b> Camcoat Performance Coating Limited	Novel bake-out coatings for ultra - high vacuum ("UHV") systems	£166,000	£99,600
<b>Project description (provided by applicants)</b>			
<p>The current project seeks to develop specialist, high-value 'bake-out' coating systems for application to high value, Ultra-High-Vacuum particle accelerator lines, synchrotron research installations and specialised semiconductor fab production lines. These permanently installed, novel coatings will be immediately deployable for baking-out, whenever required, and will deliver significant operational benefits to those systems in terms of improved 'bake-out' performance and economics (whilst establishing the vacuum) and in improved running efficiency of the installations themselves.</p> <p>The project will seek to provide such novel bake-out coatings for application to a range of different vacuum vessel materials of construction, including stainless steel, aluminium (and its alloys), OFHC copper and various high-nickel-content alloys.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
<b>Advanced Laser Technology Ltd (Lead)</b> Inventya Limited	Laser nano structured metal matrix composite coating technique	£133,645	£80,186
<b>Project description (provided by applicants)</b>			
<p>To develop a laser applied surface-cladding technique using a sol gel that will help to decrease the manufacturing process to one stage as compared to traditional laser-cladding techniques; saving on time, energy, and material use to create less waste, and minimise storage.</p> <p>The process can be applied to a number of parts, without impacting on their dimensions. It can be applied to complex shapes and vertical surfaces without extra consideration of planning and manufacturing times.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
<b>AeroDNA Limited (Lead)</b>	DNAconnex - creating integrated high value manufacturing networks	£202,942	£96,000
<b>Project description (provided by applicants)</b>			
<p>The NW Launchpad enables a new high technology business - DNAconnex Ltd - to be formed at Daresbury, building on the proof-of-concept designs developed through other Technology Strategy Board funded projects and several years PhD research. The main innovation of the project is to research, design, develop and pilot a cloud-based supply chain collaboration platform - DNAconnex - which will integrate the functionality of several innovative applications targeted at high value manufacturing businesses.</p> <p>The DNAconnex industrial research project involves the research, development and prototyping of a demonstrator system that enables high value manufacturing companies to integrate their production systems to provide on-line visibility of internal and external performance and order book status to their upstream and downstream partners. The study focuses on disparate database integration, streamlined workflow, data presentation and decision support mechanisms that will facilitate collaboration within horizontal and vertical networks of customers, suppliers, competitors and supporting partners of high value manufacturing supply chains.</p> <p>The study will generate a working proof-of-concept demonstrator, define tangible benefits, propose a business model and clearly define route to market for commercial exploitation to secure external funding and take first mover advantage in a major global market.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Air Quality Research Ltd (Lead)	Energy saving air sanitisation device	£191,861	£100,000
<b>Project description (provided by applicants)</b>			
<p>The project proposed here is the optimisation of an energy-saving air sanitisation device (ESASD), for applications to improve indoor air quality in a variety of market sectors. The project involves identifying and assessing the efficacy of different materials and coatings for key core components of Air Quality Research Ltd platform ionisation technology.</p> <p>Indoor air quality is an important global environmental issue that can affect any occupied indoor or enclosed space. Offices and schools are common examples of occupied spaces where there is evidence to suggest that public health is reduced due to poor air quality that can contain particulate matter, chemical pollutants and air-borne pathogens such as viruses (influenza) and fungal spores (anthrax). Non-residential buildings must comply with European legislation that ensures adequate ventilation and improved air quality, which provides a clear market opportunity for this technology</p> <p>Air Quality Research Ltd proposes an easy to install ESASD that operates with minimum energy consumption and minimum low cost replacement parts. The power may come from an already available renewable source, i.e. solar power, so the ESASD may also be used in remote and undeveloped environments.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
<b>Arcis Biotechnology Holdings Limited (Lead)</b>	Development of coated PCR plates for enhanced DNA extraction	£192,715	£100,000
<b>Project description (provided by applicants)</b>			
<p>Arcis Biotechnology has developed a blend of surfactants which has been found to lyse cells to release the DNA and RNA and subsequently protect these fragile molecules for a number of hours. This has potential benefits in the field on diagnostic kits both on life sciences and molecular diagnostics and with further potential for point of care applications. Arcis are seeking Technology Strategy Board support to develop and manufacture prototypes of coated qPCR plates in order to proceed to the next stage of development to commercialise this exciting opportunity.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Climostat Limited (Lead)	Novel carbon dioxide recycling technology	£101,600	£60,960
<b>Project description (provided by applicants)</b>			
A technology to recycle flue gas CO2 as a valuable saleable product is being developed. It should not interfere with the power plant function. The process does not require a great deal of energy to operate.			

## Results of competition: Materials & manufacturing Launchpad

**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
<b>Croft Additive Manufacturing Ltd (Lead)</b>	Development of novel in-house testing systems for innovative additive manufactured filters	£102,314	£61,388
<b>Project description (provided by applicants)</b>			
<p>Filters are present in almost all pumping systems in the world. 13% of UK electrical usage is used for pumping and this represents 6% of the UK's carbon footprint. Croft Additive Manufacturing Ltd (CAM Ltd) has developed an innovative 3D filter design, produced by metal Additive Manufacturing (AM), which decreases the pressure drop across filters thus decreasing pumping energy requirements (Technology Strategy Board Feasibility Study).</p> <p>CAM Ltd aims to use AM design freedoms to produce bespoke high value filters. To deliver these products to the marketplace CAM Ltd must overcome testing barriers. Current tests for filters, including those for measuring pore size, apply to 2D not 3D structures. CAM Ltd requires to develop an in-house testing regime that will deliver the specifications of their innovative filters.</p> <p>CAM Ltd will utilise NW cluster expertise and testing facilities to adapt and develop a new testing regime that will deliver specifications for their designs. These results will demonstrate that the innovative designs are more efficient, deliver energy savings and so decrease the resultant carbon footprint. Increased customer confidence will result and enable CAM Ltd to more rapidly enter specialised markets. By utilising Technology Strategy Board support and the expertise available the development of the novel testing system will allow CAM Ltd to access and develop their world market share and enter UK high value supply chains.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
DB Brew And Food Limited (Lead)	Magnetic activated carbon	£165,831	£99,000
<b>Project description (provided by applicants)</b>			
<p>DB Watertech develops highly innovative magnetic composites and processes for the treatment of contamination in soil and sand sediments, drinking water, waste water and industrial processing. Our technology is changing the way in which end users are able to use absorbants such as activated carbon. We manufacture magnetic activated carbon at our facility in Runcorn, this project is focussed on extending our production from laboratory scale to a commercial pilot scale.</p> <p>The project will address the scaling up of production and ensure product quality in respect to uniform adsorption, magnetic recovery and regeneration against target compounds in complex mixed environments. Production at this scale will be a world first, allow large scale testing of the product in a wide range of applications such as marine and soil sediment remediation and combined wastewater treatment processes.</p>			



## Results of competition: Materials & manufacturing Launchpad

**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
ESP Technology Limited (Lead)	An antimicrobial self-seal coating for vascular access grafts	£280,555	£100,000
<b>Project description (provided by applicants)</b>			
<p>ESP technology Ltd has developed an advanced new materials technology specifically to resolve the serious medical complication of post-needling bleeding from ePTFE vascular access grafts after haemodialysis. Our design concept is relatively simple and provides a logical solution - we employ proprietary fabrication techniques to coat the outside of the graft with a novel, inert and biocompatible, micro-cellular elastomer that reduces leakage from needling sites to negligible levels - yet our technological approach is highly innovative and scientifically sophisticated.</p> <p>Our company is now seeking additional equity investment to fund the further development and scale-up of our methods and equipment for compatibility with the requirements of volume manufacture to relevant industry and regulatory standards. A Launchpad grant would make an invaluable contribution to advancing our company significantly closer to the point of readiness for commercialisation of our technology.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
<b>Fusion Implants Limited (Lead)</b> LPW Technology Limited	Advanced veterinary devices	£150,352	£90,000
<b>Project description (provided by applicants)</b>			
<p>Fusion Implants Ltd was founded in March 2013 by Chris Sutcliffe, Dan Jones (The School of Engineering), John Innes and Rob Pettitt (School of Veterinary Science), University of Liverpool during a collaborative work program. The company objectives are to produce advanced porous implantable veterinary devices manufactured from titanium by an additive layer manufacturing process called Selective Laser Melting.</p> <p>Rupture of the canine cruciate ligament (CCL) is the leading cause of lameness and affects nearly 20% of dogs. In the US alone, it is estimated that around 1.2 million dog knees undergo CCL repair each year, with around 120,000 in the UK. The total spend on surgical repair of CCL rupture (using a range of techniques, and including all the care involved) in the US was just over \$1.3 billion in 2003, and the total market for TTA implant devices is estimated at around £180 million in the US and around £18 million in the UK.</p> <p>This project proposal aim is to develop Tibial Tuberosity Advancement (TTA) implants for canines, which can be used in routine surgery for cranial cruciate ligament (CCL) repair. CCL repair surgery involves a portion of bone being removed from the tibia to allow the restructuring of the angle of the knee joint, which is subsequently held in place by porous titanium TTA implants.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Gem Nutrition Ltd (Lead)	GEM	£63,443	£38,065
<b>Project description (provided by applicants)</b>			
<p>To lose weight a person must eat less calories than their body needs, and yet most people do not know how many calories their own body actually needs. This is a vital piece of information for successful weight loss and GEM Nutrition can provide this. GEM Nutrition is based at Daresbury Innovation Centre and sells Indirect Calorimeters. These are electronic systems that tell you how many calories your body needs.</p> <p>At present our main market is universities and research, but by designing a more cost effective instrument we believe we can expand our market significantly by gaining access to weight loss and obesity market through gyms, health clubs and spas. To enable this project we will work with identified established partners within the Daresbury cluster who can help us achieve this.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
LPW Technology Limited (Lead)	Optimised powders for sustainable additive manufacturing	£73,684	£43,532
<b>Project description (provided by applicants)</b>			
<p>Optimised powders for Additive Manufacturing (OPSAM) takes a unique, holistic look at the raw materials for Additive Manufacturing processes such as Selective Laser Melting.</p> <p>The project will optimise powder properties, such as flow rate, for a diverse range of machine platforms in a rapidly expanding and changing market. Individual requirements for different machine types will be identified and new powder specifications designed to accommodate these.</p> <p>As well as powder behaviour, the powder production and processing will be considered to maximise the amount of atomised powder which is useful for Additive Manufacturing. This will lead to improved environmental and financial impact.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Nanoflex Limited (Lead)	Integrated nanoelectrode sensor systems	£167,360	£100,000
<b>Project description (provided by applicants)</b>			
<p>This project seeks to address the cost effective and reproducible manufacture of high performance electrochemical sensor devices. NanoFlex have brought to market the first commercial nanoelectrode for academic and blue-chip researchers. Through this project NanoFlex seek to develop their current nanoelectrode technology up the value chain, integrating it into high-value sensor system solutions, for health-care diagnostics, environmental monitoring, nuclear decommissioning and energy storage.</p> <p>An integrated sensor system will offer enhancements in performance characteristics and hence enable electrochemical applications solutions that are not currently addressable using existing electrodes or sensor systems. Our approach to sensor systems is innovative in that it offers a relatively simple and highly scalable method of manufacture utilising established thin film techniques in a radical and efficient manner. Our enabling technology is patent protected. Technology Strategy Board investment in this project will ensure that this innovative technology and approach to manufacture continues to be developed within the UK to maximise its value and enable it to provide high value manufacturing opportunities.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Nanomedpharma Limited (Lead)	Smart antibacterial materials using novel metallic nanoparticles	£150,000	£89,400
<b>Project description (provided by applicants)</b>			
<p>The aim of this project is to utilise our in-house developed manufacturing technique for synthesis and application of novel metal based nanoparticles attaching onto solid supports.</p> <p>These new nanomaterials have shown great antibacterial properties on both Gram positive and Gram negative bacteria compared to standard nanosilver. Therefore, these novel nanomaterials would be able to compete with commonly used antibacterial nanoparticles as well as having the advantage of being attached to various solid surfaces which ultimately would improve nanocomposites properties in a safe and cost-effective manner. The proposed methodology enables deployment of strong bondings between nanoparticles and target supports, preventing undesired release of nanoparticles, ultimately alleviating risk of possible toxicity.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
<b>New Lighting Technology (Holdings) Limited (Lead)</b>	Next generation switch mode power supply driver system for ultra efficient LED lighting	£218,925	£100,000
<b>Project description (provided by applicants)</b>			
<p>Lighting accounts for &gt;19% of global electricity consumption. LEDs are revolutionising the energy efficiency of lighting, however, despite continued innovation in design and materials, thermal management remains the most critical problem of modern LED lighting systems and is the main cause of failure.</p> <p>New Lighting Technology Limited has designed and developed a novel (patented) Switch Mode Power Supply (SMPS) Driver system - 'Temperature Distribution Quark (TDQ)' which regulates heat through LEDs resulting in power usage reduction and increasing overall efficiency to levels &gt;90%. They have a bespoke product in the market place, however in order to meet the strict demands on efficiency, power factor and price, and to keep pace with a rapidly evolving LED market, NLT now seek to undertake a programme of industrial research to advance and refine the core TDQ technology using innovative components and materials, with the aim of improving the core efficiency of an LED by a further 3% and overall system efficiency by 1%.</p> <p>The project will result in the development of a suite of 8 TDQ SMPS system prototypes with varying power outputs covering the majority of output requirements for the commercial, industrial and construction lighting markets (representing ~10% of global lighting usage). Initial market entry through existing customer base and licensing is expected early 2015, with direct sales following investigation of in-house manufacturing and production options expected early 2017.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Perceptive Engineering Limited (Lead)	"Lab to Consumer" lifecycle optimisation	£156,317	£93,000
<b>Project description (provided by applicants)</b>			
<p>This project aims to improve the reproducibility of consumer products across global supply chains, in the face of varying feedstock, changing recipes, sustainability targets and the needs of consumers.</p> <p>The challenge is to attain both the correct chemical composition and exact physical properties to satisfy the consumer, with the same ingredients giving vastly different properties due purely to processing. Concurrent design of process and product requires the properties to be related to the raw materials and the processing history.</p> <p>Using thorough batch data, Perceptive Engineering will develop a methodology and multivariate advisory system to visualise interactions between raw materials, process and product. These will assist with the scale up and transferability of processes; ensuring consistent quality.</p>			



## Results of competition: Materials & manufacturing Launchpad

**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
SpheriTech Ltd (Lead)	Proliferate - wound care	£231,700	£100,000
<b>Project description (provided by applicants)</b>			
<p>Both chronic and burns wounds are instantly recognised by the continuous leaching of exudate from the wound. The key purpose of a dressing for these wounds is the removal of this aqueous seepage and moisture retention by covering with a hydrophilic adsorbent material. Collagen based dressings have proved beneficial in these applications because they encourage fibroblast attachment and thereby encourage wound healing.</p> <p>The chronic wound and burns wound healing markets are currently dominated by pig, horse, cow and human collagen-based dressings. These materials carry moral, ethical, and religious burden combined with expensive, laborious manufacturing processes. Spheritech has invented a novel biopolymer, Proliferate, which mimics the biological and physical properties associated with collagen. This new polymer is inexpensive to manufacture in comparison to animal derived collagen and contains no components of animal origin.</p> <p>The aim of this project is to develop Proliferate in sheet form to such a level that it can be CE marked (approved) for wound care. This process will also involve antimicrobial studies using external contractors and development of intermediate scale manufacturing processes. Once CE marked the dressings will initially be marketed to the NHS.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Teknisolar Limited (Lead)	High vacuum, membrane-free multi-stack laminator	£183,674	£100,000
<b>Project description (provided by applicants)</b>			
<p>Teknisolar wants to develop the world first photovoltaic (PV) multilevel laminator that can work without silicone membranes. The lamination process is the heart of the manufacturing process of PV panels but is also the 'bottle neck of the production line in terms of cycle time and reliability of the finished product. Existing laminators rely on a silicone membrane which creates high level of stress in the PV panel resulting in a reduced long-term performance and glass breakages that slow down process efficiency.</p> <p>Initial research has technically demonstrated the possibility of manufacturing multi-stack laminator that doesn't feature a silicone membrane. However it is apparent that further laboratory research into the laminator's vacuum system is required. To reach a high level of vacuum within a short delay is absolutely important, for several technical reasons: the impact of an insufficient vacuum level or a long delay in evacuating the air is mainly on quality of the panels, that can be affected by delaminated areas and air bubbles trapped along the edges, and on longer cycle times, that can reduce the line competitiveness.</p>			

## Results of competition: Materials & manufacturing Launchpad

**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
Trametox Limited (Lead)	Development of low cost, robust, large area radiation detectors	£399,624	£100,000
<b>Project description (provided by applicants)</b>			
<p>The project objective is to develop a new, unique technology to produce low cost, large area, very robust radiation detectors capable of detecting all forms of radioactivity, including neutrons. Initially the work will be directed towards devices which will detect radioactive materials, principally plutonium 239, hidden within shipping containers, to protect the UK from terrorist attacks, using stolen plutonium, which will cause loss of life, widespread disruption and severe financial economic damage.</p>			