

## Results of Competition: Innovation to Commercialisation of University Research (ICURe) Follow On Funding: FY20 Round 2

Competition Code: 2009\_CRD\_CO\_ICURE\_FY20\_R2

Total available funding is £1,000,000

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
Senisca	Developing treatments to turn back the 'cellular clock'	£240,612	£168,428

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

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

Project description - provided by applicants

Ageing is a universal phenomenon and the primary risk factor for most common, chronic human diseases. Our company, SENISCA, is a spin-out from the University of Exeter, initially focussing on developing molecules suitable for treatment of skin ageing, followed by a wider vision to deliver innovative, effective pharmaceutical treatments for age-related diseases.

Ageing occurs at the cell and tissue level because of failure of a few basic health maintenance mechanisms. The research leading to SENISCA's patent-protected innovation has identified a novel molecular mechanism of ageing that can be manipulated for cellular rejuvenation.

SENISCA's existing data, showing that rejuvenation of senescent cells is possible, gives rise to the possibility of developing treatments for any age-related disease or condition with a senescence component. This project will focus on identifying combinations of naturally occurring or FDA-approved compounds with anti-ageing properties and obtaining primary safety and toxicity data in preparation for out-licensing to the skin ageing market.

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VECTOR PHOTONICS LIMITED	surFACe emItting Laser array for addITive mAnufacTuring Of theRmoplastics? (FACILITATOR)	£213,466	£213,466
University of Glasgow		£82,178	£82,178

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Project description - provided by applicants

Additive manufacturing (AM) is an enabling technology and is the future of manufacturing in a digital, local, low turnaround time, personalised world.

This new field has the potential to revolutionise many aspects of human life. The materials which can be manufactured using this process can significantly reduce waste during the manufacturing process, as well as reduce the weight of parts shipped (reducing carbon emission for key sectors such as aerospace). These systems can also produce bespoke parts for medical applications, giving improved quality of life.

Direct digital manufacturing, as part of industry 4.0, will become a future norm, providing custom parts in a timely manner with reduced environmental impact.

Selective laser sintering (SLS), is a leading AM process. Current SLM systems repeatedly deposit a layer of material powder on a bed, then a high-power laser is scanned over the surface, melting only areas which require material deposition on the layer below, akin to writing with a pen. This is repeated layer by layer, building a complete 3D structure. The SLM systems are expensive, and >60% of the cost of the parts manufactured in this way are time dependant, holding back the deployment of these systems. We have developed a method to massively increase the write speed of these systems (increasing the speed by 10x), which reduces the cost of parts manufactured by 4x.

We propose the development of a rapid 3D printing technology based on semiconductor laser technology. The novelty in this work is the development of new laser systems which will allow an entire layer to be written in with a speed increase of 10x, which equates to a reduction in cost of part production of 4x.

This will do for additive manufacturing what the printing press did for publishing.

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PHASORA LTD	Commercialisation of novel hardware and software solutions for electricity distribution grids	£299,764	£299,764

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Project description - provided by applicants

Phasora is striving to ensure the reliability of future electricity networks; with user-customisable, high-tech GPS-synchronised sensors, and intelligent analysis software that can help to effectively manage the increasingly dynamic electricity grid, in real-time.

Our advanced, flexible, and cost-effective, sensor technology, can be installed right-across the electricity grid, into places where existing technologies cannot feasibly reach.

This massive scale of data, generated by our sensors, will serve as the foundation for our development of novel, smart grid applications. The intelligent software applications that we develop, will provide electricity network operators with the actionable intelligence required, to effectively manage their increasingly dynamic networks.

Our solutions will have a number of benefits. In the short term, this is cost-saving for electricity network operators by providing the granular visibility necessary, in order to detect and locate faults faster, to make better infrastructure upgrade decisions, and to help actively and effectively manage the increasingly dynamic electricity grid. The resulting savings, in reduced down-time and resource requirements, may potentially be passed to customers. In the longer-term, there are clear benefits in the technologies our measurement platform enables, in transitioning toward a zero-carbon future.

In 2019, we took part in the ICURe programme, an InnovateUK-funded global customer discovery exercise. During this, we spoke with many electricity network operators around the globe. These conversations indicated that the requirement for such technologies, is very timely and that we are in a position to have a 'first mover' advantage in the market; with both an ability to produce highly intelligent sensors, at a much lower cost, making widespread deployment in distribution networks possible for the first time; and, with a headstart in building the software applications that utilise this unprecedented level of data.

The InnovateUK follow-on funding will enable us to refine our sensor hardware to a mass-producible 'product' stage, and in parallel, to develop several intelligent software applications based on this increased level of network visibility.

With an injection of public funding, we expect to have our sensor solution available to market towards the end of 2021, and some software applications in early 2022\.

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