Innovate UK

Results of Competition: Digital Health Technology Catalyst Round 3: Feasibility Studies

Competition Code: 1809_FS_HEAL_DHTC_R3

Total available funding is 1 million

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
SH24 C.I.C.	PrEP 24 - Towards a world without HIV	£69,633	£48,743

Project description - provided by applicants

HIV was first identified in Los Angeles in 1981 and by 2016 there were over 18 million people worldwide on HIV treatment (antiretroviral medicine, ARVs). There are currently over 100,000 people living with HIV in the UK and in 2017 there were 4363 new diagnoses. The main risk groups for HIV include men who have sex with men (MSM) and people of black African ethnicity.

National health promotion campaigns in the 1980s ("Don't die of ignorance") were seen as successful in contributing to awareness and prevention, however, they could have inadvertently led to some of the stigma around HIV in the UK today. While the development of more effective anti-HIV drugs in the mid-1990s meant that people with HIV could stay healthier for longer, nowadays people taking medication as recommended can expect to live a near-normal lifespan. However the lifetime cost of treatment for an individual HIV patient is over £360,000\.

The introduction of pre-exposure prophylaxis (PrEP) has been a game-changer in HIV prevention. PrEP is the pre-emptive use of HIV drugs taken by HIV negative people at risk of contracting HIV to avoid infection and is a highly effective strategy for HIV prevention, reducing risk of infection by 86% in clinical trials.

This innovative project will assess the feasibility of the first digital 'PrEP safe' service globally. This will allow people at risk of HIV infection to register with the service and provide them with access to the PrEP medication as well as the tools to self-manage through information, support and regular testing for HIV, Hepatitis B/C and kidney function which they need to ensure that they are 'safe with PrEP'.

It is led by SH:24, a community interest company that is spearheading the digital revolution in sexual and reproductive health in partnership with the NHS, and represents an exciting collaboration between public health experts, designers, clinicians, academics and PrEP/HIV community activist groups.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MIND OVER MATTER MEDTECH LTD	Non-invasive, portable and low-cost brain imaging: determining risk for developing dementia in primary care and supporting behaviour change to reduce risk	£69,613	£48,729
Wessex Academic Health Science Network		£4,320	£4,320

Project description - provided by applicants
Mind over Matter is developing an end-to-end medical device to identify individuals at high risk of developing dementia whilst their risk remains modifiable, i.e. during mid-life. The accompanying app supports high-risk individuals to reduce their risk by up to half. The low-cost, portable and non-invasive technology combines cutting-edge brain imaging techniques to deliver personalised medicine information in the primary care setting, significantly increasing the specificity of established risk scores based on lifestyle risk factors only, and justifying targeted dementia prevention strategies. In this way, Mind over Matter will dispel the commonly held belief that dementia is a normal part of ageing that can never be prevented, and ignite a dementia prevention movement.

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

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CARTOGRAPHIX LTD	Smart Open Community Integrated Assisted Living ("SOCIAL")	£51,183	£35,828

Project description - provided by applicants
Led by UK SME cartographiX, the Smart, Open Community Integrated Assisted Living ("SOCIAL") solution leverages innovations in big data analytics, machine learning algorithms, smartphone sensors and decentralised community networks to provide the UK's growing elderly population a means of both improved independence and community engagement. With benefits such as improved affordability, extended functionality and potential to achieve wider health benefits, SOCIAL presents a novel market offering capable of achieving volume uptake. To validate the technical and commercial feasibility of the novel SOCIAL proposition a 9 month feasibility study is proposed, combining research in systems architecture, algorithm specification, user surveys/profiling and business model refinement. Outputs include an updated technology development roadmap and a refined business plan complete with 5 year financial forecast.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THE POLLARD MANAGEMENT COMPANY LIMITED	Feasibility study for a minimum viable product of an app for primary and secondary prevention of eating disorders through family-based pro-active self-care.	£66,598	£46,619

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Project description - provided by applicants
Over 1.25 million people in the UK are directly affected by an eating disorder at any one time. These have the highest mortality rate of all mental health conditions, and those who survive suffer a significant impact on their education and employment. Although eating disorders can develop at any age, the risk is highest for young men and women between 13 and 17 years of age. The number of admissions to hospital with a diagnosis of an eating disorder has almost doubled over the past six years and the consequent pressure on in-patient services too often entails the sufferer being placed at some distance from home, which unfortunately reduces the opportunity for support by their family, who otherwise can play a key role in recovery. King's College Eating Disorders Research Group is a world leader in research into neurobiological, genetic and psychological causes and consequences of anorexia nervosa, bulimia nervosa and other eating disorders, using that knowledge to develop new and better treatments. Their research has demonstrated that: _"targeted family-based interventions, aimed at mobilising the family's own resources, are an effective alternative to inpatient treatment for younger people."_ Therefore, in consultation with King's College Eating Disorders Research Group, we are exploring the feasibility of developing a unique and innovative app which will digitally provide young people and their families with information, insight tools and therapeutic activities, in order to facilitate family-based pro-active self-care for those at risk of an eating disorder. This primary and secondary prevention will reduce the likelihood of a future need for NHS services.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MINT DIAGNOSTICS LTD	Mobile hormone monitoring platform for cancer management	£74,759	£52,331

Project description - provided by applicants
We will assess the market and technical feasibility of a new companion device for cancer treatment and management. The technology will enable clinicians to monitor the hormone levels of their patients in real-time, and from such information it will be possible to precisely optimise treatments and management programmes.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
WORKOUT ONLINE LTD	Increasing the accessibility of health condition specific exercise videos through the development of a Pactster app	£74,814	£52,370

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Project description - provided by applicants

Pactster is an online gym for people with specific health conditions - currently focused on cystic fibrosis (CF). CF is a genetic, life-shortening condition affecting over 10,000 people in the UK, with annual costs of £24K+ per patient. Regular exercise helps maintain lung function, improve quality of life and survival. Currently 4% of the UK CF population are subscribed to Pactster and our web-app is being used in 100% of UK CF centres. The CF Trust has purchased an annual license for the past two years providing free access to Pactster to people with CF, their carers and physiotherapists.

We currently offer CF-specific exercise videos and motivational features via a web app. This project will expand our offering by means of a mobile app.

A mobile app will not only improve access to Pactster's current resources but allow us to develop a key feature that has been requested time after time and not achievable via a web-app - downloadable exercise videos.

We have solid evidence for the business need to develop Pactster as a mobile app including:

* Clinical research - feedback from Newcastle NHS Foundation Trust's recent clinical research trial evaluating the usability and impact of Pactster indicated clear need for an app to improve access to video content and ease of function.
* Analytic user data - we have more user traffic from mobile and tablet than desktop (53% vs 47%) however bounce rates for our web app are almost double when accessed via mobile and tablet versus desktop indicating mobile user experience is unsatisfactory. Developing an app with thoughtful design for smaller screens and mobile limitations we believe will reduce bounce rates and increase engagement.
* Direct feedback from current users - we regularly receive feedback from current users with cystic fibrosis and physiotherapists that people need to be able to download content onto their devices for use offline or when internet it too slow to stream video (e.g. in hospital).
* Direct requests for downloadable content for access offline (during hospital stays and when out of home)
* Behaviour-change research indicates that features such as device notifications can play a role in developing positive, habit-forming behaviour

This project will help business growth by widening the positive impact of our current product, develop key features to attract more users, improve health outcomes for people with CF, accelerate revenues through price increases and premium feature sells and accelerated expansion to other health conditions.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
LIOPA LTD	Provision of an easy-to-use, accurate & low cost communications aid for patients with tracheostomies	£43,088	£30,162
Lancashire Teaching Hospitals NHS Foundation Trust		£27,725	£27,725
Queen's University of Belfast		£3,912	£3,912

Project description - provided by applicants

There are a group of people who are unable to vocalise or move their limbs but are able to move their lips. In a hospital setting these include those with neck and spinal cord injuries, degenerative neurological conditions and some head and neck cancers. There are only a few ways of allowing these patients to communicate and those resources are expensive (lip readers or 'eye gaze' devices) and need extensive training to use.

Liopa are proposing the **SRAVI** application (**S**peech **R**ecognition **A**pp for the **V**oice **I**mpaired) which will be based on **LipRead**, Liopa's Visual Speech Recognition platform. This novel application of a proven technology allows translation of lip movement to text using an android app on a mobile device which will need very little training and is inexpensive. It uses artificial intelligence to learn how an individual's lips move and stores this function in the cloud. This allows various devices to access the system unlike "eye gaze" systems which are restricted to one device per affected individual. This also allows communication between patients, staff and family from an early stage. This empowers the patient to take a more proactive role in their care and recovery improving wellbeing and potentially reducing the length of recovery in certain cases.

This feasibility study will look at a select group of patients with tracheostomies (approximately 10 000 tracheostomies are placed per year in the UK) who currently struggle to vocalise but can move their lips to establish whether the software is accurate and if it is usable in the clinical setting of a critical care area of an NHS hospital.

Starting from a limited vocabulary in English, our software has the potential to be expanded to become much larger and apt to use in other languages and markets.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RED STAR CONSULTING LIMITED	Predicting Clinical Events Using NLP Analysis of Clinical Notes in Diabetes Patients	£49,885	£34,920
Digital Health and Care Institute		£0	£0
NHS Greater Glasgow and Clyde		£6,884	£6,884
TACTUUM LTD		£14,031	£9,822

Project description - provided by applicants

Overview

The introduction of Electronic Health Records (EHR) and the move away from paper notes has led to a proliferation of healthcare data, much of it held in free-text notes, which can now be shared across different healthcare settings and clinical specialties. However the increase in volume of data, alongside increasing rates of chronic illness and co-morbidities, has meant that clinicians struggle to synthesise this information within the short appointment times allocated. This gives rise to the risk that the clinician may not have a full picture of the overall health of the patient and may miss important symptoms.

Vision

The vision of this project is to build Machine Learning models which will (1) analyse all the clinical notes associated with a patient, (2) predict the risk of different clinical endpoints such as heart attack or death (3) and present this information to the clinician as a score or alert. Clinicians can use this to tailor the consultation, identify high risk patients, and target specific clinical outcomes.

Objectives

This feasibility study will assess the technical feasibility of developing ML models and implementing them in a clinical setting. The collaborative partnership of clinical and technical expertise will also consider how to commercialise such technology and what is the most appropriate business model.

Focus

SCI-Diabetes is a world renowned EHR which has comprehensive records for 99% of diabetes patients in Scotland. The feasibility study will focus on predicting different clinical endpoints for diabetic patients using this data.

Innovation

Other than manually clicking into each note - a time consuming process - there is no way for clinicians to review the entire history of a patient. Most other NLP approaches aim to extract structured information from free text and convert these into clinical codes (such as identifying mentions of specific diseases).

Instead of extracting information from free text, this proposal uses the text to directly predict different clinical endpoints. As well as analysing the entire patient history, the model will benefit from being able to aggregate different clinical judgements and even detect new patterns of disease progression.

Partners

The lead applicant Red Star will develop the ML models and collaborators will be NHSGG&C (expertise on the data, disease and development of ML models), Tactuum (expertise in decision support tools in both UK and USA) and Dr Ann Wales from DHI Scotland who is also Director for Scottish

Government Knowledge and Decision Support Programme.

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BODY ASPECT LTD	A Virtual Reality Tool for Eating Disorders and Obesity	£55,538	£38,877
Nottingham Trent University		£4,804	£4,804
University of Nottingham		£14,376	£14,376

Project description - provided by applicants

The project will investigate the feasibility of transforming Body Aspect's 3D body scanning technology into a multisensory virtual reality (VR) application for obesity and eating disorders. The project will investigate the user requirements for the application and clarify the technical challenges.

Eating disorders and obesity are both disturbances associated with eating behaviour, weight, and body image, and a growing body of research supports the consideration of 3D body imaging and VR for these issues. Body Aspect has conducted its own studies on gym members to assess how 3D image assessment can support weight management, and has presented to several eating disorders teams, receiving positive feedback.

A core aspect of this project is to explore the use of 3D image capture for creating personalised full body avatars. Virtual humans in VR applications tend to be abstract or approximate representations of real people. However, for the proposed applications there is an intuitive case for considering the use of virtual humans that are realistic in body size and shape.

Workshops will be conducted with practitioners and 'experts by experience' from both fields to examine different components of the proposed applications and, in parallel, core technical challenges will be addressed. The project team includes collaborators from the University of Nottingham and Nottingham Trent University.

The project could lead to a new tool that will increase the prospect of users achieving a healthy weight and speed up recovery. There are potential financial benefits to the NHS and the wider benefits will be a reduction in obesity and improved outcomes for patients with eating disorders. The technology will have relevance to body image disorders, in general, and could have value in creative industries such as fashion design.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SCALPEL LIMITED	Feasibility trial to evaluate the use of Egocentric Augmented Reality technology to verify safety checks in surgery	£74,678	£52,275

Project description - provided by applicants

Research studies have shown that most surgical errors are preventable if all the safety steps are followed. The World Health Organisation (WHO) has developed a checklist to improve safety in surgery. At the moment the checklist is a piece of paper, which hospitals use to check safety information before surgery. However, recent research has shown that there are still problems with using this checklist. Some of the issues are that the checklist is quite broad and cannot be changed quickly and that its use depends on the memory and motivation of the clinicians. Because of these problems, the use of the checklist varies a lot, and many clinicians are unhappy with it, negatively affect patient safety in surgery.

Our invention aims to help hospitals improve efficiency in surgery and reduce the number of serious incidents in surgery. We are building a software tool, Smart Check(tm), which can learn from the vast amounts of data that are available in the NHS. One of the modules of this software tool is an intelligent digital version of the WHO checklist. It confirms the safety steps in the operating room and alerts the surgical team of any discrepancy to safe operation.

Smart Check(tm) is a software application (app) that runs on a head-mounted augmented reality device, Microsoft HoloLens. The software uses physical sensors and a dashboard display in the operating room. The app will be used by the surgical team before the operation to check information about the patient and the surgery they are going to have. In the background, the software combines information from electronic patient safety records, clinical information about the patient, and sensors in the operating room. The dashboard shows the progress of the surgery in the operating room and helps the surgical team to follow the right steps. We developed a first working version of Smart Check(tm) and got qualitative feedback from front-line clinicians who have used the tool.

This project is to test the validity of Smart Check in terms of its content, functionality and usability in the clinical settings. This project helps in building an advanced safety system in the hospitals which automates safety checks and helps clinicians to focus on the clinical care. A successful outcome of this project will support widespread clinical trials to establish clinical and economic evidence to the NHS through future funding.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
HEMOGAD TECHNOLOGIES LIMITED	Hemogad - ELISA feasibility study to improve elective care	£67,641	£47,349

Project description - provided by applicants

Hereditary Haemochromatosis (HH) is a genetic condition that is prevalent in people of Northern European, particularly of Celtic, descent. In Eire, Northern Ireland, Scotland and Wales - population 15 million - 1 in 80 have HH; 190,000 sufferers.

The world-wide 'average' is 1 in 200 people have HH. Using 1 in 200 for England (artificially low, as many English nationals have some Celtic ancestry), then UK and Eire have a **minimum** of 465,000 HH patients.

The WHO state 1 in 5,000 are undiagnosed, so the number of UK sufferers is likely to be in excess of 600,000\.

HH is characterised by iron overload which the body stores in the major organs. Once diagnosed, treatment is simple and effective requiring the patient to have blood taken on a regular basis - the frequency being dependent upon the severity of iron overload. Untreated, HH causes irreversible organ damage and results in chronic secondary conditions including, but not limited to:

* Cirrhosis
* Diabetes
* Heart arrhythmia
* Arthritis
* High blood pressure

HH has also been linked to Alzheimer's (Florey Institute in Melbourne and the CSIRO), due to elevated iron levels in the brain.

Symptoms of HH include;

* Fatigue
* Joint pain
* Skin discolouration
* Loss of sex drive
* High blood pressure

This makes diagnosis difficult, as the symptoms displayed can be similar to other conditions, including anaemia. Diagnosis often comes after a patient has developed one, or more, of the totally avoidable chronic secondary conditions. This results in a negative impact on quality of life and a lifetime taking drugs to control secondary conditions - at great annual cost, per patient, to both the NHS and the patient.

Clinical diagnosis requires a specific blood test, for Serum Ferritin (SF) - a 'general' blood test (Full Blood Count, FBC) will not determine a patient's iron levels. This then needs to be confirmed by genetic screening; this is expensive and time consuming for an overstretched and under-funded NHS.

HemoGAD will carry out a feasibility study around a proof-of-concept to improve diagnosis and ongoing measurement / management of iron overload, and iron deficiency. The aim is to develop a test that is:

* Faster than current methods
* Equally accurate
* Can be carried out at home
* Has a substantially lower cost

The UK Haemochromatosis Society (http://haemochromatosis.org.uk) are publishing the results of a member survey on 1st November 2018, unfortunately the data was not available for us to include in our application.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
VESALIAN LTD	Behavioural science driven informatics solution to rationalise evidence-based medicine and shared decision-making in primary care.	£47,312	£33,118
SENSE ABOUT SCIENCE		£22,278	£22,278

Project description - provided by applicants

Ultimately, we want to empower every patient to understand their medical care and be able to participate in making treatment decisions. This digital tool translates data from clinical research about benefits and risks of treatments into a visual and interactive medium. This will help health professionals provide high quality information to patients quickly, efficiently, confidently and persuasively. This will improve not only clinician and patient experience, but also lead to better shared decision-making.

Poor patient engagement drives costs to the UK health system of more than £6.5 billion/. The most important costs are poor medication adherence, unnecessary use of emergency care, unnecessary referrals, complaints and litigation. This study will allow us to test the potential for better information and patient engagement to improve health outcomes and reduce costs to the health system.

Our project will investigate the feasibility of implementing our solution with respect to a profoundly important case: antibiotic prescribing. One in five antibiotic prescriptions written in primary care in the UK is inappropriate, according to Public Health England. This contributes to the growing threat of Antimicrobial resistance (AMR). Inappropriate prescribing risks harm to patients, through side-effects and allergic reactions and is an unnecessary cost to the health system. Given the important consequences of this inefficiency, it is appropriate that the UK government has set a target of reducing that rate by 50% by 2020\.

Previous research has shown that the causes of this problem relate to information and behaviour, making the problem an ideal target for validating our solution, which is based on informatics and behavioural science. Previous research has shown that providing the right information to patients and health professionals can reduce inappropriate prescribing of antibiotics. Providing patients with an information resource is recommended by NICE. But Public Health England's patient information leaflets are only used in around 0.5% of applicable consultations.

This study will investigate the feasibility of our tool to be used in a much larger proportion of consultations, to realise a significant impact on prescribing.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BERDROOT DEVELOPMENTS LIMITED	MesslyFLOW - AI and machine learning powered clinical and non-clinical decision support tool for doctors	£74,955	£52,468

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Project description - provided by applicants

MesslyFLOW is an AI and machine learning powered clinical and non-clinical decision support tool for doctors. This will provide doctors with rapid and reliable access to critical information, both clinical (national and hospital clinical and antibiotic guidelines, treatment policies) and non-clinical (making referrals, booking scans).

Currently, doctors struggle to access information critical to their jobs. This information is spread across disparate locations such as hospital intranet, paper resources, online resources (such as NICE and BNF) and numerous doctor-apps such as Induction and is not easily accessible by doctors on the move.

MesslyFLOW will aggregate, ingest and sort information from multiple sources and apply an intelligent layer to assess what information or action is needed. Information is passed to the doctor and, where appropriate, the action (such as completing a form) will be initiated. Doctors will make queries through a voice and text interface on mobile devices.

This will integrate with resource databases via APIs to ensure data is up to date, and interface with and hospital processes. Future development will integrate into hospital EHR systems to integrate patient information.

This enables faster, more reliable access to the information needed to best treat patients and efficiently operate within the hospital. Making doctors more efficient and effective will reduce workforce demands to save money and, most importantly, enable better care for patients.

The aim of the Feasibility Study is to assess the commercial and technical viability of this approach, including defining the technical roadmap and architecture, go-to-market plan and pricing, as well as defining the business plan and steps to commercialisation.

This is innovative because no AI-powered clinical decision support tool is currently in use within the UK, although this technology is being used in patient-facing solutions.

This will subsequently be expanded to other healthcare workers and potentially other industries outside healthcare, and internationally.

Messly operates the largest and most active medical professional network in the UK, with over 15,000 registered doctors. Doctors use Messly to connect, share information and stay up-to-date, including access to certain clinical and non-clinical resources and information. Messly has high credibility and brand reputation amongst doctors. We also operate Messly Locum (ML), a technology that helps NHS Trusts find and connect with doctors to fill temporary shifts in their hospitals. This launched in late 2016, and is now live in 7 NHS trusts.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THE AGENCY OF DESIGN LTD	A suite of clinically valid eye tests that work on smartphones	£39,776	£27,843
WHOLE EARTH FUTURES LTD		£34,966	£24,476

Project description - provided by applicants

Increasing rates of eye disease and loss of sight is a major healthcare issue and costs the UK 28 billion a year (Deloitte / RNIB, 2014). Delays in ophthalmic treatment in the NHS are directly causing sight loss (Foot and MacEwen, 2017). In developing countries lack of access to medical professionals is causing sight loss.

This project will develop a series of clinically valid digital eye tests that work on common digital devices such as smartphones. These tests would enable robust home monitoring and repeat testing over time.

The Agency of Design (AoD) and Queen Mary's University London (QMUL) have completed a small project part developing the first two tests with positive results in a small user trial. On completing the project AoD and QMUL realised the business model to commercialise the service is complicated. Whole Earth Futures (WEF) have been bought into the consortium to provide business model development and testing expertise.

The project is structured around three key areas:

* Market risk (is there a demand and is it scalable?)
* Product/technology risk (can we build a clinically valid product?)
* Business model risk (can we make money?)

A 2015 report 'Digital Health in the UK' by Deloitte and the Office of Life Sciences states: "Currently, mobile Health is being used more commonly by consumers to make decisions about wellness, but the potential lies in supporting higher-impact clinical decision-making and developing the interaction between clinicians and patients." This neatly summarises the focus of our project, we believe it has significant potential to impact eye care both in the UK and internationally.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
DIGITAL ALGORITHMS LIMITED	A Smart Calculator for Targeted Reductions in NHS Primary Care Prescribing	£66,640	£46,648

Project description - provided by applicants

Social Prescribing is increasingly needed in Primary Care - it's where GPs offer their patients alternatives to drugs by prescribing physical activities and courses that help people to care for themselves. Such opportunities are effective improving physical and mental wellbeing, reducing loneliness and isolation and can be available in all regions.

Our company has pioneered digital tools that give commissioners resource management for Social Prescribing. Our systems are currently live and helping real people. and we are being approached by many other interested stakeholders - but the question we're always asked is "how much money will social prescribing save us?".

The public rightly expects the NHS to spend money wisely. However, there is great variation in prescribing habits between individual GPs or practices, and this can lead to difficulties for commissioners in charge of the budgets.

Smart analysis of NHS prescribing data is complex. We have developed tools that reveal trends in prescribing habits and in this project we shall build a Smart Calculator that can model the equivalence between Social Prescribing and conventional pharmaceutical prescribing.

Using the calculator, we can help commissioners to save money, at the same time as finding a range of new resources in the community to help people improve their physical and mental health.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THRIVE THERAPEUTIC SOFTWARE LIMITED	Development of a dialogue based, socratic, artificial intelligence for mental health.	£73,869	£51,708

Project description - provided by applicants
Mental health and wellbeing apps are often linear. You get access to pre-recorded sessions which may unlock over time in a predictable pattern. But what if you were able to have a conversation with your app? Introducing SocrAItes. We want to develop an intuitive AI that, through conversation is able to help you get the most out of your journey. By answering its questions you document your reflections and improve your understanding of yourself. This way you discover how to maximise your wellbeing. It is as if you had a personal therapist who knows what to ask you and how to ask it to enable you to unlock the answers for yourself. A good therapist should always listen and respond in kind, and so too should your app.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
OSLR LTD	Medical Bedside Teaching Platform	£68,636	£48,045

Project description - provided by applicants

The future of the NHS and quality healthcare depends on training. The UK government is increasing the amount of medical students for 6 to 7.5 thousand per year to meet the increasing demand for doctors.

The most essential part of becoming and remaining a great doctor is bedside teaching, where a teaching doctor will asses a real patient with a group of students around the hospital bed. However, coordinating bedside teaching with busy schedules and unpredictable patients is a challenge. The costs of missed bedside training opportunities can be in hundreds of thousands of lost medical hours and a cost of millions, coupled with a lower pass rate of medical exams. Whilst intangibles in the form of medical staff dis-engagement, career dissatisfaction and mental stress cannot be underestimated.

Oslr is built from a team of UK doctors and technology professionals who have both experienced the challenge and provide the opportunity to develop and test innovative solutions.

The strength and weakness of solutions can best be evaluated through a feasibility study, which researches the underlying causes and environment, in which it exists, before developing a bespoke digital platform, that utilises contemporary Agile design, web and app programming on a secure infrastructure, for live test and analysis. To provide the UK with a _health-tech_ competitive advantage on a global challenge.

Innovate UK

Results of Competition: Digital Health Technology Catalyst Round 3: Feasibility Studies

Competition Code: 1809_FS_HEAL_DHTC_R3

Total available funding is 1 million

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
STUDYBUGS LIMITED	Early-warning platform for children's mental health and wellbeing	£74,821	£52,375

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
Studybugs provides a unique communication platform for children's health, used by thousands of schools and parents across the UK. Via the Studybugs app, parents have already posted more than 8,000 absence reports describing their children's mental health symptoms, ranging from mild anxiety to self-harm. In this project Studybugs will, in consultation with schools, parents and mental health and wellbeing specialists, investigate the feasibility of extending its platform to facilitate early diagnosis and intervention by schools, to improve children's mental health and wellbeing, while alleviating pressure on the NHS.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PLAQUETEC LIMITED	Feasibility study of a high-performance data analytics pipeline for highly stratified approach to cardiovascular disease	£74,766	£52,336

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Project description - provided by applicants

PlaqueTec has an advanced medical catheter that can detect biological signalling directly at the site of coronary artery disease. In clinical use it has shown that intracoronary biomarkers (i) differ depending on the state of disease ii) differ from patient to patient and iii) differ to systemic biomarker levels (i.e. those detected in standard blood sample). Leading clinicians recognise the potential for PlaqueTec's platform to enable personalised treatment strategies. PlaqueTec is now preparing to support investigator led studies (ILS) where clinicians and researchers (both industrial and academic) can access PlaqueTec's technology and data to help better diagnose and treat their patients.

PlaqueTec's strategy, via a programme of investigator led studies, is to build world's most comprehensive database of coronary artery disease biomarkers. PlaqueTec will use machine learning and data science within a unique portal that will allow any patient's biomarker "profile" to be uploaded and assessed against the most meaningful patient cohorts to a) initially provide a more "contextualised" assessment of patient risk and b) ultimately predict therapeutic strategies most likely to offer benefit based on real world evidence.

PlaqueTec's immediate challenge is to efficiently develop a scaleable, cloud based digital health system that can curate, analyse and output "real world" ILS data in a manner that delivers maximum utility to all potential stakeholders (clinicians, patients, regulators, therapy providers, governments and insurance companies).

This feasibility project's objectives/questions:

* **What functionality**: Engage with clinicians/stakeholders to define the key functionality of digital health system through which PlaqueTec will commercialise its services;
* **What architecture**: Recommend and specify the analytics solution architecture that is best suited to meeting the stakeholder requirements;
* **Best machine learning approach**: Identify the best data science and machine learning strategy given the composition of the PlaqueTec database.

The enclosed project enables PlaqueTec to i) engage with potential end users and define requirements ii) work with Agile development and data science experts to develop a portal demonstrator and iii) test the ability of the portal demonstrator to answer stakeholder questions based on current datasets. The project will deliver a cloud-based architecture that can be rapidly scaled to provide commercial services to PlaqueTec's planned ILS programme.

Innovation: today the treatment of coronary heart disease lacks precision. Massive progress has been made against cancer because patients are given highly specific/targeted treatments based on better biological profiling of their disease. This innovation aims to translate the same approach to coronary heart disease.