

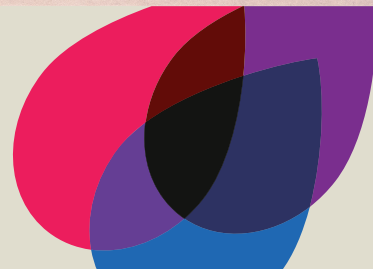


# Digital Health Technology Catalyst: Showcase of Projects



Innovate  
UK

Knowledge Transfer Network





## Introduction

This booklet was produced following a live showcase of Innovate UK funded Digital Health R&D projects. The event, hosted at the University of Leeds in October 2019, included a series of short pitches from several of the businesses that led or partnered these innovative product and service development programmes. Those pitches, when viewed in this collection, provide a powerful snapshot of the UK's Digital Health Innovation pipeline. The projects were at differing stages when this document was compiled, some deployed to end users, some still in early stage development. The contact information included here will enable readers interested in what they have seen to discover more about these activities.

Alternatively feel free to contact the KTN team to follow-up.





## About KTN

KTN connects people to accelerate innovation, solve problems and find markets for new ideas. We bring together businesses, entrepreneurs, academics and funders to develop new products, processes and services to create value and benefit society. The Knowledge Transfer Network is a partnership of people who, together, form an unrivalled network of deep technical knowledge, breadth of expertise, and a firm understanding of how innovation works in business. KTN's specialist teams work across key sectors of the economy, from defence and aerospace to the creative industries, and from agri-food to materials and health. We work closely with other members of the Innovate UK family, helping businesses to access the right expertise in the research base and the specialist facilities of Catapults and other RTOs.

The Knowledge Transfer Network specialises in cross-sector collaboration and at the interfaces of technologies to make connections and foster collaborations of 'not the usual suspects'. Our team of innovation experts can connect R&D active or R&D ready organisations to our network of business, academics and other innovation support providers. We meet with innovative companies with ambition to grow to map out needs and capabilities and make introductions. We also host cross-sector events across the UK that are designed to inform and encourage new connections and collaborations.

## Innovate UK

Innovate UK is part of UK Research and Innovation, a non-departmental public body funded by a grant-in-aid from the UK government. Innovate UK drives productivity and economic growth by supporting businesses to develop and realise the potential of new ideas, including those from the UK's world-class research base. The organisation is comprised of almost 500 staff, drawn mainly from business, working across the UK, with a head office in Swindon.

Innovate UK connects businesses to the partners, customers and investors that can help them turn ideas into commercially successful products and services and business growth. The organisation funds business and research collaborations to accelerate innovation and drive business investment into research and development. Innovate's support is available to businesses across all economic sectors, value chains and UK regions. Since 2007, Innovate has invested around £2.5 billion to help businesses across the country to innovate, with match funding from industry taking the total value of projects above £4.3 billion. Innovate UK has helped 8,500 organisations create around 70,000 jobs and added an estimated £18 billion of value to the UK economy.

## UK Research & Innovation

UKRI works in partnership with universities, research organisations, businesses, charities, and government to create the best possible environment for research and innovation to flourish. UKRI aims to maximise the contribution of each of our component parts, working individually and collectively and they work with their many partners to benefit everyone through knowledge, talent and ideas.

Operating across the whole of the UK with a combined budget of more than £7 billion, UKRI brings together the seven Research Councils, Innovate UK and Research England. UKRI's mission is to be a trusted partner and to ensure research and innovation continues to flourish in the UK. UKRI supports and helps connect the best researchers and innovators with customers, users and the public, investing every pound of taxpayers' money wisely in a way that maximises impact for citizens, in the UK and across the world. UKRI is an independent organisation with a strong voice for research and innovation, both to government and internationally, and they are supported and challenged by an independent chair and board. UKRI is principally funded through the Science Budget by the Department for Business, Energy and Industrial Strategy (BEIS).



# Aseptika Ltd

**Asthma+me SMART: Evidence-based, AI-powered, self-care for children (6-12yrs) with moderate-to-severe asthma treated as outpatients in secondary or tertiary care.**

- 30-50% reduction outpatient appointments (supporting NHS Long-Term Plan)
- Shorten waiting times for Paediatric 1st appointments (12-18 weeks).
- Reduce utilisation of NHS services across the entire ecosystem. 110,000/1.1 million UK children have difficult-to-treat asthma.

**What did DHTC Funding enable you to do, which otherwise you could not?**

Implementation of neural networks = automation. Randomised Controlled Trial and Health Economics studies at Sheffield Children's Hospital, with support from Yorkshire and Humber AHSN.

**What are your next steps?**

- RCT completion and submission to NICE.
- Seeking funding for Pre-Procurement, Real-World Evidence Generation Support to build business cases for adoption and implementation in each Paediatric center.

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+44 (0) 1480 352 821 | [aseptika.com](http://aseptika.com)**



# Body Aspect

## A Virtual Reality (VR) Application for Eating Disorders and Obesity

- Transform Body Aspect's body image software into a VR application
- Conduct workshops with professionals and people with lived experience
- Investigate the challenge of incorporating 3D body scans into VR applications

## What did DHTC Funding enable you to do, which otherwise you could not?

Put together a project team with the relevant expertise to conduct top quality R&D

## What are your next steps?

- Take our findings to private and NHS clinics
- Apply for an innovation loan
- Develop a suite of software tools for eating disorders and obesity



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# CUSH Health

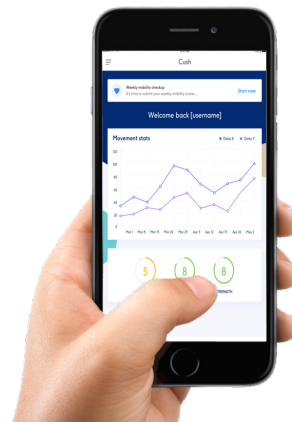
- Problem: Falls are one of the most common causes of injury in people over the age of 65; these falls can have life-threatening or life-altering consequences for patients and cost the NHS over £2 billion every year.
- Solution: Remote monitoring machine learning assisted telehealth platform to predict and prevent falls

## What did DHTC Funding enable you to do, which otherwise you could not?

- Accelerated our research and development, proof of concept of machine learning algorithm
- Doubled the scale of the project
- Allowed us to test multiple sensor locations

## What are your next steps?

- Validation study: Remote monitoring and interventions over 4 months
- App platform being tested in UK, France, Belgium and the Netherlands



Mr Kalon Hewage & Dr Sam Fosker  
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# Intelligent Operating Room

- Development of a digital AI ecosystem that combines both hardware and software to drive consistent surgical practice and assist towards better team coordination and the standardisation of procedures in orthopaedic surgery



## **What did DHTC Funding enable you to do, which otherwise you could not?**

- Formalise partnership and collaboration with UCLH
- Undertake research and development of a new product line to expand our services

## **What are your next steps?**

- Clinical feasibility study and evaluation in the operating theatre

**Karen Kerr** | [karen.kerr@digitalsurgery.com](mailto:karen.kerr@digitalsurgery.com)  
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# Family Mental Wealth

- An app to facilitate family-based pro-active self-care for mental health and wellbeing.
- Enabling families to spot the early signs of mild to moderate mental illness and to access, within the app, psychometric tests and therapeutic activities, appropriately tailored for use in a family context, with or without clinical interventions.

## What did DHTC Funding enable you to do, which otherwise you could not?

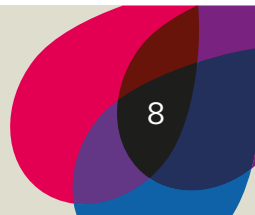
- Conduct research, create and test a demo of the concept.

## What are your next steps?

- Use the demo to test the concept with potential customers.
- Use the demo and customer feedback to secure VC investment.
- Produce a minimum launchable product.



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## FundamentalVR

- Fundamental Surgery is a SaaS platform for delivering haptically enabled virtual reality surgical training, with real-time feedback, accredited by the Royal College of Surgeons
- It works on low cost hardware, across different modalities, delivered via the cloud for global accessibility

### What did DHTC Funding enable you to do, which otherwise you could not?

- DHTC funding allowed us to accelerate R&D, and bring a product to market much more quickly

### What are your next steps?

- AI informed learning to monitor tool use, respect for tissue and other KPIs
- Introduction of the Fundamental Surgery Score – an indication of surgical competence and recency across a range of surgical procedures
- Creating patient specific variants of procedures to allow practice in advance of operating

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# FUNDAMENTALVR

# FUNDAMENTAL SURGERY





# Health Pathways Limited

- Diabetes Transition Tracker - Flexible, age appropriate planning for young people with diabetes moving from paediatric to adult services
- User friendly interface, robust access and permission structure, mobile optimised
- Cloud based information sharing with MDT and patient

## What did DHTC Funding enable you to do, which otherwise you could not?

- In depth research on used cases and user journeys for transition
- Structure to document the process of product lifecycle and exploitation

## What are your next steps?

- Diabetes children's services deployment – collaborative iterative evaluation
- Follow-on funding and scaling to diabetes network – regional/national
- Application to long term conditions – oncology, CHD, respiratory



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# HemoGAD Technologies

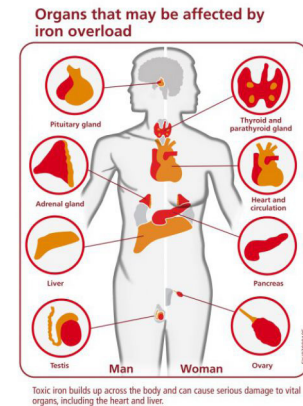
- Hereditary Hemochromatosis (HH) is the most prevalent hereditary genetic condition in Northern Europe, Australia and other countries
- Patients require regular (monthly) lifetime monitoring of Serum Ferritin (SF), which currently requires a specific blood test

## What did DHTC Funding enable you to do, which otherwise you could not?

- We are 50% into a feasibility study to develop an innovative test for home monitoring of ferritin, which is iron stored in major organs

## What are your next steps?

- Complete study
- Once complete, transfer study test to a Lateral Flow Device (LFD) format
- Develop product design specification, ready for volume manufacture



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# Intelligent Ultrasound Ltd

- Real time image augmentation for ultrasound-guided surgical procedures

## What did DHTC Funding enable you to do, which otherwise you could not?

- Space, time and resources to research and develop the required technologies
- Collect and annotate data to build AI models

## What are your next steps?

- Partnerships with OEM ultrasound machine manufacturers
- Clinical studies to determine safety and effectiveness

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[intelligentultrasound.com](http://intelligentultrasound.com)





# Liopa Ltd



- AI-based patient/carer communications aid (SRAVI) based on Liopa's LipRead technology
- Automated Lip Reader for patients who cannot speak, but can move lips normally
- Being trialed currently with Tracheostomy patients in NHS hospitals

## **What did DHTC Funding enable you to do, which otherwise you could not?**

- Enabled Liopa to partner with NHS hospitals & Medical Research expertise to develop the SRAVI application and trial in a clinical environment

## **What are your next steps?**

- Engage in larger trials of the SRAVI application
- Onward develop the application in line with patient requirements
- Seek funding for above

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# Oslr

- Medical Bedside Teaching Platform
- Essential bedside teaching from Doctor To Student under strain
- Feasibly Study to develop a Medical Bedside Teaching Platform

## What did DHTC Funding enable you to do, which otherwise you could not?

- Develop a Platform, pilots now include UCLH, GSTT and Glasgow Royal Infirmary

## What are your next steps?

- Continue to roll-out pilots and capture data
- Refine product to meet medical education needs
- Make product commercially ready for large scale deployment



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07958660929 | [oslr.co.uk](http://oslr.co.uk)

# Oviva



- Type 2 diabetes remission is achievable, but we need scalable/cost-effective delivery models
- We will develop & test a highly scalable model using the Oviva app, IoT devices and ML-personalization algorithm in 300 NHS patients from South West London & Buckinghamshire
- We want to support the 200,000 people newly diagnosed each year achieve remission

## **What did DHTC Funding enable you to do, which otherwise you could not?**

- To fund the algorithm development, treatment costs, NHS support, and independent evaluators (University of Westminster and Insight Health Improvement)

## **What are your next steps?**

- Building the ML-personalization algorithm
- Recruit 300 patients & undertake evaluation

**Dr Mark Jenkins** | [mark.jenkins@oviva.com](mailto:mark.jenkins@oviva.com)  
[oviva.com](http://oviva.com)



## Red Star

- Using deep learning to predict diabetes patient outcomes from EHR clinical text
- Building patient specific predictive models from healthcare data
- AI techniques to jointly analyse the text and images in radiology

### **What did DHTC Funding enable you to do, which otherwise you could not?**

- Undertake R&D activities to de-risk the technology and plan for clinical implementation

### **What are your next steps?**

- Evaluate the diabetes predictions in a clinical setting
- Identify new healthcare datasets to analyse using Red Star's AI technology platform
- Plan for the regulation and implementation of the technology into decision support



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**+44 (0)7853 599317**

# Sano Genetics

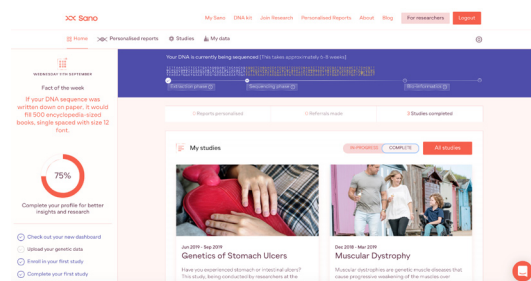
- Partnership with Genomics England '100,000 Genomes Project' and data analysts Zetta Genomics to develop a user centric data management platform for genetic data
- Development of the tools to ensure the public can access, understand, manage and share their digital genetic information online securely.
- Put the power to share and ownership of data back in the hands of users, away from the platforms that collect it.

## What did DHTC Funding enable you to do, which otherwise you could not?

- Improve the speed & cost of patient recruitment by 10x
- Enable users to control who has access to their data and for how long
- Increase engagement in the 100,000 genome project and other national research initiatives

## What are your next steps?

- Development of a dynamic consent database
- Development of researcher tools to allow 'on-demand' genomic studies
- Development of a suite of data visualization tools for data analysis



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[sanogenetics.com](http://sanogenetics.com)

# Smoke Free

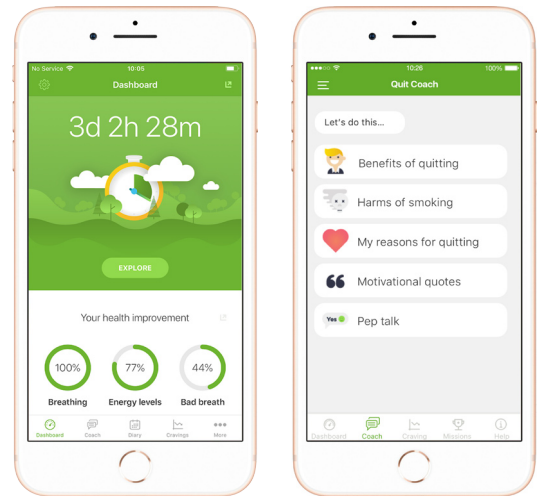
- Based on NICE guidance, includes 33 behaviour change techniques
- Two RCTs, both demonstrating effectiveness
- 4m downloads, 4.7 rating out of 5 (150k ratings)

## What did DHTC Funding enable you to do, which otherwise you could not?

- Develop an AI chatbot to deliver stop smoking guidance

## What are your next steps?

- Increase AI
- More personalisation
- Improve effectiveness



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[smokefree.ai](https://smokefree.ai)

# STORM ID

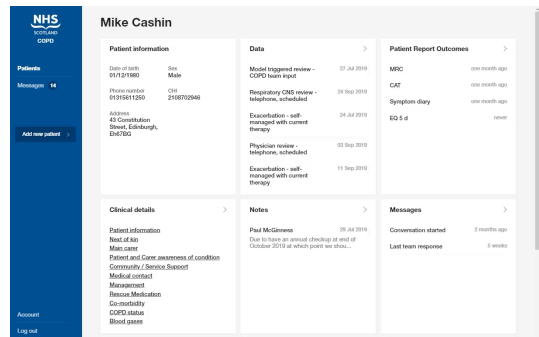
- A preventative digital health service for COPD patients
- Combine patient generated health data with ML risk prediction models
- Identify patients at high risk of re-admission to enable early intervention in community

## What did DHTC Funding enable you to do, which otherwise you could not?

- Design and build the service in collaboration with clinical and e-health teams

## What are your next steps?

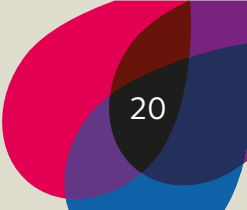
- Monitor and report on results of ongoing clinical trial with patients
- Refine machine learning model performance (Exacerbation risk score etc)
- Certify service under MDR



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# Notes

Handwriting practice lines consisting of 20 horizontal dotted lines.





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# The Future. Faster.

Connecting people to accelerate innovation.

KTN connects people to accelerate innovation, solve problems and find markets for new ideas. We bring together businesses, entrepreneurs, academics and funders to develop new products, processes and services to create value and benefit society.

KTN's specialist teams work across key sectors of the economy, from defence and aerospace to the creative industries, and from agri-food to materials and robotics. Our expertise in connecting sectors, disciplines and skills through the right collaborations and business approach is what helps unlock the tremendous hidden value in people and companies.

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