

Leeds City Region Health Innovation Proposition

West Yorkshire Economic Recovery Board

August 2020



Summary

This proposition aims to capitalise on the significant regional strengths healthtech across Leeds City Region to drive both future economic prosperity and improved health outcomes. It asks for £60m to provide both the infrastructure and support programmes to deliver a step change, cementing Leeds City Region's healthtech offer nationally and internationally and delivering both citizen and business benefits.

Background and context

The Covid-19 crisis has laid bare the need and desire for a step change in tackling health and economic inequalities. Health outcomes and economic performance are intrinsically linked, and this forms a central part of our wider regional economic recovery plan.

There needs to be a focus across the UK in tackling these issues and within this Leeds City Region can play a significant role through its unique strengths in health innovation. We have the raw ingredients to be an engine of health ideas and innovation that can drive levelling up, not just for our region's economy, but the nation; and contribute significantly to the post Covid-19 economic and health recovery.

Leeds City Region boasts **significant innovation assets** within the health-tech, digital health and AI/data sectors. In 2018, through the Science and Innovation Audit, Leeds City Region set out its contribution to the UK's vision to be the best place in the world to develop and launch innovative medical devices and diagnostics – contributing to a substantial increase in economic growth and productivity, reduced healthcare costs, improved patient outcomes and a reduction in health inequalities.

The Leeds City Region offer: Innovation driving health outcomes – improved health outcomes driving productivity

No other country is as well placed as the UK to foster innovative product development in both medical technology and digital health solutions (healthtech) at scale, largely because of the potential within the NHS.

No other region is as well placed as Leeds City Region to unlock that potential meaningfully and sustainably because of the strengths and uniqueness of our cluster of industry assets, university assets and health assets.

Our innovation potential

Our ambition is to deliver successful innovation through concentration, convergence and smart specialisation across Leeds City Region, aligned with national centres of excellence in science and technology and substantial growth in an already established UK wide network of academic, clinical and industrial collaboration.

The health and social care sector employs 140,000 people in West Yorkshire, more than any other sector. In addition, 22,500 people are employed in health and life sciences

related roles such as the manufacture of medical instruments which employs 2,000 people, a concentration of employment 50% higher than the national average.

Output in the health sector is forecast to increase by £1.1bn (34.5%) between 2018 and 2028, double the growth rate for the West Yorkshire economy as a whole (16.5%). Other complementary sectors are also forecast to see strong growth including pharmaceuticals, (forecast to increase by 38.5% locally compared to 14.6% for the UK), and computing and information services (increasing by 27% in line with the UK).

Leeds City Region has a concentration of knowledge based innovative health sciences organisations, alongside broader healthcare industries and recognised strengths in digital health innovation and the manufacture of medical and dental instruments. Home to 63% of all health technology businesses in Yorkshire, 70% of total employment and 71% of revenues. We are also home to 70% of the top 20 health-tech firms, and all of the top digital health firms in the country. The combination of a solid digital health business base, associated leadership, cross-sectoral strengths with our manufacturing and textiles heritage and growing digital sector mean that the region has a vital role to play in the development of the UK's digital health industry.

The regional healthtech ecosystem includes significant business clusters across the region, in Leeds, Bradford, Huddersfield, Harrogate and York. However, there are also notable business populations on the border between Bradford and Craven districts and in Calderdale. Here we host some of the leading medical device manufacturing and digital health companies in the UK.

- **National leadership and spending power:** Our public sector assets – hospitals and universities - double up as assets for the private sector; Leeds City Region is home to no fewer than seven significant government health headquarters, including NHS England, NHS Digital, Public Health England, NHS Leadership Academy, Health Education England, NIHR Clinical Research Network, and the newly formed NHS X. As such it is the decision-making centre for national policy and c.£130bn in funding for NHS commissioning, leadership and digital advancement (via major initiatives such as NHS Spine), as well as education and training of England's health and public health workforce and protection of public health and wellbeing.
- **Industrial strength:** The latest OLS data cements the original findings of the SIA: there are substantially more value-adding med-tech firms in the region than in any other LEP area. The data shows that the region ranks within the top 10 LEP areas for both core biopharma (7th), and for digital health (4th), clearly positioning the region as a major contributor to the UK's overall healthtech business base. We are home to medical equipment manufacturers such as Brandon Medical, Smith and Nephew, and DePuy International Ltd; leading pharmaceutical companies Thornton & Ross and Galpharm (International) Ltd; research-driven analytical service companies such as Covance, Unilabs, EMIS and TPP; tissue repair companies Tissue Regenix Group plc and Neotherix.

Yorkshire and the Humber has a significant population of digital health businesses, second only to the South East (excluding London), and is one of just two regions outside London with substantial digital health industry presence. There are 0.2 digital health businesses per 1,000 in the South East, and 0.15 per 1,000 in Yorkshire and the Humber.

The Propel@YH <https://propel-yh.com/> six-month digital health accelerator programme targeted at SMEs innovating in digital health in Yorkshire and Humber, is an example of programmes we are implementing to support this agenda.

- **Strength in innovation:** In terms of health innovation and bridging the gap between ideas and commercialisation, the region also boasts some of the most accessible and forward thinking routes for businesses into the NHS, including the Yorkshire & Humber Academic Health Science Network (YHAHSN), the National Institute for Health Research (NIHR) Med-tech and In-Vitro Diagnostics Co-operatives (MICs), highly progressive NHS institutions such as the teaching hospitals in Bradford, Leeds, and York, and vital expertise in health technology assessment via the York Health Economics Consortium (YHEC).
- **World-leading Research and Development:** The Leeds City Region has established a world-leading concentration of excellence in research and innovation in medical technologies in the Universities of Leeds, Bradford, Huddersfield, Leeds Beckett and York. Funding for medical technology research in the Leeds City Region exceeds £100m, and accounts for more than 8% of all EPSRC (Engineering and Physical Sciences Research Council) medtech funding, with major national medtech research and innovation centres. 8.9% of medtech patents submitted by UK inventors have originated in the Leeds City Region.
- **Strength in Data:** The Leeds City Region has distinctive longitudinal patient population cohorts (e.g. Born in Bradford) and the unique 'Leeds Care Record', which has been developed in conjunction with leading healthcare software companies TPP and EMIS. It is host to four out of five NHS headquarters, 13 clinical commissioning groups and 12 NHS trusts. The region's expertise in learning from data is second to none through the work of the Bradford Institute for Health Research and York Health Economics Consortium.

To accelerate our impact, partners across Leeds City Region have recently come together to formalise a commitment to driving economic growth and patient outcomes through innovation, bringing together the Association of British HealthTech Industries, the LEP, four of the City Region's Universities and the West Yorkshire and Harrogate Health and Care Partnership to provide leadership and achieve a step change through a signed MoU, the only memorandum of its type. By driving forward new approaches to health maintenance, the management of long-term conditions and by even curing disease, we have the potential to further harness expertise and capability in healthtech. This would accelerate step-change improvements in patient care, and drive inclusive economic growth and productivity across the region and the UK and is already delivering on personalised medicine, better use of intelligence and population health management driven by better digital capabilities.

By working in partnership, we will advance a mutually beneficial approach to the development, evidence-based testing, adoption and spread of clinically effective and cost-effective innovation. We will position the region as a focus of healthtech expertise, growth and productivity that will deliver high quality patient outcomes and benefits and contribute to delivering on the climate emergency.

Health outcomes driving productivity

We know there is a strong correlation between health and productivity. Healthier people are more productive and are able to fulfil their potential more effectively. We also know (most recently exacerbated by Covid-19) that the impact of health inequalities on life chances (and survival) can be catastrophic.

Our region is therefore in pole position to drive health outcomes and increase productivity through health innovation. We will harness our globally significant health assets to support individuals, businesses and communities to improve their health and boost productivity.

We know that the health of our population is affected by a wide range of factors, most of which are not related to traditional health and care services. This includes their behaviours and lifestyle, as well as wider factors. For example, the house someone lives in, how warm it is, whether they feel isolated or alone, whether they experience poverty, the food they eat every day, how mobile and independent they are, whether they have a job, their skills level and whether they have access to parks and open spaces. All these factors have significant impacts on overall health.

There is also growing evidence that problems related to modifiable health behaviour are becoming more prevalent, driven by a lack of physical activity, by smoking, or by a rise in obesity levels in the wider population. This creates economic costs not only to society at large but also, more specifically, to businesses in the form of lost productivity.

We have also recently seen the need to access healthcare in a different way. The health system has successfully pivoted to implement many new technologies to support health care access but we need to ensure, working closely with the West Yorkshire and Humber ICS, that we have the skilled workers and citizens who can access this support.

In West Yorkshire and Harrogate one in three people in the workforce has a chronic health condition that can sometimes affect their ability to work or reduce their ability to work full time or for as many years as they would like before retirement. This is therefore having major implications on both workplace productivity and wellbeing. In most cases prevention is better than attempts to cure or otherwise manage disease, yet this is not reflected in UK investment in research and innovation. Less than 20% of our health and wellbeing is linked to healthcare yet over 95% of health research funding goes towards developing biomedical solutions.

Proposals, as set out in the devolution agreement, are being worked up to develop ActEarly: a global centre for innovation in prevention research. ActEarly North will build a network of people-powered, data linked population laboratories in West Yorkshire to co-produce, implement and evaluate multiple novel early life interventions to prevent disease, improve health over the life course and reduce inequalities. It will provide a whole-system collaboratory where the public, scientists, policy leaders and practitioners work with each other to develop and test early life upstream prevention solutions, supported by efficient platforms for rigorous evaluation, modification and wider rollout. It will provide robust evidence about the cost-effectiveness of novel prevention interventions to inform policy makers about where to invest to obtain long-term, best value for money. ActEarly North will act as a national beacon, attracting top scientists to work in West Yorkshire and leveraging new research and innovation investment.

The large variation in death rates from Covid-19 across socio-economic and ethnic groups has brought into sharp relief the inequalities in our society and the underlying distribution of risk factors for and high levels of chronic disease. The pandemic has highlighted historical underinvestment in public health and epidemiological research but also demonstrated that by working in collaboration across agencies and involving researchers, we can be more effective.

As we move into recovery we have a unique opportunity to intervene intensively and effectively to mitigate some of the added disadvantage caused by the pandemic and more generally build a better future, informed by timely robust evidence about new ways of working and novel interventions and their impact across the whole system over the longer term. ActEarly North will work with multiple agencies in West Yorkshire to identify how best to target their investment to have the most impact on a range of health and social outcomes to reduce inequalities.

Ask of Government

Capitalising on the strengths of our university sector, health assets and industry base in West Yorkshire is more important than ever as we address complex societal and environmental challenges, and move towards a world that is living with Covid-19 and, most likely, into a significant recession. To achieve this, we need to harness local strengths with Government support around the following:

Levelling up agenda: We support calls for the rebalancing of public R&D spend (the missing £4bn) to leverage additional private sector investment and call for a fundamental rethink of how the system operates to ensure all places can benefit from the opportunities from increased R&D investment to drive economic growth. Our £35m Medtech Strength in Places bid was a proposal to do just that, focusing on key gaps in the healthtech innovation pathway, with strategically-aligned investments in technological innovation and advancement, clinical evaluation, strategic leadership, infrastructure and multidisciplinary skills. We welcome the opportunity to continue close dialogue with UKRI and the research councils to discuss future proposals around healthtech, particularly securing equitable *R&D investment as part of an Innovation Deals*.

Positioning Leeds City Region and West Yorkshire as the leading place for the commercialisation, translation and adoption of health innovation into the health system: The Leeds City Region Leadership Group intends to drive a step change in delivering innovation at scale for the health sector, ensuring we have the right talent and skills to do so. We will become expert at initiating, developing, deploying and scaling healthtech innovation, specialising in digital and data science, and we will position the region as a locus of healthtech expertise, growth and productivity that will deliver high quality patient outcomes and benefits. To achieve this, we need *investment to establish the infrastructure* to really drive innovation at scale, delivering to both increase benefits to the health system (see below), health outcomes and business growth (£10m)

The Leadership Group has identified three areas of focus to deliver this ambition:

- 1. Research and data:** investment to unlock a new **£10m** Act Early institution of people-powered, data linked population laboratories to co-produce, implement and evaluate novel early life interventions to prevent disease, improve health over the life course and reduce inequalities. This will include the “digital makers” programme

to develop a pipeline of data scientist – enhancing the digital skills for young people from diverse communities and giving them prospects for their future careers. We will also work closely with the third sector to engage fully with that work and build capacity.

- 2. Innovation Hubs:** Building innovation capacity across Leeds City Region, including via existing investments e.g. DHEZ. Building on the Hospitals of the Future programme (the £600m investment in two new hospitals at the Leeds General Infirmary), we will create a pop-up health innovation hub at the Leeds General Infirmary in the Gilbert Scott Wing to harness the potential the new, state-of-the-art, digitally enabled hospital buildings possess to support the adoption, scaling and translation of innovation (**£1m capital, £500k revenue per annum for 4 years**).
- 3. Healthtech accelerator:** **£2m** into an expanded health accelerator program (building on Propel@YH), focused on data driven high growth potential businesses, leading to new start-ups, new high value jobs and leveraged investment into the region.