

DRAFT West Yorkshire Healthtech Strategy

October 2021

DRAFT IN DEVELOPMENT

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Introduction

This strategy aims to capitalise on the significant regional Healthtech strengths across Leeds City Region to drive both future economic prosperity and improve health outcomes: to improve population health and wealth through HealthTech innovation.

The Covid-19 crisis has laid bare the need and desire for a step change in tackling entrenched health and economic inequalities. Tackling this with new health innovations – into the health system – will support both economic (business) growth and the health outcomes of patients.

Leeds City Region has the raw ingredients to be an engine of health ideas and innovation that can drive levelling up, not just for the region's economy, but the nation; and contribute significantly to the post covid economic and health recovery.

The West Yorkshire and Harrogate ICS 5 year plan has already identified this critical opportunity. 'Better health and wellbeing for everyone' highlights the transformative opportunities that healthtech and innovation can bring across health provision to deliver a healthier economy.

The region has a unique healthtech innovation ecosystem with its strengths across medtech, digital and data – and connectivity across and between these strengths – and is leading the way with the translation of research into commercialisation.

The region has been recognised by central government as a high potential opportunity area for wound care, regenerative tissue, AI and data analytics. However it is not currently seen as the leading healthtech cluster nationally due to the fragmented nature of the system and the lack of adoption of products and services into practice which means that the region does not reach its full potential for residents and businesses.

There are other well-known clusters across the country, however none of these boast the level of assets in Leeds City Region, and there is an opportunity for the City Region to become the leading healthtech cluster nationally and to partner, where appropriate with other healthtech clusters, across the UK and globally.

We must act now to capitalise on these strengths and the market opportunity, and deliver the health and wellbeing outcomes needed post covid.

In 2019, the global healthtech market was worth an estimated 175 billion US dollars, expected to rise to 660 billion dollars by 2025. Even before COVID, which sharply increased the need for digital health tools to be used, adoption has been steadily increasing.

The healthtech sector faces significant challenges post covid and the City Region with its dominance of micro businesses and SMEs is no exception. To achieve the full potential of this market the collaboration between the NHS, industry, universities, the third sector and the government requires a unified approach to overcome barriers to healthtech innovation translation and adoption.

Driving excellence in science and innovation will play a key part in addressing the Leeds City Region productivity gap, and the challenges that underpin this.

This strategy provides the framework for that unified approach. It will set out a common language, a shared vision and priorities and a framework for activity and investment in healthtech, which all partners can work towards.

It is not intended to displace or disrupt all the existing initiatives and programmes underway, but to add value by setting out an agreed roadmap to reach our ambitions.

This is a regional partnership strategy and therefore engagement across partners has been critical in the development of this strategy and agreement of the vision and approach.

The region is not coming to this from a standing start. This strategy builds on the Science and Innovation Audit from 2017 and the subsequent regional healthtech Memorandum of Understanding developed in 2019. This underpinned the regions first cross sector healthtech partnership, comprising senior representation from the healthtech industry, the health and care system, five Universities and the LEP.

The City Region's first cross-sector Healthtech Leadership Group, which evolved from this MoU, continues to grow and thrive. Facilitated by Leeds Academic Health Partnership, the Healthtech Leadership Group involves many regional partners, supports shared healthtech programmes, events, promotion and partnerships with other regions, and reduces duplication of work.

The MoU functions as a call to action for the range of stakeholders in the region involved in supporting and growing the healthtech ecosystem.

This strategy outlines *how* we (the whole partnership/ecosystem) will align our strategic and collaborative approaches to reduce fragmentation and bring together the region's universities, health and care system, LEP, Combined Authority and healthtech industry to develop an Integrated Healthtech Innovation System in the Leeds City Region.

It will position the region as a locus of healthtech expertise, that will deliver both high quality patient outcomes and benefits and economic and productivity gains.

The strategy will set out high-level ambitions which will be underpinned by a detailed accompanying 'live' action plan.

Defining Healthtech

The 2018 Digital Health and Healthtech study agreed definitions of health-tech, med-tech and digital health based on a review of existing definitions. A working definition was agreed as:

Healthtech: the broadest possible definition of new products and / or services relating to the health sector and / or the health and wellbeing of individuals

Within the umbrella of healthtech are the following:

Medtech – a subset of healthtech that involves the design and manufacture of physical products or technologies used primarily in medical settings, encompassing medical devices, and medical equipment as defined by the World Health Organisation.

Digital health – a subset of health technology that involves the use of electronic or mobile digital technologies via applications, software and / or online platforms.

Put simply, it is about innovation in healthcare through the improved use and application of technology to better support patient outcomes.

Below are examples of innovations driven nationally by NHS England and the AHSN network which have been adopted across the region, showing how effective adoption and deployment can be achieved with the right conditions in place.

Transfers of Care Around Medicines (TCAM) has been adopted in Leeds City Region for some time now, creating an IT bridge between acute and community care ensuring patients being transferred out of hospitals into the community have their meds reviewed by a community pharmacist – preventing medicines errors and unplanned re-admissions.

Urolift – Leeds City Region was one of the early adopting sites of this new innovation (requiring pathway redesign) to convert three day urology intervention into day case surgeries. £33,000 was secured from the Pathway Transformation fund for this innovation to support the pathway re-design.

GammaCore and **SecuraCath** are also in use in the region. These are all examples of innovations endorsed nationally by NHSE and driven into the system by the AHSN, with West Yorkshire and Harrogate being particularly receptive.

The Impact of Covid

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.

This strategy will provide a focus for making these ambitions a reality.

The Opportunity

The Science and Innovation Audit from 2017 and the Digital Health Report from 2019 both clearly set out the opportunity for the region.

The 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.

Industrial strengths

The region is a nationally regarded leader in med-tech research and development, and med-tech firms in the region have enjoyed steady growth in recent years. According to OLS data there are substantially more value-adding med-tech firms in the region than in any other LEP area – over 20% more.

Traditional industry strengths in the region include implants, surgical instruments, and devices, e.g. DePuy Synthes, Surgical Innovations, Xiros and Brandon Medical.

More recent start-ups and high growth companies are based on emerging technology areas, including biological materials and digital health, e.g. Tissue Regenix, Neotherix and Avacta; TPP and EMIS

The region, and particularly Leeds City Region, is one of the foremost UK locations for digital health business. The combination of a solid digital health business base and associated leadership and cross-sectoral strengths mean that the region has a vital role to play in the development of the UK's digital health industry.

Over three-quarters of the region's digital health firms deliver either healthcare provider communication solutions (internally oriented), or data collection, management and interoperability products and services. Known firm revenues in the healthcare provider and data collection categories amount to just under £500m, with employment of just under 5,000 (almost 90% of total revenues and just over 90% of employment).

These businesses proactively chose Leeds City Region because of the broader strengths of the region set out in this strategy: data; fintech, agritech, environmental tech; talent and job opportunities; NHS Digital, EMIS and TPP; YHCR; Data-CAN; NPIC etc.

Digital health businesses in particular have seen considerable growth in the last two years (pre pandemic), of which almost half is within data services businesses (£55m), one third are among businesses that deliver healthcare provider products and services and one fifth are among more client facing products and services.

The two categories of interoperability, and healthcare provider solutions include some of the region's most significant businesses such as Egton Medical Information Systems (EMIS) and The Phoenix Partnership (TPP). They clearly represent strengths in the region and provide a critical advantage because they are also the foundation for advancing other sub-sectors. The world leading Yorkshire and Humber Care Record for example has interoperability as a core aspect.

The region is home to some of the most innovative patient-facing digital health businesses, including 'Advanced Digital Innovation', which offers a broad portfolio of patient facing solutions such as 'Mypathway' (secure patient / clinician / service provider digital communication channel), 'Painsense' (persistent pain self-management application), 'Medsminder' (medication self-management application), 'Stepup' (co-produced digital service for supporting young people's mental health) and 'LMSU' (digital platform supporting transition of young people with disabilities from child to adult services).

Similarly, the region has several examples of innovative health system management solutions, including Smartgate Solutions (now Radar Healthcare) quality and compliance focussed software, Lablogic detection and measurement of radioactivity, DocAbode clinician resource management software and RX Systems (now part of EMIS) pharmacy prescription and supply chain management software.

Investment data suggests that these two digital health categories (patient facing solutions and health system management solutions) represent major future growth areas, and have the potential to advance the UK's position as a world-leading digital health economy. (Healthtech and Digital Health report, 2020)

Academic strengths

Regional universities, and a broad base of wider research and business incubation actors have played and will continue to play a major role in advancing the region's healthtech sector in areas such as remote patient monitoring, patient engagement, AI, data etc.

Leeds City Region Universities have been responsible for securing nationally significant levels of academic and health research funding, and house the knowledge and expertise required to maintain the region's position nationally, and the UK's position on the international stage. Since 2009 Universities within Leeds City Region have attracted c.£675m in academic research funding for innovation from UKRI bodies relevant to the health-tech eco-system including the Engineering and

Physical Sciences Research Council (EPSRC), Innovate UK (IUK), the Medical Research Council (MRC) and directly from UKRI.

Since 2006, Yorkshire and the Humber has attracted a total of 447 NIHR research projects to the value of £278m, spanning every aspect of NIHR funding. The region has delivered more Health Technology Assessment (HTA) projects; hosted more NIHR fellowships; delivered more Health Service and Delivery Research (HS&DR) projects; and delivered more Public Health Research (PHR) projects than any other region outside London. Per head of population, the region has received the highest proportion of NIHR funding outside of London (£163php compared to the next highest proportion £140php in the West Midlands).

The region has been recognised by central government as a high potential opportunity area for wound care and regenerative tissue. Regenerative tissue technologies were pioneered by University of Leeds.

Underpinning everything is the move to digital and remote care, Leeds City Region is well placed to lead the way here with significant assets and a long history of academic excellence in AI, machine learning and data analytics. We also have significant strengths in longitudinal data studies such as Born in Bradford – now rolling out to Leeds, Wakefield and Doncaster.

Public sector assets

The region is uniquely positioned as home to a cluster of national health organisations. 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 NHSX. 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. There is a significant opportunity around increased collaboration to drive the regions health innovation ambitions.

West Yorkshire and Harrogate ICS

In May 2021, the West Yorkshire and Harrogate Integrated Care System (WYH ICS) formally signed off a partnership with the Yorkshire and Humber Academic Health Science Network to deliver a system wide program for innovation and improvement for its health & care partners. The Health and Care Bill puts this on a more statutory footing.

The new **Innovation and Improvement Hub** between the ICS and AHSN will provide strategic direction, leadership and guidance around the innovation agenda to the health partners and the ICS.

The Hub will consolidate existing work across key players in the region to better understand and coordinate health care need and match these to innovative technologies and improvement methodologies.

The partnership works on a subsidiarity model, performing at a regional level those activities where it makes sense to do as opposed to at a more local level. In this way areas within the partnership will be supported to articulate the needs of the local area and, where needs align, will work via the hub to achieve economies of scale.

It is the regions ambition for the WYH ICS to be the leading ICS on innovation and improvement. Developing, implementing and adoption of innovation and striving for continuous improvement leads to improved care; better health and wellbeing, greater service efficiency and improved workforce capability and capacity. West Yorkshire is ideally placed to realise this ambition, with a vibrant Life Sciences industry in the footprint and a wealth of expertise and enthusiasm that is not only within the ICS but across our partners, including the VCS sector.

The commitment to collaborate across all these assets is a significant strength for the region. Via the Leadership Group and its expansion, there is real commitment to further develop and deepen relationships to further drive activity as a collective, rather than operating in isolation.

Workshop findings – strengths and assets

In December 2020, a workshop was convened to support the development of this strategy. The following sets out the strengths and assets as previously identified by the group.

Joined up approach, collaboration across sectors

Co-location
 Aligned strategic intent
 Strong leaders
 Culture of openness
 Willing to partner
 Passion across sectors to become world leading region

"Strategy with concrete delivery"

Economy

Investments
 Finance

Known areas of excellence across healthtech

Niche areas / specialisms
 Digital, orthopaedics, robotics, surgery and many others

"This is the place where innovation happens, where the relationships are established and where attitudes enable rather than block"

Rich in healthtech assets

Research infrastructure
 Academia/universities
 NHS
 Industry

"Nurturing and accelerating"

History, heritage

Hospitals
 Industry - corporates, SMEs
 Inventions



Size, scale

Real world, whole system evidence
 Manageable
 Scaleable
 Big but self-contained

"Big enough to matter, small enough to care"

The Challenge

Leeds City Region boasts the assets and the opportunity to lead in the healthtech space, particularly in the whole system approach to discover, develop and deploy.

However, the nature of the system, with the array of organisations and bodies involved has historically at times resulted in fragmentation and lack of coherence.

Despite significant health sector leadership and a very strong base of health sector assets in the region, efficiently and effectively navigating the health and care system presents a significant challenge, particularly to start-up and smaller scale businesses (note that this has been identified as both a regional and national issue). This assertion is borne out in a survey (Digital Health report) of regional businesses, in which none of the micro businesses (1-9 employees) identified public procurement as a route to market. As one micro business respondent put it: “selling into the NHS is too hard for start-ups”.

Numerous consultees highlighted the need for an agreed and obvious way of accessing the NHS health system, or a ‘front door’ that would support smaller firms to develop and test new and / or alternative digital health and care solutions.

Consultees also suggested that finding an effective solution to this challenge was more likely within the region than in other parts of England because of the well-connected and significant influence of the regional eco-system. Regionally, the challenge to date has been in co-ordinating / packaging and effectively positioning the region’s assets so that they are widely known among regional businesses.

To begin to tackle this, and building on the recommendations of the Science and Innovation Audit, a Healthtech Leadership Group was established in 2019, bringing together the key stakeholders in the region to reduce fragmentation and maximise the opportunities identified above. The group identified the following problem statement:

The region has a strong history of innovation in healthtech, however it is not systematic or at scale. There is an opportunity as a partnership to learn from successes and build on these as a region to create spin outs, support existing SME; trade internationality and secure investment – whilst also adopting our home grown innovations.

There is also more to be done to create and support a more diverse pool of healthtech innovation-driven enterprises in the region.

Misaligned objectives and resources are the major issues preventing the initiation and success of programs, as is a focus on piloting rather than deploying at scale, all hindering potential partnerships.

Collectively this means the innovation culture required needs support to strengthen. The ecosystem misses out on opportunities as industry does not always see the region as a magnet for healthtech innovation, regarding other global systems as potentially being easier to navigate.

The Ecosystem

A collaborative model for the whole system



It is important to clearly articulate the range of partners involved in delivering against our regional healthtech ambitions (see appendix for detailed information). Each partner has a different role to play in each of the stages and in creating an effective journey through from discovery to deployment. Connectivity and the creation of a shared purpose and knowing 'who does what' across our assets is essential. Good connectivity drives innovators to the right place at the right time - and partners need to have effective referral routes to 'hand on' where appropriate.

DIAGRAM TO BE INSERTED: mapping out the different organisations/programme to support HT in the region: the ecosystem

Central to this is the new West Yorkshire Innovation Hub. The ICS working with the AHSN through the new Hub, will clearly set out the innovation needs and challenges of the health system in the region. In doing so, the clear articulation of unmet needs will drive discovery and development in the region, supporting local SMEs and start-ups and attracting inward investment. This clear system pull will drive the adoption of innovation and help with strengthening the system wide culture.

The ICS operates on a principle of subsidiarity where each of the five places in the region will articulate the specific health and care needs of their area. Organisations such as Leeds Academic Health Partnership will support health and care businesses in this needs driven approach and more broadly support the discovery of new and novel ideas across academia and the business base which may be globally scalable or of global relevance.

Our HealthTech USP

Capitalising on the opportunity

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 to unlock that potential meaningfully and sustainably because of the strengths and uniqueness of our cluster of industry assets, university assets and public health assets.

The Leeds City Region offer – discovery, development, evaluation and adoption of proven innovation that delivers improved health outcomes and reduces inequalities.

Vision for Healthtech in Leeds City Region

To position Leeds City Region as the engine of ideation, development and adoption of proven healthtech innovation that can drive both levelling up, improve population health outcomes and contribute significantly to the post covid economic and health recovery.

To be the most connected, innovation-driven HealthTech ecosystem, creating the number one destination for entrepreneurs, innovators and industry to partner, locate and grow.

High Level Priorities

To achieve this vision, our focus needs to be twofold;

Business Enablement: we must focus on developing and supporting connectivity across our regional HealthTech cluster to focus on start-ups, SMEs and inward investment opportunities for economic growth.

Improved Health Outcomes: given the assets we have in the region, we must focus on the opportunity for translation and diffusion into the health system across the region (and beyond) to support patient and end user health benefits and reduce health inequalities.

To deliver against these priorities we will commit, as a regional partnership, to driving activity in the following areas. Details will be set out in the attached action plan.

DISCOVER: WE WILL STRENGTHEN AND BUILD ON OUR EXISTING INNOVATION ASSETS TO SUPPORT IDEATION AND DISCOVERY THROUGH INDUSTRY, ACADEMIA AND THE HEALTH SYSTEM

DEVELOP: WE WILL SUPPORT THE DEVELOPMENT AND COMMERCIALISATION OF NEW INNOVATIONS INTO THE HEALTH SYSTEM AND BEYOND

DEPLOY: WE WILL ENSURE EFFECTIVE CONNECTIVITY BETWEEN THE HEALTH SYSTEM, INDUSTRY AND ACADEMIA TO ENSURE ADOPTION AND TRANSLATION OPPORTUNITIES ARE MAXIMISED

Thirteen point plan

1. We will utilise the new WYH ICS Innovation and Improvement Hub as the mechanism to signal the needs of the health system and drive a cultural shift. The Hub will articulate regional NHS system need, support innovative interventions to meet these needs including developing an understanding of existing routes to market, barriers to entry and opportunities to develop evidence of effectiveness to support business growth and secure further investment.
2. We will work collaboratively across the partnership (ensuring we have the breadth of representation) to ensure support conditions are appropriate across discover, develop and deploy and put in place dedicated resource to facilitate this (Regional Healthtech Lead post and Leadership Group).
3. Addressing and tackling health inequalities will feature as a central focus and commitment of all health innovation activity in the region across the partnership, with strong alignment to Mayoral priorities for a just and fair recovery.
4. In partnership, focus on delivering a cultural shift across organisations to support adoption at scale, not limited to those developed in the region.
5. The partnership will support the establishment of the healthtech Catalyst to support both health innovation and health outcome objectives, linking in with the WYIN as vertical focused network. The Catalyst will support businesses, innovators, entrepreneurs, healthcare providers and commissioners, and researchers to accelerate economic growth through the development and adoption of healthtech.

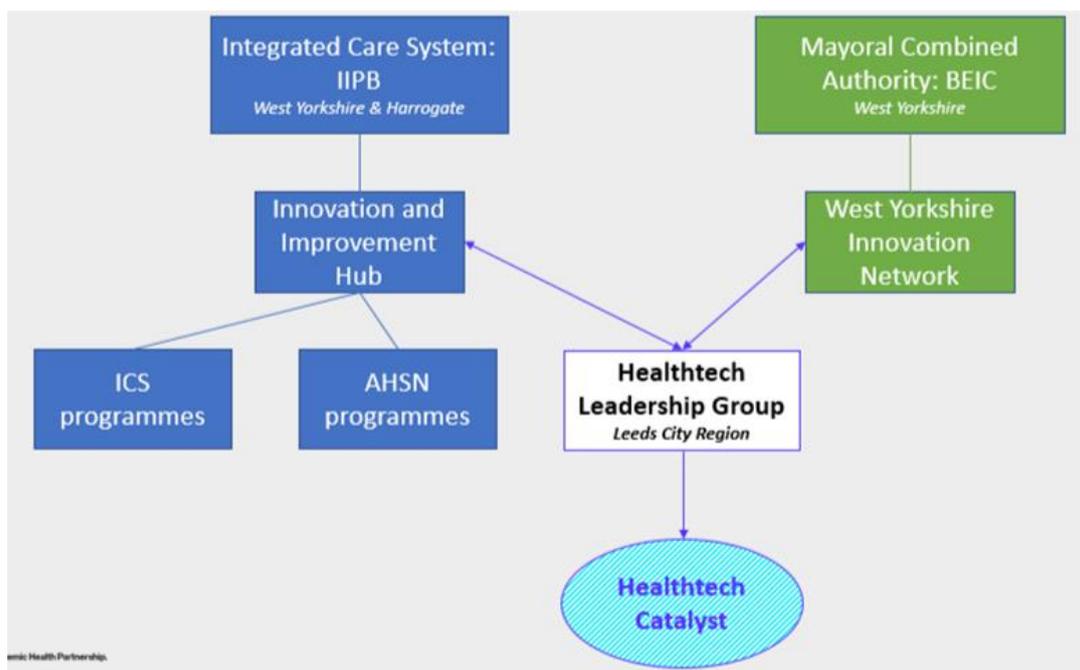
7. Through the West Yorkshire Innovation Network we will work collaboratively to align existing activity to better meet business requirements in the healthtech space across discovery and development.
8. Collectively we will ensure that gaps in support for businesses and academics is mapped out and resources identified to address these, particularly focusing on scaling up interventions with a strong track record of impact.
9. To support ideas development we will identify funding gaps, particularly venture capital, equity, and explore opportunities to establish an early stage proof of concept funding pot.
10. We will develop a cohesive pipeline of projects across our collaborative partnership to support our vision e.g. Act Early, Northern Health Campus and explore joint funding opportunities to better support business innovation
11. We will continue efforts to attract the best inward investment opportunities, focusing activity around three core sub sectors; Woundcare and Regenerative Tissue, Diagnostics and Personalised Medicine and Digital Health
12. We will put resources into better articulating impact and opportunity in the region by showcasing exemplar activity and developing a suite of case study/demonstrator projects to support further investment. This will raise the national and international profile of the region as a leader in healthtech.
13. We will work collaboratively across West and South Yorkshire to develop the concept of a Healthtech Innovation Corridor, building on health and innovation strengths across a Yorkshire footprint.

Governance

The Mayoral Combined Authority's Business Innovation and Economy Committee will have a particular interest in overseeing discovery and development (innovation) activities aligned to this strategy, ensuring that business support needs and gaps are addressed.

The ICS Innovation and Improvement Programme Board will set the direction of travel to support needs-based innovation in the region, focusing particularly on the adoption agenda to improve health outcomes.

The Healthtech Leadership Group will bring together stakeholder across discovery, development and deployment and be the ultimate owner of this regional strategy. This group will also function as expert advisory group for healthtech in the region.



Action Plan

The action plan will be a live document and will be used to track and monitor progress. It will owned and maintained by the Regional Healthtech Lead working with partners. A live version can be found here [\(INSERT LINK ONCE LIVE\)](#)

Activity	Rationale	Lead partner	Timescales	Next steps

Indicators

The below indicators will be owned by the partnership and support bids for future investment.

- Number of new healthtech start ups
- Number of regional healthtech inward investment wins
- Number of HT SMEs supported through the various programmes
- Number of new products developed
- Number of new products deployed into the system
- Number of use case studies produced and socialised
- Number of regional marketing and comms opportunities realised
- Number of funding bids/investments secured to support regional activity.
- Number of jobs created/ safeguarded
- Where possible – measurement of improved health outcomes or health and care service implementations that will improve health outcomes over the long term

Appendix A – list of partners

Original MoU signatories

University of Leeds, Leeds Beckett University, University of Huddersfield, University of Bradford, University of York, Leeds City Region Enterprise Partnership, West Yorkshire and Harrogate ICS, ABHI

Healthtech Leadership Group members

Y&H AHSN, West Yorkshire Combined Authority, Leeds Teaching Hospital Trust, Medilink, Medipex.

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