



**HEALTH &  
LIFE SCIENCES**

**WE ARE PIONEERS.**



"Liverpool offers us impressive opportunities to enhance clinical excellence and improve patient care with the creation of RCP North. We have been impressed by the collaboration and professionalism offered us by the City of Liverpool and look forward to developing our partnership to develop RCP North as an asset that will benefit healthcare and patients across the country."

Professor Jane Dacre, President of the Royal College of Physicians



## WELCOME TO A PLACE THAT'S FULL OF LIFE.

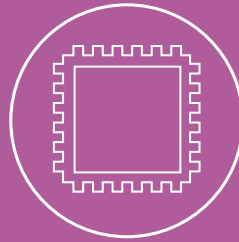
As soon as you arrive here, you'll feel it. This is a growing place with big plans – more than £10 billion of investment underway. New developments across the region are attracting international healthcare businesses to locate here alongside our growing local successful companies.

Health and Life Sciences companies that share our passion for research and discovery will be impressed by the quality and quantity of world-class R&D that is conducted here. Our schools, colleges and universities are working alongside big pharma and start-ups to build an exceptional talent pool.

With new restaurants, bars and our legendary nightlife, waterfront and cultural attractions, this is a place where people want to live and work. And with beautiful beaches, coastline and countryside stretching across the city region there's something to suit all lifestyles. Quality of life matters here and is the reason why our companies have low rates of staff turnover.

**Welcome to a place that is creating something special.  
Welcome to Liverpool City Region.**

# HEALTH & LIFE SCIENCES



**BIG DATA HUB**  
AND THE UK'S MOST  
POWERFUL INDUSTRIAL  
R&D SUPERCOMPUTER

**6 MILLION**  
WORKFORCE  
WITHIN AN HOUR



**8,000**  
CORE LIFE  
SCIENCES STUDENTS



**FIRST**  
LIFE SCIENCES UNIVERSITY  
TECHNICAL COLLEGE IN THE UK

**MOST**  
SPECIALIST HOSPITALS AND  
HEALTH CENTRES IN THE UK  
OUTSIDE LONDON



**LARGEST**  
CONCENTRATION OF  
BIOMANUFACTURING  
IN EUROPE



**£10 BILLION**  
INVESTMENTS PLANNED  
IN THE CITY REGION



**KEY:**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. <b>Aintree University Hospital</b></li> <li>2. <b>Alder Hey Children's Hospital</b></li> <li>3. <b>Allergan</b> - Pharmaceuticals</li> <li>4. <b>Astra Zeneca</b> - Vaccines</li> <li>5. <b>Baltic Triangle</b></li> <li>6. <b>Baxter Healthcare</b> - Healthcare products</li> <li>7. <b>Bristol Myers Squibb</b> - Pharmaceutical R&amp;D</li> <li>8. <b>Eli Lilly</b> - Pharmaceuticals</li> <li>9. <b>Liverpool Heart and Chest Hospital</b></li> <li>10. <b>Liverpool Hope University</b></li> <li>11. <b>Liverpool Innovation Park</b></li> <li>12. <b>Liverpool Life Sciences University Technical College</b></li> <li>13. <b>Liverpool Women's Hospital</b></li> <li>14. <b>Mast Group</b> - Diagnostic products</li> <li>15. <b>Nutricia</b> - Nutrition</li> </ol> | <ol style="list-style-type: none"> <li>16. <b>Seqirus</b> - Vaccines</li> <li>17. <b>Sci-Tech Daresbury</b> - Innovation and R&amp;D</li> <li>18. <b>The Heath Business &amp; Technical park</b></li> <li>19. <b>The Walton Centre</b></li> <li>20. <b>Unilever</b> - R&amp;D manufacturing and enterprise technology</li> <li>21. <b>University of Liverpool</b> - School of Veterinary Science</li> <li>22. <b>Vitaflo International</b> - Nutrition</li> <li>23. <b>Knowledge Quarter Liverpool</b> <ul style="list-style-type: none"> <li>• Liverpool Bio-Innovation Hub</li> <li>• Clatterbridge Cancer Centre</li> <li>• Liverpool Life Sciences Accelerator</li> <li>• Liverpool John Moores University</li> <li>• Liverpool School of Tropical Medicine</li> <li>• Liverpool Science Park</li> <li>• Royal Liverpool Hospital</li> <li>• University of Liverpool</li> </ul> </li> </ol> |
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## GLOBAL AND OPEN FOR BUSINESS

Liverpool has always been a gateway. Our geography and natural assets have shaped commercial and cultural life here for centuries. Our role in the national and global economy has never been more relevant as international manufacturers make the most of our international links to reach customers and suppliers all over the world.

For international connections there is a choice of both Liverpool and Manchester airports which are within a 45 minute drive. Liverpool John Lennon Airport has flights to all major European business centres and Manchester Airport has direct flights to 200 destinations.

For the UK market, the region is well-connected. Wherever your customers, Liverpool is within easy reach. London is just two hours away by train - with services every hour. Direct rail services to Manchester, Birmingham, Leeds, Sheffield, Nottingham and others. And our motorway connections put the vast majority of UK cities from Glasgow to Southampton within 4 hours' drive time.

Our leadership role in encouraging international trade is exemplified by the hugely successful International Festival for Business which took place in 2014 and 2016. The largest festival of its kind in the world, IFB2016 welcomed almost 30,000 delegates from across the UK and from 97 other countries around the world, bringing businesses together to make connections, share ideas and do deals.



## CASE STUDY: WHERE EXPERTS MEET

Liverpool is a leading international meeting place for health and life sciences professionals. These conferences attract thousands of experts from around the world and local partners have an opportunity to collaborate with our Club Liverpool network that helps to bring major events to the area.

Recent and future medical events held here include:

- EuCheMS Chemistry Congress
- European Congress on Head and Neck Oncology
- European Congress on Obesity
- European Congress of World Confederation of Physical Therapy
- European Society for Biomaterials
- European Society of Gynaecological Oncology
- European Society of Surgical Oncology
- Health Systems Global Symposium
- International Clinical Trials Methodology Conference
- International Orthoptic Congress
- International Symposium on Paediatric Neuro-Oncology
- Royal College of Obstetricians and Gynaecologists World Congress
- Union World Conference on Lung Health
- World Conference of the Advancement of Veterinary Parasitology
- World Congress on Osteoarthritis

Health Systems Global (HSG) chose Liverpool as the host city for its fifth global symposium in 2018. The winning bid was put forward by Liverpool School of Tropical Medicine (LSTM), in close co-operation with a consortium of UK institutions.

"LSTM was the first institution in the world dedicated to research and teaching in the field of tropical medicine. Our state-of-the-art facilities continue to develop new diagnostics, drugs and vaccines, which put us at the forefront of infectious disease research.

"Being in Liverpool ensures that we have access to world-leading universities, global pharmaceutical companies and strong support networks, and can continue to lead innovation to break the cycle of poor health and poverty to improve the health and well-being of millions."

Professor Janet Hemingway CBE  
Director of Liverpool School of Tropical Medicine





## WE ARE INVESTING BILLIONS

We are investing billions of pounds in our health ecosystem that offers countless opportunities from research, drug discovery, and clinical trials through to biomanufacturing. The unique convergence of major assets in science, technology, manufacturing and digital innovation is creating a melting pot of ideas and ground breaking solutions.

Our global leadership in health and life sciences is driving innovation in specialist areas such as:

- Infection
- Precision Medicine
- Children's Health
- Veterinary Science
- Healthy and Independent Living
- Big Data, Sensors and Internet of Things

With hundreds of medical companies based here, the area is part of the Liverpool-Manchester life sciences corridor, which is considered to be one of the UK's top three clusters of biomedical activity.

The new £429 million Royal Liverpool Hospital is our iconic, flagship development that will transform healthcare in the city region. The 12-storey building, due to open 2017/18 and will have 650 beds, 18 state-of-the-art theatres, 23 wards and units, and includes a large clinical research facility. The new hospital will also have a comprehensive cancer centre on site working in collaboration with Clatterbridge Cancer Centre NHS Foundation Trust.

There are already over £1 billion of new developments underway in Knowledge Quarter Liverpool, including a new £25 million Life Sciences Accelerator, the £15 million Sensor City initiative and the £68 million Materials Innovation Factory where Unilever and the University of Liverpool are collaborating to create innovative products and materials.

Our world-famous Alder Hey Children's Hospital moved to its new home in 2015 and today treats 270,000 children, young people and their families. Alder Hey leads research into children's medicines, infection, inflammation and oncology and is a Centre of Excellence for cancer, muscular dystrophy, spinal, heart and brain conditions. It has Europe's first intra-operative 3-T MRI scanner which is a pioneering technology for neurosurgery.





## CASE STUDY: LIVERPOOL LIFE SCIENCES ACCELERATOR

Liverpool's future as a world-class life sciences hub is taking a major step forward with a new £25 million laboratory development that will enable innovative research into disease resistance.

The Liverpool Life Sciences Accelerator is the first development in the creation of a city centre health campus that is being built on the site of the new state-of-the-art Royal Liverpool University Hospital. This Liverpool Health Campus will consist of 200,000 sq m of space, attracting life sciences, biomedical research companies and health organisations. This will generate 5,000 high value jobs and help the city develop a thriving life sciences economy.

The Liverpool Life Sciences Accelerator is due to open in June 2017, and will comprise of laboratory facilities for new and growing SMEs, business support and commercialisation centre, and meeting and networking facilities. The Accelerator is part of a far-reaching development

strategy that will define Liverpool's future economy as a world leader in life sciences and boost regeneration of Knowledge Quarter Liverpool.

Dr Steven Powell, Director of the Liverpool Life Sciences Accelerator at the Royal Liverpool and Broadgreen University Hospitals NHS Trust, said: "The Accelerator will provide a hub for life sciences, enabling clinicians, academics and industry to collaborate in research and innovation to develop their ideas into the very latest life-saving treatments. It's a focal point for international businesses to develop solutions with global impact."

## WE ARE CHALLENGERS

We are pioneers in healthcare research and development. Some of the world's smartest people are working alongside global companies to push the boundaries of medical knowledge.

The University of Liverpool has been at the forefront of world-shaping research for 130 years and the Health and Life Sciences Faculty has globally renowned institutes specialising in:

- Ageing and Chronic Disease
- Clinical Sciences
- Infection and Global Health
- Integrative Biology
- Life and Human Sciences
- Psychology, Health and Society
- Translational Medicine
- Veterinary Science

Liverpool has Centres of Excellence that facilitate powerful, productive collaborations between university academics and industry experts from around the world.

These include several National Institutes for Health Research (NIHR) and Medical Research Council (MRC) centres:

- MRC Centre for Drug Safety Science
- MRC/NERC Centre for Genomic Research
- MRC-Arthritis Research UK Centre for Integrated Musculoskeletal Ageing
- NIHR Pancreas Biomedical Research Unit
- NIHR Medicines for Children Research Network
- NIHR Health Protection Research Units in Gastrointestinal Infections
- UK Experimental Arthritis Treatment Centre for Children
- Wolfson Centre for Personalised Medicines
- Wellcome Trust Liverpool Glasgow Centre for Global Health Research
- North West Cancer Research Centre
- North West Hub for Trials Methodology

Liverpool John Moores University (LJMU) also has research institutes specialising in Sport and Exercise Sciences, Public Health, and Brain and Behaviour. Research specialities at LJMU include Innovation in Dementia, Chemoinformatics, Nutrition, Nursing and Social Work research.

The Liverpool School of Tropical Medicine (LSTM) is one of the world's most important centres in the fight against malaria and other insect-borne diseases. Research at the newly-built Centre for Infectious Diseases is funded by the Bill & Melinda Gates Foundation which was extended for another five years in 2016 when the Microsoft founder visited Liverpool.



## CASE STUDY: STFC HARTREE CENTRE AND IBM

At the heart of our leadership in big data and cognitive technologies is the Science and Technology Facilities Council's (STFC) Hartree Centre, part of Sci-Tech Daresbury, where these cutting-edge techniques are providing competitive advantage to health-related companies. It is part of a growing cluster of international, national and local firms at Sci-Tech Daresbury focused on data-centric computing, big data analytics and cognitive technologies.

In 2015, a £315.5 million deal with information technology leader IBM was announced to boost big data research in the UK. Through this strategic partnership, the Hartree Centre is enabling access to the latest data-centric and cognitive computing technologies from IBM, including its world-class 'Watson' platform. Over the next two years more than two dozen IBM researchers will be based at the Hartree Centre working alongside existing researchers.

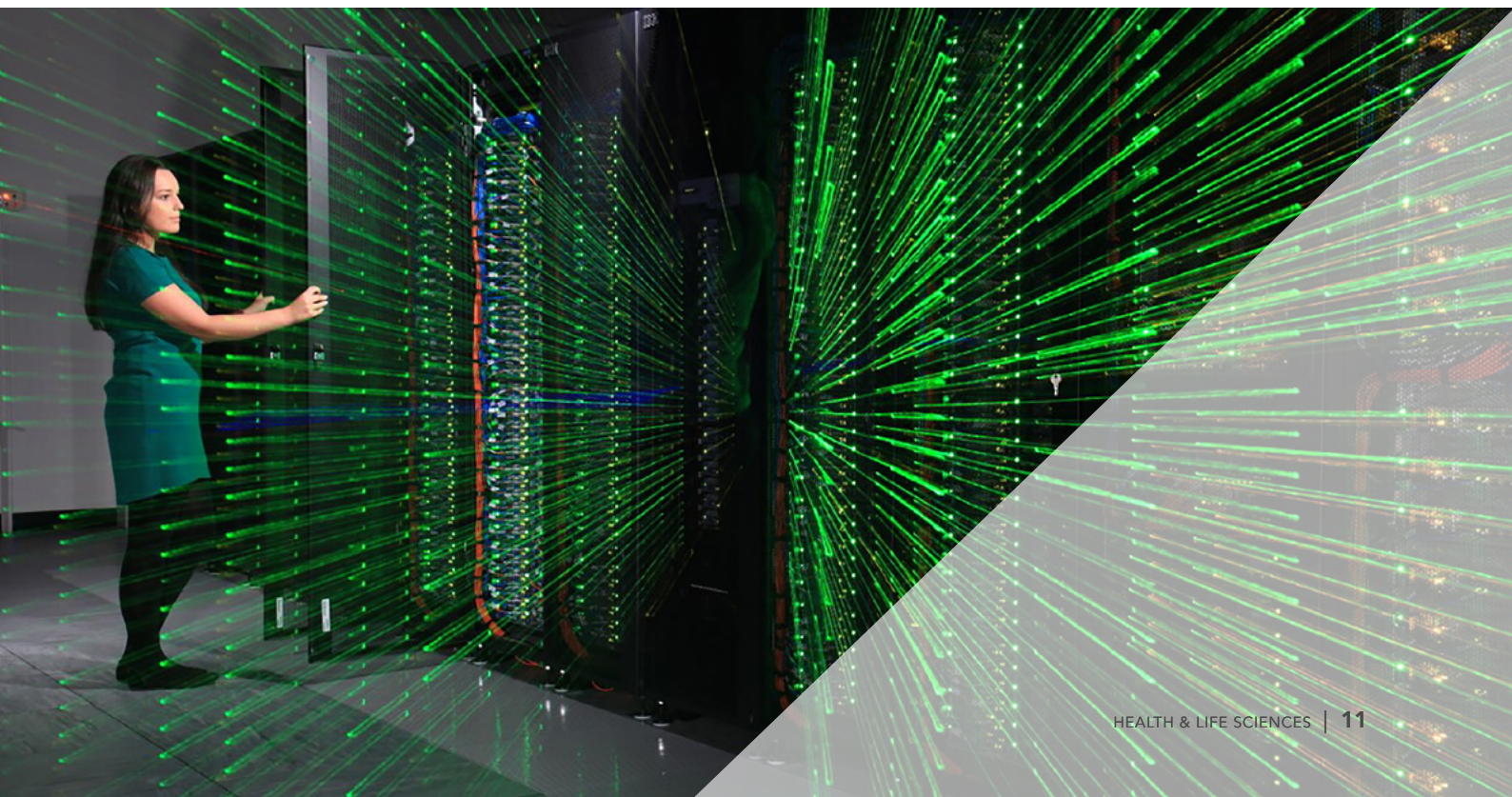
Delivered through the cloud, IBM's Watson analyses high volumes of data, understands complex questions posed in natural language, and proposes evidence-based

answers. It continuously learns, gaining in value and knowledge over time, from previous interactions.

David Stokes, Chief Executive for IBM in the UK and Ireland, said: "We're at the dawn of a new era of cognitive computing, during which advanced data-centric computing models and open innovation approaches will allow technology to greatly augment decision-making capabilities for business and government.

The expansion of our collaboration with STFC builds upon Hartree's successful engagement with industry and its record in commercialising technological developments, and provides a world-class environment using Watson and OpenPOWER technologies to extend the boundaries of big data and cognitive computing."

One of the first projects using Watson that Hartree is leading on is a collaboration with Alder Hey Children's Hospital to improve the patient experience by creating the UK's first cognitive hospital.



## WE HAVE THE SCALE AND DIVERSITY FOR CLINICAL TRIALS

We're perfectly positioned as a location for medical research and trials. With around seven million people and a diverse ethnic mix, the North West of England enjoys clinical trial recruitment rates second to none in the UK. Our world-class research hospitals work alongside industry expertise offering the ability to address all stages of clinical trials.

Our hospitals are currently running more than 450 research studies and trials, many relating to cancer. Major pan-European studies have been led from here and the area has a broad portfolio of clinical cancer trials, with a particular emphasis on pancreas, liver, biliary, uveal, haematological, breast and urothelial malignancies. Clinical areas that are brought together in specialised trials units include paediatrics, pharmacogenetics, neuroscience, ophthalmology and infection.

A centre-piece of our clinical trials credentials is the Royal Liverpool Clinical Research Unit (CRU), a resource which is open to researchers from all disciplines encouraging collaboration with investigators in Liverpool City Region and beyond. The CRU has become the first NHS facility in England to be granted Medicines and Healthcare Products Regulatory Agency (MHRA) standard and supplementary Phase I Accreditation.

MHRA Phase I Accreditation allows the Trust to perform clinical trials in patients with some of the newest treatments under evaluation, to some of the most rigorous set of standards in the world. It will help provide patients with greater access to the very latest drugs and technologies and will bring economic benefits to Liverpool City Region as a centre for global healthcare research.

Patient studies are supported by the University of Liverpool through the Liverpool Clinical Trials Collaborative, which receives National Institute for Health Research funding for the Cancer Research UK Liverpool Cancer Trials Unit and the Clinical Trials Research Centre.



## CASE STUDY: **ALLERGAN**

Allergan plc, headquartered in Dublin, is a global pharmaceutical company and a leader in a new industry model – Growth Pharma. Allergan is focused on developing, manufacturing and commercialising branded pharmaceuticals, devices and biologic products for patients around the world.

The company's Liverpool site is a state-of-the-art clinical manufacturing facility and is a Centre of Excellence for Biologics development responsible for leading all aspects of bulk drug substance development.

In 2016, Allergan opened its new BioAssay Lab in Liverpool. The new laboratory allows Liverpool's existing bioassay expertise to be fully utilised and developed and the relocation of the molecular biology lab allows increased flexibility and capacity for both molecular biology and bioassay capabilities.



## WE ARE CREATORS

Liverpool is a place for creators and makers. From the creative sparks imagining new materials and processes, to the geniuses designing cars and ships. From the innovators making solar panels and wind turbines, to the chemists discovering new drugs and the scientists rolling back frontiers.

Given the strength of our life sciences credentials and manufacturing pedigree, it shouldn't be a surprise that we're home to one of Europe's largest concentrations of biomanufacturing. Major pharma players include AstraZeneca, Baxter Healthcare, Bristol Myers Squibb, Eli Lilly, Nestle Health Science, Seqirus and Unilever, all have facilities in the area.

Significant new investments in modern production facilities at these companies have created a vibrant, efficient and cost-competitive environment to produce new drugs and vaccines.

Locating a production facility in Liverpool City Region delivers a competitive edge with the cost of property being a fraction of the cost found in other life sciences clusters.

## CASE STUDY: **SEQIRUS**

Seqirus, the world's no.2 influenza vaccine provider, recently announced a £22.1 million investment for its site in Liverpool. The company, which is part of global biopharmaceuticals leader CSL Limited, is developing a new £15.3 million manufacturing facility to support the production of influenza vaccines at its Liverpool site, complemented by a £6.8 million warehouse which opened in early 2016. The development paves the way for the future expansion of product manufacturing at the Liverpool site, which plays an important role in Seqirus' global operations.



## WE HAVE THE TALENT

We have the life sciences talent pool that enables businesses to scale and grow by locating closer to the smartest brains in healthcare. With more than 90,000 students, of which 30,000 graduate each year, Liverpool City Region offers you direct access to some of the world's best academic resources and a pipeline of new talent.

### UNIVERSITY OF LIVERPOOL

Is a world-class university ranked in the top 1% globally and provides one of the largest concentrations of health and life sciences expertise in the UK. The Faculty of Health & Life Sciences is the enabling organisation responsible for the thousands of experts involved in research and teaching here. The Faculty has over 1,850 staff, more than 5,000 undergraduates and 1,000 postgraduate students.

### LIVERPOOL JOHN MOORES UNIVERSITY

(LJMU) is one of the largest, most dynamic and forward-thinking universities in the UK. The Faculty of Education, Health and Community is home to over 5,000 students, with 97% finding employment within six months of graduating. LJMU has developed a range of practical Continuing Professional Development modules for healthcare professionals.

### LIVERPOOL SCHOOL OF TROPICAL MEDICINE

Founded in 1898, was the first institution in the world dedicated to research and teaching in the field of tropical medicine. It attracts more than 600 students, from PhD research and Masters programmes to a range of professional courses.

### LIVERPOOL HOPE UNIVERSITY

Was ranked fifth in the UK for student satisfaction by The Sunday Times Good University Guide in 2016 and is in the top 20 of all UK universities for the percentage of academic staff with doctorates. Its School of Health Services is ranked 2nd in the region for research.

### EDGE HILL UNIVERSITY

Was voted The Times Higher Education University of the Year in 2014/15. Edge Hill is a hub for research around sports science and health-related issues.

### LIVERPOOL LIFE SCIENCES UNIVERSITY TECHNICAL COLLEGE

(UTC) is the first school in the UK specialising in Life Sciences for 14 to 19 year olds. It provides outstanding academic and vocational education by working closely with local employers to create the next generation of scientists, healthcare practitioners, engineers and entrepreneurs. Courses are designed and delivered in conjunction with businesses including Local Solutions, Pro-Lab Diagnostics, Seqirus, Unilever and Thermo Fisher. UTC students have access to industry standard laboratories and equipment that is superior to facilities of most universities - this includes a mock hospital ward environment.

Our city region has produced innovative Skills for Growth agreements for our key sectors which reflect a unique and innovative joint working between public, private and academic organisations to address current and future skills needs.







## CASE STUDY: KQ LIVERPOOL

Knowledge Quarter Liverpool (KQ Liverpool) is home to the University of Liverpool, Liverpool John Moores University, Liverpool School of Tropical Medicine and the Royal Liverpool University Hospital and is fast becoming one of the world's leading innovation districts. Upon completion of its new hospitals, it will be one of the largest academic and clinical campuses in the UK.

With world-leading specialisms, such as the fight against infectious diseases, materials innovation, personalised medicine, digital health, sensor technology and sports science, KQ Liverpool has already distinguished itself from other competing cities.

What's more, it's an area that is completely absorbed in culture and is home to the Everyman Theatre, the Royal Liverpool Philharmonic, two cathedrals and some of the city's best bars and restaurants.

There are over £1 billion of new developments already taking shape in the health and life sciences sectors, including Royal Liverpool University Hospital (£429 million), Clatterbridge Cancer Centre (£124 million), Liverpool

Bio-Innovation Hub (£21m), Liverpool Life Sciences Accelerator (£25 million), Materials Innovation Factory (£68 million) and Sensor City (£15 million).

This focus and concentration of research activity covers all aspects of the life sciences research and draws in expertise from other disciplines such as engineering, chemistry and computer science to develop the next generation of therapies, diagnostics, medical devices (particularly digital sensors) and care practices that are transforming human healthcare in the 21st Century.

"KQ Liverpool is an innovative place where world-leading academic research meets the very latest clinical technologies. Combine that with the unique cultural diversity in the area and it's no surprise that this is a place where great discoveries are being made.

With the level of investment going in to Paddington Village, the Health Campus and the new train station, we are shaping the perfect environment for dynamic tech businesses and pioneering new life science companies".  
Colin Sinclair, CEO, Knowledge Quarter Liverpool

## WE ARE COLLABORATORS

This is a friendly and open place. People here work best when they work together. For us, networking is a way of life. Our sense of community and solidarity runs deep. We attract talent and business from around the world and bring them together in collaborative networks and shared spaces to create a special alchemy. Here are some networks that can drive your business forward:

- **Bionow** supports business growth, innovation and competitiveness within the biomedical and life sciences sectors across Northern England. They add value and cost-efficiency to scientific, clinical and business operations within early stage and growth-oriented firms.
- **eHealth Cluster** is the only SME-led eHealth Cluster in the UK. The cluster accelerates the scale and pace of innovation by working across organisations in the public, private and third sectors, engaging with and supporting both technology SMEs and the long-term care sector, including providers within domiciliary, supported living and residential care, and public bodies.
- **Innovation Agency** is the Academic Health Science Network for the North West Coast, with around 4.1 million residents. Partners include 25 NHS providers, nine universities and a large number of life sciences industry partners.
- **Liverpool Health Partners** brings together the region's leading hospitals and academic institutions to improve health and deliver exemplary research, education and healthcare.
- **MedilinkNW** is a membership-based professional organisation with a remit to stimulate growth and innovation in the medical and health technology sector throughout the North West.
- **National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care North West Coast** works collaboratively with partner organisations and other stakeholders including members of the public to co-produce and conduct high-quality, leadership enhancing, applied research designed to decrease health inequalities and improve the health of the population of the North West Coast.



## CASE STUDY: ROYAL COLLEGE OF PHYSICIANS

In 2016, Liverpool was chosen as the new Northern headquarters for one of the world's most renowned medical institutions – The Royal College of Physicians (RCP). After assessing a number of potential cities, the RCP decided to establish its first centre of excellence outside of London, in Paddington Village, at the heart of the Knowledge Quarter Liverpool.

The RCP Northern Centre of Clinical Excellence will be located in 70,000 sq ft of Grade A offices in a purpose-built facility to open in 2020. The new centre will focus on medical training, examination, conferencing, quality improvement and research, and is set to create 100 new jobs.

Professor Jane Dacre, president of the RCP, said: "This is a major advance for both the RCP and the promotion of clinical excellence and services in the UK and internationally. RCP North will significantly enhance our ability to provide more medical training, examinations, quality improvement and research for doctors, healthcare professionals in the UK and internationally.

"Liverpool offers us impressive opportunities to enhance clinical excellence and improve patient care with the creation of RCP North. We have been impressed by the collaboration and professionalism offered to us by the City of Liverpool and look forward to developing our partnership to develop RCP North as an asset that will benefit healthcare and patients across the country."



We have a team of business location experts from across Liverpool City Region that can assist you with your next project.

We can provide detailed research on markets, sectors and workforce demographics. We can put you in touch with the right contacts at industry networks and partner organisations. We're happy to introduce you to potential partners at our world-class universities and our existing businesses. We can help you to identify all the available support to help your expansion and show you a wider range of sites, premises and development opportunities.

### SPEAK TO AN EXPERT

#### For further information and support contact:

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**INVESTLIVERPOOL**  
ADVANCING THE CITY REGION

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