

## LCR Innovation Asset Inventory

Linked to the concept of smart specialisation at the heart of the LCR Innovation Plan and place competitiveness agenda, this “inventory” lists the LCR’s key actual innovation-related assets to be maximised and promoted, plus potential collaborative focal projects to achieve associated scale and impact. This will in turn directly inform the focus and narrative of the updated Innovation Plan/Executive Summary to be published in 2016.

The list has not been compiled on any scientific basis, nor any prioritisation or weighting applied. The informal, essential criterion is simply innovation-related capabilities and/or facilities of **demonstrably** unique and/or of national, EU or international significance.

### Actual – Existing Assets & Competencies

#### Advanced Manufacturing & Big Science

- STFC Cockcroft Institute & CERN-affiliated particle accelerator, SciTech Daresbury Enterprise Zone
- University of Liverpool Virtual Engineering Centre, SciTech Daresbury Enterprise Zone
- MTC @ LJMU – the first regional offshoot of the national Manufacturing Technology Centre Catapult
- Unilever Corporate HQ, unique open innovation approach, plus global cluster of FMCG R&D facilities, including the Centre for Materials Discovery, Integrated High Throughput Formulation Centre at Liverpool Science Park the first of its kind, with Advanced Manufacturing Centre in the pipeline
- University of Liverpool Chemistry Department rated 1st in the UK for world leading & internationally excellent research (2014 REF)
- Knauf European R&D Centre
- Home of the award-winning BAC Mono – the world’s only single-seater supercar – and a wider automotive production and supply chain cluster
- The LJMU/STFC Liverpool Telescope sited in La Palma, Canary Islands is the world’s largest fully robotic optical telescope; plus home of the National Schools Observatory (LJMU) – a national astronomy resource for UK schools to access the Liverpool Telescope

**Leading businesses based in LCR include:** ABB, BAC Mono, ChargePoint Technology, Getrag Ford, Ineos, Jaguar Landrover, Johnson Controls, Knauf, NSG (Pilkington & NGF), Sigmalex, Unilever

#### Others

- University of Liverpool Laser Research Group UK’s largest University-based research group in laser materials processing – (evidence required)

- ABB Process Automation, Power Products, Discrete Automation and Motion; Head Office and research centres

## Blue/Green

- 1<sup>st</sup> and largest deployment in the world of next generation 8MW wind turbines in what will be the biggest offshore wind farm in the world
- One of only 6 government-designated UK places with Centre for Offshore Renewable Engineering (CORE Status), & the only one on the West Coast
- National Oceanography Centre & associated Institute for Sustainable Coasts & Oceans (ISCO), bringing together marine scientists, social scientists & economists to meet the challenges of a changing ocean & coastal populations
- University of Liverpool Stephenson Institute for Renewable Energy: energy storage & next generation photo-voltaics research
- Largest volume of chlor-alkali hydrogen in Europe, plus significant underground pipeline/infrastructure
- L2 super-container terminal post-Panamax capacity & wider SUPERPORT Liverpool port-centric logistics cluster, expertise & capabilities
- LJMU's Lairdsie Maritime Centre houses the only 360° field-of-view ship-handling visual research & training simulator in the UK & is amongst the most advanced in Europe.

**Leading businesses based in LCR include:** ABB, ACL, Bibby, Cammel Laird, CMA CGM, Clarke Energy, Dong Energy, Iberdrola, Maersk, Stobart, Unipart.

## Others

- Logistics, Offshore & Marine (LOOM) Research Institute (LJMU) – one of the UK's largest research groups of its kind in design and operation of large maritime engineering systems such as ships, offshore installations, port terminals and logistics chains (evidence required).

## Digital & Creative

- STFC Hartree Centre – big data hub & the UK's largest industrial R&D supercomputer - based at SciTech Daresbury Enterprise Zone, one of only two national science & innovation campuses
- £200 million IBM investment/partnership with the Hartree Centre, including the Watson cognitive computing platform
- University of Liverpool 1<sup>st</sup> in UK for world-leading & internationally excellent Computer Sciences & Informatics research (2014 REF).
- NHS Liverpool CCG has commissioned the largest scale deployment of health technology for a single economy in Europe (EU Commission), & is the first NHS organisation to offer care technology on prescription in primary care
- AIMES data storage & N3 health platform access

- Liverpool has the second fastest growing technology cluster in the UK (2015) and is one of only three tech. clusters in the UK highlighted as having significant Internet of Things (IoT) expertise - the Government's Chief Scientific Adviser's December 2014 review commissioned by the Prime Minister.
- Shop Direct – UK's 4<sup>th</sup> largest online retailer
- Newly designated UNESCO City of Music – one of only 2 in the UK and 19 across the globe who form part of the prestigious UNESCO Creative Cities Network.
- St.Helens being uniquely utilised by O2 as its national town centre business and consumer digital test bed, plus local authority/public services test bed
- UK's first Microsoft Showcase College at City of Liverpool College.

**Leading businesses:** AIMES, Brainboxes, Citrus Suite, DoES Liverpool, Draw & Code, IBM Lime Pictures, o2, Playrise Digital, Red Ninja, ScraperWiki, Shop Direct, Sony, Starship, QVC.

### Others

- Baltic Creative campus/gaming cluster (evidence/stats required)
- FACT is the UK's leading organisation for commissioning, exhibiting, promoting and supporting artists' and creative entrepreneurs' work and innovation in the fields of film, video and new media (evidence evidence).

### Life Sciences & Health

- Liverpool School of Tropical Medicine – world-leading & first such research Institute
- Alder Hey in the Park new £279million facility is the national HQ for all of NIHR CRN: Children's Research
- Pancreas Biomedical Research Unit – one of the top three centres in Europe for translational research into pancreatitis and pancreatic cancer, & the only such NIHR-funded specialist unit in the UK
- Precision Medicine & Genomics – Sir Munir Pirmohamed the first ever NHS Chair of Pharmacogenetics; University of Liverpool's Wolfson Centre for Personalised Medicine, Centre for Genomics Research & GeneMill high-throughput DNA synthesis facility
- EU reference site status for active & healthy ageing awarded on the basis of NHS Liverpool CCG's successful Mi Liverpool Innovate UK pilot
- NHS Liverpool CCG has commissioned the largest scale deployment of health technology for a single economy in Europe (EU Commission), & is the first NHS organisation to offer care technology on prescription in primary care
- The Walton Centre is the only specialist neurosciences NHS Trust in the UK
- The Royal Liverpool University Hospital's Clinical Research Unit the first NHS facility in England to be granted MHRA standard & Phase I Accreditation for early clinical trials

- The Clatterbridge Cancer Centre is one of the UK's leading & largest cancer centres and the only provider of proton therapy, offering pioneering chemotherapy & radiotherapy treatments from its 10 networked sites.
- The national Medical Research Council Centre for Drug Safety Science is based in Liverpool.
- LJMU School of Sport & Exercise Sciences 2nd in the UK for world leading & internationally excellent research (97%) - e.g. re. tackling unhealthy lifestyles & obesity in children, work with Premier League/elite athletes on performance analysis, injury prevention, cardiovascular screening (2014 REF)
- UK's 1<sup>st</sup> life sciences University Technical College (UTC)
- Reportedly, the largest concentration of bio-manufacturing in Europe

**Leading businesses based in LCR include:** Actavis Biologics, Astra Zeneca, Baxter Healthcare, Bristol Myers Squibb, Eli Lilly, Mast Group, Evgen Pharma, Nestlé Health Science, Nutricia, Seqiris, Videregen, Vitaflow, RedX Pharma.

## Others

- Centre for Better Births: largest maternity unit in the UK with international programme on global maternal health (evidence required)
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## Potential – Future Focal Projects

### Advanced Manufacturing & Big Science

- UoL/Unilever Materials Innovation Factory – future materials discovery
- UoL/LJMU Sensor City incubator & University Enterprise Zone will be one of the first in the world dedicated to sensor technology
- MTC@LJMU 2 – significantly enhanced facilities
- Sigmatex National Lightweighting Centre focused on carbon fibre technology centre: R&D plus scale up for mass production
- LCR 4.0 concept, linked to the Internet of Things & sensor technology, & as part of the Innovation Exchange

### Blue/Green & Energy

- Maritime Knowledge Hub, Wirral, incorporating the Manufacturing Technology Centre
- LCR2Energy initiative – ambition of the region to become energy self-sufficient within 10-years, including the potential tidal barrier

- Smart Grids, including links to commercial R&D re. maximising the capacity of cables to transfer differing types of resources/data
- “Hydrogen Town” & wider hydrogen applications, e.g. filling stations, static power, gas replacement, electrolysis
- “Blue Green”/Low Carbon Innovation Exchange idea pipeline & IP commercialisation function/support

### **Digital & Creative**

- Big data accelerator for SMEs at the Hartree Centre, linked to Tech North
- Liverpool Digital Campus & “Sound Stage” production facility at Edge Lane
- Digital Innovation Exchange Agency.

### **Life Sciences & Health**

- International Centre for Children’s Research, Innovation and Education at Alder Hey, linked to its vision to be the world’s first “living hospital”
- Liverpool PRiME – incl. Liverpool Biomedical Research Centre, FUTURE initiative, & Royal Liverpool Life Sciences Accelerator
- Successor programme to Innovate UK “Mi Liverpool” pilot re. assistive technology/living
- Centre of Excellence for Infectious Diseases, linked to the Liverpool School of Tropical Medicine
- Bio-Inspire: zoology-based natural sciences cluster development project with intended bio-imitation R&D/incubation centre; collaboration between Knowsley Safari Park, University of Liverpool, Knowsley Council, & 4 other UK zoos
- Building on the “Health Enterprise Hub” partnership-based branding to create dedicated pipeline support for health/life sciences development & commercialisation activities, as part of the Innovation Exchange.