



HLM  
Architects







Philip Watson  
Director - Head of Design

Our ambition is to help share knowledge and raise awareness of the possibilities that Innovation Districts can bring to regional economic success.

As we start to make sense of the fourth industrial revolution, it is clear that new ways of working and new types of partnerships require different infrastructure that will enable cities and regions to remain competitive in a global economy.

The term ‘Innovation District’ is used to describe a wide variety of types of development. What unites all of them is an element of collaboration between public and private sector bodies, often with a higher education institute as an ‘anchor tenant’. What interests us, is the potential of innovation districts to be a new model for how we organise our communities. Not just places of work, but rich and appealing neighbourhoods where people live and relax too. The economic, social and ecological benefits of this model are huge and we are keen to explore how towns and cities can benefit from this approach.

This document considers the key drivers of Innovation Districts as a new urban phenomenon, looking at the United States in particular, and drawing on HLM Architects’ current experience in this arena in the UK.

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“A new complementary urban model is now emerging, giving rise to what we and others are calling “innovation districts.” These districts, by our definition, are geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators and accelerators. They are also physically compact, transit-accessible, and technically-wired and offer mixed-use housing, office, and retail.”

Bruce Katz and Julie Wagner in *The Rise of Innovation Districts: A new Geography of Innovation in America.*





# The Rise of Innovation Districts

## A virtuous partnership of academia with the public and private sectors.



Patrick Clark  
Associate Director

The global rise of Innovation Districts continues, and in the United States alone roughly 20 districts have now reached a level of critical mass to warrant the name, concentrating a mix of research institutions, mature companies, start-ups and scale-ups, co-working spaces, and supportive intermediaries in close geographic proximity.

They are neighbourhoods where people come to work, live and play, and are essentially ‘living labs’ where the private sector partners with industry, academia and public sector agencies to deliver flexible space for entrepreneurs, Universities, researchers, investors and industry to co-invent and co-produce new discoveries for a diverse range of technologies.

## Three Key Themes

1

### Responding to a changing demographic.

The emerging breed of innovators and digital makers in companies both big and small need a habitat to call their own. Somewhere they can cluster, grow and thrive alongside each other. They are increasingly aware of their environment, the impact of climate change, and the benefits to their wellbeing of adopting a healthy lifestyle. Ideally, they want to live and work in an exciting, car free urban environment, which is transit-accessible, technically wired, and offers a mix of workshops, labs, office, mixed-use housing, leisure and retail.

2

### Open collaboration and innovation.

Researchers learn new ideas from fellow researchers often in different sectors, entrepreneurs learn from nearby mentors, and venture capital firms are more likely to invest in a company they can observe. Creating the right character of space and “vibe” is key to successful outcomes, and these will differ depending on the requirement of the cluster groups involved. For example, Medtech research require labs and space different to Fintech or 5G, however it is often the space in between that is crucial for successful collaboration and where innovation takes place.

3

### Adopting a “service provider” mindset.

Real estate now needs to become a service industry rather than an asset industry.

To generate returns in future, real estate operators will have to offer a range of other services including funding, coaching, networking, and supplies. If they don’t start doing so, other players such as VC companies will and many already do.

It is increasingly important to align interests and build transparency between owners and occupiers. Landlords might work with their tenants to build a compelling story around a development, or even become a venture capital partner with a direct stake in the success of their businesses. There are tangible benefits to all involved and both building owners and operators should provide hands-on stewardship to address the broader framework for innovation. This means not only managing relationships between big companies and start-ups, but also exploring opportunities to provide accommodation or social infrastructure.

We need to prepare for continuous adaptation, feedback and complexity. Real estate providers need to design bespoke solutions when it comes to access, location, workplace, building layout, and rental terms. A new business model is essential.

## Exploring Worldwide Precedents

Where collaborative partnerships form to create new kinds of infrastructure.



### **Pennovation Works, University of Pennsylvania**

Designed by Hollwich Kushner this project was established and owned by the University of Pennsylvania, it is now under management and operation by 1776vc. It is focussing on being service based rather than asset based. The 23-acre property is adjacent to the University's main campus and is there to turn ideas into economic opportunities for the surrounding area and neighbourhoods.

### **Singh Center, University of Pennsylvania**

With a focus on innovation, the Singh Center is a hub for scientists and researchers that integrates state-of-the-art nanofabrication and nanocharacterisation equipment to define new frontiers in nanotechnology.

The collaborative spaces throughout the building provide ample opportunity for intellectual interaction between researchers, and offers a relaxed environment for the student community. Located on the University of Pennsylvania campus in Philadelphia, the Singh Center, which is open to all institutions – academic and industrial, epitomizes Penn's philosophy of pursuing knowledge beyond traditional boundaries.





**Sidewalk Toronto, IDEA District.**

Sidewalk Labs proposes a vision — beginning with Quayside — designed to realise and maximise ambitious quality-of-life goals by integrating innovations into the physical development.

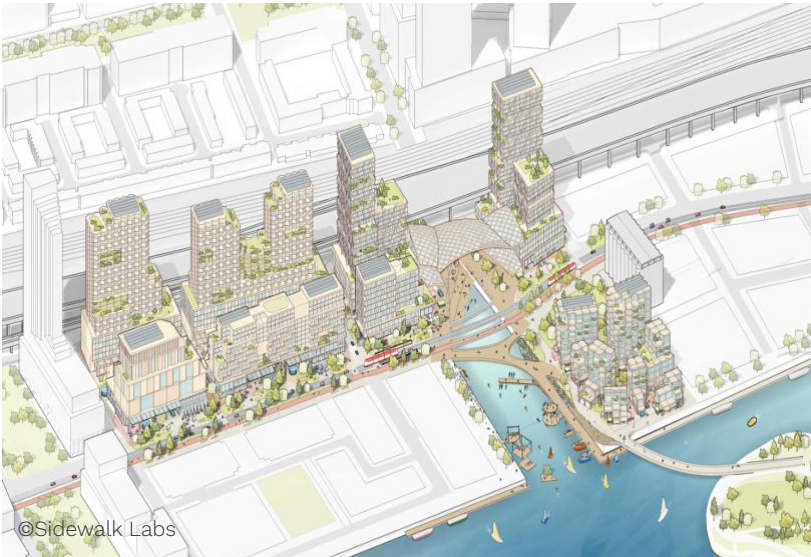
The proposal is to transform a small portion of Toronto’s eastern waterfront into an Innovative Design and Economic Acceleration (IDEA) District that can catalyse tens of thousands of jobs and help tackle the major challenges facing Toronto today.

To demonstrate the impact of urban innovations on improving quality of life, the plan is to start small and work up to larger areas as priority outcomes are achieved. Thus, the first phase of the IDEA District would be Quayside, a five-hectare neighbourhood that sits at the crucial transition point to the eastern waterfront.

Sidewalk Labs are leading this development, working with local partners, and take the risk of proving the viability of the proposed development model.

Sidewalk Labs proposes a new development approach that not only meets but exceeds Waterfront Toronto’s five priority outcomes;

- 1. Job creation and economic development
- 2. Sustainable and climate-positive development
- 3. Housing affordability
- 4. New mobility
- 5. Urban innovation.



**Kendall Square, Boston Ma.**

Kendall Square has been called “the most innovative square mile on the planet,” in reference to the high concentration of entrepreneurial start-ups and quality of innovation which have emerged in the vicinity of the square since 2010.

Kendal Square is extremely dense, with 66,000 people and more than 10,000 companies gathered on very little space. Companies include tech giants like Microsoft, Google and Facebook.

An area characterised by entrepreneurial activity centered around MIT activity, where universities and companies work closely together.

More than 30 sectors are represented here, the dominant ones are tech, life science and professional services. In the past, innovation took place mostly within individual sectors, but now organisations are actively collaborating across industry boundaries.



## Our Work in the UK

# Applying knowledge and expertise to help kickstart Innovation Districts in the UK.

HLM has a strong reputation in the Higher Education sector delivering world-class facilities for institutions across the UK from St Andrews to Exeter and a great number in between.

For several years now we have helped our clients explore the creation of a new breed of facilities where the brief is often less well defined than their typical development. These new facilities often have several stakeholders including local authorities and private investors alongside a University. The ambition is almost always the same: create places where research expertise can flourish, where new ideas and innovations can be shared and tested, where both new and established business can thrive, and a place that is flexible and adaptable to accommodate change. These new facilities aim to promote economic growth and their success is in part measured by their ability to act as catalyst for regeneration for whole districts. Not just workplaces but communities that nurture a new way of living too.

Here we explore the work in our current portfolio and the impact that these are having on communities and society.

### Technology Innovation Centre (TIC) Zone Development

Central to Strathclyde University's Innovation Strategy is the goal to escalate the impact and reach of the innovation eco-system by creating new centres of expertise. The objectives of this particular project revolve around the further development of this eco-system based on "open innovation" by delivering facilities that will catalyse an Innovation District in the centre of Glasgow anchored by the University. This will accelerate the impact of

creativity and new ideas by crystallising an exciting, co-located, community of industry, investors, and academics, and support the growth of six new clusters – Quantum, Space, 5G, Health Technology, Industrial Informatics and FinTech.

Glasgow City Innovation District is a hub for entrepreneurship, innovation, and collaboration, and is transforming the way academia, business and industry collaborate to bring competitive advantage to Scotland.

The model – which is recognised for improving productivity, creating jobs and attracting inward investment in several cities around the globe – brings together researchers and high-growth firms with technology and creative start-ups, to work side-by-side in vibrant, walkable innovation communities.





### TIC Zone, Glasgow

The TIC Zone Development comprises two new stand-alone buildings delivering a range of collaborative research facilities at the heart of Scotland's first Innovation District. At a total of 30,000 sqm these buildings will occupy a key role in cultivating and nurturing Scotland's innovation community, helping bring together researchers, academic administrators, entrepreneurs, public and private investors, and many other key stakeholders.

The University's overall objective for the TIC zone is to create a development that is climate neutral, climate resilient and socially inclusive as an exemplar of innovation and best practice. The design seeks to adopt the rigorous Passivhaus design standard in order to provide a low energy building that has a high level of occupant comfort and 'closes the gap' between predicted and actual performance in use.

The buildings are also targeting a BREEAM Outstanding and a WELL Certified Silver rating to ensure the development also has a clear focus on the health and wellbeing of its future occupants.



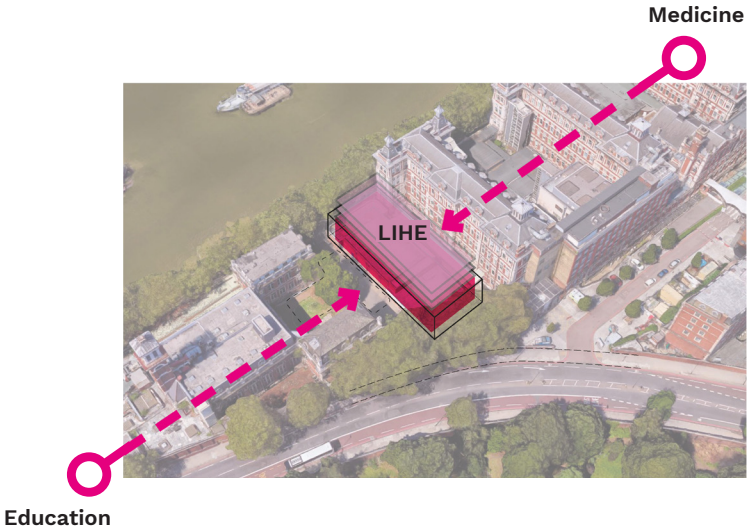
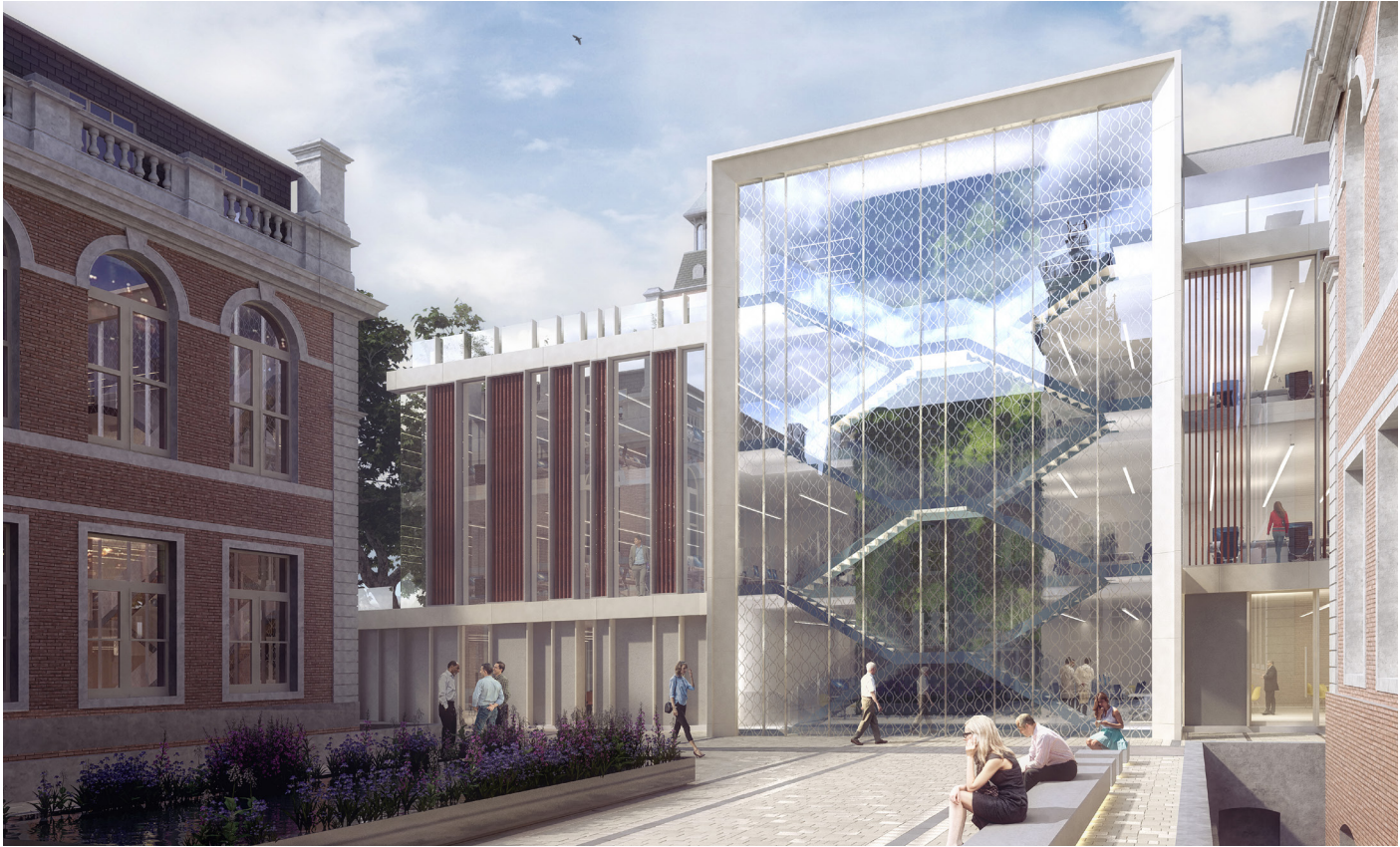


**St Thomas’ MedTech Hub, London**

The London Institute of Healthcare Engineering will create a new, multi-disciplinary research and teaching laboratory facility embedded in St Thomas’ Hospital – part of England’s leading NHS Trust for patient recruitment to clinical studies. This dedicated space will allow academics, clinicians and medtech companies including SMEs and start-ups to co-locate in a shared space.

This opportunity was generated through major co-investment of over £32m from Wellcome and industry partners including Siemens Healthineers, Medtronic, NVIDIA and IBM, as well as £15m contribution from King’s towards the construction of the new building.

The London Institute for Healthcare Engineering, part of the vision for St Thomas’ MedTech Hub, is a joint initiative led by King’s School of Biomedical Engineering & Imaging Sciences and Guy’s and St Thomas’ NHS Foundation Trust. It will involve the construction of a new building embedded within St Thomas’ campus which will bring together King’s research excellence, Guy’s and St Thomas’ NHS Foundation Trust’s leading clinical practice and the medtech sector’s commercial innovation power and talent, engaging multinationals, SMEs and start-ups simultaneously. The close collaboration will ensure that research in healthcare engineering is translated rapidly into new products and technologies that will benefit patients.



The Institute’s initial focus will be on key clinical challenges in cancer, neurological, cardiovascular, ophthalmology, oral health and prenatal conditions, which have been selected for their high disease burden and potential for transformation through healthcare engineering.

The funding received by The London Institute for Healthcare Engineering is part of the Round 6 of UK Research Partnership Investment Fund (UKRPIF), which announced major financing of 11 research and innovation projects.”



## Clyde Waterfront Innovation Campus, Glasgow

The Clyde Waterfront Innovation Campus (CWIC) aims to capture a commanding international lead in the industrialisation of Quantum Technology. The CWIC development will be transformative for Glasgow, building on the strength of the current JWNC in creating a state-of-the-art fabrication platform which integrates academic research, industrial partnerships and education and training for continued excellence in regional and UK quantum research.

Working alongside Stantec, HLM are executive architects for the new James Watt Nanofabrication Centre which will be the main focus of the CWIC programme, acting as a catalyst for further development on the campus.



The JWNC will focus on industries like nanofabrication for quantum technology and photonics, enabling the co-location of high-quality academic and translational assets with cutting-edge industrial R&D teams supported by state-of-the-art facilities. Even at an early stage major industry partners are already on board and committed to being part of this new open collaborative environment.





National Manufacturing Institute Scotland, Scotland

The National Manufacturing Institute for Scotland (NMIS) will provide support for manufacturing businesses, help to attract investment, and connect all of Scotland’s engineering universities and colleges.

The vision is for the NMIS to be an industry-led international centre of manufacturing expertise, where research, industry and the public sector work together to transform skills, productivity and innovation to attract investment and make Scotland a global leader in advanced manufacturing. This will include the establishment of a new joint Centre for Manufacturing Excellence and Skills Academy to provide businesses with access to expert services, advanced demonstrator facilities and training programmes focused on innovative manufacturing. It will also help to address anticipated demand for skills by promoting Science, Technology, Engineering and Mathematics (STEM) subjects and improving engagement between industry and education.

In essence this facility is about creating an open and collaborative environment where knowledge and creativity can be shared. It should be an exemplar project for the best of Scottish construction technology and engineering, demonstrating new technologies and methodologies.

Located at the heart of the new Advanced Manufacturing Innovation District Scotland (AMIDS), it should act as a catalyst for future development attracting world leading companies and institutions involved at the cutting edge of advanced manufacturing.



Photo credit: B&K Structures





Advanced Wellbeing Research Centre, Sheffield

Following a £14m investment from the UK’s Department of Health and Social Care and the European Regional Development Fund, the Advanced Wellbeing Research Centre (AWRC) provides state-of-the-art indoor and outdoor research laboratories for academic experts across the fields of health, engineering, robotics, software design and psychology to codesign innovations to help people move to prevent and treat chronic diseases. Delivered in partnership between Sheffield Hallam University, technology leader Toshiba Medical, leading health insurer Westfield Health, Sheffield City Council and Sheffield Teaching Hospitals NHS Trust the AWRC will take services and products from concept to market. It will use the intellectual property, products and knowledge developed in the research centre to generate wealth and employment opportunities across the city to aid regeneration.

The AWRC is a key part of Sheffield City Region’s Advanced Manufacturing Innovation District (AMID) – a 2,000-acre centre of excellence for innovation-led research and industrial collaboration. It sits alongside Sheffield Hallam’s National Centre for Food Engineering, the Orthopaedic and Rehabilitation Research and Innovation Centre and the Centre for Child Health Technology, creating interventions and solutions that have real-world application.



Through the AWRC’s close links with the adjoining National Centre of Sports and Exercise Medicine, researchers will have the unique opportunity to work with both the population of Sheffield, and elite athletes and para-athletes as part a living laboratory to explore and test the potential of new innovations and products developed.

To provide a flexible, collaborative research centre the new building includes consulting rooms, a very large motion analysis lab, CT and MRI scanning facilities, design workshops, meeting rooms and conference facilities and a knowledge transfer floor. This arrangement of spaces enables the building to flex to meet different research projects over time.



“Improving population health is one of the great challenges of our time. Through the AWRC, Sheffield Hallam is leading work that has the potential to transform the health of the nation. Co-locating research and innovation alongside education, health, leisure and business will help to contribute to economic growth and the quality of life in and beyond the region.”

Professor Chris Husbands, Vice-Chancellor of Sheffield Hallam University





### Keele Digital Innovation Centre

Businesses continue to thrive and spread opportunity for everyone in Staffordshire and Stoke-on-Trent despite cultural and societal challenges. Underpinning the principles of the New Keele Deal, this project on the Keele Science and Innovation Park will create a world-leading Digital Innovation Centre that promotes Keele University as a regional hub supporting digital business, knowledge and innovation. The whole building will be a flexible, adaptable workplace for interdisciplinary research and business as well as providing specialists facilities for robotics, workshop fabrication and computer sciences.

The building will provide a home and a showcase for the University's world-leading research into digital themes and technology, acting as a demonstrator for Smart Energy, Cities and Transport. It will promote the highest sustainability standards, utilising passive design measures to reduce energy demand and the University's own renewable energy network to create an incredibly efficient and low carbon building.

The region is host to some big-name global businesses that have provided large numbers of jobs for the area. However, just as important for job creation are the tens of thousands of micro, small and medium-sized enterprises (SMEs) which call Staffordshire home. This new, dedicated building will allow academics, researchers and industry to co-locate in a shared space which facilitates the exchange of ideas in a collaborative, interdisciplinary environment. A Digital Innovation Team will provide the skills, knowledge and technology to support internal and external partners to develop and grow their businesses and research themes.

This investment will help Keele University and its partners to realise the benefits from research and innovation, to generate significant local economic growth, improve local health and care and put our region at the heart of the UK's transition to a lower carbon economy.



## Children's Centre for Health Technology, Sheffield

Conceived as the sister project to the AWRC, the Children's Centre for Health Technology (CCHT) strives to provide a national hub facility for the bringing together of innovative ideas and technologies that will improve the health of our children.

The scheme will have at its heart a ground-floor co-creation space to facilitate user-centred design and allow designers, clinicians, children and their families to explore unmet needs, create new designs and test evolving technologies. Novel clinical spaces will bring a new approach to contact, to create the 'Paediatric Consultation of the Future'. Facilities will include 3D printing, robotics, laser cutting, oculus rift and

other technology tools to develop prototypes. Children with long term conditions will have access to novel technologies in dedicated therapy and rehabilitation space while a living lab will re-create home and hospital environments for the testing of novel technologies. Flexible office space will allow the co-location of clinicians, researchers and industry partners to focus on innovations that improve the health of children. A dedicated public engagement space will be used to provide up to date information on best practice healthcare, help change behaviour in children, families and clinicians and disseminate successes to the media.



'To create a 'world class centre', attracting academics, clinicians and commercial interest internationally, which will strengthen the already developing national networks (such as TITCH & NIHR CYP MedTech).

To design a space that encourages collaboration: an incubator for innovation and research supported by areas of clinical activity.

To create an environment which avoids typical working 'silos', but rather brings people together to interact and for ideas to spark.

To develop a brand for the Centre for Child Health Technology which will incorporate Sheffield Children's Hospital strategies, but provide a discrete identity for CCHT which will assist in the process of putting CCHT on the map'





# Summary

HLM is committed to exploring new ideas about how we live, work and play. We invest in research and development and explore international best practice. We recognize that the evolution of innovation districts presents an opportunity for us to rethink how we develop our towns and cities to create rich neighbourhoods where communities can thrive, bringing prosperity and reducing environmental impacts.

This is a future we're already helping to shape.

Let's talk about making better places.

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Keele Digital Innovation Centre

# About Us

Delivering	Employing over	Since
World-class architecture with a social purpose	190 people	1964
We operate a	Enabling us to	
One team culture	Collaborate across	
Seven Sectors	Five Disciplines	Five Studios
Asset & Workplace	Architecture	Belfast
Defence	Interior Architecture	Cardiff
Education	Landscape Architecture	Glasgow
Healthcare	Masterplanning	London
Hospitality, Leisure & Culture	Environmental Sustainability	Sheffield
Justice & Emergency Services		
Living & Communities		





Thoughtful design