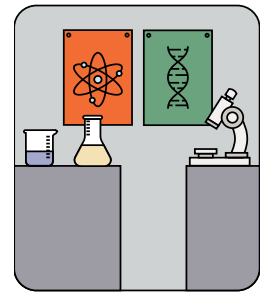


NLA Expert Panel Whitepaper:

Innovation Districts



Introduction

The three key themes we took into the year were:

- ① Need for more innovation districts
- ② Need for more impact on innovation and upskilling
- ③ Need enhanced sustainability and help tackle the climate crisis

During the year we concluded that London needs some clear plans to galvanise activity around to recover from covid, navigate difficult economic times and support its institutions, businesses and people. Innovation districts have a key role to play in building on our research and education excellence, helping to drive business productivity, and helping support people in up-skilling, reskilling and indeed in forming/growing businesses. Helping to 'Level up' London.

Work should be focussed on districts where there is scientific research and R&D, but not exclusively. We want to support those places where there is material intent and co-ordination around building innovation and enterprise. In essence you don't need a leading university in a district given that they are here at city wide level—although stakeholders leading initiatives need to think about and build plans around how you anchor universities into innovation hubs.

For the innovation districts with strong research activity, we believe that London needs to market itself holistically and as a key node of the Golden triangle, whilst at the same time highlighting its various innovation district assets and how it is a city strong in innovation.

We feel the role of innovation districts to power London and support its people is going to be an important part of the New London Agenda.

Into the future we want sustainability on laboratory development to be improved, in terms of how it is benchmarked and attended to.

Delivering impactful innovation districts

In terms of how innovation districts need to be developed with inclusivity and performance in mind, we want to see:

- ① Public Realm – Character development and improvement in the way that people in the area feel welcome and a part of the community. Density and how a place works is more important than large open spaces
- ② Live / Active Frontages. Comes with enhanced density
- ③ Culture of innovation. This requires pro-active work to think about the topic, plan with ambition and ultimately deliver curation
- ④ Amenities and Supportive Uses. Potentially difficult in districts where there are multiple ownerships reference deliverability but setting objectives may help in realising success in delivering a 24/7 economy that works well and is safe. With community involvement, at times involving choreography
- ⑤ Affordable Workspace is important and initiatives at local level now need to be built upon, with best practice advanced in an ever more co-ordinated fashion
- ⑥ Residential Accommodation. We need to think about how people working for the innovation companies and perhaps not earning too much can afford to live here. Conversion of properties and shared occupation may have contributions to make.

- ⑦ Inclusivity. Big investment mustn't undermine local residents feeling of belonging. Local Authorities as well as large property owners potentially have a role to play. We need to evolve measures around equity and equality—green book economics. We need to plan for the longer term, for inclusion and social impact.
- ⑧ SMART cities need to plan in technology, and for uses to be integrated

Papers from the panel

We have produced papers on how to deliver inclusive innovation districts, how to capitalise on London's research districts and on sustainable laboratory development. We hope that some of the outputs of these will influence the next Mayor's agenda for London—building the city's innovation capacity and capability.

Capitalising on London's Research Intensive Innovation Districts: SC1 – London's Life Sciences Innovation District, White City & King's Cross/Euston Road and beyond

Introduction

The positive social and economic impact of 'Clustering' is a well-established economic model most clearly set out by Michael Porter.¹ Since the 1990s, when it emerged as a valued model for urban growth and regeneration, the understanding of the core components that support effective clusters has increased and provided the foundations for the theory of Innovation Districts (Katz & Wagner).² The extreme examples of success in the Bay Area of California (Silicon Valley) and in Cambridge Massachusetts have then gone on to set extraordinary benchmarks for what Innovation District's at scale can deliver. Further research and analysis has then considered London and the relative capacity for sub-locations within our City to evolve into genuine Innovation Districts (Hanna).³

Importantly, Cluster theory and Innovation District theory accept a wide range of models: from deeply Urban to the rural Science Park, and with a range of catalysts and actors across the public to private spectrum. London must therefore welcome the many established, emerging and planned initiatives seeking to apply broad Cluster and Innovation District principles to urban regeneration—indeed it is key to the spirit of Innovation led growth that many experiments must be tried to improve understanding and implementation.

However, it is also clear that a specific model of Innovation District demonstrates consistently strong performance: the University Plus approach within an Embedded urban grain. It is important that University Plus models genuinely include the anchor HEI at scale, and on a multi-disciplinary basis, to create a true research intensive anchor: the serendipity engine requires significant fuel. Metrics are never simple and rarely consistent, but an ideal scheme would certainly have at least 1000 active university researchers across at least 3 major sectors or disciplines. In practical reality, that is going to demand complex and flexible research facilities well in excess of 25,000 sqm. The capacity building required to build fully scaled universities with global research reputations is simply extraordinary, requiring decades (if not centuries) of investment in rare talent and bespoke operations—these Districts then have substantial 'knowledge based' infrastructure that support a research intensive approach. It is notable that these characteristics have demonstrated success already in the UK via the Oxford and Cambridge Clusters. However, as scale and density are essential for supporting the often exponential growth of successful ventures formed from the Districts, it is perhaps not surprising that Oxbridge, with combined populations less than some single London boroughs, are suffering growing pains that place an unfortunate restriction on innovative growth.

The supporting paper from this panel from Elie Gamburg of KPF provides further insight and detail into the urbanisation of the Innovation District—noting that Cities have become the natural foundational location because they likely already have established institutions, but more crucially also have the diversity of population and greater ability to support true inclusivity. It feels important that London's emerging Innovation Districts have diversity, inclusivity and sustainability as core tenets of their purpose, and whilst not every successful District will have to be anchored by a world class university, they will need a clear purpose.

The purpose of this paper is to champion the areas of London that already have the foundational infrastructure to deliver sustainable and inclusive growth via an Innovation District University Plus model, and to support that first generation to scale with success to match a global peer group.

How do we best promote the ‘Value Add’ proposition for London’s leading research intensive districts?

Within this University Plus Innovation District Framework the rarest ‘core foundation’ is research and specialised education that is both excellent and at scale. However, London has an extraordinary number of pre-established world class research intensive Universities: Imperial College London, King’s College London, and University College London all stand out as consistent members of the global top 50⁴—and the three universities not only have significant STEM activity base but are also structurally connected with the NHS via the Academic Health Science Centres.

Historically these institutions have experienced limited growth in their own local geography, often restricted in capacity as London has developed around them. However, the last decade has seen both a significant increase in the growth rate of the Universities, and internationalisation of their activity, and a willingness to extend their geographical sphere of influence to support the co-location that enable Innovation Districts to emerge. This has established 3 schemes that have converged towards a University Plus model and benefited from, or shifted towards, an ‘Embedded’ urban grain: The Knowledge Quarter in Kings Cross (A ‘radical mixed use’ development that has evolved towards a University Plus status); White City Innovation District in West London (A deliberate University Plus model that is evolving towards a more ‘Embedded’ urban grain) and SC1—London’s Life Sciences Innovation District in South Central London (Another deliberate University Plus model with strong focus on NHS nodes of activity and public/private partnerships to foster commercialization).

Often, these locations are deemed as having met the threshold of successful Innovation Districts. However, in reality they all continue to need significant ongoing activation and intervention to achieve the quality and scale of Physical, Network and Economic Assets necessary for them to compare with the global competition. It is therefore strongly advised that London actively and aggressively promotes these developments as the best in class innovation districts for the clustering of innovative growth.

London must also promote the next generation of locations that can follow their path, building on areas of research intensive excellence. At the same time help establish other legitimate Innovation District models with less reliance on a ‘knowledge intensive anchor. It is clear from the NLA Network there is a pipeline of potential urban regeneration schemes keen to utilise the power of Innovation District theory to support growth. Examples include Whitechapel (anchored by Queen Mary, University of London and the NHS), Sutton (anchored by Institute for Cancer Research and the NHS), Paddington (anchored by Imperial College and the NHS), Queen Elizabeth Park (anchored by UCL and Loughborough University), Canada Water and Brent Cross Town (anchored by Sheffield Hallam University). And for those building on education and upskilling, potentially involving a range of universities, we have Republic at East India Dock, for example, and Waltham Forest’s initiative at Walthamstow.

How geographically tight knit is the UK’s Golden Triangle?

It is worth expanding further on the national context. Firstly, Oxford and Cambridge are rightly identified as exceptional existing University Plus Districts with an Embedded urban realm. In the ‘Silicon Valley’ approach to cluster definitions they would be included within a single District, with London—taking the already peerless count of global top 50 research intensive Universities from 3 to 5. It is important therefore that London collaborates with Oxford and Cambridge to support their growth and the growth of the ventures that emerge from their ecosystems. Furthermore, London will need to demonstrate its continued role as the flywheel for the wider UK economy. If London succeeds in supporting at least 3 global scale Innovation Districts into maturity, the halo effect needs to expand with the transport infrastructure into the West, the Midlands and the North.

What we want from the Mayor’s office into the future

Planning support – permitting and enabling functional density.

Infrastructure support – ensuring established and emerging locations benefit from transport and social infrastructure investment: including places to live and play as well as work.

National and Global promotion – placing these locations at the centre of the City’s promotional activities and drawing on these communities to demonstrate the impact of Innovation as a counterbalance to the historic dominance of financial services.

This paper was written by **John Anderson, Investment Director, Imperial College London.**
Co-author, **Jonathan Burroughs, Partner, Creative Places.**

Advancing Inclusive Innovation: A Planning Primer

Introduction

Cities are generators of 'innovation' as measured through a variety of metrics including idea generation, company formation, and research citations, as has been extensively documented by researchers such as Saskia Sassen, Richard Florida, and Ricky Burdett. Cities bring people together to exchange ideas, leading to new ways of thinking that can be termed truly innovative. Ensuring that cities like London can continue to provide places to collaborate and create, even as space has become more expensive and constrained, is key to catalysing innovation.

The purpose of this essay is to establish the ways in which planning policy and urban design can enable the growth of truly diverse and inclusive 'Innovation Districts' that are engaged with their broader communities and contexts.

How do you catalyse innovation?

Before positing the ways in which 'Innovation Districts' can be catalysed, it is useful to step back and define what 'Innovation' is and then assess the ways in which these types of districts can foster it.

For the purposes of this study, by 'innovation' we mean the creation of new ideas in such disciplines as science, technology, art, media and business that are divergent from previous avenues of research and work, and which facilitate new ways of thinking within, or across, these disciplines. For example, the steady improvements on a CD player demonstrate an evolution, the creation of the smart phone is an innovation.

Innovation can occur in many ways, but a common ingredient is the presence of different types of people working together and applying divergent ways of thinking to a particular problem—developing ideas or solutions beyond the scope of an individual person or single discipline. The diverse inputs of those with different expertise, experiences and points of view creates new ideas.

If a key ingredient for innovation is the presence of a diverse population, then the role of a neighbourhood designed to create innovation is to provide places for different kinds of people to work, socialise and collaborate. Mathematicians with musicians, businesses and artists, biologists and bakers, etc. Diversity can be by profession, experience, education and outlook as well as age, culture, gender, and class. The more that people from very different walks of life find meaningful ways to interact, the more possibility there is of finding new perspectives and fostering new ways of thinking. Understanding this transforms inclusivity from a 'community benefit' to a critical ingredient of what makes innovation districts work: inclusivity is not a 'nice-to-have' but a necessity.

An institution can be an innovation district 'anchor,' bringing people together to study, teach, or research. It can provide workspaces, opportunities for collaboration, and curated events that set up chance encounters which may result in creative collaboration. Unsurprisingly, academia-anchored innovation districts are one of the most common types. However, the presence of an institution is itself not sufficient to ensure innovation will happen.

An institution may produce cutting-edge research and new cultural ideas, but without adjacent spaces where these ideas can grow into successful firms, without housing, and without spaces for people to get together off campus, a true innovation district cannot emerge. It is important that neighbourhoods build on an institution to provide the necessary conditions for innovation: ① workspaces where creative ventures can emerge and flourish (lab space, maker space, cheap office space, art studios, incubator spaces, and larger format commercial space where firms can scale up); ② social spaces (nightlife, cafes/restaurants, event spaces, parks, cultural and professional institutions); and ③ housing in close proximity, across a range of housing types and affordability.

Palo Alto (adjacent to Stanford University in California) and Kendall Square (adjacent to MIT, in Massachusetts) are examples of institution-led innovation districts, where the catalyst of an academic anchor with the growth medium of a neighbourhood provided affordability, community, research/workspace and lifestyle benefits. At one time these neighbourhoods provided cheap office/maker space, a diversity of small-town social spaces, and proximity to areas of cheap housing—before becoming victims of their own success as planning no longer kept up with need.

It is possible to create self-igniting innovation districts, without institutional anchors, if the right mix of firms, people and culture can be brought together. Seaport Square in Boston is a contemporary example of such a district.



Seaport Square Innovation District, Boston, designed by KPF for Boston Global Investors © Neoscape

In a sense, the evolution of neighbourhoods like Shoreditch and Clerkenwell through the 1970s, 80s and 90s is evidence of a similar arc, where the combination of cheap housing, affordable (and flexible) office and workshop space, and an active social and cultural scene attracted a diverse population, enabling creativity and new ventures.

Today, such neighbourhoods are scarce, and those that exist often become over-full (like Palo Alto)—and the need to catalyse innovation to solve pressing global problems and help foster broad-based and inclusive economic growth has never been more pressing.

Policy Recommendations

Planners can facilitate the emergence of innovation districts. Design and policy can positively influence areas that support institutional anchors (such as SC1 or White City) or are emerging on their own (Canary Wharf).

These districts can create ‘innovation ecosystems’ where diverse firms and organisations (across typology, area of focus and scale) co-exist and collaborate, supported by necessary amenities, energised by an active social scene and with appropriate housing provision.



One North Quay, Canary Wharf, designed by KPF for Canary Wharf and Kadans Science Partners ©Kiasm for KPF

Specific recommendations include:

① Social Space: Encourage Diversity

The goal is to create an environment where a wide range of people want to meet, socialize, and engage. This provides the incentive to return to a place, and to meaningfully engage with other people.

Public Realm Improvements

Create impromptu social spaces within neighbourhoods that are to be used for casual meetings and larger social events. A desirable public realm accommodates a broad range of people and

facilitates serendipitous encounters. Public realm improvements are key to engaging existing communities and integrating emerging innovation districts. Planning can incentivise public realm improvements through enhanced density in return for new public spaces but can also ensure these public spaces are activated through cultural, retail, and academic activity.

Live + Active Frontages

Incentivise active frontages at ground levels to energise public space and create social draws to the neighbourhood. These include retail, restaurants, bars and clubs as well as markets and other kinds of experiential and cultural retail such as galleries, studios, and bookstores. This liveliness makes a neighbourhood desirable and fun and safe for women and people of diverse cultural backgrounds. Cultural events, social gatherings, and fun nights out are the benefits of city living and critical to attracting and retaining the diverse talent required for innovation. Planning can encourage active ground floor uses, a diversity of use classes within the lower levels of buildings and allow appropriately curated retail/publicly active uses on ground levels to count towards affordable workspace.

② Workplace: Provide the Diversity of Space Types Required for Innovation



Vinegar Yard, London Bridge.
Designed by KPF for CIT
© Plomp

Accommodating Varied Building Typologies

The needs of life-science, technology, media and commercial businesses are varied. Policy should encourage the creation of long-life, loose-fit buildings that provide a range of spaces in terms of size, floor-to-floor height, and configuration. 'Shrink-wrapping' buildings to fit their initial use limits the ability for them to be adapted at a later date—making reuse impractical and prompting demolition and replacement, which impacts whole-life carbon. Many historic industrial buildings have the flexibility to be re-used and survive multiple lifecycles across different uses. Flexibility to accommodate specific needs, such as roof-top plant, special access and loading, are key to enabling a diverse ecosystem of supportive uses, encouraging innovation. A variety of building sizes, and flexibility within the buildings themselves, are key to enabling firms to scale-up. Planning policy can encourage this by avoiding downward pressure on typical floor-to-floor heights (acknowledging the benefits of more general heights towards long-term flexibility and environmental quality) and encouraging site agglomeration, where appropriate, to enable more integrally conceived of projects spanning multiple properties. It is also important to embrace meanwhile uses and acknowledge that needs and uses will evolve over time—and the ability for neighbourhoods to respond flexibly is key to their long-term health and resiliency.

Affordable Workspace

Affordable workspace at multiple scales is important to provide the opportunity to start ventures, scale them up and grow them out. This includes traditional affordable workspace, managed 'incubator' spaces that support new firms, and commercial co-location space where smaller firms can benefit from proximity and shared resources with larger firms or academic institutions. Affordable space also includes the ability to provide enough lab, office, and workshop space that even with commercial rents enable innovative companies to stay. This includes light

industrial space for research, making and fabrication in addition to more traditional commercial space. Organizations need space to take root, grow and stay in close connection. Planning can encourage this through enabling a graduated range of rents/affordability to qualify for affordable workplace policy and by speeding provision of supply.

③ **Amenity: Supporting Innovation and Ideas Exchange**

Build a multi-sector, but focused, set of organizations that are mutually catalysing and reinforcing while providing them with the critical amenities they need to survive and the support they need to thrive—amenities that are specific to commercial uses but also those that are helpful in the support of everyday life, such as childcare.

Sectorial Activity + Diversity

The ability to accommodate diversity across different sectors and facilitate interdisciplinary exchange is important to enabling innovation. New advances often come at the intersection of disciplines: hardware and software, technology and media, biology and engineering, business, and design. Districts work best when groups across a variety of stages and disciplines emerge and collaborate across areas of expertise. Geographic proximity of spaces of diverse types and scales (life-science next to office, large office next to smaller workspace, making near designing) is important, as is the creation of programmatic 'mixing chambers' that encourage different organizations to interact and collaborate. Planning can encourage this by encouraging a mix of use classes in close proximity as well as a diversity of building types and sizes.

Amenities + Supporting Uses

Amenities that support specific sectors and populations are important to catalysing innovation. For example, centralized lab support spaces such as lab supply, cGMP space, or vivariums would be difficult for any but the largest organizations to afford, but could be provided by institutions, developers, or governments for shared use across tenancies. Examples exist across other disciplines, such as shared maker-spaces for designers and artists. Sector-specific amenities also include space for business-led or cultural organizations that encourage people from across a sector to get together (such as hackathon events, life-science conferences, art festivals). Shared amenities include conferencing, co-working, or other kinds of professional or social amenity spaces that support organizations while also encouraging interaction across disciplines. These are most successful when they are accessible to local communities, broadening their reach, impact, and sense of excitement. Planning can encourage individual developers, groups of aligned development teams or even governance organization like SC1 to provide these needed amenities. Lifestyle amenities like childcare, playgrounds, gyms, and social clubs are also key to enhancing the desirability of neighbourhoods, especially at a time when staying home is always an option.

④ **People: Encouraging Diversity and Engagement**

Accommodating and engaging with a diverse community is critical to the long-term success of innovation districts. Innovation districts cannot succeed if the people critical to their success cannot afford to live nearby or if they feel that these neighbourhoods are not accessible or relevant to them.

Providing Varied Accommodation for Diverse Populations

People create innovation, so it is important that innovation districts enable them to live and thrive in close proximity to one another. Since diversity drives innovation, it is also key to accommodate a broad mix of people. This goes beyond traditional 'affordable housing' to include accommodation for people across all life stages, from students and young professionals, to growing families and business leaders. Encouraging housing diversity and cross-subsidizing housing costs to reduce reliance on councils or on high-cost housing to subsidize lower-cost affordable housing is important to ensuring a wide range of people can be accommodated. Planning can support housing policy to encourage a maximalist approach to housing as a critical ingredient to feeding innovation. In considering housing, it is important to make sure that residences and their associated amenities are as publicly integrated into the community as any other program so that gardens, playgrounds, community rooms, etc are as much for the benefit of the broader public as for specific residents.

Consultation and Engagement

Innovation districts can only succeed in attracting the people critical to their success if they appear open, inviting, inclusive and relevant to their current and future communities. Early engagement with local communities is critical and works best when done in advance of specific planning actions. Creating consensus is required to support large interventions that will catalyse innovation. Engagement is most effective when it is ongoing. Innovation districts are not static assemblages, but living communities with constituencies whose identities and needs evolve. Creating spaces and providing soft programming to enable engagement are both important. Good university anchors do this through student and faculty engagement, but even they must engage 'beyond their walls' for greatest impact. A critical part of this includes elements that 'put the science' and other such programs on display—building up support within communities and inspiring the next generation.

Conclusion

Planning policy truly can help catalyse innovation districts by creating neighbourhoods that enable a wide variety of people to work, collaborate and live together. They can be made more effective through the creation of specific spaces that are critical to their success and the provision of amenity and support for the organisations they house. Ultimately, it is the ability of cities to bring together diverse populations which is the greatest strength of urban locations for innovation.

Further Reading

<https://www.ukinnovationdistricts.co.uk/news-items/opening-the-innovation-economy-the-case-for-inclusive-innovation-in-the-uk>



*Downtown West, San Jose,
KPF are district architects
for Google © Google*

NLA Innovation Districts Panel: Science Buildings & Sustainability

Introduction

Over the last decade as the science and research sector has continued to expand its prominence in the UK market, our industry has grappled with how to approach design with respect to the imperative of ESG. Indeed, this very challenge propelled our Expert Panel to focus on Inclusive Design in October 22.

Whilst some in the industry will be expecting a binary set of carbon targets as exists for other sectors, it is our view that this approach would not be appropriate for a discipline which is defined by the breadth and constantly evolving nature of science.

This paper aims to highlight the need for greater understanding and guidance regarding this imperative. Our aim is ultimately to provide a high-level framework of how to approach this complex subject by challenging industry norms, examining alternative approaches and proposing ideas around creation of a sustainable future of urban science for the UK.

How can we balance future resilience with upfront Carbon?

Like any project, a building for research or R&D needs a design brief, and it is here where the challenge often begins. Traditionally life science buildings were defined by a research or academic institution, or an established private company ("big Pharma" for example) with a well-defined and detailed brief. However, as the UK's Innovation Districts continue to evolve, places and buildings will be used by multiple tenants, within varying science sub-disciplines and across different scales, such that brief definition is complex and needs experienced designers to help shape.

This is further compounded by the concept of future resilience which historically has been an accepted imperative for research & development projects and would set the tone for the arguably conservative specification we still see today. The issue is one of the unknown. Who can predict the future of science and thus the likely needs of a laboratory over a 60-year life span or more.

Historically, the solution to this question was of course to increase specification to a level that provided a worst-case blanket response, capable of accommodating these unknown changes. However, this was never defined with the rigor that would be expected of engineers and designers, and instead an "industry standard" evolved, which is arguably overly conservative for most functions in a given life science development. Designing buildings to last is indeed imperative, but this resilience must be balanced with also limiting upfront carbon.

One opportunity here is to adopt a design hierarchy whereby a resilient "back bone" is constructed on day one, which can be added to in the years to come as may be required. This strategy limits the up-front carbon to that only necessary to enable future change, whilst providing a future proofed chassis. This can then be linked to a System Build approach, whereby a primary chassis becomes a prefabricated and repeated system—possible only with the collaboration of supply chain early in the process and thus a change in mindset in real estate procurement.

Our relationship with end users is also key here, as we rely too much on passive anecdotal evidence or specific end user needs at the time, as opposed to data from test-fit models or working floors. This will enable designers to understand the actual requirements of the market and fundamentally improve the carbon attributes of design.

There is evidence that clients and designers alike are beginning to focus on performance-based approaches, which use data to construct statistical scenarios which can inform a specification and brief. But although there are pockets of collectives pushing this agenda, our industry is not collecting nearly enough data to achieve a mature machine learning capability. Perhaps initiatives could be defined to push this agenda?

Can adaptive re-use of existing buildings play a part in Innovation Districts?

When looking through the lens of sustainable development, working with existing buildings if at all possible is, of course, a crucial first step, and the many voices of the 'retro-first' campaign remind us that demolition should be a last resort. However, this is a complex debate with the 'fit for purpose' argument defining a counter position.

In terms of Innovation Districts, this is particularly crucial, given the complexity of specification and need for resilience as explained above. The different disciplines of science often require

a geometry, structural frame, service distribution or logistical requirement that results in reinvention opportunities being dismissed, in lieu of a new resilient building as described above. However, as specification requirements reduce there is no reason why existing buildings with the 'right bones' can not be re-purposed into life science developments, and there are certain developers proving this to be the case.

Another important aspect that we are witnessing is that the clustering of buildings in evolving Innovation Districts is presenting a further opportunity. Within a defined campus, different buildings can provide varying functions thus creating the required resilience and breadth of specification in an eco-system as opposed to stand alone buildings. Thus, a balance can be sought between reinvention and new by careful planning and sharing within a cluster.

Detailed studies on complex refurbishment projects are beginning to shed light on the significant amount of carbon often needed to strengthen historic frames as well as the magnitude of temporary works. Whilst complex cut and carve developments attempt to predict carbon rates, it is often not until frames are stripped back to expose the nature and condition of the historic structure that the degree of engineering invention is realised. It is again here, where data collection across the industry is crucial to continue this learning, informing more data-driven decisions.

Ultimately the option of reclassifying an existing building as a laboratory and appropriately up-specifying the fabric should be evaluated. This can be done through a simple classification process where key variables are scored against a range of specification targets. Depending on the type of science, some variables may be binary whilst others will inevitably be more difficult to conclude, and varying degrees of compromise will be necessary.

Can stakeholders in Innovation Districts look more constructively at district wide heating and cooling?

There is opportunity across an area of real estate that extends beyond just one building to look at how energy may best be utilised. The Amsterdam Institute for Advanced Metropolitan Solutions has been working on projects to look at how users in an area may be able to make choices about energy exchange or storage based on economic motivation, sustainability or to support the energy grid. Energy generated in such places might be stored locally. Technology can be used to create 'digital twin' representation of what is happening and can explore better ways of managing energy. District energy platforms may well become more common place but are a challenge to create. Where better to start to build such opportunities than innovation districts?

What we want from the Mayor's office into the future

Support and understanding of the complexities of Sustainable design in the Life Science sector, helping with the adoption of new standards for sustainability on laboratories. London needs design direction in its framework for construction under the Climate Emergency Banner. It has had LETI references in 2018 but this doesn't cover laboratories and new standards evolving through the RICS and RIBA should enable a step change—both referencing embodied carbon and carbon in use.

Therefore, the Mayor's office should:

- Confirm it will adopt industry EUI for specific lab building classes when available from industry bodies
- Seek a requirement for on-site energy storage for all high intensity scientific environments to create a distributed resilient storage capacity within the capital
- Seek a requirement for planning narrative on flexible and non-flexible building zones to demonstrate future adaptability
- Commission an update to the 2014 Sustainable Design and Construction SPG to allow specific research and recommendations in regard to Science and Technology building (currently this document does not mention science buildings)

If the Mayor's office wants further guidance on this, once the new standards are published, the NLA has professionals on this panel able to contribute to interpretation and comment.

This paper was written in May 2023 by **Rob Partridge, Design Director, AKT II, Jonathan Burroughs, Partner, Creative Places**

About the Innovation Districts Expert Panel

London and the Golden Triangle contains the strongest biosciences cluster in Europe studying genomics, digital health, artificial intelligence in healthcare, and neuroscience; the greatest concentration of top universities in the world; as well as clusters of global tech companies. This panel will develop findings from NLA's recent Knowledge Networks report, to focus on the design and delivery of spaces for the science, tech and innovation sectors to support the burgeoning knowledge economy, and the clustering of businesses across the region to foster innovation.

Chair: *Jonathan Burroughs, Creative Places*

John Anderson, Imperial College London

Peter Baird, Perkins&Will

David Burns, LB Camden

Alla Elmahadi, Buckley Gray Yeoman

Matt Flood, Related Argent

Emma Frost, LLDC

Elie Gamburg, Kohn Peterson Fox Associates

Kat Hanna, Avison Young

Faaiza Lalji, Precis Advisory

Jonathan Martin, LB Waltham Forest

James Morgan, Heyne Tillett Steel

Maja Nesdale, IBI Group

Rob Partridge, AKT II

David Reay, Stanhope

Georgina Rizik, SC1

Emily Slupek, Bidwells

Rupert Corbett, Buro Four

Endnotes

- 1 <https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition>
- 2 <https://www.brookings.edu/essay/rise-of-innovation-districts/>
- 3 <https://www.centreforlondon.org/publication/innovation-districts/>
- 4 <https://www.timeshighereducation.com/world-university-rankings/2023/world-ranking>