



INNOVATION &
RESEARCH
CAUCUS

GLOBAL INSIGHTS INTO INNOVATION DISTRICT DEVELOPMENT

A comparative study of local to national
collaboration and co-design

IRC Report No. 051

REPORT PREPARED BY

Hamisu Salihu
Warwick Business School

Stephen Roper
Warwick Business School



Delivered with
ESRC and
Innovate UK

CONTENTS

Executive Summary	4
Section 1: Introduction	8
1.1 Aims and objectives	8
1.2 Understanding Innovation Districts	9
1.3 Defining Innovation Districts	10
1.4 Case-study overview	11
Section 2: Case Studies	15
2.1 Lund Innovation District, Lund (Sweden)	15
2.1.1 Governance & Co-design	16
2.1.2 Distribution of Roles and Responsibilities.....	17
2.1.3 Programme Design & Delivery.....	17
2.1.4 Outcomes & Impact.....	17
2.1.5 Enabling Conditions & Challenges.....	18
2.2 Oslo Science City, Oslo (Norway)	19
2.2.1 Governance & Co-design.....	21
2.2.2 Programme Design and Delivery	22
2.2.3 Outcomes and Impact	23
2.2.4 Enabling Conditions and Challenges.....	23
2.3 Pittsburgh Innovation District (PID), Pennsylvania (USA)	24
2.3.1 Governance & Co-design	24
2.3.2 Outcomes and Impact	26
2.3.3 Enabling Conditions & Challenges.....	26
2.4 Be'er Sheva Innovation District (BSID), Be'er Sheva (Israel)	28
2.4.1 Distribution of Roles and Responsibilities.....	29
2.4.2 Programme Design and Delivery	29
2.4.3 Outcomes and Impact	30
2.5 Melbourne Innovation Districts (City North), Victoria (Australia)	30
2.5.1 Distribution of Roles and Responsibilities.....	31
2.5.2 Enabling Conditions and Challenges.....	32
2.5.3 Common Challenges and Barriers.....	33
2.6 One-north and Singapore Science Park	33
2.6.1 Governance & Co-Design	34
2.6.2 Outcomes/Impact, Enabling Conditions and Challenges.....	35
Section 3: Summary and Implications	38
3.1 Case summary	38
3.2 Guidelines for developing innovation districts	44
References	46

Authors

The core members of the research team for this project were as follows:

- » Dr Hamisu Salihu (PI) – Warwick Business School
- » Professor Stephen Roper – Warwick Business School

This document relates to IRC Project IRCP0049: Innovation Districts

Acknowledgements

This work was supported by Economic and Social Research Council (ESRC) grant ES/X010759/1 to the Innovation and Research Caucus (IRC) and was commissioned by Innovate UK (IUK). We are very grateful to the project sponsors at UK Research and Innovation (UKRI) for their input into this research. The interpretations and opinions within this report are those of the authors and may not reflect the policy positions of IUK.

We would also like to acknowledge and appreciate the efforts of the IRC Project Administration Team involved in proofreading and formatting, for their meticulous attention to detail and support.

About the Innovation and Research Caucus

The Innovation and Research Caucus supports the use of robust evidence and insights in UKRI's strategies and investments, as well as undertaking a co-produced programme of research. Our members are leading academics from across the social sciences, other disciplines and sectors, who are engaged in different aspects of innovation and research systems. We connect academic experts, UKRI, IUK and the ESRC, by providing research insights to inform policy and practice. Professor Tim Vorley and Professor Stephen Roper are Co-Directors. The IRC is funded by UKRI via the ESRC and IUK, grant number ES/X010759/1. The support of the funders is acknowledged. The views expressed in this piece are those of the authors and do not necessarily represent those of the funders.

Contact

You are also welcome to email us if you have any questions about this report or the work of the IRC generally: info@ircaucus.ac.uk

Cite as: Salihu, H and Roper, S (2026). 'Global Insights into Innovation District Development'. Oxford, UK: Innovation and Research Caucus.

Executive Summary

With increasing devolution in the UK, place-based R&D and innovation policy has risen to the top of the UK policy agenda. In this report, we consider the lessons for place-based innovation policy from a series of international Innovation Districts spanning the USA (Pittsburgh), Europe (Oslo, Lund), Australia (Melbourne), the Middle East (Be'er Sheva) and the Far East (Singapore).

Innovation Districts represent a specific type of place-based innovation policy. They generally cover a limited geographic area, are anchored in well-established R&D capabilities, and are often shaped by urban planning and independent governance structures. As policy-driven initiatives, Innovation Districts differ from innovation clusters, which usually form through the accumulation of agglomeration effects. They are also different from other forms of place-based innovation policy, such as regional R&D consortia (e.g., Strength in Places) or geographically dispersed support for local innovation activities (e.g., the Innovate UK Innovation Accelerators).

Due to these differences, lessons from the development of Innovation Districts may not be directly applicable to all types of place-based innovation policies.

Governance and Policy Co-Design

Across the six Industrial Districts, governance models demonstrate a shared commitment to multi-stakeholder collaboration but differ in structure and focus. Each Innovation District engages in collaborative governance involving public authorities, anchor institutions, and private actors. Co-design is central, allowing stakeholders to jointly develop local strategies. For example, Lund's steering group (municipality, university, ESS) uses intermediaries such as Future by Lund to broker partnerships, while Oslo Science City's membership organisation coordinates diverse actors under a common vision.

Each case relies heavily on anchor institutions – the universities and research centres (e.g., CMU and Pitt in Pittsburgh; Ben-Gurion University in Be'er Sheva). Policy alignment with national or regional priorities is another common enabler, evident in Oslo's integration with Norway's climate strategy and Singapore's strong centralised planning.

Programme Design and Delivery

All six Innovation Districts implement co-designed, place-based strategies that leverage local strengths, incorporating flexibility and iterative development. For example, Lund Innovation District employs rolling innovation portfolios and structured dialogues to co-create projects that

respond to regional needs. Similarly, Oslo Science City integrates spatial design, its “continuous loop” of multifunctional spaces, to encourage interaction and foster knowledge spillovers.

Programme design varies in centralisation and thematic focus. One-North follows a highly centralised, master-planned approach led by JTC Corporation, with precincts dedicated to specific types of activity (Biopolis, Fusionopolis). In contrast, Pittsburgh and Melbourne emphasise bottom-up, networked models, prioritising social innovation and equity alongside economic growth. Be’er Sheva aligns programme delivery with national security and regional development goals, concentrating on cyber, DeserTech, and digital health. This is distinct from Oslo’s themes of sustainability and democracy.

Outcomes and Impact

Limited robust quantitative evidence exists on the outcomes and impacts of industrial districts. Instead, published sources tend to offer a narrative focused on systemic and input impacts, such as the number of businesses created or located within the district.

Each of the districts claims to have achieved economic growth, talent attraction, and enhanced innovation capacity. Perceptions of ‘success’ also vary between districts. Singapore’s one-north emphasises global competitiveness, hosting 400 firms, 16 research institutes, and 800 start-ups, and contributing to Singapore’s top-tier innovation rankings. In contrast, Be’er Sheva defines success through regional transformation, relocating investment and talent to the Negev and establishing a cybersecurity hub linked to national defence assets. Oslo and Lund highlight cultural and creative industries as drivers for cross-sector transformation.

Enabling Conditions and Challenges

Commonalities emerge across the Districts in terms of the enablers and challenges to success. Shared enablers are:

- » **Strong Policy Alignment** - Each case is anchored in national or regional strategies. For example, **Oslo Science City** aligns with Norway’s climate and urban development goals, while **Be’er Sheva** is embedded in Israel’s national decentralisation and security strategy.
- » **Anchor Institutions and Institutional Density** - Universities and research centres act as innovation engines. **Lund University** and **Carnegie Mellon University** exemplify this by driving talent and research excellence.

- » **Dedicated Coordinating Bodies** - Neutral intermediaries facilitate collaboration. **Future by Lund** in Sweden and **InnovatePGH** in Pittsburgh serve as system orchestrators, managing complex multi-actor processes.
- » **Trust and Collaborative Culture** - High institutional trust, as seen in Norway, and long-standing traditions of cooperation in Sweden and Australia, enable effective co-design.
- » **Infrastructure and Connectivity** - Physical proximity and transport links are critical. Singapore's **one-north** benefits from master-planned infrastructure and global connectivity, while Melbourne leverages the Metro Tunnel project to enhance accessibility.

Guidelines for local action in developing industrial districts

Commonalities among our six case studies suggest guidelines for local actions which can support developing Innovation Districts. These local actions need to be seen in the context of broader enabling conditions for success which might include policy alignment between local and national strategies and infrastructure investment.

- » **Guideline 1: Ensure governance reflects co-design and multi-stakeholder engagement** - Successful districts rely on collaborative governance rather than top-down control. Neutral coordinating bodies (e.g., Future by Lund, InnovatePGH, Oslo Science City Association) act as system intermediaries, enabling trust and alignment among diverse actors. Within the governance structure defining clear roles across local government, universities, anchor institutions, and business is critical for accountability and agility.
- » **Guideline 2: Ensure deep engagement with strategic anchors** – Deep engagement with universities, research labs, and industry hubs fosters knowledge spillovers and provides gateways to wider knowledge networks. Anchor institutions (e.g., CMU & Pitt in Pittsburgh, BGU in Be'er Sheva) provide sustainable talent pipelines and credibility.
- » **Guideline 3: Promote funding diversity** - All our Innovation District case studies combine public investment, research grants, and private sector contributions. Engaging with national or regional policy frameworks (e.g., Vinnova in Sweden, Israel's PM Office) provides stability. However, philanthropic and corporate partnerships (Pittsburgh) add resilience and flexibility.
- » **Guideline 4: Build flexible programme design** – Flexible programme design drives sustainability, while rolling portfolios and open innovation practices allow districts to pivot as priorities evolve. Models such as testbeds and living labs (e.g., Melbourne's CNSIP, Oslo's green mobility pilots) can accelerate experimentation.

- » **Guideline 5: Expect outcomes to Extend Beyond Economic Growth** - Innovation Districts deliver societal benefits: tackling climate change, health challenges, and social inclusion. Embedding equity and inclusive growth principles (Pittsburgh, Be'er Sheva) can ensure benefits reach local communities. Cultural and creative sectors (Lund) can act as cross-sector drivers of innovation and growth.
- » **Guideline 6: Balance short-term deliverables with long-term vision** – Our case studies illustrate that innovation, economic and social benefits develop over different timelines. Balance expectations relating to shorter-term impacts and longer-term (and perhaps more uncertain) outcomes. Set realistic evaluation and monitoring timelines.

Section 1: Introduction

1.1 Aims and objectives

With increasing devolution in the UK, place-based R&D and innovation policy has risen to the top of the UK policy agenda, leading to policy initiatives such as the Innovation Accelerators, Launchpads, and Strength in Places scheme. Globally, too, the potential power of innovation to drive local growth and prosperity has also been acknowledged through an increasing interest in Innovation Districts.

In this report, we consider the lessons for place-based innovation policy from a series of international Innovation Districts spanning the USA, Europe, Australia, and the Far East. Our focus is on what has shaped the success of each of these Innovation Districts. This includes the intersection of local and national policy initiatives, collaboration between innovation actors, and the interplay of fiscal support and physical planning. We focus on four key themes:

- » **Governance & co-design** - What governance models are used to facilitate co-design between national and local governments in international Innovation District development programmes? How are roles and responsibilities distributed between national and local stakeholders in the design and delivery of these programmes? What mechanisms are in place to enable locally empowered decision-making?
- » **Programme design & delivery** - How are international programmes designed to support place-based innovation? What approaches are used to co-develop regional innovation strategies or plans? How is flexibility built into programme design to accommodate local priorities and contexts?
- » **Outcomes & impact** - What evidence exists on the effectiveness of co-designed approaches in accelerating innovation-led growth? How do international programmes measure the success of co-design in terms of economic, social, or innovation outcomes?
- » **Enabling Conditions & Challenges** - What enabling conditions (e.g. policy frameworks, funding models, institutional capacity) support successful co-design? What common challenges or barriers have international programmes faced in implementing co-designed approaches? How have programmes adapted their co-design processes over time in response to local or national needs?

Each of our case studies are based on a desk-based review of web-based, media and academic literature. Section 2 reports the case studies in detail. In the remainder of this Section, we provide a brief overview of recent research on Innovation Districts (Section 1.2) and a brief overview of the six case studies (Section 1.3).

It is important to acknowledge, however, that Innovation Districts represent a specific type of place-based innovation policy. They generally cover a limited geographic area, are anchored in well-established R&D capabilities, and are often shaped by urban planning and independent governance structures. As policy-driven initiatives, Innovation Districts differ from innovation clusters, which usually form through the accumulation of agglomeration effects. They are also different from other forms of place-based innovation policy, such as regional R&D consortia (e.g., Strength in Places) or geographically dispersed support for local innovation activities (e.g., the Innovate UK Innovation Accelerators).

Due to these differences, lessons from the development of Innovation Districts may not be directly applicable to all types of place-based innovation policies.

1.2 Understanding Innovation Districts

Despite increases in global connectivity, knowledge and information still retain a specific physical geography. Some nations, regions, and local areas remain more 'knowledge-rich' than others, which can significantly influence firms' location choices and their ability to develop innovations. In some ways, therefore, knowledge is intrinsically 'local', meaning it has spatial specificity that sets it apart from the broader pool of knowledge accessible in other localities.

Specific localities may also have particular cultural and social norms or priorities which may also facilitate knowledge sharing within the locality. For example, traditions around design and craftsmanship have shaped local development in some parts of Italy, while shared values of social trust support cluster development in Scandinavia. In a developing country context, a shared emphasis on frugal innovation or improvisation ("Jugaad") has shaped innovation.

In this context, local knowledge can function as a semi-public or even a public good, exhibiting non-rivalrous characteristics. "Local knowledge is thus conceptualised as a semi-public good that is spatially bounded and access to which requires nothing more than cluster membership. Next, local knowledge exchange is prompt or spontaneous because local firms are assumed to be more willing to share knowledge and exchange ideas with other local actors as a result of shared norms, values, and other formal and informal institutions that hold down misunderstanding and opportunism" (He and Wong, 2012, p. 542).

The accessibility or availability of knowledge also depends on the density of connections in the area where a firm operates, which may facilitate knowledge sharing and diffusion. "The mere presence, or absence, of key institutional elements of the local or regional innovation system also affects their innovative capacity and their potential to serve as nodes for cluster development. Many clusters enjoy the knowledge assets and research infrastructure that are

necessary for the development of an innovation-based development strategy, but they differ dramatically in their capacity to mobilise these assets in the pursuit of such a strategy” (Wolfe 2009, p. 186).

Gatekeeper firms, with strong external links and extensive networks, can play an important role in building Innovation Districts. Likewise, universities and multinational companies can serve as regional anchors. Co-location, in turn, can lead to agglomeration economies due to regional specialisation or differentiation (Audretsch 1998; Chai and Huang 2007). It may also have a more organisational basis, reflecting initiatives such as science parks or special economic zones.

1.3 Defining Innovation Districts

Definitions of Innovation Districts are often confused with those of innovation clusters with little clear distinction being made between the terms. Innovation Districts can include “creative hubs, innovation districts, science, knowledge or research precincts, technology parks, and similar areas—where innovation activities that cluster together are part of a knowledge community-based revolution” (Esmailpoorarabi et al. 2018, p. 157).

Esmailpoorarabi et al. (2018) go on to identify three types of Innovation Districts: “(a) Science clusters, where knowledge-intensive service sectors—e.g., universities and R&D centres—are situated around business districts; (b) High-tech clusters, which focus on developing high-tech manufacturing—e.g., ICT or biotechnology; (c) Creative clusters, which are shaped by cultural knowledge generation—e.g., film-making, media, arts, and design” (p. 157).

Identifying Innovation Districts and their boundaries has also been a focus of research. Although there is no single answer, suggestions have been based on spatial boundaries (such as walking time and administrative borders) and economic and network assets (Youwei et al. 2023).

While there remains ambiguity around the use of the terms ‘Innovation Districts’ and ‘innovation clusters’, recent research by the Global Institute for Innovation Districts (GIID) does suggest some general characteristics of Innovation Districts. First, GIID are clear that most Innovation Districts are relatively small in geographical scope. GIID research suggests that the average size of Innovation Districts internationally is 229 hectares, with individual Innovation Districts ranging from 14 to 818 hectares. Notably, these are much smaller areas than those covered by some UK place-based initiatives. For example, the Innovation Accelerators (IAs) cover an area of about 130,000 hectares in Greater Manchester, around 90,000 hectares in Greater Birmingham and 335,000 hectares in Greater Glasgow.

Second, reflecting their relatively small geographical size and focus, the Global Institute for Innovation Districts (GIID) identify four main models of Innovation Districts:

- » **The anchor-plus model** – a predominantly urban model with a concentration of institutional assets and amenities within an urban centre. Aggregation makes this an attractive location for talent and innovative firms. This group constitutes around 80 per cent of all Innovation Districts identified by GIID.
- » **Reimagined urban area model** – urban areas transforming from historical industrial use to a hub of innovation activity. About a fifth of the Innovation Districts identified by the GIID fall into this group.
- » **Urbanised science or office park model** – usually located outside cities, these science parks rely on strong links with nearby population centres. Few Innovation Districts belong to this category.
- » **Unique-asset model** – also relatively uncommon these Innovation Districts are built around specific scientific or technical assets such as energy labs, advanced manufacturing centres of excellence and sophisticated prototyping.

Whatever their form, analysis of 23 Innovation Districts across ten countries by the Global Institute of Innovation Districts (GIID) suggests that:

‘As the network of companies, small firms, and institutions grows, the physical clustering of economic actors can evolve into something far more powerful and intentional. The diversity of actors and the concentration of assets in one geographic region—if designed with intention, guided by committed leaders, and adequately financed—can become a multiplier of growth’.

1.4 Case-study overview

Innovation Districts differ widely across the world in terms of their geographical scale, governance, and age. Many of the Innovation Districts identified by the GIID are relatively recent (from 2021 onwards) and therefore have limited records of success. Here, we focus on six Innovation Districts that exemplify some of the diversity within this field and have generally existed for a considerable period. Detailed accounts of each of the six case studies are provided in Section 2. In brief:

- » **Lund Innovation District (Sweden)** - Lund Innovation District (LID) exemplifies collaborative governance through a steering group comprising the City of Lund, Lund University, and the European Spallation Source (ESS), with Future by Lund acting as a system intermediary. Governance is co-designed, blending national innovation

frameworks with local ecosystem mapping and portfolio management. Roles are distributed across five actors: local government (urban development, climate neutrality), academia (research excellence, talent), anchor institutions (scientific infrastructure), business community (commercialisation), and Future by Lund (facilitation and agile experimentation). Policy coordination leverages Swedish innovation agency models and OECD OPSI frameworks, ensuring alignment between municipal strategies and national priorities. Program delivery uses rolling innovation portfolios, enabling flexibility and responsiveness to emerging opportunities.

Outcomes include a thriving ecosystem of 1,400 companies, world-class research facilities, and cross-sector innovation in deep tech and life sciences. LID has attracted investment, accelerated business creation, and fostered societal problem-solving through collaborative projects. Enabling conditions include strong policy frameworks, sustained funding, and institutional capacity for dialogue. Challenges remain in ecosystem integration, maintaining momentum, attracting talent, and resource allocation.

» **Oslo Science City (Norway)** - Oslo Science City (OSC) functions through a collaborative governance model based on a membership association that brings together universities, hospitals, research institutes, businesses, and the City of Oslo. The governance focuses on multi-stakeholder co-design, with responsibilities shared among the municipality (policy alignment, sustainability), knowledge institutions (research leadership), OSC Association (coordination), and businesses (investment and commercialization). Policy coordination is embedded within Oslo's long-term vision for a "Knowledge Capital," ensuring alignment with climate and urban development strategies. Program design emphasises dense urban integration, utilising spatial planning to encourage interdisciplinary interaction and knowledge spillovers. Delivery is iterative, supported by partnerships with educational institutions and testbeds for energy, mobility, and digital solutions.

Outcomes include establishing OSC as Norway's first Innovation District, advancing research in health, climate, digitalisation, and democracy. The district aims to create thousands of sustainable jobs and reach net-zero emissions, incorporating circular economy principles. Enabling factors include strong policy alignment, institutional trust, and a dedicated coordination body. Challenges involve maintaining momentum and balancing urban development with innovation objectives.

» **Pittsburgh Innovation District (USA)** - The Pittsburgh Innovation District (PID) is managed through a public-private partnership led by InnovatePGH, which oversees a coalition of universities (Carnegie Mellon, University of Pittsburgh), UPMC, local government, and civic organisations. Governance focuses on inclusive economic development, turning technological assets into widespread growth. Policy coordination combines municipal zoning and infrastructure planning with regional economic strategies, supported by philanthropic and investment networks. Programme delivery emphasises talent pipelines, commercialisation pathways, and equitable growth initiatives, such as the Innovation District Skills Alliance, which links marginalised communities to innovation employment.

Outcomes include significant employment (over 30,000 jobs), sectoral growth in robotics, AI, and healthcare, and a thriving start-up ecosystem. PID has enhanced Pittsburgh's global innovation profile while embedding equity principles through community engagement. Enabling conditions include collaborative investment models, narrative rebranding, and integration of the creative sector. Challenges remain with mid-stage funding gaps, fragmented support systems, and undercapitalisation of underrepresented entrepreneurs.

» **Be'er Sheva Innovation District (Israel)** - Be'er Sheva Innovation District (BSID) operates under a national-local governance model. National bodies (Prime Minister's Office, ministries) provide strategic vision, funding, and policy frameworks, while local stakeholders (municipality, Ben-Gurion University, Soroka Medical Centre) oversee operational delivery. Governance focuses on fostering synergy between military technology units, academia, and industry, establishing a cybersecurity and digital health hub. Policy coordination guarantees alignment with national priorities for decentralisation and regional development, utilising the relocation of IDF tech units and partnerships with global firms. Programme design concentrates on three thematic areas: digital health, DeserTech, and cybersecurity, encouraging informal interaction and knowledge exchange.

Outcomes include transforming Be'er Sheva into a global tech hub, attracting investment, and reducing Tel Aviv-centric growth. Enabling conditions include strong national commitment, anchor institutions, and inclusive growth principles. Challenges involve maintaining momentum, talent retention, and balancing rapid development with local needs.

» **Melbourne Innovation Districts (Australia)** - Melbourne Innovation Districts (MID) employs a multi-tiered governance model involving the City of Melbourne, RMIT University, and the University of Melbourne. Governance emphasises co-design, with the city overseeing urban planning and connectivity, universities serving as knowledge hubs, and the state government providing catalytic infrastructure investment (e.g., Metro Tunnel). Policy coordination ensures that local initiatives are aligned with Victoria's strategic clusters, maintaining coherence between social innovation goals and economic priorities. Programme delivery utilises "living labs" on university campuses and thematic focus areas such as social care, clean economy, and future technologies.

Outcomes include mobilising partnerships across academia, industry, and NGOs, creating a vibrant social innovation ecosystem, and supporting knowledge-sector employment (21% of Melbourne's jobs). Enabling conditions include institutional density, historical collaboration, and thematic clarity. Challenges include limited community engagement and translating planning into tangible impact.

» **One-north (Singapore)** - One-north is governed through a centralised model led by JTC Corporation, supported by A*STAR and the Economic Development Board. Governance combines strong state leadership with public-private partnerships, enabling co-ordinated master planning and infrastructure development. Policy co-ordination ensures alignment with Singapore's national innovation strategy, integrating land use, talent attraction, and R&D investment. Programme design organises the district into specialised precincts (Biopolis, Fusionopolis, Mediapolis, LaunchPad), fostering interdisciplinary collaboration.

Outcomes include hosting 400 firms, 16 research institutes, and 800 start-ups, enhancing Singapore's global innovation ranking. Enabling conditions comprise robust policy frameworks, high-quality infrastructure, and flexible immigration policies. Challenges involve land constraints, a limited domestic market, and reliance on multinational corporations.

Note that in considering the case studies reported here, we rely on publicly available sources of documentation. This includes the websites and publicity materials produced by the Innovation Districts themselves, related media reports and analyses, and, in some cases, academic reports and papers. It has not always been possible to verify the details of specific claims, so the case studies should be viewed as indicative.

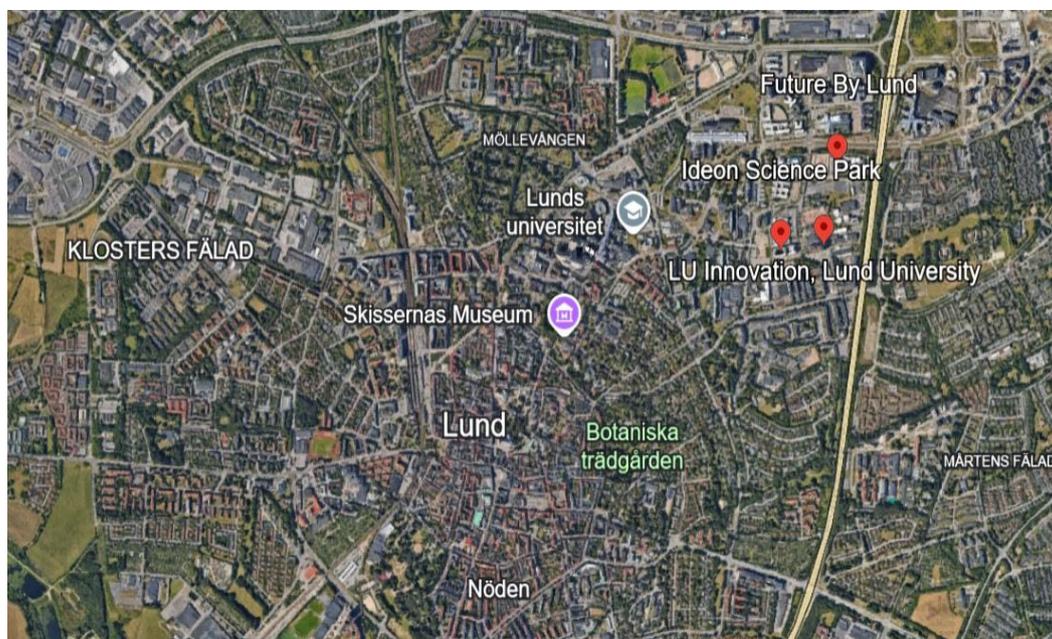
Section 2: Case Studies

2.1 Lund Innovation District, Lund (Sweden)

The Lund Innovation District (LID) in Sweden has developed over many decades, building on a long-standing tradition of collaboration between Lund University (founded in 1666), industry, local government, and civil society (Medicon Village, 2023). The origins of LID can be traced back more than a thousand years, with Lund already recognised for innovation during the Iron Age and through the establishment of Lund's cathedral as a centre for both religious and scientific learning in the 12th century (ibid).

The district's modern development began in the 1980s, when economic restructuring in Skane led Lund University, Malmohus County, the city, and local businesses to establish Ideon Science Park in 1983 (Löthman, 2024; Lund University, 2025). This initiative promoted the growth of a dense research and entrepreneurial ecosystem. Over time, additional hubs such as Medicon Village, MAX IV, and the European Spallation Source (ESS) joined what is now LID (Medicon Village, 2023) (Figure 2.1).

Figure 2.1: Lund Innovation District map



Source: Google Earth

Today, the district unites over 1,400 companies and several world-leading research facilities within easy reach of the university and city centre (Lund University, 2025). LID's development and activities are overseen by a steering group consisting of the municipality, Lund University,

and the ESS, while the Future by Lund provides the platform for continuous collaboration among stakeholders. LID has since evolved into an internationally recognised centre for deep-tech, life sciences, and cross-sector innovation (Löthman, 2024; Lund University, 2025).

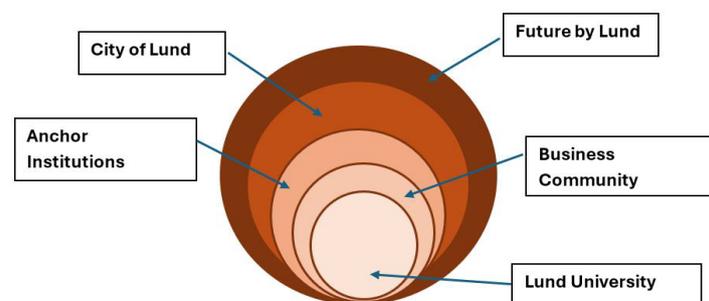
LID exemplifies international best practice in place-based innovation by employing co-design governance and multi-level partnership approaches that facilitate effective stakeholder engagement in design, delivery, and strategic impact.

In what follows, we briefly examine LID's governance co-design model, including the roles and responsibilities of actors, program design and delivery strategy, outcomes and impact, as well as enabling conditions and challenges.

2.1.1 Governance & Co-design

Governance in the Lund Innovation District is led by a steering group representing municipal, academic, and national interests, specifically the local government (the City of Lund), Lund University, and the European Spallation Source (ESS), with Future by Lund serving as the operational co-creation lead (Medicon Village, 2023). The governance framework is collaborative and multilateral, combining national programme guidance with local ecosystem mapping and portfolio management, often employing frameworks from Swedish innovation agencies and the OECD Observatory for Public Sector Innovation (OECD OPSI, 2023). Responsibilities are allocated through the use of “boundary spanning” agents, such as Future by Lund, who act as system intermediaries—identifying trends, catalysing actions, and brokering opportunities among over 100 regional actors: businesses, universities, research and innovation support organisations. Local empowerment is fostered by mechanisms like interactive research, strategic dialogues, and clear mapping of mandates, enabling partners to co-define problems and develop shared portfolios of activities (Medicon Village, 2023; Pocek *et al.*, 2024).

Figure 2.2: Lund Industrial District's Governance Co-Design



Source: Authors

2.1.2 Distribution of Roles and Responsibilities

As shown in Figure 1 above, roles and responsibilities at the LID are primarily distributed among five organisations (Medicon Village, 2023; Lund University, 2025):

- » *Local Government (City of Lund)*: Which focuses on place-making, urban development (e.g., the Brunnshög neighbourhood), infrastructure, and realising city-wide goals like climate neutrality.
- » *Academia (Lund University)*: Which is responsible for research excellence, talent provision, education, and commercialisation support through entities like LU Innovation.
- » *Anchor Institutions (ESS & MAX IV)*: which serve as the major scientific infrastructure and magnets for international R&D, talent, and business.
- » *Business Community (e.g., Ideon, Medicon Village)*: Which provides the commercialisation ecosystem, including science parks, high-tech companies, and startups, translating research into market value.
- » *Facilitator (Future by Lund)*: Acts as the intermediary to connect stakeholders and manage the co-design process, often through agile experimentation and innovation portfolios (OECD/OPSI, n.d.).

2.1.3 Programme Design & Delivery

The international programme design supporting the Lund Innovation District emphasises place-based innovation, tailoring projects to local strengths, sectors, and priorities, while also establishing test and demonstration infrastructures within the district. Stakeholders collaboratively develop regional innovation strategies through structured dialogue, mapping, and iterative portfolio development, adapting models from OPSI and Vinnova. Flexibility is ensured by maintaining rolling portfolios, enabling activities to respond dynamically to new partners, ideas, or project investment needs, and expanding open innovation practices as local contexts change (OECD OPSI, 2023; Pocek et al., 2024; Future by Lund, 2025).

2.1.4 Outcomes & Impact

Evidence indicates that co-designed governance accelerates growth driven by innovation by encouraging ongoing collaboration between universities, companies, and public actors (Mahmoud *et al.*, 2021; Stephens, 2025). For example, the Lund district's ecosystem has seen the expansion of innovation portfolios, increased testing infrastructure, and successful cross-sector investments (Future by Land, 2025). Success is measured by the growth and diversity of collaborative projects, the creation of demonstration platforms, and the involvement of cultural and creative industries as drivers for cross-sector transformation. Outcomes include economic

benefits (attracting investors, speeding up business formation), social gains (addressing societal challenges collaboratively), and innovation impacts (spreading new methods to other cities in Sweden and Europe). International practices, such as the CLEVER Cities and Sharing Cities projects, further support the idea that co-created governance enhances urban sustainability transition, provided suitable participatory and portfolio mechanisms are in place (Wise *et al.*, 2023; Pocek *et al.*, 2024).

2.1.5 Enabling Conditions & Challenges

Many enabling conditions contributed to the success of LID. These include robust policy frameworks, sustainable funding models (national and local co-investment), system intermediaries, and strong institutional capacity for structured dialogue and stakeholder mapping (Pocek *et al.*, 2024). Lund's experience highlights the role of university leadership in delivering policy recommendations at national and European levels and deploying open innovation capacity-building locally and internationally (*ibid.*).

Additional enabling conditions for the success of LID have been suggested in an interview (see Medicon Village, 2023) with Pia Kinhult, head of LID's host state relations at ESS, Peter Kisch, Future by Lund's operations manager, and Charlotte Lorentz Hjorth, Lund University's external engagement staff. For Kinhult:

“It is a combination of research at a notable university, strong industry and a special environment in Lund. And then there is also the proximity to Copenhagen and its universities, environment and airport,”

“A contributing factor in the decision was that Denmark and Sweden were seen as two well-functioning and safe countries where people would like to work and live.”

On his part, Kisch emphasised LID's quality, informality, and proximity:

“We have a strong industrial base that is a driving force, which is unusual for a university town. A French businessman who visited Lund told me that he finds it fascinating how easy it was to meet new companies and researchers. Lund is informal and relaxed and so close that he could take many meetings in the space of a morning”.

However, Hjorth highlighted the importance of the co-ordinating role played by Future by Lund as the platform that facilitates robust collaboration among stakeholders at LID:

“Future by Lund has long worked as a catalyst between business, facilities, companies, society and research. We need an organisation in the middle that can act as a co-creator

and facilitator of new collaborations. If stakeholders and organisations are to be able to work together in an innovation district, there are high demands on good collaboration, which can be achieved through practice, clear rules, trust and respect for different perspectives.”

However, there are many challenges in managing LID (see Löthman, 2024; and Lund University, 2025 for details). Four of these most significant challenges are:

- » Integration of Ecosystem Components: One of the main challenges is achieving effective synergy between physical resources (such as laboratories and research facilities) and intangible assets (such as people, ideas, investment capital, and collaborative structures). Ensuring these parts work seamlessly together and that the ecosystem functions as a cohesive and dynamic entity is a significant challenge.
- » Maintaining development momentum: Sustaining progress for continuous growth remains a persistent challenge. With multiple key players - Lund University, Lund Municipality, companies ranging from multinationals to start-ups, and innovation infrastructure providers - no single stakeholder holds ownership or authority over the district. Ensuring consistent collaboration and advancement among these groups is complex.
- » Attracting and Retaining Talent: The district’s growth and ability to attract global talent depend not only on its research excellence but also on the quality of life for residents and workers. This entails ongoing work to provide high-quality housing, amenities, schools, and a welcoming urban environment.
- » Resource Allocation and Policy Support: There is an ongoing need for sustainable investment, policy support and political backing, particularly for start-ups and research-driven initiatives. Concerns exist that reductions in governmental support may impact the long-term vibrancy of the innovation ecosystem.

2.2 Oslo Science City, Oslo (Norway)

Oslo Science City (OSC) is Norway’s first major Innovation District. It brings together the University of Oslo, the University Hospital, the independent, not-for-profit research foundation SINTEF, other research institutes, and a growing start-up ecosystem within a concentrated urban area in western Oslo (Figure 2.3). Its core aim is to create an environment where research, education, enterprise, and civic life reinforce one another, generating the density and interdisciplinary interaction associated with globally competitive knowledge hubs (A-lab., 2025).

Figure 2.3: Overview of Oslo Science City



Source: Bakken (2023)

According to the Oslo Science City website, the district's strategic focus is organised around "four gravitational fields of excellence where Oslo Science City has, or realistically can build, world-leading knowledge environments." These encompass:

- » *Health and life sciences*: centred on Norway's foremost medical research groups at Oslo University Hospital and the University of Oslo. Actors within the district conduct more than two-thirds of the country's medical research and span the full innovation chain in the health sector.
- » *Climate, energy and the environment*: comprising approximately 2,200 researchers engaged in addressing climate and environmental challenges and in developing sustainable solutions for energy production, storage and distribution. This group includes internationally recognised climate scientists and contributors to the IPCC.
- » *Digitalisation and computational science*: represented by some of Europe's leading research environments in artificial intelligence, machine learning and digital technologies. Over 1,000 researchers in this field are developing systems and knowledge central to society's ongoing digital transformation.
- » *Democracy and inclusion*: supported by interdisciplinary research communities examining the structural conditions for democratic resilience, social sustainability and

equitable transitions in the context of technological change, social inequality and rising anti-democratic movements.

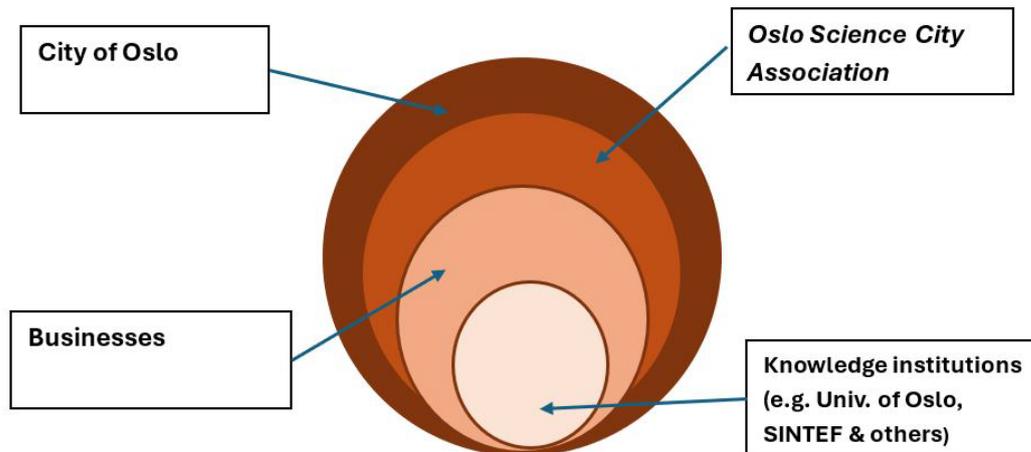
2.2.1 Governance & Co-design

OSC's governance model is based on a collaborative, multi-stakeholder partnership rather than a purely top-down or bottom-up approach, reflecting principles of collaborative governance theory (Hofstad et al., 2022). The initiative is anchored in a membership association, which includes important national and local stakeholders that facilitate “*strengthened interaction between research environments, students, government officials, and stakeholders within finance & business.*” These members and stakeholders include: the University of Oslo, SINTEF, The City of Oslo, South-Eastern Norway Regional Health Authority, Oslo University Hospital, Norwegian Business School, The Norwegian Geotechnical Institute, Oslo Science Park, Oslo Cancer Cluster, Norwegian Computing Centre, Institute of Transport Economics, and Allstad.

However, operational **roles and responsibilities** at OSC are mainly shared among four broad categories of stakeholders/members (ARQA, 2021; Norwegian Business School, 2023; A-lab, 2025). These are:

- » *City of Oslo*: In collaboration with the national government, the municipality provides the policy foundation and strategic direction, ensuring Oslo Science City aligns with municipal goals for sustainability, climate action, and future urban development.
- » *Knowledge Institutions*: Led by the University of Oslo and Oslo University Hospital, they supply the scientific expertise and innovation capacity that define the district's thematic focus and drive its research-based development.
- » *Oslo Science City Association*: Serves as the coordination hub, bringing together public, private, and academic actors to collaborate, share knowledge, and co-design the district's ongoing development.
- » *Business*: Integral to OSC's innovation ecosystem, companies and industry-partners bring investment, commercialisation pathways, entrepreneurial activity and real-world applications to the research and education anchored in the district.

Figure 1.4: Oslo Science City Governance Co-Design



Source: Authors

2.2.2 Programme Design and Delivery

The OSC is designed as a place-based innovation model centred on developing a dense, urban knowledge district rather than a peripheral science park. Its masterplan emphasises co-location and interaction, employing a “continuous loop” of multifunctional buildings and public spaces to promote daily encounters among researchers, students, start-ups, and residents (Oslo Science, 2021; A-Lab, 2025). This spatial strategy enhances knowledge spillovers while anchoring the district’s ambitions in its four existing strengths—health, climate, digitalisation, and democracy—which are individually linked to established, world-leading research communities in the area (A-lab, 2025).

Design and delivery are shaped through regional co-development. The feasibility study (Oslo Science, 2021) and subsequent strategy were produced by an interdisciplinary team of architects, economists, transport planners, and design specialists (A-lab, 2025; ARQA, 2021), ensuring alignment with Oslo’s broader climate and urban policies. Flexibility is embedded by focusing on long-term ecosystem building rather than fixed project outputs (Oslo Science, 2021). Ongoing partnerships with educational institutions, such as BI Norwegian Business School, keep talent development responsive to industry needs, while the district itself serves as a testbed for energy, mobility, and digital solutions, allowing continuous adaptation to evolving local priorities (Scarborough Group, 2025; Bakken, 2023).

2.2.3 Outcomes and Impact

While OSC is a relatively new initiative, it can be argued that its design principles align with evidence suggesting that innovation-led growth is accelerated by intentional ecosystem design and the cultivation of strong networks and partnerships (Scarborough Group, 2025). The district's explicit focus on societal challenges through its four thematic areas (particularly climate, health, and democracy) indicates a focus on transformative innovation rather than purely economic metrics (A-Lab, 2025; Norwegian Business School, 2023).

OSC's success is defined by its clear mission to become an internationally leading Innovation District that helps develop new solutions for global societal challenges within four thematic fields (Oslo Science City, 2023).

The programme aims to support long-term value creation and contribute to establishing thousands of new sustainable jobs by enhancing restructuring capacity in Norway's economy (Oslo Science City, 2023).

The project incorporates sustainability and circular economy principles as key success measures, striving to be a net-zero emission zone and a 'good example of a holistic approach to planning' that enhances the urban environment (World Architecture, 2021). The inclusion of 'Democracy and Inclusion' as a thematic area also underlines a commitment to assessing social sustainability (Oslo Science City, 2023).

2.2.4 Enabling Conditions and Challenges

OSC's successful co-design is supported by several enabling conditions which include:

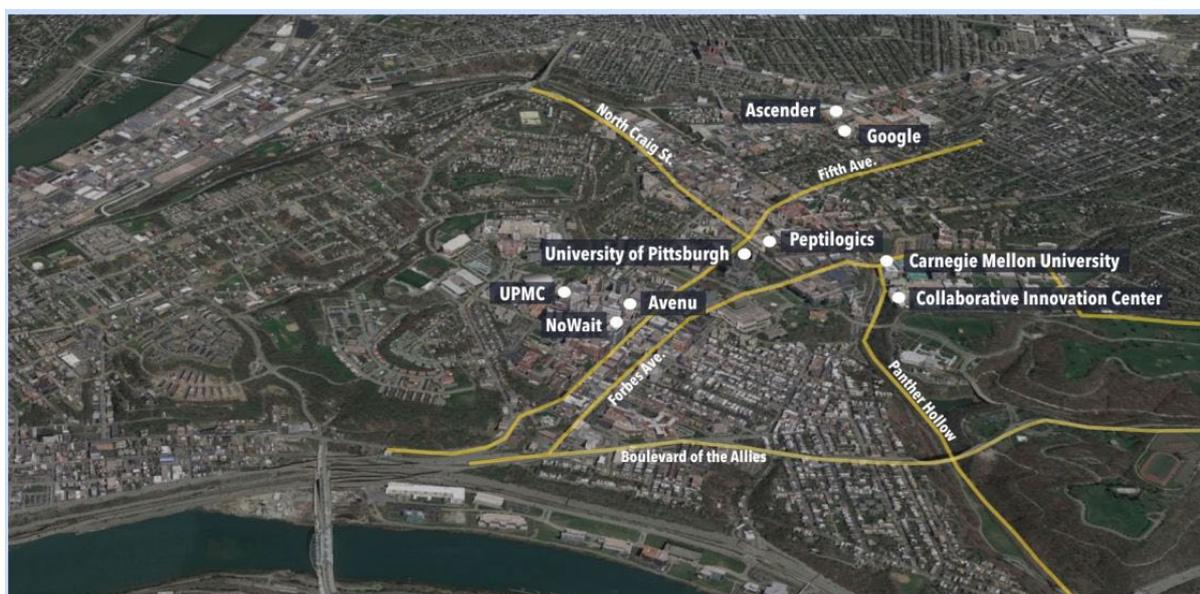
- » **Strong policy alignment:** The initiative is anchored in Oslo's long-term strategic vision for developing a "Knowledge Capital," providing political legitimacy, continuity, and a clear mandate for collaborative action (ARQA, 2021).
- » **Concentration of anchor institutions:** The dense grouping of internationally recognised universities, hospitals, and research centres within a compact geography creates the intellectual mass and proximity needed for sustained collaboration and innovation (Oslo Science City, 2023).
- » **High institutional trust and collaborative culture:** Norway has a tradition of cooperation between public and private sectors which is supported by the country's strong norms of trust and dialogue (OECD, 2022). This offers a conducive cultural environment for effective co-creation.

- *A dedicated coordinating body:* The OSC membership association acts as a neutral and structured platform for coordination, enabling shared vision-building, stakeholder engagement, and the management of complex multi-actor processes.

2.3 Pittsburgh Innovation District (PID), Pennsylvania (USA)

The concept of the Pittsburgh Innovation District (PID), located in the Oakland neighbourhood of Pittsburgh, emerged partly in response to a 2017 report by the Brookings Institution. The report identified Pittsburgh as a rising “global innovation city”. The district includes leading US universities, advanced medical facilities, and internationally recognised cultural institutions. Therefore, it concentrates the talent and resources needed to sustain a modern innovation ecosystem (Figure 2.5). It functions as the city’s main hub for academic activity, research excellence, and economic strength. PID is anchored by Carnegie Mellon University (CMU), the University of Pittsburgh (UP), and the University of Pittsburgh Medical Centre (UPMC). The district occupies the region’s most strategically vital urban space and offers a wide array of cultural, culinary, and recreational amenities (PID, n.d.).

Figure 2.5: Spatial overview of Pittsburgh Innovation District (PID)



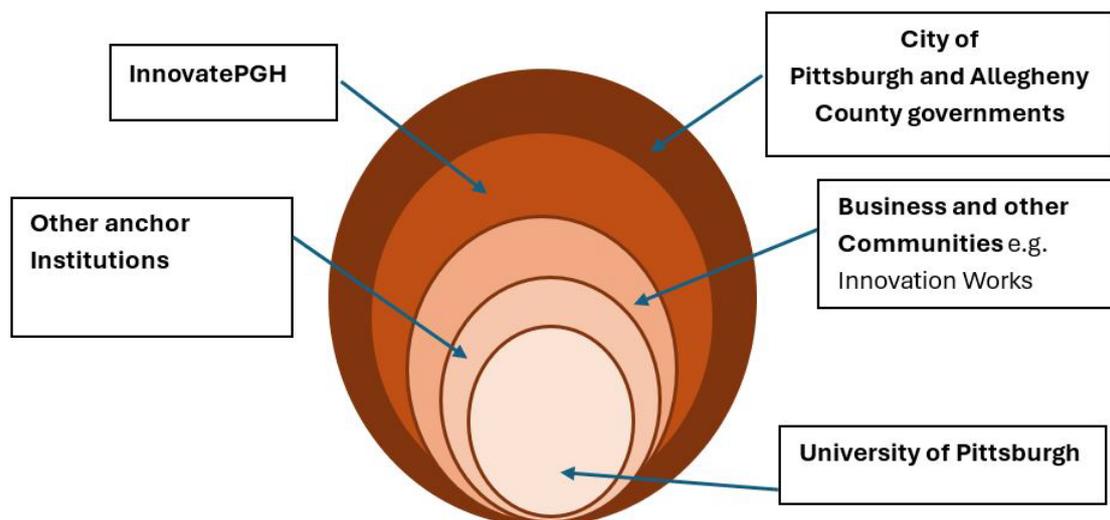
Source: Andes et al. (2017)

2.3.1 Governance & Co-design

The governance and co-design structure of PID can be explained using the following Figure 3. A public-private partnership company called InnovatePGH is the central or coordinating body for the PID. It functions as an ecosystem-wide central co-ordinator within the district. However,

rather than operating as a singular governing authority, InnovatePGH collaborates with a broad coalition of civic, academic, business, philanthropic, and governmental actors to deliver an integrated strategic agenda. The partners/stakeholders in this collaborative governance framework include the University of Pittsburgh and Carnegie Mellon University (anchor institutions); UPMC; Innovation Works (an early-stage investment organisation); the Pittsburgh Regional Alliance (the economic development arm of the Allegheny Conference on Community Development); the City of Pittsburgh and Allegheny County governments; and various regional philanthropic bodies. Collectively, these organisations have the overarching responsibilities to convert Pittsburgh's technological capabilities into inclusive economic development by strengthening local assets, attracting firms, and cultivating robust talent pathways (Innovation Works, 2021; Wall-to-Wall, 2025; InnovatePGH, n.d.; Pittsburgh Innovation District, n.d.).

Figure 2.6: Pittsburgh Industrial District (PID) Governance Co-Design



Source: Authors

Therefore, at PID, roles and responsibilities are shared among 4 principal stakeholders (see Pittsburgh Innovation District [website](#), [Uptown Partners](#), [JLL](#) (2025) and [Wall-to-Wall](#) (2025) for more details on this):

- » **Anchor Institutions (CMU, Pitt, UPMC):** Anchor institutions serve as the research and talent engine of the PID. They provide the critical mass of specialised talent in key sectors.
- » **Local Government (City of Pittsburgh and Allegheny County):** These facilitates place-based planning (e.g., adopting the EID Plan), manage zoning, and invests in public infrastructure.

- » *InnovatePGH/Civic Partnerships*: Together they act as the convenor/accelerator that defines the district's objectives, coordinates its strategy, and attracts investment to it.
- » *Community Stakeholders (e.g., Uptown Partners)*: In addition to business community, community stakeholders such as Uptown Partners play a crucial role in ensuring inclusive outreach and that equity is a core lens through which all performance areas (e.g., housing, mobility) are measured.

2.3.2 Outcomes and Impact

The PID has provided significant economic advantages. The anchor institutions within the Pittsburgh Innovation District (Carnegie Mellon University, the University of Pittsburgh, and UPMC) constitute a major employment hub in the Oakland area, with the universities collectively employing around 19,500 people and the hospitals offering jobs for nearly 11,000 more (PID, 2023). The district has also encouraged growth in key sectors such as robotics, artificial intelligence, and healthcare, largely influenced by these principal anchor institutions. These universities consistently supply a stream of talent, with the University of Pittsburgh and Carnegie Mellon University alone having graduated over 80,000 STEM students. This supports PID's dynamic start-up scene, which is evident in the increase of high-technology firms and a swiftly expanding construction sector in Oakland (ibid).

Also, along with the complementary EcoInnovation District (EID) in Uptown, PID's core principle underpins a commitment to equitable growth. This aims to ensure that the benefits of the innovation economy are extended to long-standing, lower-income residents and local small businesses (City of Pittsburgh, 2017). For example, initiatives like the Innovation District Skills Alliance (IDSA) are being introduced to create direct career pathways for residents from nearby, historically marginalised neighbourhoods (such as the Hill District and Hazelwood). This is intended to train local, under-skilled workers for the expanding innovation districts (ibid).

2.3.3 Enabling Conditions & Challenges

A report by the Nasdaq Entrepreneurial Centre (2025) identifies the enabling conditions or "strengths" that facilitate PID's successes. These are:

- » *Capital + capacity model (Bridgeway Capital)*: At PID, Bridgeway Capital uses a "lend-with-technical-assistance" model i.e. they do not just provide loans, they also offer hands-on support such as coaching, training, and business development guidance. This combination helps entrepreneurs, especially those who are underestimated, to develop the operational strength needed to succeed up to long-term.

- » *Collaborative Midwest co-investing (BlueTree venture model)*: BlueTree and other Midwest investors frequently share deals, co-invest, and coordinate rather than competing. This collaborative approach helps “secondary markets” like Pittsburgh pool capital to spread risk and ensure founders can access larger funding rounds even when local investors cannot fully supply them.
- » *Community capital rung (Honeycomb Credit)*: Honeycomb Credit provides customer-funded loans, allowing local residents i.e. customers, neighbours, supporters etc to invest directly in small businesses. This approach helps founders build creditworthiness, financial skills, and traction, which often serve as a stepping-stone to traditional bank financing.
- » *Communications strategy (updating Pittsburgh’s narrative)*: Multiple Pittsburgh institutions have worked to actively rebrand the city, shifting national perception from “steel town” to a growing hub for robotics, AI, energy, and innovation. This coordinated storytelling helps attract talent, capital, and attention, and boosts confidence among local founders.
- » *Creative-sector super-connector (Greater Pittsburgh Arts Council)*: The Greater Pittsburgh Arts Council (GPAC) supports artists by treating them as entrepreneurs, offering grants, legal support, navigation help, and procurement advocacy. This creates pathways for creatives to participate in the broader economy and positions the arts as an integral part of the entrepreneurial ecosystem.

Moreover, the report also highlighted several challenges that affect the development of PID. These include:

- » **Series A/middle-capital gap**: The report notes that Pittsburgh has strong seed-stage and angel activity i.e. founders can often get their first small checks locally. However, when companies reach the next stage of growth (Series A or mid-sized rounds of \$3M–\$10M), local capital dries up. Because this “middle capital” layer is thin in the region, founders are often forced to raise money from outside investors, which can slow momentum or pull companies away geographically. Thus, while early funding opportunities exist at PID, growth-stage funding is scarce which creates a bottleneck that pushes companies to seek capital elsewhere.
- » **Siloed support & navigation fatigue**: The ecosystem has many support organisations, agencies, meetups, lenders, and programs, but these are not well coordinated. In fact, the report cites that there is “no obvious clearinghouse” where founders can go to figure out which resources are relevant. Many support seekers receive conflicting advice or get

pulled into a maze of referrals. This creates *navigation fatigue*, particularly for founders who are new or under-resourced (ibid).

- » **Undercapitalisation of under-represented owners:** Although mission lenders and ESOs (entrepreneur support organizations) are working to close gaps, the report notes that capital flows remain skewed, with underrepresented entrepreneurs (particularly Black business owners) still receiving disproportionately less funding. This means that despite progress, equity gaps persist in who gets access to the capital needed to start and grow businesses.

2.4 Be'er Sheva Innovation District (BSID), Be'er Sheva (Israel)

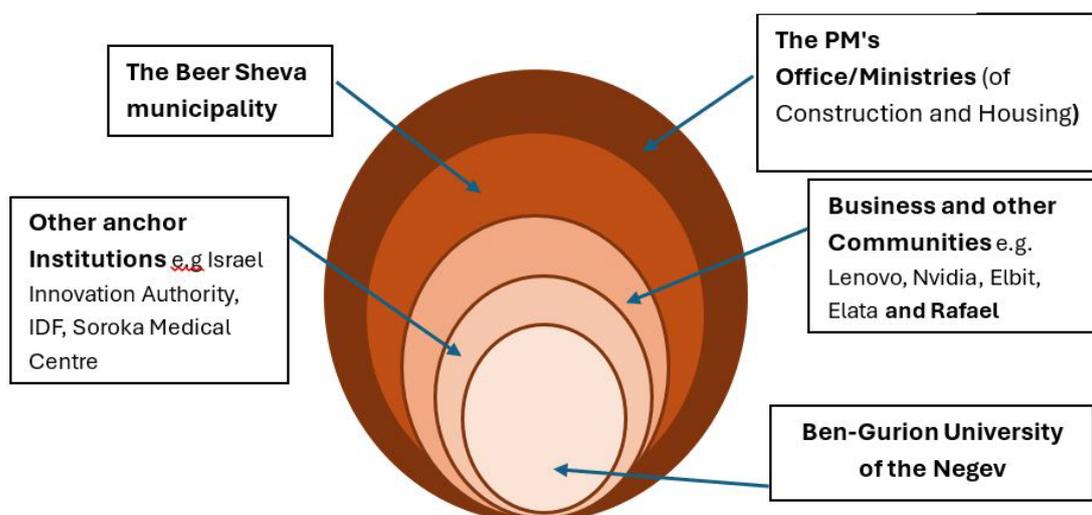
The development plan for Be'er Sheva Innovation District was conceived in 2018. BSID was financed and supported by national bodies and institutions including the National Economic Council in the Israeli Prime Minister's Office, the Ministry of Construction and Housing, the Israel Land Authority, the Ministry of the Interior, Ben-Gurion University, and Soroka Medical Centre (Globes, 2020; Forbes, 2021). According to Benny Dreyfuss, Director-General of the Ministry of Construction and Housing, BSID's focuses "on economic investments in sectors such as digital health, desertification, and cybersecurity" (Globes, 2020). Thus, rooted in Be'er Sheva's strong academic, medical, and emerging cyber security assets, the district's primary aim is to transform Be'er Sheva and the Negev region into a globally recognised centre of technology and knowledge. Today, Be'er Sheva/Negev is "a hub of cutting-edge cybersecurity development, artificial intelligence, and defence innovation." (The Jerusalem Post, 2020)

Figure 2.7: Overview of Be'er Sheva Innovation District (BSID)



Source: Forbes (2021)

Figure 2.8: Be'er Sheva Innovation District, Be'er Sheva (Israel)'s Governance Co-Design



Source: Authors

2.4.1 Distribution of Roles and Responsibilities

While many organisations and institutions (mapped in figure 4 above) support governance co-design and synergistic alignment of expertise and resources at BSID, roles and responsibilities are shared among two broad set of stakeholders:

- i. *National Government Stakeholders (e.g., Prime Minister's Office, Ministries)*: Provide catalytic finance, establish the overarching national strategic vision, and facilitate the alignment and relocation of national strategic assets, such as the elite Israel Defence Forces (IDF) technology units, which serve as a foundational anchor for the cyber security activity (Government of Israel, 2020; Prime Minister's Office, 2020).
- ii. *Local Stakeholders (e.g., Be'er Sheva Municipality, Ben-Gurion University (BGU) of the Negev (BGU), Soroka Medical Centre)*: Assume the primary role in local execution and operational delivery. The Municipality, having won the open bid, drives the physical and urban planning (Prime Minister's Office, 2020). Anchor institutions like BGU and Soroka Medical Centre lead core research and development (R&D) activities, talent development, and the acceleration of start-ups, ensuring responsiveness to local needs (The Global Institute on Innovation Districts, 2023)

2.4.2 Programme Design and Delivery

BSID is a place-based innovation strategy that brings its stakeholders together through a national strategy to facilitate programme design and delivery by focusing on three core areas: digital health, DeserTech (desert-oriented technologies), and cyber security. This leverages the proximity of partner organisations, such as BGU, Soroka Medical Centre, the IDF units, and encourages informal interaction and faster knowledge transfer (Globes, 2020). BSID is also developed based on an inclusive growth policy guided by the principle of locality. This means that interventions, from short-term job training to long-term systemic process changes, are continuously tailored to the specific demographic needs and cultural context of the area (Government of Israel, 2020).

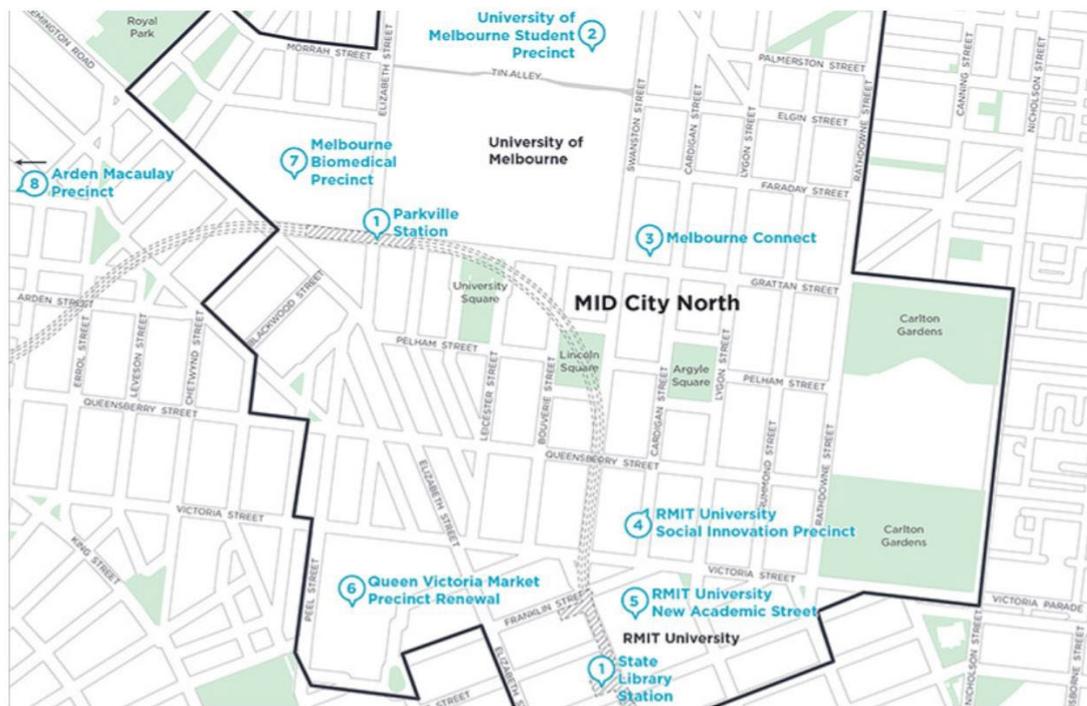
2.4.3 Outcomes and Impact

BSID's broad impact has been based on four pillars: quality academy, military technology units, a large and developed defence industry, and multinational technology companies (The Jerusalem Post, 2022).

The high-tech and industrial activity generated by BSID shifts investment and human capital into the Negev region. This reduces centralisation in the Tel Aviv area and provides Israel with an alternative growth hub (Miller, 2024).

2.5 Melbourne Innovation Districts (City North), Victoria (Australia)

The Melbourne Innovation Districts (MID) is located in the area immediately north of Melbourne's central business district, an area where many of Victoria's key institutions are situated; these include the central campuses of RMIT and the University of Melbourne, Queen Victoria Market, State Library of Victoria, Royal Exhibition Buildings, Parkville Biomedical Precinct, and Melbourne Museum (Melbourne Innovation District, 2025). Therefore, MID is a collaborative initiative involving the City of Melbourne, RMIT University, and the University of Melbourne, aimed at fostering urban innovations that benefit the entire city (ibid). Like other business districts, MID utilises multi-level governance models to facilitate co-design among national and local governments, industry, and research actors.

Figure 2.9: Overview of Melbourne Innovation Districts

Source: Fleetwood (2024)

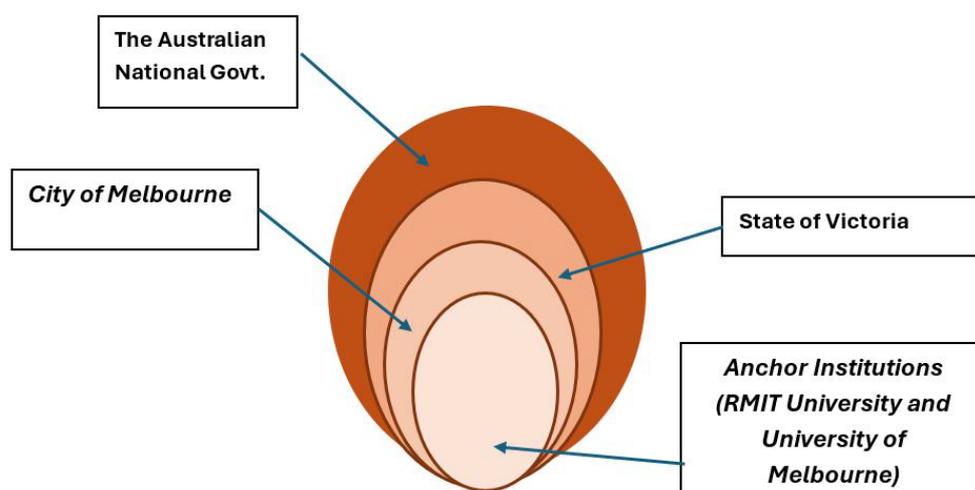
2.5.1 Distribution of Roles and Responsibilities

Roles are distributed to leverage the specific assets and functions of each partner:

- » **City of Melbourne (Local Government):** Responsible for the Urban Realm, including public spaces, mobility, and connectivity, as detailed in plans such as the *City North Opportunities Plan* (City of Melbourne, 2025). The City also provides the regulatory framework and is the convening force for community consultation and broader city-wide application of innovations. (IASP, 2025)
- » **Anchor Institutions (RMIT University and University of Melbourne):** Act as the knowledge-production engines and physical anchors. Their responsibilities include leading applied research, driving sector specialisation (e.g., social care, clean economy), providing student and staff talent, and using their campuses as 'living labs' for real-time prototyping (RMIT University, 2024; The University of Melbourne, 2017). RMIT, in particular, leads the City North Social Innovation Precinct (CNSIP) initiative (ThirdStory, 2025).
- » **National/State Government:** Primarily responsible for catalytic infrastructure investment, such as the \$11 billion Melbourne Metro Tunnel project, which enhances connectivity and accessibility to the district (The University of Melbourne, 2017)

While the MID is a long-term project and tangible infrastructure-based results are still emerging, evidence points to the effectiveness of the co-designed approach in creating a supportive ecosystem and changing attitudes (Matters Journal, 2019). However, the partnership successfully mobilised diverse collaborations (academia, industry, NGOs, and government) to co-create solutions to shared challenges, leading to a vibrant social innovation ecosystem (IASP, 2025). Additionally, the district's selection was based on its existing strength, accounting for 21% (60,260) of all knowledge sector jobs in Melbourne in 2019 (City North Opportunities Plan, 2019).

Figure 2.10: Melbourne Innovation Districts (City North), Victoria (Australia)'s Governance Co-Design



Source: Authors

2.5.2 Enabling Conditions and Challenges

The success of co-design is supported by:

- » **Pre-existing Institutional Density and History:** The City North area boasts a long history of institutional and social innovation, providing a strong cultural and historical foundation for collaboration (RMIT University, 2024).
- » **Alignment with State/National Strategies:** The MID benefits from aligning with the State's Parkville National Innovation and Employment Cluster, providing strategic coherence and potentially leveraging larger funding frameworks (IASP, 2025)
- » **Clear Thematic Focus:** A clear focus on Social Care/Wellbeing, Clean Economy, and Future Engineering/Technology allows partners to align their research and training resources effectively (RMIT University, 2024)

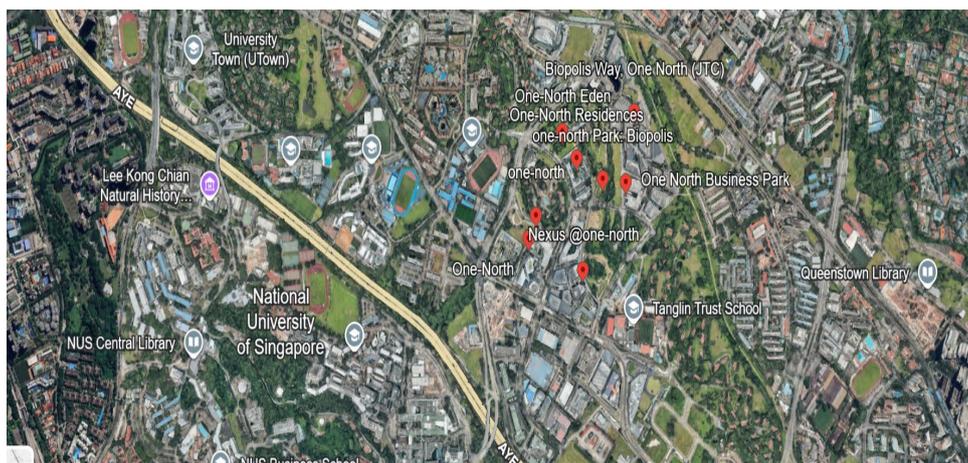
2.5.3 Common Challenges and Barriers

- » *Limited Community Coherence*: Studies suggest that lack of social coherence between knowledge workers and the public limits community engagement, posing a challenge to the inclusive growth agenda (Monash University, 2019)
- » *Translating Theory to Tangible Impact*: The initial phase involved a significant amount of theoretical planning, with acknowledgement that the tangible results and broad impact were still to be fully realised (Matters Journal, 2019).

2.6 One-north and Singapore Science Park

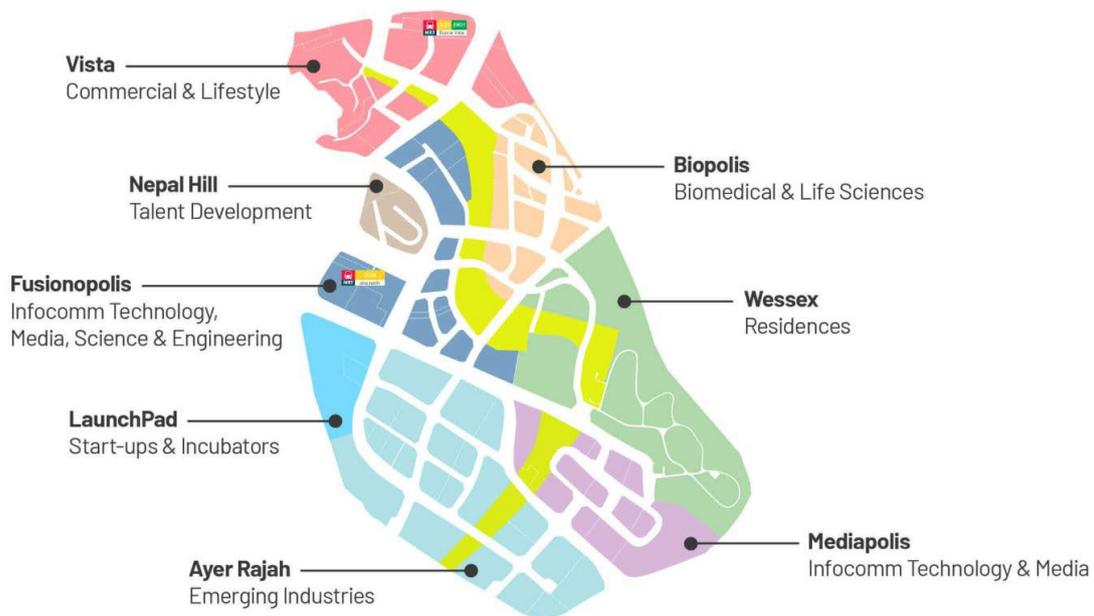
One-north is a 200-hectare industrial district developed in 2001, strategically situated within Singapore's Queenstown district in Buona Vista (Figure 2.11). It initially served as a science hub, with its establishment first announced on 15 September 1998 by then-Deputy Prime Minister Tony Tan, before being renamed and expanded with its master plan unveiled on 4 December 2001 (NBL, undated; Centre for Liveable Cities, 2018). The district is organised into a series of specialised precincts, each aligned with specific industry. These include Biopolis (biomedical sciences), Fusionopolis (information and communications technology and engineering), Mediapolis (media and the creative sectors), and LaunchPad (start-ups and incubators) (Figure 2.12). This deliberate concentration of related activities was intended to foster a synergistic environment where interdisciplinary collaboration can thrive (UBE SG, 2025).

Figure 2.11: Overview of One-north and Singapore Science Park



Source: Google Earth

Figure 2.12: Specialised precincts within One-North



Source: JTC Corporation ([undated](#))

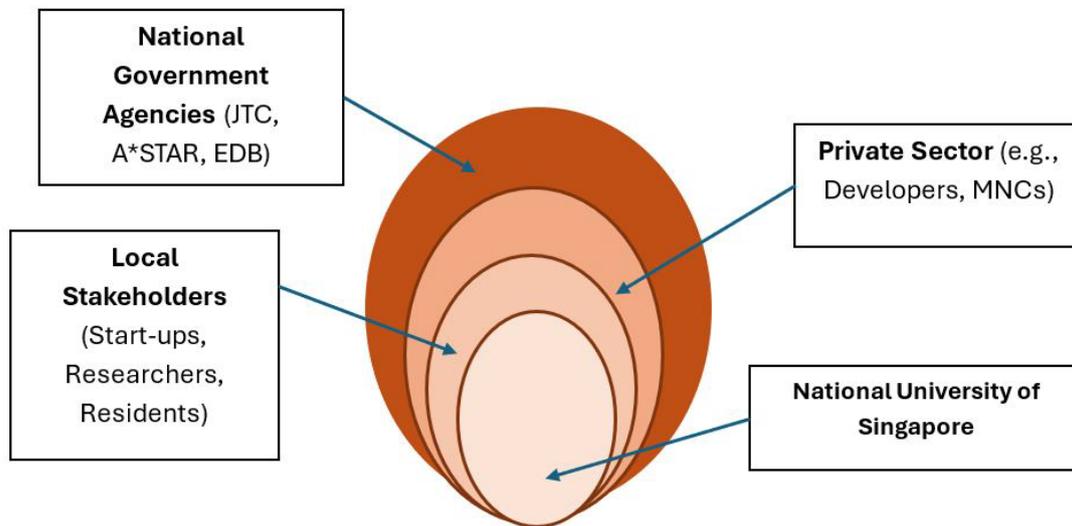
Apart from its proximity to Singapore's Central Business District (roughly a 20-minute drive), one-north lies near several major educational and research institutions which include the National University of Singapore (NUS), the National University Hospital, and the Singapore Science Parks (see map above). This strategic siting enables robust connections with these organisations, and hence, fosters cross-fertilisation of ideas and encourages collaboration between industry and the research community (UBE SG, 2025).

2.6.1 Governance & Co-Design

The governance of one-north is based on a centralised governmental approach led by key statutory boards, with a strong emphasis on ongoing engagement, adaptation, and partnership with private organisations. The JTC Corporation (formerly Jurong Town Corporation), Singapore's statutory board for industrial infrastructure, was appointed as the lead agency on 1 September 2000 to spearhead master planning and development of the district (JTC, undated). The Singaporean state leadership through JTC provided a clear, unified national vision and the capacity for large-scale, long-term infrastructure investment (Centre for Liveable Cities, 2018). However, the JTC collaborates with various other national agencies, most notably the Agency for Science, Technology and Research (A*STAR) for R&D, and the Economic Development Board (EDB) for attracting investment. This established a single, coordinated national strategy, which is often a challenge in multi-jurisdictional innovation districts (NLB, undated). Public-Private partnerships involving multinational corporations (MNCs) and other private sector participants (e.g., Ascendas-Singbridge/CapitaLand) for the development and management of many of one-north's key properties, amenities, and infrastructure are also part of the governance

co-design (Centre for Liveable Cities, 2018; JTC, 2023). Therefore, at one-north, the main roles and responsibilities for governance, design, and delivery are broadly shared among three major stakeholders listed in the table below.

Figure 2.13: One-north and Singapore Science Park's Governance Co-Design



Source: Authors

2.6.2 Outcomes/Impact, Enabling Conditions and Challenges

Since its establishment, one-north has developed into a vibrant hub of innovation, characterised by a thriving technopreneurial community comprising venture capitalists, innovators, students, researchers, and media enterprises (CapitaLand, 2019). By 2021, one-north was estimated to host approximately 400 leading firms and international institutions operating within high-technology and knowledge-intensive sectors, along with 16 public research institutes, six institutes of higher learning and corporate universities, and 50 incubators supporting around 800 start-ups (Wong, 2022). Collectively, these organisations contributed to a working population of roughly 50,000 (ibid).

Table 1: Roles and Responsibilities at One-North

Stakeholders	Role in Design and Delivery	Focus
National Government Agencies (JTC, A*STAR, EDB)	Design & Delivery Lead. Master-planning, infrastructure development, attracting/supporting skills, talent and anchor institutions (research institutes, MNCs), and creating robust policy framework.	Strategic Vision, Land Use, R&D Investment, Talent Attraction.
Private Sector (e.g., Developers, MNCs)	Co-Delivery & Implementation. Building and managing commercial spaces (e.g., Galaxis, Nexus), providing amenities (retail, F&B), and serving as anchor tenants to drive the ecosystem.	Commercialisation, Property Management, Market Demand.
Local Stakeholders (Start-ups, Researchers, Residents)	Ecosystem Participants & Feedback. Users provide feedback, spur “serendipitous interactions,” and are the target beneficiaries of the ‘work-live-play-learn’ environment at one-north.	Community Vibrancy, Innovation Activity, Ad-hoc Adaptation.

Source: Compiled by Authors based on insights from Centre for Liveable Cities (2018), NLB (undated), JTC (2023).

The Singaporean state continues to pursue the development and expansion of one-north with considerable determination, although the Asian country is, nonetheless, confronted with certain challenges in its industrial drive. As a city-state, Singapore’s cosmopolitan character and overall liveability enable it to attract global talent, while substantial government investment in infrastructure and research funding further supports the attraction of knowledge-intensive industries (Lee Kuan Yew School of Public Policy, 2018). In fact, although measures of innovativeness are often difficult to interpret, Singapore performed strongly on a number of international indices. In the 2018 Bloomberg Innovation Index, for example, it rose from sixth to third place, trailing only Seoul and Sweden and outperforming European economies such as Germany, Switzerland, and Finland. Similar findings emerged from other assessments,

including the Global Innovation Index 2017, in which Singapore was ranked first in Asia and seventh worldwide (Lee Kuan Yew School of Public Policy, 2018).

Specifically, in a report reviewing global “Hubs of Innovation” (Catapult, 2021), one-north is described as a successful case study with “full or nearly full marks for anchor tenants, identity building, land development, and effective use of zoning and tax powers. Access to diversified sources of private capital, industry advocacy and leadership, and links to broader education are less fully developed priorities.”

The report highlights the factors that underscore this success as follows:

- » High quality architecture and design build international interest and visibility
- » University and polytechnic departments willing to act as horizontal agents and catalysts within the ecosystem
- » Meeting space for whole city’s leaders to congregate
- » Infrastructure is accessible and inviting, with enhanced interaction, pedestrianisation, face-to-face contact, place identity and social capital
- » Ability to assist tenants with their expansion plans

Other factors identified as key enablers include: Singapore’s robust, centralised policy framework and credible government commitment; highly capable statutory boards (e.g., JTC, A*STAR) supported by strong executive authority and technical expertise to oversee complex, large-scale, and long-term development projects; a strong national education system that trains skilled professionals across the value chain; and a flexible immigration policy to attract international talent (Centre for Liveable Cities, 2018; Wong, 2022; JTC, 2023, undated).

However, one-North, or Singapore in general, faces some inherent structural constraints. These include limited land area, a comparatively small labour force and expertise base, the absence of a deeply embedded entrepreneurial culture, a modest domestic market, and a continued dependence on multinational corporations (Lee Kuan Yew School of Public Policy, 2018).

Section 3: Summary and Implications

Here we summarise the key similarities across the six Innovation Districts, reflecting the four main themes considered. Table 1 provides an overview. Section 3.2 highlights the main lessons for place-based policy development in the UK.

3.1 Case summary

Governance and Policy Co-Design

Across the six Innovation Districts, governance models show a shared commitment to multi-stakeholder collaboration but vary in structure and focus. Each Innovation District employs collaborative governance involving public authorities, anchor institutions, and private actors. Co-design is key, enabling stakeholders to jointly develop local strategies. For example, Lund's steering group (municipality, university, ESS) utilises intermediaries such as Future by Lund to broker partnerships, while Oslo Science City's membership organisation coordinates diverse actors under a common vision.

A key advantage of embedding co-design is resilience and adaptability. Examples include Lund's iterative portfolio development, which promotes agility in responding to emerging opportunities, and Oslo's "continuous loop" urban design, which facilitates serendipitous interactions. In other cases, public-private partnerships have proven beneficial, such as Be'er Sheva's alignment of military technology units with local R&D to stimulate cybersecurity activity, and Singapore's One-North, which integrates statutory boards with private developers for long-term adaptability.

Each case depends heavily on anchor institutions –universities and research centres (e.g., CMU and Pitt in Pittsburgh; Ben-Gurion University in Be'er Sheva). Policy alignment with national or regional priorities is another common enabler, as seen in Oslo's integration with Norway's climate strategy and Singapore's strong centralised planning.

Governance structures differ across Innovation Districts, from centralised, state-led models (one-north, operated by JTC and national agencies) to networked partnerships (Pittsburgh's InnovatePGH coalition). Funding strategies also vary: while Be'er Sheva depends heavily on national catalytic investment, Pittsburgh emphasises blended capital models and community finance. Planning methods also differ, with Oslo and Melbourne prioritising dense urban integration, whereas one-north employs a master-planned precinct approach.

Overall, although governance models differ in centralisation and inclusivity, all cases show that co-designed governance encourages innovation-led growth by fostering flexibility, a shared vision, and strong institutional anchors.

Programme Design and Delivery

Insights on programme design and delivery mainly mirror the local strategies of the Innovation Districts and are closely connected to the governance differences mentioned earlier. All six Innovation Districts use co-designed, place-based strategies that draw on local strengths, incorporating flexibility and iterative development. For example, Lund Innovation District employs rolling innovation portfolios and structured dialogues to co-create projects that address regional needs. Similarly, Oslo Science City integrates spatial design, its “continuous loop” of multifunctional spaces, to promote interaction and foster knowledge spillovers.

Programme design varies in centralisation and thematic focus. One-North adopts a highly centralised, master-planned approach led by JTC Corporation, with precincts dedicated to specific types of innovation activity (Biopolis, Fusionopolis). In contrast, Pittsburgh and Melbourne focus on bottom-up, networked models, prioritising social innovation and equity alongside economic growth. Be'er Sheva aligns programme delivery with national security and regional development goals, concentrating on cyber, DeserTech, and digital health. This differs from Oslo's themes of sustainability and democracy.

Each district utilises anchor institutions to support programme implementation. Universities and research centres act as living labs, providing talent and infrastructure for testing and demonstration. Melbourne Innovation Districts exemplify this through RMIT and University of Melbourne campuses used for real-time prototyping. Pittsburgh integrates workforce development into programme design through initiatives like the Innovation District Skills Alliance, linking training to inclusive growth.

Common themes indicate that effective programme design integrates local specialisation, adaptable delivery mechanisms, and solid institutional foundations, while variations reflect governance styles, thematic priorities, and socio-economic contexts.

Outcomes and Impact

There is limited solid quantitative evidence on the outcomes and impacts of industrial districts. Instead, published sources often emphasise a narrative focused on systemic and input impacts, such as the number of businesses established or located within the district.

Each of the districts claims to have achieved economic growth, talent attraction, and enhanced innovation capacity. For example, Lund reports expanded innovation portfolios and cross-sector investments, while Pittsburgh asserts that it has created thousands of jobs and a thriving robotics and AI ecosystem anchored by Carnegie Mellon and Pitt. Claims of social and sustainability impacts are also common. Oslo Science City has incorporated climate neutrality and democratic resilience as success metrics, aiming for net-zero emissions and inclusive urban development. Similarly, Melbourne Innovation Districts prioritises social innovation and wellbeing, although tangible outcomes remain emerging.

Perceptions of 'success' also differ between districts. Singapore's one-north emphasises global competitiveness, hosting 400 firms, 16 research institutes, and 800 start-ups, and contributing to Singapore's top-tier innovation rankings. In contrast, Be'er Sheva defines success through regional transformation, relocating investment and talent to the Negev and establishing a cybersecurity hub linked to national defence assets. Oslo and Lund highlight cultural and creative industries as drivers for cross-sector transformation.

Enabling Conditions and Challenges

Commonalities emerge across the Innovation Districts in terms of the enablers and challenges to success. Shared enablers are:

- » **Strong Policy Alignment** - Each case is anchored in national or regional strategies. For example, Oslo Science City aligns with Norway's climate and urban development goals, while Be'er Sheva is embedded in Israel's national decentralisation and security strategy.
- » **Anchor Institutions and Institutional Density** - Universities and research centres act as innovation engines. Lund University and Carnegie Mellon University exemplify this by driving talent and research excellence.
- » **Dedicated Coordinating Bodies** - Neutral intermediaries facilitate collaboration. Future by Lund in Sweden and InnovatePGH in Pittsburgh serve as system orchestrators, managing complex multi-actor processes.
- » **Trust and Collaborative Culture** - High institutional trust, as seen in Norway, and long-standing traditions of cooperation in Sweden and Australia, enable effective co-design.
- » **Infrastructure and Connectivity** - Physical proximity and transport links are critical. Singapore's one-north benefits from master-planned infrastructure and global connectivity, while Melbourne leverages the Metro Tunnel project to enhance accessibility.

Shared challenges include:

- » **Integration of Ecosystem Components** - Coordinating physical assets (labs, offices) with intangible resources (talent, capital) is complex, noted in Lund and Melbourne.
- » **Sustaining Momentum** - Multi-stakeholder governance without a single authority makes continuity difficult, as seen in Lund and Pittsburgh.
- » **Talent Attraction and Retention** - Global competition for skilled workers affects all districts, particularly Be'er Sheva and Singapore, which rely on immigration and lifestyle factors.

Table 1: Summary of Innovation District Case Studies

Innovation District	Governance & Co-Design	Programme Design & Delivery	Outcomes & Impact	Enabling Conditions	Key Challenges	Funding Sources	Examples of Funded Projects
Lund Innovation District (LID)	Steering group: City of Lund, Lund University, ESS; Future by Lund as facilitator	Place-based innovation; rolling portfolios; co-developed strategies	Internationally recognised hub; 1,400+ companies; deep-tech & life sciences	Strong policy frameworks; proximity to Copenhagen	Integration of ecosystem components; sustaining momentum	Vinnova grants, municipal co-investment, EU Horizon funds, private sector	MAX IV Laboratory upgrades; Medicon Village biotech incubator; Future by Lund smart city pilots
Oslo Science City (OSC)	Membership association; City of Oslo, University of Oslo, SINTEF, hospitals, business	Dense urban knowledge district; thematic focus on health, climate, digitalisation, democracy	Net-zero ambition; societal challenge focus; sustainable jobs	Policy alignment; anchor institutions; trust culture	Multi-actor complexity; inclusivity	City of Oslo, national research grants, private partnerships	Climate House demonstration; AI & machine learning labs; Green mobility testbeds
Pittsburgh Innovation District (PID)	InnovatePGH as coordinator; CMU, Pitt, UPMC, local gov., business	Public-private partnership; inclusive growth; talent pathways	Major employment hub; robotics & AI leadership	Anchor institutions; civic partnerships; philanthropic support	Equity implementation; infrastructure investment	University endowments, philanthropic foundations, city/county funds	Innovation District Skills Alliance (IDSA); Robotics Factory start-up accelerator; AI healthcare pilot projects

Innovation District	Governance & Co-Design	Programme Design & Delivery	Outcomes & Impact	Enabling Conditions	Key Challenges	Funding Sources	Examples of Funded Projects
Be'er Sheva Innovation District (BSID)	National gov. + local stakeholders (municipality, BGU, Soroka Medical Center)	Focus on digital health, DeserTech, cybersecurity	High-tech hub; decentralises growth from Tel Aviv	National strategy; IDF tech units; strong academic anchors	Talent retention; balancing military & civilian priorities	National government, defence sector, private tech firms	CyberSpark cyber innovation hub; DeserTech climate adaptation labs; Digital health R&D centre
Melbourne Innovation District (MID)	City of Melbourne + RMIT + University of Melbourne	Urban innovation precinct; thematic focus on social care, clean economy, future tech	Mobilised diverse partnerships; strong social innovation ecosystem	Institutional density; alignment with state clusters	Limited community coherence; translating plans into impact	State infrastructure funding, municipal investment, university grants	City North Social Innovation Precinct (CNSIP); Clean Economy Living Lab; Metro Tunnel innovation integration
One-north and Singapore Science Park	JTC Corporation, A*STAR, EDB, National University of Singapore, the National University Hospital, and the Singapore Science Parks	Biomedical sciences, information and communications technology and engineering, media and the creative sectors, start-ups and incubators	High-tech and knowledge intensive clustering. Attracting international business	Strong state support and anchor tenants. Effective zoning and tax powers	Diversified sources of private capital, industry leadership and links to higher education	State investment; public-private partnership	Biopolis Fusionopolis Mediapolis and LaunchPad

3.2 Guidelines for developing innovation districts

Commonalities among our six case studies suggest guidelines for local actions that can support the development of innovation districts. These actions should be considered within the broader context of enabling conditions for success, which might include policy alignment between local and national strategies (Oslo, Singapore) and infrastructure investment (transport, digital connectivity) to enhance accessibility and knowledge sharing (Lund, Pittsburgh).

It is also important to recognise that Innovation Districts represent a specific type of place-based innovation policy. They generally cover a limited geographic area, are anchored in well-established R&D capabilities, and are often shaped by urban planning and independent governance structures. As policy-driven initiatives, Innovation Districts differ from innovation clusters, which usually form through the accumulation of agglomeration effects. They are also different from other forms of place-based innovation policy, such as regional R&D consortia (e.g., Strength in Places) or geographically dispersed support for local innovation activities (e.g., the Innovate UK Innovation Accelerators).

Due to these differences, lessons from the development of Innovation Districts may not be directly applicable to all types of place-based innovation policies.

Guidelines for local action in developing Innovation Districts suggested by our case studies are:

- » **Guideline 1: Ensure governance reflects co-design and multi-stakeholder engagement -** Successful districts depend on collaborative governance rather than top-down control. Neutral coordinating bodies (e.g., Future by Lund, InnovatePGH, Oslo Science City Association) act as system intermediaries, fostering trust and alignment among diverse actors. It is crucial to define clear roles within the governance structure across local government, universities, anchor institutions, and businesses for accountability and agility.
- » **Guideline 2: Ensure deep engagement with strategic anchors –** Deep engagement with universities, research labs, and industry hubs fosters knowledge spillovers and provides gateways to wider knowledge networks. Anchor institutions (e.g., CMU & Pitt in Pittsburgh, BGU in Be'er Sheva) provide sustainable talent pipelines and credibility.
- » **Guideline 3: Promote funding diversity -** All our Innovation district case studies combine public investment, research grants, and private sector contributions. Engaging with national or regional policy frameworks (e.g., Vinnova in Sweden, Israel's PM Office) provides stability. However, philanthropic and corporate partnerships (Pittsburgh) add resilience and flexibility.
- » **Guideline 4: Build flexible programme design –** Flexible programme design drives sustainability, while rolling portfolios and open innovation practices allow districts to pivot as

priorities evolve. Models such as testbeds and living labs (e.g., Melbourne's CNSIP, Oslo's green mobility pilots) can accelerate experimentation.

- » **Guideline 5: Expect outcomes to Extend Beyond Economic Growth** - Innovation Districts deliver societal benefits: tackling climate change, health challenges, and social inclusion. Embedding equity and inclusive growth principles (Pittsburgh, Be'er Sheva) can ensure benefits reach local communities. Cultural and creative sectors (Lund) can act as cross-sector drivers of innovation and growth.
- » **Guideline 6: Balance short-term deliverables with long-term vision** – Our case studies illustrate that innovation, economic and social benefits develop over different timelines. Balance expectations relating to shorter-term impacts and longer-term (and perhaps more uncertain) outcomes. Set realistic evaluation and monitoring timelines.

Please tell us what you thought of this report?

Now you have read our report we would love to know if our research has provided you with new insights, improved your processes, or inspired innovative solutions.

Please let us know how our research is making a difference by completing our short feedback form via this [link](#)

Thank you

The Innovation & Research Caucus

References

A-Lab. (2025, January 13). *Oslo Science City: People will be at the centre of Norway's first innovation district*. Available at: <https://a-lab.no/portfolio/osc>

Andes, S., Horowitz, M., Helwig, R., & Katz, B. (2017). *Capturing the Next Economy: Pittsburgh's rise as a global innovation city*. The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking, The

Brookings Institution. https://www.brookings.edu/wp-content/uploads/2017/09/pittsburgh_es.pdf

ARQA. (2021, December 6). *Oslo Science City*. Retrieved from <https://arqa.com/en/architecture/oslo-science-city.html#:~:text=Anchored%20in%20the%20City%20of,the%20country's%20transition%20to%20renewable>

Aw, A. (2005). *Singapore: The one-north project* [Paper prepared for the 41st ISOCARP Congress, Bilbao, Spain]. ISOCARP. <https://isocarp.org/app/uploads/2015/02/Bilbao-2005-Keynote-Arthur-Aw.pdf>

Bakken, V. (2023, April 25). *Case studies: The Climate House and Oslo Science City* [PowerPoint presentation]. University of Oslo. Available at: <https://www.unica-network.eu/wp-content/uploads/2023/05/Climate-house-and-Oslo-Science-City-Bakken-UiO-25-apr-COMPRESSED.pdf>

CapitaLand. (2019, May 13). *one-north: A vibrant centre of innovation*. CapitaLand. Available at: <https://www.capitaland.com/sg/en/lease/businesspark-industrial-logistics/workspace-content-studio/one-north-a-vibrant-centre-of-innovation.html>

Catapult. 2021. "Hubs of Innovation: The role of Districts, Corridors and Quarters as hubs of the Covid-adjusted innovation economy." Available at: <https://cp-catapult.s3.amazonaws.com/uploads/2021/03/Hubs-of-Innovation-Report-final-PDF.pdf>

Centre for Liveable Cities. (2018). *one-north: Fostering research, innovation and entrepreneurship* (Urban Systems Studies). <https://isomer-user-content.by.gov.sg/50/9e730d49-6061-4219-9052-5544c654bfa0/uss-one-north.pdf>

City of Melbourne. (2019, November 12). *City North Opportunities Plan* [Webpage]. Retrieved November 24, 2025, from <https://participate.melbourne.vic.gov.au/melbourne-innovation-districts/city-north-opportunities-plan#:~:text=The%20area%20is%20home%20to,infrastructure%20and%20property%20redevelopment%20initiatives>

City of Melbourne. (2025). *City North Opportunities Plan* [Webpage]. Retrieved November 24, 2025, from <https://participate.melbourne.vic.gov.au/melbourne-innovation-districts/city-north-opportunities-plan>

City of Oslo, Agency for Climate. (2024). *Climate Budget 2024: Enhanced efforts to cut greenhouse gas emissions*. <https://www.klimaoslo.no/rapport/oslo-climate-budget-2024/summary-enhanced-efforts-to-cut-greenhouse-gas-emissions/>

City of Pittsburgh, Department of City Planning. (2017). *EcoInnovation District Plan*. Available at: https://www.pittsburghpa.gov/files/assets/city/v/1/dcp/documents/3494_ecoinnovation_plan.pdf

Esmailpoorarabi, N., Yigitcanlar, T., Kamruzzaman, M., & Guaralda, M. (2020). *How can an enhanced community engagement with innovation districts be established? Evidence from Sydney, Melbourne and Brisbane* (Working paper). Retrieved November 24, 2025, from

<https://research.monash.edu/en/publications/how-can-an-enhanced-community-engagement-with-innovation-district/>

Fleetwood, J. (2024, September 25). Council calls for a “strategic reset” in City North. *CBD News*. <https://www.cbdnews.com.au/council-calls-for-a-strategic-reset-in-city-north/>

Forbes. (2021, July 6). *For the first time in Israel: An innovation district will be built in Beer Sheva*. Forbes Israel. <https://forbes.co.il/e/for-the-first-time-in-israel-an-innovation-district-will-be-built-in-beer-sheva/>

Future by Lund. (2025). *Lund Innovation District*. Retrieved November 12, 2025, from <https://www.futurebylund.se/en/lund-id>

Globes. (2020, January 22). *Beersheba to shift city centre to new innovation district*. Globes. <https://en.globes.co.il/en/article-beersheba-to-shift-city-center-to-new-innovation-district-1001315762>

Government of Israel. (2020, December 10). *Be'er Sheva Innovation District*. https://www.gov.il/BlobFolder/news/news_beersheva020220/he/news_beershevaeng101220.pdf

Hofstad, H., Sørensen, E., Torfing, J., & Vedeld, T. (2022). Designing and leading collaborative urban climate governance: Comparative experiences of co-creation from Copenhagen and Oslo. *Environmental Policy and Governance*, 32(3), 203-216.

IASP(2025) International Association of Science Parks and Areas of Innovation. (2025). “*MRANTI Park: Driving 5G Adoption for Innovation at MRANTI Park*” [Webpage]. Retrieved November 24, 2025, from <https://www.iaspinspiringsolutions.com/copy-of-mranti-park#:~:text=Transformed%20the%20City%20North%20Precinct,spectrum%20of%20social%20innovation%2C%20including%3A>

InnovatePGH. (n.d.). *About us*. LinkedIn. Retrieved November 20, 2025, from <https://www.linkedin.com/company/innovatepgh/about/>

Innovation Works. (2021, September 22). *Pittsburgh ranked as a top 25 emerging startup ecosystem globally in worldwide report*. Retrieved November 20, 2025, from <https://www.innovationworks.org/about/news/pittsburgh-ranked-as-a-top-25-emerging-startup-ecosystem-globally-in-worldwide-report>

JLL. (2025, November 12). *University-anchored innovation districts report*. <https://www.jll.com/en-us/newsroom/university-anchored-innovation-districts-report>

JTC Corporation. (2023). *one-north brochure* [Brochure]. JTC Corporation. <https://www.jtc.gov.sg/-/media/project/jtc-cx/corpweb/assets/find-land/estates/one-north/one-north-brochure.pdf>

JTC Corporation. (undated). *one-north*. JTC. <https://www.jtc.gov.sg/find-land/land-for-long-term-development/one-north>

Lee Kuan Yew School of Public Policy. (2018, June 13). *Innovation districts in Singapore – Can we plan for innovation?* LKYSPP. <https://lkyspp.nus.edu.sg/docs/default-source/case-studies/05062018-innovation-districts-in-singapore-hires.pdf>

Löthman, A. (2024, April 22). *From ideas to impact: Lund’s Innovation District and the future of tech*. Lund University School of Economics and Management. Available at: <https://www.lusem.lu.se/article/ideas-impact-lunds-innovation-district-and-future-tech>

Lund University. (2025, July 21). *Lund Innovation District*. Retrieved November 12, 2025, from <https://www.lunduniversity.lu.se/research-and-innovation/innovation-and-entrepreneurship/lund-innovation-district>

Mahmoud, I. H., Morello, E., Ludlow, D., & Salvia, G. (2021). Co-creation pathways to inform shared governance of urban living labs in practice: Lessons from three European projects. *Frontiers in sustainable cities*, 3, 690458. Available at: <https://www.frontiersin.org/journals/sustainable-cities/articles/10.3389/frsc.2021.690458/full>

Medicon Village. (2023, June 8). *Lund Innovation District - Global impact within walking distance*. Available at: https://www.mediconvillage.se/app/uploads/2023/06/Lund-Innovation-District_magazine_8-6-2023.pdf

Melbourne Innovation Districts (MID). (2025). *What is MID?* Retrieved November 24, 2025, from <https://mid.org.au/what-is-mid>

Miller, S. (2024, February 1). *New high-tech hub is making Israel's desert bloom with ingenuity*. NoCamels. <https://nocamels.com/2024/02/new-high-tech-hub-is-making-israels-desert-bloom-with-ingenuity/>

Nasdaq Entrepreneurial Center. (2025). *Advancing Regional Innovation Economies: Mapping the momentum of America's top entrepreneurial regions* (2025 ARIE report). <https://nasdaqcenter.org/wp-content/uploads/2025/11/advancing-regional-innovation-economies-2025-arie-report.pdf>

NLB (National Library Board). (undated). *one-north - Singapore*. NLB. <https://www.nlb.gov.sg/main/article-detail?cmsuuid=f7df02dc-e82a-44f4-96f2-90ff2e5b965d>

Norwegian Business School. (2023, May 25). *BI joins Oslo Science City*. Retrieved from <https://www.bi.no/en/about-bi/news/2023/05/oslo-science-city/#:~:text=I%20am%20very%20pleased%20that,and%20stakeholders%20within%20finance%20%26%20business.>

OECD (2022). *Drivers of trust in public institutions in Norway: Building trust in public institutions*. OECD Publishing. https://www.oecd.org/en/publications/drivers-of-trust-in-public-institutions-in-norway_81b01318-en.html

OECD OPSI. (2023, January 26). *Innovation Zones, Facets and Beyond - LIEPT (Lund Innovation Ecosystem Portfolio Tracking) governance model*. Retrieved November 12, 2025, from <https://oecd-opsi.org/innovations/innovation-zones-facets-and-beyond-liept-lund-innovation-ecosystem-portfolio-tracking-governance-model/>

Oslo Science City. (2021). *Feasibility study for Oslo Science City*. Retrieved from <https://mulighetsstudie.oslosciencecity.no/feasibilitystudy>

Oslo Science City. (2023). *Welcome to Oslo Science City*. <https://mulighetsstudie.oslosciencecity.no/1-welcome-to-oslo-science-city>

Oslo Science City. (n.d.). *About Oslo Science City*. Available at: <https://www.oslosciencecity.no/en/om>

Peled, M., Gilo, Y. K., & Fredman, A. (2022, April). *Implementing inclusive growth in the Be'er Sheva Innovation District*. Joint Elka. <https://www.thejoint.org.il/en/digital-library/implementing-inclusive-growth-in-the-beer-sheva-innovation-district/>

PID (n.d.). *About the District*. <https://pittsburgh.id/about-the-district/>

PID. (2023). *About the district*. Retrieved November 21, 2025, from <https://pittsburgh.id/about-the-district/>

Pittsburgh Innovation District. (n.d.). *About the district*. Retrieved November 20, 2025, from <https://pittsburgh.id/about-the-district>

Poczek, J., Hjorth, C. L., Scott, K., & Kisch, P. (2024). Developing an open innovation culture in Lund's innovation district. In *Academic and Practitioner Proceedings of the 2024 UIIN Conference: Challenges and solutions for fostering entrepreneurial universities and collaborative innovation 2024 UIIN Conference, hosted on 27th-29th May at Madrid, Spain* (pp. 48-63).

RMIT University. (2024.). *City North Social Innovation Precinct: A vision for social innovation*. Retrieved November 24, 2025, from <https://next.rmit.edu.au/city-north-social-innovation-precinct/>

Scarborough Group International. (2025, April 9). *Innovation beyond borders: Lessons from Oslo*. Retrieved from <https://scarboroughgroup.com/news/innovation-beyond-borders-lessons-from-oslo/?utm>

Stephens, R. J. S. (2025). Quadruple Helix co-creation and cities: Behavioural and institutional changes in innovation capacities and cultures. *Cities*, 157, 105579.

Stouhi, D. (2021, December 3). *BIG and A-Lab unveil designs of new innovation district in Norway*. ArchDaily. Available at: <https://www.archdaily.com/972940/big-unveils-designs-of-new-innovation-district-in-norway#:~:text=The%20district%20aims%20to%20be,solutions%20during%20development%20and%20operation>.

The Jerusalem Post. (2020, January 11). *Beersheba rises as Israel's new tech hub*. <https://www.jpost.com/israel-news/beersheba-rises-as-israels-new-tech-hub-613775/>

The Jerusalem Post. (2022, September 8). *Beer-Sheva – a city with a message that will lead a revolution*. <https://www.jpost.com/opinion/article-716646>

Third Story. (2025, September 3). *Codesigning new models of community-university collaboration: RMIT's City North Social Innovation Precinct (CNSIP)* [Webpage]. Retrieved November 24, 2025, from <https://www.thirdstory.org/our-projects/city-north-social-innovation-precinct#:~:text=RMIT's%20City%20North%20Social%20Innovation,world%20leading%20social%20innovation%20precinc>

UBE SG. (2025, March 21). *one-north: Singapore's Innovation & Business Hub*. UBE SG. <https://www.ubesg.com/post/one-north-singapore-innovation-hub>

Uptown Partners. (n.d.). *Uptown/West Oakland EcoInnovation District Plan*. Retrieved November 20, 2025, from <https://www.uptownpartners.org/plans/277-2/>

Wall-to-Wall (2025). *Pittsburgh Innovation District*. Retrieved November 20, 2025, from <https://www.walltowall.com/pages/pittsburgh-innovation-district>

Wise, E., Hjorth, C. L., & Scott, K. (2023, May). *Strengthening governance of place-based ecosystems: Lund Model for Innovation Ecosystem Portfolio Tracking (LIEPT)*. In *Academic and Practitioner Proceedings of the 2023 UIIN Conference Series: Challenges and solutions for fostering entrepreneurial universities and collaborative innovation* (pp. 146–162). UIIN.

Wong, K. W., & Bunnell, T. (2006). 'New economy' discourse and spaces in Singapore: A case study of one-north. *Environment & Planning A*, 38(1), 69–83. <https://urbanaspirationsasia.wordpress.com/wp-content/uploads/2018/05/new-economy-discourse-and-spaces-in-singapore-a-case-study-of-one-north.pdf>

Wong, P. K. (2022). *An evolutionary analysis of the development of the One North Innovation District in Singapore*. *Journal of Evolutionary Studies in Business*, 7(2), 70–99. <https://doi.org/10.1344/jesb2022.2.j107>

World Architecture. (2021, December 3). *BIG reveals design for a new innovation district: Oslo Science City in Norway*. <https://worldarchitecture.org/architecture-news/emchv/big-reveals-design-for-a-new-innovation-district-oslo-science-city-in-norway.html>

www.ircaucus.ac.uk

Email info@ircaucus.co.uk Twitter [@IRCAucus](https://twitter.com/IRCAucus)

