



Working paper #4: What is innovation?

Eastern Region Health Innovation and Care Economy Project

Eastern Region Group of Councils

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Executive summary

Introduction

The project is a region-wide research and engagement project to develop a strategy to advance regional priorities and inform advice to government on the development of a health innovation and care (HI&C) economy in the Eastern Region of Metropolitan Melbourne.

This paper is to understand the role of innovation in economic development. The focus is on understanding how innovation happens in places and creates new businesses, products or services and what government can do to support it. This includes developing case studies on frameworks and initiatives elsewhere that support innovation and regional economic development.

Working paper findings

Innovation is associated with developing new products, processes, and ideas. Innovation is a complex and iterative process that combines creative thinking, experimentation, risk-taking, and collaboration.

Investment in innovation, science and research provides the foundation for new technologies and novel or significantly improved processes, products, marketing, and organisational practices. All of these provide a competitive advantage for firms and nations by enabling the capture and creation of value through offering better services and products or reducing costs. The commercialisation of innovation is a critical driver of economic growth and development.

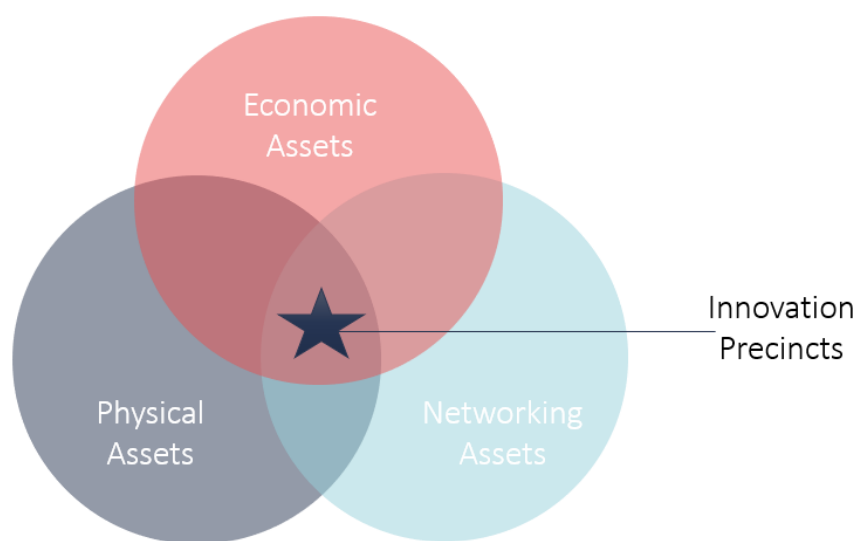
The significant findings from the paper are outlined below.

Innovation happens in places

In promoting an innovative, enterprising and creative economy, geography and physical environments matter. Over the past decade, there has been a move away from a conventional neoclassical (mostly spatially blind) approach, which regarded regions as homogeneous entities and regional policy intervention as largely ineffective. In its place is a place-based approach that deliberately focuses on utilising policy to develop economies building upon a region's existing advantages and capabilities.

There are many distinctions within regional economies regarding how an innovation spatially looks. However, all innovation economies contain three critical assets (Figure 3) – economic assets (firms, institutions and organisations that drive, cultivate or support the development of the place), physical assets (publicly or privately owned spaces and infrastructure) and networking assets (relationships between people, firms and places).

FIGURE 1: KEY COMPONENTS OF INNOVATION DISTRICTS/CORRIDORS/REGIONS



Source: Brookings, 2014

The drive for innovation for economic development has led policymakers and urban planners to favour the development of innovation precincts, clusters or corridors, which are geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators and accelerators.

For regional economic development, the research suggests that the most innovative regions are where there is good industry diversity, multiple parts of the value chain for individual goods are in close proximity, and supported by good infrastructure and networks for collaboration.

The Eastern Region as an innovation ecosystem

In the Eastern Region, there is an opportunity to conceptualise the region as an innovation ecosystem that seeks to maximise innovation activities. This can be done through leveraging the connections between the region's critical HI&C economy assets and build clear competitive advantages to advance industry attraction.

Success factors of place-based innovation

Based on the research and case studies, success factors for place-based innovation include:

- Highly accessible and connected locations through both public transport and private vehicles. Accessibility to a skilled labour force via public transport is essential in attracting businesses.
- Credible and reputable anchor enterprises/ institutions that are present, relevant to and engaged with industry to realise the innovation benefits of co-location.
- A critical mass of related enterprises in a range of target industries. Up to five industries are generally targeted, often including tech, MedTech and life sciences.

- Vibrant, amenable, and walkable physical environment, often realised through dense, mixed-use development with diverse housing options, including affordable housing.
- Well-connected digital environment with adequate ICT infrastructure to service knowledge-based businesses.
- Open and democratic operating environment with a mindset for collaboration.
- Shared/ collaborative spaces that facilitate cooperation between individuals, complemented with a calendar of informal and formal events.
- Flexible design that promotes scalability and continual evolution:
 - Employment floorspace (such as offices, labs, and manufacturing spaces) for all forms of businesses (start-ups through to anchors)
 - Dedicated spaces should be provided for start-ups. In the absence of these dedicated spaces, start-ups are often priced out of desirable locations. .
- Governance arrangements that nurture a vision and long-term economic development objectives.

Long-term governance models providing direction are integral to the success of place-based innovation

A cluster of businesses on their own does not guarantee innovation. How those businesses are attracted, the value they derive from the location and the ability to create networks is often due to a governance structure that curates a precinct or regional network.

Long-term governance models providing direction are integral to the success of place-based innovation. The strategic intent for co-location, notably knowledge transfer and commercialisation, must be clear and depict the expected value added to stakeholders.

Innovation has considerable economic benefits

Innovation has macroeconomic benefits relating to productivity across industry, improved global competitiveness, increased exports and improved quality of life through new technologies and treatments. Innovative regions are more productive, resilient, adaptable to change and better able to support higher living standards. Innovation also has microeconomic benefits for creating new businesses and industries, collaboration, and skill development.

Case studies

Case studies were found that provide examples of strategies from around the world that have been used to support innovation. These are:

- The **Smart Specialisation Strategy**, is an approach started by the EU. Smart Specialisation is a Framework approach to regional economic development that aims to help regions identify and build on their unique strengths. The Framework involves a participatory process of stakeholder engagement, analysis of the region's strengths and weaknesses, and identification of opportunities for growth and innovation based on the strengths.

- The **Innovation Growth Lab** is a global partnership between Nesta, the United States' National Bureau of Economic Research, the World Bank, and several other research institutions and foundations. Its primary mission is to promote innovation and entrepreneurship by funding and researching what policies and programs are most effective at driving innovation-led growth. Through rigorous research and evaluations, the Growth Lab has provided policymakers with evidence-based insights into supporting innovation-led growth, such as R&D tax credits, access to finance, and innovation vouchers. It has also developed a global network of experts and policymakers who share their knowledge and experiences to drive innovation and growth in their respective countries and regions.
- The **Catapult Network** connects nine renowned technology and innovation centres across the UK. The 'catapults' are physical centres that host R&D infrastructure, including laboratories, factories, offices, and technical experts. An overarching goal of the network is to bridge the gap between industry and research. Catapults also use innovation to help regenerate underdeveloped areas, working with the government to address inequality through a programme of infrastructure development and investment in education, skills, science and R&D. The role of catapults is to accelerate the commercialisation of research and helping the UK's regions attract high-value investment into economically-lagging areas to create jobs, wealth and investor confidence.
- An Australian example of place-based industry strategy is the diverse range of strategies across NSW (but predominantly focused on Greater Sydney) to create a network of '**Innovation Precincts**' targeting investment in various sectors. These innovation precincts are inherently place-based, leveraging existing competitive, comparative and collaborative advantages to drive investment in target sectors. They are often built around particular assets, such as a hospital, university or major anchor industry partner.

1. Introduction

1.1 Introduction to the project

The project is a region-wide research and engagement project to develop a strategy to advance regional priorities and inform advice to government.

This project seeks to understand the regional strengths and opportunities relevant to health and the role of the health economy in regional recovery and growth.

The project aims to position the region as a leader and to support future growth in health care and innovation for regional economic benefit through:

- Leveraging existing regional strengths (world-class health precincts, R&D capacity)
- Capitalising on current government investment and projected future growth and innovation (e.g. MedTech; active and future medical / health precincts; clinical trials)
- Futureproofing against regional vulnerabilities and health challenges (e.g. fastest ageing metropolitan region; COVID-19 recovery; key worker housing)
- Addressing current and projected workforce and skills shortages (nursing, aged care, disability care; highly-skilled innovative professionals and entrepreneurs)

The project's first stage will produce a series of five working papers to act as a resource to inform a co-design phase in 2023. The co-design phase will identify how regional stakeholders will respond to the opportunities and challenges presented.

1.2 Introduction to the paper

This paper is to understand the role of innovation in economic development. The focus is on understanding how innovation happens in places and creates new businesses, products or services and what government can do to support it. This includes the development of case studies on frameworks and initiatives elsewhere that support innovation and regional economic development.

2. Innovation

2.1 What is innovation?

Innovation is associated with developing new products, processes, and ideas. Commercialisation is the process of bringing a new product or service to market and making it available to consumers.

Investment in innovation, science and research provides the foundation for new technologies and novel or significantly improved processes, products, marketing, and organisational practices. All of these provide a competitive advantage for firms and nations by enabling the capture and creation of value through offering better services and products or reducing costs. The commercialisation of innovation is a critical driver of economic growth and development.

In health care and services, innovation is reshaping the industry in multiple ways, from accessibility to deliverance and outcomes. The remarkable increase in quality and length of life over the last 100 years is attributable to innovation within health and related fields. The recent influence of Covid-19 has only catalysed the research and development of innovative solutions further, highlighting the importance of adaptive responses within the industry.

Research conducted by McKinsey Company has identified four industry-level changes that have continued to influence the health sector. These are;

- Modernised transaction and data infrastructure,
- Increased efficiency in the medical supply chain,
- Faster and more effective therapy development,
- Personalised and intuitive health care ecosystems.¹

2.2 How does it happen?

Innovation is a complex and iterative process that combines creative thinking, experimentation, risk-taking, and collaboration.

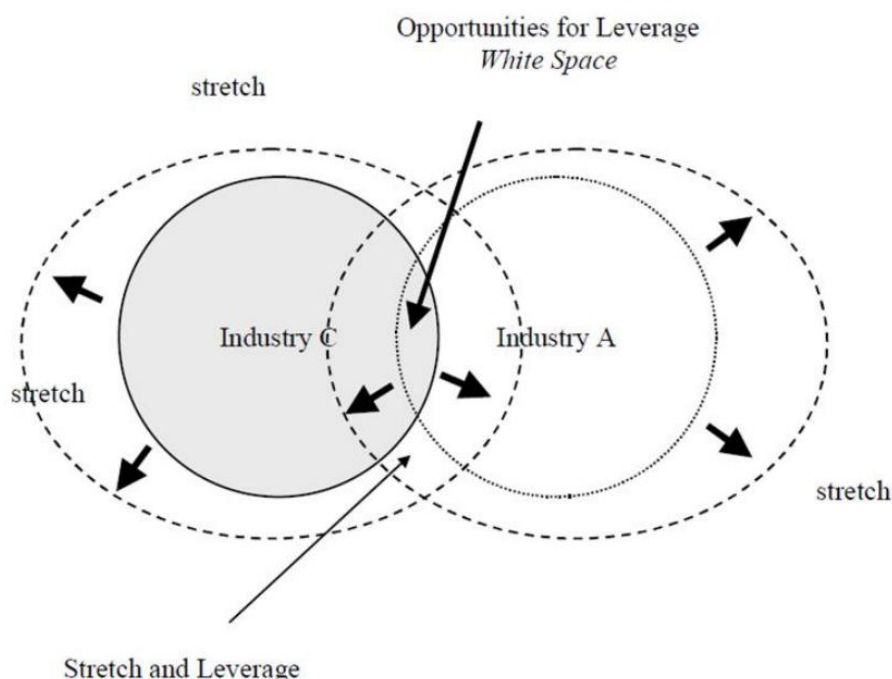
From a planning and economic development perspective, sub-regional economies and precincts can be considered an ecosystem with multiple actors interacting and influencing one another directly and indirectly. Creating a successful innovation precinct/region requires a deep and consistent interaction between the entities and their activities.

The relationship of innovation with the intersection of different industries is conceptualised through the 'Stretch and Leverage' concept shown in Figure 2. This economic development framework focuses on the expansion and interaction of existing industries to create new opportunities, generating innovation.

¹ Singhal, S. & Carlton, S., (May 2019), The era of exponential improvement in health care?, *McKinsey & Company*, <https://www.mckinsey.com/industries/health-care/our-insights/the-era-of-exponential-improvement-in-health-care>

Stretching involves expanding existing resources, infrastructure and core competencies of an industry sector (e.g. building on the strength of existing sectors and industries). The leverage approach utilises resources between industries to create new hybrid industries in the space between industry sectors. This space is where new opportunities for industry attraction and establishment may arise. The opportunity to stretch and overlap seemingly different industries is high when there is a highly diverse industry mix.

FIGURE 2: STRETCH AND LEVERAGE CONCEPT



2.3 Where does it happen?

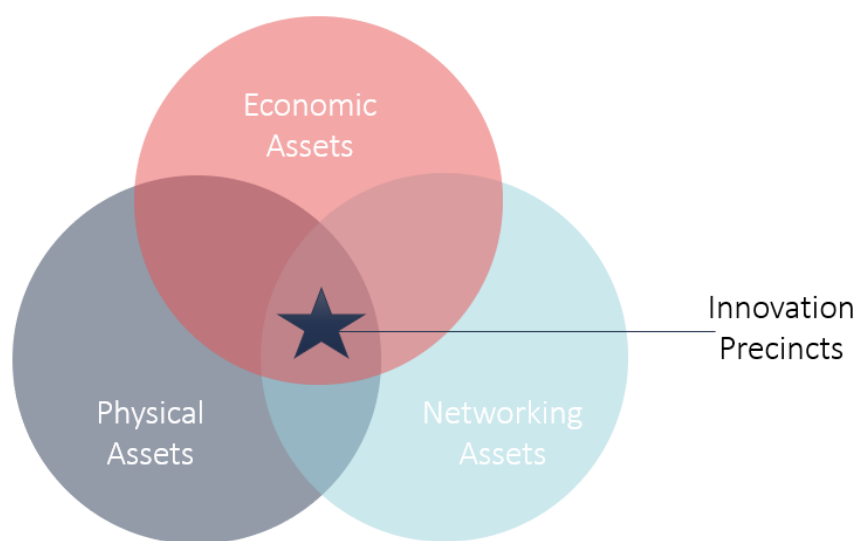
In promoting an innovative, enterprising and creative economy, geography and physical environments matter.

Over the past decade, there has been a move away from a conventional neoclassical (mostly spatially blind) approach, which regarded regions as homogeneous entities and regional policy intervention as largely ineffective. In its place is a place-based approach with a deliberate focus on utilising policy to develop economies building upon a region's existing advantages and capabilities.

Over the years, a broad range of terms linked with employment clusters has been adopted within the literature, including technology parks or 'technopoles', knowledge parks, science or innovation precincts, and enterprise corridors. While there may be differences, they share a common rationale for existence, namely, to leverage the benefits of co-location within and across industries.

There are many distinctions within regional economies regarding how an innovation spatially looks, but all innovation economies contain three key assets (Figure 3) – economic assets, physical assets and networking assets.

FIGURE 3: KEY COMPONENTS OF INNOVATION DISTRICTS/CORRIDORS/REGIONS



Source: Brookings, 2014

Economic assets are the firms, institutions and organisations that drive, cultivate or support the development of the place. Physical assets are publicly or privately-owned spaces, including streets and other infrastructure, designed and organised to stimulate new and higher levels of connectivity, collaboration and innovation. Networking assets are the relationships between people, firms and places that facilitate local supply chains, business support, ideas generation, and advances in commercialisation.

The drive for innovation for economic development has led policymakers and urban planners to favour the development of innovation precincts, clusters or corridors, which are “geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators and accelerators”².

Other trends that have shaped the demand for innovation in places include;

- The increased importance of cross-sectoral collaborations for both research and industrial outcomes.
- The growing prominence of ‘wicked problems’ requires interdisciplinary, cross-sectoral and cross-functional skills and partnerships, such as climate change, urban growth and food security.
- The demand for ‘interpretative spaces’ and open spaces for information exchange and discovery.

Another way of conceiving innovation in places is demonstrated in the Smile Curve concept of value creation (Figure 4).

The Smile Curve is a concept developed by Stan Shih, the founder of the Taiwanese computer manufacturer Acer. The Smile Curve represents the value creation process in a manufacturing or

² Katz, B. & Wagner, J., (May 2014), The Rise of Innovation Districts: A New Geography of Innovation in America, *Metropolitan Policy Program*

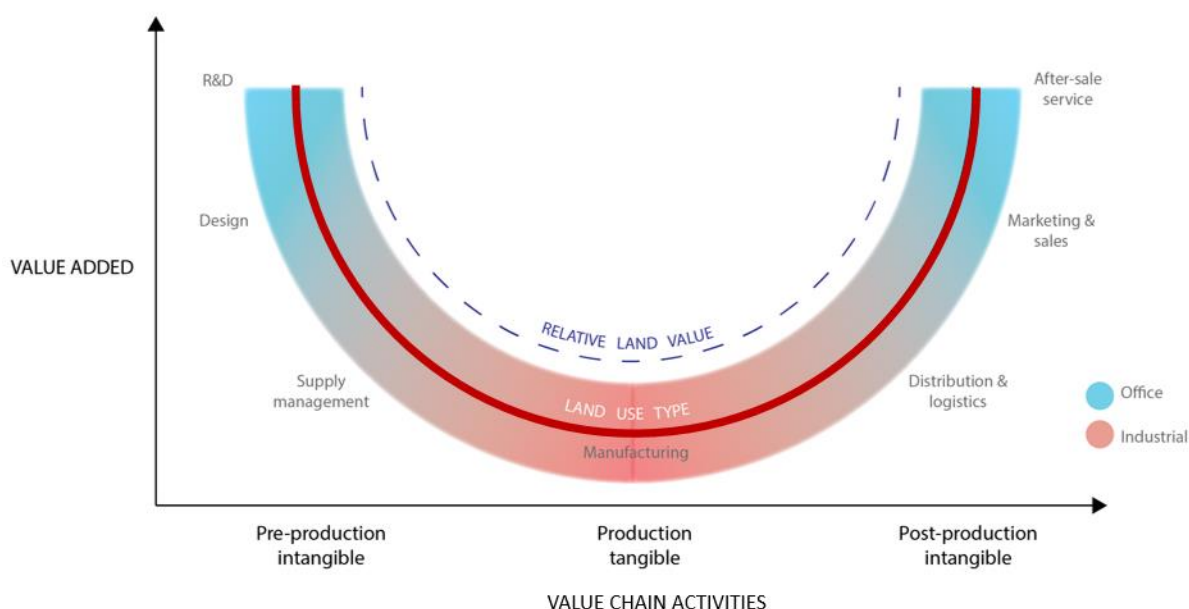
service-based industry and is often used to illustrate the importance of innovation and design in adding value to a product or service.

Shaped like a smile, the Smile Curve has two ends representing the high value-added stages of production (such as research and development, design, and marketing). The middle of the curve represents the mid-value-added stages (such as production and assembly).

According to the Smile Curve concept, the highest value-added stages of production are the stages where companies can differentiate themselves from their competitors and create more valuable products for customers. By focusing on these high-value-added stages, companies can generate higher profits and build stronger competitive positions in the marketplace. From an economic development perspective, having these high-value stages locally is highly beneficial.

The Smile Curve concept also emphasises the importance of collaboration and partnerships between companies and their suppliers and the need for continuous investment in research and development to stay ahead of competitors.

FIGURE 4: SMILE CURVE CONCEPT OF VALUE CHAIN ACTIVITY

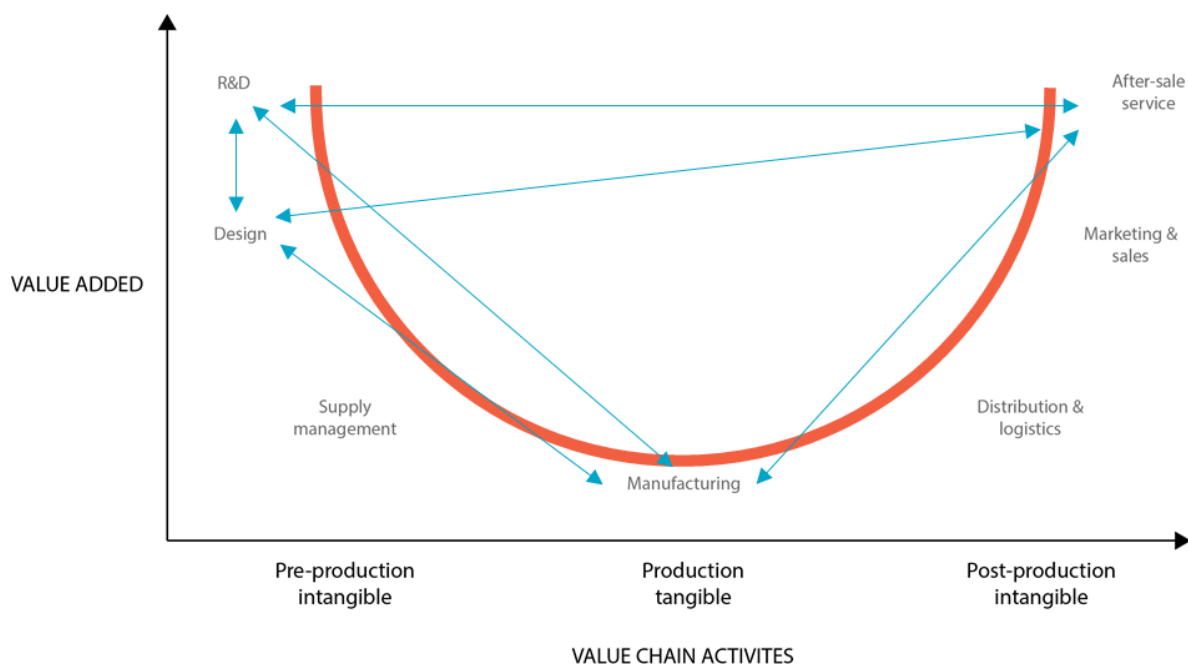


Source: SGS Economics and Planning, 2020, building on Smiling Curve derived from CSIRO Futures Advanced Manufacturing: A Roadmap for unlocking Future Growth Opportunities for Australia, (2016) and originally adapted from Stan Shih's 'Smiling Curve'.

SGS's critique of the Smile Curve, however, is that it presents a linear view of value creation when it is a far more iterative process in complex, knowledge sector economies. In economies such as Australia, there is a high degree of interaction between different parts of the value chain. For instance, R&D (early in the value chain) may require manufacturing for prototyping or interaction with financial services to enable investment.

Economic ecosystems that have many of these elements of value creation in proximity have the potential to exploit their inter-relationships. It creates a more fertile environment for cross-sector innovation than districts and regions that don't have different parts of the supply chain.

FIGURE 5: INCREASING ACTIVITY BETWEEN VALUE CHAIN PROCESSES



Source: SGS Economics and Planning, 2022

For regional economic development, the research suggests that the most innovative regions are where there is good industry diversity, multiple parts of the value chain for individual goods are in close proximity, and supported by good infrastructure and networks for collaboration. To have leading businesses, having strength in research and design are precious attributes to have in your region.

Success factors of place-based innovation

SGS, based on previous work around innovation precincts and building upon the ‘Stretch and Leverage’ concept, has developed nine success factors for place-based innovation. These include;

- Highly accessible and connected locations through both public transport and private vehicles. Accessibility to a skilled labour force via public transport is essential in attracting businesses.
- Credible and reputable anchor enterprises/ institutions that are present, relevant to and engaged with industry to realise the innovation benefits of co-location.
- A critical mass of related enterprises in a range of target industries. Up to five industries are generally targeted, often including tech, MedTech and life sciences.
- Vibrant, amenable, and walkable physical environment, often realised through dense, mixed-use development with diverse housing options, including affordable housing.
- Well-connected digital environment with adequate ICT infrastructure to service knowledge-based businesses.
- Open and democratic operating environment with a mindset for collaboration.
- Shared/ collaborative spaces that facilitate cooperation between individuals, complemented with a calendar of informal and formal events.

- Flexible design that promotes scalability and continual evolution:
 - Employment floorspace (such as offices, labs, and manufacturing spaces) for all forms of businesses (start-ups through to anchors)
 - Dedicated spaces should be provided for start-ups. In the absence of these dedicated spaces, start-ups are often priced out of desirable locations.
- Governance arrangements that nurture a vision and its long-term economic development objectives.

2.4 What governance is involved?

A cluster of businesses on their own does not guarantee innovation. How those businesses are attracted, the value they derive from the location and the ability to create networks is often due to a governance structure that curates a precinct or regional network.

Long-term governance models providing direction are integral to the success of place-based innovation. The strategic intent for co-location, notably knowledge transfer and commercialisation, must be clear and depict the expected value added to stakeholders.

A separate body can support innovation and commercialisation via support services (e.g. incubator scheme, intellectual property, business planning, seed and venture capital, partnering). Getting the governance settings right ensures:

- participants are engaged in the precinct,
- sufficient resources are readily available, and financing is properly managed,
- activities are executed efficiently and,
- overarching targets are met.³

For a governance mechanism, there are two broad focuses it could take, development or curation. These are summarised in Table 1. A development focus looks to ensure the building blocks for innovation are there, by doing land use planning or developing supporting infrastructure like transport and utilities. A curation approach looks to support innovation by having a more ongoing hands-on role by providing support to businesses, building relationships, or attracting and selecting tenants for innovation precincts.

TABLE 1: GOVERNANCE MECHANISMS

Focus	Elements
Development	<ul style="list-style-type: none"> - Establishing the optimal land use settings through planning controls - Master planning for key precincts - Delivery of required enabling infrastructure (transit, roads, utilities etc.) - Sale/assignment of development rights in line with masterplan

³ Department of Industry, Innovation and Science, (June 2019), *Innovation Precinct Insights: Guidance for innovation precincts, Australian Government*, <https://www.industry.gov.au/sites/default/files/2019-09/innovation-precincts-insights-governance-arrangements.pdf>

- Sale/assignment of future development rights if masterplan is modified to accommodate expansion.

Curation	<ul style="list-style-type: none"> - Delivery of placemaking and activation programs - Marketing, promotion and investment attraction - Curation of technology/innovation tenants, including delivery of incubator/s, accelerators or co-working spaces - Curation/brokerage of university and research institute involvement - Partnership and collaboration brokerage - Management and other services, including municipal services (waste recycling, street cleansing, maintenance of assets) - Ongoing planning and development assessment (in line with the master plan(s)) - Collection of property rates to fund municipal and related services.
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Source: SGS Economics and Planning, 2019

Role of the private sector

The private sector is central to the success of enterprise corridors as it is likely to comprise the bulk of employment. Agglomeration of complementary businesses creates a clear specialisation and gravitation pull for future businesses.

Private firms play a critical role by being market actors. They are often best placed to discover new entrepreneurial opportunities. Yet, in many cases, the private sector may be unable to create and/or capture the full potential value of these opportunities due to market and systemic failures. Without intervention, this can lead to underinvestment in strategy and infrastructure, human resources, innovation and increasing the returns to scale.

Institutions such as hospitals, universities and TAFEs and Medical research institutes (MRIs) are often valuable assets in the success of innovation. They provide opportunities for R&D and fabrication partnerships as well as training pathways for local businesses.

2.5 What are the economic benefits?

Innovation has macroeconomic benefits relating to productivity across industry, improved global competitiveness, increased exports and improved quality of life through new technologies and treatments.⁴ Innovative countries are more productive, resilient, adaptable to change and better able to support higher living standards.⁵ Innovation also has microeconomic benefits for creating new businesses and industries, collaboration, and skill development.

⁴ WIPO, (2022), Global Innovation Index 2022 – what is the future of innovation driven growth?, *Global Innovation Index*, <https://www.globalinnovationindex.org/gii-2022-report#>

⁵ OECD, (2015), The innovation imperative – contributing to productivity, growth and well-being, www.oecd.org/publications/the-innovation-imperative-9789264239814-en.htm

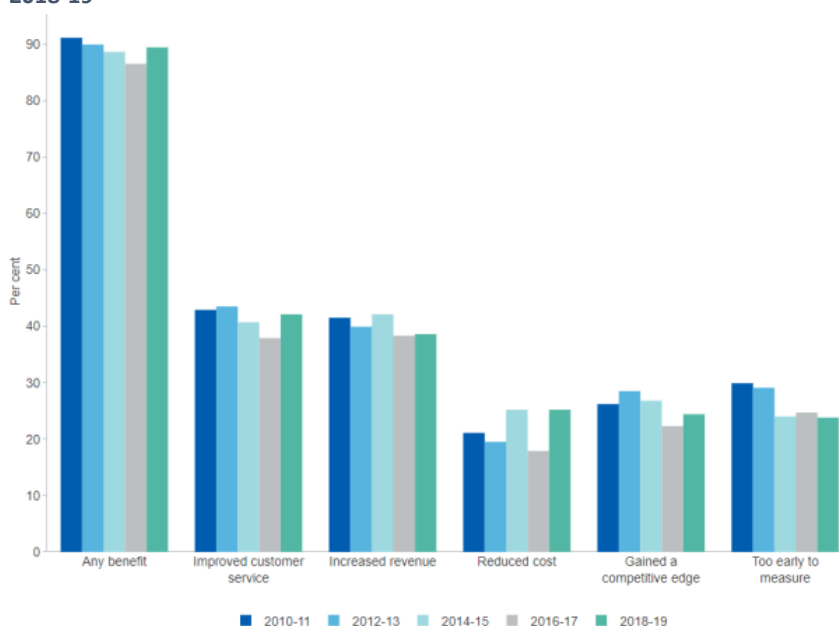
Internationally, governments are harnessing innovation, science and research investments to drive their economies. Economies with well-designed investments, appropriately scaled to deliver against the government’s priorities, are delivering short, medium and long-term returns. Returns can range from short-term economic stimulus to long-term transformations that underpin future prosperity⁶.

In Australia, the health sector is competitive in its capability of innovative development. In a single year, around 10,000 digital health apps are typically added to the app store, almost as many pharmaceutical research papers are published, and the Australian medical technology industry grosses over ten billion dollars.⁷ Health, medical research, and innovation are central to Australia’s economy, being the largest sectors in value and the country’s biggest employer.⁸

KPMG has previously quantified the economic impact of medical research, revealing that it generates a cost-benefit ratio (BCR) of 3.9. This means that every dollar spent on medical research generates \$3.90 in value for the Australian community through economic and health outcome benefits.

The Department of Industry, Science and Resources monitors the impact of innovation on Australia’s business, industry, and national performance. The benefit of introducing innovation into a business is shown in Figure 6.

FIGURE 6: BENEFITS OF INTRODUCED INNOVATION, SHARE OF INNOVATION-ACTIVE BUSINESSES, PER CENT, 2018-19



Source: Australian Innovation System Monitor, 2019⁹

⁶ Industry Innovation and Science Australia (2021). Driving effective Government investment in innovation, science and research

⁷ Botallo. L., (2020), Health Technology Industry in Australia, *Flanders Investment & Trade*, https://www.flandersinvestmentandtrade.com/export/sites/trade/files/market_studies/HEALTH%20TECHNOLOGY%20INDUSTRY%20IN%20AUSTRALIA.pdf

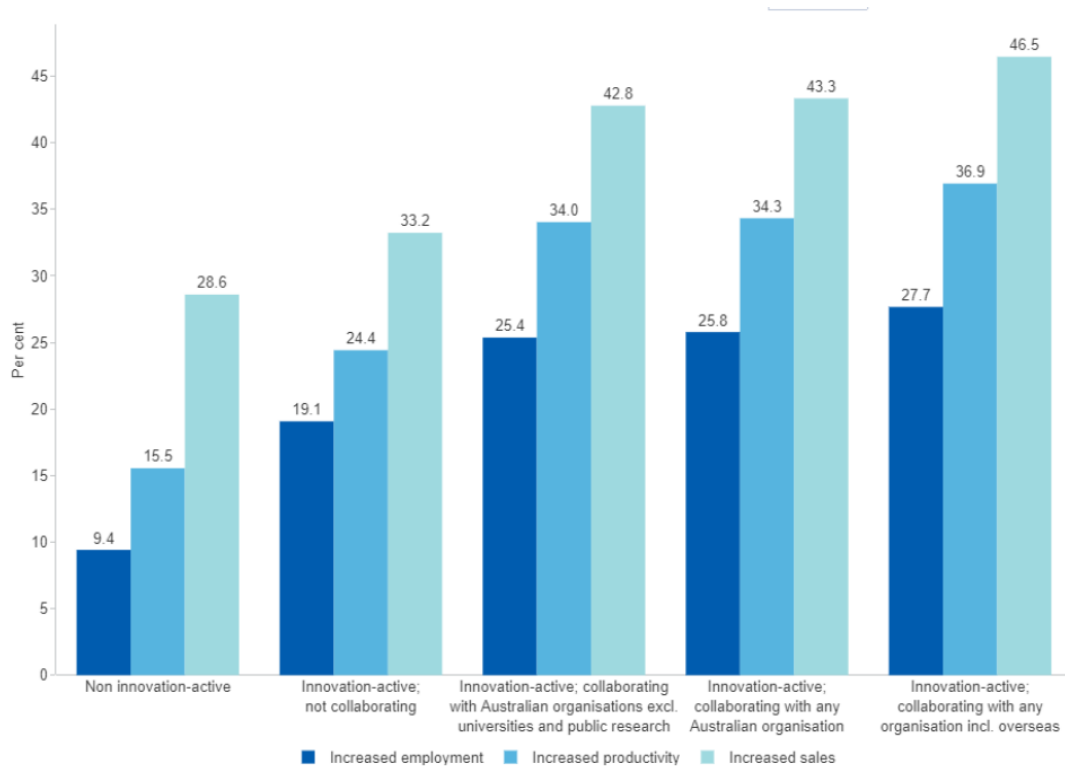
⁸ Melbourne Institute: Applied Economic & Social Research, (n.d.), Health and Health care, *University of Melbourne*, <https://melbourneinstitute.unimelb.edu.au/research/health>

⁹ Office of Chief Economists, (2019), Australian Innovation System Monitor – 1.3 Benefits of Innovation, *Department of Industry, Science, Energy and Resources*, <https://www.industry.gov.au/sites/default/files/minisite/static/e809cbb0-a803-4827-a45b-51598ba272b2/australian-innovation-system-monitor/index.html>

The most common area of improvement from innovation for businesses was improved customer service and increased revenues, with around 40 per cent of innovating businesses experiencing these benefits. Reduced costs and gaining a competitive advantage are other benefits reported for Australia’s businesses.

Research also shows that innovation-active businesses are more consistent in reporting increased employment, productivity and sales than those that are not innovative. Results are improved further when innovative businesses collaborate with partners. The relationship between innovative and collaborative business to improved performance is shown in Figure 7.

FIGURE 7: EMPLOYMENT, PRODUCTIVITY AND SALES OUTCOMES BY INNOVATION STATUS AND COLLABORATION



Source:

Department of Industry, Innovation and Science, 2017

3. Case studies for supporting and understanding innovation

This chapter captures strategies from around the world that have been used to support innovation.

3.1 Smart Specialisation Strategy Framework

The Smart Specialisation Strategy Framework is a strategic approach to regional economic development that aims to help regions identify and build on their unique strengths and opportunities to drive innovation and growth.

The European Union developed the Framework in 2011 as part of its Cohesion Policy, which supports the development of less developed regions in the EU. The Framework involves a participatory process of stakeholder engagement, analysis of the region's strengths and weaknesses, and identification of opportunities for growth and innovation.

The Framework also helps regions to:

- Identify their unique competitive advantages and strengths in key economic sectors or technologies, and align their resources to support these areas of specialisation.
- Build networks and collaborations between regional stakeholders (e.g. businesses, universities, research institutions, and government) to promote innovation, knowledge transfer, and entrepreneurship.
- Ensure that public investments are aligned with the region's strategic priorities and are effectively coordinated across different levels of government and institutions.

With the support of the Latrobe Valley Authority, Gippsland has recently engaged the University of Melbourne and RMIT University to develop a Smart Specialisation Strategy. The project aims to assist the region in transitioning and transforming the economy after major industry closures. The process sought to leverage existing regional initiatives and identify new connections between stakeholders (business, government, community, and education/research) with the potential for innovation, resilience and global competitiveness.

The phases involved in Gippsland were¹⁰:

One: Analysis of regional context/potential

- Mapping and assessment of existing assets and innovation ecosystems
- Identifying regional resources and existing specialities, institutional settings and competitive strengths and/or weaknesses

¹⁰ Geodgebuure, L. et al, (n.d.), Gippsland Smart Specialisation Strategy, *University of Melbourne*, <https://sustainable.unimelb.edu.au/research/research-projects/gippsland-smart-specialisation-strategy>

Two: Governance – participation and collaboration

- Undertaking broad engagement with stakeholders, including policymakers, business, research, education, and community, using a quadruple helix approach, as shown in Figure 8.
- Collaboration with businesses involving a demand-side as well as supply-side perspective

Three: Designing a shared vision for the future by setting priorities

- Formulating different scenarios and dialogue on future development paths for the region through an entrepreneurial discovery process.
- The selection of regional priorities for specialisation within the region's growth and innovation potential ensures the capacity to build critical mass and be competitive.

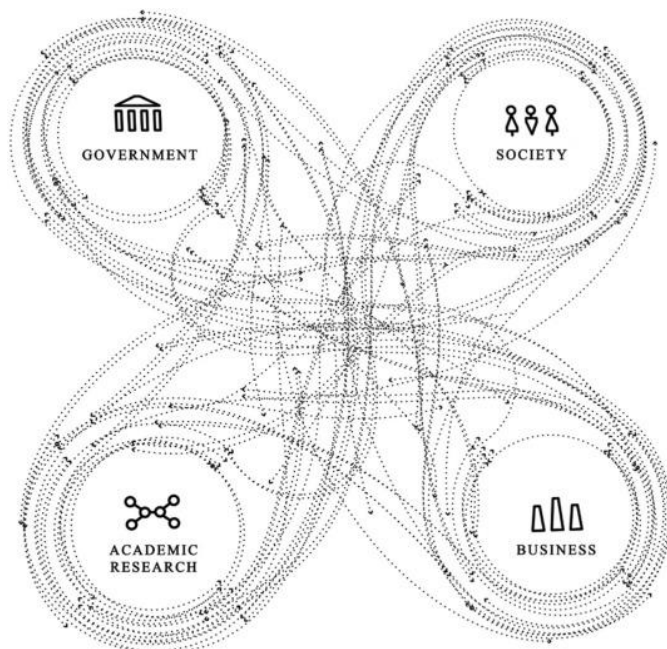
Four: An action plan for implementation

- The development of an action plan of projects, platforms and leaders for priority areas.
- The alignment of policy support and frameworks at all levels of government.

Five: Monitoring and evaluation

- Developing a process to support and verify the implementation of the action plan.
- Ensuring the process results are orientated for the longer term, with continuous monitoring and review to adjust where needed.

FIGURE 8: THE QUADRUPLE HELIX MODEL



Source: Journal of Design, Economics, and Innovation, 2019¹¹

¹¹ Schutz, F., Heidingsfelder, L. & Schraudner, M., (2019), Co-shaping the Future in Quadruple Helix Innovation Systems: Uncovering Public Preferences toward Participatory Research and Innovation, *She Ji: The Journal of Design, Economics, and Innovation*

An important lesson from this project is the quality of governance and institutional capability. Short-term budget lines, political opportunism, the lack of a unified government approach and constituent dependency are all factors affecting institutional capability in Australia's regions. The Gippsland Smart Specialisation project sets a precedent for the progress that can be made to improve regional governance.

3.2 Innovation Growth Lab in Nesta

The Innovation Growth Lab (IGL) is a global partnership between Nesta, the United States' National Bureau of Economic Research (NBER), the World Bank, and several other research institutions and foundations. Its primary mission is to promote innovation and entrepreneurship by funding and conducting research into what policies and programs are most effective at driving innovation-led growth.

IGL focuses on testing and evaluating innovative policies, programs, and interventions to support firms' innovation, growth, and productivity. It also aims to help policymakers and practitioners worldwide identify and implement evidence-based policies that can effectively support the growth of innovative and dynamic firms.

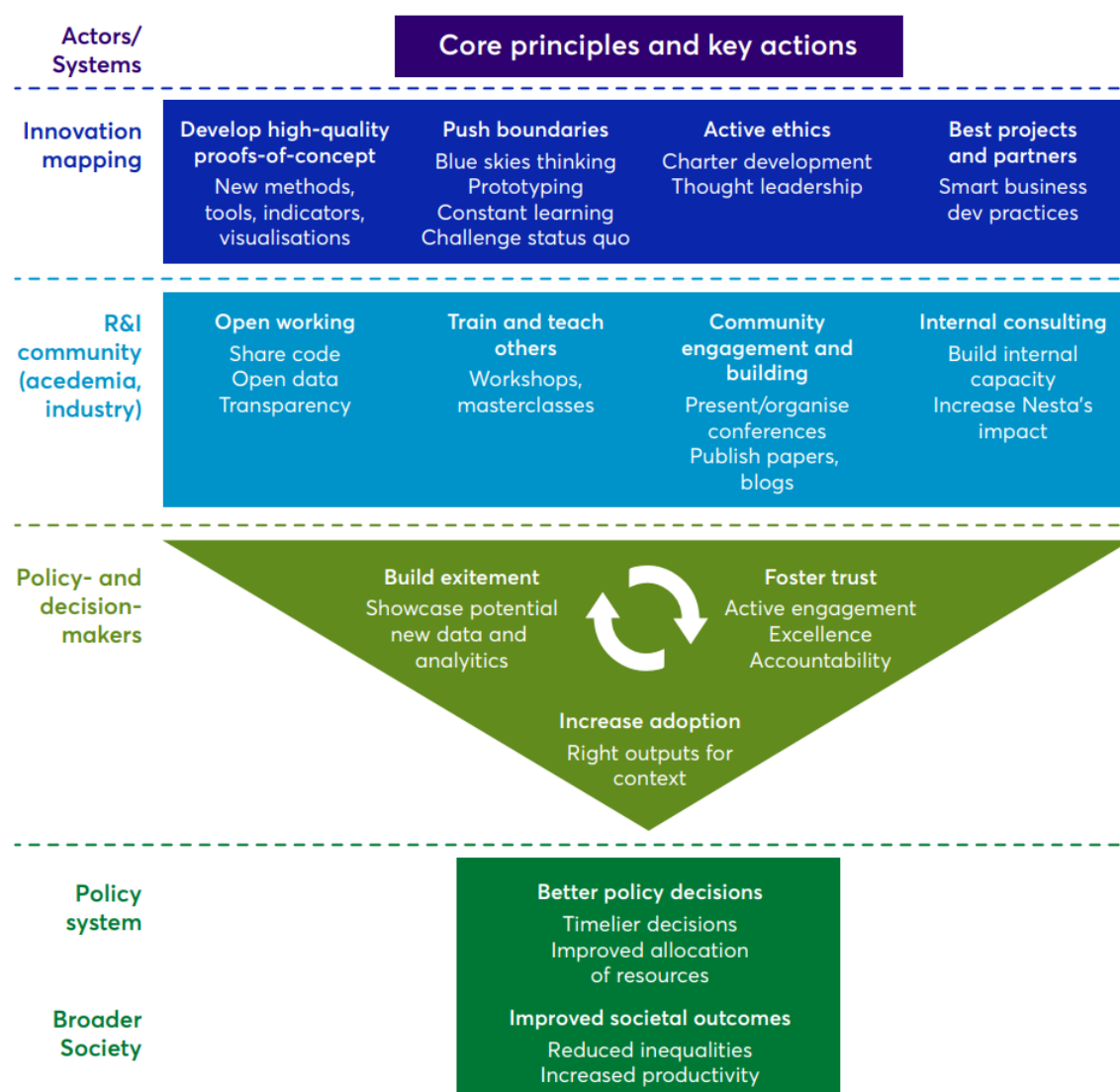
Through rigorous research and evaluations, the IGL has provided policymakers and practitioners with evidence-based insights into supporting innovation-led growth, such as R&D tax credits, access to finance, and innovation vouchers. It has also developed a global network of experts and policymakers who share their knowledge and experiences to drive innovation and growth in their respective countries and regions.

Nesta's approach to experimental innovation centres on the following:

- Identifying key issues, priorities and tasks
- Developing impact-driven ideas in the identified areas
- Testing and prototyping solutions
- Creating new entry points to drive system change or deliver a greater impact

Figure 9 demonstrates the principles behind Nesta's approach, 'Innovation Mapping', to Innovation Labs and their role in delivering change.

FIGURE 9: HEALTH INNOVATION MAPPING THEORY OF CHANGE



Source: Innovation Mapping Team, Nesta (2019), Innovation mapping now.

Overall, there is a desire to use innovation mapping to design, implement, target and evaluate innovation policies.

Nesta has also released a practice guide for innovation teams and labs that addresses best practice methods for creating and governance labs¹². Figure 10 details an introduction to Nesta's process when creating an innovation team or lab.

¹² Puttic, R., (n.d.), Innovation Teams and Labs – A practice guide, *Nesta*

FIGURE 10: CREATING AN INNOVATION TEAM OR LAB



Source: Nesta

Within this report, they also summarise best practice approaches throughout the steps listed in Figure 10. These are detailed in Table 2.

TABLE 2: KEY POINTS FOR EACH PHASE OF DEVELOPING INNOVATION LABS

Phase	Key points
Step 1	<ul style="list-style-type: none"> Be clear on the mission and challenge Select an initial focus and work on things that matter, developing projects which are tangible and salient Explicitly state what is trying to be achieved and where the innovation team’s remit begins and ends
Step 2	<ul style="list-style-type: none"> Forge strong links to executive power with government, leveraging internal and external partnerships, resources, and insights to achieve goals Develop a defined funding model for the team, attracting partners and supporters Be open to what success looks like and how to manage failure Make clear how resources are spent when results are expected and where accountability lies
Step 3	<ul style="list-style-type: none"> Encourage a high level of governmental sponsors Build a team with a diverse mix of skills Draw on subject knowledge from government, enabling generalists that can be moved between priority areas Keep governance structure and culture open, continually demonstrating and communicating the team’s unique value
Step 4	<ul style="list-style-type: none"> Adopt specific methods that draw on cutting-edge innovation skills and tools alongside project management

	<ul style="list-style-type: none"> ▪ Select a core method; building the team around a method helps structure their work and makes its brand and offer clear ▪ Produce and fund tangible outputs and continually refresh the work of the team ▪ Have a bias towards action and encourage experimentation ▪ Be clear on handovers early on, tasking implementation and delivery to the sector/government
Step 5	<ul style="list-style-type: none"> ▪ Extensive measurement of impacts and quantify successes where possible ▪ Use a range of different measurement tools to fit different projects ▪ Be data-driven ▪ Stop projects that don't work as much as growing those that do ▪ Celebrate success and share credit across your networks

Source: Nesta

For the effective governance of an innovation lab, Nesta suggests;

- Constantly iterate and refresh the team lab or model to stay relevant and effective
- Identify your partners, allies and collaborators while engaging with critics
- Manage expectations and set realistic timescales
- Communicate what is working and what isn't – be open about failure to boost credibility
- Celebrate success and share credit across your networks

3.3 Catapult Network

The Catapult Network connects nine renowned technology and innovation centres across the UK. The 'catapults' are physical centres that host R&D infrastructure, including laboratories, factories, offices, and technical experts.

The network works across diverse sectors such as manufacturing, space, health, digital, energy, transport, telecommunication and the urban environment. An overarching goal of the network is to bridge the gap between industry and research. Between 2013 and 2020, the Catapult Network supported 8,332 SMEs, facilitated 14,750 industry collaborations, 5,108 academic collaborations, and 1,218 international projects and (in 2020) employed 4,712 people.¹³ These efforts have led to the creation of jobs, supply chain and sector development, as well as new sources of revenue and investment.

Catapults also use innovation to help regenerate underdeveloped areas, working with the government to address inequality through a programme of infrastructure development and investment in education, skills, science and R&D. The role of catapults is to accelerate the commercialisation of

¹³ Catapult Network (2019) *Creating the future through innovation: recovery and resilience*. <https://catapult.org.uk/about-us/why-the-catapult-network/>

research and helping the UK's regions attract high-value investment into economically-lagging areas to create jobs, wealth and investor confidence.¹⁴

3.4 NSW Innovation Districts and Industry Development Framework

An Australian example of place-based industry strategy is the diverse range of strategies across NSW (but predominantly focused on Greater Sydney) to create a network of 'Innovation Precincts' targeting investment in various sectors.

One example of this is the Tech Central¹⁵ precinct in central Sydney, focused on leveraging the myriad assets of universities, research institutions, the critical mass of economic activity and access to deep labour markets to attract national and international investment in a breadth of tech-focused sectors including bio and med-tech, deep tech and digital tech. These innovation precincts are inherently place-based, leveraging existing competitive, comparative and collaborative advantages to drive investment in target sectors. They are often built around very particular assets, such as a hospital, university or major anchor industry partner.

For example, the NSW Industry Development Framework¹⁶ guides government support to grow priority industries through partnerships with the private sector, other tiers of government and research institutions. Among the relevant emerging priorities industries are medical and life sciences, clean energy and waste, defence and aerospace and digital systems and software. The Framework recognises that advanced manufacturing, biotechnology and digital technology are the core enabling technologies that can increase innovation and growth.

The policy instruments identified in this Framework are:

- Strategic public procurement and regulation (inclusive supply chains; clean and digital technologies in infrastructure; minimum standards).
- State-based branding and marketing campaigns.
- Trade facilitation and promotion (trade fairs, linkage programs, concierge services, branding).
- Vocational training and higher education (skill recognition; infrastructure; strengthening business and provider links).
- Training grants and wage tax credits.
- Investment attraction and facilitation (domestic and foreign direct investment (FDI); relocation incentives).
- Supplier and value chain resilience and development.
- R&D

¹⁴ Catapult Network (2019) *Creating the future through innovation: recovery and resilience*. <https://catapult.org.uk/about-us/why-the-catapult-network/>

¹⁵ NSW Government, Tech Central '<https://www.tc.sydney/>'

¹⁶ Investment NSW (2022) *The NSW Industry Development Framework*

4. Summary of findings

4.1 Working paper findings

Innovation is associated with the process of developing new products, processes, and ideas. Innovation is a complex and iterative process that combines creative thinking, experimentation, risk-taking, and collaboration.

Investment in innovation, science and research provides the foundation for new technologies and novel or significantly improved processes, products, marketing, and organisational practices. All of these provide a competitive advantage for firms and nations by enabling the capture and creation of value through offering better services and products or reducing costs. The commercialisation of innovation is a critical driver of economic growth and development.

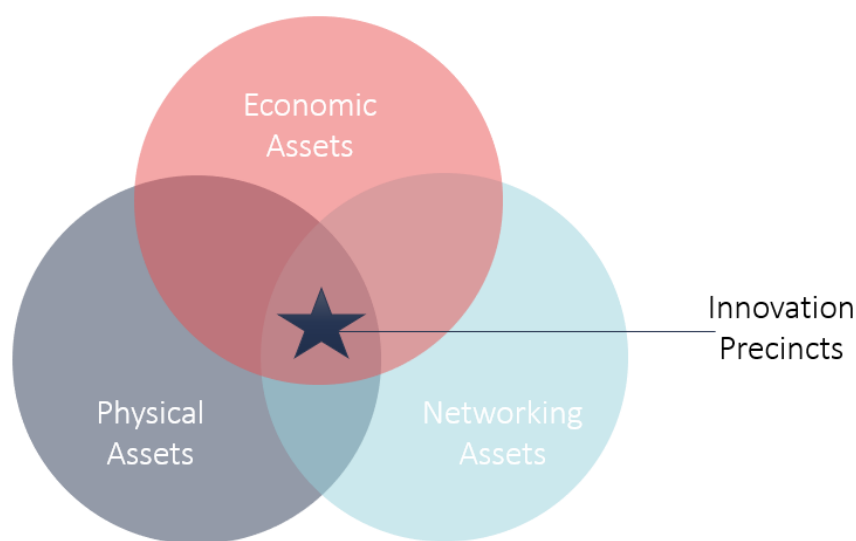
The major findings from the paper are outlined below.

Innovation happens in places

In promoting an innovative, enterprising and creative economy, geography and physical environments matter. Over the past decade, there has been a move away from a conventional neoclassical (mostly spatially blind) approach, which regarded regions as homogeneous entities and regional policy intervention as largely ineffective. In its place is a place-based approach with a deliberate focus on utilising policy to develop economies building upon a region's existing advantages and capabilities.

There are many distinctions within regional economies regarding how an innovation spatially looks, but all innovation economies contain three key assets (Figure 3) – economic assets (firms, institutions and organisations that drive, cultivate or support the development of the place), physical assets (publicly or privately-owned spaces and infrastructure) and networking assets (relationships between people, firms and places).

FIGURE 11: KEY COMPONENTS OF INNOVATION DISTRICTS/CORRIDORS/REGIONS



Source: Brookings, 2014

The drive for innovation for economic development has led policymakers and urban planners to favour the development of innovation precincts, clusters or corridors, which are geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators and accelerators.

For regional economic development, the research suggests that the most innovative regions are where there is good industry diversity, multiple parts of the value chain for individual goods are in close proximity, and supported by good infrastructure and networks for collaboration.

The Eastern Region as an innovation ecosystem

In the Eastern Region, there is an opportunity to conceptualise the region as an innovation ecosystem that seeks to maximise innovation activities. This can be done through leveraging the connections between the region's critical HI&C economy assets and build clear competitive advantages to advance industry attraction.

Success factors of place-based innovation

Based on the research and case studies, success factors for place-based innovation include:

- Highly accessible and connected locations through both public transport and private vehicles. Accessibility to a skilled labour force via public transport is essential in attracting businesses.
- Credible and reputable anchor enterprises/ institutions that are present, relevant to and engaged with industry to realise the innovation benefits of co-location.
- A critical mass of related enterprises in a range of target industries. Up to five industries are generally targeted, often including tech, MedTech and life sciences.

- Vibrant, amenable, and walkable physical environment, often realised through dense, mixed-use development with diverse housing options, including affordable housing.
- Well-connected digital environment with adequate ICT infrastructure to service knowledge-based businesses.
- Open and democratic operating environment with a mindset for collaboration.
- Shared/ collaborative spaces that facilitate cooperation between individuals, complemented with a calendar of informal and formal events.
- Flexible design that promotes scalability and continual evolution:
 - Employment floorspace (such as offices, labs, and manufacturing spaces) for all forms of businesses (start-ups through to anchors)
 - Dedicated spaces should be provided for start-ups. In the absence of these dedicated spaces, start-ups are often priced out of desirable locations.
- Governance arrangements that nurture a vision and its long-term economic development objectives.

Long-term governance models providing direction are integral to the success of place-based innovation

A cluster of businesses on their own does not guarantee innovation. How those businesses are attracted, the value they derive from the location and the ability to create networks is often due to a governance structure that curates a precinct or regional network.

Long-term governance models providing direction are integral to the success of place-based innovation. The strategic intent for co-location, notably knowledge transfer and commercialisation, must be clear and depict the expected value added to stakeholders.

Innovation has large economic benefits

Innovation has macroeconomic benefits relating to productivity across industry, improved global competitiveness, increased exports and improved quality of life through new technologies and treatments. Innovative regions are more productive, resilient, adaptable to change and better able to support higher living standards. Innovation also has microeconomic benefits for creating new businesses and industries, collaboration, and skill development.

4.2 Success factors for innovation hubs

Generic principles for an innovation hub

- Clear, common and shared purposes and strategic intent for co-location.
- Core operating values and principles to inform governance frameworks.
- Demonstrated potential for added value, i.e. the expected benefits of co-location.
- A sustainable precinct must combine investments in innovation stocks and flows and non-traded interactions (facilitate social interaction).
- Market organiser / broker and facilitator of relationships (formal or informal).
- Mechanisms for ongoing motivation through champions and achievement reports.

Critical success factors according to Innovation and Technology Park managers from around Australia

- Having a strategic plan upfront, a business case and a champion
- Creating a habitat for knowledge workers/ build a community of creative people.
- Linking/ the presence of research institutions.
- Managed by specialist professionals with specific domain knowledge.
- Provision of value added services: introductions, IP and business planning etc
- Master plans address hard and soft infrastructure.
- Promote a culture of innovation and competitiveness (not a sheltered environment).
- Expect growth to be organic and have strong feedback loops as a means for adjusting plans.

Four Principles of Industrial Ecology

- Creating cyclical resource flows – material recycling and energy cascading.
- Creating diverse industrial ecosystems – wide variety of businesses and economic actors.
- Adapting industry to its locality - focus on use of regional natural resources and local cooperation
- Gradual change - once established, systems diversity develops slowly.

Key policy interventions for promoting employment precinct in growth areas

- Public transport infrastructure (linking to broader metropolitan network and precinct wide local network).
- Coordinated infrastructure commitment and planning and supportive institutional processes.
- Mixed use development, residential development within or directly adjacent to employment, denser development around public transport nodes and high amenity, pedestrian-friendly environment.
- Government as key anchor tenant via hospitals, universities, government offices, etc.
- Superior ICT infrastructure.
- Marketing / investment recruitment campaigns.

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