FROM ALLEYS TO VALLEYS: CREATING INNOVATION PRECINCTS THROUGH INCLUSIVE POLICY

Public policy literature overwhelmingly focuses on premium inner-city innovation precincts. However, planned innovation outside typical inner-city locations is both important and possible. In this paper, we identify what makes planned innovation precincts successful and recommend that policy makers consider different policy mixes to support innovation in both the alleys of the cities and the valleys of the regions.

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INNOVATION DISTRICTS IN PUBLIC POLICY LITERATURE

Innovation districts are not new. Twenty years ago, technology and science parks featured significantly in local economic development policy. These policies drew on the work of Marshall (1920) who introduced the concept of agglomeration economies. Over the last decade, the rise of the knowledge economy has continued focus on the benefits of clusters and agglomeration economies. More recently, we've seen the rise of the innovation district – commonly known as 'geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators' (Katz and Wagner, 2014).

CONDITIONS THAT DRIVE SUCCESSFUL INNOVATION PRECINCTS

Much of the literature available on innovation districts focuses on what can be considered 'premium' concentrations of technology related businesses. The focus of this literature is on locations with superior access to highly skilled labour and the benefits of cluster economies. Typically, these are inner-city locations in generally prosperous metropolises.

Many contributors to literature have been drawn to the challenge of isolating the success factors for hotbeds of innovation. Within the available literature, the processes supporting innovation are perhaps most obvious in vibrant inner-city precincts of science, business and culture. A summary of these contributions can be found in the appendix.

Innovation is one of the key ways to achieve much-needed productivity in Australia, but it needs to be backed by inclusive and credible policy

Silicon Valley, San Jose - California

A recent article by Wagner and Storring (2016) of the Brookings Institution details a framework for benchmarking innovation districts. This framework considers the following questions:

- **Critical mass:** does the area under study have a density of assets that collectively begin to attract and retain people, stimulate a range of activities and increase financing?
- **Competitive advantage:** is the innovation district leveraging and aligning its distinctive assets, including historical strengths to grow firms and jobs in the district, city and region?
- **Quality of place:** does the innovation district have a strong quality of place and offer quality experiences that attract other assets, accelerate outcomes, and increase interactions?
- **Diversity and inclusion:** is the innovation district a diverse and inclusive place that provides broad opportunity for city residents?
- **Culture and collaboration:** is the innovation district connecting the dots between people, institutions, economic clusters, and place creating synergies at multiple scales and platforms?

A lot of the research and policy drivers that support innovation don't fully consider spatial requirements. It is important that policy makers are aware that innovation outside inner-city areas is important and possible

AN INCLUSIVE PERSPECTIVE ON INNOVATION DISTRICTS IS NEEDED

While this conceptualisation of innovation districts and their success factors is helpful, its limitations should also be acknowledged. Firstly, it is a peculiarly geographic perspective of innovation in the modern economy. Certainly, spatial agglomeration and centripetal forces are critical in explaining competitiveness and innovation, but it is important that policy makers understand that innovation outside these concentrated inner-city districts can be equally powerful.

Relatedly, an insufficiently critical review of the literature outlined can create an exclusive rather than inclusive lens through which to examine the attributes of innovation. It can underplay the fact that innovative clusters are possible in a wide range of regional and city settings beyond 'premium' city agglomerations. This exclusivity is problematic in public policy discourse.

Soho, London

This paper recommends that broader types of innovation districts or clusters can and should be identified in policy making and that success factors need to be re-interpreted in the light of the specific requirements of each type of innovation district.

TYPES OF INNOVATION DISTRICTS

Based on our experience and research, we propose five types of innovation districts or clusters – service, design, science, resource and manufacturing. These are likely to have multiple overlaps in an Australian context (see Figure 1). Nevertheless, each group in the typology warrants a customised approach when identifying success factors and by implication policy making.

SERVICES INNOVATION DISTRICTS

Services innovation districts in Australia are typically concentrated in and around the central business district of larger cities. The innovation focus is firmly on brokerage functions, particularly in finance, insurance and associated professional services such as law. Interactions with the public sector and the world of regulation are also important to this sphere of innovation.

The lifeblood of services innovation districts is advanced problem solving and negotiation skills. Accordingly, it is difficult for locations outside the central city to attract these service functions when inner city locations offer the key advantage of tapping into a broad and deep labour pool.

MULTI-SECTOR DESIGN DRIVEN INNOVATION DISTRICTS

This type of innovation district is centred on creative industries. These are "those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" (Bakhshi, Freeman, & Higgs, 2012, p. 6). Generally, creative industries encompass architecture, arts, music, software and marketing.

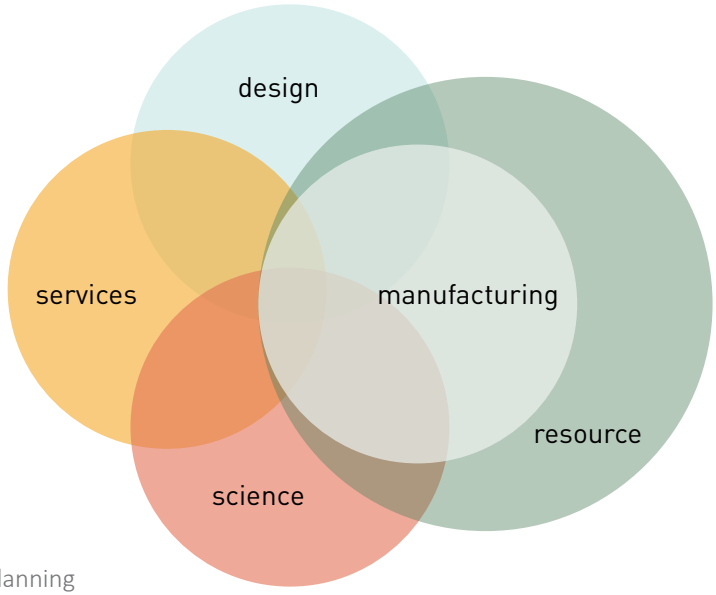
A critical mass of creative industries in Australia is generally found in vibrant inner-city locations in major cities. These clusters generally contain many small creative firms which are driven by several locational factors including:

- Proximity to cultural facilities
- Local market demand
- Amenity and urban environment
- Availability of affordable and suitable building stock
- Accessibility to skilled labour.

Multi sector design driven innovation districts in Australia have tended to evolve organically based on accessibility. They are heavily reliant on support industries, including the hospitality sector. The general amenity of the location is particularly important.

Australian examples include Surry Hills (Sydney) and Collingwood (Melbourne). Leading international examples include Soho (London) and Brooklyn (New York).

FIGURE 1: A TYPOLOGY OF INNOVATION CLUSTERS



Source: SGS Economics & Planning

SCIENCE INNOVATION PRECINCTS

Science innovation precincts and clusters are driven by competencies and competitive advantages in ICT, biotech, defence and science. They can be found in major cities but are also evident in specialised cities.

Science innovation precincts typically feature an anchor firm or institution. Aside from this key attribute, they require access to skilled labour, particularly across the science and engineering spectrum, as well as leading ICT infrastructure.

Science innovation precincts can be organic or planned. Examples in Australia are very limited. Melbourne's biotechnology and medical precinct based in Parkville is perhaps the nation's leading exemplar of this type of innovation precinct. International examples include the High-Tech Campus at Eindhoven (Netherlands) and the frequently cited Silicon Valley in the USA.

MANUFACTURING INNOVATION PRECINCTS

These innovation precincts have a distinctive focus on physical products, albeit backed by a depth of design, scientific and, indeed, cultural input. The products in question can be thought of as embedded services with considerable knowledge content which counteracts commodification.

Many OECD organisations for cities have struggled to revive manufacturing rendered vulnerable by competition from lower wage countries and automation generally. Integration of advanced science, design and brokerage has been critical in those instances where these industries have managed to hold on and prosper despite these difficult ambient circumstances.

Engineering skills and a tradition of specialisation are important for these clusters.

Australian examples are difficult to find. However, both Tonsley Park in South Australia and Fishermans Bend in Victoria are anointed innovation precincts premised on a strong manufacturing base. International examples advanced manufacturing in Carlsbad, California (USA) and Burnley, England (UK).

REGIONAL RESOURCE INNOVATION PRECINCTS

Regional resource innovation precincts revolve around a particular resource base. Although these clusters can be in relatively remote locations, they are heavily dependent on technology and a strong commitment to research and development.

These innovation clusters tend to 'fly under the radar' and do not receive the attention they deserve in innovation literature.

Australian examples include several vigneron districts, dairy districts and more broad-based food groups such as the East Gippsland food cluster. International examples include Italy's Carrara marble industry and Canada's timber and forestry clusters.

Tourism is often a significant element in resource-based innovation clusters in a similar way that hospitality is a vital ingredient in inner-city creative or services clusters.

KEY WAYS TO DELIVER SUCCESSFUL INNOVATION PRECINCTS

The literature outlined earlier- combined with our own reviews of innovation precinct policy in Australia - point to eight key success drivers:

- **Highly accessible location** is important for attracting workers. Businesses will not locate in precincts if they cannot attract workers to that location. Accessibility is also important for business to business connections.
- **Credible and reputable anchor enterprises** or institutions that are present, relevant to and engaged with industry. These can include hospitals, universities, research centres or large corporations. It is important they operate in industries relevant to the precinct to promote engagement.
- **Critical mass of related enterprises** to promote activity and vibrancy which will assist in creating an amenable environment.
- **Vibrant, amenable and walkable physical environment** often through mixed-use and dense development.
- **Well connected digital environment** to attract technology firms and enable highly efficient global communications.
- **Open and democratic operating environments** that promote a mindset for collaboration. Collaboration will not occur spontaneously; it is a long-curated process.
- **Shared or collaborative spaces** that facilitate collaboration such as conference facilities and meeting rooms to facilitate formal interactions.
- **Flexible design** that promotes scalability and continual evolution as firms expand or shrink.
- **Governance arrangements** that nurture the precinct's vision and its long term economic development objectives.

Clearly, a nuanced application that considers the type of innovation precinct or cluster in question is required.

Not all the success factors identified above are relevant to the same degree for each type of innovation district. In Table 1 we summarise which success factors are most relevant to each of the five innovation districts identified previously.

However, two pre-conditions for success would appear to have universal applicability - creating collaborative environments and strong governance structures to support innovation.

Melbourne Biomedical Precinct (Parkville NEIC)

TABLE 1: SUCCESS FACTORS FOR INNOVATION DISTRICTS

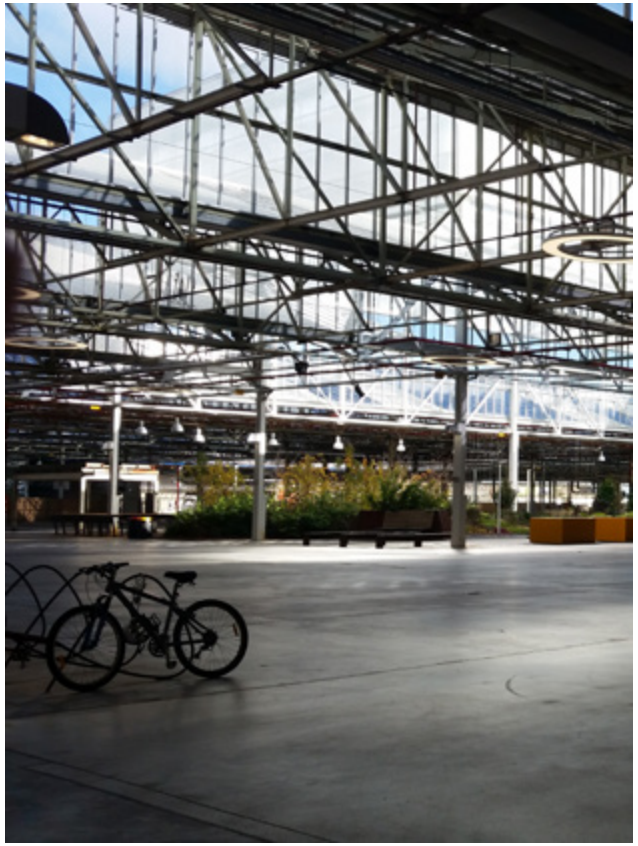
	Services	Design driven	Science	Manufacturing	Resource
Access	● ●	● ●			
Anchors	● ●	●	● ●		
Mass		●	● ●	● ●	
Amenity	●	● ●	●		
Digital	●	●	● ●	●	●
Collaboration		●	●	●	●
Flexibility	● ●	●		●	
Governance	● ●	● ●	● ●	● ●	● ●

Source: SGS Economics & Planning

POLICY IMPLICATIONS FOR PLANNED INNOVATION PRECINCTS

We need innovation precincts, but we cannot blindly copy what is done overseas

Tonsley Innovation District, South Australia

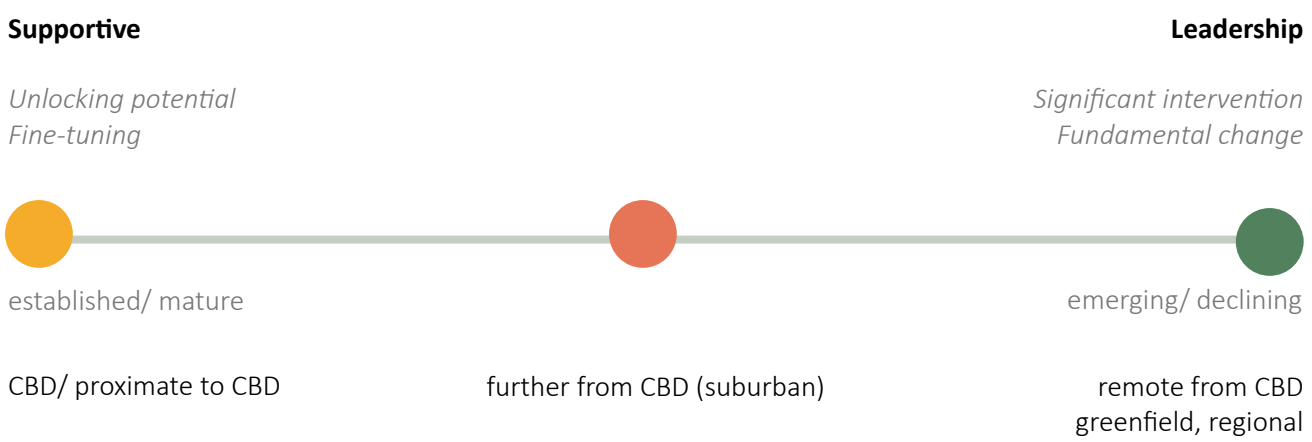


There is the potential for the formation of innovation districts – albeit different types – in any location where businesses are open to collaborative culture and governance structures. Policy needs to reflect this, rather than focus exclusively on premium locations for agglomeration.

It is important policy makers identify a credible focus for each innovation precinct and the industries identified and promoted should consider the competitive advantages of the location. In this context, manufacturing and regional clusters are also important and very different from the popularised idea of innovation precincts focussed on inner urban agglomeration.

Formulating effective place-based innovation strategies needs to avoid a cookie cutter approach. Different policy mixes will be required depending on the type of innovation cluster in question- from pro-active leadership to forced positive change through to initiatives that respond to and mould underlying forces that are already running in the right direction (Figure 2).

FIGURE 2: SPECTRUM OF LIKELY GOVERNMENT INTERVENTION BY PRECINCT CATEGORIES



Source: SGS Economics & Planning

APPENDIX

TABLE 2: SUCCESS FACTORS FOR INNOVATION DISTRICTS ACROSS THE LITERATURE

Source	Key ingredients for innovation districts identified within the literature
Making space and place for the knowledge economy, knowledge based development in Australian Cities (Yigitcanlar, 2010).	▪ Knowledge base: educational institutions & R&D activities ▪ Industrial structure: affects the progress & development ▪ Quality of life, place and urban amenities: attracts knowledge workers ▪ Urban diversity and cultural mix: as instruments for encouraging creativity ▪ Accessibility: encourages transfer & movement of knowledge, people and goods and services ▪ Social equity and inclusion: minimises social disparity/negative tension ▪ Scale of a city: larger knowledge cities tend to offer a greater knowledge pool, and greater diversity and choice for knowledge workers and businesses.
Generic principles for an innovation hub (Cutler, 2009).	▪ 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.
Northern Sydney's Global Technology Corridor: A scoping study of cluster development (Green & Hughes, 2009)	▪ Geographic concentration of firms in same or related industry sectors, with the presence of some large, preferably global firms ▪ Access to global as well as local markets with supporting infrastructure, particularly transport and communications ▪ Local capability in firms to source inputs and produce goods and services not only for end use customers but also in supply chains ▪ Critical mass of innovative activity in local firms and organisations, underpinned by a dynamic and high-quality skills base ▪ Sourcing of knowledge in firms through interaction with research and educational institutions, as well as with other firms.
Key policy interventions for promoting employment precincts (SGS Economics and Planning, 2009)	▪ 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 a key anchor tenant via hospitals, universities, government offices, etc. ▪ Superior ICT infrastructure ▪ Marketing/ investment recruitment campaigns.
Critical success factors for innovation and technology parks (Groves, 2007).	▪ Having a strategic plan upfront, a business case and a champion ▪ Creating a habitat for knowledge workers/ build a community of creative people ▪ The presence of linked research institutions ▪ Managed by specialist professionals with specific domain knowledge ▪ Provision of value added services: introductions, IP and business planning etc. ▪ Master plans to 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.
Urban knowledge parks and economic and social development strategies (Bugliarello, 1996).	▪ Setting the goals for the park; developing a focus and plan; devising an appropriate strategy; assembling the necessary coalition. ▪ An understanding of the socio-technological skills i.e. a knowledge of technology, social processes to address ecology of industry in the region, government at various levels, fiscal & legal constraints, environmental issues, economy of the region, centres of political and social power, availability/ capabilities of educational resources, strength of research institutes, nature/capacity of infrastructure, workforce & unions and social impacts of the park.

Source: Various, as noted above

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