



Mapping Brisbane's Casual Creative Corridor: Land use and policy implications of a new genre in urban creative ecosystems



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ABSTRACT

Creative hotspots have become a key driver for urban policies to stimulate social, cultural, environmental and organisational growth of creative and knowledge-based clusters, districts and hubs. However, their functional and spatial characteristics vary due to their different evolving structure as new spaces of economic activity in different contexts. This article points to a consideration of new foci for both land use and urban economic policy through a mapping of formal and informal creative hotspots in Brisbane, Australia. The study found two distinctive development patterns: (a) earlier top-down approaches as instigated by national and international innovation policies, and; (b) recently emerging bottom-up spaces for creativity, knowledge and innovation practices. This study examines how formal creative strategies and emerging informal creative spaces shape cities and urban policies. The methodology comprises online data collection and a review of creative and knowledge strategies and implementation policies. Data was then analysed via multiple mapping techniques illustrating the spatial distribution of creative hotspots, formal and informal formations, scale and land use characteristics. The research findings consolidate our understanding of Brisbane's creative ecosystem and suggest new urban policy mechanisms to better foster the interrelationship between top-down and bottom-up approaches in cities, that is, between formally planned and large-scale interventions and small-scale organic and informal creative activities.

1. Introduction

The knowledge economy is today often regarded as the primary avenue of economic development. This holds true especially in contexts where the transition from traditional neoclassical industrial production to a post-industrial economy has created vacuums in the urban, social, and financial fabrics. Some of these developments are further accelerated by the current rise of the creative industries across the wider economy (Cunningham, 2014; Fleischmann et al., 2017; Higgs & Cunningham, 2016). Urban development underlines the engagement of creativity, knowledge, information and innovation to governance, society and environment through learning, making, hacking, and networking (Bogers et al., 2017; Cardullo et al., 2018; Hatch, 2014; Pancholi et al., 2017; Rissola et al., 2017; Yigitcanlar et al., 2012). The knowledge economy and creative industries that rely more on intellectual capabilities than on natural or physical assets (Powell & Snellman, 2004), in the form of ideas, innovation and creativity (Pancholi et al., 2015), has transformed the business environments of many cities, e.g. the way individuals work, businesses operate and how work

spaces are conceptualised (Bilandzic et al., 2018; Foth et al., 2016).

Against this backdrop, we conducted a theoretically motivated and empirically grounded study with a twofold research aim of (a) mapping and exploring the spatial configuration of creative ecosystems, and; (b) investigating how formal creative strategies and emerging informal creative spaces shape cities. Tackling these research problems is significant and timely, because creative production and knowledge and innovation-based urban development have become crucial aspects of global competition for attracting and retaining human capital, and knowledge and creative industries (Yigitcanlar & Velibeyoglu, 2008). Such capabilities foster and depend on different types of relationships to establish a creative ecosystem across the different types of creative spaces. An ecosystem approach acknowledges that creativity and knowledge are integral components of creative and knowledge spaces occupied by entrepreneurs, consumers and creators who employ their creativity to deliver innovation. Ecosystems are seen as a comprehensive concept for geographical entities of creativity and knowledge-intensive creation in the form of 'knowledge cities', 'knowledge regions' (Dvir & Pasher, 2004), 'knowledge precincts', 'knowledge corridors',

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and 'knowledge villages' (Yigitcanlar, 2011). They are also differentiated by scales of formations, yet related terminology is often used interchangeably, e.g. creative city, cultural quarters, creative clusters, creative places and cultural districts. Therefore, ecosystems are found in various forms of creative accumulations to generate knowledge and innovation through diversity, interaction, collaboration and competition, which are found across various scales: nation-states, regions, cities, districts, neighbourhoods, precincts, buildings, and units (Mengi et al., 2017).

For knowledge-based ecosystems, Cambridge Science Park, Massachusetts Route 128, Silicon Valley, and Sophia Antipolis Technology Park are seen as more established cases while Dubai Knowledge Village, Hsinchu Science Park, Multimedia Super Corridor, Singapore One-North, and Songdo Science Village are regarded as newly developed ones (Yigitcanlar et al., 2016). In the forms of Knowledge Innovation Districts (KIS), successful examples mentioned in the literature include, but are not limited to, 22@Barcelona (Barcelona), Arabianranta (Helsinki), DUMBO (New York), Macquarie Park Innovation District (Sydney), One North (Singapore), and Strijp-S (Eindhoven) (Pancholi et al., 2018). Additionally, Knowledge and Innovation Spaces (KIS) can also be found in forms of 'technology parks', also called 'high-tech clusters', and the cases include Stanford Industrial Park in U.S, Sophia-Antipolis in France, Cambridge Science Park in the UK, and Hsinchu Technology Park in Taiwan. The more spontaneous development examples can be listed as Silicon Hills in Austin, Silicon Alley in New York, Silicon Roundabout in London, and Silicon Glen in Scotland (Pancholi et al., 2015b). Examples of creative ecosystems in the form of districts include M50 Art District, Famous 798 in China, Insadong and Daehagno in South Korea, Distillery District, Liberty Village, Tohu in Canada, Silicon Valley, Tribeca, Broadway, Soho in U.S, Soho in UK, Cinecitta in Italy, Kreuzberg and Prenzlauer in Germany, Museum Quarter and Arts Electronica in Austria, Museum Quarter and The Westergasfabriek in The Netherlands, and Beyoğlu and Beşiktaş in Turkey (Mengi et al., 2017). In Australia, Sydney for the film industry, Melbourne for literature, Adelaide for music, and Geelong for the design industry have been listed as creative cities in the UNESCO's creative city network (UNESCO Creative Cities Network, n.d.). Brisbane as a case study, illustrates a rather complex creative ecosystem, in part fostered by top-down planning funded by the federal and state governments, and; in part based on bottom-up start-ups and creative hubs that naturally have evolved across the urban fabric.

This paper is structured as follows: First, we review relevant literature in Section 2. We then present our study's methodology in Section 3, which takes the Brisbane Local Government Area as a case study and maps the existing creative hotspots that consist of formal top-down developments and informal bottom-up spaces. Our methodology entails data collected from online directories as well as geographical data for each hotspot, which enables us to locate them spatially. We collected data on 194 creative hotspots in the Brisbane Local Government Area and analysed each hotspot in terms of its formation, scale, and land use characteristics. Section 4, Analysing Brisbane's Creative Ecosystem, is divided into four parts: (a) We examine Brisbane's creative policy documents and trace how these policies led to formal developments and changes in the built environment. (b) We map the local distribution of creative hotspots in order to identify groups, clusters and precincts as well as changes over time. (c) We then turn our attention to the scale of creative hotspots looking at their size, scope and significance, and; (d) finally we analyse the land use characteristics of Brisbane's creative hotspots. In Section 5 we synthesise our findings by discussing the formation of creative hotspots and suggesting policy implications. We conclude the paper outlining limitations and future work.

2. Creative Spaces as Ecosystems

For the last three decades, it is evident that the transformation of cities through the changing technological trends and social structures

(Gibson et al., 2015; Hutton, 2009; Mayer, 2013) brought benefits for fostering community-based activities, production of culture, and the occupation and configuration of new spaces with creative and knowledge-based activities (Levine & Heimerl, 2008; Mayer, 2013; Pancholi et al., 2017). As a catalyst for such development patterns, recently emerging urban spaces in cities afford creative approaches that combine community engagement with creative drivers, such as manufacturing, arts and craft, making, culture and heritage. They also proliferate knowledge work at local, regional and global scales. Examples of such urban spaces include:

- Innovation spaces (Bilandzic et al., 2018; Casadevall et al., 2018); coworking spaces (Bilandzic et al., 2013; Capdevila, 2015; Garrett et al., 2017; Kojo & Nenonen, 2014; Mahlberg & Riemer, 2017); casual creative environments (CCE) (Bilandzic et al., 2019);
- Knowledge and innovation spaces (KISs) (Evers et al., 2010; Lönnqvist et al., 2014; Pancholi et al., 2017; Yigitcanlar & Bulu, 2016);
- Innovation clusters (Esmaeilpoorabi et al., 2018; Kiuru & Inkinen, 2017) such as science cities, high-tech clusters or techno-industrial complexes (Huggins, 2008).

Today, many knowledge innovation spaces are regarded as working environments for co-creation, coworking, and collaboration among people working alongside each other that can lead to new entrepreneurial initiatives (DeGuzman & Tang, 2011; Hughes et al., 2014). As an integral part of the creative ecosystem, CCEs have challenged and transformed people's perception about homogeneity or diversity in work environments. They offer new spaces for knowledge, creativity and innovation as an alternative to scientific laboratories, universities, or research and development (R&D) departments of companies. They seem different in terms of their management, internal structure, and their relations and engagements with the local creative community (Bilandzic et al., 2018). Third places (Houghton et al., 2013; Oldenburg, 2001) such as coffee shops get appropriated as temporary office spaces that give people a collective identity, a sense of ownership, and a feeling of genuine friendship (Garrett et al., 2017). These third places and CCEs constitute grassroots, unplanned or informal spaces as a new genre of knowledge and innovation spaces. A high concentration of CCEs facilitate the interaction between heterogeneous individuals, hence, benefit the emergence of local innovation processes (Rantisi & Leslie, 2010), and create a "local buzz" in urban environments (Bathelt et al., 2004; Storper & Venables, 2004). Their informal nature is characterised by their more playful, open, and transparent features (van Meel & Vos, 2001). This facilitates social interaction for idea exchange and development (Bouncken & Reuschl, 2016) its community with new insights for entrepreneurial or innovative endeavours (Foertsch, 2011). Therefore, these spaces can be seen as facilitators and supporters of social and spatial precursors to innovation (Bilandzic et al., 2018). They help their users in standing-up for their entrepreneurial and innovative endeavours. The term stand-up in this context is coined by India's Prime Minister Narendra Modi (PTI, 2015) who understands the meaning and impact of the informal means to innovation. Their success is tied to their open, heterogeneous and spontaneous structures that welcome diverse interests with different levels of education and socio-cultural backgrounds. People from different classes, ethnicities, and religions characterise a city's cultural diversity (Sassen, 1994) Cultural diversity showed a net positive effect on the productivity of people (Ottaviano & Peri, 2006) and industrial diversity on the prosperity of cities (Jacobs, 1969). The intercultural city benefits also from urban planning and policy perspectives (Wood & Landry, 2007). Similarly, creative ecosystems can be interpreted as complex, socially interconnected and diverse environments of creative and knowledge spaces characterised by a mix of organisations and businesses, including social and recreational practices.

The term ecosystem has been used as a metaphor in the literature

covering creative ecologies, business ecosystems and ecosystem management (Argote et al., 2003; Duxbury & Murray, 2010; Dvir & Pasher, 2004; Hearn et al., 2007; Iansiti & Levien, 2004; Kannangara & Ugucioni, 2013; Moore, 1993; Pirot et al., 2000; Shorthose, 2004a; Winden et al., 2012). For the purpose of this study, the ecosystem approach is also associated with the concept of ‘clusters’ derived from Porter’s work on industrial and business clusters, in which a wide range of interactions, diversity of complementary skills, and evolving knowledge allow particular places to achieve a competitive advantage (Porter, 1990, 1998). Clusters as ecosystems are open systems containing dynamic interactions between individual firms, and their surrounding environment, as well as other ecosystems (Porter, 2000). Clusters are described as networked organisations (network clusters) operating within the same or interrelated businesses or geographically agglomerated units (spatial clusters). The term itself refers either to geographical concentrations (agglomerations) or to networks comprising different businesses in a particular context (e.g., national, regional, urban) (Yigitcanlar & Inkinen, 2019). Proximity is regarded as a major spatial factor for local buzz and global pipelines (Asheim et al., 2007; Grove, 2018; Storper & Venables, 2004). This perspective recognises global knowledge flows through pipelines on the one hand, and a regional sense of community based on buzz on the other. From a regional perspective, local buzz as the carrier of tacit knowledge provides an intensive exchange of diverse ideas and know-how as strongly rooted in the local context where creativity and knowledge produced by face-to-face, contacts, co-presence and co-location of people and firms within the same environment (Mengi & Velibeyog, 2017). Previous studies have highlighted the role of proximity and collocation of creativity and knowledge in the formation of clusters through the spillover and cross-fertilisation effects of ideas (Bathelt et al., 2004; Boschma, 2005; Grove, 2018; Shearmur, 2011). Adkins et al. (2007) propose that locality affects levels of community and network relationships in the design sector in the inner-city area in Brisbane. Likewise, the ecosystem emerges around diversified members and interactions. It suggests continuous interactions and relations between creative and knowledge-based people, assets, ideas, tools, resources, and relationships as they change, shape and reshape the spaces and places of the city they inhabit. Such creative engagement not only enables spatial concentrations of businesses, but also brings about social innovation, transformation, and change.

Creative places are more than economic drivers, they are now regarded as engines for stimulating social, cultural, environmental and organisational growth and renewal (Scott, 2006; Storper & Scott, 2009). There are commonly two main categories distinguishing the level of involvement in urban interventions in the emergence of creative ecosystems; formal and informal. Creative ecosystems can be found organically emerging through the diffusion of communities, startups and informal businesses, and also deliberately initiated by government policies. For the development characteristics of clusters as a reference point for the ecosystem approach, Bell and Jayne (2004) conceptualise clusters as un-planned or organically developed in contrast to planned or institutionally developed, Shorthose (2004b) as vernacular in contrast to engineered approaches, Turok (2004) as organically in contrast to being superimposed. Informal creative ecosystems are portrayed by geographically-defined networks with high density of creative and knowledge assets in particular, and according to Madanipour (2013) such presence affects the urban development processes more than formal planning policies and urban design projects.

Urban morphology is the discipline that studies urban form, urban dynamics, and aims to explain the factors that drive changes in the built environment (Sanders & Woodward, 2015). Established in Europe between the 1940s and 1970s, today this field is characterised by the convergence of different schools of thought. Traditionally, urban morphology investigated the morphogenesis of cities through analyses of city layout, land use distribution, and the characteristics of the built environment. The interrelationship between spatial and economic

factors is at the basis of the positivist approach to the investigation of the city. In contraposition to this approach, typical of urban geography, typological studies have provided a different perspective, looking at cities as an organism in continuous evolution. This evolution in the built form was a result of ever changing building types (Chitrakar et al., 2017). While the obsolescence of some activities dictated the need to redesign entire suburbs, other building types afford changes of uses and activities in a more permeable and granular way. Mapping activities against land uses and building types can help in understanding the evolution of creative ecosystems in urban environments. For the land use characteristics of creative ecosystems, there are combinations of urban morphologies, sizes, and building types that refer to mixed combinations of land uses, activities and people (Stevens, 2015). The term “mix of mixes” used for creative clusters (S. Wood & Dovey, 2015) can also be an exemplary conception of the land use for creative ecosystems where particular combinations of typologies, land uses, activities and socio-economic profiles exist. An understanding of the building types and land use characteristics of formal and informal creative hotspots will contribute to a more holistic knowledge of the morphology of the city’s innovation ecosystem.

3. Methodology

The ecosystem approach undertaken in this study recognises creativity and knowledge as integral components of the immediate environment composed of diverse spaces of business and enterprises, their formal and informal developments, and current interactions, networks and precincts. As this present study finds, the ecosystem approach can explain the nature of various types of creative spaces emerging in cities in different scales and formation models. This conceptualisation provides a more relational approach, allowing us to investigate the unique formations of the present ecosystem, particularly by exploring creative hotspots. For this purpose, the case study includes data collection and analysis of (1) a literature review on Brisbane’s creative policy and formal developments, and maps illustrating (a) locational distribution; (b) scales, and; (c) land use characteristics of creative hotspots, followed by; (2) a discussion of creative hotspot formations and policy implications.

Brisbane is a relevant case study to examine how the ideal city of Euclidean planning can host invisible cities of granular activities, risen in the cracks of the planning system and taking advantage of contextual opportunities. The transformation of Brisbane’s urban form was fostered and in part was an answer to structural changes in the social and economic fabric of the city. Within Australia, federal government initiatives have funded development projects aiming at local entrepreneurialism and creative industries, and that was followed by the Queensland state government underlying creative industries as a major driver in regional development, e.g. *Creativity is Big Business: A Framework for the future* and the Gold Coast city’s *Australia’s Innovation city framework* (Baum et al., 2008). A focus on creativity, innovation, and knowledge drove Brisbane’s transformation from a large country town to a knowledge powerhouse in just over 20 years. Brisbane has traditionally been the back office of Sydney and Melbourne, where traditionally major companies and financial institutions based their activities (Baum et al., 2008; Brisbane History Group, 1981).

The Creative City Strategy of Brisbane as an outcome of the *City Plan and Living in Brisbane 2010 Vision*, has emphasised the importance of knowledge-based development as well as, smart urban development and renewal, sustainability, and development of human capital. (Yigitcanlar & Velibeyoglu, 2008). In this context, knowledge-based development appears as an integrated strategy for the transition of cities into places of attraction, retention and development of knowledge and creativity via the human capital that provide a knowledge dynamics applied to the urban context and foster innovation to deliver both economic and socially sustainable development (Pancholi et al., 2015a; Yigitcanlar et al., 2012). One of the major developments among

these are the ‘Knowledge Corridors’ including Australia’s premier health and life sciences research facilities comprising three hospitals, four tertiary education campuses and a number of research centres. Together they make a considerable contribution to Brisbane’s current creative ecosystem. However, recent development trends in Brisbane’s ecosystem hint at different development and growth patterns unfolding – particularly with regards to the recent informally emerging creative environments, such as Casual Creative Environments (CCEs) (A. Bilandzic et al., 2018) and Third Places (Houghton et al., 2013; Oldenburg, 2001). Therefore, how do formal creative strategies and emerging informal creative spaces form the spatial configuration of creative ecosystems in cities, and what are the land use and urban economic development policy implications? These are the main questions driving this study’s approach.

We adopt the official definition of Brisbane Knowledge Corridor as outlined in Brisbane City Council planning and strategic documents, for example the business case for the new Brisbane Metro (Brisbane City Council, 2019). We use the formal versus informal dichotomy regarding the interdependence of knowledge and innovation spaces in strategic plans. Here, the term “formal” refers to a degree of intentionality, involving strategic reports by Brisbane City Council and the Queensland Government. The term “informal,” on the other hand, invokes a degree of spontaneity that often refers to places that emerged through the practices of local actors, creatives and entrepreneurs that have not been recognised by strategic plans. For the research design, we employ an ecosystem approach to describe the structure of creative hotspots in Brisbane and their development patterns. While existing studies focus on Micro, Meso, and Macro scales enquiring Brisbane’s knowledge and innovation spaces, we enter into the detail of the individual creative spaces recording their location, the scale and type of building where the activity takes places, as well as the driver of the activity (public top-down or private bottom-up).

Data was collected through desk research in two phases: For the first phase, we looked into policy reports to gain an overview of Brisbane’s creative strategies and top-down developments of KIS. Reports and official statements were examined through online sources such as *Creative Brisbane Creative Economy 2013-2022* (Brisbane City Council, 2013), the *Brisbane Economic Development Plan 2012-2031* (Brisbane City Council, 2012), the *Brisbane 2022 New World City Action Plan* (Lord Mayor’s Economic Development Steering Committee, 2015), the vision statements of related intermediary institutions and organisations, such as the Smart State Council of the Queensland Government, the Ecociences Precinct Report, and the Arts Queensland Cultural Precinct Report. This phase identified formal top-down developments in Brisbane. The second phase entailed online research exploring informal bottom-up creative hotspots in Brisbane in existence as of November 2018. We used the Google search engine to find nine websites listing or discussing these creative hotspots, that is, they serve as a locator and identifier of creative spaces for creative people, namely:

- www.workfrom.co;
- www.weteachme.com;
- www.creativespaces.net.au;
- www.weekendnotes.com¹ ;
- www.brisbane.qld.gov.au/community-safety/community-support/creative-brisbane;
- www.theurbanlist.com/brisbane/a-list/best-creative-workshops-brisbane;
- www.coworker.com;
- www.visitbrisbane.com.au/information/articles/arts-and-entertainment/brisbane-art-galleries;
- www.spacely.com.au.

¹ We scanned only the first six sites each listing 30 spaces, because of resource constraints in scanning about 50 sites on this website.

Creative hotspots in this paper are identified in line with the way the Australian Research Council’s Centre of Excellence for Creative Industries and Innovation (CCI) defined these industry sectors, that is: software and digital content; advertising and marketing; architecture, design and visual arts; music and performing arts; film, television and radio; publishing (Higgs et al., 2007). The search criteria limited results to currently operating creative hotspots within Brisbane’s Local Government Area (LGA). Results were also limited to only include physical creative spaces; hence, they exclude intangible hotspots such as temporary meetups or gatherings. Additionally, dispersed creative hotspots outside of the inner city have been dismissed for the following in depth discussion. During the first and second phase, we collected the names and website links of 239 creative hotspots in a spreadsheet. In total we removed 46 creative hotspots from the initial 239, because (a) 27 spaces lacked available online information, e.g. own website; (b) 5 non-location-based creative hotspots, e.g. meetup groups that change locations, and; (c) 14 spaces that did not fit any creative or knowledge category, e.g. halls or gyms that serve for dancing and other sport purposes. We ended up with 194 individual creative hotspots. The data verification has been conducted based on the reviewed literature for formal hotspots via accessing the relevant literature for the top-down developments as well as government and council reports to find formal creativity and innovation spaces, whereas informal hotspots have been reached through online platforms as mentioned above that inform or allow users for browsing and hiring creative spaces. For each hotspot, we collected detailed data in a spreadsheet containing information about the hotspot’s name, scale and type of building, Brisbane City Council’s zone codes combined into comprehensive land use characteristics for the purpose of simplification, hotspot formation (formal vs. informal), locational information to identify the scale, and coordinates. Then, we transferred and processed collected data into Google MyMaps for geographic mapping.

4. Analysing Brisbane’s Creative Ecosystem

The final data set consists of 194 creative hotspots within the Brisbane Local Government Area. Table 1 gives an overview of collected data on the creative hotspots. The numbers given in brackets represent the number of places that are identified with the preceding classification in the respective column. With regards to scale, 109 hotspots are found in buildings, 80 hotspots are at the unit scale, particularly in high rises, 4 hotspots are in specific spatial settings embedded in laneways, and 3 hotspots comprise formally developed precincts. Zone codes for land use characteristics and lots where the hotspots reside are given in the third column. The hotspots are identified as a formal top-down formation if they are found as such in policy reports and previous research. In total 16 formal top-down formations are identified, hence, the remaining 177 hotspots are classified as informal bottom-up spaces, which naturally emerged alongside formal developments.

The following subsections analyse local creative hotspots based on Brisbane’s creative policy and formal developments, and present three maps showing (a) locational distribution; (b) scales, and; (c) land use characteristics of creative hotspots. Then, we discuss formations of creative hotspots.

4.1. Brisbane’s Creative Policy and Formal Developments

Brisbane’s creativity, urban diversity and tolerance have enabled developing places diverse in character and scale, which are accessible and attractive to people from all cultural and socio-economic backgrounds. Brisbane is the capital of Queensland and third most populous city in Australia. The Brisbane Local Government Area (LGA) has a total land area of 1,342.7 km and population of 2,413,457 (Australian Bureau of Statistics, 2018) as at 30 June 2017, the estimated resident population for the Brisbane LGA was 1,209,322 (Australian Bureau of

Table 1
Brisbane's Creative Hotspots in an Overview.

Analysis					Discussion
Creative Hotspot Name	Scale ^a	Land Use Characteristics	Locational Information	Coordinates	Formation
Name (194)	Building (110) Unit (80) Laneway (4) Precinct (3)	Centre Zone (70) Mixed Use (45) Residential (26) Industrial (18) Specialised Center and Recreation Zone (17) Multiple Land Uses (7) Common Facilities (4) Emerging Community (3) Open Space (3) NA (1)	Hotspot Address (194)	Hotspot Coordinates (194)	Informal bottom-up (177) Formal top-down (17)

^a note: the sum of items in this column exceeds the number of creative hotspots due to the nature of precincts consisting of several buildings and units.

Statistics, 2018). Till 1988 Brisbane was regarded as a large country town; its economy was based on primary industries and services to support agricultural and mining activities. After the economic and social transformations of the 1980s, Brisbane urban structure started evolving as a dense high-rise city. The CBD, traditionally devoted to commercial and administrative activities, was pierced with new developments to host residential components, like studios and small units. The river, a traditional route for the commerce of heavy goods, was gradually rediscovered as an amenity and the city, which previously turned its back to the waterfront. The availability of areas in close proximity to the city centre, once devoted to industrial activities and docks, as in many other cities, was progressively transformed to welcome parklands, apartments blocks and lifestyle suburbs (Fisher, 2016). The Australian cultural policy document *Creative Nation* formulated in 1994 – also echoed in the 2011 strategic paper by the Australian Government's Department for the Arts on the creative industries – recognises, “[...] a competitive creative industries sector is vital to Australia's prosperity – that a creative nation is a productive nation” (Australian Government, 2011). Following these policy directives, major Australian cities started to formulate their strategic plans accordingly, such as Sydney's *Creative City Cultural Policy and Action Plan 2014–2024*, Melbourne's *2026 Plan*, and Brisbane's *Economic Development Plan 2012–2031*. Following the federal *Creative Nation* policy at the government level, the Smart State Strategy was formed by the Queensland State Government in 2007 to be a ‘building block’ to foster ideas, imagination, creativity and innovation. Since then, Brisbane City Council has adopted a number of top-down policies and urban development strategies that focus on creative and knowledge-based development.

In 2013, the Australian federal government initiated its national cultural policy titled *Creative Australia* to ensure creative and cultural sectors including various types of arts and cultural production and the creative industries play an active role in Australia's future and economic prosperity. The policy to support innovation and the development of new creative content, knowledge and creative industries have been listed as one of five major goals (Commonwealth of Australia, 2013). Particularly, knowledge intensive sectors based on digital and creative industries entrepreneurship has been on the priority action list, and the focus of creative strategy has been directed to consider opportunities to expand Brisbane's creative infrastructure since 2012 (Brisbane City Council, 2012). For 2031, Brisbane is expected to be in the top ten of lifestyle cities and global hubs for creative industries and related sectors (Brisbane City Council, 2012). Brisbane City Council's vision for Brisbane is committed to developing, understanding and working with creative industries to deliver a creative and knowledge-based infrastructure for the city (Brisbane City Council, 2017). On the other hand, cultural policies starting from early 1990s have been directed to specific industries, e.g. crafts, heritage, arts and design as a catalyst for place-based local development (Grodach, 2017). The

Creative Brisbane Creative Economy Strategy 2013–22 was designed to achieve the goal of setting Brisbane as the premier location and to attract and retain creative and knowledge workers to live, work and engage in the city. The strategy also indicates cultural production, local arts and crafts as well as artistic enterprises delivering products and services for local, national and international markets. Such creative sectors are aimed to enrich everyday living, connect diverse communities and help grow the local economy (Brisbane City Council, 2013). In this regard, the *Creative Brisbane Creative Economy 2013–22* report underlines that “a complex creative economy requires supportive resource and knowledge hubs connected together to increase the flow of people and ideas” (Brisbane City Council, 2013). Following the report, in the *Creative Brisbane Creative Sector Survey Summary Report* (Brisbane City Council, 2017; Cunningham et al., 2003), many creative and knowledge workers who responded, looked for opportunities for increasing the frequency of work and accessing better career pathways in Brisbane. They highlight the need to retain a creative and knowledge workforce and the availability of spaces for creative use (Brisbane City Council, 2017).

The Smart State Strategy was created by the Queensland Government in 2007 to be a ‘building block’ to foster ideas, imagination, creativity and innovation. Particularly, the Brisbane Knowledge Corridor (also called Route 66) project was first presented by the Smart State Council (2007), as Brisbane's Knowledge Corridor connects most of Brisbane's science, arts and cultural precincts. It links the following institutions (The State of Queensland, 2007):

- In the north: Royal Brisbane and Women's Hospital, QIMR Berghofer Medical Research Institute, Queensland University of Technology (QUT) Kelvin Grove, and Institute for Health and Biomedical Innovation.
- In the Central Business District (CBD) and South Bank: QUT Gardens Point, Brisbane Cultural Precinct, TAFE, Queensland College of Art and Griffith University, Lady Cilento Children's Hospital, Mater Hospital.
- In the south: Diamantina Knowledge Precinct, University of Queensland and Queensland Brain Institute.

The combination of hospitals, educational institutes, knowledge-based facilities and creative industries along the Knowledge Corridor constitutes the top-down developments within the ecosystem.

4.2. Locational Distribution of Creative Hotspots

All the collected information for 194 creative hotspots has been listed and illustrated in Fig. 1 based on their coordinates within the Brisbane Local Government Area (LGA). The hotspots are found denser around the inner city, particularly the neighbourhoods of the CBD, New Farm, Newstead, Fortitude Valley, Kelvin Grove, Petrie Terrace, West

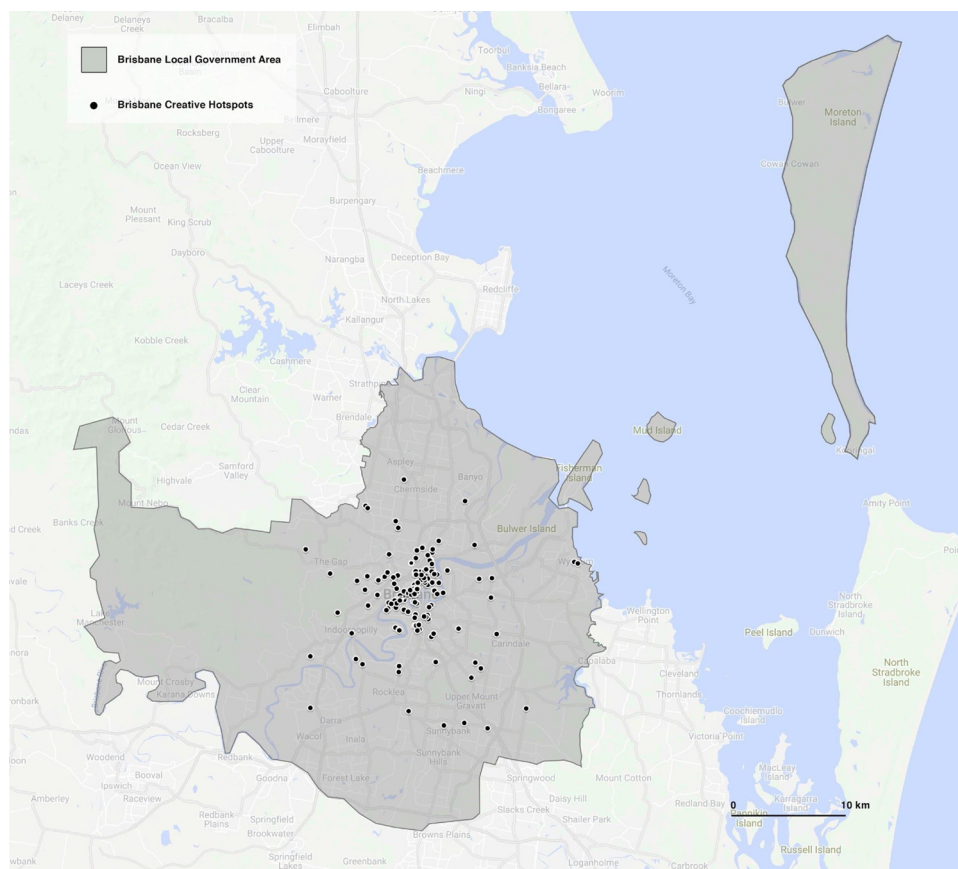


Fig. 1. Creative Hotspots identified in the Brisbane Local Government Area (LGA).

End, South Bank, Woolloongabba. They become more spread out towards the periphery areas, such as Northgate, Chermside, Everton Park, The Gap, Kenmore, Sunnybank, Rochedale, and Wynnum.

4.3. Scales of Creative Hotspots

In the literature review above, some examples are given in classifications for various scales of ecosystems. For the following analysis, we have collected data on individual creative hotspots, hence, for the scale of creative places we analysed if the hotspot resides in (a) a building on its own; (b) a unit within a building, or is; (c) part of a laneway, or; (d) precinct. Fig. 2 shows the scale of the creative hotspots by their location.

There are three precincts observable along the north to south-west axis. Along the same direction, the hotspots are mostly found in buildings. Through the west to north-east axis, particularly in the CBD, creative hotspots are found predominantly in units. In Fortitude Valley, a suburb adjacent to the CBD, creative places are observable both in buildings and units as well as within laneways. At the east end of the inner-city ecosystem, e.g. Newstead and Bowen Hills, creative places are often found in buildings. Moving from the inner city towards the suburban peripheries, creative hotspots are usually found in buildings.

4.4. Land Use Characteristics of Creative Hotspots

Brisbane City Council regulates zone codes for land use of lots. As we looked up this data for the creative hotspots, i.e. the lots where the creative hotspots are situated, we found 34 zone codes in our data set. We grouped these zone codes by their subcategories into comprehensive land use characteristics for simplification. For instance, we combined the subcategories MU1 mixed use (inner city), MU2 mixed use (centre frame), and MU3 mixed use (corridor) into one land use

characteristic Mixed Use. This reduced the number of zone codes to ten land use characteristics without losing information relevant for the study's purpose. Fig. 3 illustrates the creative hotspots in regard to their land use characteristics.

The data reveals three dominant land use characteristics within the Brisbane LGA: Centre Zone, Mixed Use, and Residential. The most predominant land use is the Centre Zone, which is found in the inner city, especially in the CBD, and towards the peripheries in neighbourhood centres. Creative places are located in lots for Mixed Use around the inner city, particularly West End and South Bank in the west, and Fortitude Valley, Newstead, and Teneriffe in the north. Creative hotspots situated in the residential land use characteristics are found relatively dense within the inner city and become more dispersed through the peripheries of the city. While creative hotspots within the Specialised Centre and Recreation characteristic are located along the north-south axis, the ones situated on the Industrial land use characteristics are found in the south and the north-west of the ecosystem.

5. Creative Hotspot Formation and Policy Implications

This discussion focuses on the formations of creative hotspots located in the inner city where we have identified two clusters densely situated in the inner city based on the analysis. The rationale for identifying this focus is grounded in our findings on the locational distribution of creative hotspots that are highly situated in the inner city. Regarding the densely located clusters, creative hotspots have been categorised into two formations, and then depicted on a map to evaluate their spatial distribution. The categories are based on the formal and informal developments of creative hotspots as illustrated in Fig. 4.

The major finding of the above analyses points out that the formal developments have been evolving in a different direction than the

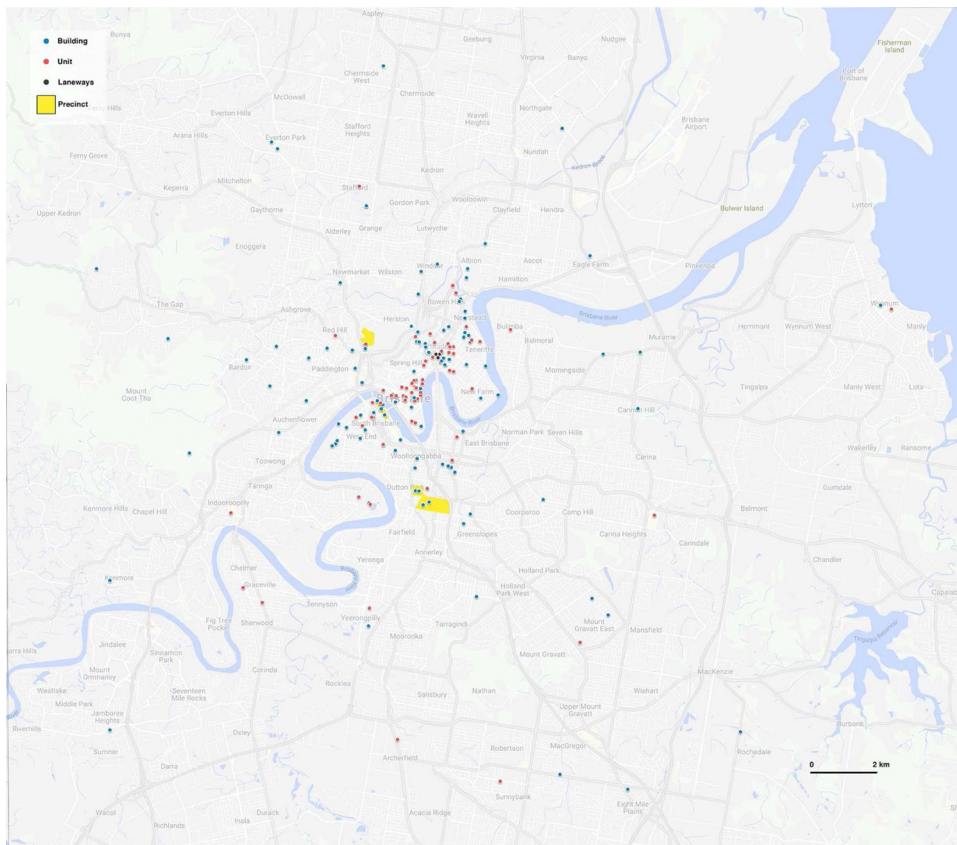


Fig. 2. Scale of Creative Hotspots.

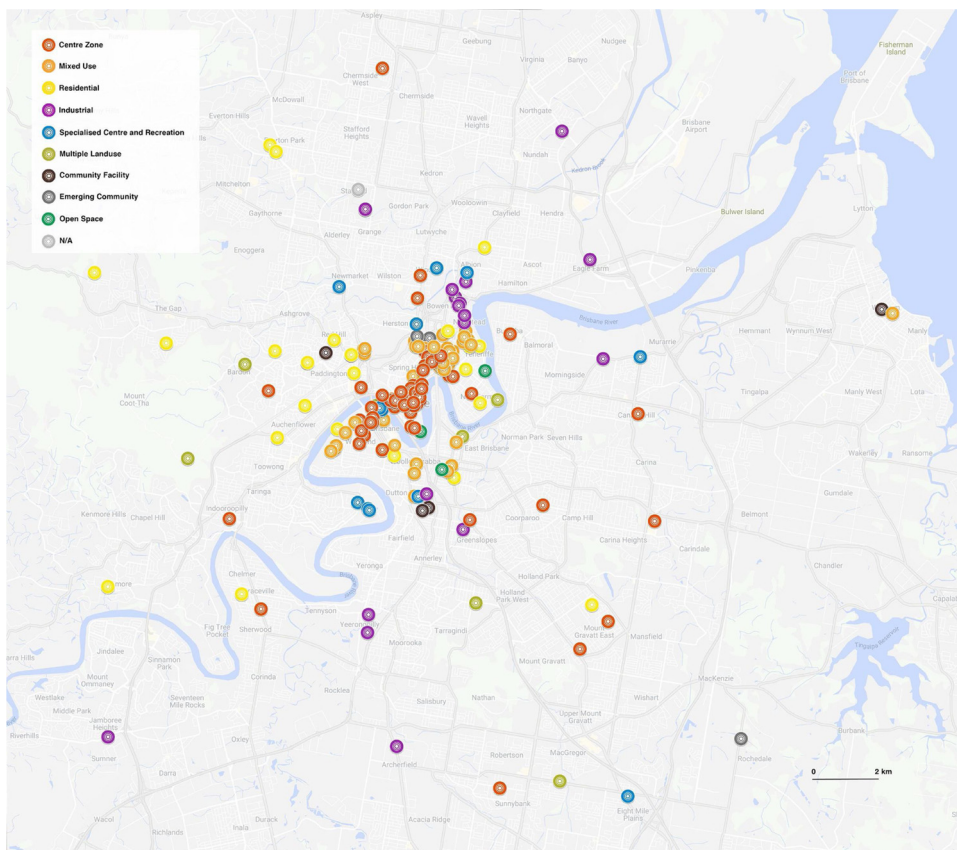


Fig. 3. Land Use Characteristics of Creative Hotspots.

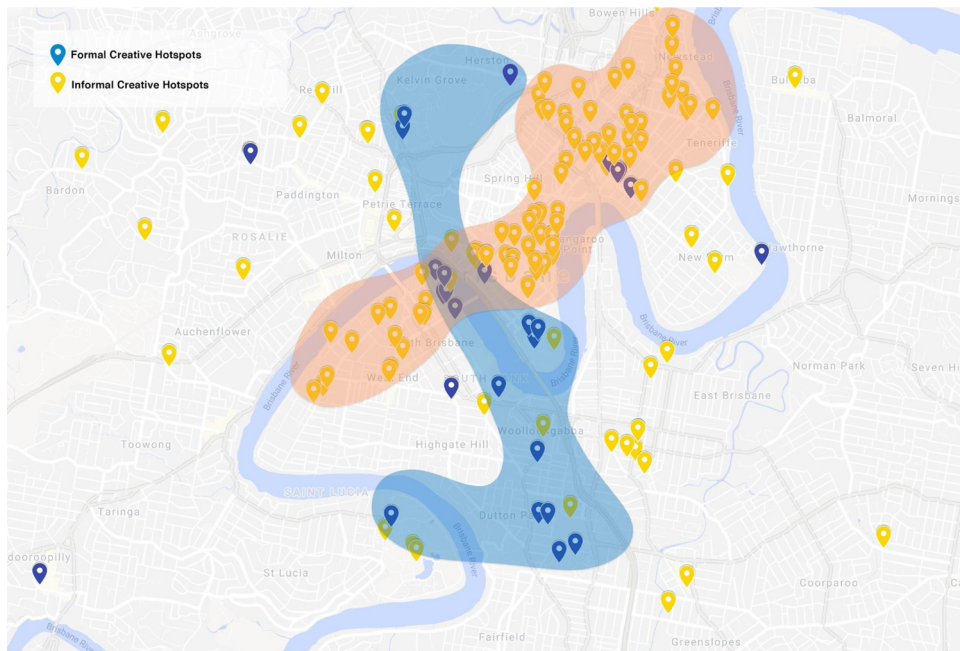


Fig. 4. Formal vs. Informal Creative Hotspots.

informal developments. The formal cluster starts in the north and ends in the south-west of the inner city, whereas the informal cluster stretches from the inner city's south to north-east. The Brisbane Creative Ecosystem consists of formal creative hotspots based on top-down national and local policy implementations to make Brisbane a 'creative and knowledge city' or 'smart city,' and informal creative hotspots emerged as bottom-up private developments by individual initiatives, business start-ups, or corporate entities. The formal cluster is also known as the *Knowledge Corridor* in Brisbane. Creative hotspots in this cluster are mainly KISSs, e.g. Queensland University of Technology and the Diamantina Precinct, and the cultural precinct at South Bank. These spaces are formal spaces for education and knowledge exchange, they are based on a precinct typology, and deliver knowledge-based creative work or exhibit art and design performances. Yet, some of these spaces provide 'casual' learning and working units underneath their 'formal' structures (i.e. The Edge or Business Corner that are provided by the state library in South Bank). However, such spaces fall in our analysis under the top-down hotspots since they are specifically designed by the state and/or government interventions and operated formally. Fig. 4 highlights the Knowledge Corridor as depicted in the blue cluster. Due to the formal planning processes and top-down emergence of creative places along the Knowledge Corridor, this cluster is characterised mainly by the hotspots situated in precincts and buildings. Furthermore, land use analysis proves that the Knowledge Corridor has been designed to have one (or more) specialised uses for each creative hotspot. In terms of ecological network, these hotspots have limited casual interaction due to the scale of the precinct and its design as a dedicated space. Some of these precincts fall into the pattern of industrial or technology parks, which recent literature discusses as not really conducive for creativity or appealing for creative class.

In contrast, the informal cluster mostly consists of CCEs, e.g. Mas & Miek Ceramic House (theceramicstudio/), and third places, hence, we refer to it as Brisbane's *Casual Creative Corridor*. These creative hotspots provide an environment that supports informal learning and networking, skill development, and tinkering in spaces such as cafés, maker spaces, or fab labs. The location of the hotspots in units or parts of buildings facilitates informal connections and disperse creative activities in the broader context of a vibrant environment. The orange cluster in Fig. 4 highlights the Casual Creative Corridor. The hotspots in this corridor are found in relatively smaller scales than in

the Knowledge Corridor. In the CBD, creative hotspots are mostly located in units. This is most likely dictated by the CBD's skyline that is marked by highrises. However, looking towards the two ends of the informal cluster, the number of creative hotspots situated in buildings increases. In Fortitude Valley, we found creative spaces inhabiting three laneways, e.g. Bakery Lane (bakerylane.com.au). Comparing scales between the formal and informal cluster, creative hotspots located within the Casual Creative Corridor are relatively smaller. The reason might be that they emerge from bottom-up private initiators who accommodate their business within the existing built environment. In contrast, the city council, state and federal government were involved in the design process of the Knowledge Corridor so that the precincts received allocated spaces for the development of creative hotspots within the city. Comparing the scale of the creative hotspots another pattern emerges.

The current policy arena in Brisbane proves that the existing creative hotspots are the backbone of creative strategies to enhance and facilitate an infrastructure for creative and knowledge activities by connecting businesses and improving creative networks. Our findings reveal how formal and more recently emerging informal spaces constitute the creative ecosystem of Brisbane. Insights from our study corroborate the recommendation to look deeper into the impact of these spaces on urban economic development outcomes and associated land use and urban economic development policies. While top-down and bottom-up approaches to innovation contribute to the city's economic development and social life, an additional strategy that complements them might leverage their effects. We suggest a 'middle-out' process (Fredericks et al., 2016) that brings interests and needs from the 'top,' e.g. government or city council, and the 'bottom' represented by communities and industry members together in the 'middle' (Fredericks et al., 2019). The middle-out engagement acknowledges "that the city is in a state of perpetual beta, which indicates that the processes of city-making and urban renewal are never complete" (Fredericks et al., 2019, p. 68). The middle-out approach could complement the two existing strategies. It could leverage the creativity and innovation efforts of both existing strategies through enabling collaborations and cross-fertilisations between them.

In light of our findings, linking top-down and bottom-up approaches seems to be a key step to construct a policy framework for creative development and planning. For the policy implications, it is worth

noting that the top-down approach falls short in truly understanding the shifting and swiftly evolving expectations of users and the dynamic structure of informal creative environments. On the other hand, a bottom-up approach on its own cannot easily regulate and balance between like-mindedness and diversity. Birds of a feather flock together, yet, a middle-out planning approach must also consider that a city’s innovation capacity thrives on diversity (Duranton & Puga, 2000; Ottaviano & Peri, 2006). The practical use of a middle-out approach provides a balance between multiple regulatory systems. It needs to address how primary and secondary rules of the law can be aligned and how bottom-up and top-down policy choices can properly be coordinated (Pagallo et al., 2019). The increasing complexity of creativity and innovation policies requires new models of planning actions on such middle-out analytical ground (Pagallo et al., 2019). Further, it could support the bottom-up approach with a higher level of coordination and intermediation. The vast majority of creative hotspots form the Casual Creative Corridor representing the bottom-up, hence, organic development of the city besides the council’s masterplan and contributes to the city’s innovation ecosystem. For instance, we found that the Knowledge Corridor has its own bus line as part of the Council’s public transport infrastructure, while the creative hotspots in the Casual Creative Corridor lack such public transport connection.

The Casual Creative Corridor is mainly characterised by activities within the existing urban fabric. The bottom-up nature of these activities allows them to disperse in a granular way within the CBD and inner-city suburbs. Laneways, coffee shops, units or co-working spaces are more frequent in the core of the city, where creative enterprises adapt to use existing spaces in order to take advantage of the creative environment of the city centre. Large scale hotspots, instead, such as entire buildings or precincts, generally host more structured activity and they have been planned with a top-down approach. With regards to the land use characteristics, creative hotspots in the Casual Creative Corridor in the CBD are predominantly located in the centre zone. This finding responds with the fact that they are situated in the city centre. Towards the outer parts of this corridor, they occupy more mixed-use zones or even residential zones, which characterises the bottom-up approach. This supports the idea that informal creative hotspots find a way to accommodate themselves in their built environment. These informal bottom-up creative hotspots might be part of the reason why West End and Fortitude Valley attract Brisbane’s creatives, e.g. *Big Sound* is an annual music festival and conference taking place in Fortitude Valley. Table 2 gives an overview of our findings.

6. Conclusion

How do formal creative strategies and emerging informal creative spaces form the spatial configuration of creative ecosystems in cities? The aim of the present study was to explore the spatial configuration of creative ecosystems, and to investigate how formal creative strategies and emerging informal creative spaces shape cities. This study shows that creative hotspots investigated in the Brisbane LGA consists of formal

and informal clusters composed of creative spaces along two corridors: the Knowledge Corridor and the Casual Creative Corridor, which together constitute Brisbane’s creative ecosystem. Our findings reveal how formal top-down developments under the vision of *Creative Brisbane* on the one hand, and recently emerging informal bottom-up creative spaces on the other, jointly form the creative ecosystem of Brisbane today. The ecosystem is divided into two clusters that are formed by a) the formal top-down developments – also known as the *Knowledge Corridor* – spread from the north to south-west of Brisbane’s inner city, based on a precinct approach, and; b) the high density of informal bottom-up creative spaces – here introduced as the *Casual Creative Corridor* – starts in the west and stretches to the north-east of the inner city, based on a granular integration with the existing urban fabric.

The present study has some limitations. First, it focuses on creative hotspots in the Brisbane Local Government Area, hence, results may differ if the study is conducted in another city in Australia or another country. Second, our data set of 194 creative hotspots might seem to be extensive, but it still may miss some further creative hotspots that are not mentioned in the reviewed policy reports, previous studies, or the websites. Furthermore, the number of creative hotspots is increasing rapidly, hence, new spaces might not have been recorded during the data collection period in November 2018. Further research might investigate if and how the Knowledge Corridor and Casual Creative Corridor can be managed and planned accordingly to interact with each other. Their geographical overlap in the CBD and South Bank is not an indicator for knowledge and creative exchange between them. Further investigation could bring to light if and how collaborations occur between them and what their outcomes are. Moreover, future research might examine the Casual Creative Corridor into more detail if and how the CCEs and third spaces within it operate and correspond to each other. With informal bottom-up creative spaces increasingly spreading in Brisbane city, and taking the offer as an indication for demand, policy makers for economic development and urban planning should consider this development in their planning strategies for the city’s future. In the following we outline some implications and recommendations for land use and urban economic development policy emerging from our empirical data collection and analysis. The relevance of our findings and implications for urban policies and cities beyond the local case is that the informal creative hotspots as a creative fringe are marginalised from the formal creative hotspots that are top-down planned mainstream spaces and hubs for creativity and innovation. This is evident in the planning of new mobility infrastructures for Brisbane, such as the proposed Brisbane Metro which aims to connect hotspots within the Brisbane Knowledge Corridor. In turn, the infrastructure investment proposal uses the existence of the Knowledge Corridor as a strong rationale of the infrastructure’s routing. However, our study shows how many hotspots actually fall outside this corridor and are not touched by the Brisbane Metro network.

As discussed in the literature the creative ecosystems that are composed of KIS and Cultural Precincts disregard grassroots entrepreneurs from various areas such as design, arts, humanities and social sciences who reside in CCEs and Third Places and are pushed towards the ‘creative fringe’ (Foth, 2015; Foth et al., 2017). Informal spaces provide economic entities, such as entrepreneurs, freelancers and other types of self-employed professionals, micro-firms, and communities, in a diverse environment that is casual for interaction, ideation and collaboration to engage in creative and innovative endeavours. They encourage bottom-up entrepreneurial activities. Such diverse environments benefit creative people and groups along the creative and innovation processes, hence, contribute positively to economic outcomes (P. Wood & Landry, 2007). As Duranton and Puga (2000, p. 553) suggest, “to encourage labour-force mobility” in a diverse city to gain from innovation benefits that are linked to diversity, whereas efficiency to lower costs is more relevant in specialised cities (Bairoch, 1988). Limiting the planning for development and infrastructure to only

Table 2
Brisbane Creative Ecosystem.

Brisbane Creative Ecosystem		
Formation	Formal (aka. Knowledge Corridor)	Informal (aka. Casual Creative Corridor)
Development Type	Top-down	Bottom-up
Locational Specifications	North to Southwest	West to Northeast
Scale	Precinct; Building	Unit; Building
Land Use Characteristics	Specialised Centre and Recreation Zone; Mixed Use	Center Zone; Mixed Use; Residential
Examples (Literature Review)	KIS Cultural Places	CCE Third Places

formal precincts and structured economic activities does not follow the natural morphogenesis of Brisbane and risks neglecting to cater for workers and businesses in the knowledge economy and creative industries inhabiting inner city suburbs.

Research on the emergence and evolution of creative ecosystems often emphasises diversity, cross-sector participation, and clear goals as important keys to economic success. Our case advances such accounts of economic and social benefits by showing that formal (KIS Cultural Places) and informal developments (CCE and Third Place) are separate, yet interrelated, entities. Despite governmental policies holding different strategies of how formal planning would constitute the creative ecosystem in cities, our case shows that informal structures are of equal importance as precursors to innovation (Bilandzic et al., 2018). Formal and informal formations of knowledge and innovation spaces need to be integrated into land use and urban planning strategies and urban economic development policies since a creative ecosystem is composed of these two types of formation.

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