Evolving Knowledge Cities and Intelligent Urban Districts through Open Data

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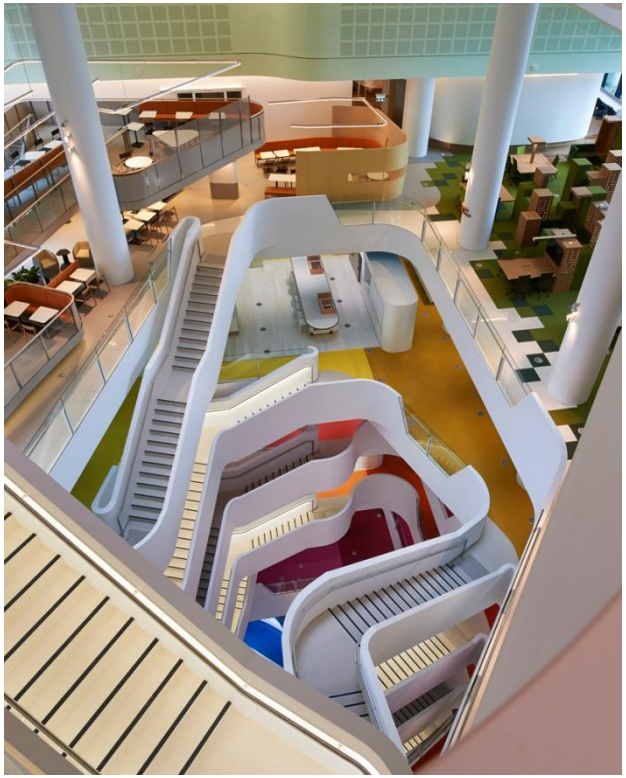
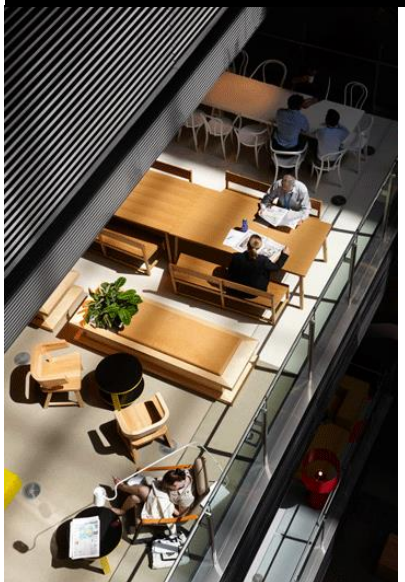
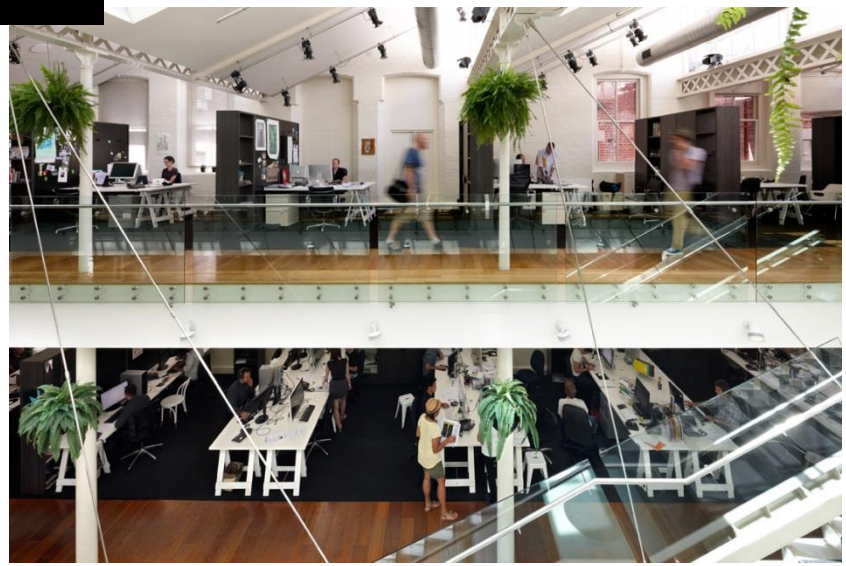
Beyond monolithic images of the service centre

The GFC amongst other influences, has accelerated new more diverse, and flexible service centres . Both in terms of their spatial economy and their physical environments.

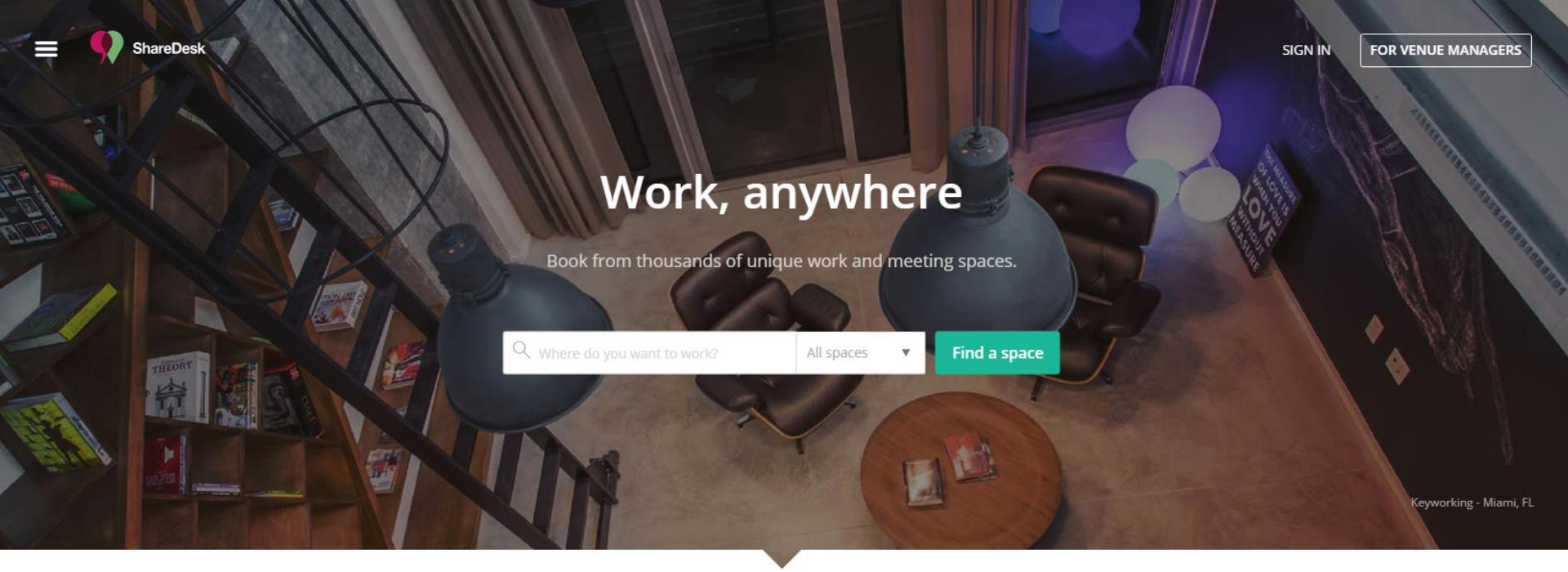


Diverse, Flexible, Dynamic Workplaces





New Workplaces / Residential / Corporate / Hotel?



On-demand workspace, when you need it.

Book a coworking space, business center, or shared office space nearby.
Discover spaces to rent by the hour, day, or month.

The Share-economy

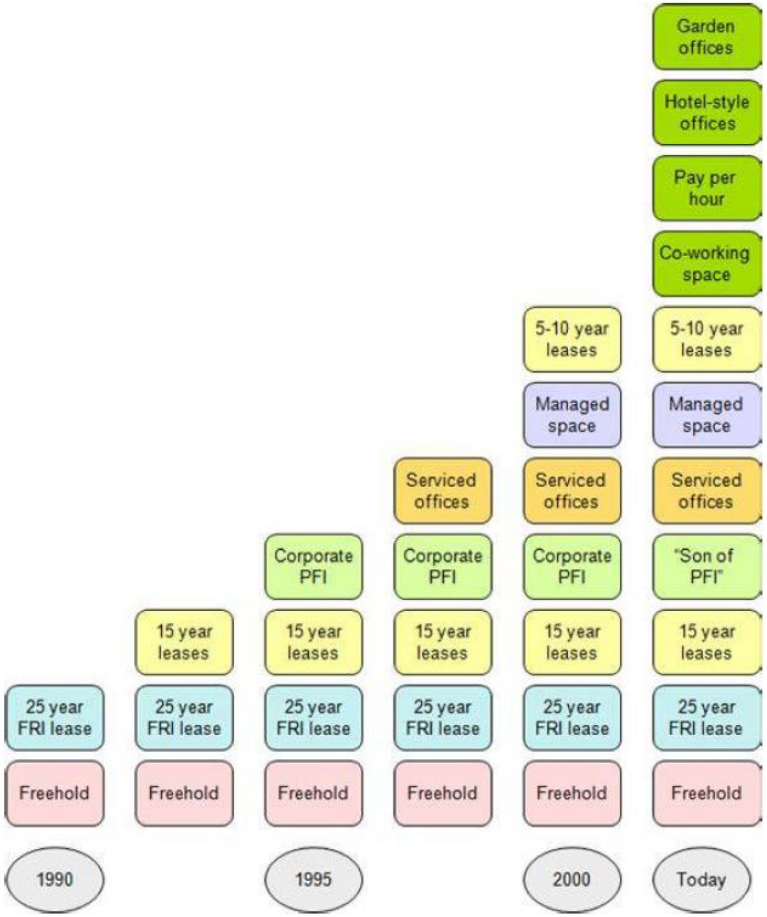


Figure 1.
The growing diversity of product offerings

Acoba, F., Chick, J., Rea, B., 2014. Advanced workplace strategies: Realigning the office to better support today's workers. Corporate Real Estate Journal 3, 322–333.

Harris, R., Cooke, H., 2014. Is corporate real estate at a crossroads? Journal of Corporate Real Estate 16, 275–289.

Across our economy, automation, outsourcing and “offshoring” have continued the shift from process work to knowledge work, accelerating worker autonomy and mobility. Demographic change has put the spotlight on mentoring, multiple career phases, ongoing learning and work-life balance. The war for talent subsided only briefly, but will intensify further as senior ranks retire. And the economic environment (and fundamental assumption of continual growth) has heightened pressure on business performance, in conjunction with pressure for social, ethical and environmental responsibility. All this, and the rapid dominance of mobile technology and ubiquitous networks, has created the “tipping point” with regard to how and where we work.

In response, the demands businesses make of physical workplaces have also (finally) changed. In the past workplaces may have had multiple consolidated sites, refreshed the look and feel or optimized space efficiency. **Today they must also attract and retain talent, support transparency and collaboration, facilitate complex structures and working relationships, and reinforce underlying brand values and culture.**

http://architectureau.com/articles/the-next-future/#img=2

Tech clusters have sprouted in Manhattan, mostly in lower neighborhoods like the Flatiron District, and Chelsea and the Meatpacking District down to SoHo and Tribeca on the West Side. All of these neighborhoods are diverse places, filled with old buildings like the former Port Authority building that now serves as Google's nearly $2 billion New York headquarters. Their repurposing as tech hubs only makes the city stronger and more diverse.

New York's rise as a tech center signals a major shift in the locus of venture-capital-fueled innovation. For a long time, high-tech start-ups have clustered in suburban office parks along freeways, places that are sometimes called "nerdistans." But since the crisis, start-ups have taken an urban turn. San Francisco, which has fared extremely well since the crash, is a striking case in point. Over the past several years, Twitter has established its headquarters downtown, Pinterest has moved from Silicon Valley to San Francisco, and even Yahoo has created a new facility in the old *San Francisco Chronicle* building in the South of Market neighborhood. The legendary Silicon Valley investor Paul Graham saw this coming. "For all its power, Silicon Valley has a great weakness," he wrote in 2006: "its soul-crushing suburban sprawl." Today, San Francisco proper tops Silicon Valley as a center for venture-capital investment, by a wide margin. The same shift has happened in greater Boston, where venture-capital investment and start-up activity are now more concentrated in Cambridge and downtown Boston than in the suburbs along Route 128.

- http://www.theatlantic.com/magazine/archive/2013/10/the-boom-towns-and-ghost-towns-of-the-new-economy/309460/

Figure 1
Attributes of Case Study Knowledge Clusters

Level of Cluster Maturity	Knowledge Diversification	Knowledge Specialization
Mature	**Silicon Valley** 13,000 firms 340,000 employees Key Sectors—Primary: ICT; Secondary: Biomedical; creative and innovation services	**Cambridge (UK)** 900 firms 30,000 employees Key Sectors—Primary: ICT; Secondary: Life sciences
Early-Stage	**Ottawa** 1,000 firms 50,000 employees Key Sectors—Primary: ICT; Secondary: Life sciences; photonics; professional services	**Helsinki** 1,100 firms 66,000 employees Key sectors—Primary: ICT; Secondary: Life sciences

Level of Knowledge Specialization

Note: ICT = information and communication technology.

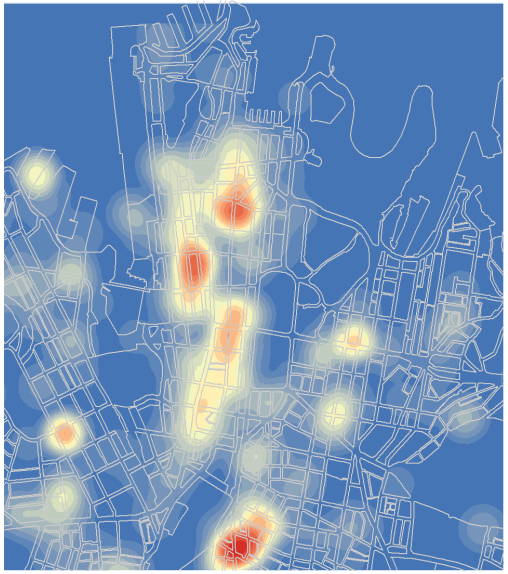
Huggins, R., 2008. The Evolution of Knowledge Clusters Progress and Policy. Economic Development Quarterly 22, 277–289. doi:10.1177/0891242408323196

What is happening in Sydney's CBD?

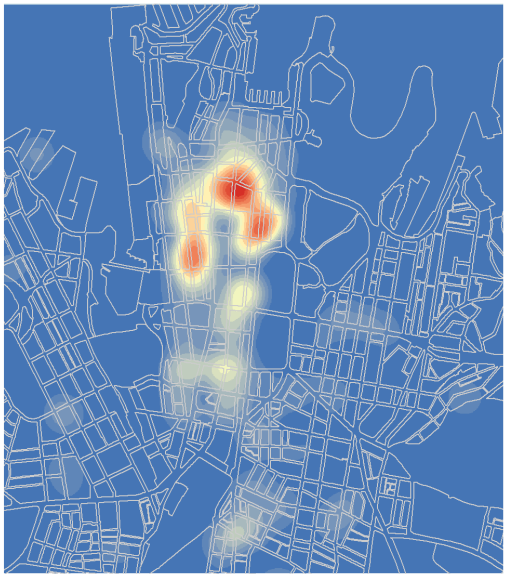
- Large floorplates in places such as Barangaroo and A-grade buildings downtown are drawing finance and banking
- This is freeing up space in traditional finance distrcits such as Martin place which have become hub of Sydney's CBD described by the AFR as the march of the IT giants.The march of the information tech tenants encroaching into traditional office markets continues unabated, with the colossus, Apple, taking up residence in the prime of Martin Place. "Martin Place is undergoing a major rejuvenation and is becoming the hub for the IT world, with LinkedIn at 1 Martin Place. The offices of Facebook, Twitter, Atlassian and financial and tax preparation software group Intuit are nearby."
- 20 Martin Place, the former home of the ANZ Bank, will be the Apples Australian headquarters covering six floors of office for the next 10 years.


5 Martin Place, Sydney **Supplied**

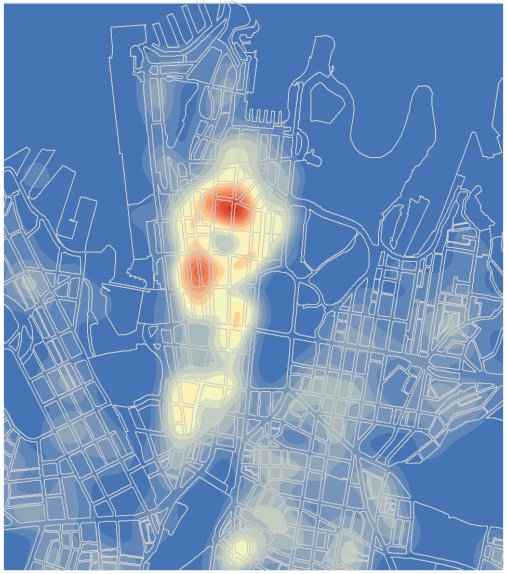
http://www.afr.com/real-estate/martin-place-provides-opportunities-again-20150901-gjcdpu



Information, media, technology

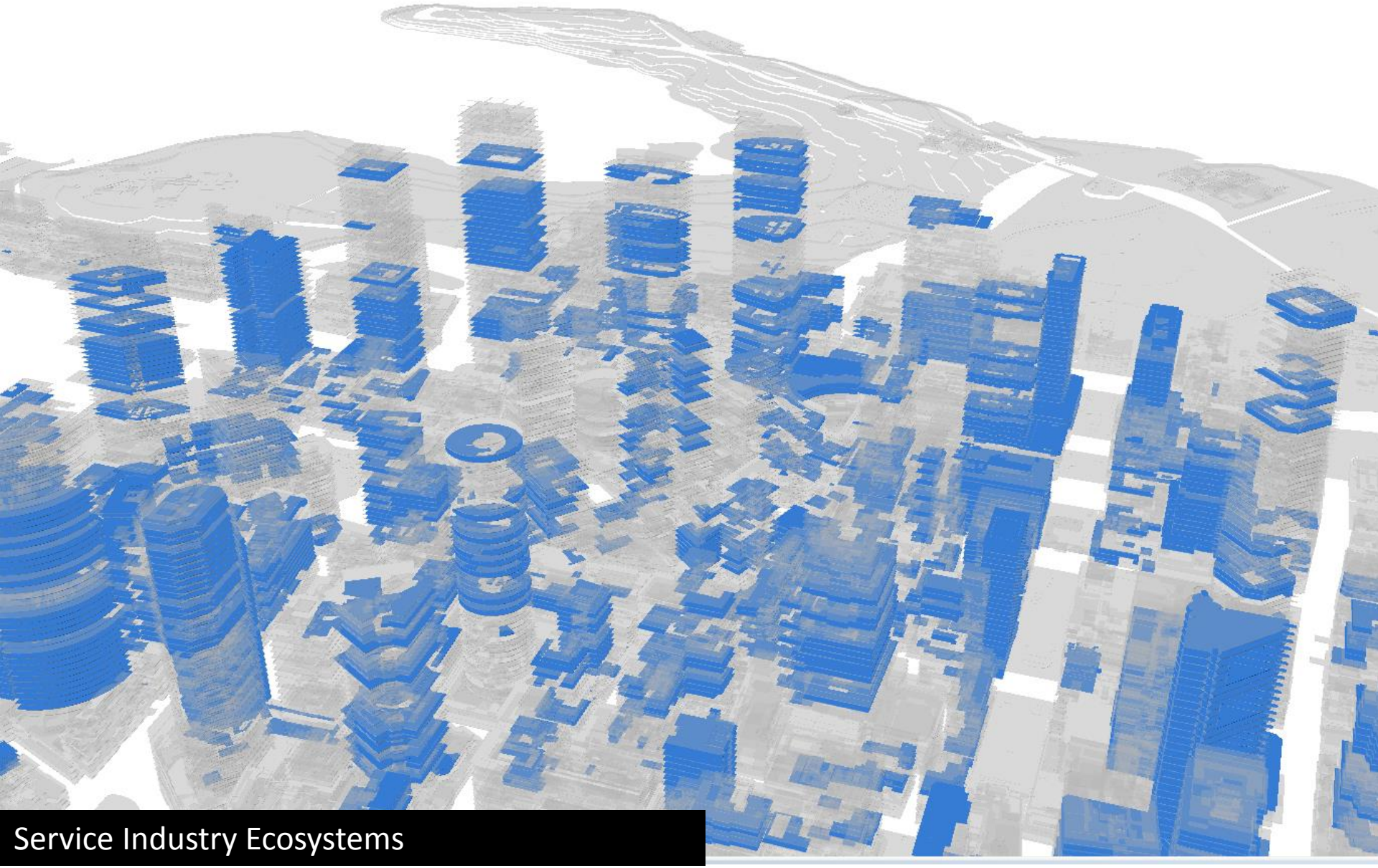


Professional and Technical Service



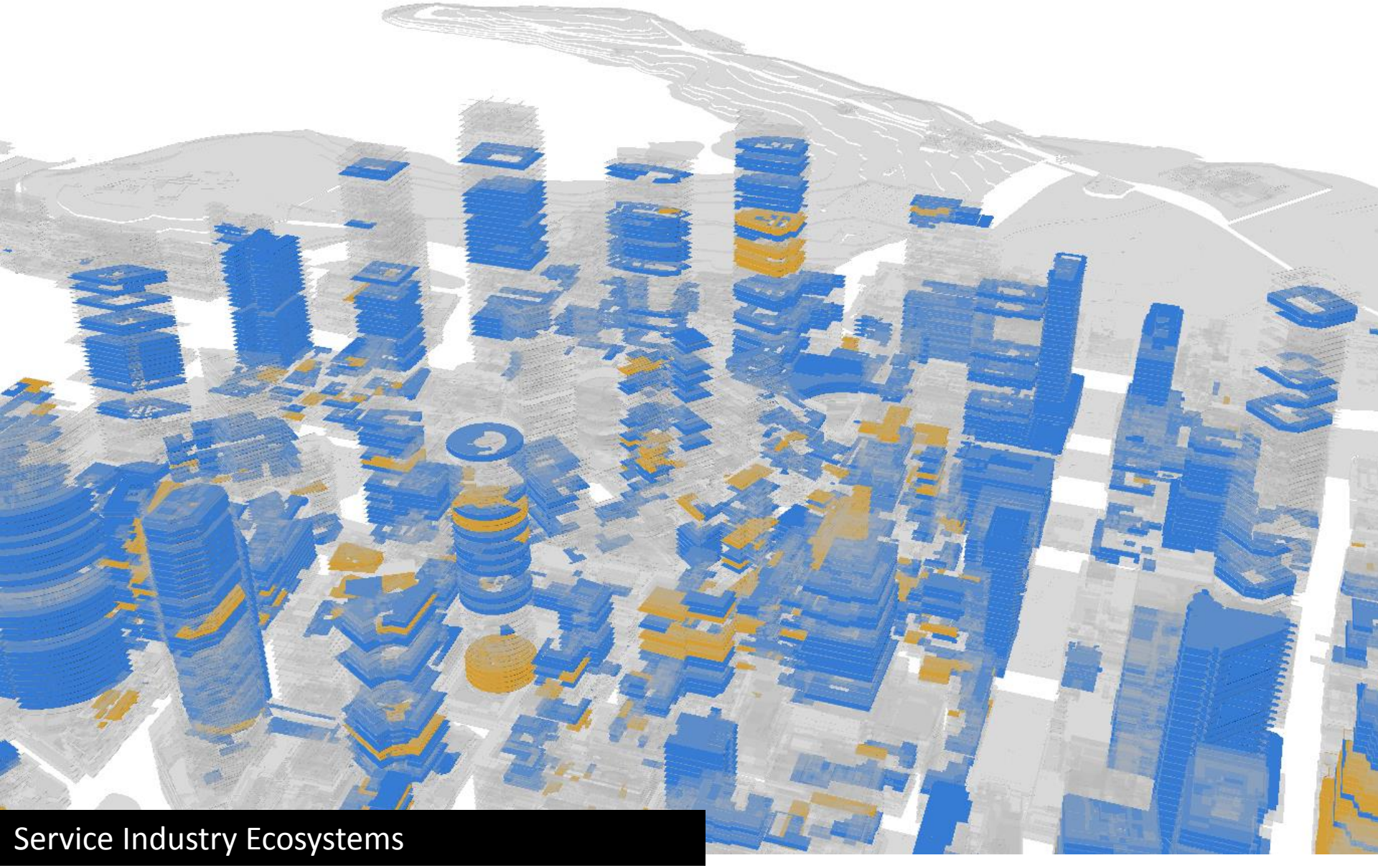
Financial Services

Service Industry Ecosystems



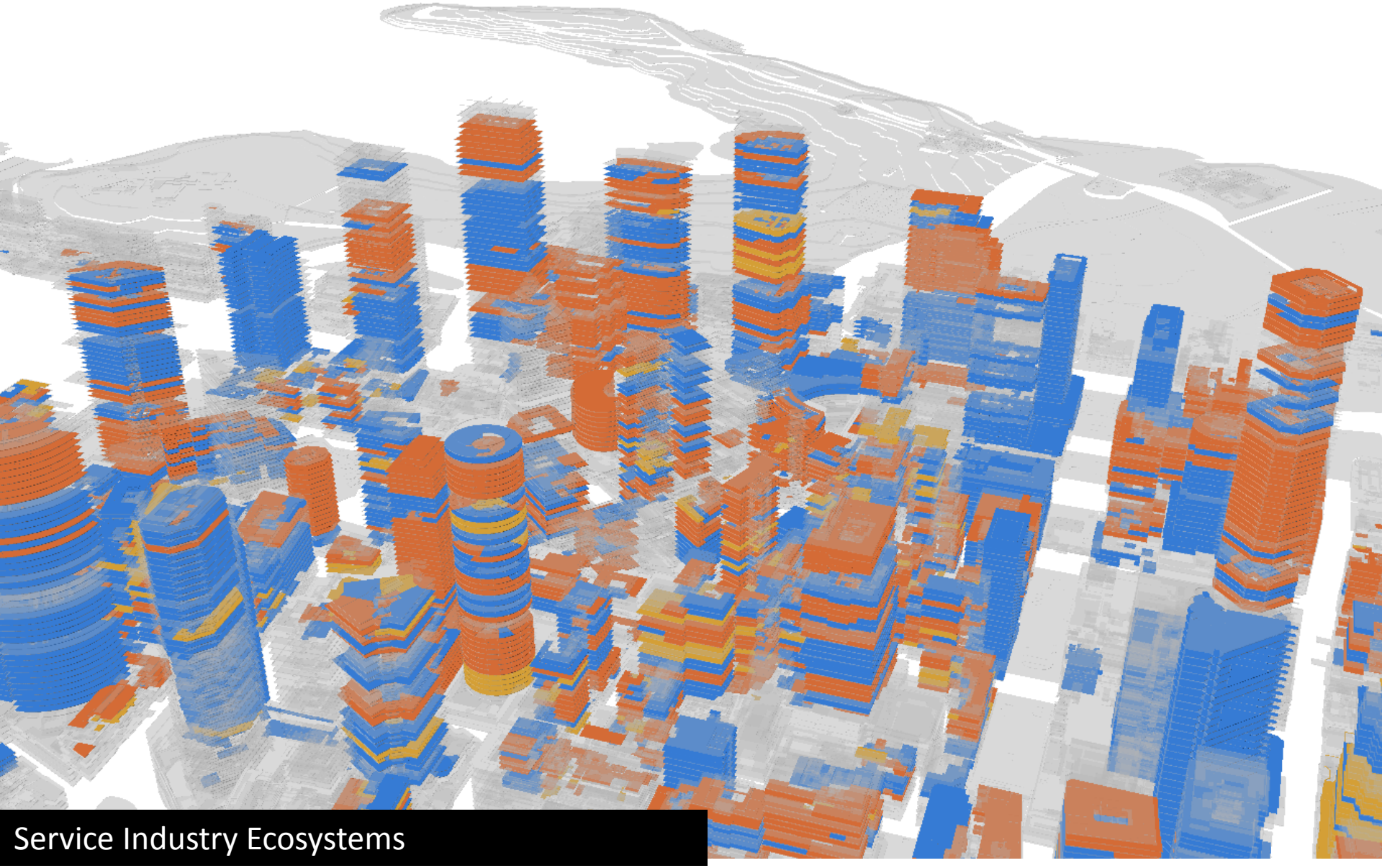
Service Industry Ecosystems

Financial Services



Service Industry Ecosystems

ICT Services

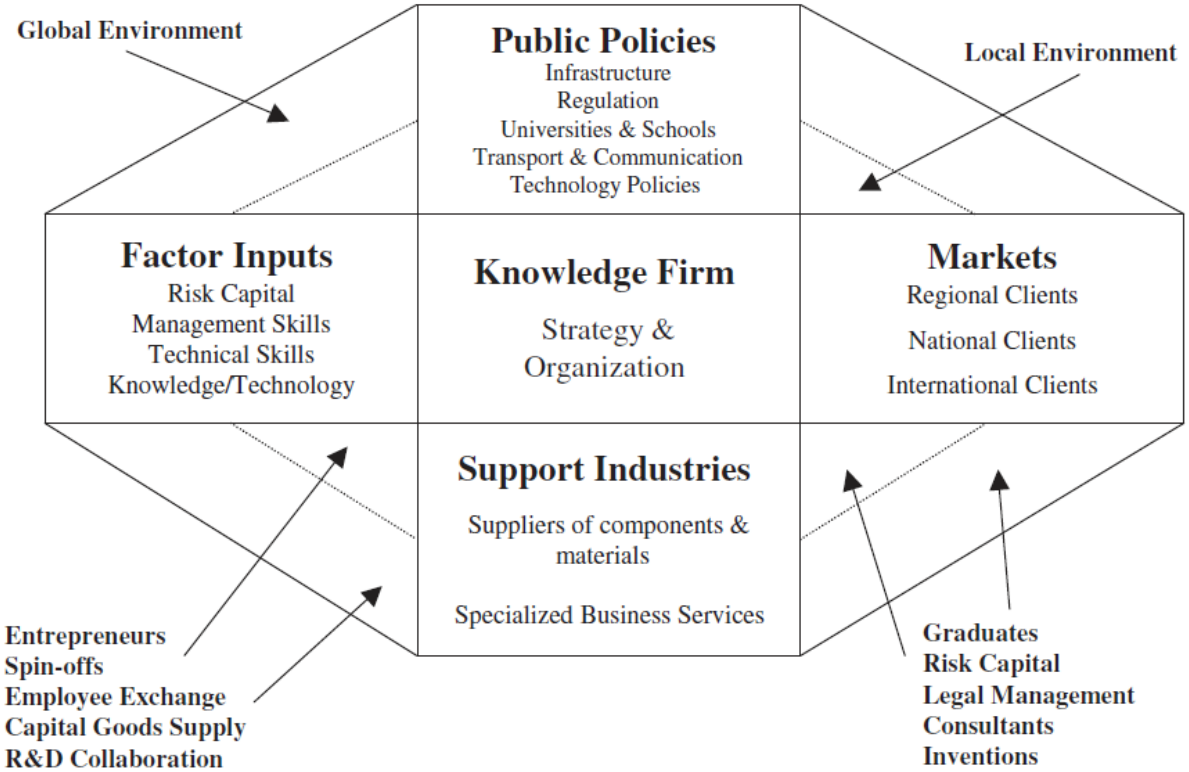


Service Industry Ecosystems

Prof and Business Services

But what of the knowledge building and its urban district?

Figure 2
The Knowledge Firm and Its Environment

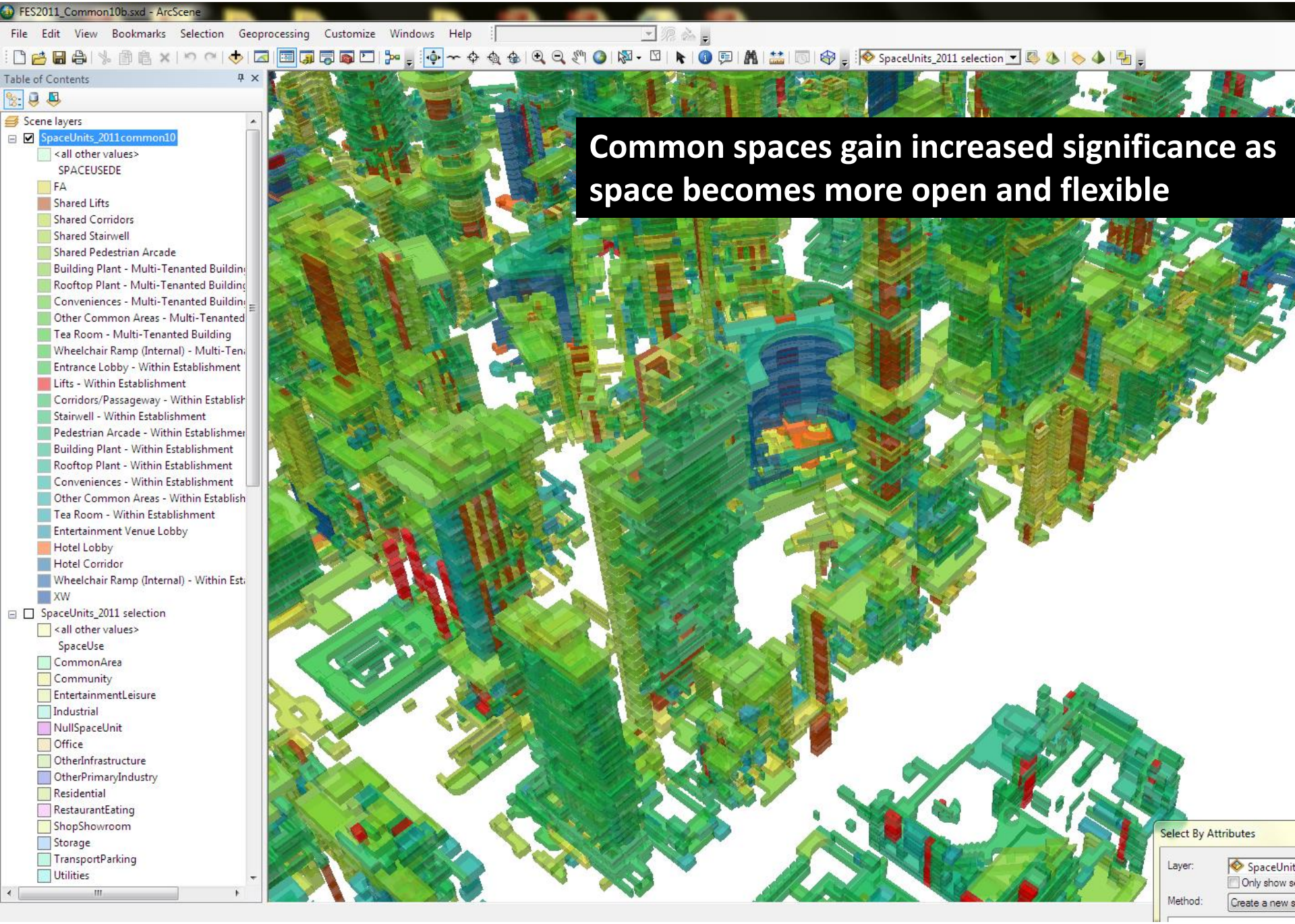


Note: The figure is based on an earlier typology of factors developed by Tödtling (1994).

Huggins, R., 2008. The Evolution of Knowledge Clusters Progress and Policy. Economic Development Quarterly 22, 277–289. doi:10.1177/0891242408323196

Common Spaces - Sydney City FES 2011

10	COMMON AREA					
10	FA	Shared Entrance Lobby	M		Common Area	No
10	FB	Shared Lifts	M		Common Area	Number of Lifts
10	FC	Shared Corridors	M		Common Area	No
10	FD	Shared Stairwell	M		Common Area	No
10	FE	Shared Pedestrian Arcade	M		Common Area	No
10	FF	Building Plant - Multi-Tenanted Building	M		Common Area	No
10	FG	Rooftop Plant - Multi-Tenanted Building	M		Common Area	No
10	FH	Conveniences - Multi-Tenanted Building	M		Common Area	No
10	FI	Other Common Areas - Multi-Tenanted Building	M		Common Area	No
10	FJ	Tea Room - Multi-Tenanted Building	M		Common Area	No
10	FK	Wheelchair Ramp (Internal) - Multi-Tenanted Building	M		Common Area	No
10	FL	Entrance Lobby - Within Establishment	A	Y	Office	No
10	FM	Lifts - Within Establishment	M		Common Area	Number of Lifts
10	FN	Corridors/Passageway - Within Establishment	A	Y	Office	No
10	FO	Stairwell - Within Establishment	M	Y	Common Area	No
10	FP	Pedestrian Arcade - Within Establishment	M	Y	Common Area	No
10	FQ	Building Plant - Within Establishment	M		Common Area	No
10	FR	Rooftop Plant - Within Establishment	M		Common Area	No
10	FS	Conveniences - Within Establishment	M	Y	Common Area	No
10	FT	Other Common Areas - Within Establishment	A	Y	Office	No
10	FU	Tea Room - Within Establishment	M	Y	Common Area	No
10	FV	Entertainment Venue Lobby	G	Y	Entertainment/Leisure	No
10	FW	Hotel Lobby	F	Y	Visitor Accommodation	No
10	FX	Hotel Corridor	F	Y	Visitor Accommodation	No
10	FY	Wheelchair Ramp (Internal) - Within Establishment	A	Y	Office	No



Common spaces gain increased significance as space becomes more open and flexible

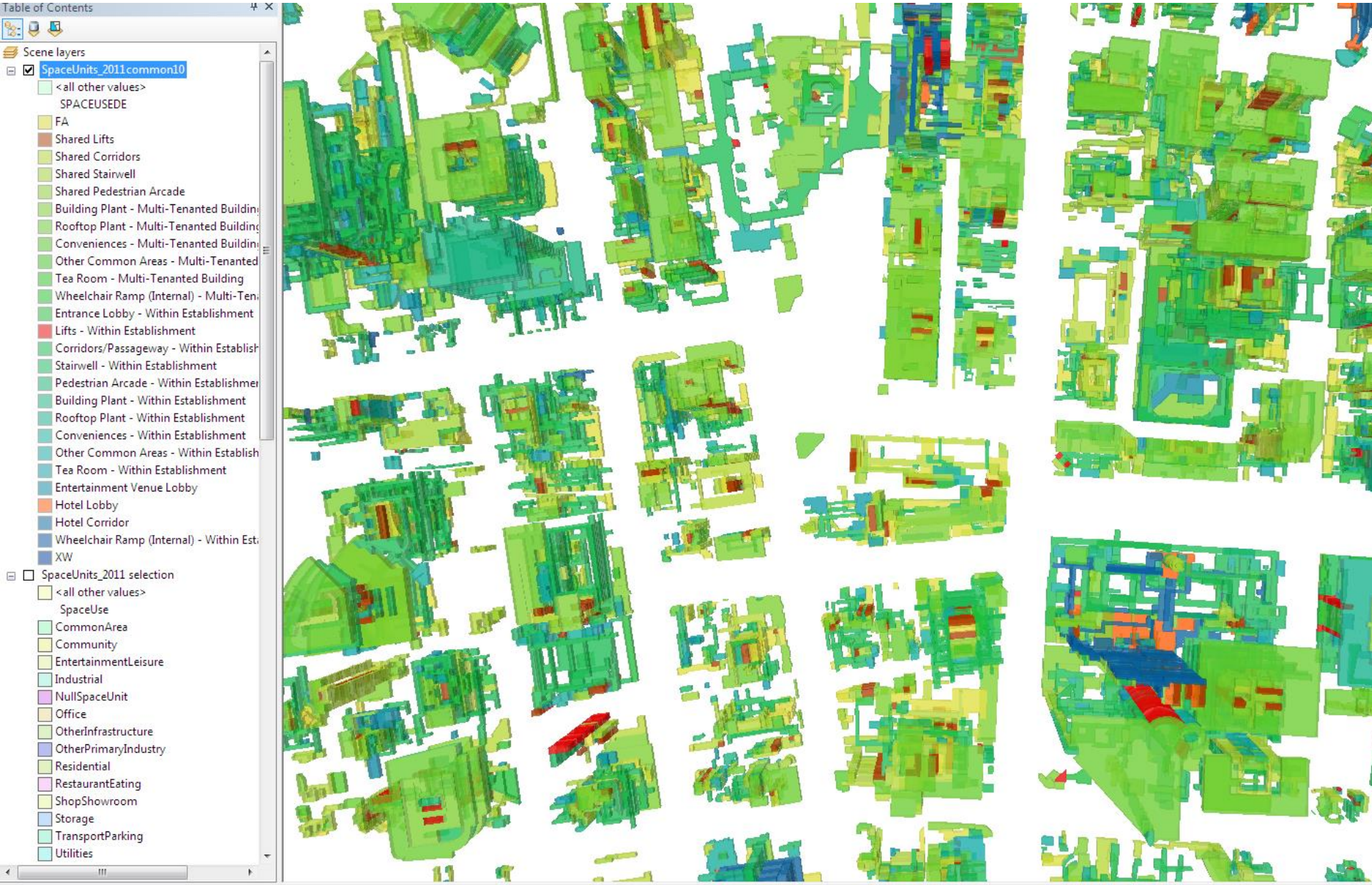


Table of Contents
Scene layers
SpaceUnits_2011common10
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SPACEUSEDE
FA
Shared Lifts
Shared Corridors
Shared Stairwell
Shared Pedestrian Arcade
Building Plant - Multi-Tenanted Building
Rooftop Plant - Multi-Tenanted Building
Conveniences - Multi-Tenanted Building
Other Common Areas - Multi-Tenanted
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Lifts - Within Establishment
Corridors/Passageway - Within Establish
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Hotel Lobby
Hotel Corridor
Wheelchair Ramp (Internal) - Within Est
XW
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CommonArea
Community
EntertainmentLeisure
Industrial
NullSpaceUnit
Office
OtherInfrastructure
OtherPrimaryIndustry
Residential
RestaurantEating
ShopShowroom
Storage
TransportParking
Utilities

Discussion – Open Data for Knowledge Based Service Industry

- Do we need incentives encouraging industrial mix in a building? Or do we have to maintain homogenous characteristics of the market?

- Such open datasets can help with the identification, retrofitting and cooperative management of such spaces.

- The share-economy has implications for buidling design and sustainability and efficiency that are yet to be realised.

- Such datasets managed at the level of the city and funded by taxes but ultimately made available for designers and building managers and real estate owners.

Discussion – Design Implications

- Do we need incentives encouraging industrial mix in a building? Or do we have to maintain homogenous characteristics of the market?

- Which industries cluster and where and how can we facilitate this through improved designed environments and real estate products?

- The advent of shared spaces and cooperatively managed knowledge systems maybe accelerated and accessed through the promotion of open data sets.

- Retrofitting of buildings generic components with sustainable infrastructure. These include the facades, lift cores and atriums and potentially carparks. These have the potential to move beyond conventional building technologies but as shared spaces take on more functions associated with energy production, temperature regulation, ventilation and socialisation.

- The importance of public space and rooftop areas as breakout spaces.