

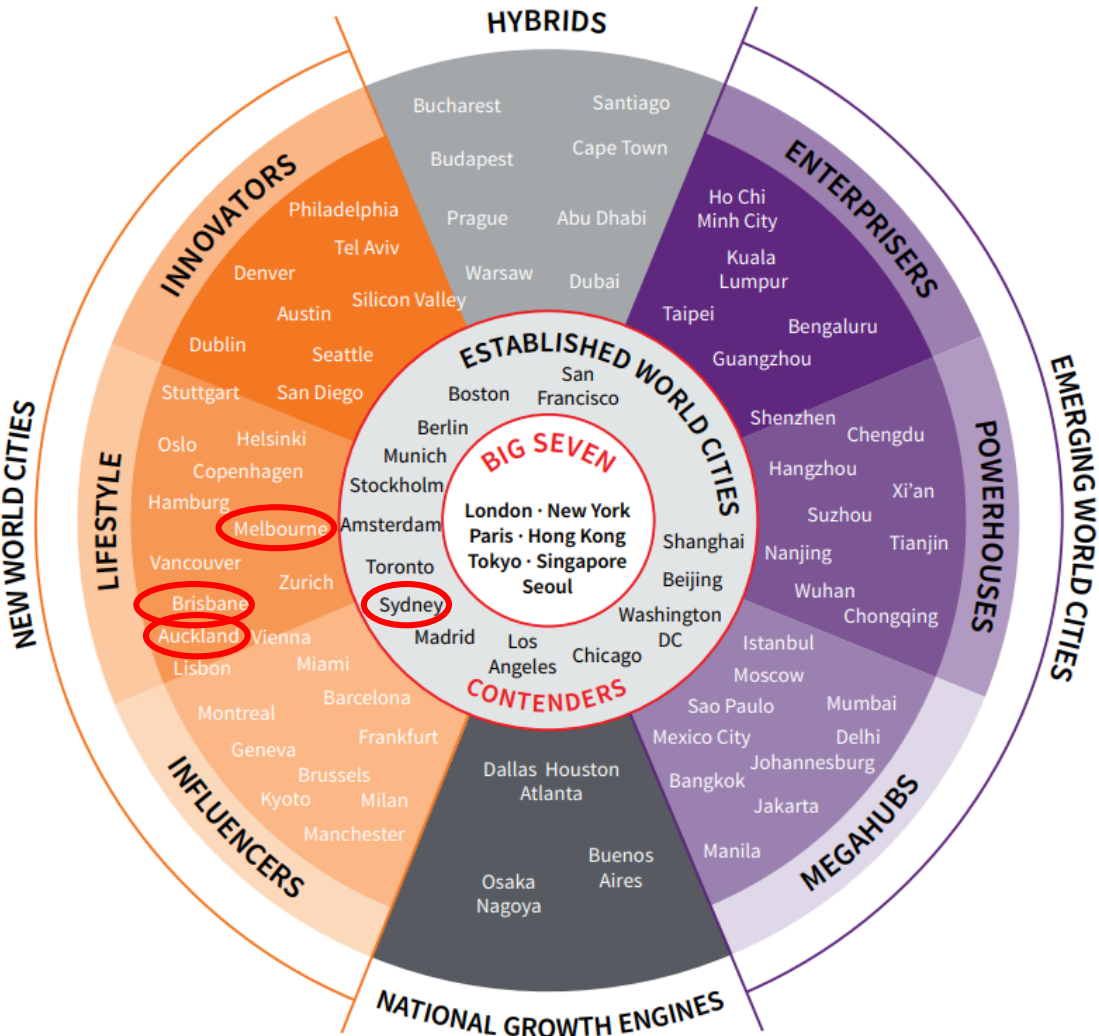
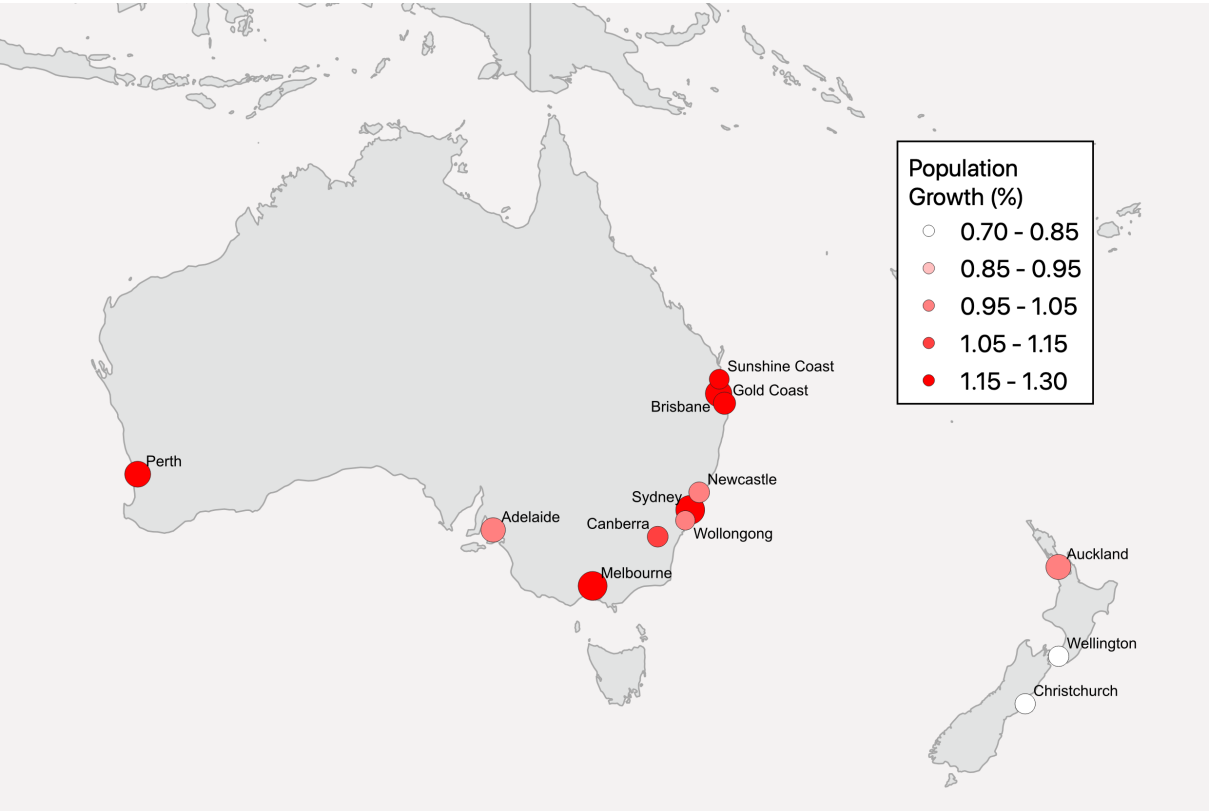


# Infrastructure New Zealand

Prof Greg Clark CBE, November 2020

# Australia & New Zealand Cities in the Global System of Cities pre-COVID

Nation	Data Type	2000	2020	2035
New Zealand	Population (Million)	3.8	4.8	5.3
	Urbanisation Rate (%)	86.0	86.7	88.6



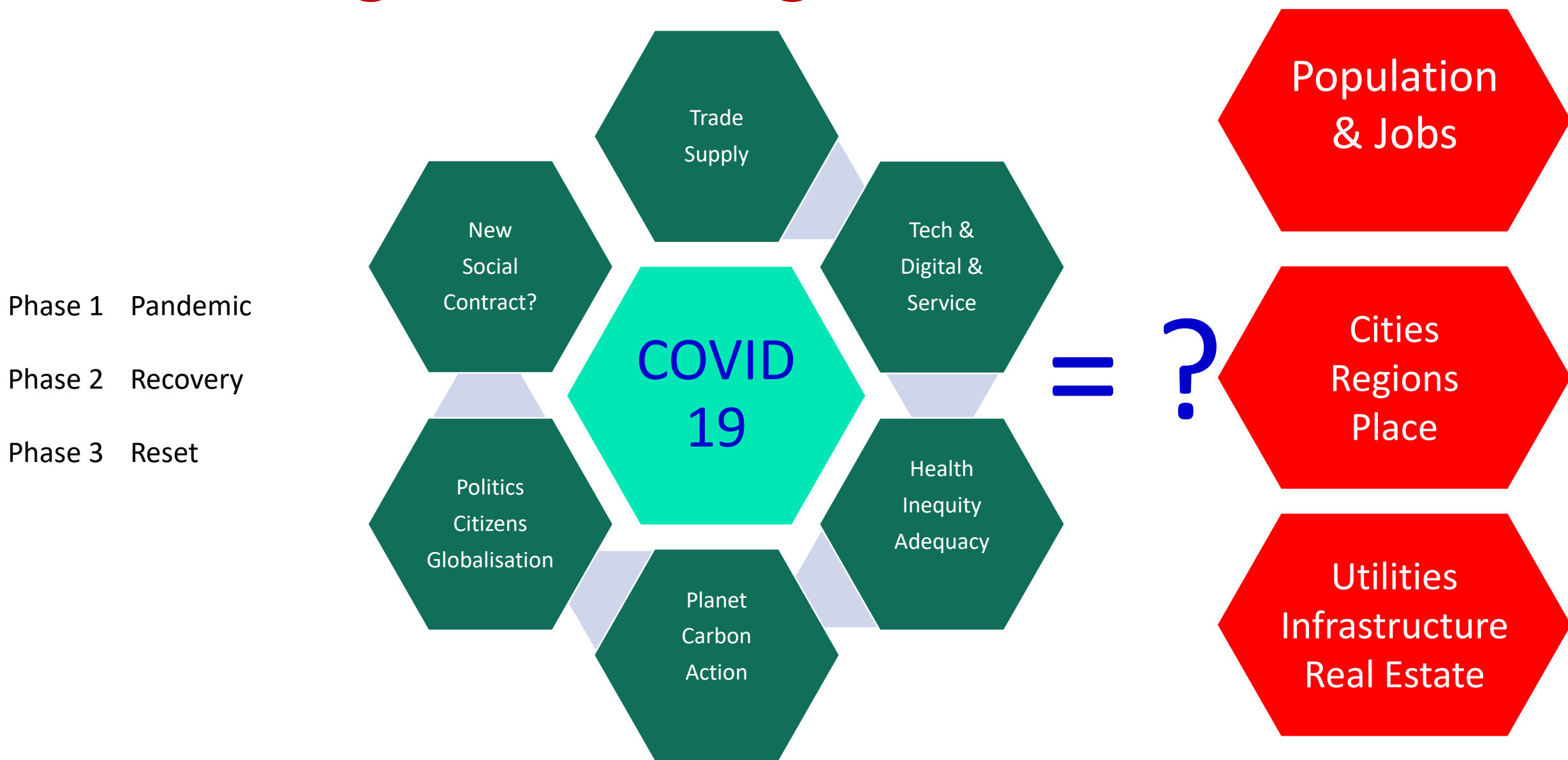
Source: JLL, The Business of Cities, 2019

Infrastructure to optimise carrying capacity.

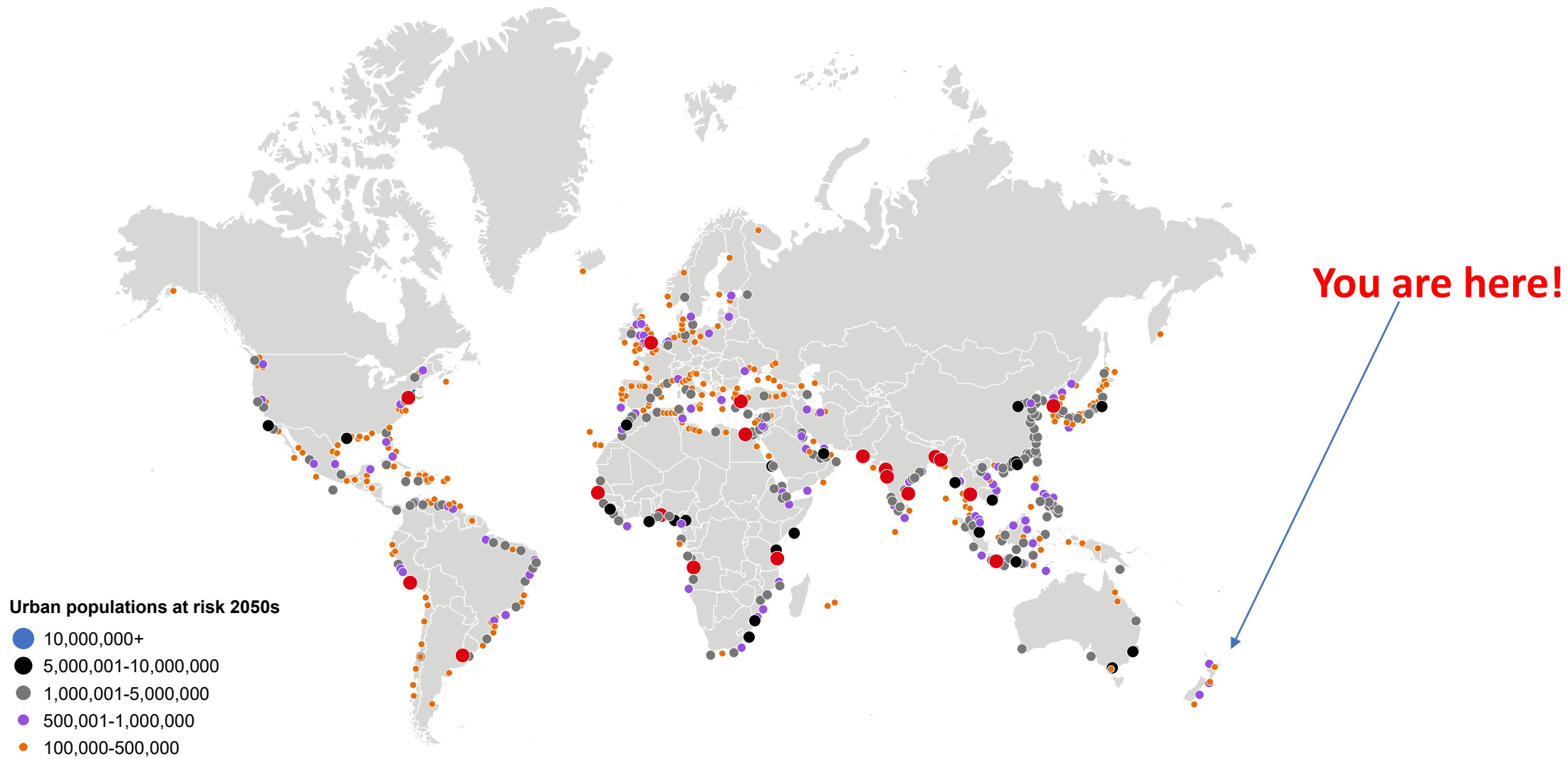
# Top 10 Australia & New Zealand Cities in Global Benchmarks

Focus	Global Economy			Innovation Economy		Quality of Life & Talent Attraction		Quality of Life & Sustainability		'Smart City' & Tech Applications	
	AT Kearney Global Cities Index 2019	JLL City Momentum Index 2019	Z-Yen Global Financial Centres 2019	2thinknow Innovation Cities Index 2019	StartupBlink Startup Ecosystem Ranking 2019	INSEAD Global Talent Competitiveness Index 2019	Mercer Quality of Living Survey 2019	Arcadis Sustainable Cities Index: Citizen Centric Cities 2018	Tan et al. Global Liveable and Smart Cities – Environmental Friendliness	IMD Smart City 2019	Oliver Wyman Global Cities AI Readiness Index*
	Overall competitiveness and growth prospects	Short-term economic and real estate momentum	Actual and perceived strength of financial industry	Existence of preconditions for innovation economy	Strength (scale and quality) of innovation ecosystem	City's ability to attract and retain talent	Evaluation of quality of living factors for expatriates	Citizens' ability to meet their needs	Environmental initiatives and levels of pollution	Citizens' perception on effectiveness of smart city initiatives	City's ability to adapt to technological disruption (AI)
Sydney	11 <sup>th</sup>	28 <sup>th</sup>	11 <sup>th</sup>	26 <sup>th</sup>	19 <sup>th</sup>	11 <sup>th</sup>	14 <sup>th</sup>	15 <sup>th</sup>	34 <sup>th</sup>	21 <sup>st</sup>	-
Auckland	-	30 <sup>th</sup>	-	61 <sup>st</sup>	141 <sup>st</sup>	3 <sup>rd</sup>	6 <sup>th</sup>	110 <sup>th</sup>	-	11 <sup>th</sup>	5 <sup>th</sup>
Melbourne	16 <sup>th</sup>	34 <sup>th</sup>	15 <sup>th</sup>	31 <sup>st</sup>	35 <sup>th</sup>	17 <sup>th</sup>	24 <sup>th</sup>	11 <sup>th</sup>	56 <sup>th</sup>	22 <sup>nd</sup>	-
Wellington	-	31 <sup>st</sup>	40 <sup>th</sup>	-	-	15 <sup>th</sup>	-	120 <sup>th</sup>	49 <sup>th</sup>	-	-
Brisbane	-	-	-	-	87 <sup>th</sup>	35 <sup>th</sup>	27 <sup>th</sup>	48 <sup>th</sup>	44 <sup>th</sup>	-	-
Canberra	-	-	-	-	200 <sup>th</sup>	30 <sup>th</sup>	-	160 <sup>th</sup>	35 <sup>th</sup>	-	-
Perth	-	-	-	-	136 <sup>th</sup>	21 <sup>st</sup>	-	101 <sup>st</sup>	-	-	-
Adelaide	-	-	-	-	143	29 <sup>th</sup>	-	154 <sup>th</sup>	-	-	-
Gold Coast	-	-	-	-	294 <sup>th</sup>	-	-	214 <sup>th</sup>	-	-	-
Newcastle	-	-	-	-	-	-	-	293 <sup>rd</sup>	-	-	-

# COVID19: Agent of Change & Accelerator



# Cities & Climate: Cities projected to be at risk from 0.5m sea level rise by 2050



Source: C40

# NetZero transition: business model reform



Decarbonising energy: shifting from fossil fuels to clean energy



Decarbonising transportation: electrifying modes of transport and promoting shared mobility and active transport



Decarbonising real estate and construction: turning buildings into net energy producers, embedding circular economy principles to life cycle, using low-carbon materials in construction



Zero Waste: Eliminating waste



Logistics: Optimising commercial freight (night delivery, parcel lockers, load pooling).

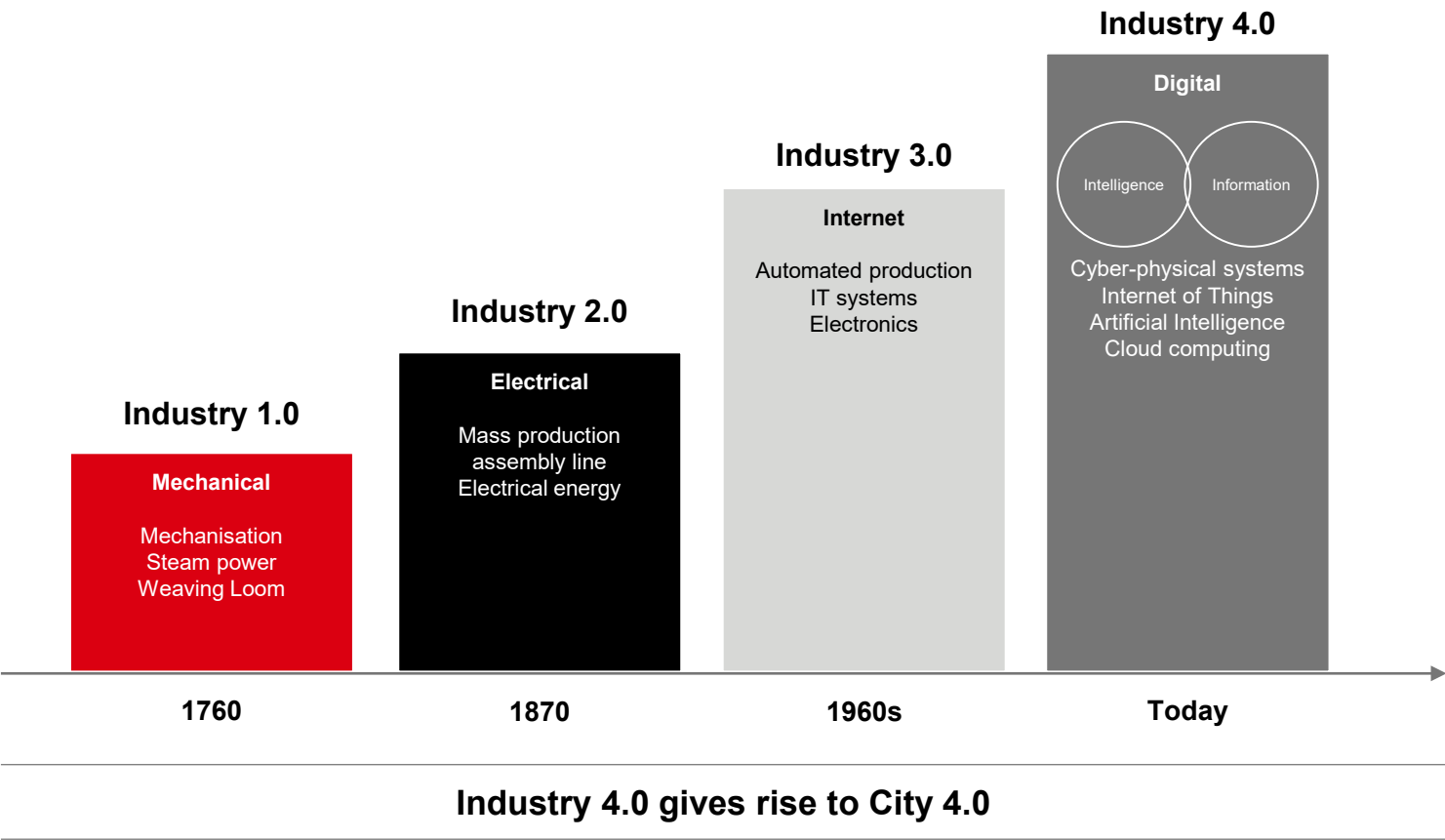
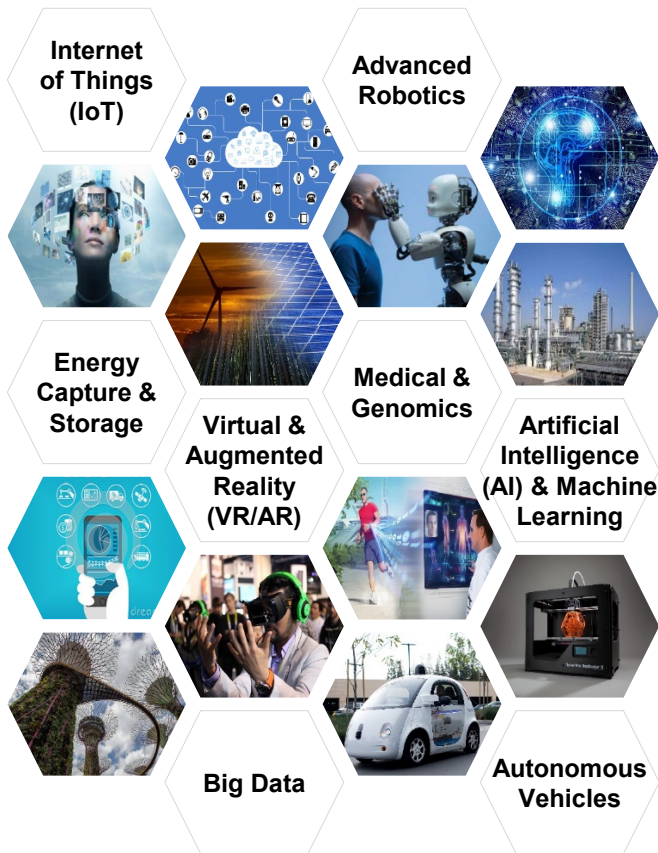


Water: Water Consumption

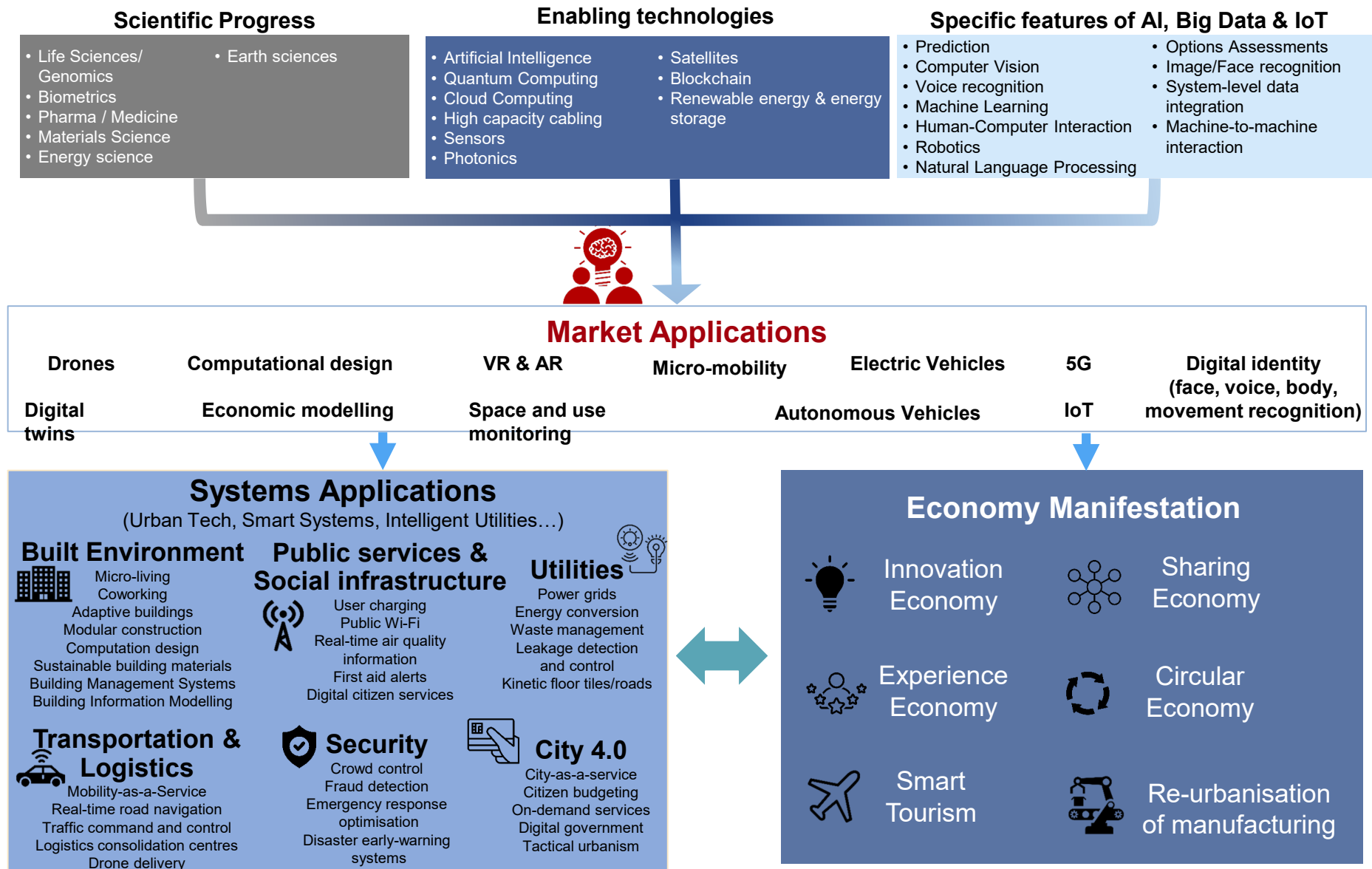
# Benefits of the Zero Carbon City



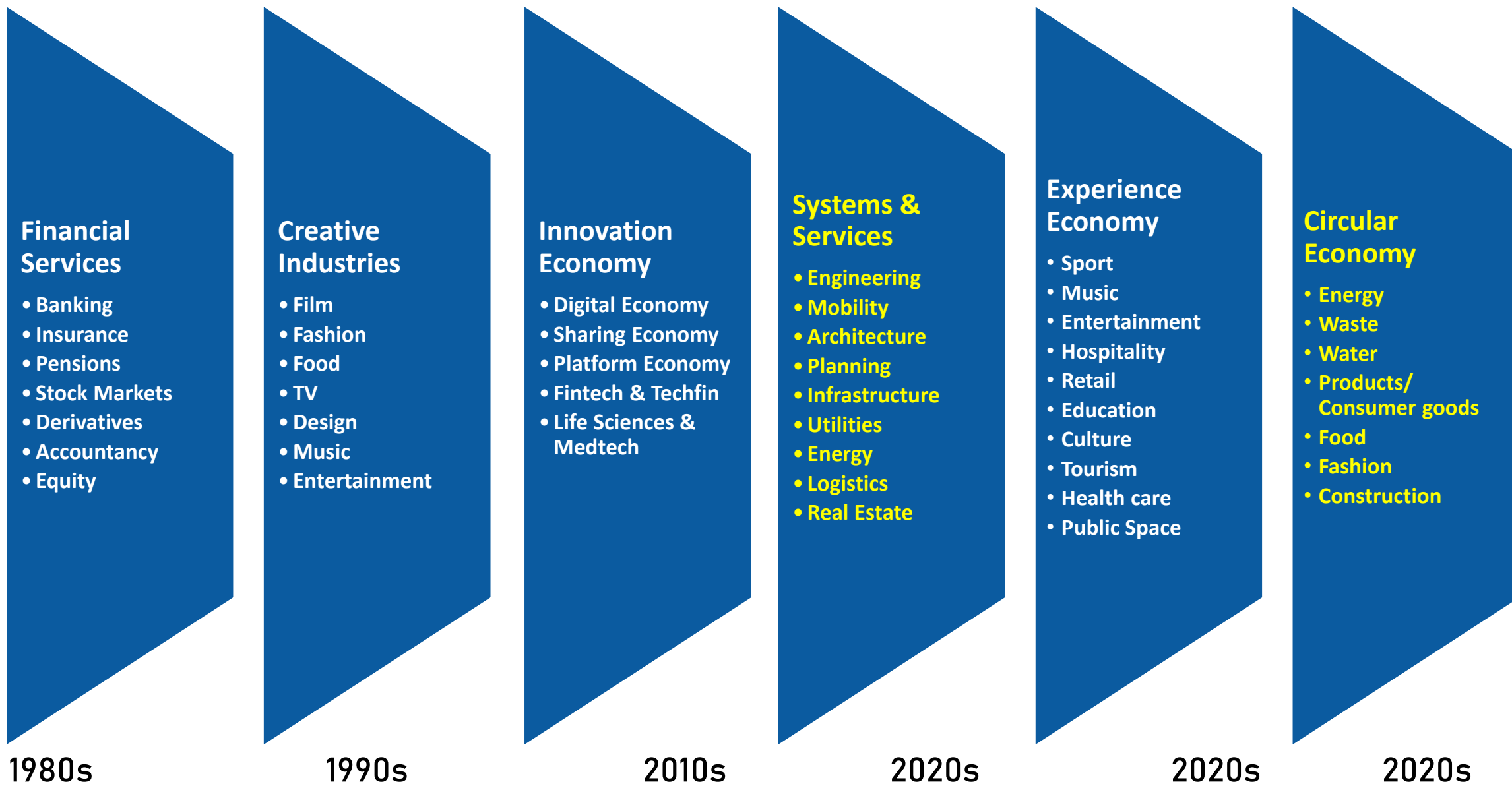
# Technology Acceleration



# Acceleration of Technology and As Service Platforms



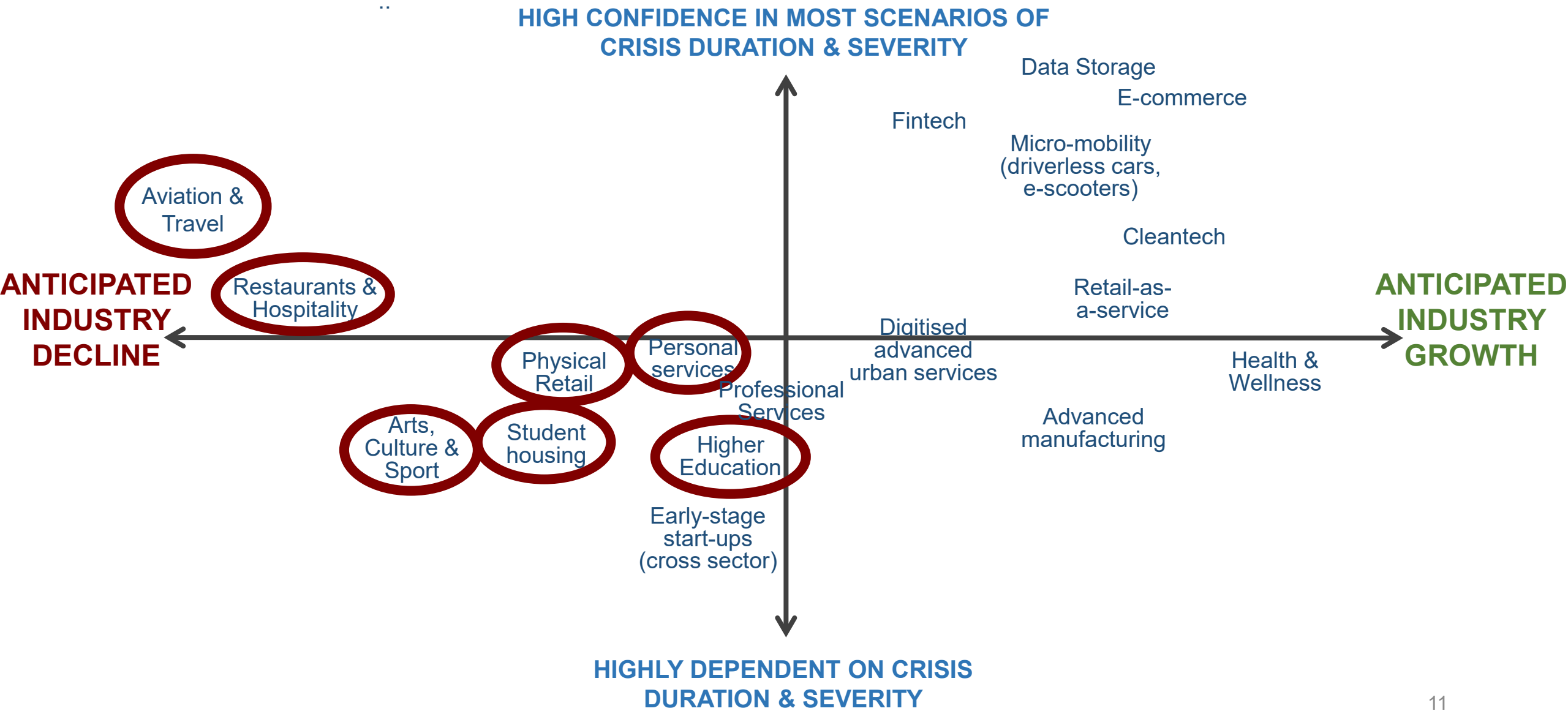
# Accelerated sector convergence: new tradeable super clusters



10

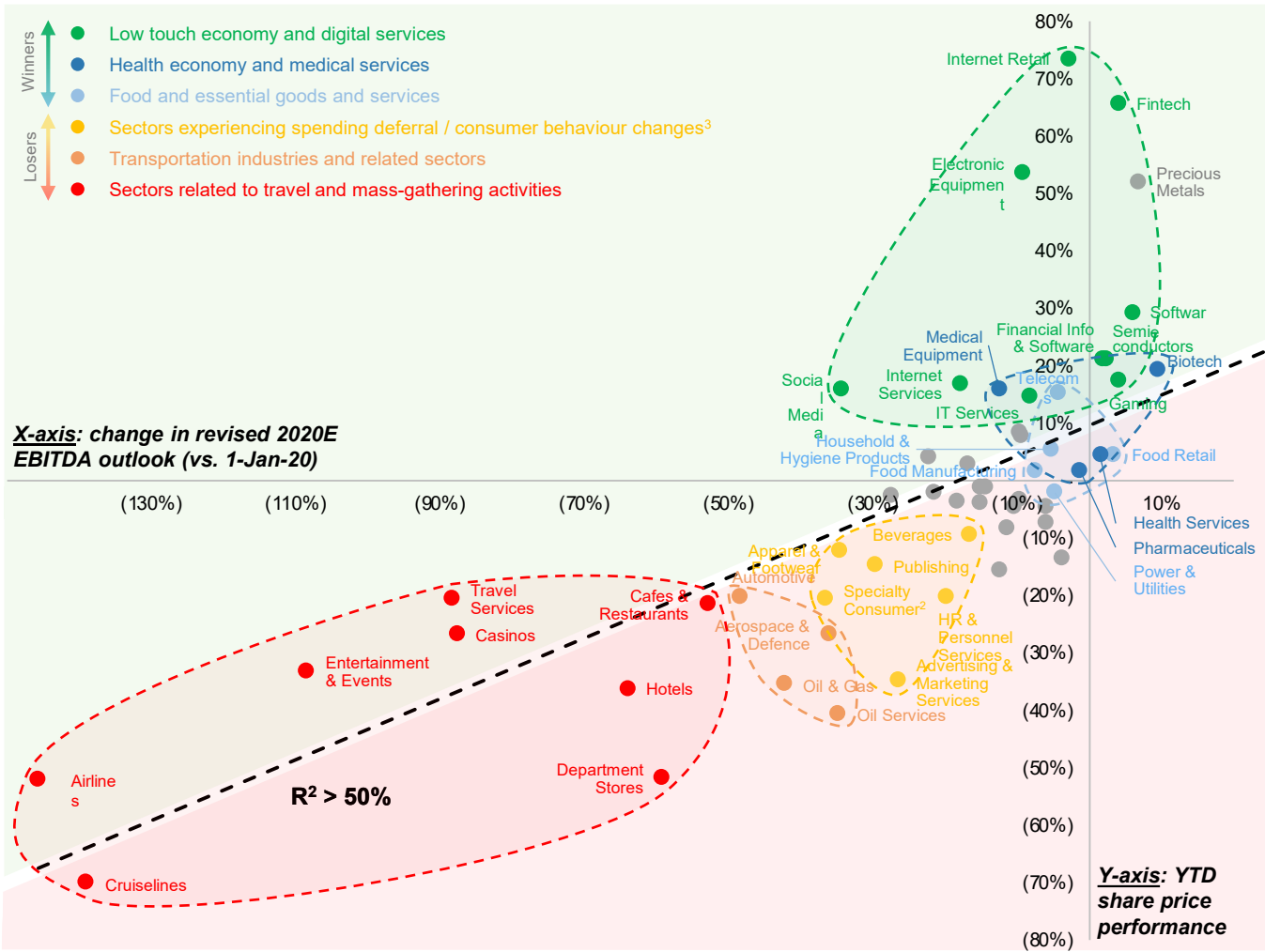
Infrastructure as a traded industry and expertise

# How will regional economies be impacted by Covid-19?

























# Investors views on long-term impacts of COVID-19 to the “new normal”...

## Market winners and losers<sup>1</sup>



**Above the trendline:** sectors over-performing overall MSCI price<sup>1</sup> performance vs. change in revised 2020E EBITDA outlook<sup>1</sup>  
**Below the trendline:** sectors under-performing overall MSCI price<sup>1</sup> performance vs. change in revised 2020E EBITDA outlook<sup>1</sup>

...the medical response to COVID-19 and “re-opening” sectors...

Care type	Government response	Consumer confidence	Considerations	Select “open” sectors
 <b>Reactive care (anti-inflammatories)</b>	<ul style="list-style-type: none"> <li>Lockdown measures</li> <li>Travel bans</li> <li>Closure of public spaces</li> </ul>		<ul style="list-style-type: none"> <li>Low consumer confidence given the <b>economic shock</b> and expected growth prospects</li> <li>Potential <b>loss in household income</b> as a result of the economic and health policy responses to the crisis</li> <li><b>Increase of savings</b> amid future <b>uncertainty</b> and fears of <b>unemployment and labour market shrinkage</b></li> <li>Focus on <b>non-adjustable household spending</b></li> <li>Deferral of most non-essential spending</li> </ul>	<ul style="list-style-type: none"> <li> <b>Energy</b></li> <li> <b>FMCG / F&amp;B</b></li> <li> <b>Residential rents</b></li> <li> <b>Telecom</b></li> <li> <b>Utilities</b></li> </ul>
 <b>Treatment care (antivirals)</b>	<ul style="list-style-type: none"> <li>Continuous social distancing and adoption of PPE across the population</li> </ul>		<ul style="list-style-type: none"> <li>Better consumer confidence if clinical trials lead to an effective treatment</li> <li><b>Improvement of household spend</b> dedicated to goods and services previously prohibited or discouraged due to social distancing</li> <li>Deferral of significant spending given <b>continuous vulnerability of the economy</b></li> </ul>	<ul style="list-style-type: none"> <li> <b>Cinemas</b></li> <li> <b>Entertainment</b></li> <li> <b>Pubs</b></li> <li> <b>Restaurants</b></li> <li> <b>Unis &amp; education campuses</b></li> </ul>
 <b>Preventive care (vaccines)</b>	<ul style="list-style-type: none"> <li>Progressive return to “normalcy”</li> </ul>		<ul style="list-style-type: none"> <li><b>Restoration of consumer confidence</b> and optimism across the population</li> <li><b>Decrease of saving rates</b> as employment and market conditions are recovering and re-injection of cash in the economy</li> <li>Recovery of spending index, incl. significant expenditures in leisure and other recreational activities</li> <li><b>Central business districts may be impacted</b> by longer term social distancing measures and working from home</li> </ul>	<ul style="list-style-type: none"> <li> <b>Automotive</b></li> <li> <b>Corporate RE (in dense CBDs)<sup>1</sup></b></li> <li> <b>Hotels</b></li> <li> <b>Luxury goods</b></li> <li> <b>Real estate</b></li> <li> <b>Travel</b></li> </ul>

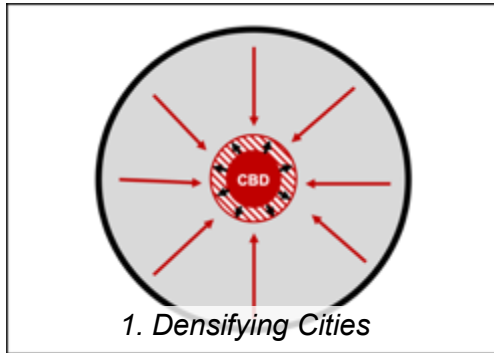
# Impact on the Built Environment in the near and medium term?

Up?	Down?	Uncertain?
<ul style="list-style-type: none"><li>✓ Data Centres</li><li>✓ Home working</li><li>✓ Last mile Logistics</li><li>✓ Medical related</li><li>✓ Local services</li><li>✓ Residential niches and locations</li></ul>	<ul style="list-style-type: none"><li>✗ Retail</li><li>✗ Hotels</li><li>✗ Convention Centres</li><li>✗ Airports</li><li>✗ Stadia</li></ul>	<ul style="list-style-type: none"><li>! CBD?</li><li>! Office?</li><li>! Conversions?</li><li>! Student Housing?</li><li>! Ports?</li></ul>
<ul style="list-style-type: none"><li>✓ 2nd / 3rd tier and suburban locations</li><li>✓ Real Estate as a Service</li><li>✓ Agile mixed use</li></ul>	<ul style="list-style-type: none"><li>✗ City Centres?</li><li>✗ Single use assets</li><li>✗ Traditional business models</li></ul>	<ul style="list-style-type: none"><li>! Allocations of capital to real estate</li><li>! Regional variations</li><li>! Cross-border investing</li></ul>

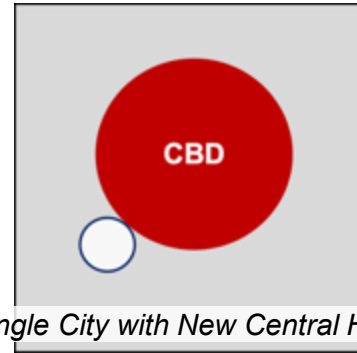
# Shapes and Sizes Post COVID19

Infrastructure as enabler of new spatial forms

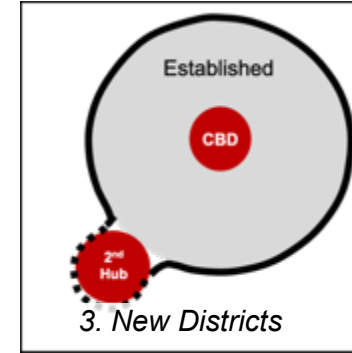
1980-



1. Densifying Cities



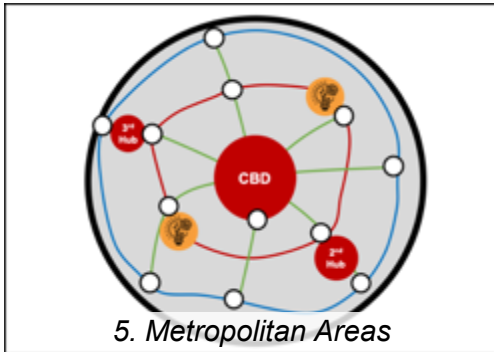
2. Single City with New Central Hubs



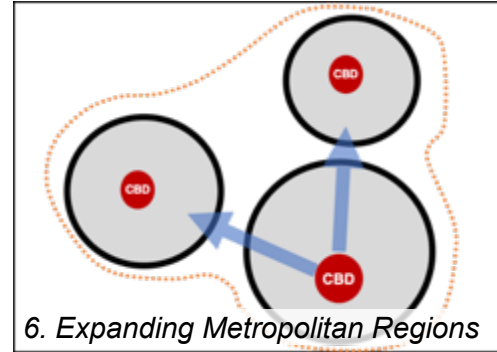
3. New Districts



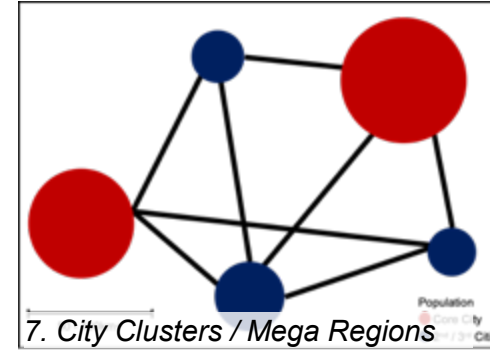
4. New Cities



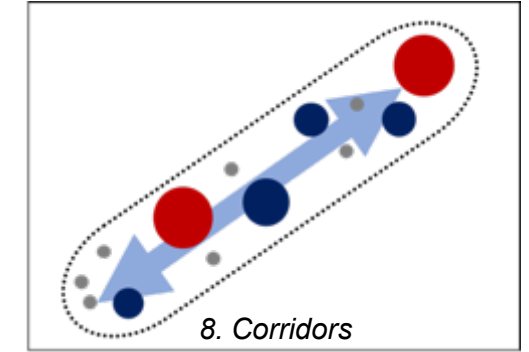
5. Metropolitan Areas



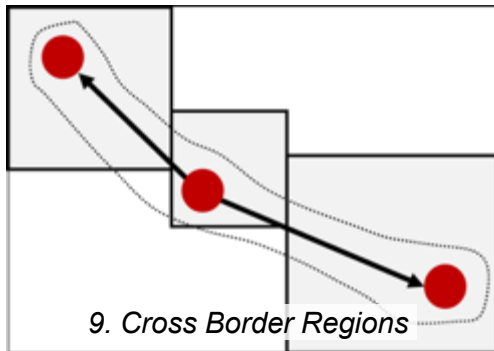
6. Expanding Metropolitan Regions



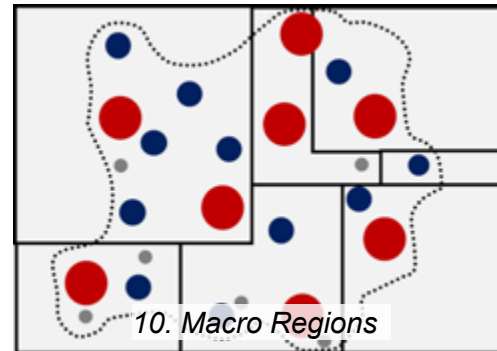
7. City Clusters / Mega Regions



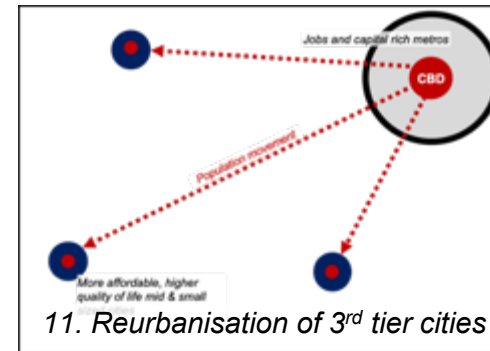
8. Corridors



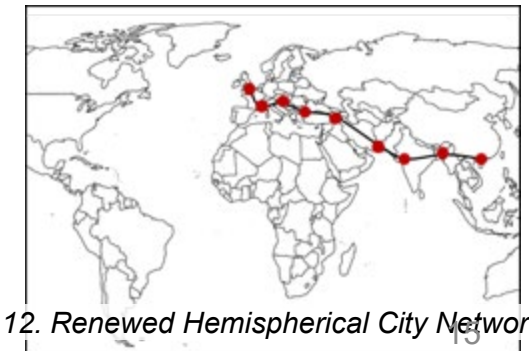
9. Cross Border Regions



10. Macro Regions



11. Reurbanisation of 3<sup>rd</sup> tier cities



12. Renewed Hemispherical City Networks

## The Physical City



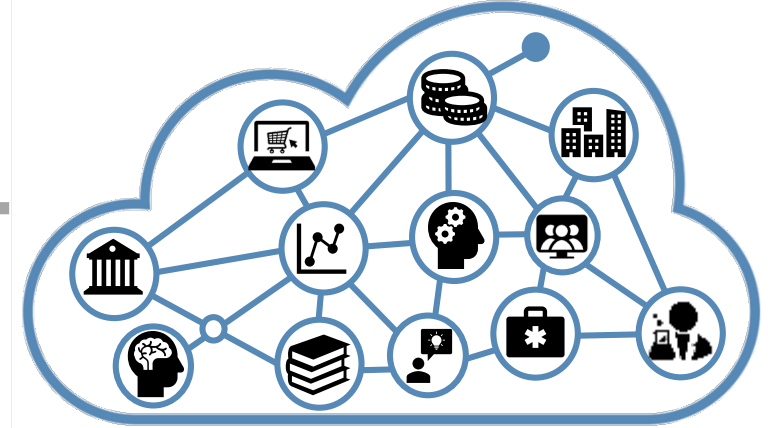
Choices: citizens

1. Where we live
2. How we work and consume
3. When/how we travel

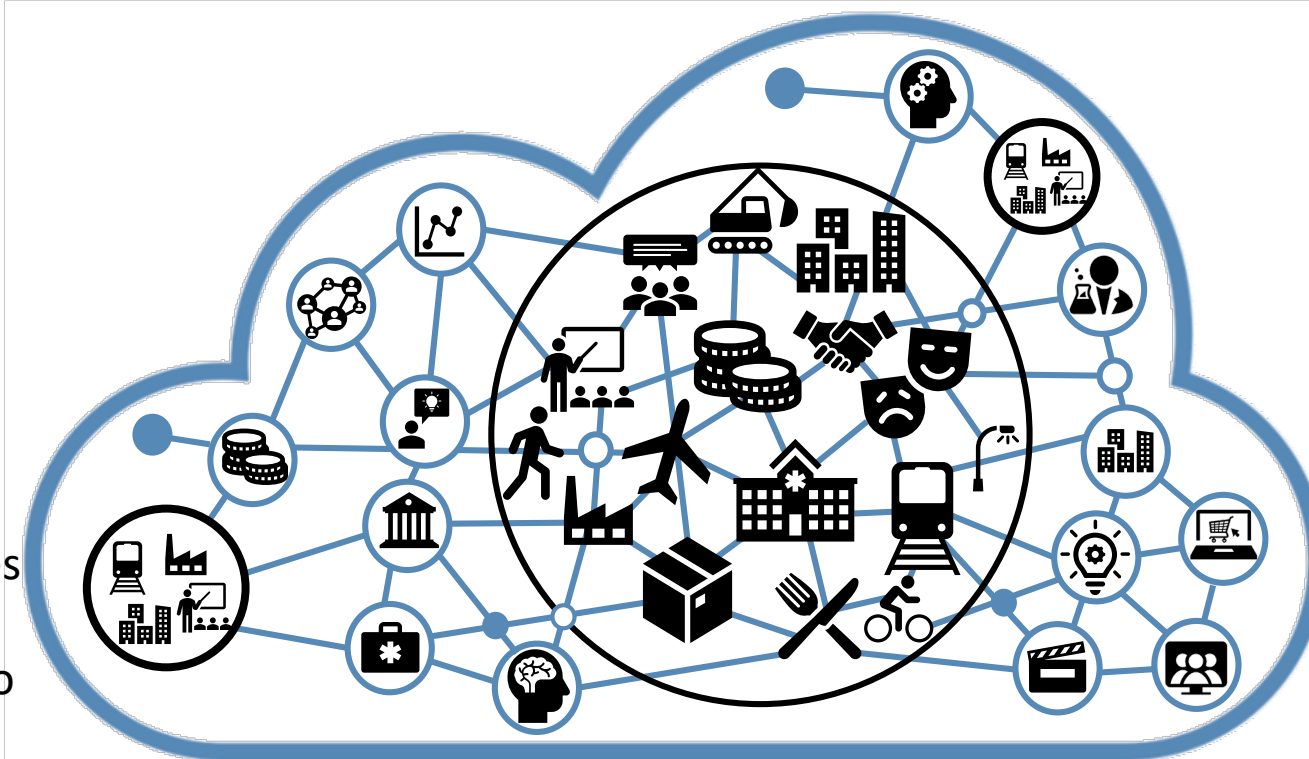
Choices: cities and govts

1. How to adjust services, systems, and shared spaces.
2. How to generate revenues and finance investment?
3. What economic sectors to pursue and how?

## The Virtual City



## The Blended City

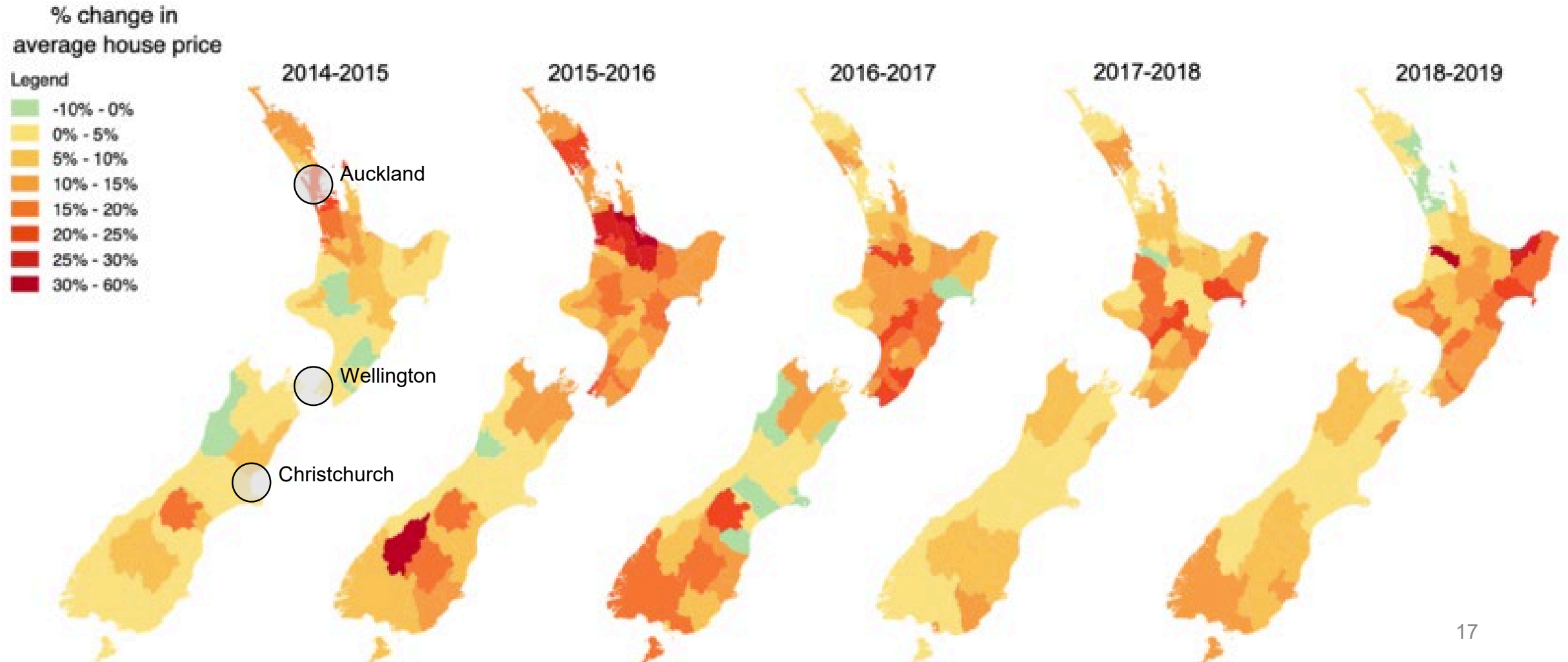


Leads to

1. Changes in effective shape and size of city
2. Accelerated Hybridity.
3. Risk of fragmentation and segregation.

# How might COVID19 change house prices?

*Change in average house price in New Zealand since 2014*



## New Zealand's LARGEST CITIES



DATA SOURCE: STATS.GOV.T.NZ (JUNE 2018)

## First order issues post COVID

Health  
Climate  
Trade Travel Resilience  
Digitisation  
New global order  
Acceleration, Hybridity, Agility (aha!)

## Opportunities and threats

Jobs lost/created  
Live/Work/Travel patterns  
Population shifts  
Overlapping geographies and revised trade  
New social and climate contract

## Implications

Infrastructure & resilience  
Infrastructure & netzero  
Infrastructure & settlement patterns  
Infrastructure & digitisation & as a service  
Infrastructure & investment