

THE ROLES OF DESIGN IN SUSTAINABILITY TRANSFORMATIONS

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NÔDUS
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Research Group

A?

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A BIT ABOUT ME: DISCIPLINARY AND GEOGRAPHIC ADVENTURES...

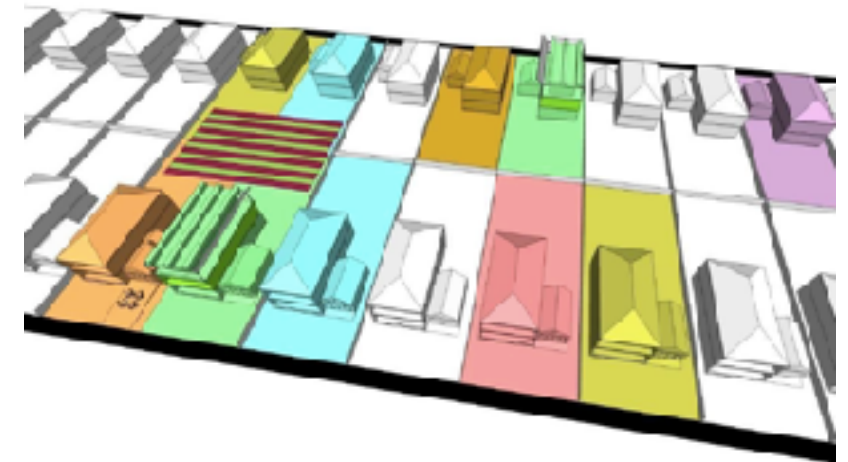
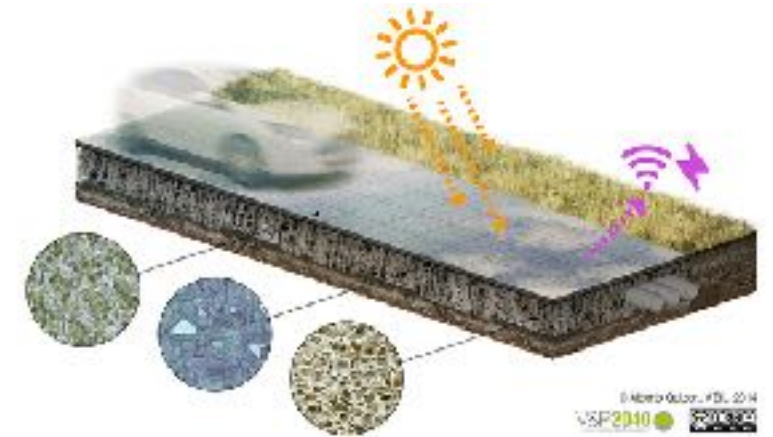


System Innovations and Transitions for Sustainability

transformative sustainability innovation in business, urban sustainability transitions, multispecies design systems theories, sustainability science, transitions research, futures studies and foresight, design theory, transdisciplinary research

Sustainability transitions are not solely technological challenges...

they're also social, economic and governance challenges requiring fundamentally different systems, structures and practices to be conceived and implemented in all these areas combined.

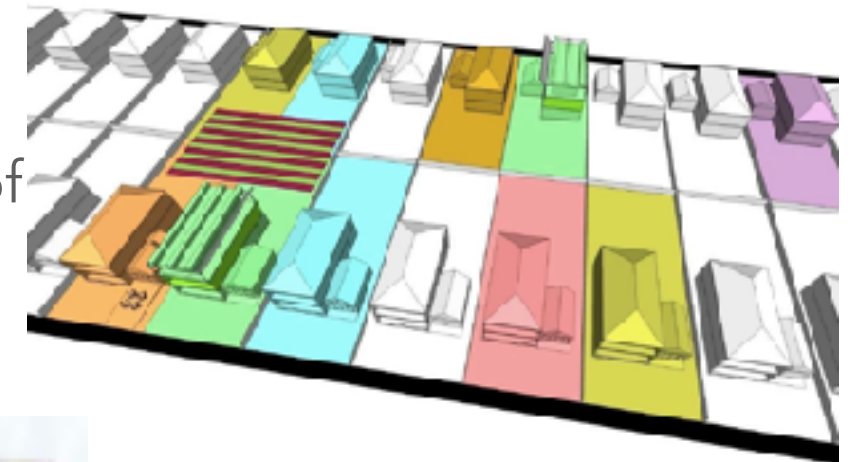
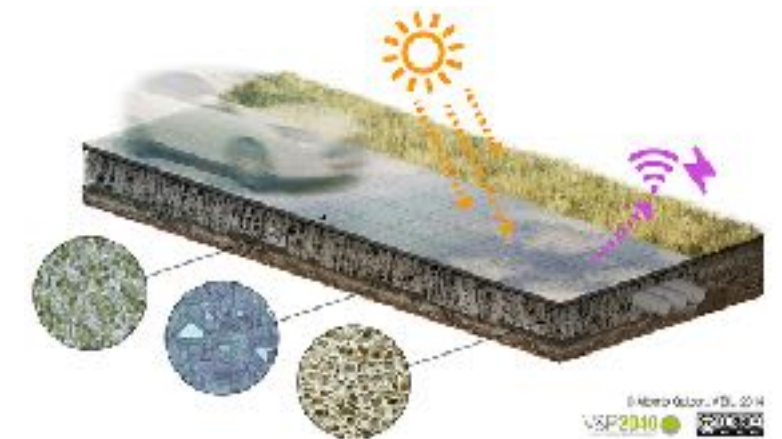


SUSTAINABILITY TRANSFORMATIONS ARE 3-FOLD DESIGN CHALLENGES...

CREATIVE : conceptualisation of new systems

TECHNICAL : selecting, designing and developing new systems

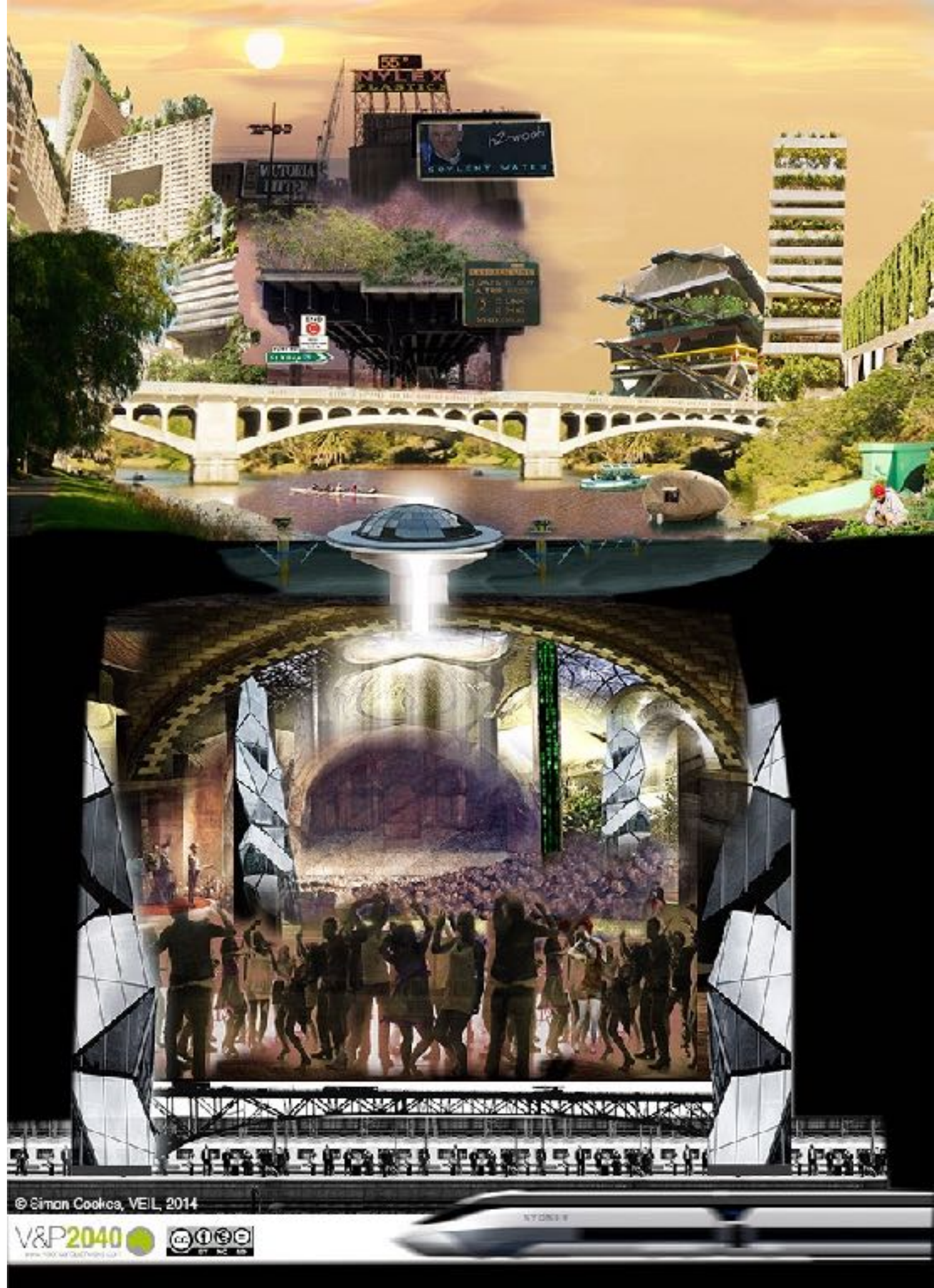
POLITICAL : designing participatory and democratic processes of deliberation



DESIGN...

“equally concerned with probing the limits of our current reality as it is with making new realities possible”

(Boyer, Cook and Steinberg 2011)

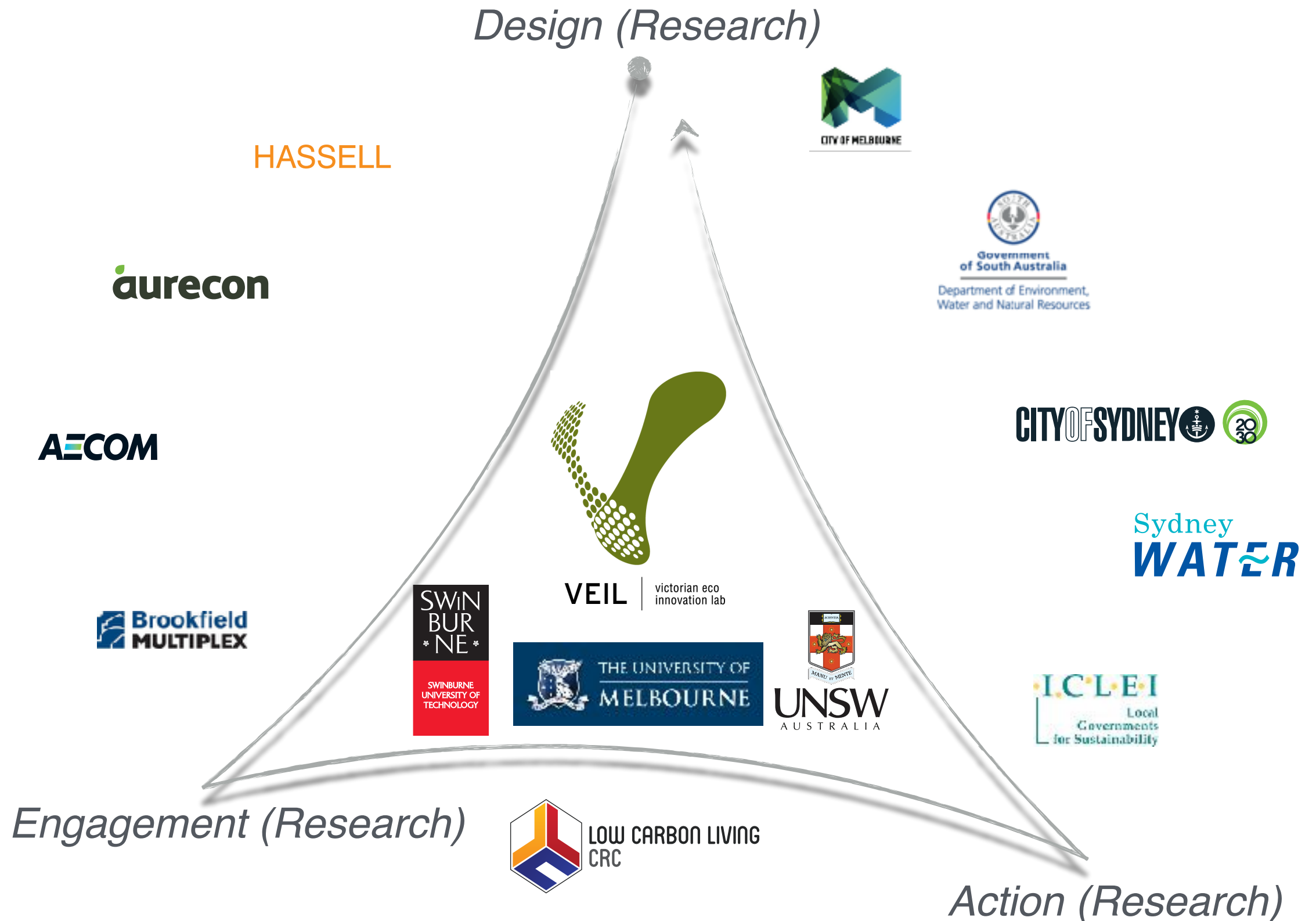


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Visions, Scenarios and Pathways for Low-carbon Resilient Futures in Australian Cities



WHY CITIES?

Cities are significant intervention points for sustainability action

Problem Concentration

World's cities are responsible for up to 70 per cent of greenhouse gas emissions while occupying just 2 per cent of its land.

(UN Habitat, 2011)

Agency Increase

Cities are gaining power...

The largest 300 cities account for nearly half (48%) of world economic output yet contain only 19% of world population.

Some of these cities outperformed their countries.

(Brookings Institute, 2012)

Solution Potential

Cities are beehives of creativity and innovation and play a significant role in social movements reclaiming democratic and environmental rights.

(Bettencourt & West, 2011; Leichenko, 2011; Arampatzi, 2016; Harmanşah, 2014; Harvey, 2012)



2013
kick-off

2014
visions

2015
scenarios

2016
pathways

Design-led Methodology

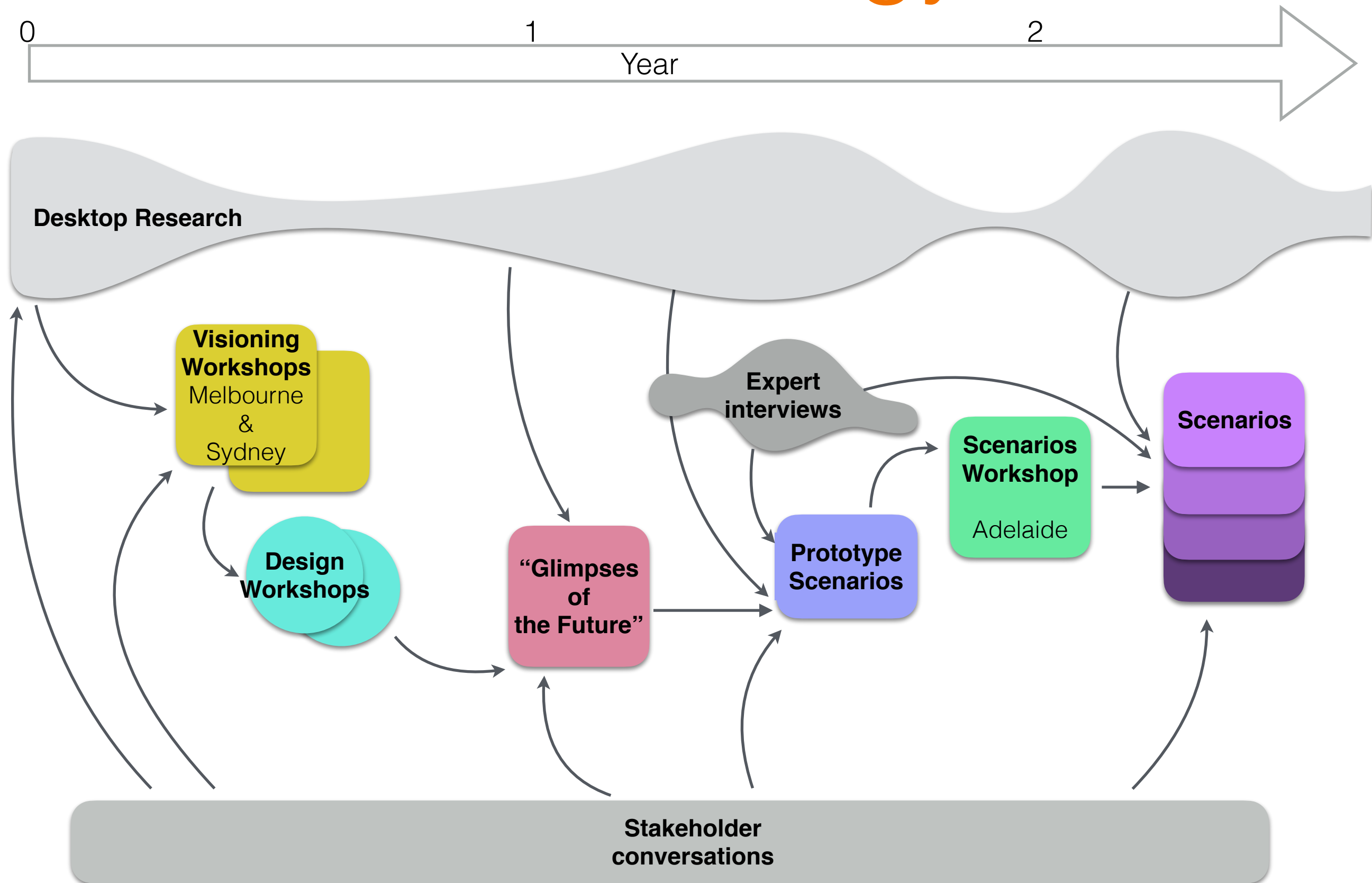
Participatory

Iterative

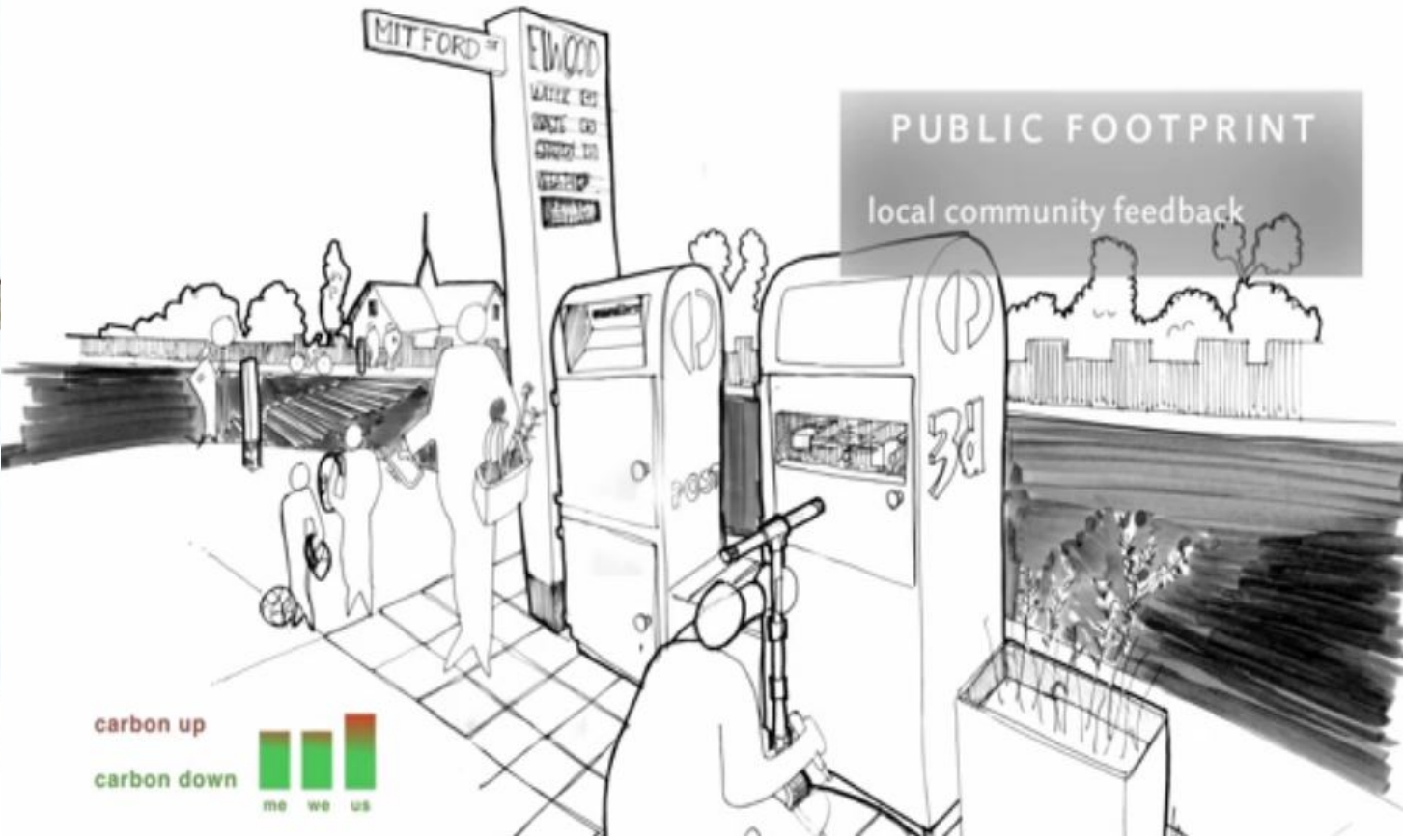
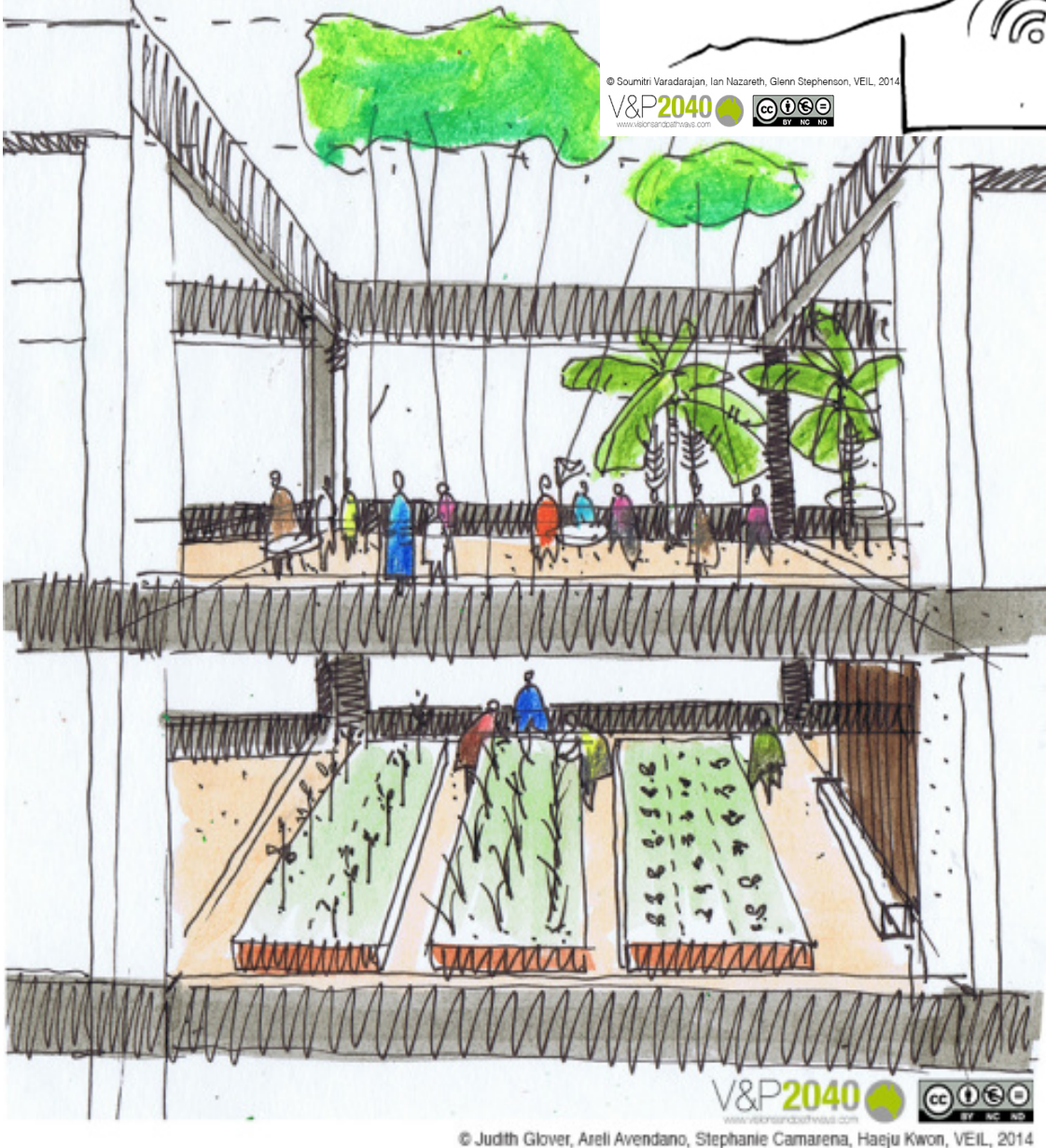
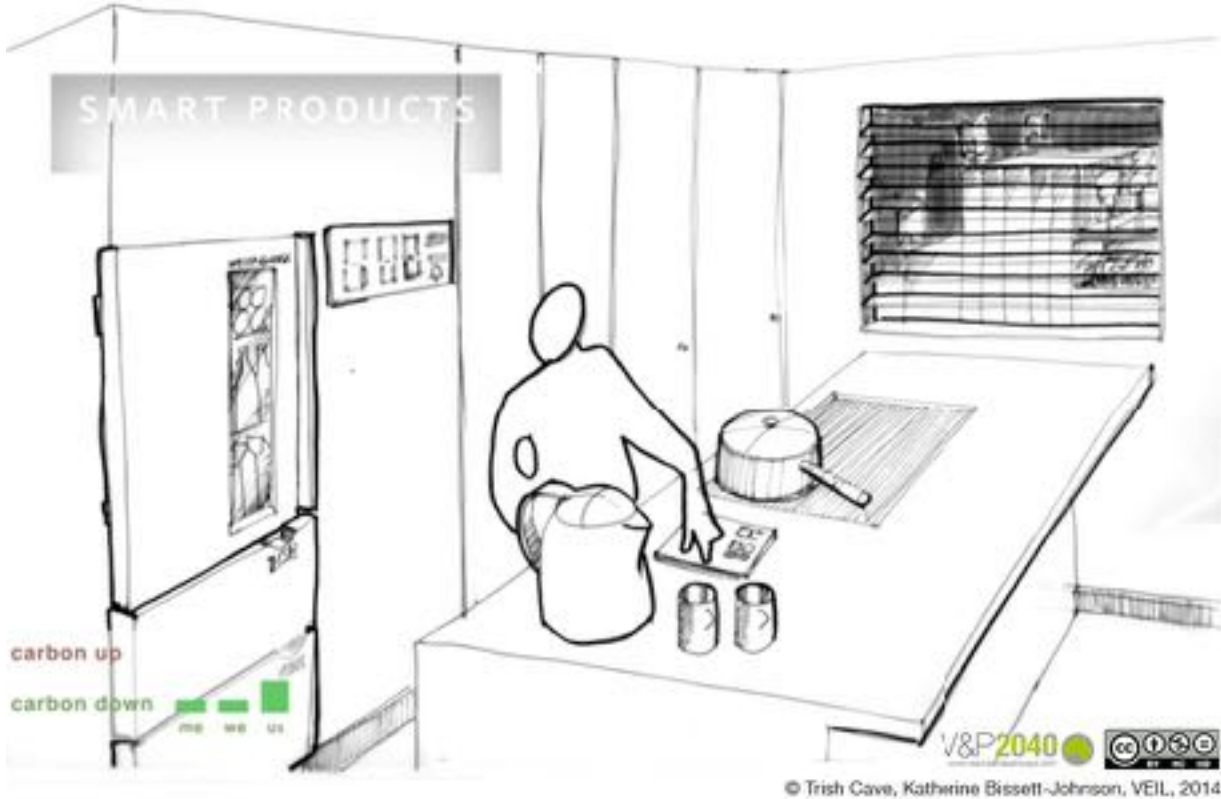
Creative & Analytical & Integrative

Transdisciplinary

Overall Methodology



Glimpses of urban life experienced by residents and at household/building scale



Glimpses at the scale of communities, precinct, suburb and related support systems



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Glimpses of cities and the broader urban environment

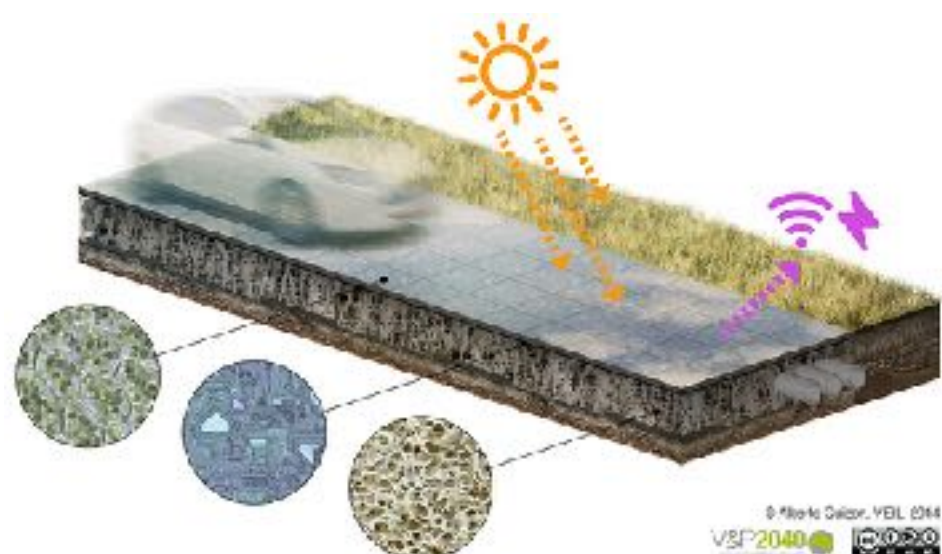
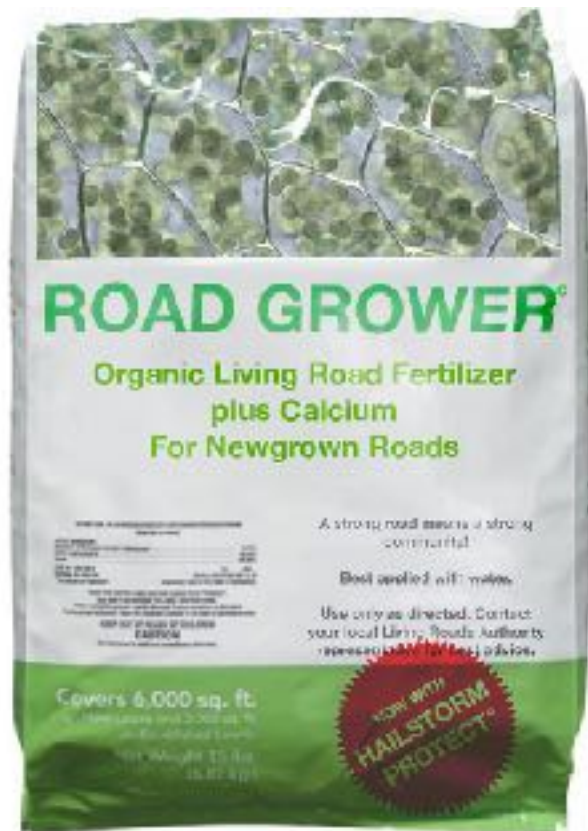
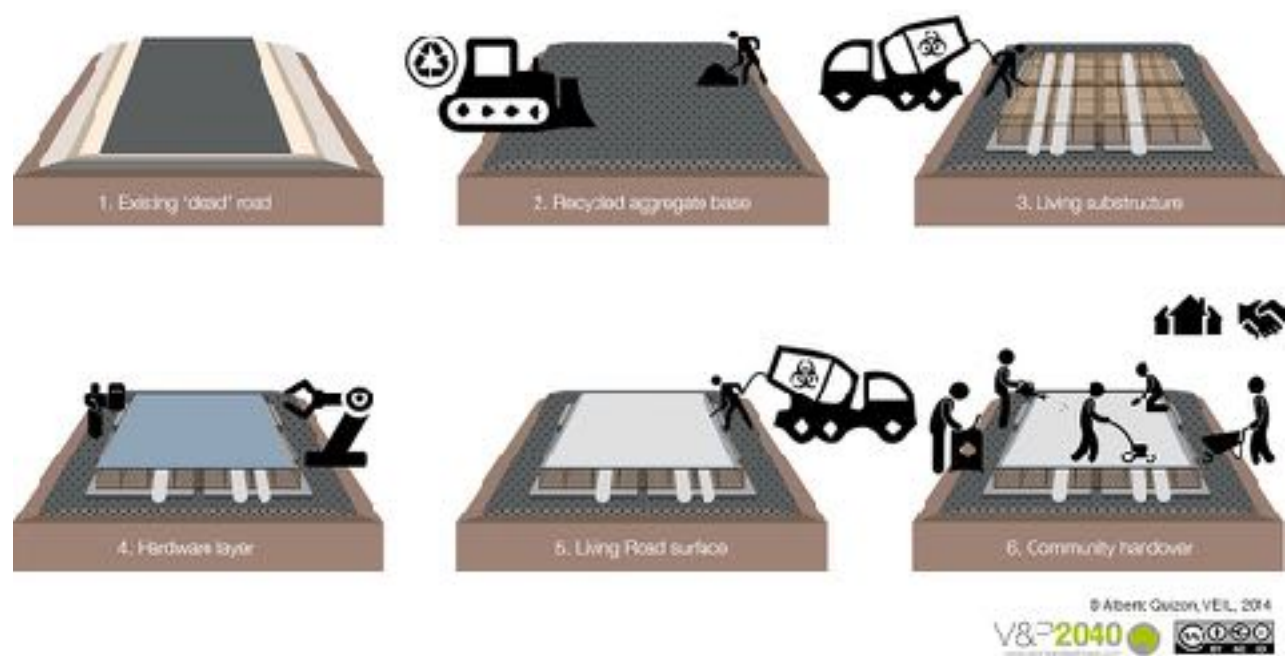


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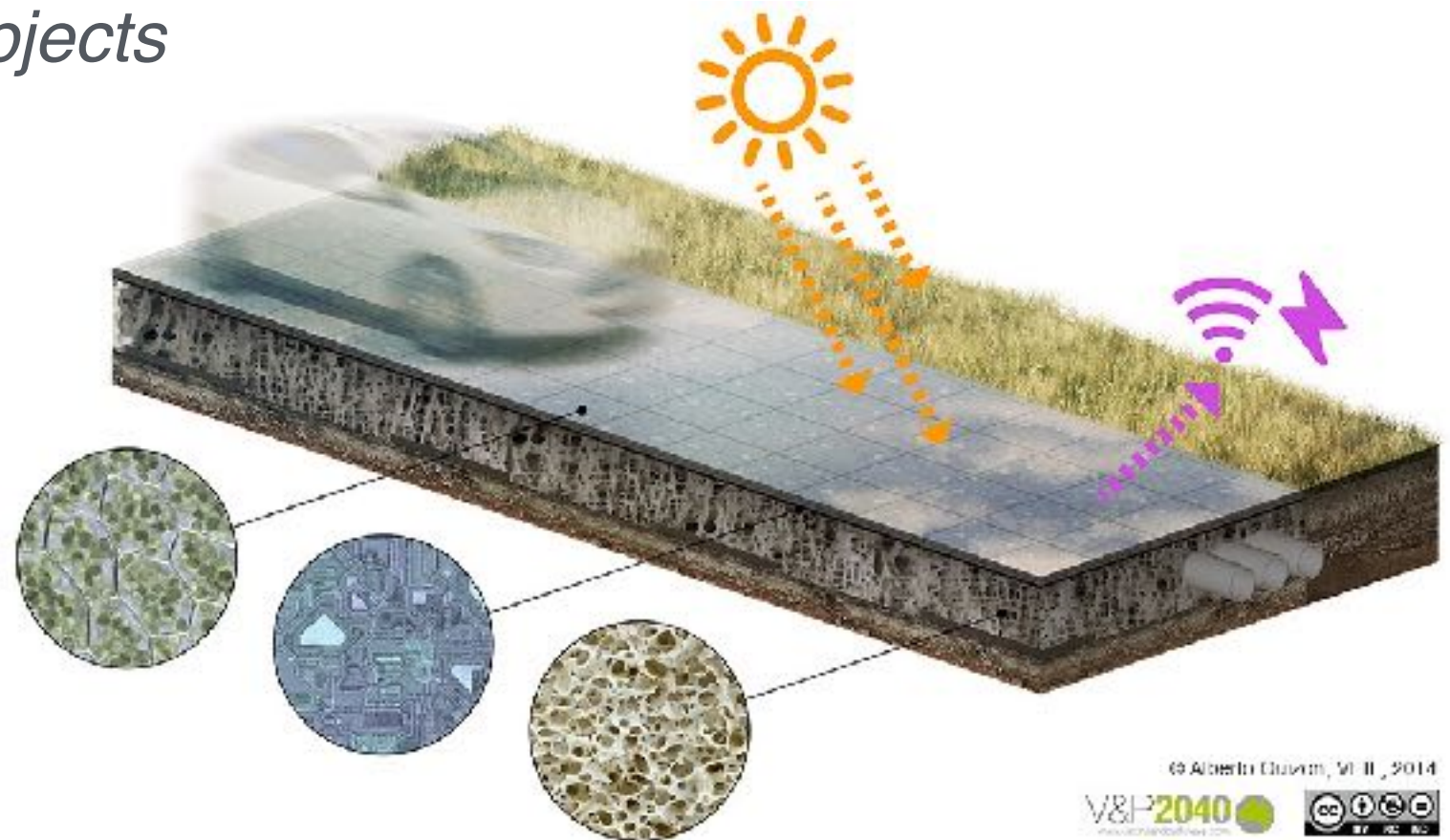


Glimpses as critical dialogic objects

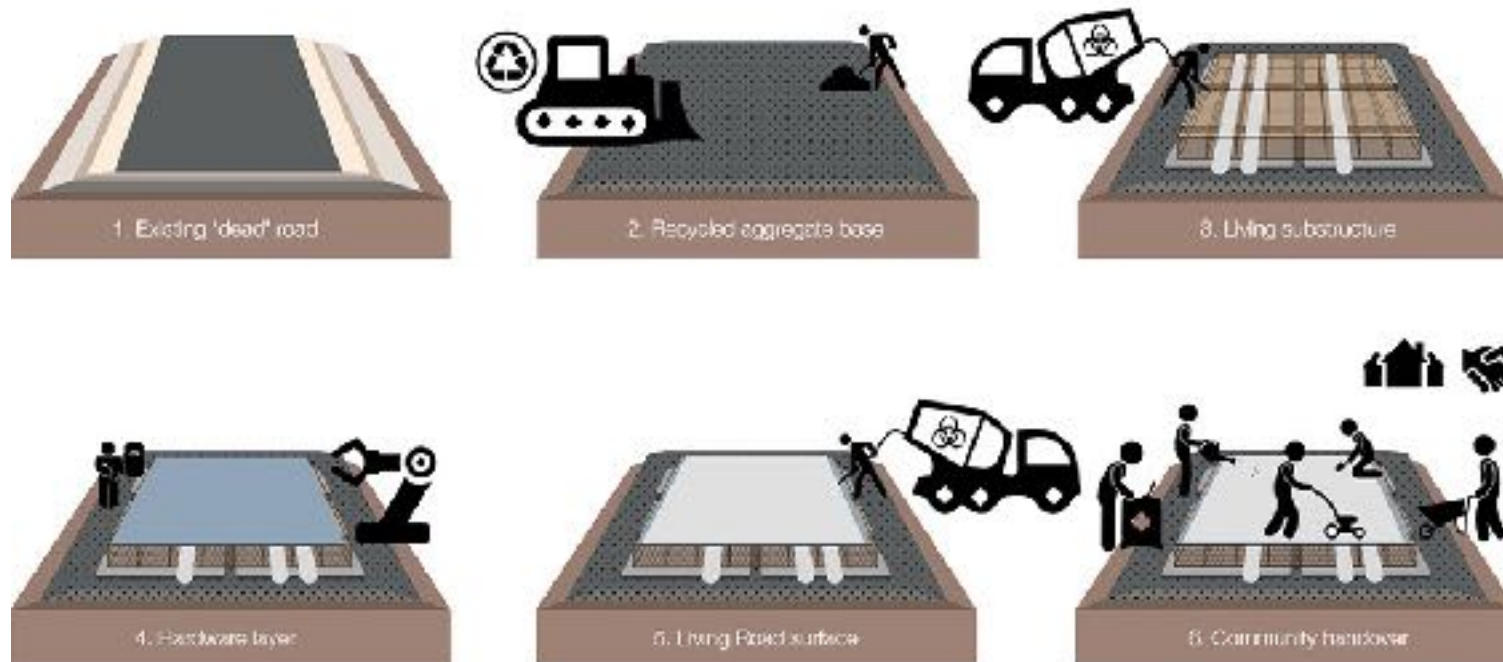


Glimpses as critical dialogic objects

“The Living Road”



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New models of
infrastructure
governance

Going underground since 1986

This website aims to give visitors a taste of what the Cave Clan get up to under Australia, what we stand for, and to show you a bit of Cave Clan history. Please note we do not give out maps or locations of drains. Select your nearest location below:



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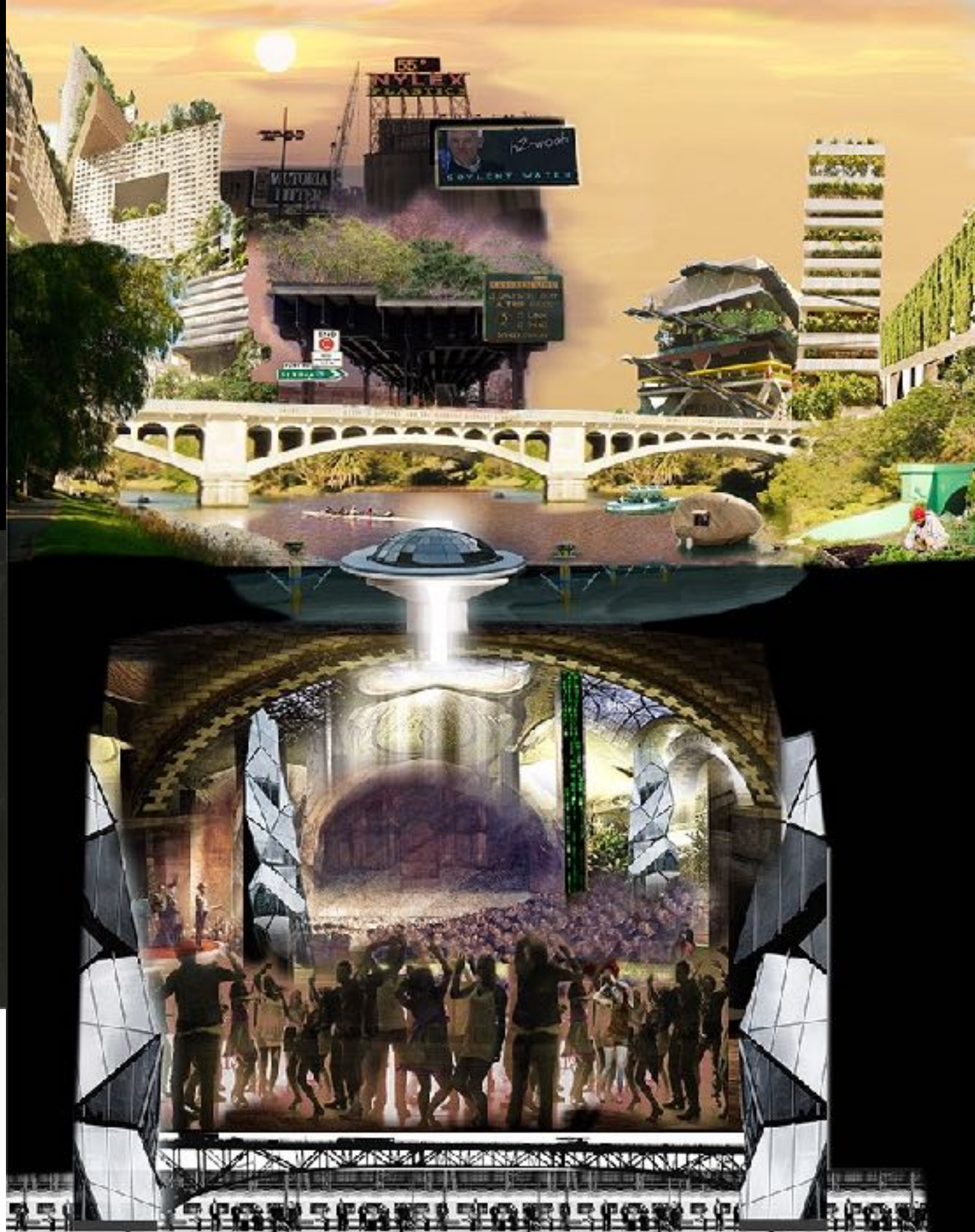
[Victoria](#)

[Western Australia](#)

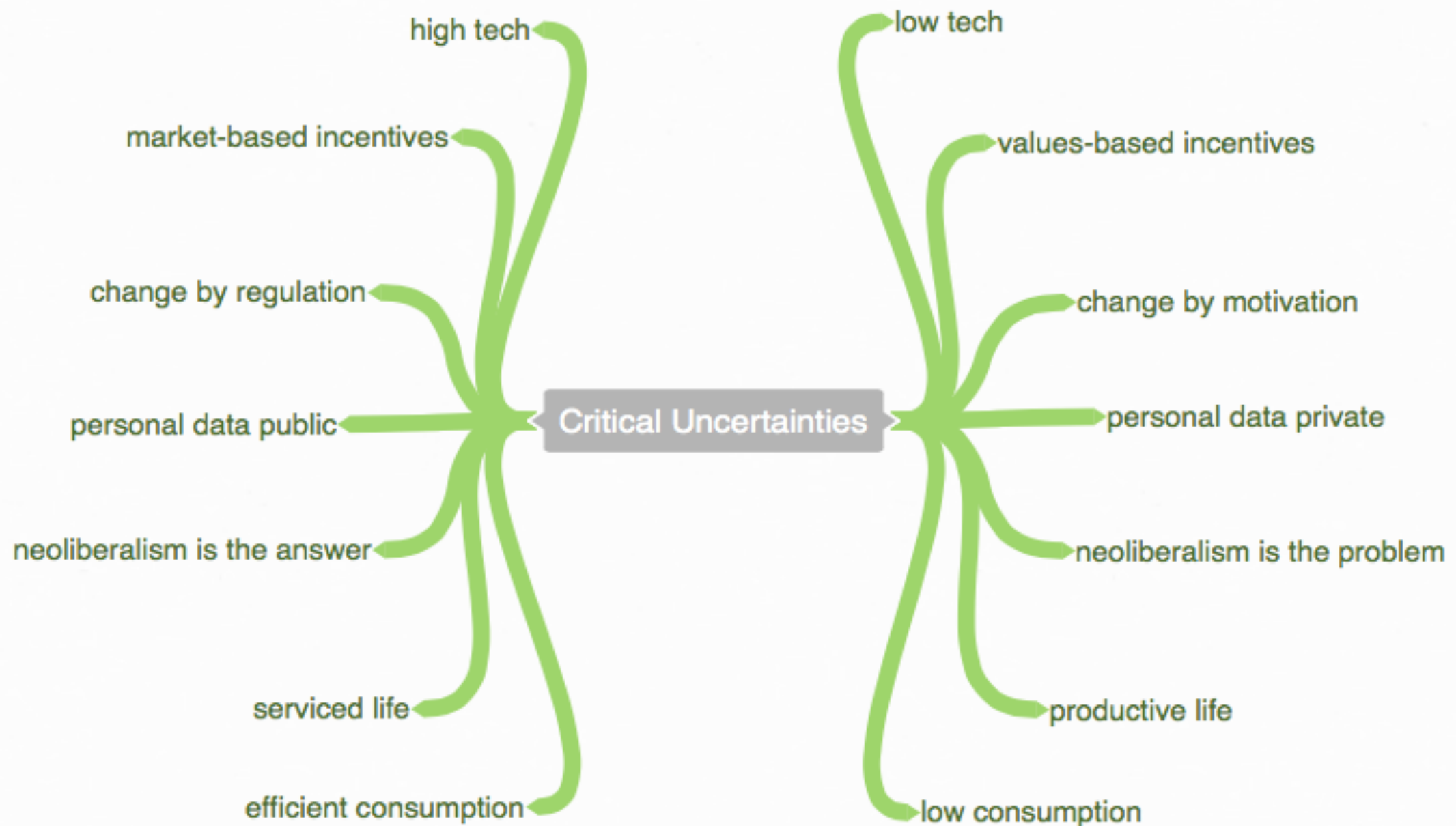
[International](#)



Cave clan prepared the entire map of Melbourne's stormwater drainage channels and they give it away for free.



Points of Contention

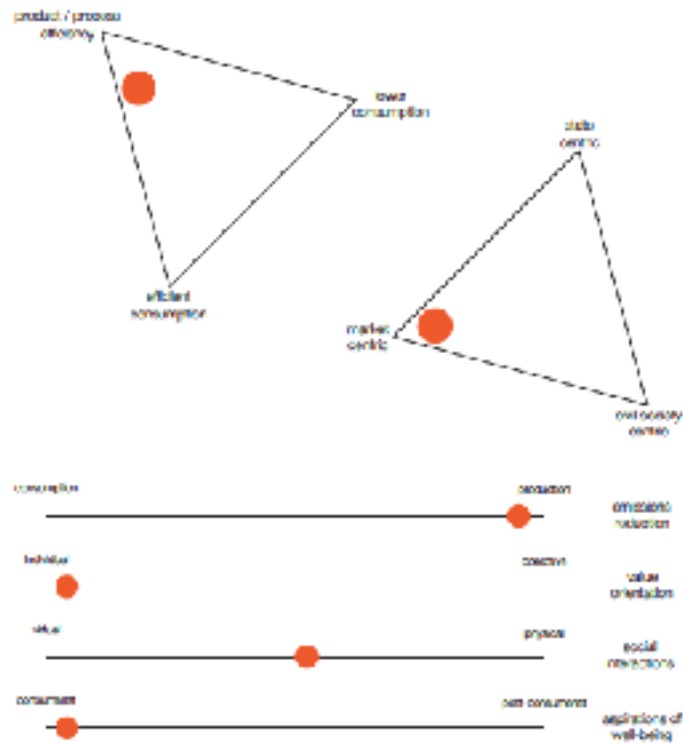


Market-driven Living

This is the city of efficient production.

A market economy has focused innovation on triple bottom line success. Large, for-profit companies are the primary actor in the economy.

Keywords: Efficiency, circular economy, energy technology, service economy, electrification

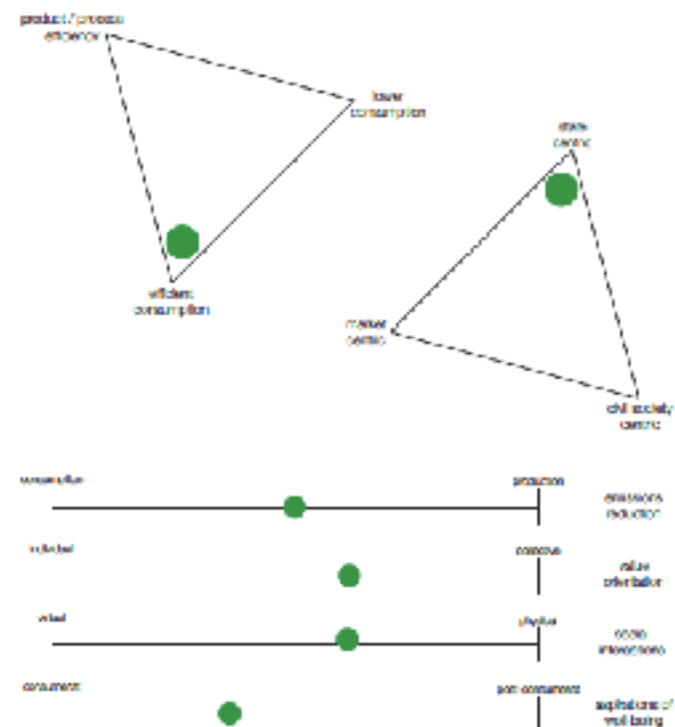


Planned Efficient Living

This is the city of planned order.

Everywhere in the city there is evidence of a past democratic consensus that the challenges posed by a carbon and resource-constrained world are best addressed through digital regulations that limit certain kinds of practices to an acceptable environmental norm. Policies and mechanisms appropriate to guide all areas of development.

Keywords: Centralized governance, social equality, egalitarianism, public service, sustainable urbanism.

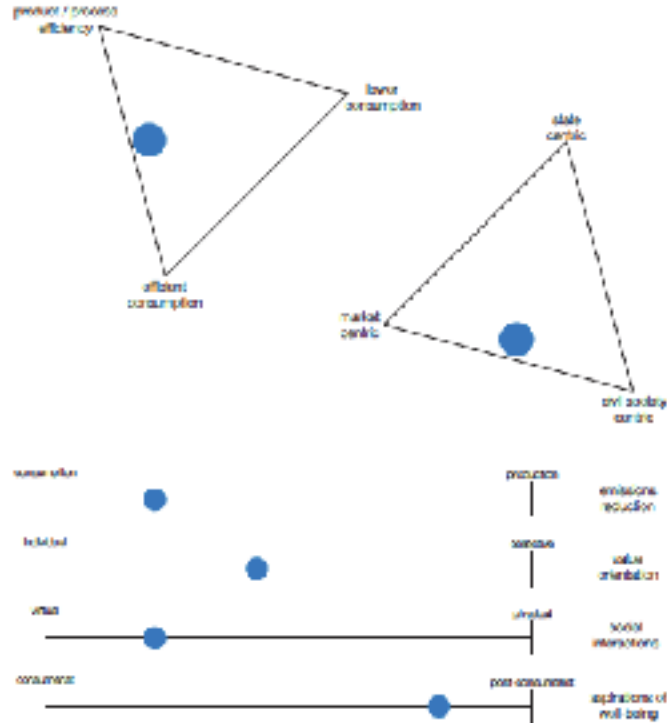


Digital Networked Living

A low consumption city of digital networked living.

Big business and government have significantly less influence in this city where citizens take an entrepreneurial or grassroots approach to making up living and managing greenhouse emissions. Consumption of materials and resources – or goods – is now extremely low compared to 2014.

Keywords: Digital networks, open source, peer-to-peer, creative.

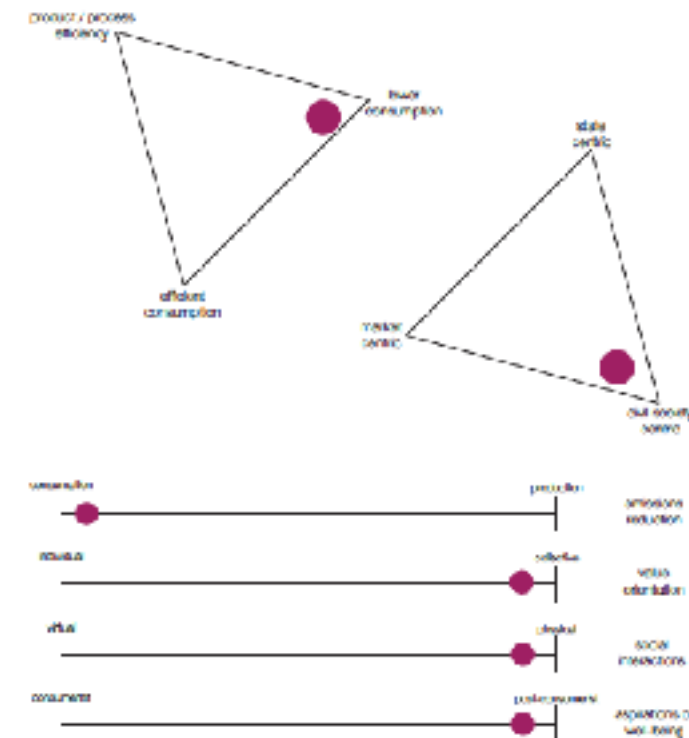


Localised Living

This city is a mixture of modern and slow living.

This is a city that reflects strong local values about the creation of a socially and environmentally meaningful life, acceptance of low levels of consumption and a strong interest in face-to-face community.

Keywords: Localisation, self reliance, village style living, well-being, down-to-earth.



Prototype Scenarios

CleanTech/Market Living

Planned/Regulated Living

Entrepreneurial/Networked Living

Community/Balanced Living

High Density



Medium Density



Low Density



Keywords

Ecological modernisation; price-driven efficiency; circular economy; service economy

Centralised governance; social equality/egalitarianism; public service; sustainable urbanism

Peer-to-peer; collaborative economy; micro-businesses; freelance workers; diversity and creativity

Localisation; well-being; balanced living; alternative forms of enterprises and exchange; caring for the commons

Source of Emissions Reduction

**Efficiency
increase**

**Consumption
reduction**



CleanTech/
Market Living

Planned/
Regulated Living

Entrepreneurial/
Networked Living

Community/
Balanced Living



Product and production-process energy
efficiency and carbon-intensity
improvements

Public investment in sustainable
urbanism; well-designed, integrated and
operated buildings, precincts and cities;
public information-communication on
environmental performance to boost
behavioural norms

Efficient use of assets; decentralised
renewable energy trading; a culture of
innovation and collaboration finding
novel sustainability solutions

Local living; reduced consumption;
sharing economy

Governance and Main Actors

**Top-down
Centralised
(‘Do it for me’)**

Big corporations



CleanTech/
Market Living

Big government



Planned/
Regulated Living

Meritocracy

Egalitarianism

Entrepreneurial/
Networked Living



*Networks of freelance
workers and prosumers*

Community/
Balanced Living



*Citizens and community
organisations*

**Bottom-up
Decentralised
(‘Do it ourselves’)**

Who are creating these futures now?

CleanTech/ Market Living

*Free market economists,
(progressive) businesses,
technological optimists*



Planned/ Regulated Living

*Technocrats, urban
planners, social
democrats*



Entrepreneurial/ Networked Living

*Social entrepreneurs,
makers and hackers,
prosumers, consumer
activists*

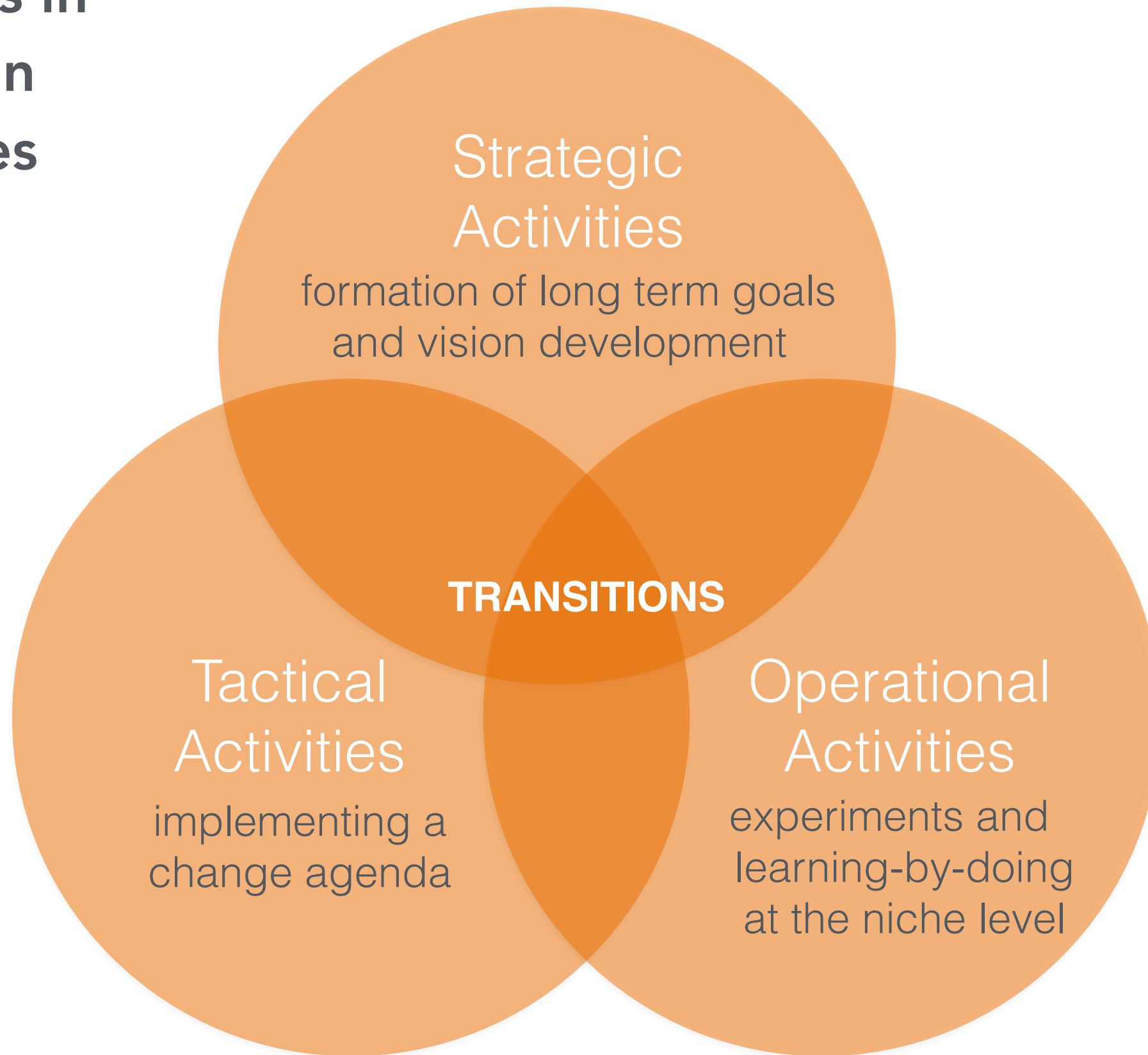


Community/ Balanced Living

*Transitionists,
downsizers, degrowthers,
post-capitalists*

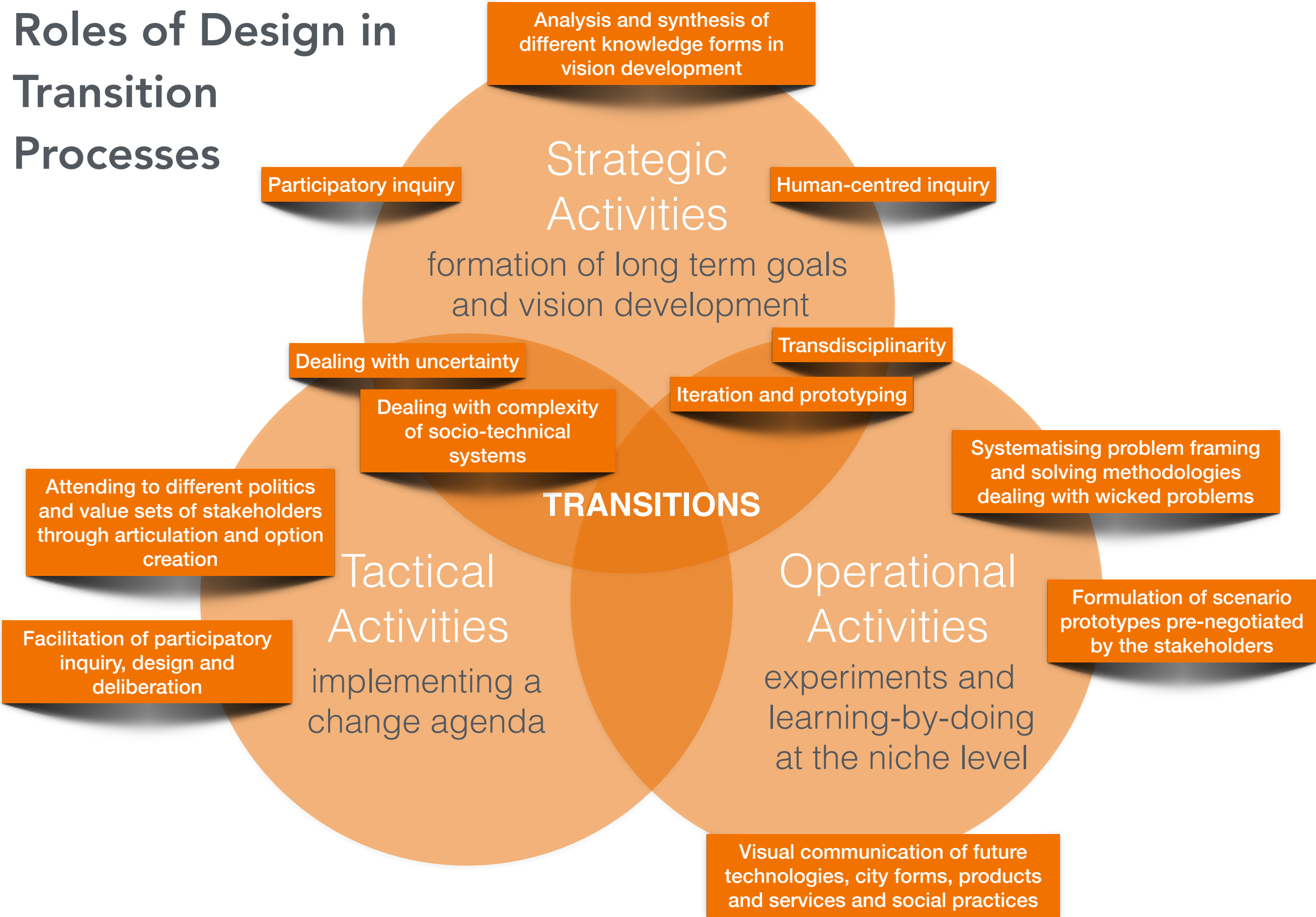


Activities in Transition Processes



(Loorbach, 2010)

Roles of Design in Transition Processes



(Loorbach, 2010)
(Gaziulusoy & Ryan, 2017)



THANK YOU

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