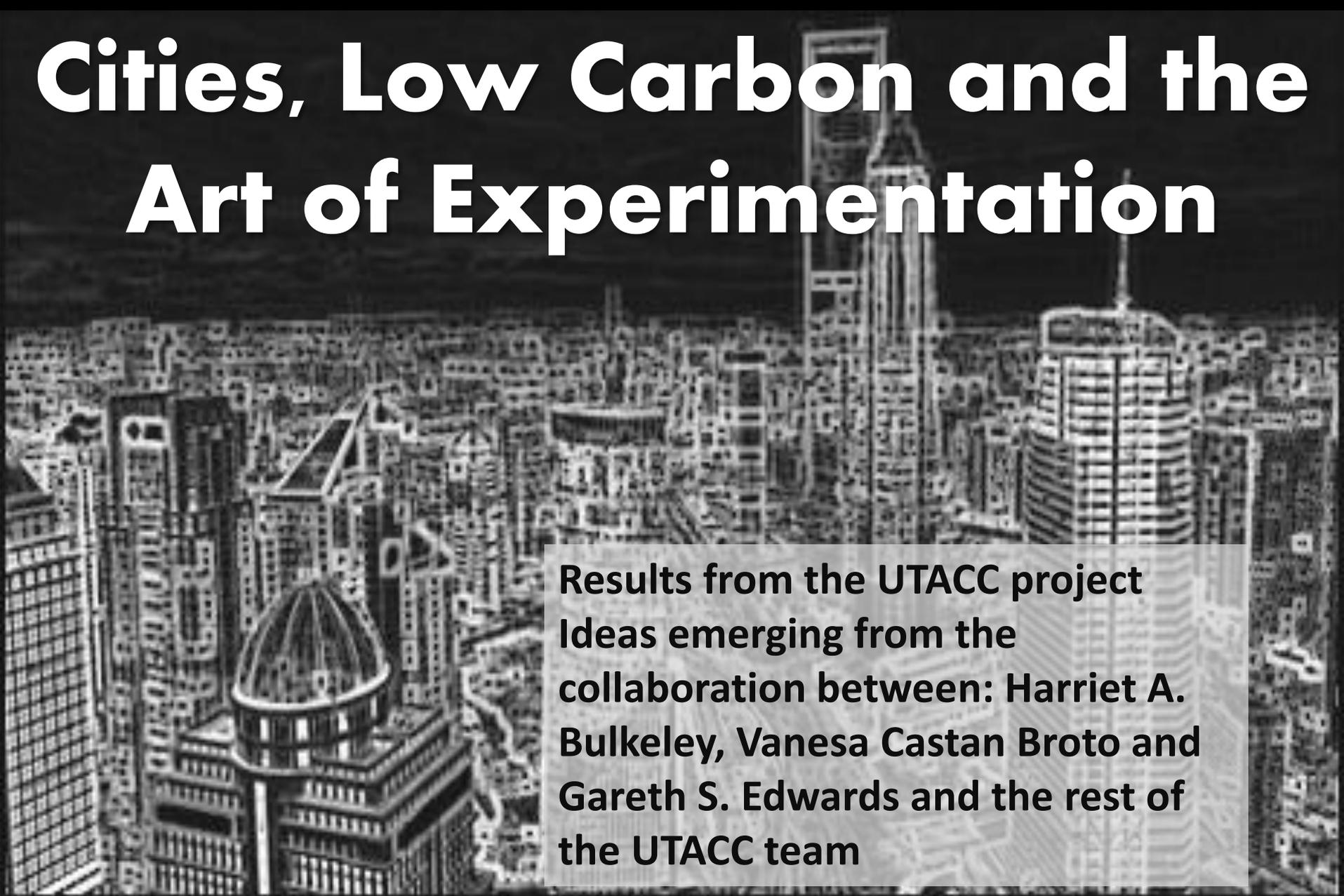


Cities, Low Carbon and the Art of Experimentation

An aerial, black and white photograph of a dense urban skyline. The image shows a variety of skyscrapers and buildings, including a prominent tower with a spire in the center-right and a building with a large dome in the lower-left. The perspective is from a high angle, looking down on the city.

**Results from the UTACC project
Ideas emerging from the
collaboration between: Harriet A.
Bulkeley, Vanesa Castan Broto and
Gareth S. Edwards and the rest of
the UTACC team**

Argument

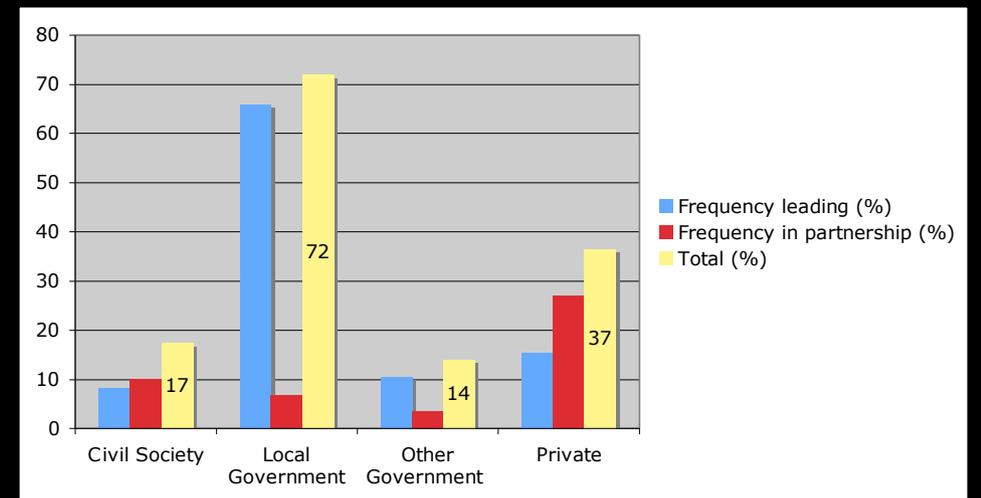
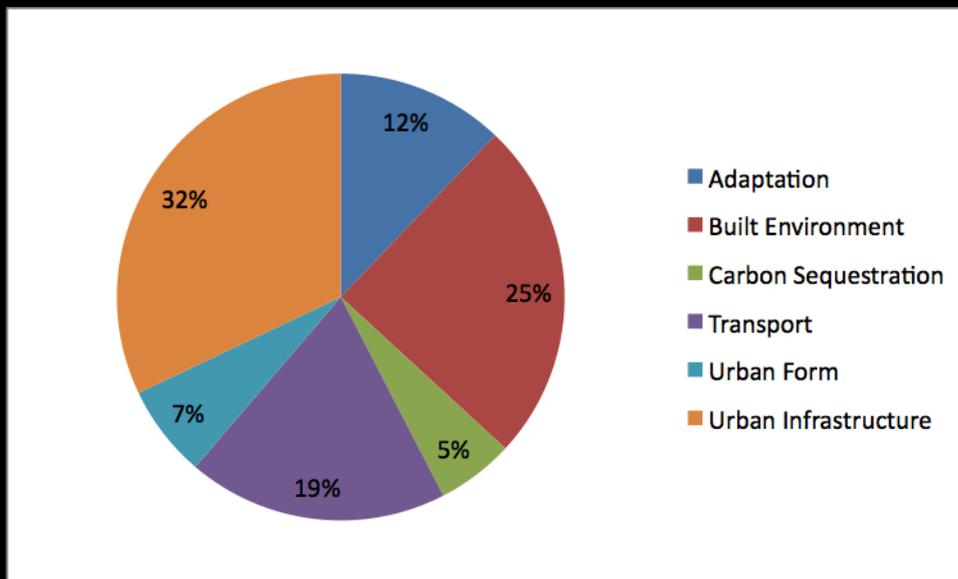
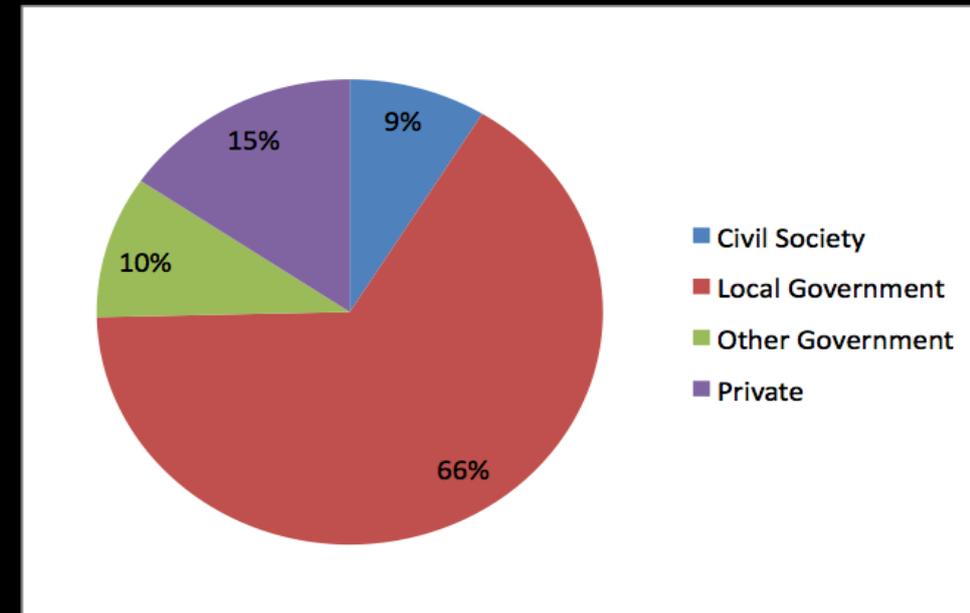
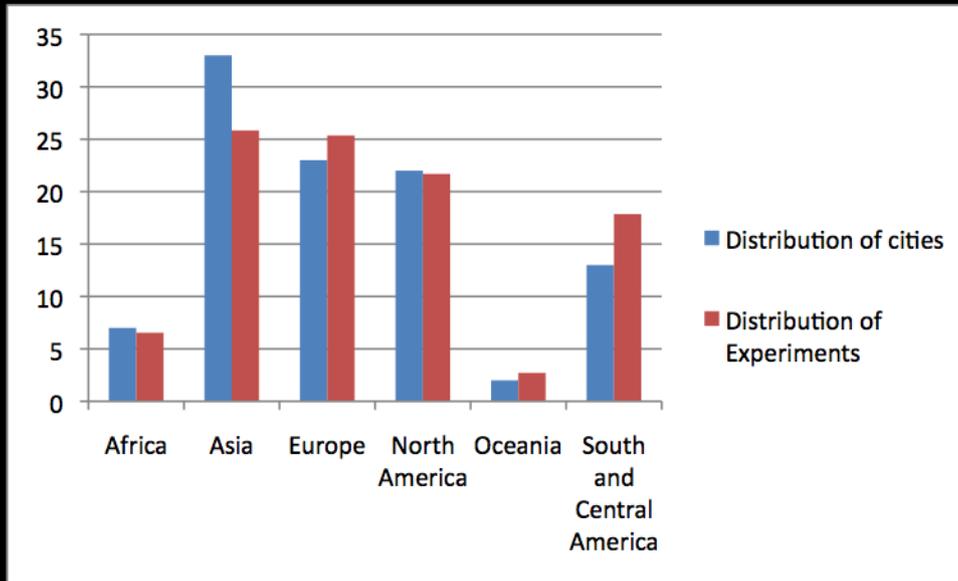
- The geography of low carbon transitions should be understood within an urban context
- Low carbon transformations manifest in the topology of shifts created by experiments
- This is shown in relation to a comparative analysis of 7 case studies of experiments in cities around the world

PART 1: Low carbon transitions in an urban context

Empirical evidence of experimentation

- Cities are emerging as key actors in governing climate change
- What we observe is the proliferation of climate change experiments
- Multiple actors lead and participate in experiments

What do we know about climate change experiments in cities?



The art of experimentation

- A key emerging form of carbon governance
- Manifested in a “will to improve” (Tanya Li)
- Governing by experiment...
 - Addresses climate change uncertainty
 - Is embedded within existing politics of carbon governance

Low carbon experiments embody transformative potential

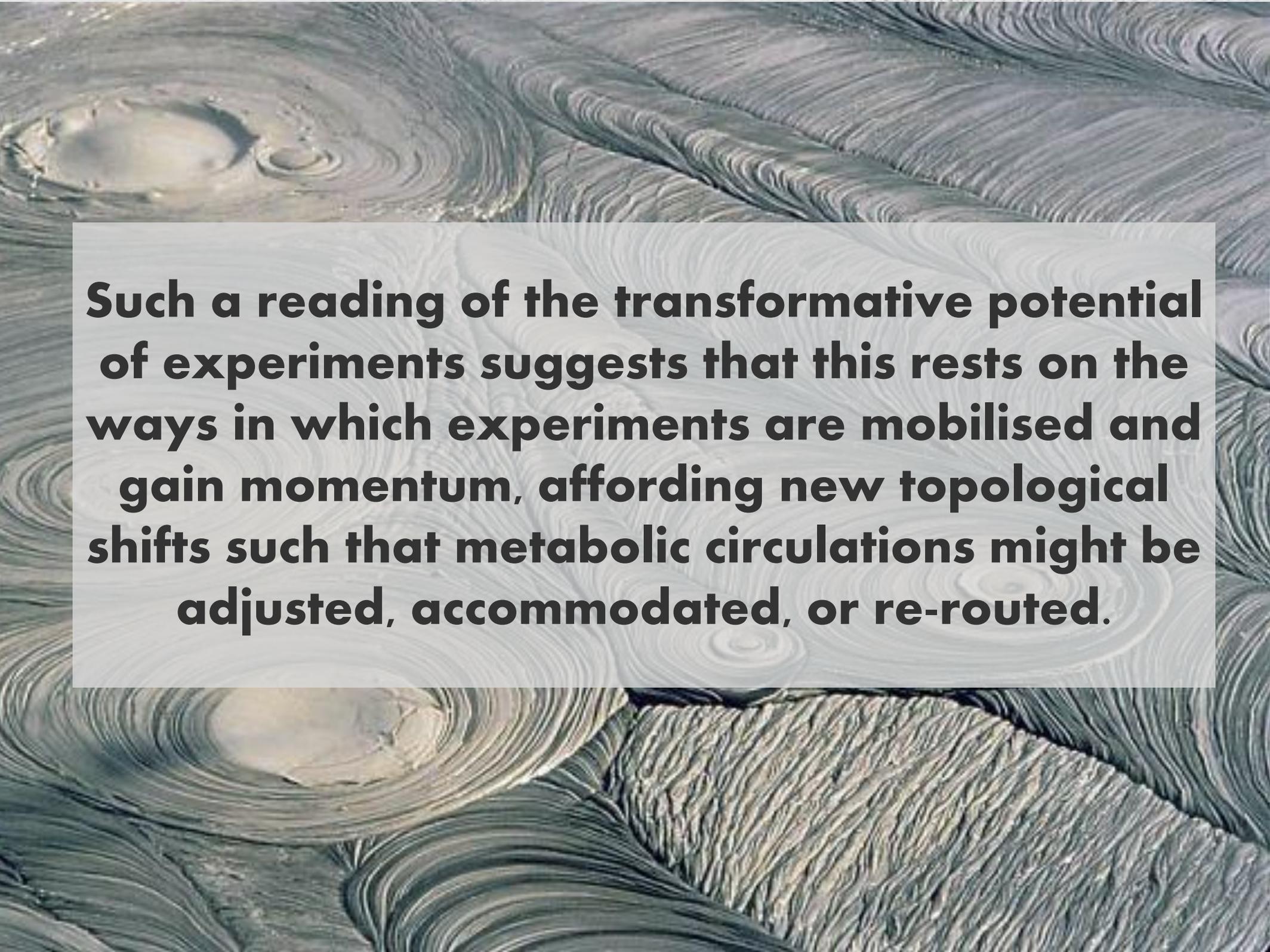
- In relation to the configuration of socio-technical networks in urban infrastructure regimes (e.g. Monstadt, 2009)
- Within an heterogenous and unmanageable process of infrastructure re-configuration in multiple pathways (e.g. Rydin et al, 2013)
 - Experiments speak to 'governance pluralities'

**PART 2: Transformation
and the topology of shifts**

The transformative potential of shape-shifting

- Experiments are a source of disturbance which reverberates through the network.
- This generates potential to reconfigure its constituent elements and the circulations of which they are part.



An aerial photograph of a desert landscape, likely in the Mojave Desert, showing a complex network of circular and linear geological features. The terrain is characterized by concentric circular patterns, possibly representing ancient water bodies or erosion patterns, and a prominent linear feature that runs diagonally across the scene. The colors range from light tan to dark brown, indicating different soil compositions and erosion levels.

Such a reading of the transformative potential of experiments suggests that this rests on the ways in which experiments are mobilised and gain momentum, affording new topological shifts such that metabolic circulations might be adjusted, accommodated, or re-routed.

Transformative potential VS Contextual Uptake

- The capacity of experiment's shifts to create transformation will depend on:
 - The processes involved in the experiment (making, maintaining, living)
 - How these processes play out in a given context

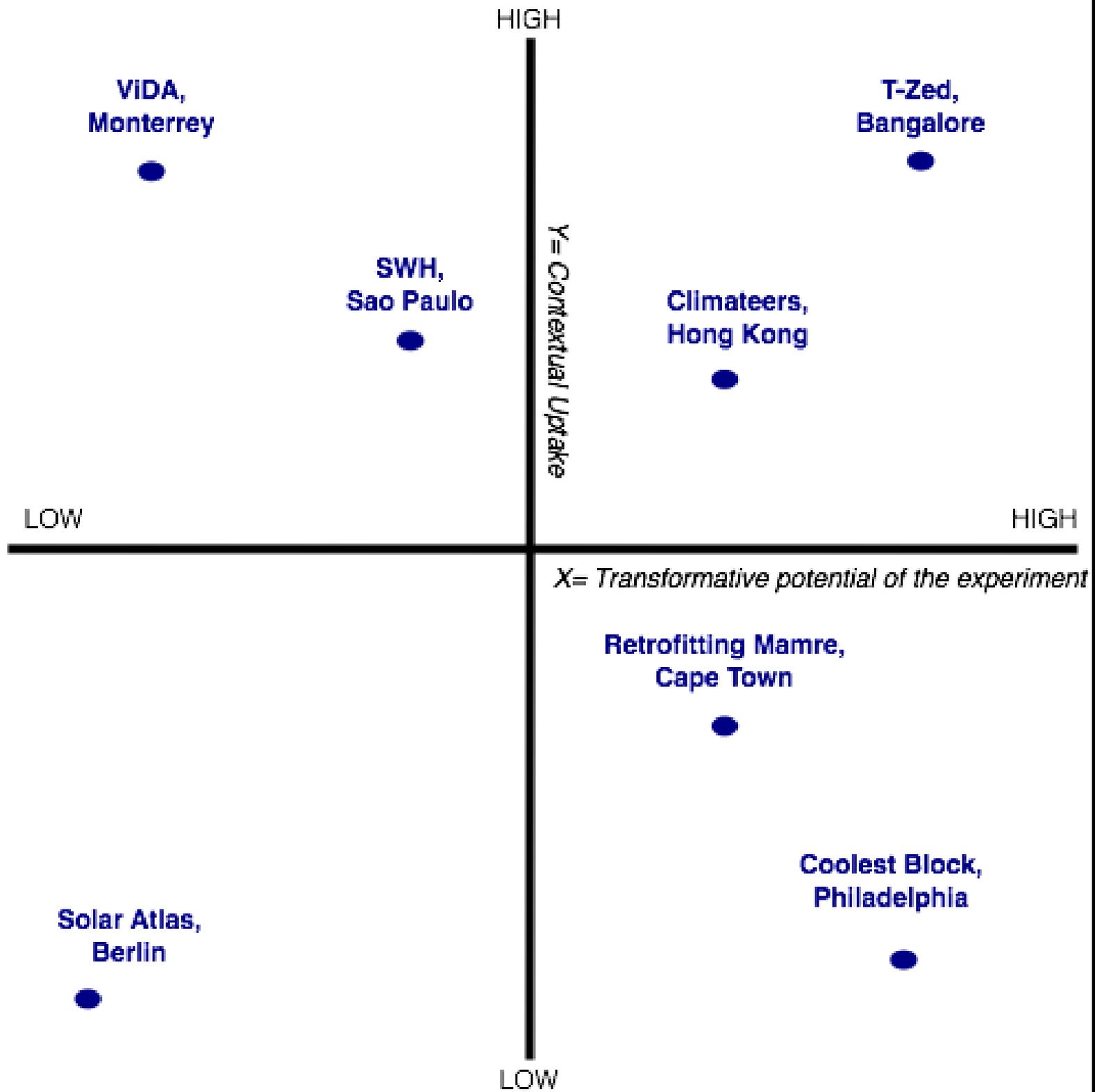
Understanding experimental shifting

- Making: Resulting from a process of assemblage, collage, gathering, calculating and rendering technical.
- Maintaining: Leading to both upkeep and metabolic adjustment.
- Living: Embedded in the conduct of everyday life.

PART 3: Transformation in context

Comparative analysis of seven experiments

1. **T-Zed, in Bangalore (India)** a zero-carbon housing development in a gated community for high income professionals;
2. **ViDA, in Monterrey (Mexico)** a bioclimatic house design for low income urban dwellers;
3. **Coolest Block Context, in Philadelphia (US)**, a contest for communities living in a single block directed at the retrofitting of the building;
4. **Retrofitting Mamre, in Cape Town (South Africa)**, a project that used international finance to retrofit low income housing;
5. **The Solar Atlas, in Berlin (Germany)** a technological project that sought to unlock the solar potential of Berlin's residences;
6. The project for **Solar Water Heating** installations in private residences in **Sao Paulo (Brazil)**;
7. **The Climateers project, in Hong Kong (China)**, for sustainable home practices.



High uptake, high transformative potential

- T-Zed, Bangalore



- Climateers, Hong Kong



High uptake, low transformative potential

- ViDA, Monterrey



- SWH, Sao Paulo



Low uptake and high transformative potential

- Retrofitting Mamre, Cape Town
- The coolest block, Philadelphia



Low uptake, low transformative potential

- Solar Atlas, Berlin



Conclusion

- Experiments always change something- even if ephemeral, they always pass through the landscape and create shifts.
- Transformative potential embedded both in:
 - The nature of the experiment, and
 - How it unfolds in context.
- Rather than looking to 'scale up' experiments we should be looking at how they work in context.

Thank you for your attention

Look out for our book 'An urban politics of carbon experimentation', forthcoming in 2014

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