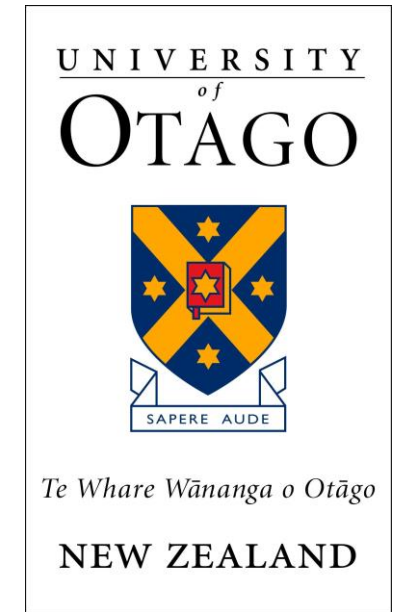


Entrepreneurial actors in transport systems: An Energy Cultures perspective



Dr Sara Walton with Abbe Hyde
Energy Cultures, Centre for Sustainability;
Department of Management, Otago Business School
University of Otago

Current NZ transport system

- Old vehicle stock
- Inefficient ICE engines
- Lack of rail infrastructure
- Low petrol taxes relative to OECD countries
- Focus on road building

 Powerful institutional and infrastructural support in current transport regimes

Petrol cars will be obsolete in 8 years, says US report

AMBROSE EVANS-PRITCHARD

Last updated 14:02, May 15 2017



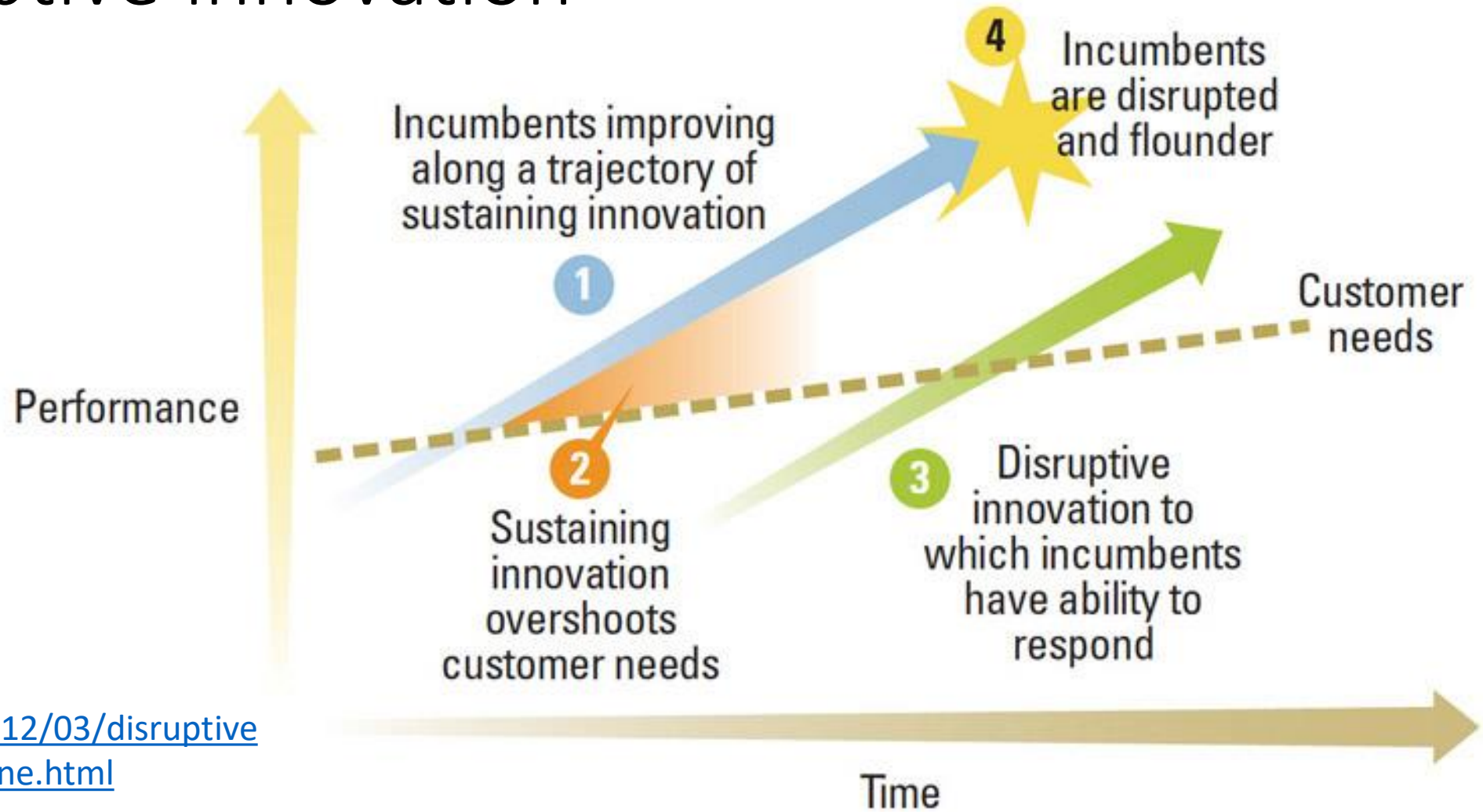
FAIRFAX NZ

Petrol-powered cars are set for the scrap heap in about eight years if a report out of the US is correct.

System of 'automobility' (Urry, 2004)

- The manufactured object (the vehicle itself)
- Individual consumption (ownership)
- The complex (supply/value chain)
- The private mobility (making own decisions)
- The culture surrounding the car (symbols and meanings)
- The environmental resource use (roads)

Disruptive innovation

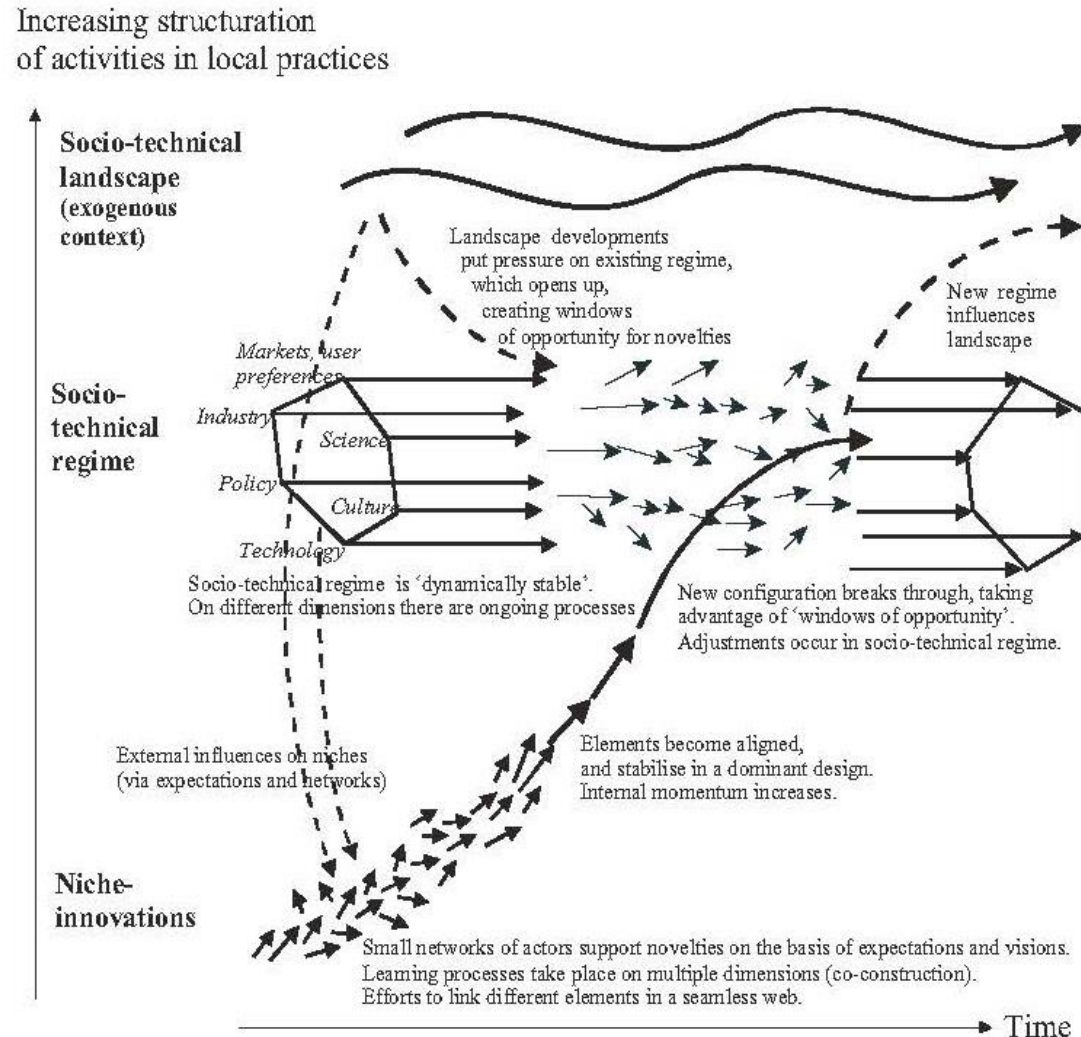


<https://hbr.org/2012/03/disruptive-innovation-explaine.html>

Socio-technical systems (Geels & Kemp, 2007: 442)

- Understanding change and stability
- Cluster of elements
 - Technology, science, regulation, user practices, markets, cultural meanings, infrastructure, production & supply networks
 - Form a socio-technical system
- Created, maintained and refines by actors
 - Supply-side = firms, research centres, universities, policy makers
 - Demand-side = consumers, special-interest grps, media
- Set of rules that determine the activities of the social groups
 - Problem agendas, guides, standards, regulations, identity

Conceptualising regimes as part of socio-technical systems



Niche

Niche-
innovations



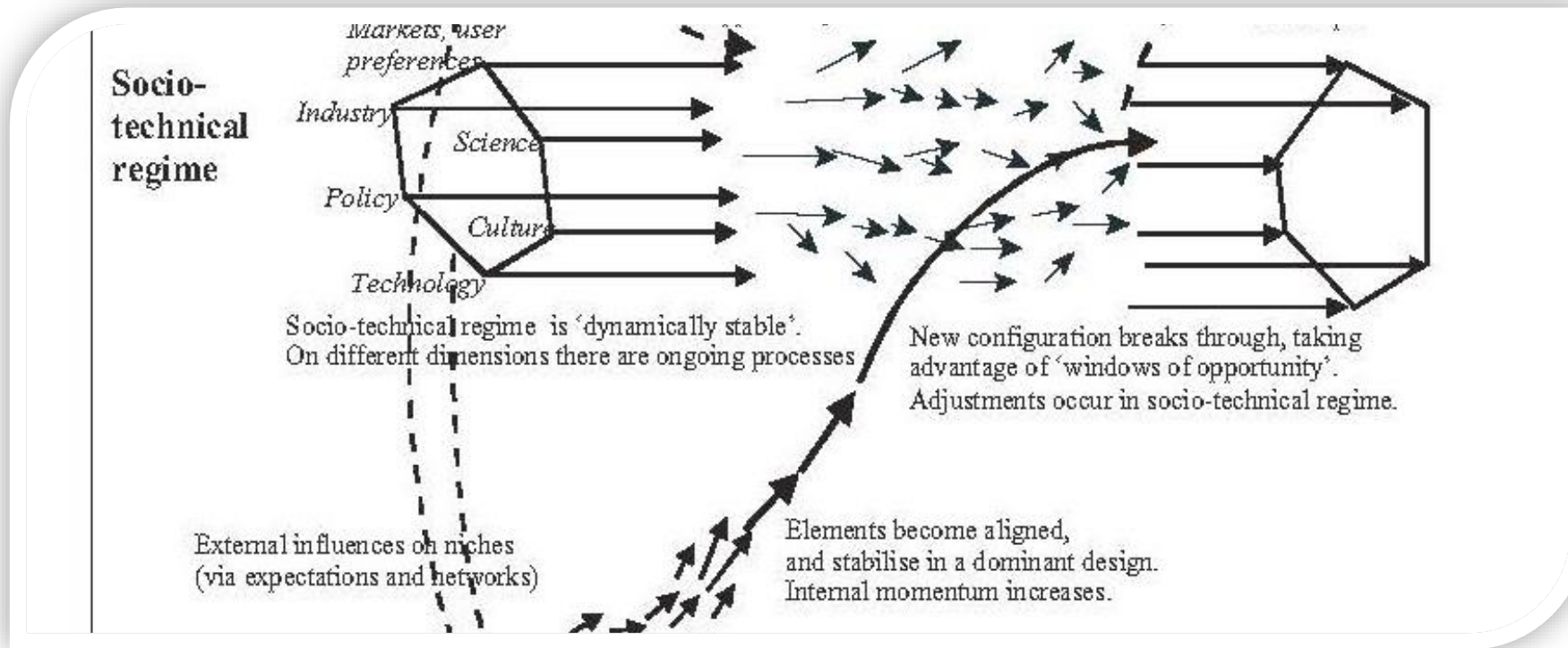
Small networks of actors support novelties on the basis of expectations and visions.
Learning processes take place on multiple dimensions (co-construction).
Efforts to link different elements in a seamless web.

Time



- Micro-level
- Incubation rooms
- Bubbling of ideas, innovations, “radical novelties” (Geels&Kemp, 2007: 443)
- Space for development
- Important for networks to develop – alignment to occur

Socio-technical regime



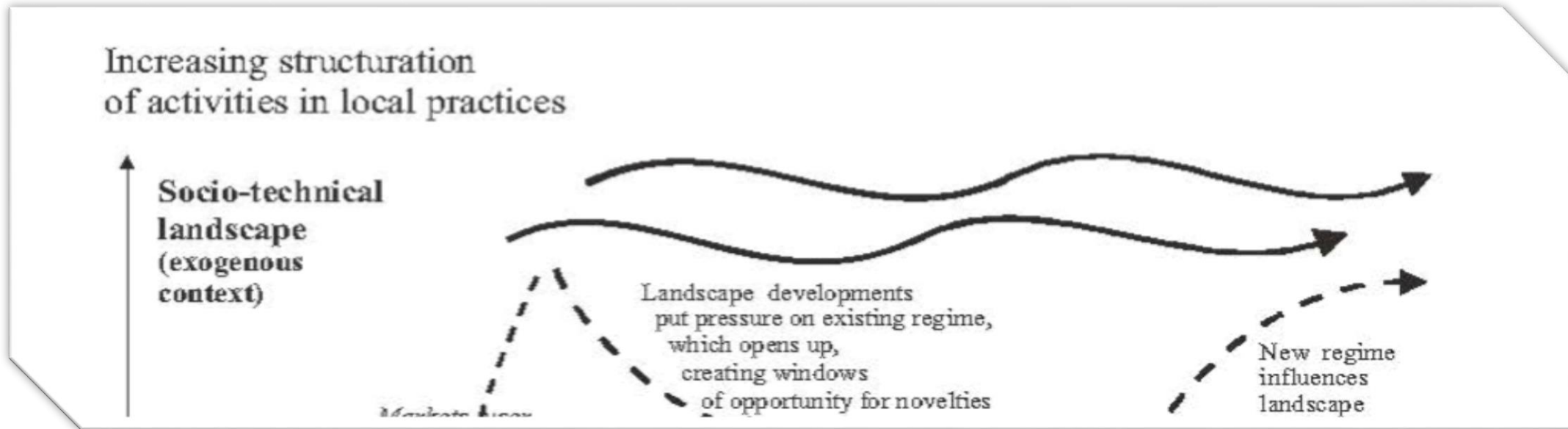
Meso-level

Important for the stability of systems

Dominance of technologies due to path dependence and rules (routines, ways of doing things)

Not easily changed due to institutions, infrastructure, social relationships, vested interests etc

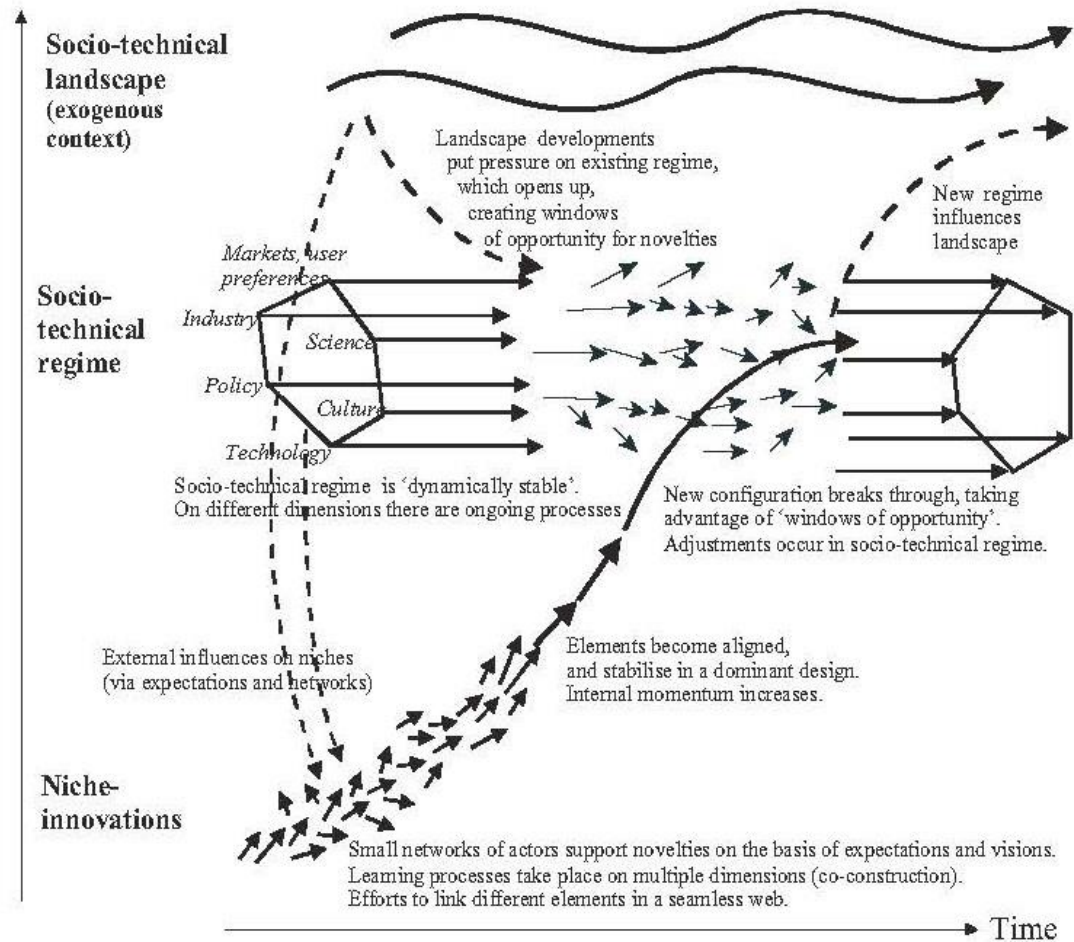
Landscape



Aspects that are beyond the direct influence of the actors in the system eg economic growth, political systems, culture & norms, environmental problems and resource scarcity

Change

Increasing structuration
of activities in local practices



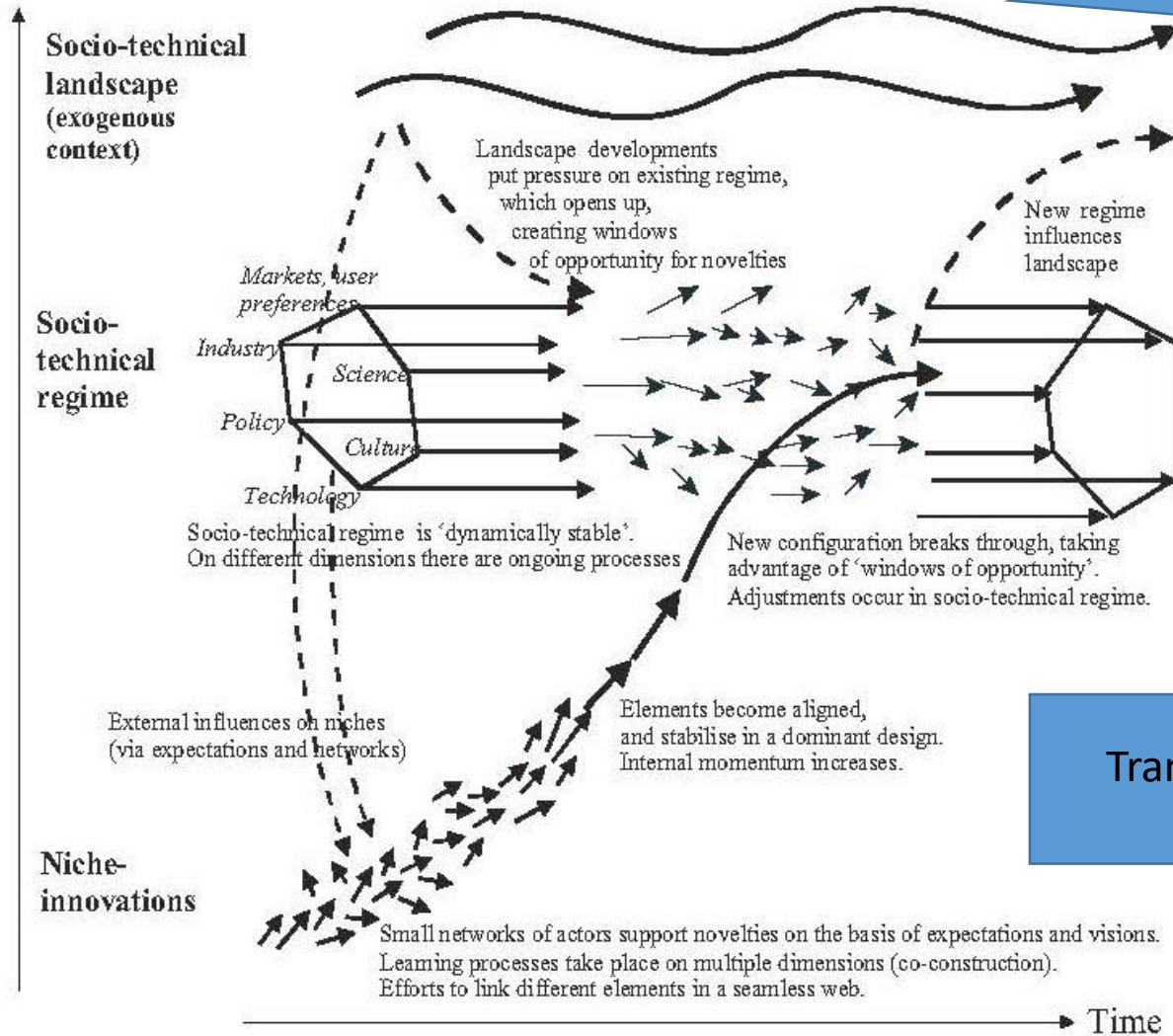
Inter-play between the different levels

Radical innovations occur in niche level
The regime does not have stable rules around these innovations so actors improvise and investigate what consumers want. No threat currently to existing regime

Then...small market niche emerge, rules begin to stabilise. Still no threat – an take a while to align.

Third phase = wider breakthrough of the technology, regimes stabilise.

Increasing structuration
of activities in local practices



Transformations from the
landscape

Place pressure on
the regime

Transitions – coming from the niche level

Destabilisation by entrepreneurs?

- Environmental entrepreneurs
 - “generate new products, services, techniques and organisational modes that substantially reduce environmental impacts and increase the quality of life” (Schaltegger, 2002)
- Change agents in socio-technical systems
- Can they bring about the change needed in the regime to destabilise business-as-usual fossil-fuel regimes and move toward low-carbon mobility in Aotearoa/New Zealand?

Method

- Interviews with 24 entrepreneurs involved in a business with some aspect of eco-innovation in the transport industry in NZ
- Key areas of innovation include: electric vehicles, hybrid vehicles, low emission vehicles, biofuel, car share, bike share, charging systems, battery management, alternative fuels, rail systems
- Had to be operating as a business, spoke with CEO/founder

Case studies: NXT Fuels



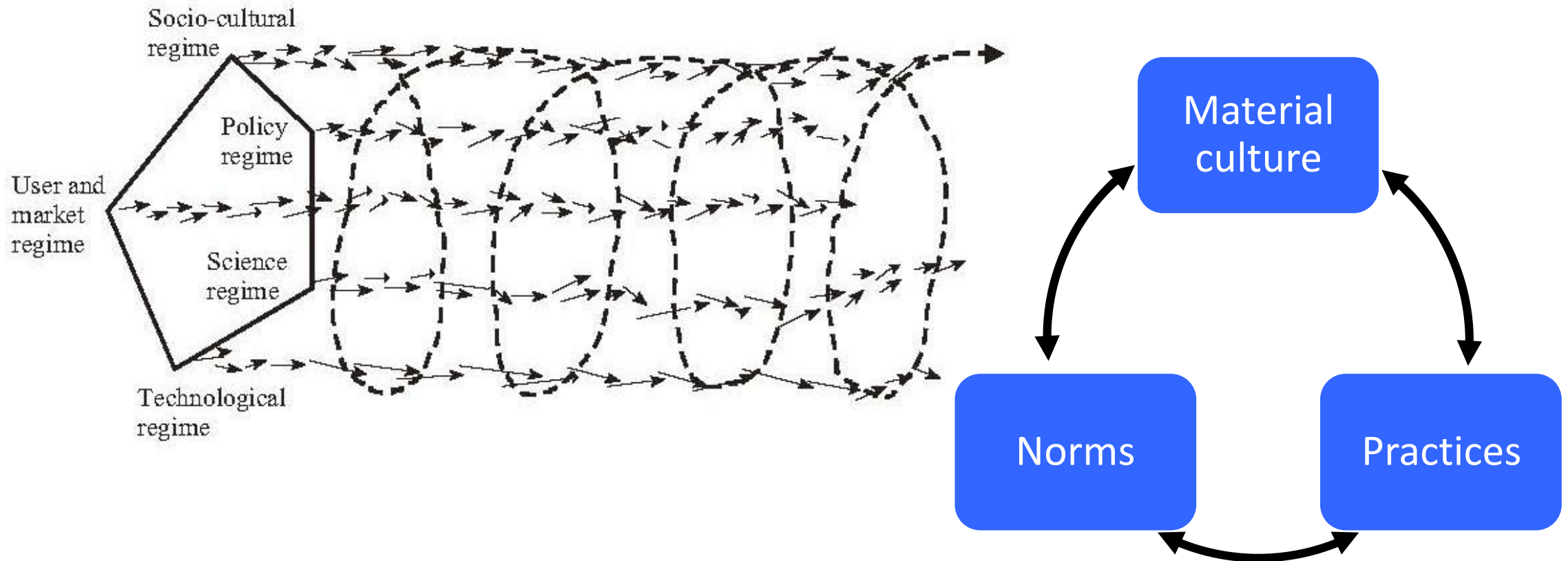
Astara Technologies



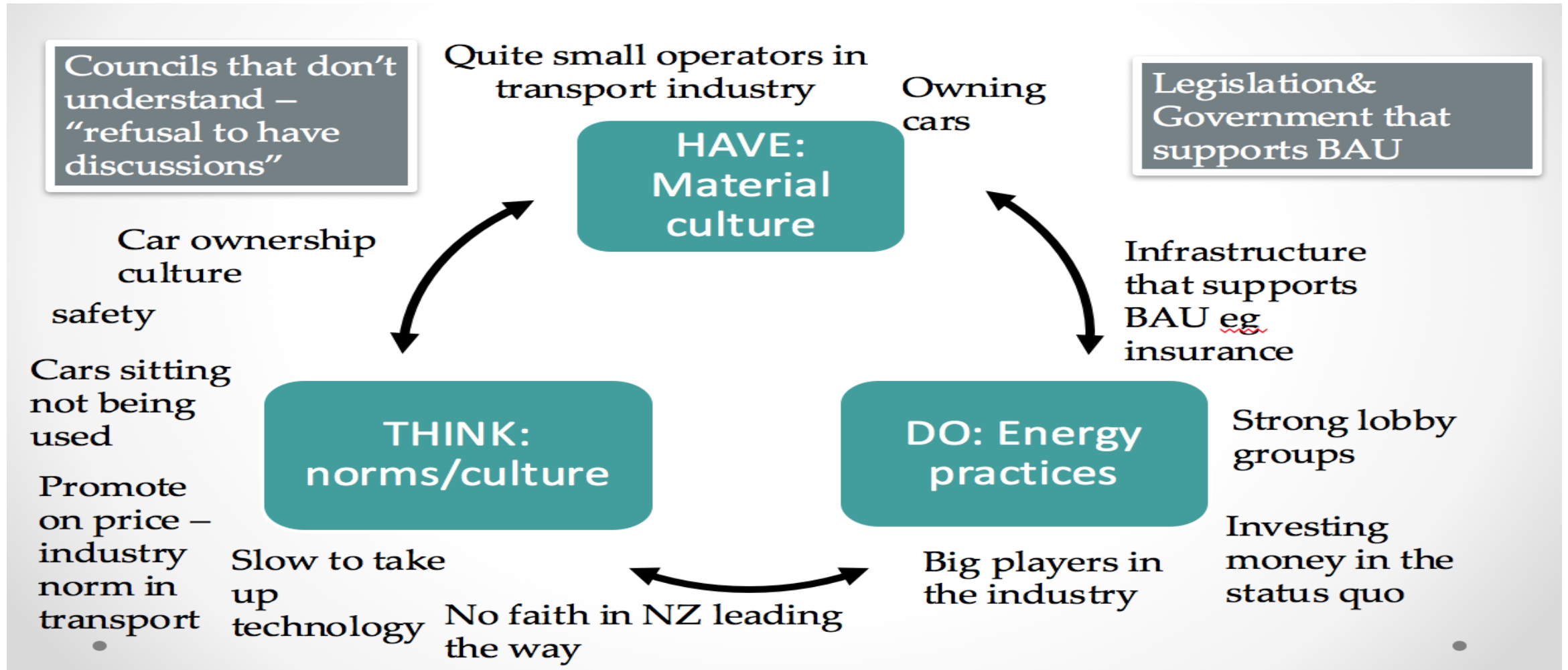
Cityhop (non-ownership model)



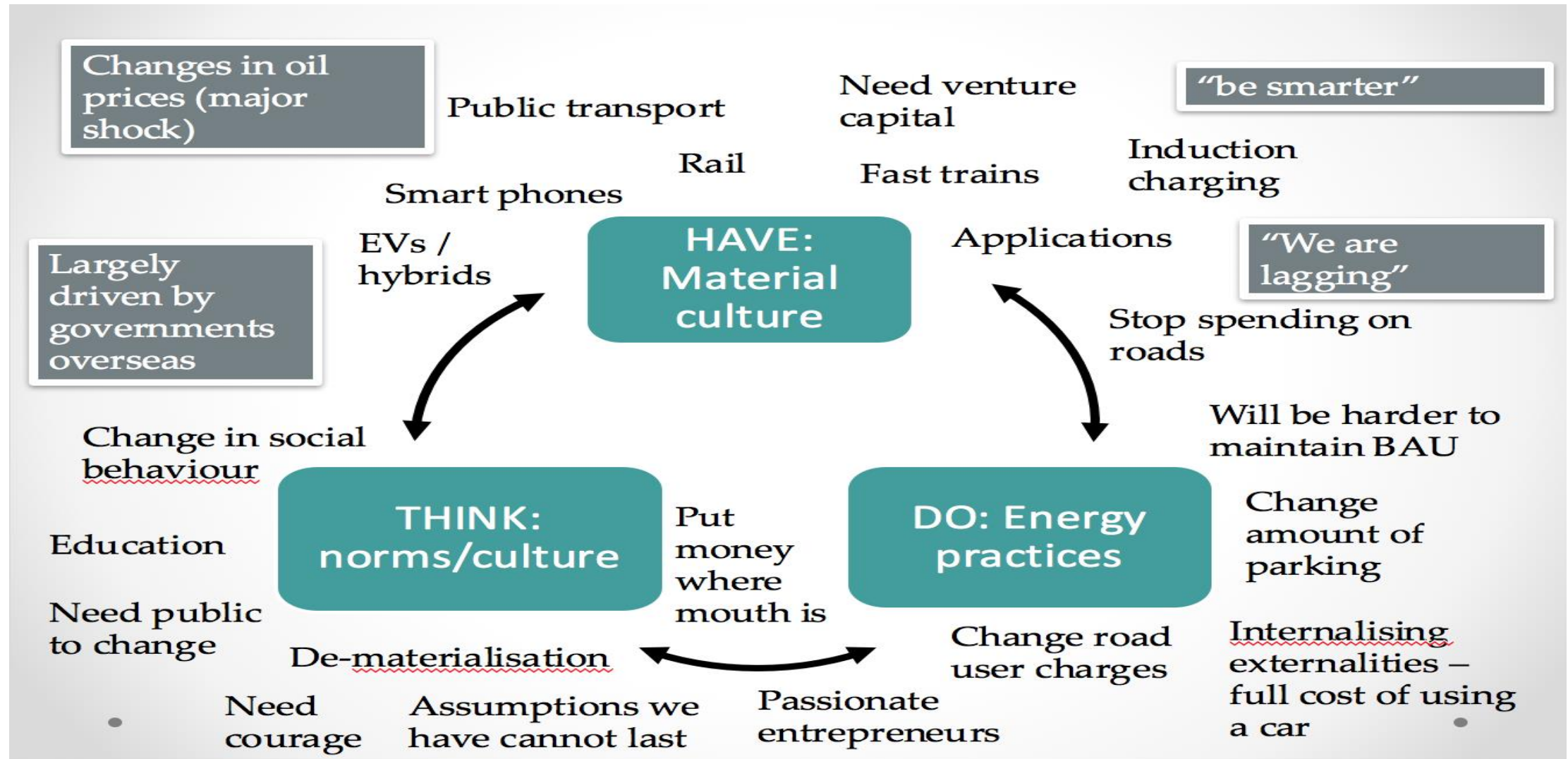
Analysis: using MLP and Energy Cultures framework



Participants' thoughts on the key barriers



Participants' thoughts on the future

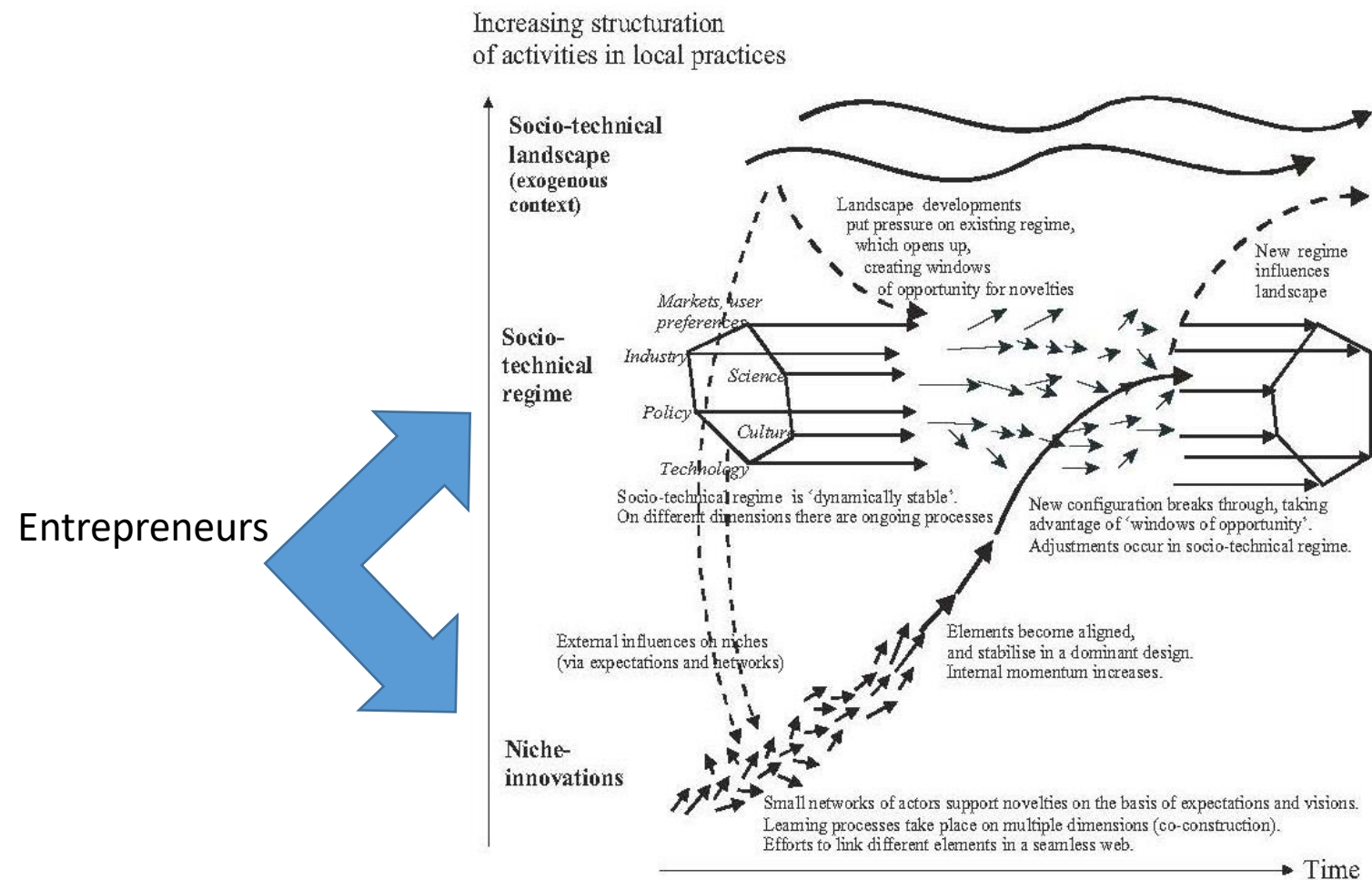


Key issues now!

- Understanding and trusting the business
 - “you need kind of proof that your [business] model is working before you can get the change”
 - “mainly positive young urbanites kind of young professionals seem to get it a lot quicker, how that is converting to sales is still iffy”
- Costs
 - Economies of scale: “the cost of motors has gone down and down and down in real terms.”
 - “they call it money or finances or investment and things like that and it’s definitely the main barrier, it is a bit of shame but that’s life”
- Scaling up
 - “[Change will come] from the public, it’s not going to come from the government because the government only do what the public want anyway. I think we’re going to have to do it ourselves and get a measure of enthusiasm”

Entrepreneurial roles in the change (destabilisation)

- There are a mixture of transition pathways (Geels & Schot, 2007)
 - Technological substitution, De-alignment & Transformation
- Technological substitution may drive the key changes
 - Many would argue that substitution alone will not be enough for stability of a new regime (given low carbon commitments)
- Going to need de-alignment and transformation
 - Who are going to be the change agents in these processes?



Entrepreneurs have a role to play

- De-alignment & Transformation
- 3 key processes –
 - Learning,
 - articulation of expectations (what they think might happen) &
 - building social networks (Kemp, Schot & Hoohma, 2007).

So what? No ICEs in 8 years?

- Transport a key sector for change in NZ
 - Push and pull factors will occur at various points
- What can you, as energy managers, do?
 - Transport often overlooked in (building) energy audits.
 - Can make some savings (emissions & monetary) through changes to transport choices.
 - Introduce the different business models these entrepreneurs and others use – help make them part of the regime.