



Landcare Research
Manaaki Whenua

The social dimension of environmental change

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Manaaki Whenua Landcare Research



Today's Talk

1. Challenge - complex adaptive systems
2. Richer repertoire of concepts
3. Introduce one concept of technological change
4. Implications for policy
5. Case study of policy change

Level of policy complexity varies

- Complex adaptive systems
- Complex problems
- Require shifts in research & policy thinking











Managing complex adaptive systems requires
‘a richer repertoire of conceptual models’

(Jake Chapman)

Illustrate with a city & peak oil and climate change



25-50% less car trips within approx 20 yrs

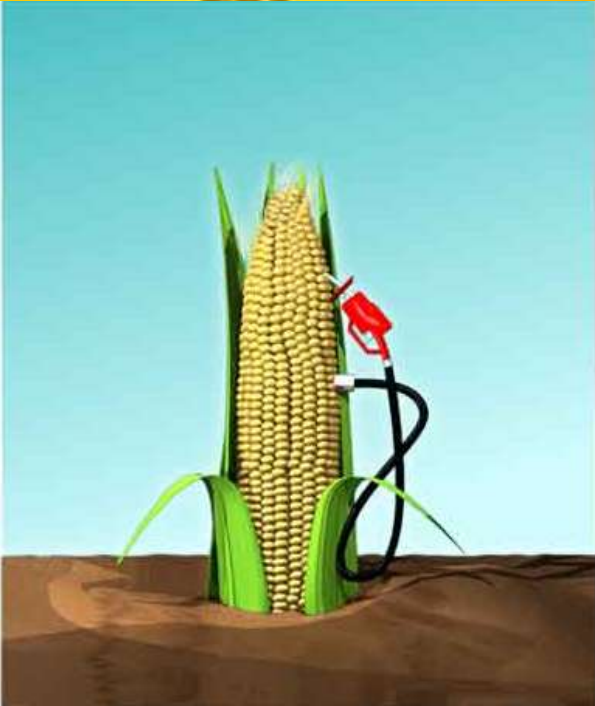


Conventional responses



1. Leave it to market

Ensure prices flow swiftly through economy so individual NZrs can make sensible choices.



2. Technology will fix it

We will just carry on as we were with an alternative fuel

1. Can individuals make autonomous rational decisions?
2. Does technological change occur that easily & quickly?





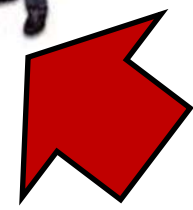
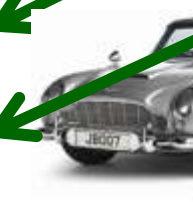
MLP of socio-technological transitions

- Examined how significant technological change has occurred in the past
- Rip & Kemp, Frank Geels, Adrian Smith and others



A technology does not exist as a discrete entity







Supplier
networks vested interests

Producers

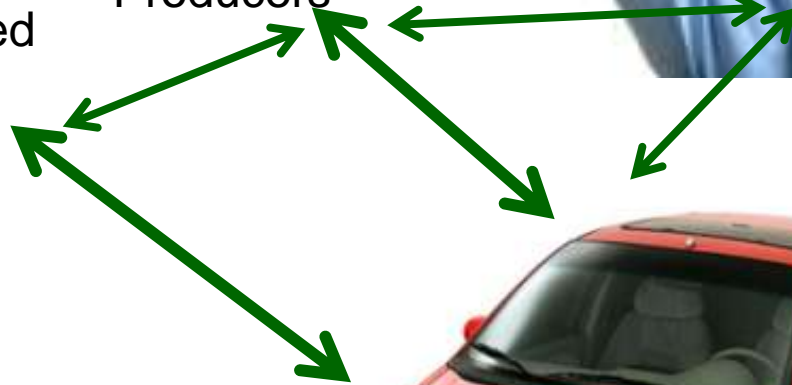


Producers & value chain actors



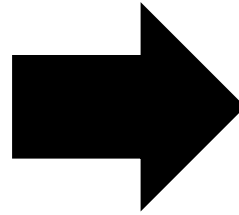
Supplier networks vested interests

Producers



Dominant industry thinking limits innovation

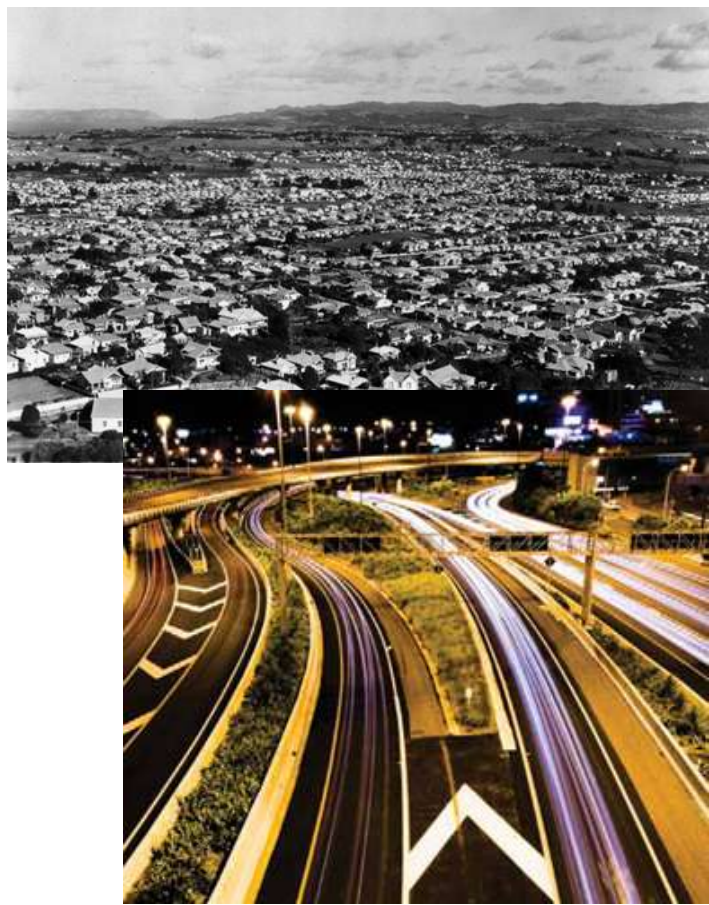
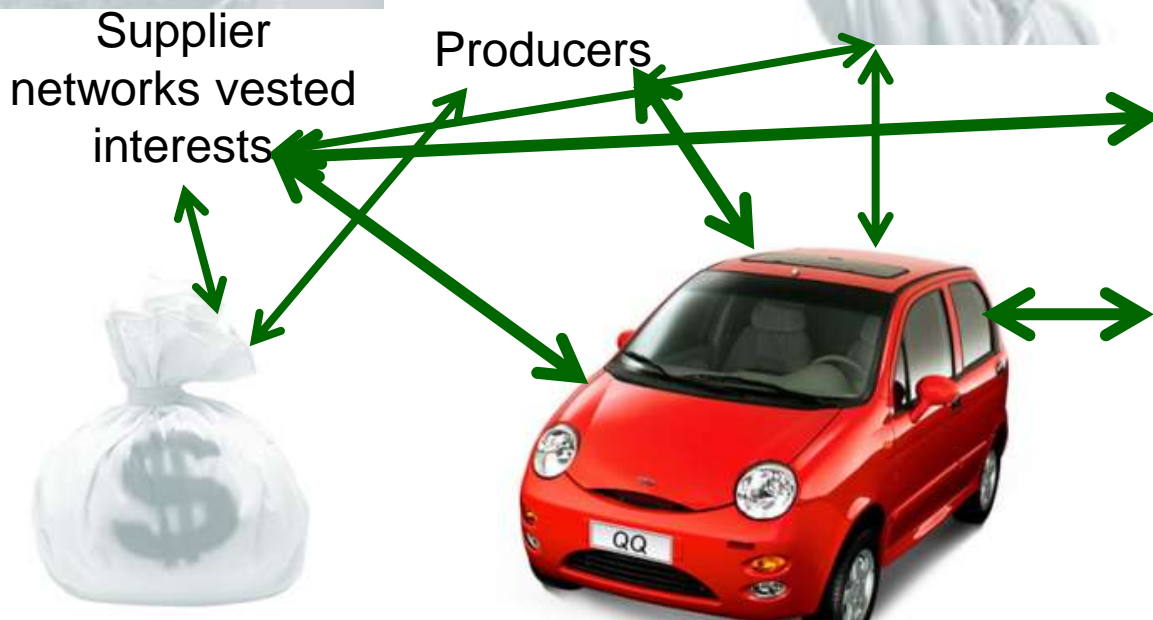




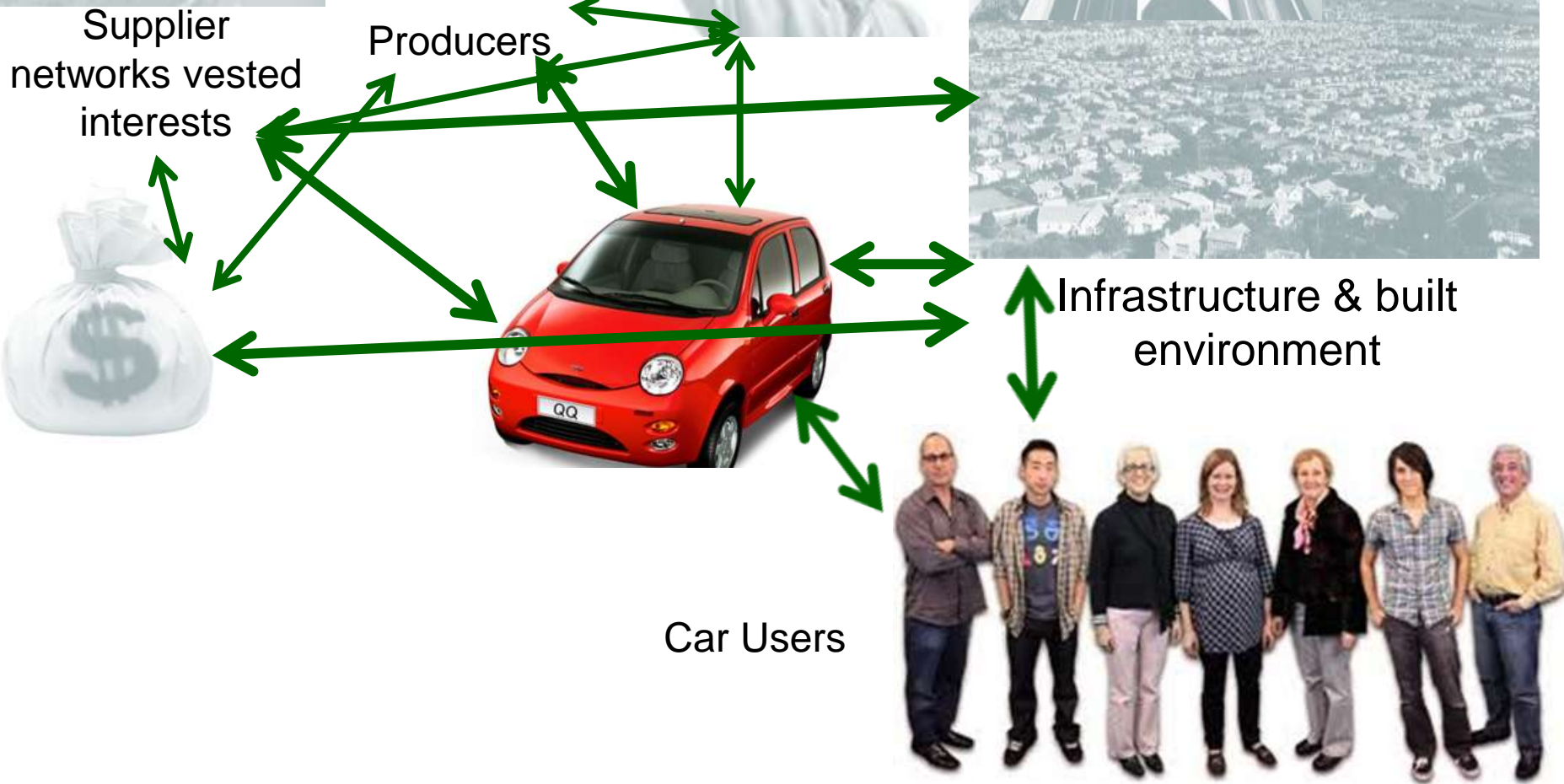
Innovations tends to focus on optimising incumbent technology



Infrastructure & built environment



Built environment co-evolved with car



Social practices & consumer culture

Multiple factors influence behaviour



Individual Factors e.g.

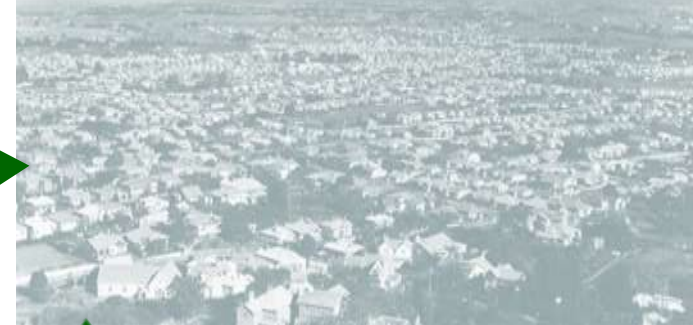
- Information/price signals
- Habit
- Self-efficacy
- Belief in problem/solution
- etc



Collective

Factors e.g.

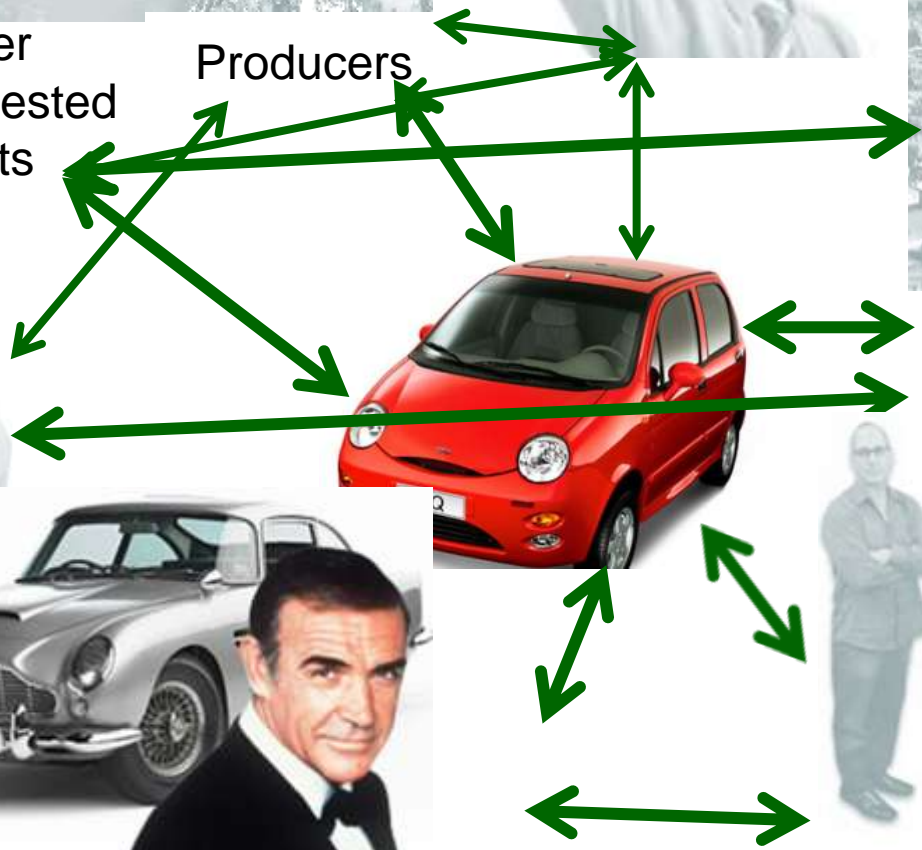
- Social practices
- Social norms
- Symbolic nature of goods and practices
- etc



Supplier networks vested interests

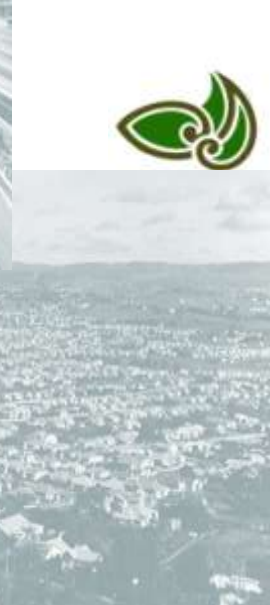
Producers

Infrastructure & built environment



Media and popular culture





Supplier networks vested interests

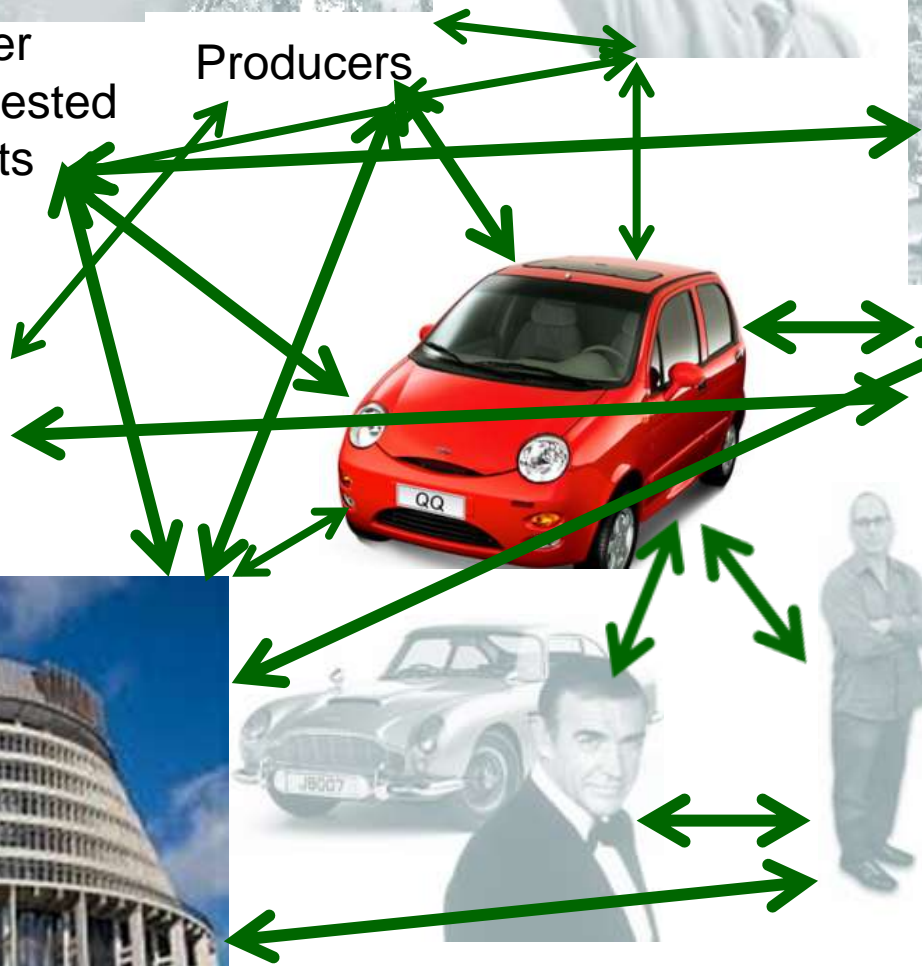
Producers

Infrastructure & built environment

Policy



Co-evolved Policy







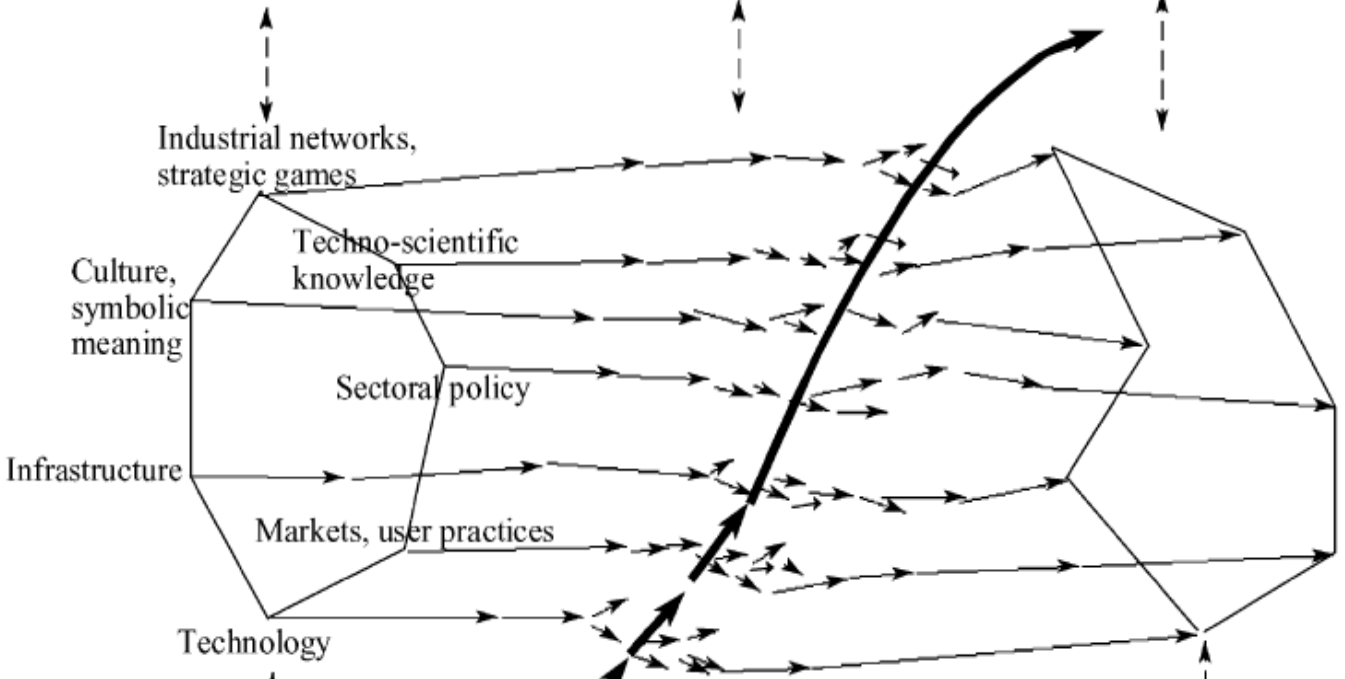


Socio-technological change

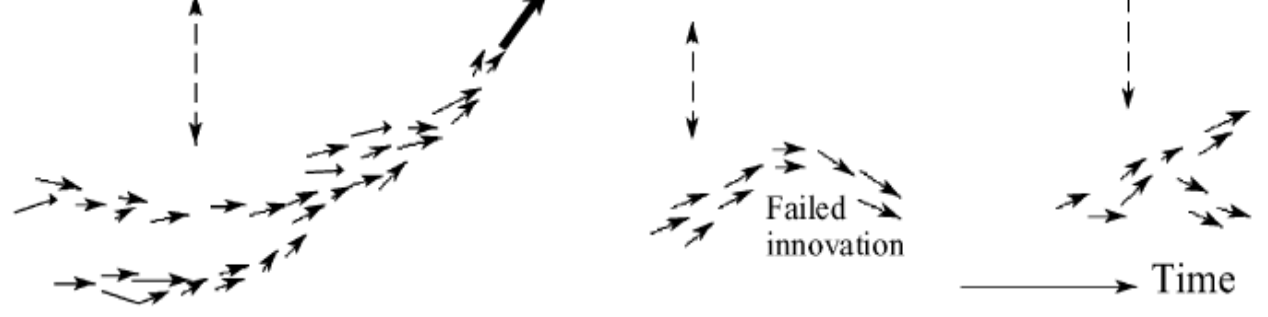
Landscape developments



Socio-technical regimes



Technological niches





So?



1. Do individuals make autonomous sensible decisions?
2. Can we rely on technological fixes? That are fast enough?



MLP suggests that..

- People's decisions are not solely influenced by price/information
- People are not individual agents – we are influenced by the collective
- Policy needs to aim both at the collective and individual level



MLP suggests that..

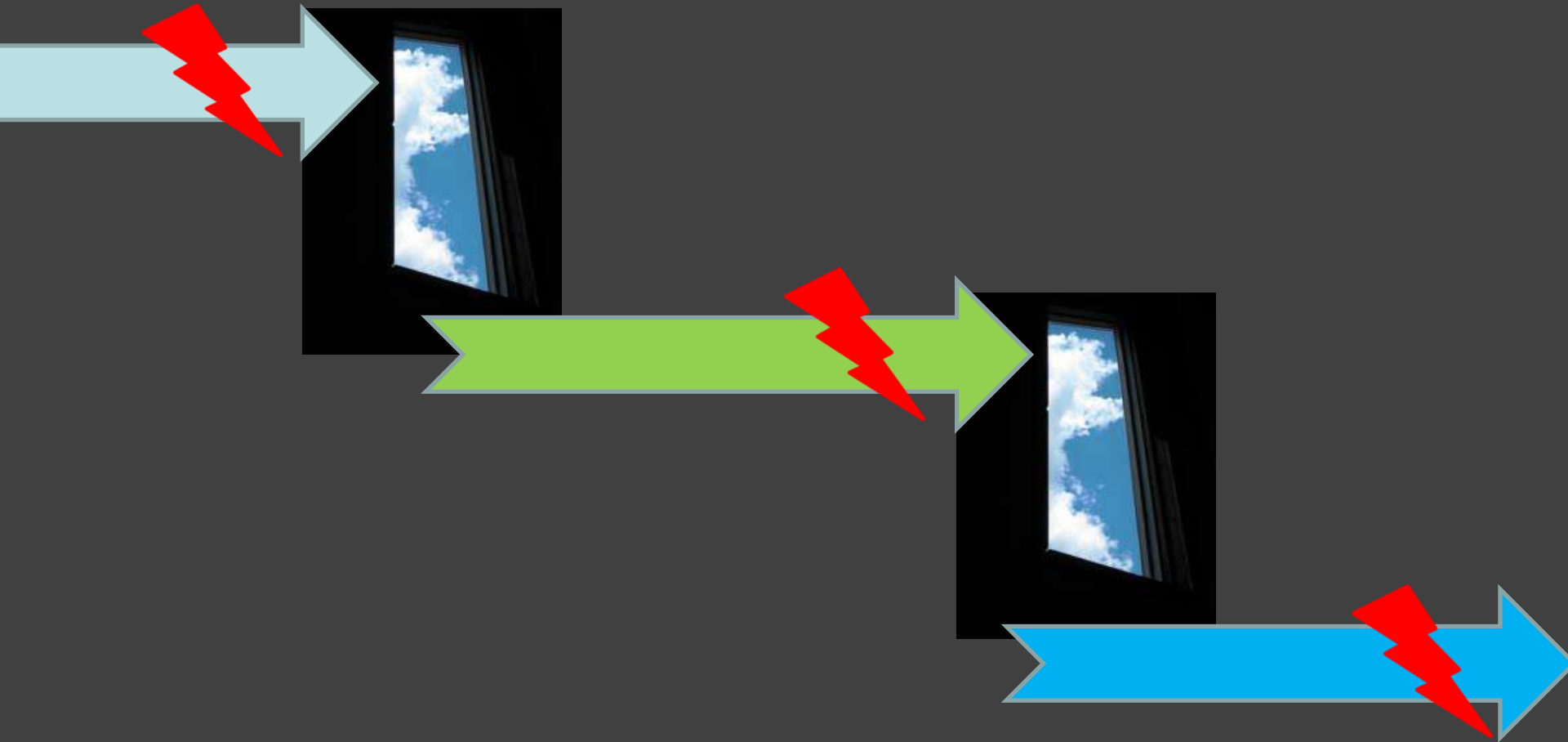
- Technological fixes – not straightforward
- Technical solutions may dominate the market even when they become sub-optimal
- Requires reconfigurations of social, physical and institutional systems
- Complex – suggests we are throwing birds not rocks
- Timing critical
- Different sets of interventions are needed

**But how
does policy
change?**



Nature of policy change

Long stable periods, short change periods

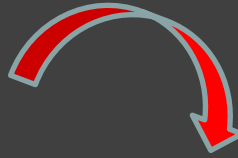


Case Study Policy Change

Waitakere “Eco City”

Disruptors at different levels

Societal issues that challenge existing world views



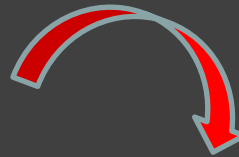
Local urban growth pressures



Community dissatisfaction with current policies



Local Government reform



New politicians, staff in policy organisation



1. Tangible Vision

Eco City

1. Urban Sprawl → Compact form
2. Car dependant → Public Transport
3. Few jobs → Local employment
4. Deprived → Greater social equity
5. Sustainability underpinning everything





2. Political-staff relationship

- Shared goals
- Strong facilitation & collaborative skills
- Worked closely together over 3 terms



3. Change Leadership

- Strong networks
- Social acumen
- Compelling communicators
- Persistence
- Reflexive thinking





4. Change Leadership

Reflexive thinking - continually assumptions

*She would just challenge...
the rationale for government
intervention...which starts with..
you have to have ..a market failure
before you intervene.*

*She would .. say why? Who said?
Is this some kind of biblical thing?*



5. Embedding culture change



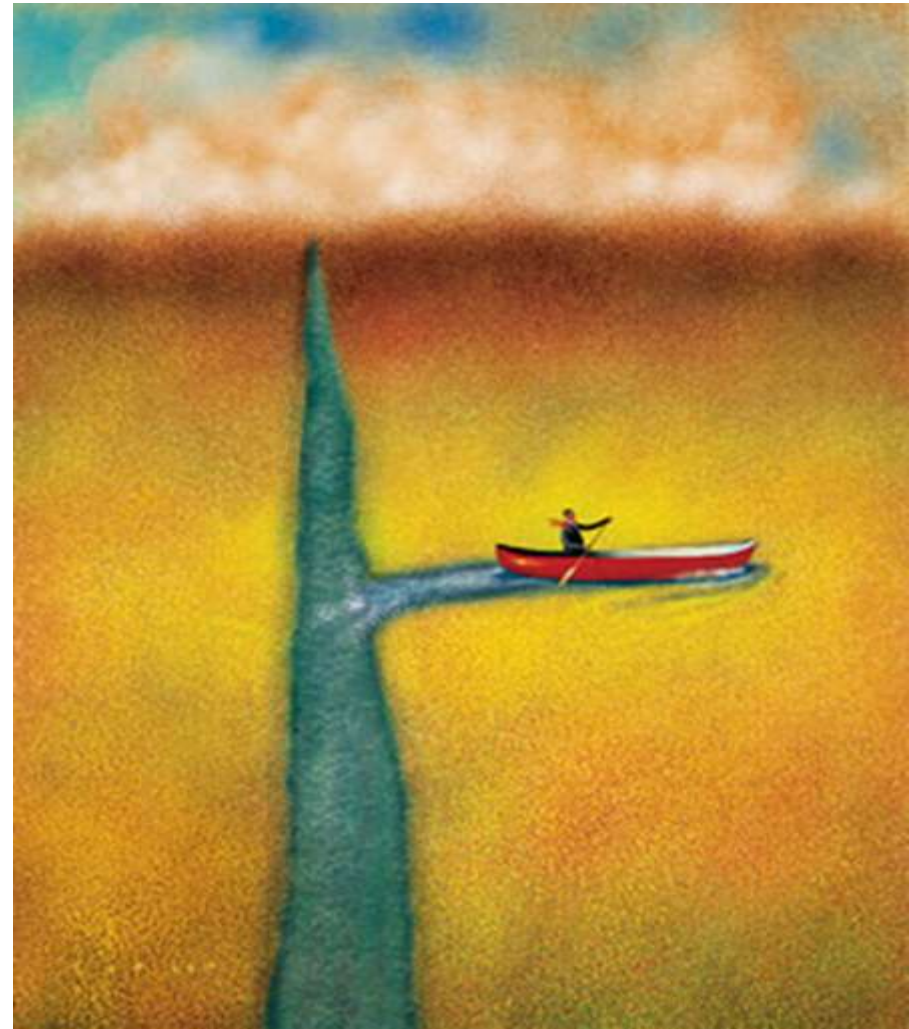
- Intentional process
- Recruited diversity
- Creating a learning organisation
- 10 years process



6. Embedding change in decision-making



- Systematically embedding in decision-making
- Integrative processes





Implications for policy?

- Timing critical – wrong to right at the wrong time
- But how do we anticipate windows opportunity?
- Not enough to get the right interventions and the right timing
- Have to have the right personal & organisational attributes to initiate significant policy change

Some things never change

There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success than to take the lead in the introduction of a new order of things

(Machiavelli, The Prince, 1532)