



**Landcare Research**  
Manaaki Whenua

# The social dimension of environmental change

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# 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

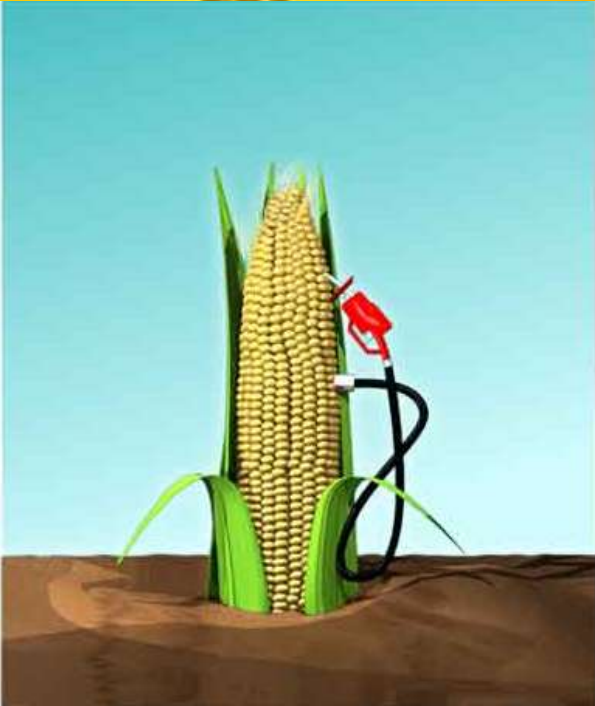


# Conventional responses



## 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?



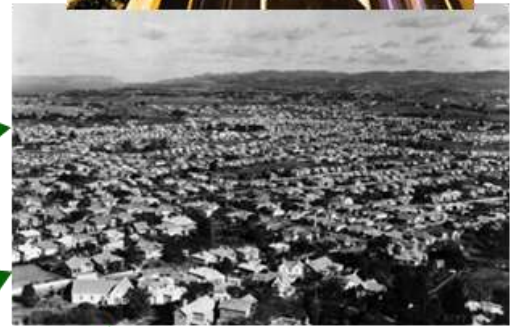


# MLP of socio-technological transitions

- 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



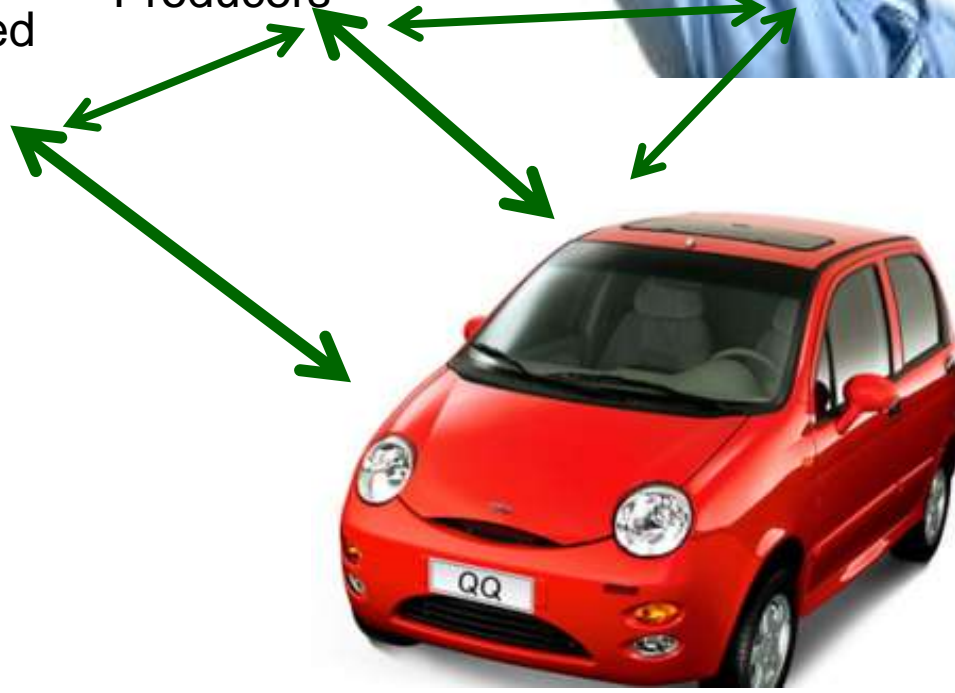
# Producers & value chain actors





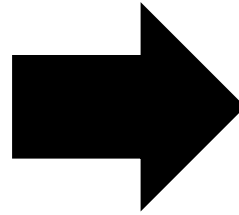
Supplier networks vested interests

Producers



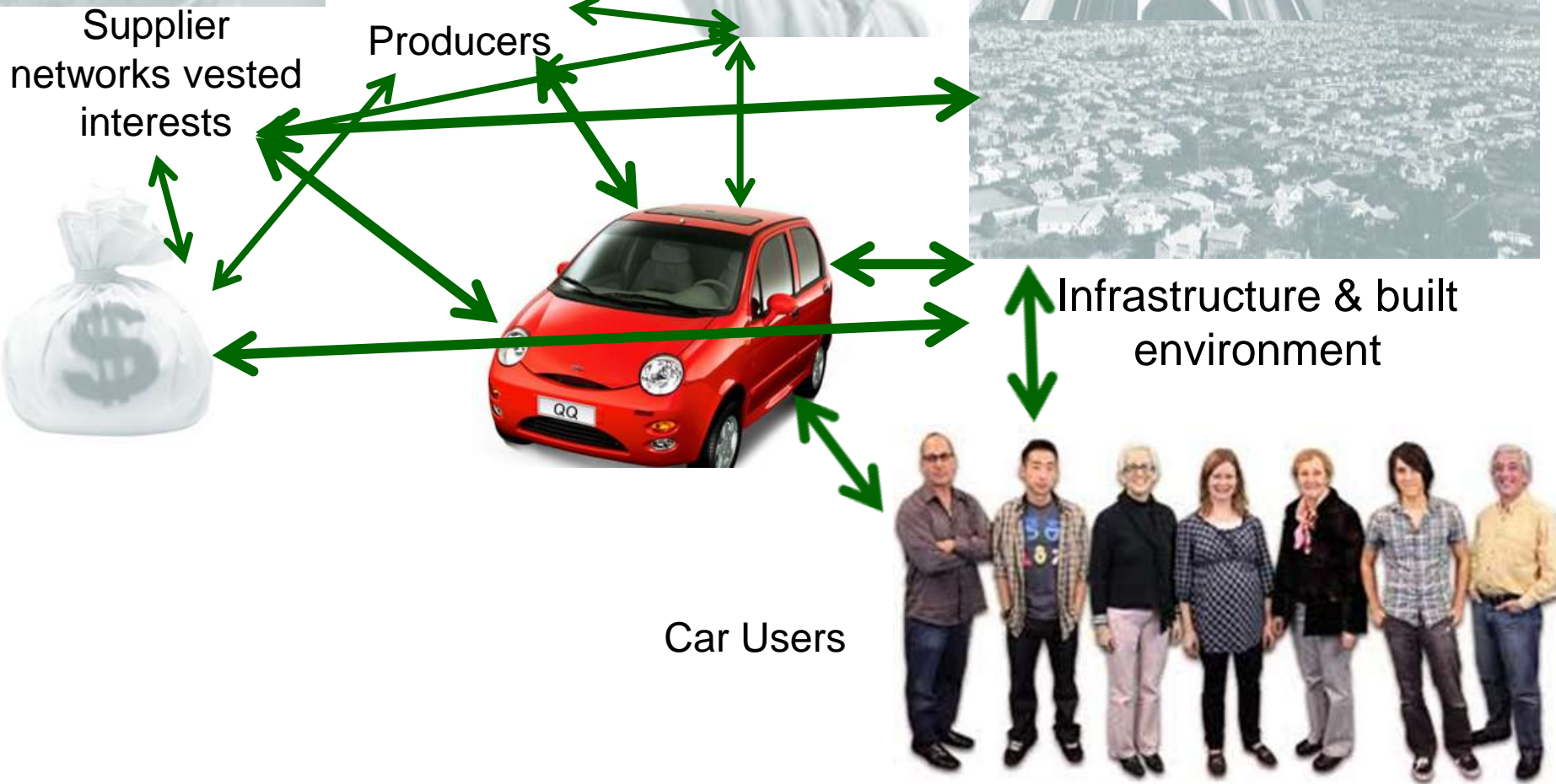
**Dominant industry thinking limits innovation**





Innovations tends to focus on optimising incumbent technology





# 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.

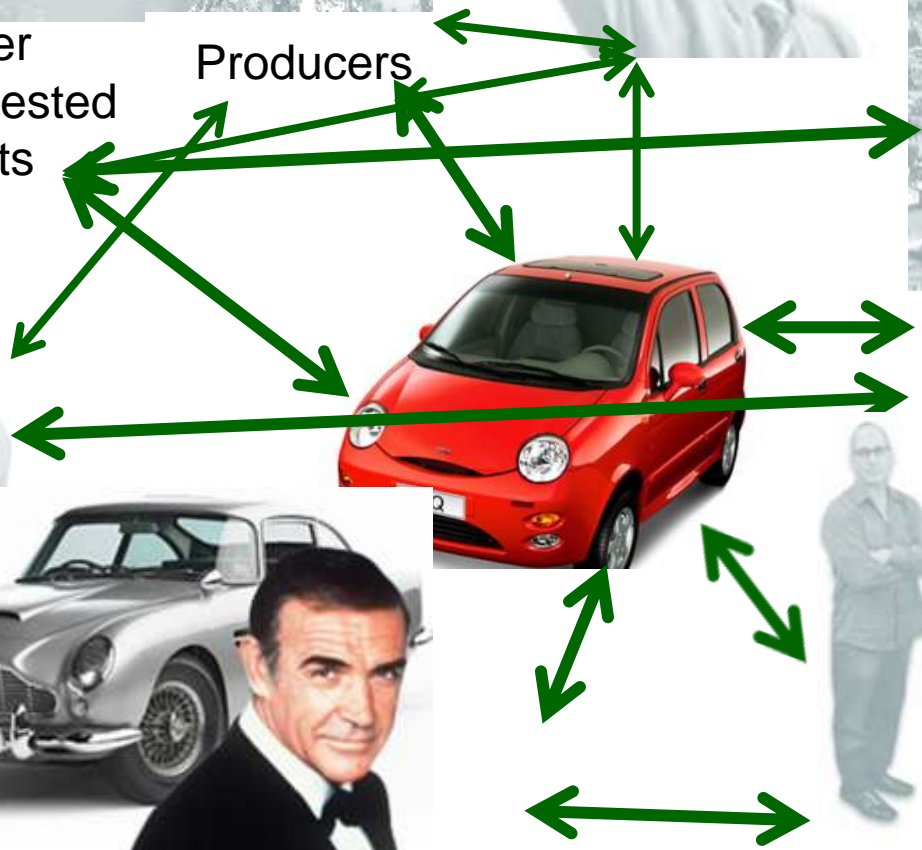
- Social practices
- Social norms
- Symbolic nature of goods and practices
- etc



Supplier networks vested interests

Producers

Infrastructure & built environment



# Media and popular culture







Supplier networks vested interests

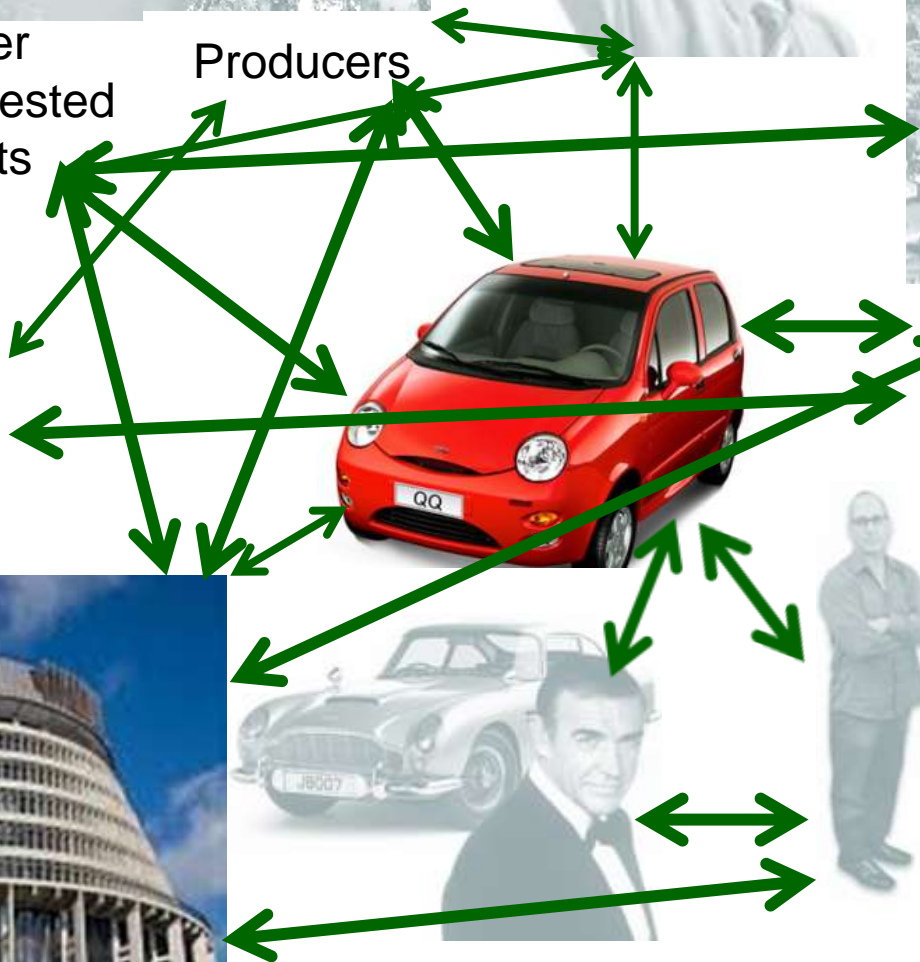
Producers

Infrastructure & built environment

Policy



**Co-evolved Policy**

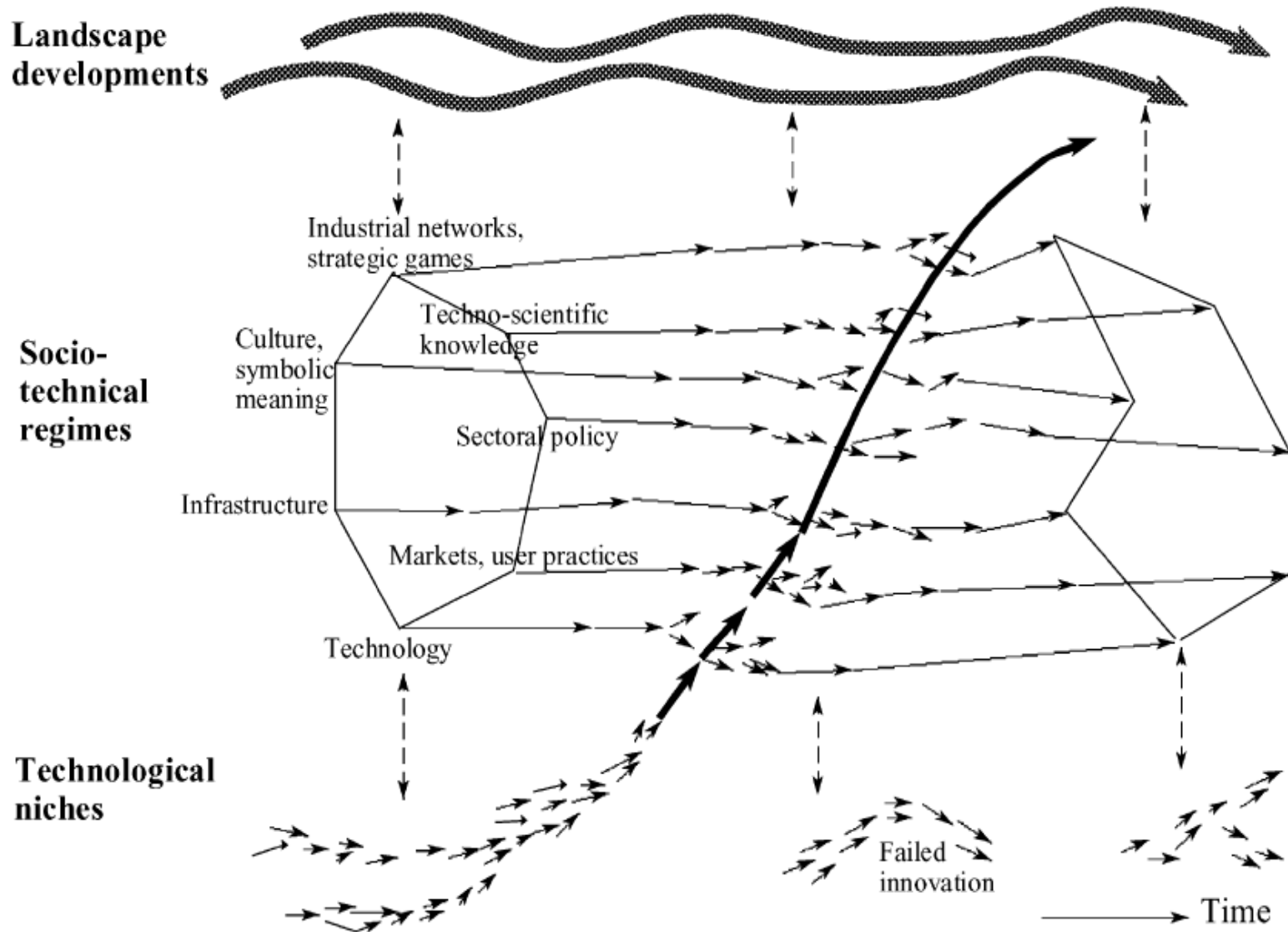








# Socio-technological change





# 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

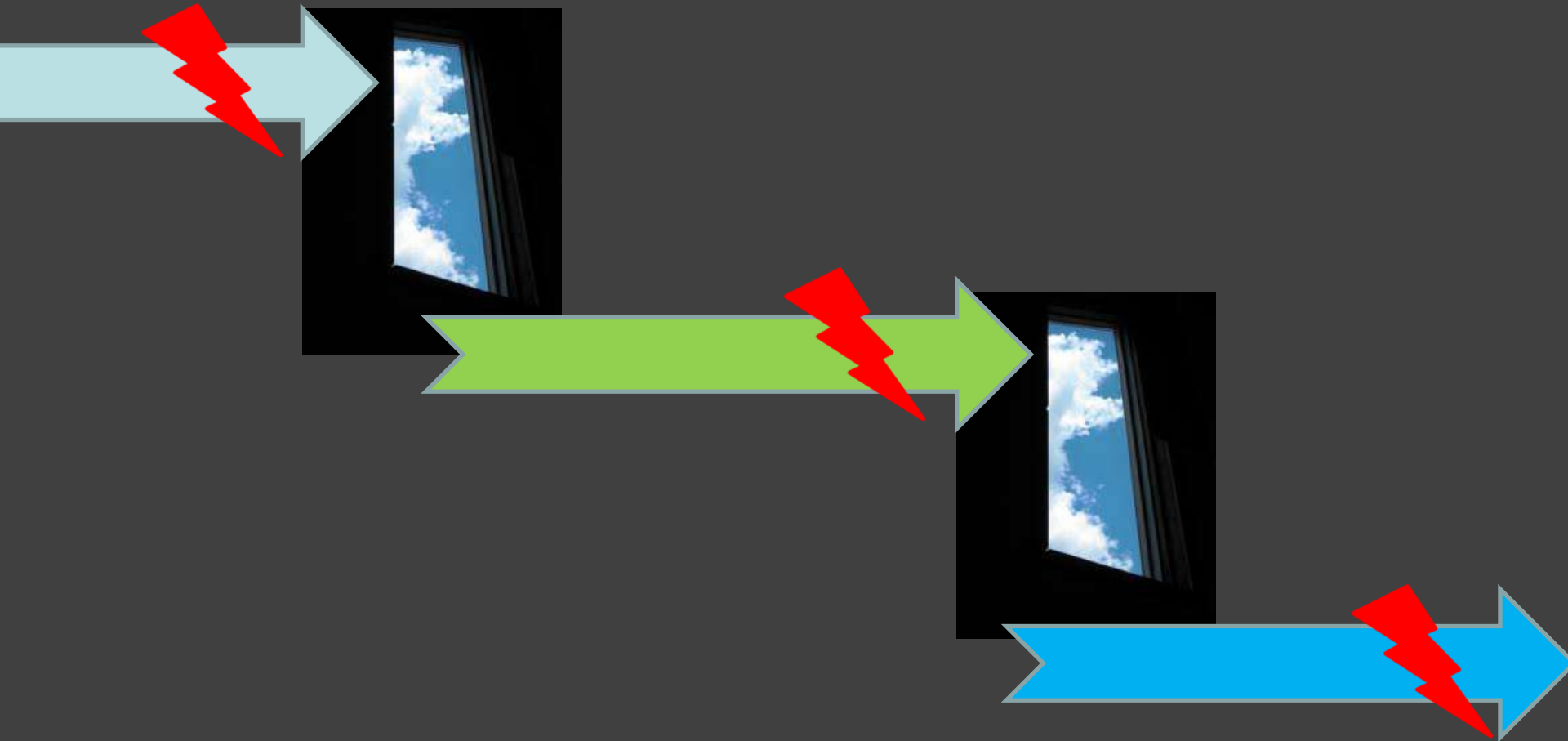
**But how  
does policy  
change?**





# Nature of policy change

Long stable periods, short change periods

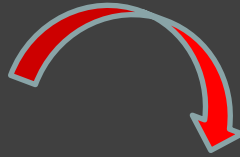


# **Case Study Policy Change**

**Waitakere “Eco City”**

# Disruptors at different levels

Societal issues that challenge existing world views



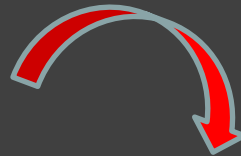
Local urban growth pressures



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

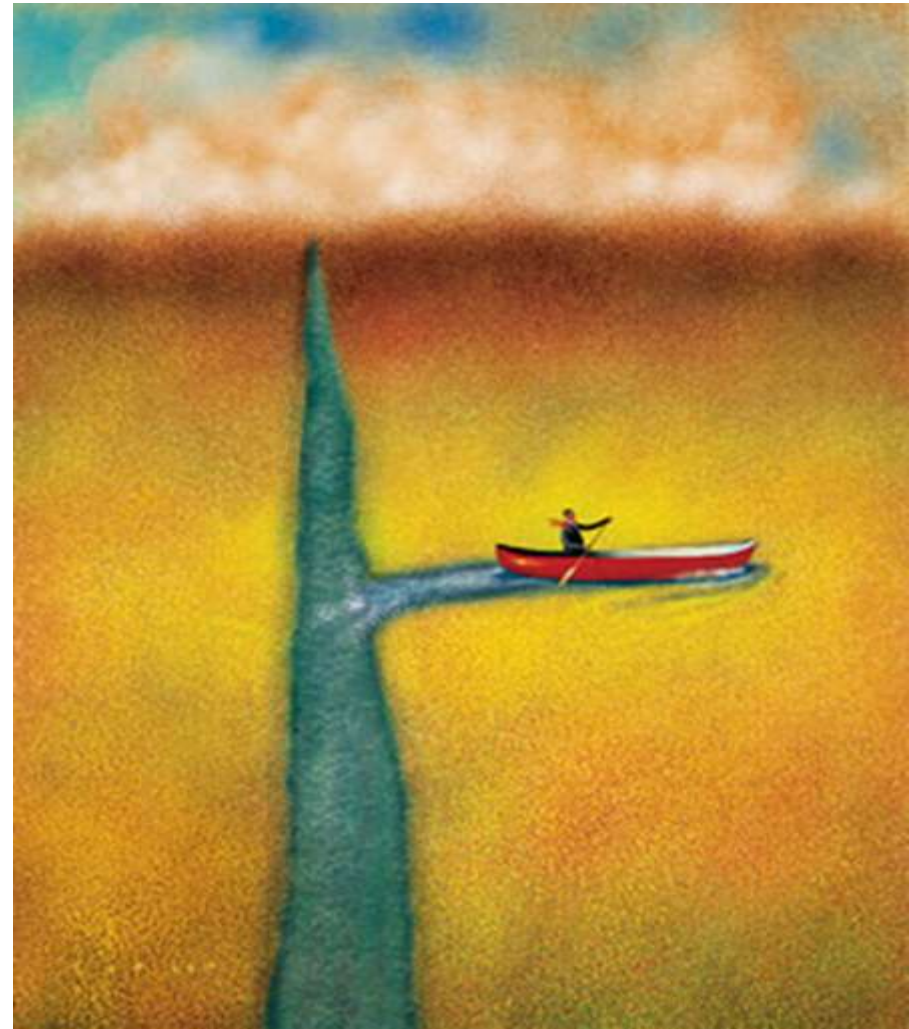




# 6. Embedding change in decision-making



- 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)