



**POLFREE**

POLICY OPTIONS FOR A  
RESOURCE EFFICIENT ECONOMY

# Challenges to the transition to a circular economy

Understanding the '*webs-of-constraints*' to more efficient use of resources

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# Key message



- ✧ Many RE studies speak about 'barriers' to RE
- ✧ In practice there are usually compound causes for why resources are not used more efficiently - not single barriers
- ✧ We propose a metaphor of 'web of constraints'
- ✧ Policy instruments that do not address systemic interactions tend to be ineffective
- ✧ We explore how policy (mixes) can address a web-of-constraints

# Research question

- Why are resources not used more efficiently?
  - *This is a complex question: because so many actors, factors and structures play a role.*
  - *We should be weary for simple answers*

# The concept of 'barrier to RE'

- Most studies on energy efficiency
- Efficiency gap
  - actual level vs. cost-beneficial level
- Barrier models to explain the gap

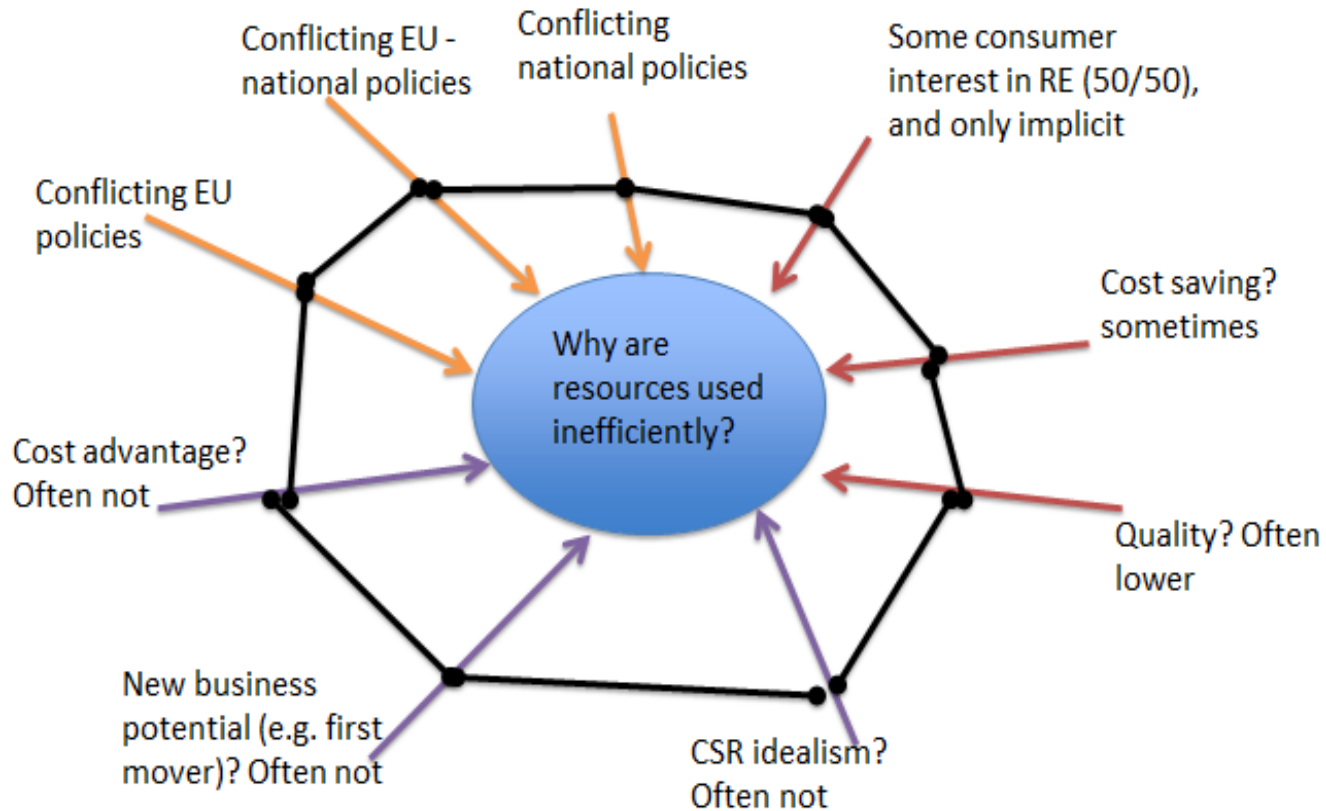
## An example of a 'barrier' to resource efficient mobility

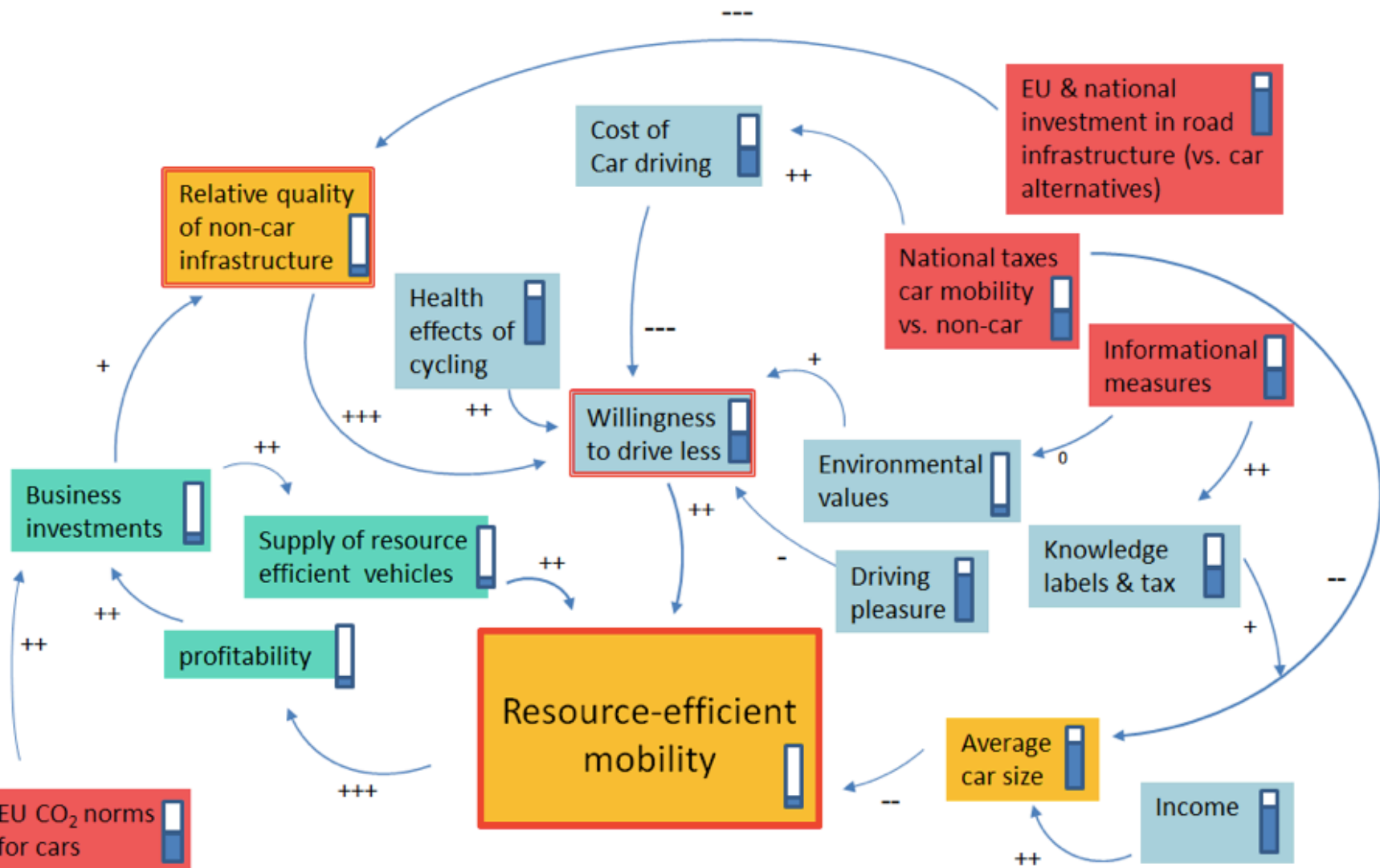
- Car use
- Why do people use their car within the city? They could save fuel and parking cost when they switch to public transport (relatively cheaper, cleaner).

# An example of a 'barrier' - problematic

- Individual barrier or market barrier?
- Assumes cost and resource use are the key attributes for travellers. Many people choose the car because *'it is the only moment on the day I can sing, scream, gesture etc. without repercussion; neither from my wife at home, nor from my boss at work'*
- Park+Ride as strategy to tackle the barrier (hence reduce urban car use, increase PT use).
- Transport research shows that on some sites the (resource) effect of P+R policies is almost balanced out by the increase of un-targeted drivers towards the P+R sites (Parkhurst 1995).

# Web of constraints







# Policy implications

- Instruments or measure need to anticipate systemic effects (i.e. primary effect of measure and collateral effect)
- Design of policy mixes needs to be based on understanding policy interaction

# Understanding Policy interaction

- Relationships between measures/instruments:
  1. precondition relations
  2. synergetic or facilitation linkages
  3. contradictory relations
  4. Neutral Givoni et al (2013)
- Policy learning in sectoral platforms

# Conclusions

- Plea for 'webs' instead of barriers
- Needs tailor-made analysis – both on the dynamics of the issues and on the dynamic implications of the policy (mix)
- Economic instruments are key, but alone will not do the job: too many possible strategic reactions.
- A sectoral platform may be the suitable way to address this (need to engage with businesses & consumers etc.)
- Much work to do



# Questions?

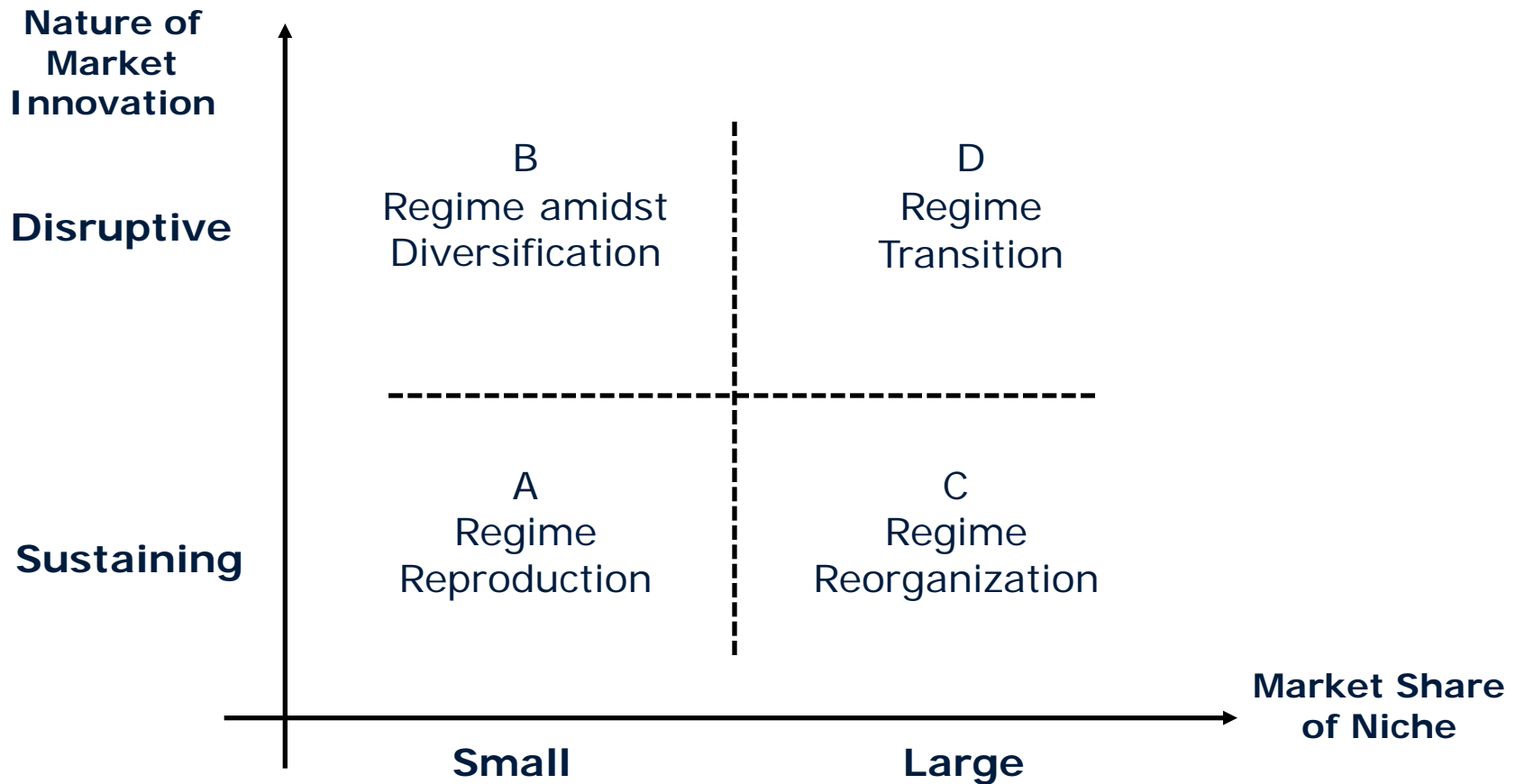
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# Why people like cars / automobility

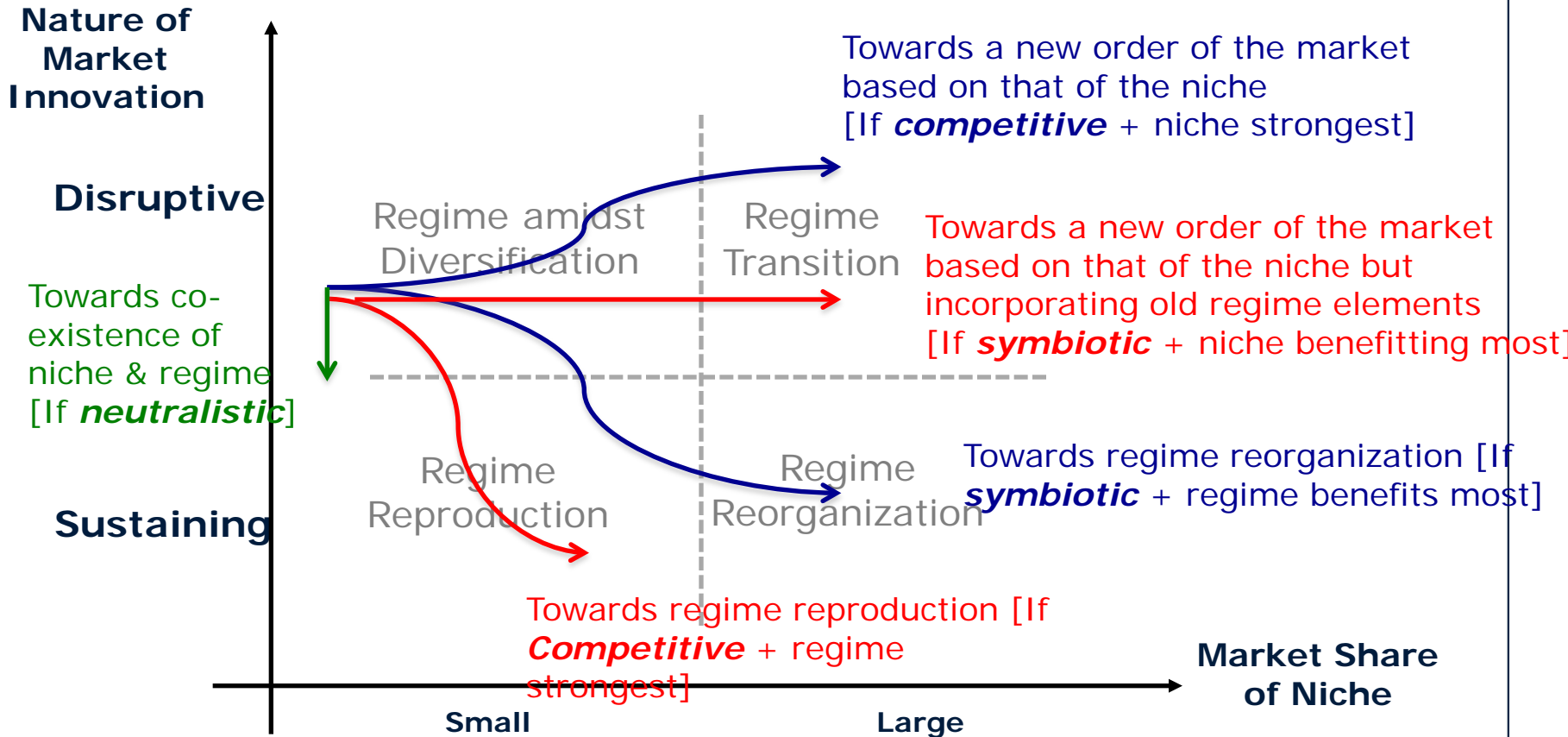
- Travel time
- Door-to-door
- Flexibility
- ..
- *...! Driving in my car to work is one of the scarce moments that I can shout, sing, gesture etc. without any repercussion; neither from my wife at home, nor from my boss at work'*



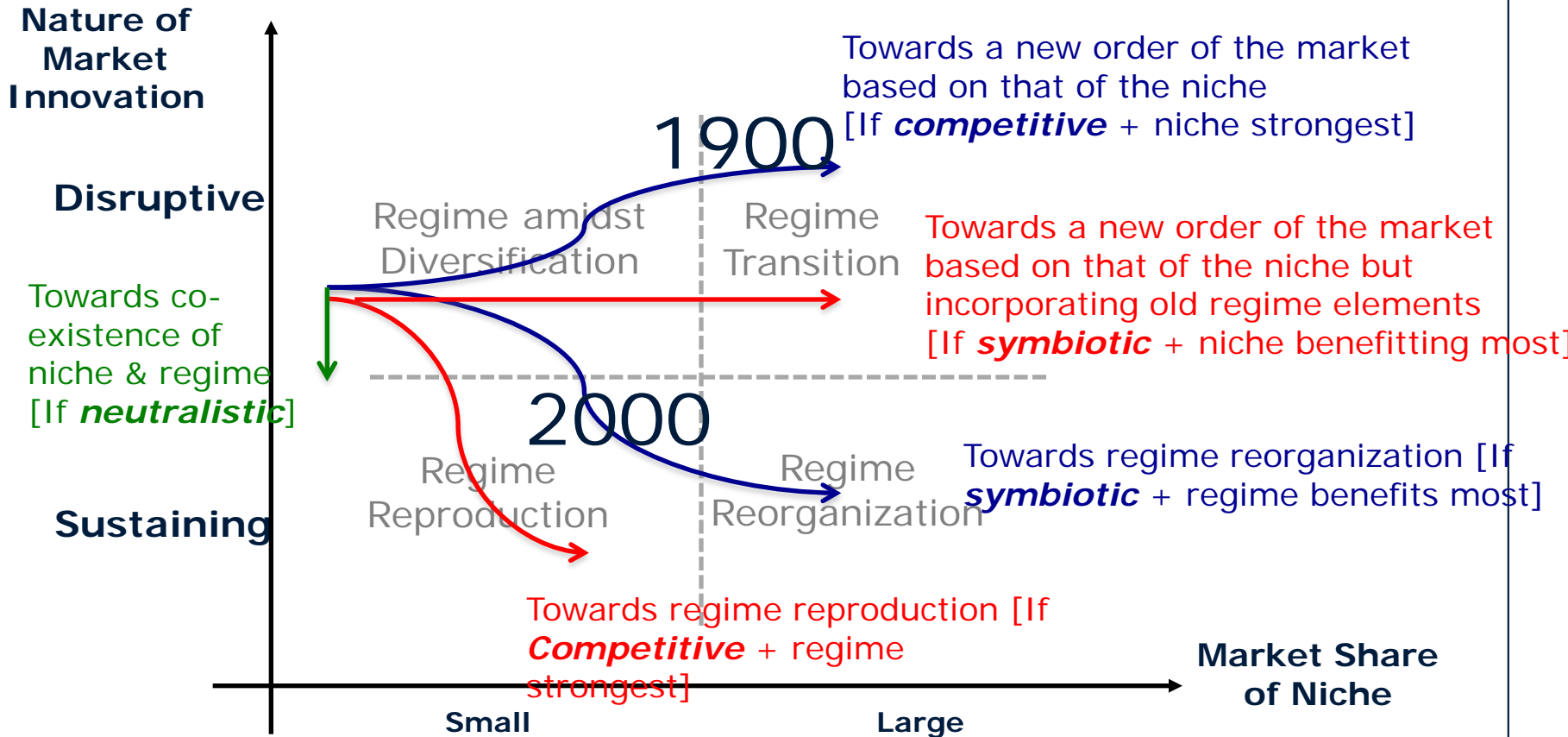
# Socio-technical theory on innovation



# Five generic patterns



# Five generic patterns





# Socio-technical theory on innovation

- We take a socio-technical and evolutionary approach that does not privilege either economic, technological or social or institutional factors in proximate explanations of social and technical change.
- We will not end up with simple cause and effect between factors. Nevertheless we do try to identify patterns which are driven by some factors more than others.

# Web of constraints – exam. urban mob.

