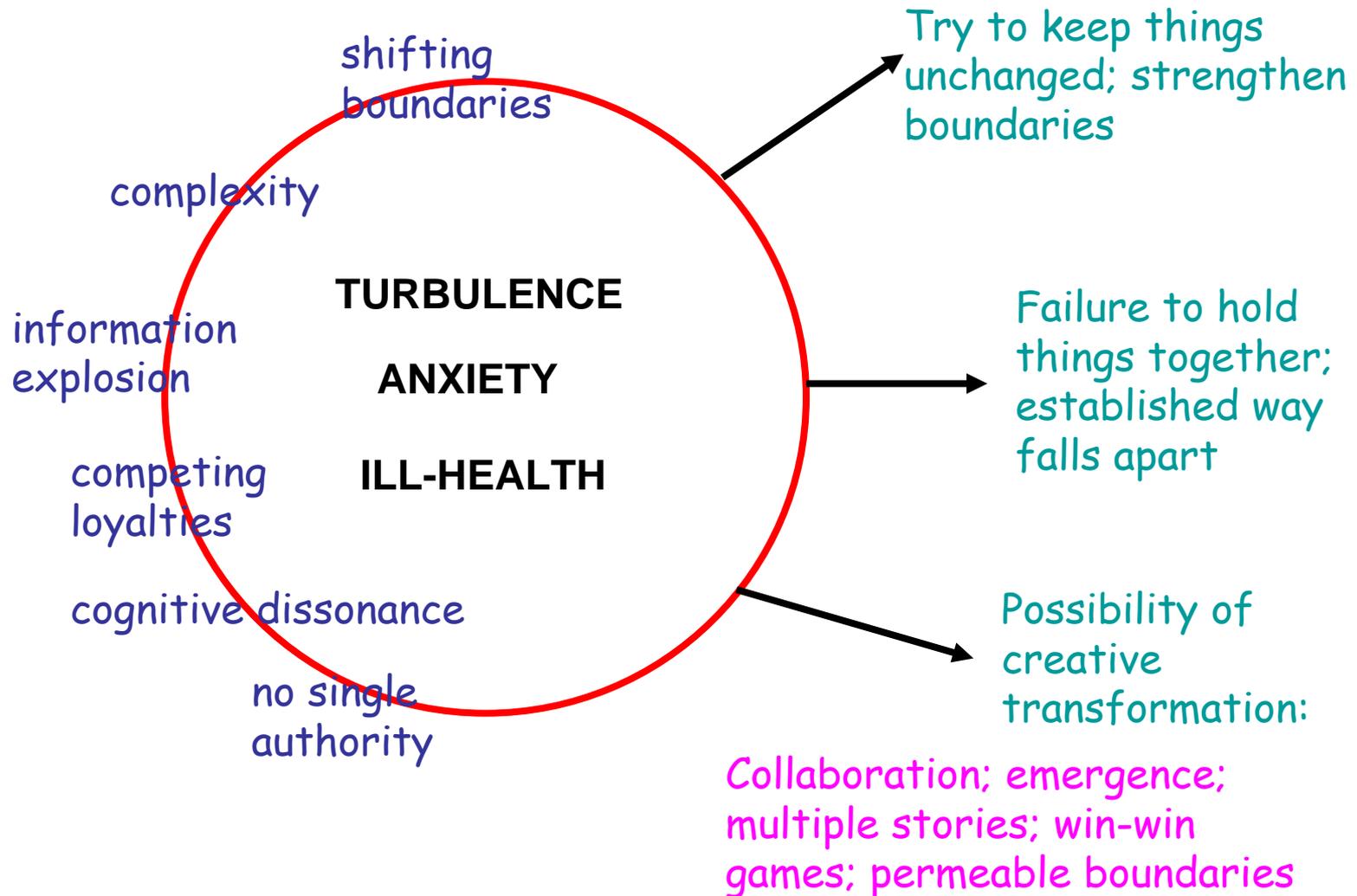


These are normal phenomena,
fundamental to survival of the system

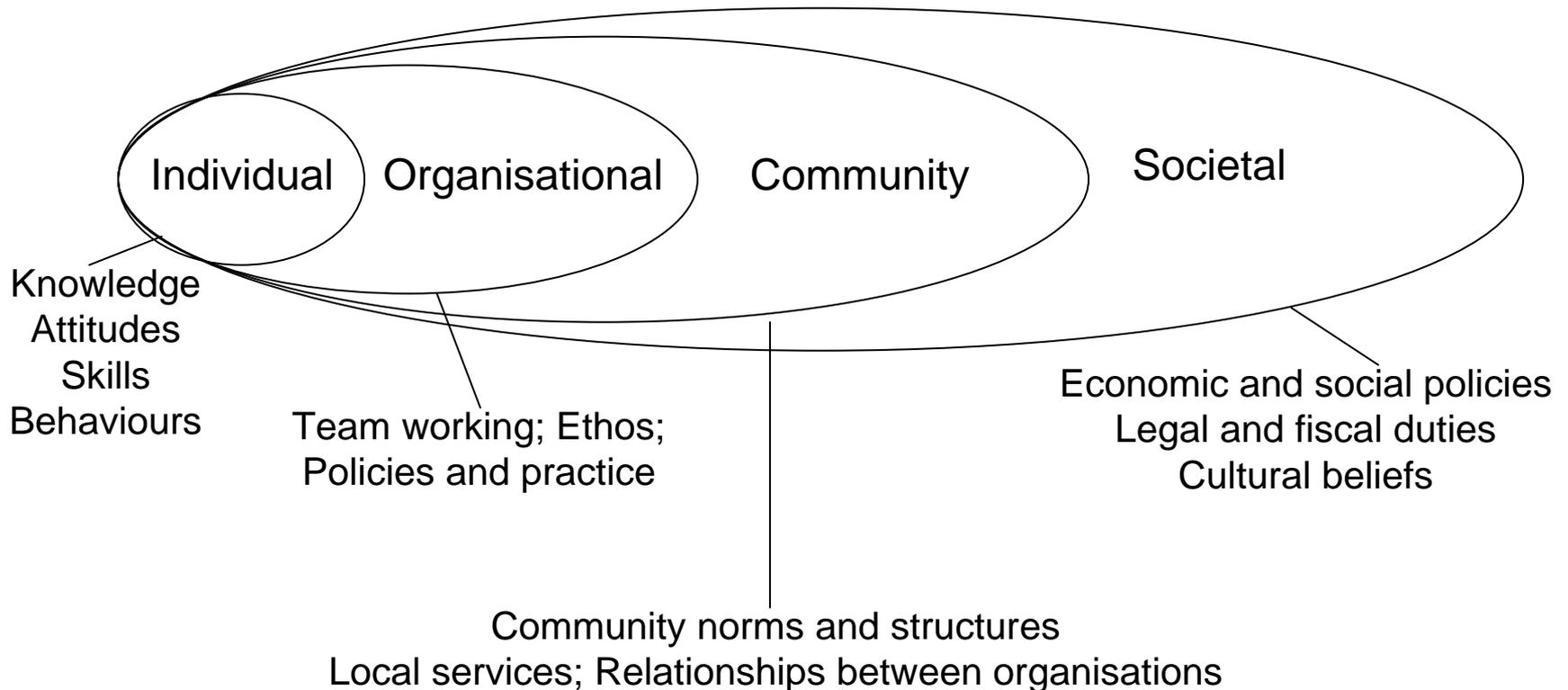
Finding the transformative response

(after Maureen O'Hara, GCPH 2005)



Ecological systems

- Recognise the relationships that exist
- Each system contains roles, norms and rules



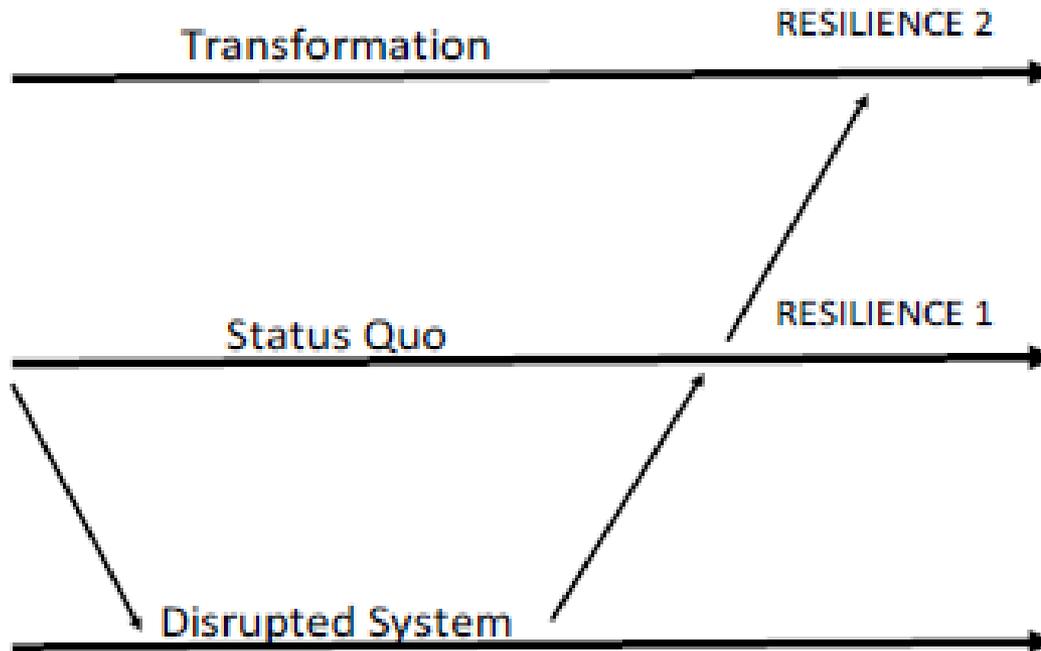
Cities as complex adaptive systems

- Complex systems: Dynamic networks of interactions and relationships, not aggregations of static entities. Hard to predict. Small changes in the system can yield wide-ranging effects.
- ‘Adaptive’: Behaviour, individual and collective, changes in light of experience.
- Unlike natural ecosystems: people possess intelligence and memory, and have higher level goals.

Components and how they behave

- Heterogeneous agents: interact in non linear ways; effects are unpredictable, but patterns emerge.
- Subsystems: categories of agent that also interact; eg communities, transport network, retail environment.
- Evolution and co-evolution: cities evolve from state to state as a result of changing behaviour patterns.
- Dynamic and adaptive: cities operate under changing conditions and are constantly adapting.
- Emergent: high level patterns emerge from low level rules and events.

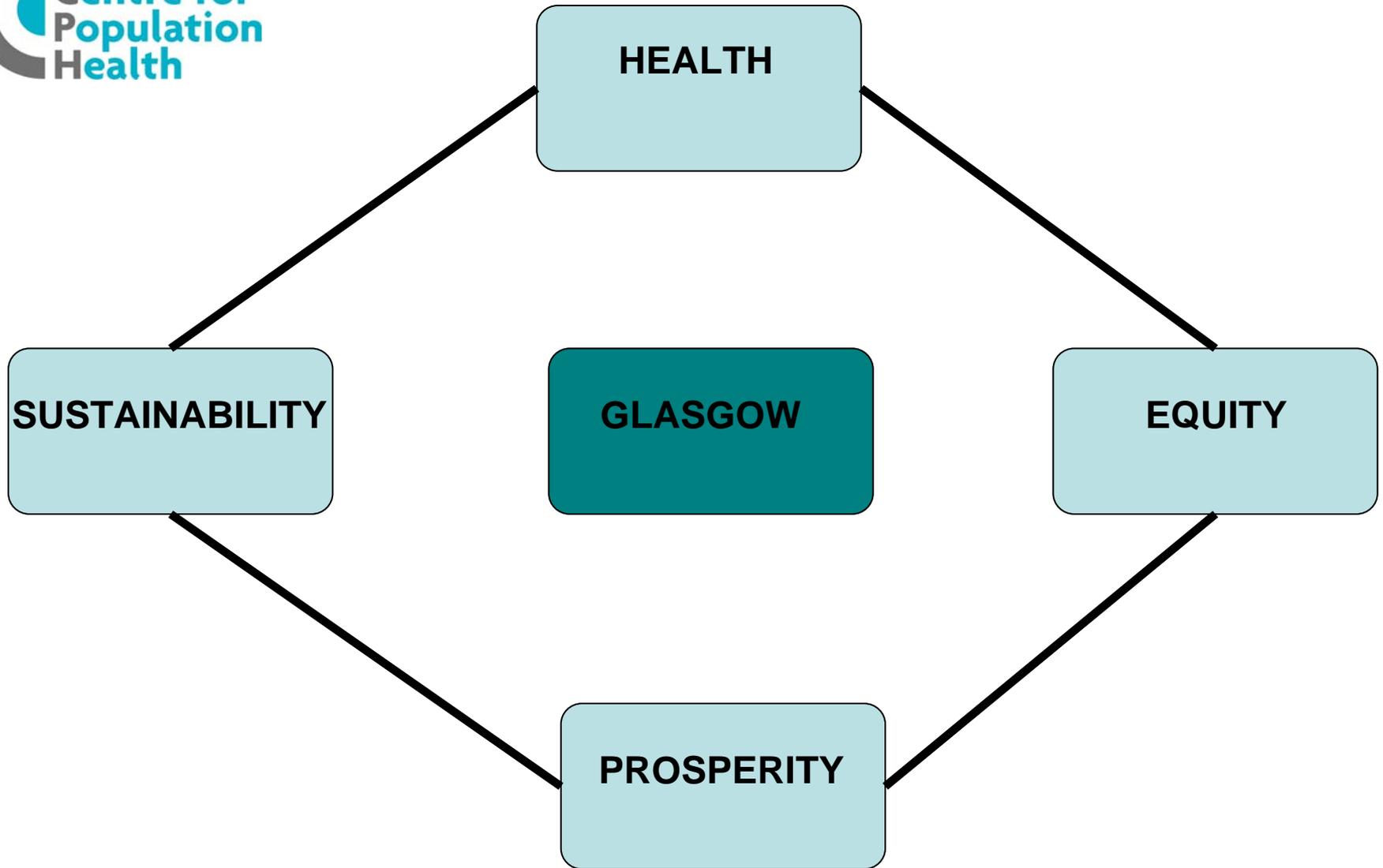
From status quo to transformative resilience



Source: Transformative resilience:
A response to the adaptive imperative.
Compiled by Anthony Hodgson 2010

Resilient systems: Characteristics

- Diversity
- Flexibility/ability to reorganise
- Redundancy/capacity
- Durability
- Cohesiveness:
 - Communication
 - Cooperation
 - Inter-element collaboration
- Self efficiency



Climate change
Peak oil
3 planet living

SUSTAINABILITY

HEALTH

A particular
weakness. Makes
city more vulnerable
and less resilient

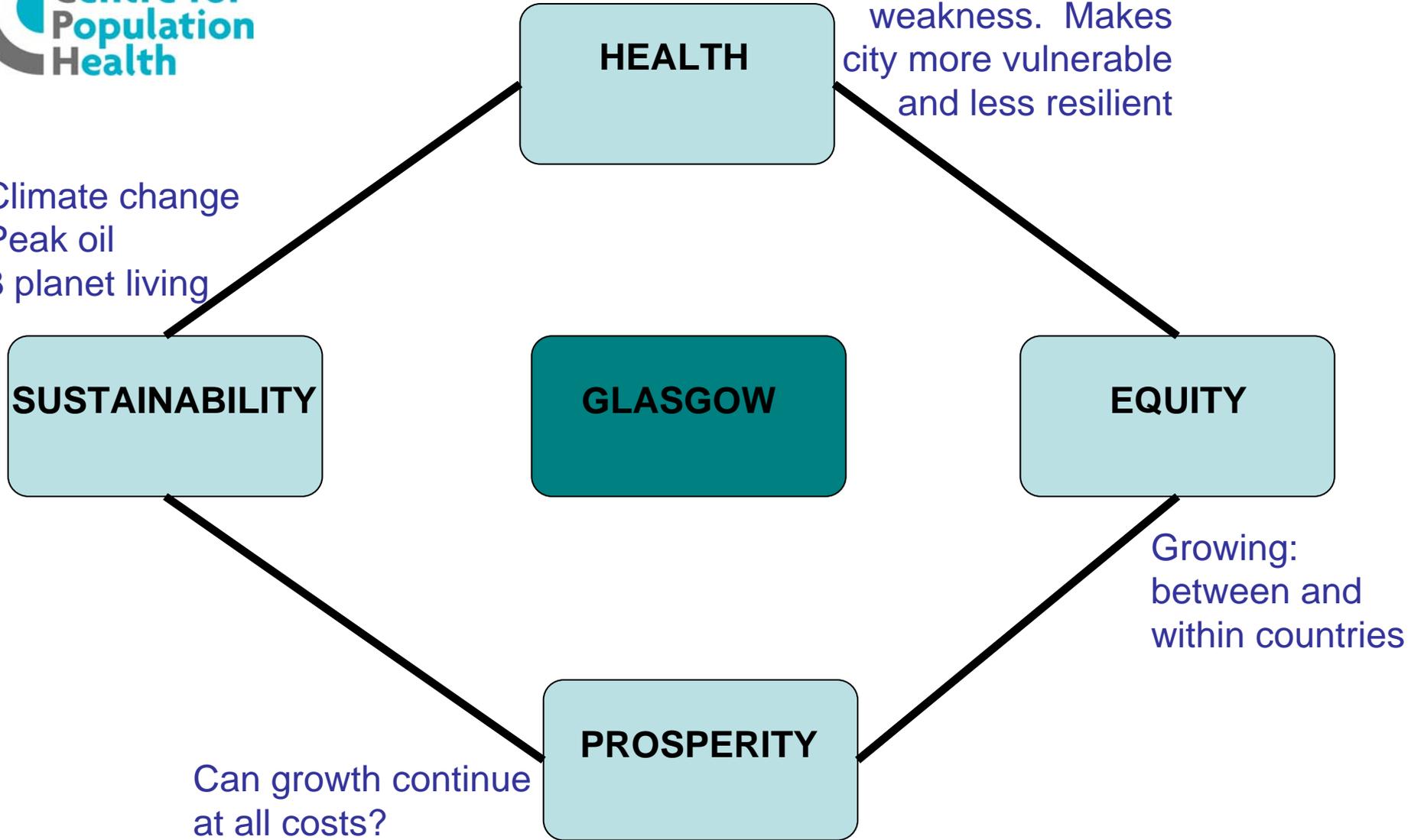
GLASGOW

EQUITY

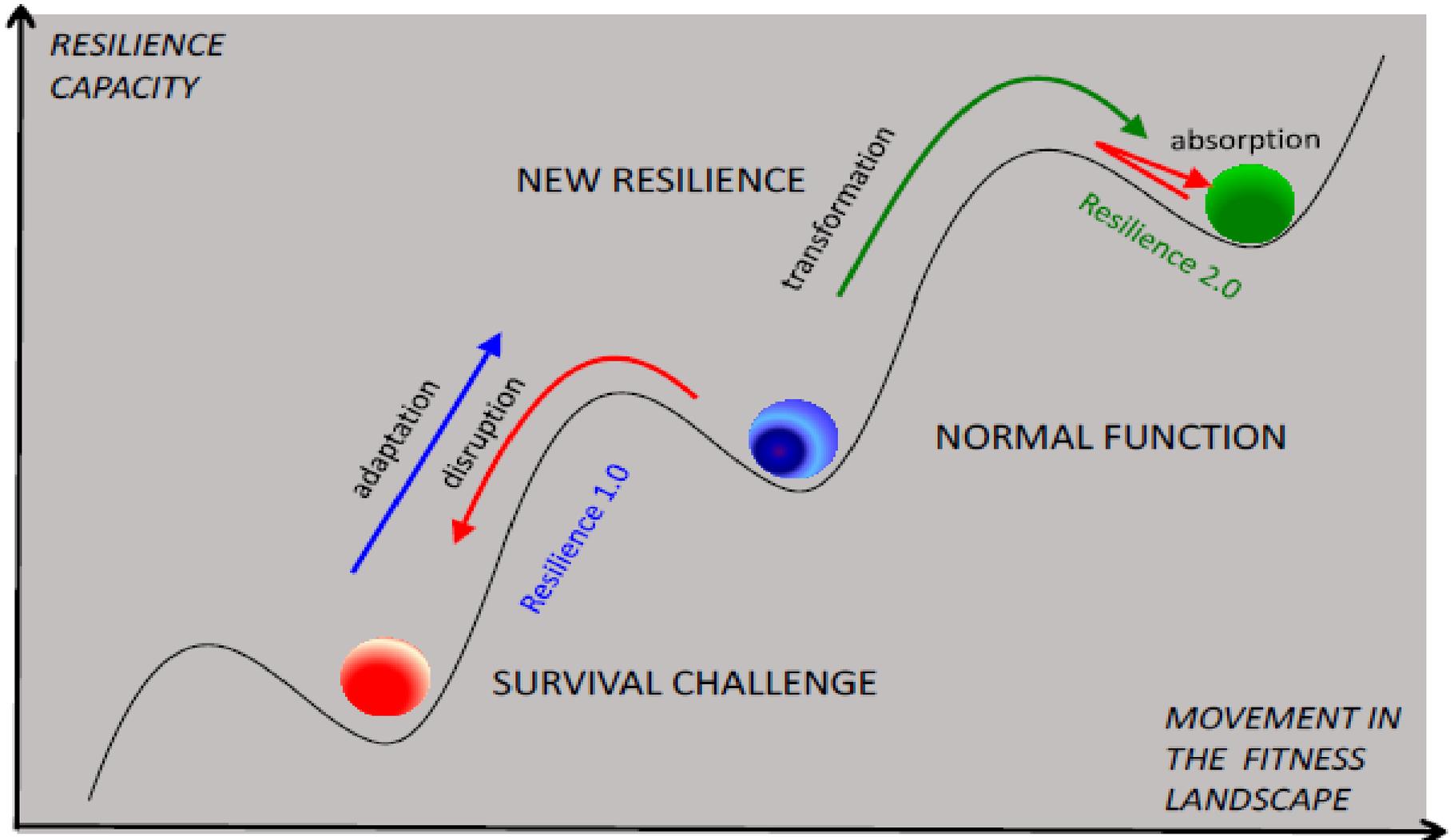
Growing:
between and
within countries

Can growth continue
at all costs?

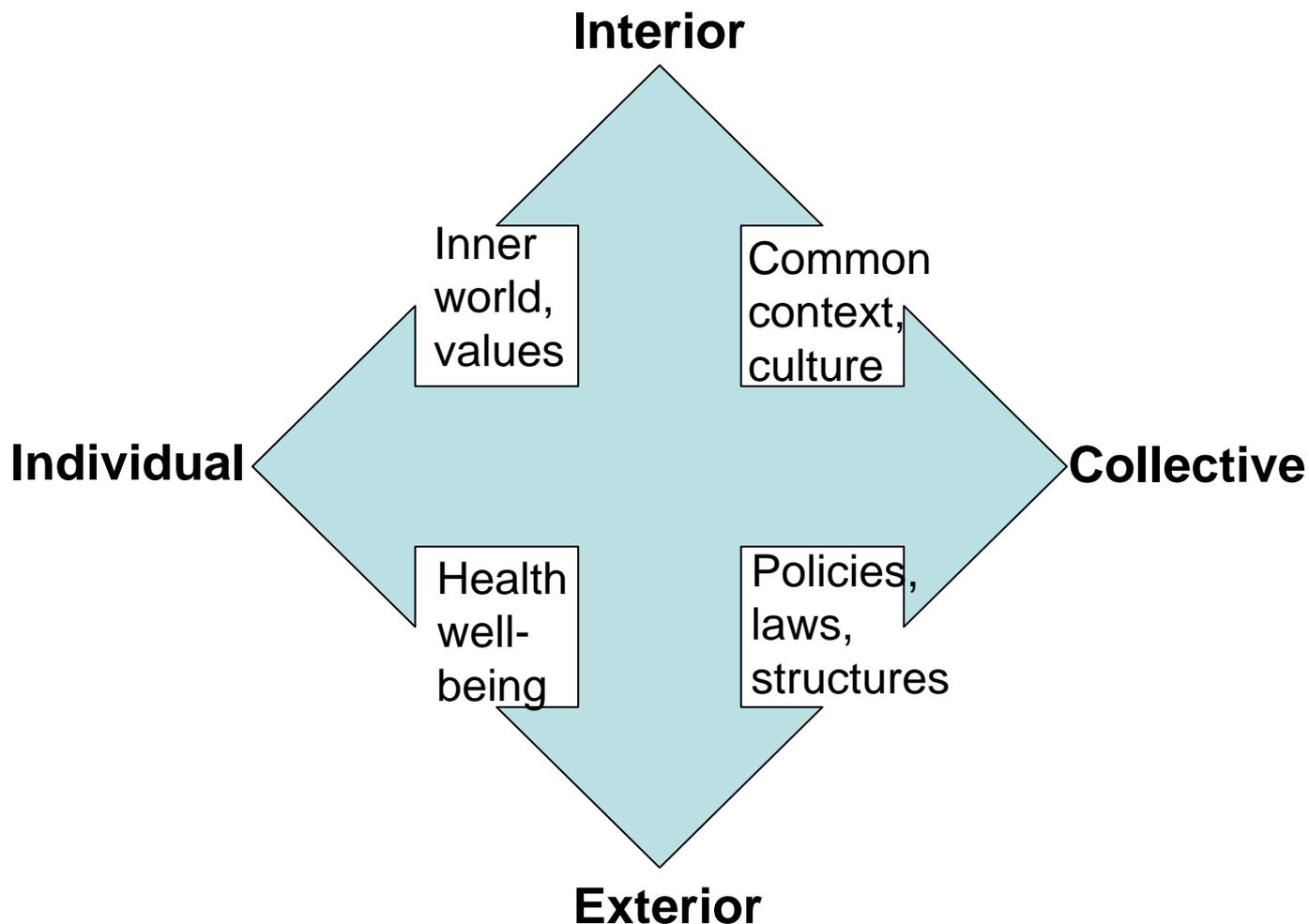
PROSPERITY



Status quo and transformative resilience



What opportunities does this set of circumstances create?



Three characteristics of a resilient city

- Density, diversity and mix
 - Connectivity
 - Placemaking
- Integrated systems
 - Natural systems, local sources
 - Technical and industrial systems
- Engaged communities

Three characteristics of a sustainable city

- Visions and plans contain clear commitments to reduction in resource (esp carbon) consumption
- Innovations in social and economic development not divorced from need to reduce ecological footprint
- Governance system rewards sustainability innovation

Discussion

- What are your reactions to what you've heard?
- Is anything surprising – or particularly important?
- Are there things you would change or add ?
- Can you crystallise recommendations for the city vision? (eg positive things to build upon, or challenges to address)
- Write a postcard

Community assets; caring; transport; food; education; activity