

A cognitive approach to urban systems: assessing resilience and sustainable transition pathways

Marta Olazabal

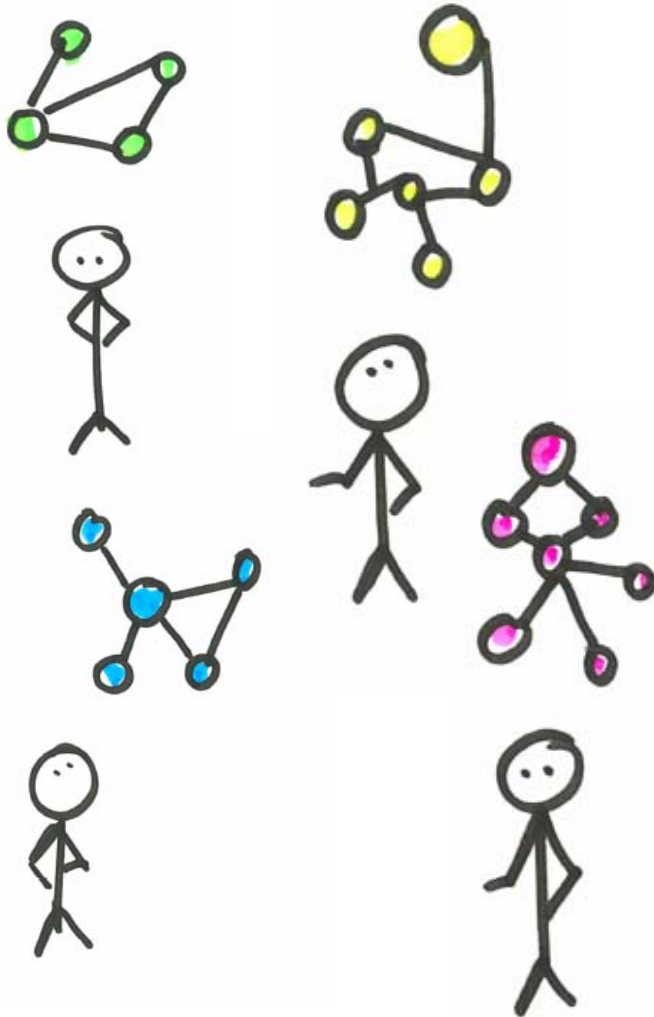
Klimagune Workshop 2013
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Opportunities, Challenges and Barriers for Transitions
Towards Sustainability in the Context of Climate Change

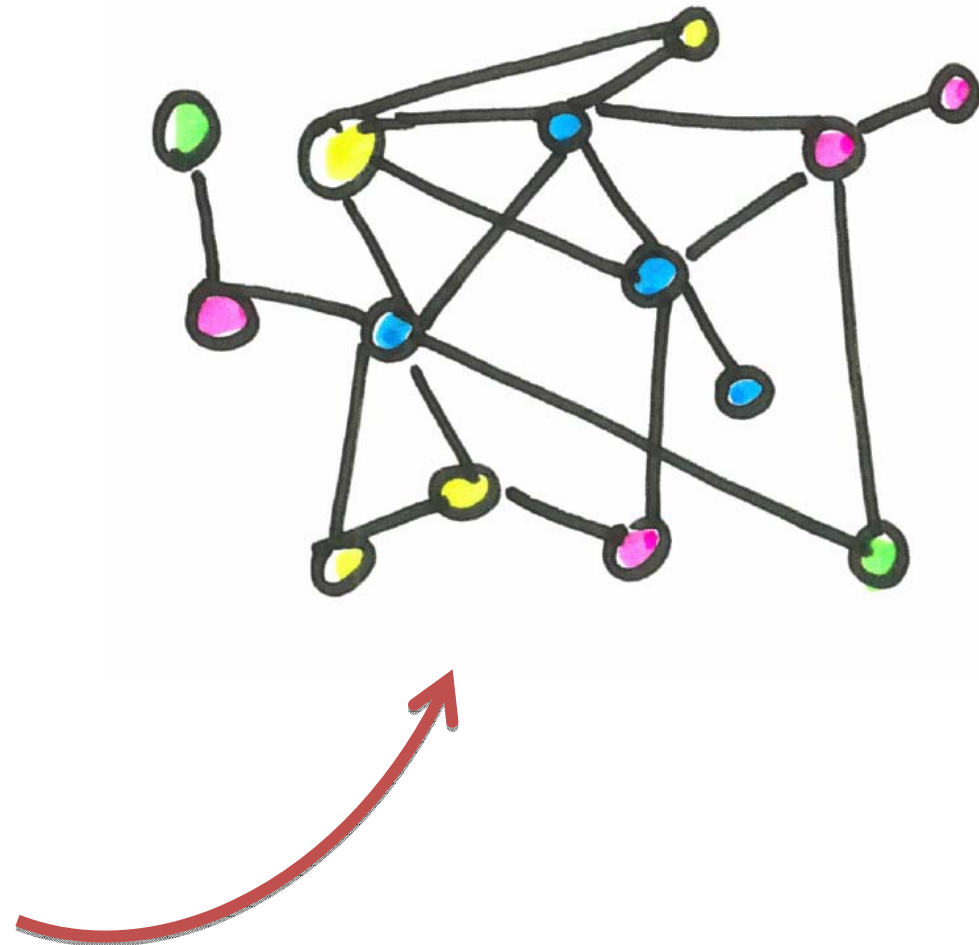
- Urban transformation involves a **process of decision making** as any other process of change
- This happens at **individual and at community level**
- This decision making processes are influenced by cognitions: **experience, judgements, values, culture, observations....**
- How we initiative a transition and even whether if we start it, will depend on the cognitive thinking of **ALL stakeholders involved** in urban policy making.

The cognitive dimension of decision making

Individual perceptions on how the system works....

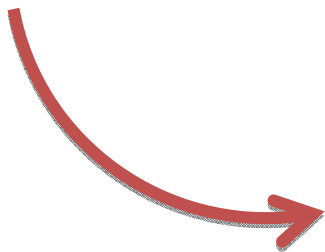
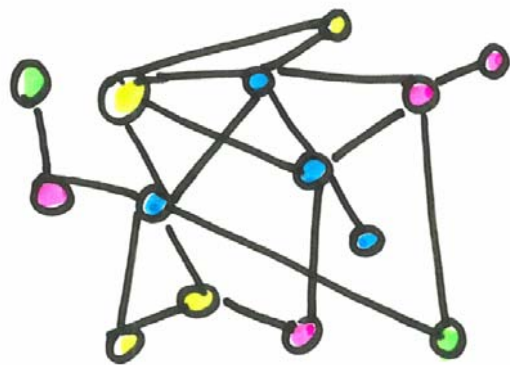


Aggregated model including and connecting all Individual perceptions....



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- **Urban energy system transformative potential in the city of Bilbao**
 - **Participatory process with 15 stakeholders**
 - **We acquire information from representatives of the local authority, energy companies, communities, energy experts, ...**
 - **We build an aggregated model including all their knowledge and simulate three scenarios of transitions. These are assessed in terms of sustainability**

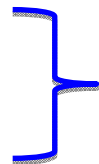
Opportunities and applicability: a Case study in Bilbao



Scenario A: Use of economic incentives

Scenario B: Strong social education and awareness

Scenario C: Strong local-institutional initiative



Scenario B&C

Challenges and Barriers: lessons from Bilbao

1. **Participatory approaches are critical** to identify unintended policy impacts,
2. According to the stakeholders, better and reinforced positive impacts are obtained **combining local-institutional and social initiative**
3. **Strong negative impact of economic** subsidies (without complementary changes) → indicates strong resilience of the economic unsustainable system

Proposal in the context of Transitions Towards Sustainability in Cities

Unilateral decisions taken, specially, in a non-collaborative atmosphere, often **influence current patterns of urban development**.

4. Transitions towards sustainability in cities require changing policy making cultures towards more participatory approaches which rely on experience, learning and innovation.

thank you!

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This material is part of:

Olazabal M and Pascual U. *A cognitive approach to urban resilience and transformation.* (In prep)

Olazabal M and Pascual U. (2013) *Identifying social determinants of urban low carbon transitions: the case of energy transition in Bilbao, Basque Country.* BC3 Working Paper Series 2013-11.

Olazabal M and Pascual U. *The cognitive facet of urban low carbon transitions.* Under review.