What is a niche?

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What is the problem?

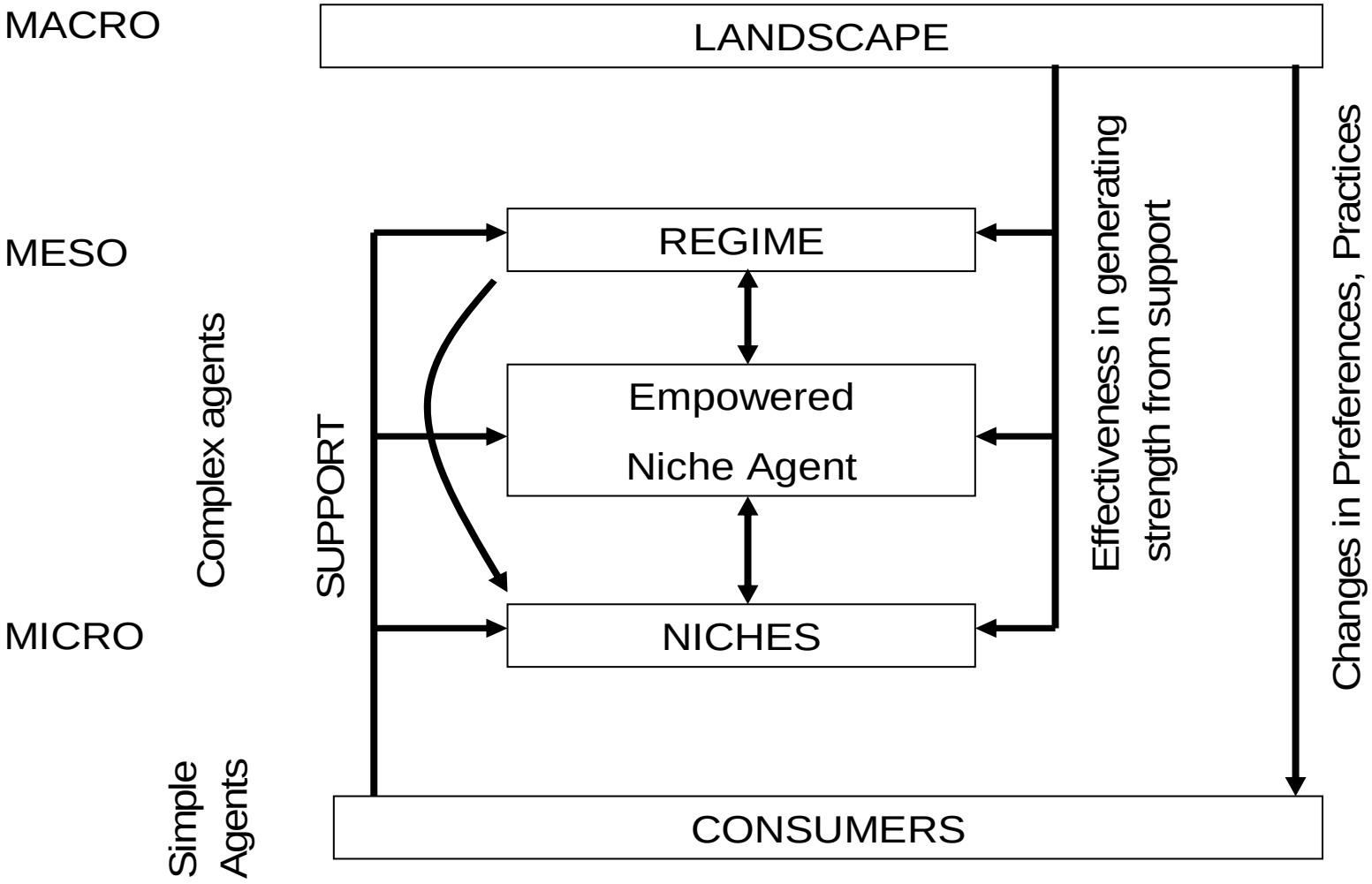
Transition theory is about niches and regimes and how they interact

• descriptions exist, but the structures of niches and a regime is not explored so much

• how and why niches grow is difficult to explain without understanding the ontology of a niche and niche-regime interactions also require a structure of the regime

• to model, make forecasts, provide policy ideas, need to understand how and under which circumstances niches grow

Overall structure of the MATISSE transitions model



Descriptions of niches in the (transitions) literature

from biological niches in evolution

- a niche market is a small (segment of a) market where a sub-set of consumers are willing to pay extra money for an extra service
- a niche technology is a technology adopted by only a few users
- strategic niche management literature – a technology incubator

Geels and Schot in Grin, Rotmans and Schot

Niches technology based

New technologies, markets and user preferences co-evolve

Niches involve experimental projects (Kemp, Schot and Hoogma,1998):

- Build social networks to develop the new technology
- Learning by doing
- Articulate expectations and visions

Growth of Niches depends on a supportive environment, pressure on the regime, the variation and selection environment

- Technological niches and regimes similar in structure
- „Networks of actors that share certain rules“

Actors join and leave

Structure loose and unstable, actors build the structures

(Regime stable, actors constrained by the rules)

Examples:

electric tram; cars in taxi niche, racing, touring

Steam tugs in early C19th, mail transport packet ship market niche in the British empire

Continuous movement in materials handling, gas hot air small motors, electric unit drive (e.g. cranes, elevators)

Multiple niche innovations

Sequences of (local) projects may gradually generate a niche at the global level,

Development is move to exposure to more market pressures,
Stabilisation of shared rules

Niches according to Geels and Schot

A club of producers/users - a network, sharing a common view of what is wanted/needed

• access to a technology, self-developed (no market) or purchased from a supplier i.e. a market

• sometimes in a market e.g. steam packets – but usually in a monopoly or protected oligopoly or a conventional niche market – organic foods, fair trade

• sometimes consumers – touring cars

• sometimes lifestyles – eco-villages, low mobility/no car

NICHE TECHNOLOGIES

NICHE MARKETS

Niches according to Loorbach and Rotmans: subsystems

Integrated systems analysis + participatory process

Transition is a fundamental change in structure, culture and practices

Niche as front runner, dissipative structure (far from equilibrium), in a protected environment

Guided variation and selection

Radical change in incremental steps

Niches according to Loorbach and Rotmans: subsystems

Empowering niches – providing with resources

May then cluster with outer empowered niches and emerge into a ‚niche-regime‘

Transition arenas – involve all relevant actors – government, business, users/consumers, NGOs.

Niches and how they grow

Niches as networks of actors:

- bring together individuals with common interests and complementary expertise.
- increasing returns to scale, growth non-linear.

Technologies as systems:

- Niche technologies grow when link with complementary technological niches or markets
- e.g. fuel cell manufacturers with manufacturer, also locality where there was a desire for quiet, low emissions vehicles and a supportive local institutional structure.

Niches and how they grow

Niche Technology – practice niche,

technology

lifestyle

Niche Market

Starts with suppliers or combined supplier users – technology niche, but no market type interactions

Market niche has at least users and suppliers and possibly government and/or NGOs

High priority on a particular aspect of peformance in the practices

Technology niche -> market niche

Niches and how they grow

More (or bigger) agents

More types of agents

More sales

Niches combine; link up with other networks

Social network analysis

Mainly static, but some people do dynamic

Empirically based – interview, count interactions

Graph Theory based

SNA Matrix

adjacency matrix, each node is assigned a column and a row

if connection between 2 nodes, 1 or >0 to represent strength of connection,

if non-directional, cells below the diagonal are identical to those above the diagonal

Some Metrics with informal definitions

Network Density

Actual connections between members divided by the number of possible connections

Characteristic Path Length

Average path length between any two nodes in the graph.

Clustering Coefficient

Likelihood that any 2 nodes connected to the same node are connected themselves.

Centralization

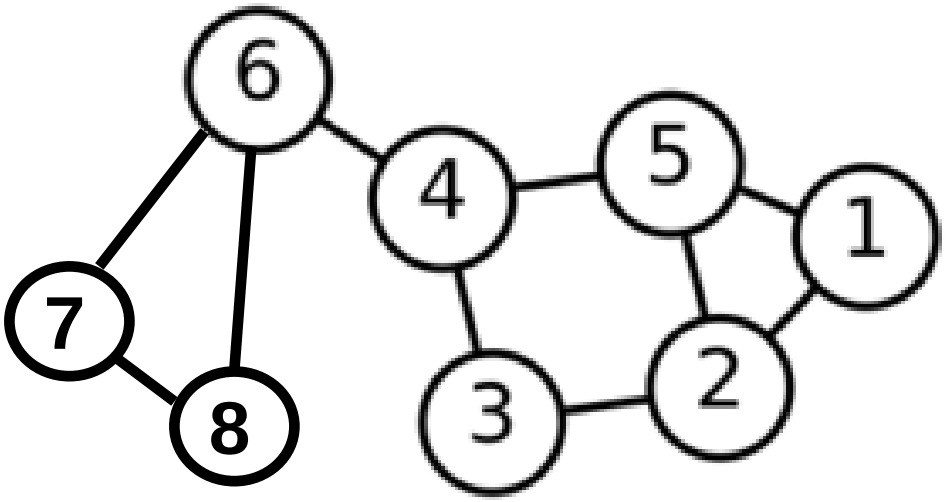
Degree to which a network approaches the configuration of a "star" network

Betweeness

The extent to which a node lies between other nodes in the network.

Degree

The count of the number of ties to other actors in the network.



Node 4: Degree 3

Path length to node 2: 2

Betweenness high

Density

10/ (n-1)!

= 10/28~0.35

2 clusters

CPL high

Conclusions

Niche technologies, lifestyles

Niche Markets

- Network theory very useful for empirical studies of niches
- More intuitive than system representation
- Different types of actors/nodes
- How do actors come and go?

What is a useful measure of network ‘cohesion‘, ‘strength‘? Density, CPL?

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