FAS from networks to strategy research

The Resilience of Business and Power

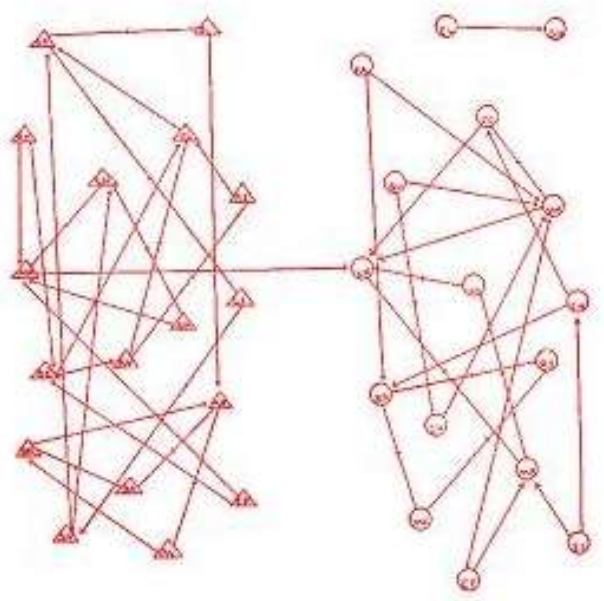
Harald Katzmair

Origins of Social Network Analysis

EMOTIONS MAPPED BY NEW GEOGRAPHY

Charts Seek to Portray the Psychological Currents of Human Relationships.

New York Times
April 3, 1933



J. Moreno: How can we increase the capacity to respond to novelty or stress?

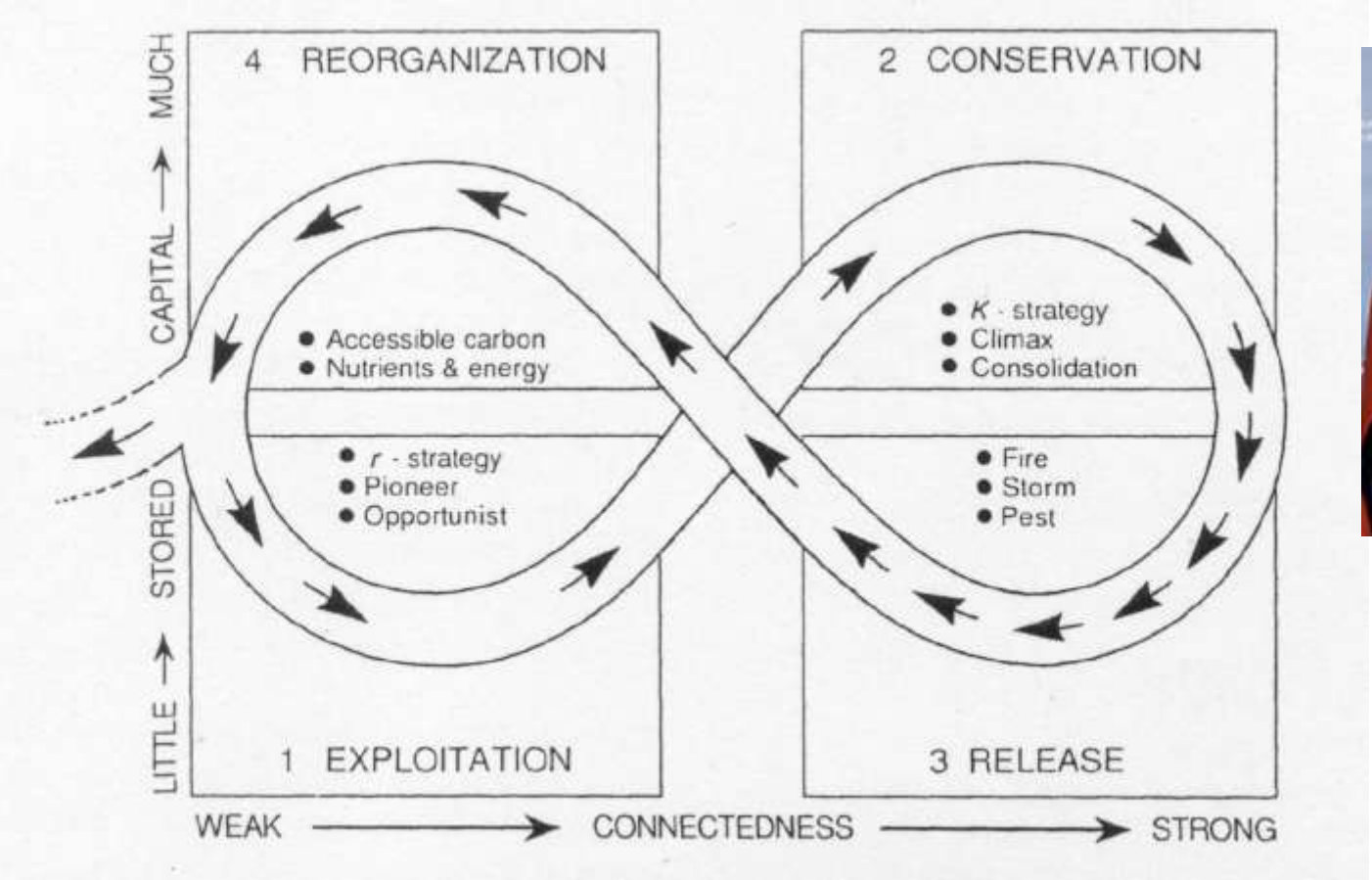
Self Organized Criticality

„Die Eröffnung neuer, fremder oder einheimischer Märkte und die organisatorische Entwicklung vom Handwerksbetrieb und der Fabrik zu solchen Konzernen wie dem U.S.-Steel illustrieren den gleichen Prozess einer industriellen Mutation – wenn ich diesen biologischen Ausdruck verwenden darf –, der unaufhörlich die Wirtschaftsstruktur *von innen heraus* revolutioniert[2] , unaufhörlich die alte Struktur zerstört und unaufhörlich eine neue schafft. Dieser Prozess der „schöpferischen Zerstörung“ ist das für den Kapitalismus wesentliche Faktum. Darin besteht der Kapitalismus und darin muss auch jedes kapitalistische Gebilde leben.“

J.A.Schumepter, 7.Kap *Kapitalismus, Sozialismus und Demokratie*, 1942 (1950)

Economy as process of emergent, self constructed, generative „Creative Destruction“

Buzz Holling´s Adaptive Cycle



H.T. Odums Paradigm of Pulsing

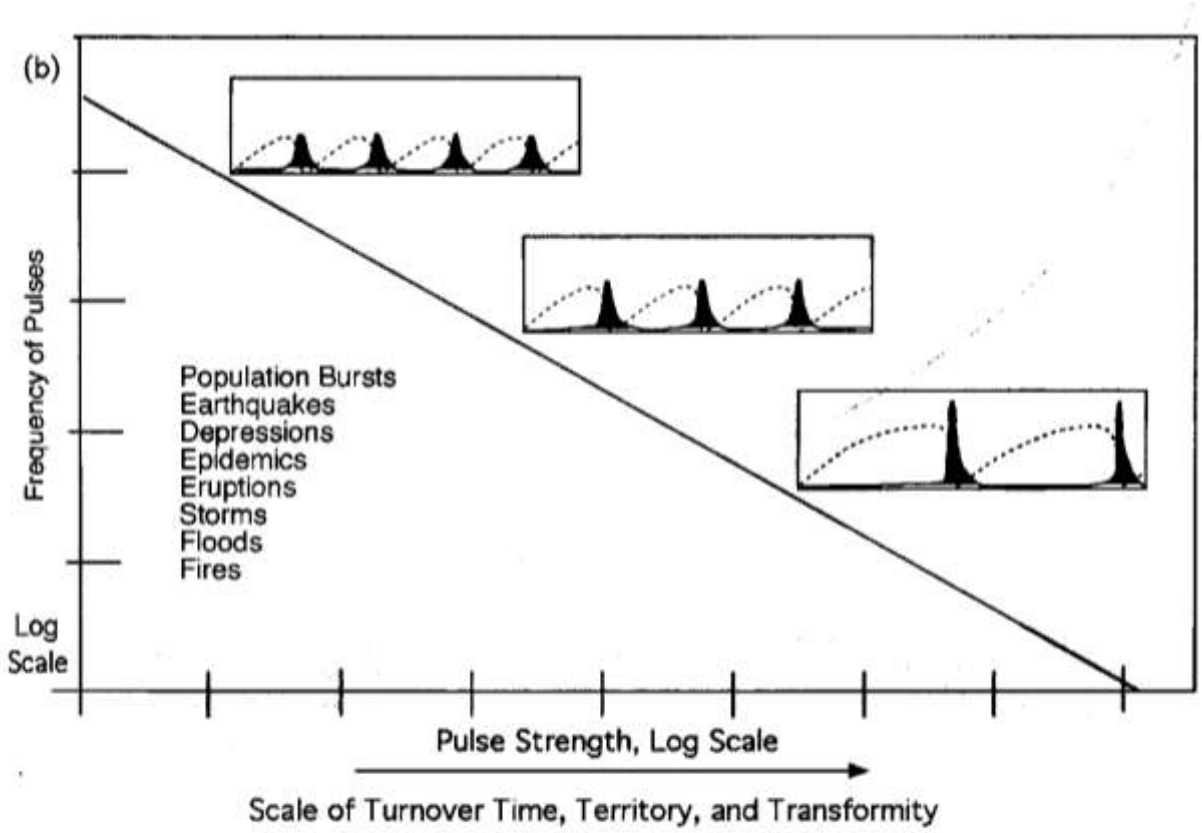


FIGURE 4.9 Pulsing patterns of energy hierarchy. **(a)** Accumulator–frenzor design that generates performance-increasing pulses. **(b)** Inverse relation between number of pulses and their strength. Example: earthquake frequency and intensity on the Richter scale (log of energy).

Learnings from Ecology

- Flows require a gradient, networks a language to model and describe gradients of flows of material and energy
- Systems pulse, following an adaptive cycle of renewal
- Relationship between ΔTNT (Total Network Throughput) and modularity/diversity/complexity
- Hubs are scale dependent
- Cross scale links responsible for resilience (linking memory with innovation)

Resilience

- Resilience defined as **capacity to adapt to** and **shape change** (to reinvent yourself).
- Resilience defined as **capacity to operate, respond & react under critical conditions** (stress, disturbances, novelty, pulsing).
- Capacity is a power, a resource, a capital

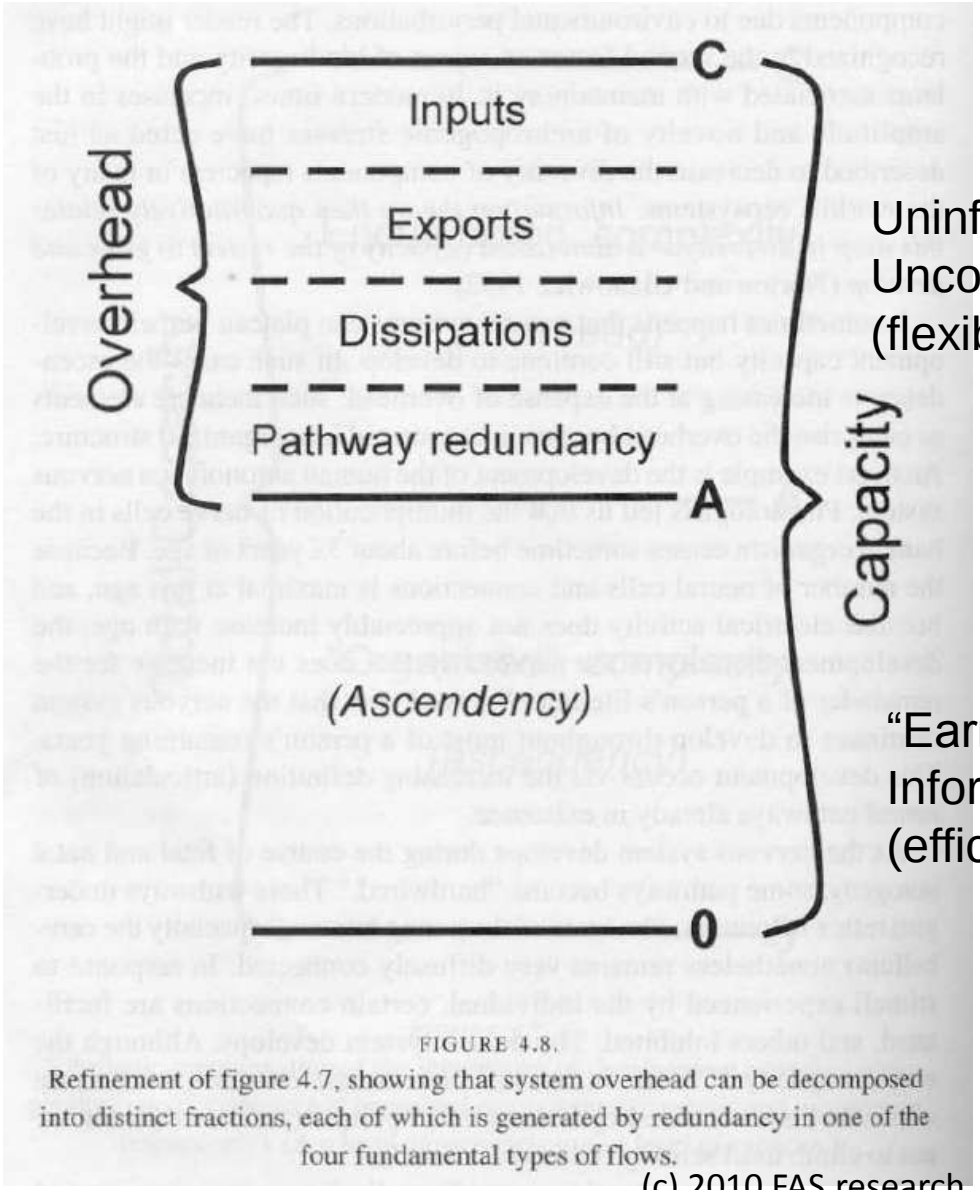
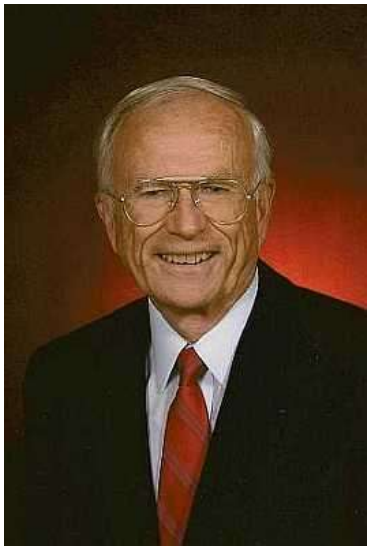


FIGURE 4.8.
Refinement of figure 4.7, showing that system overhead can be decomposed into distinct fractions, each of which is generated by redundancy in one of the four fundamental types of flows.

Uninformed,
Uncommitted Capacity
(flexibility)

"Earmarked"
Informed Capacity
(efficiency)



Robert E. Ulanowicz

Efficiency = Pruning of links

- Pruning in late K = low overhead, high Efficiency (= low clustering)
- Over time decreasing clustering coefficient in 2step environment
- Disintegration through rigidities starts at the periphery

Networks are Flatlands?

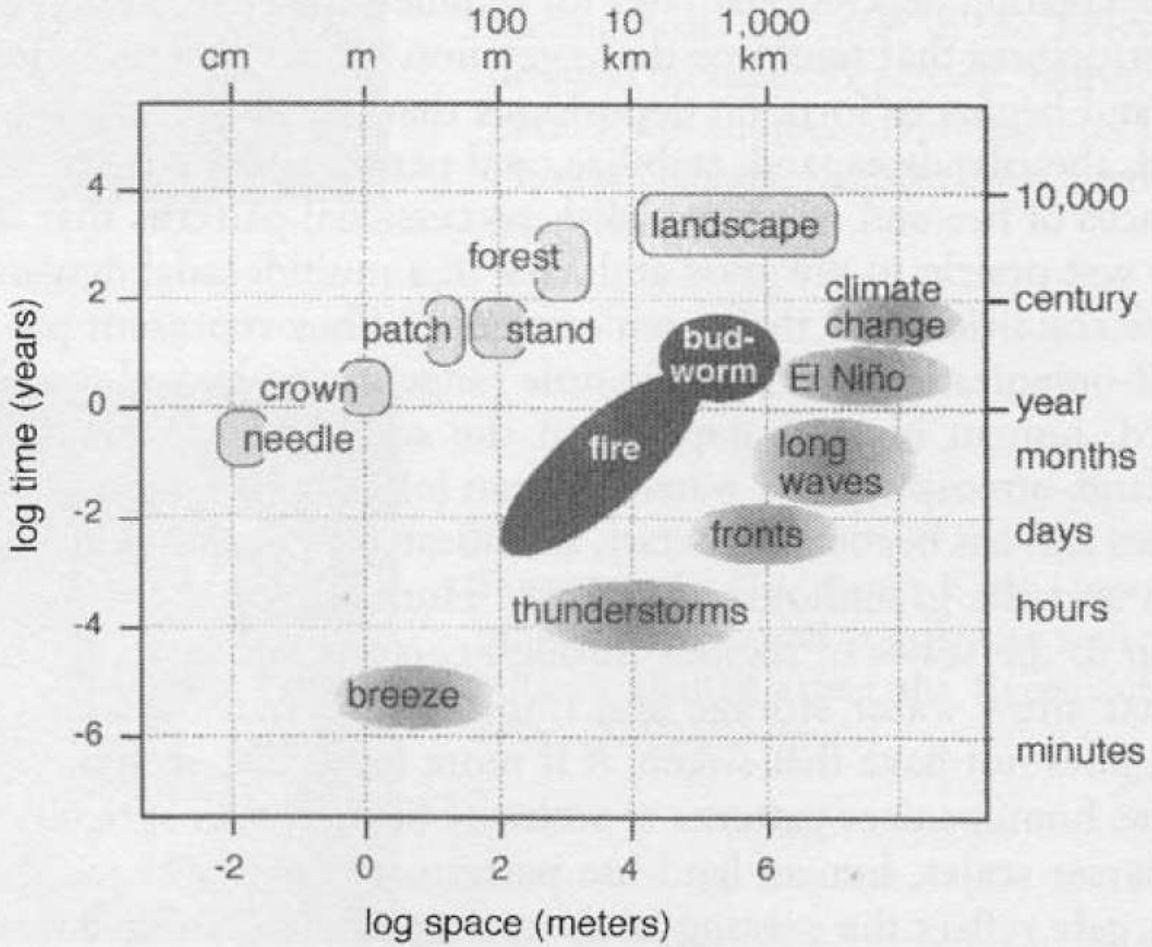
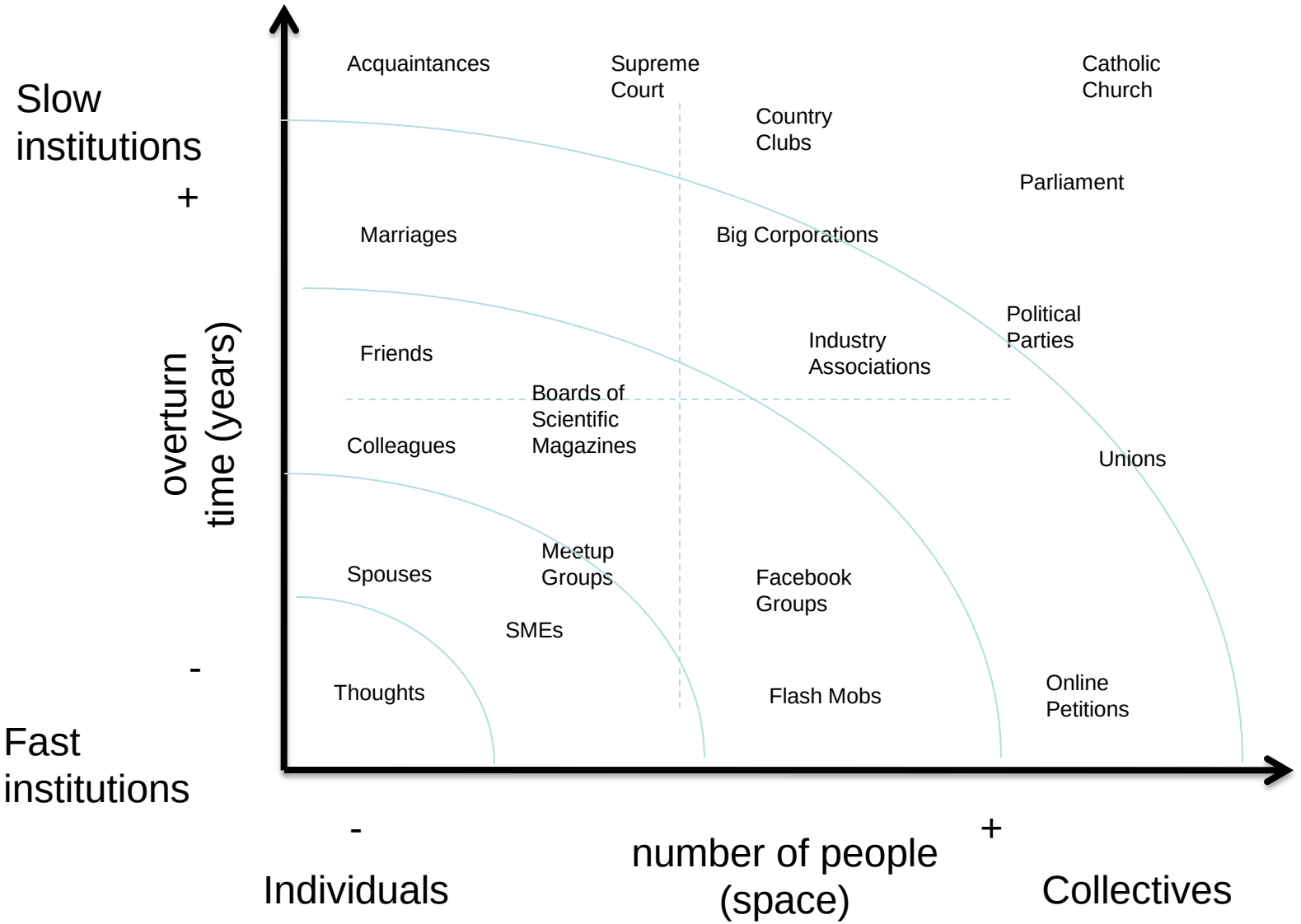
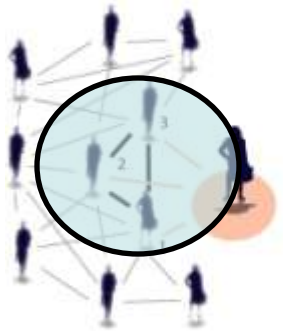


Figure 3-8. Time and space scales of the boreal forest (Holling 1986), of the atmosphere (Clark 1985), and of their relationship to some of the processes that structure the forest. Contagious meso-scale processes such as insect outbreaks and fire mediate the interaction between faster atmospheric processes and slower vegetation processes.



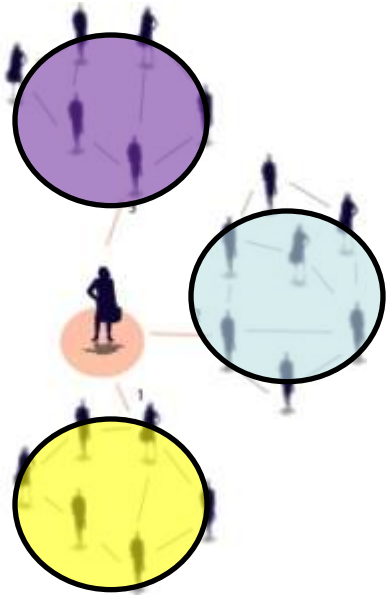
3 Types of Networks

Closure Network



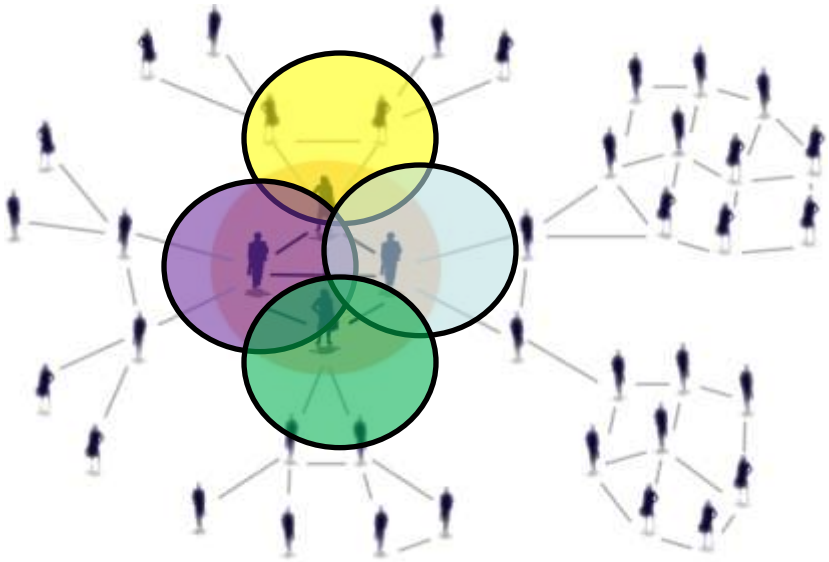
1 social circle

Brokerage Network



Not overlapping social circles linked through a Broker

Cross-Scale Fold Network



Multiple overlapping, cross scale circles, Broker as "Hybrid", as "Multiple Insider"

Operationalization

- Hypothesis: Resilience a product of intercohesive cross scale cliques (blend of diversity and robustness)
- Each node belongs to specific scale of time, space, flow complexity
- Look at cross-scale cliques of institutions
- Analyze the amount of group overlap between cliques composed of different scales

Power and cross scale relations

- Power centers are embedded in intercohesive, cross-scale cliques composed of members of different „seize“ and „speed“
- Semi-Periphery composed of small and fast types of cliques with less diversity (pruned networks)
- Pruning happens in late K at the periphery not in the core of the network (destruction of the adaptive capacity of the middle class)
- Detecting **cross-scale folds in networks** example of blending ecological and sociological models

Next steps

- Future Research: The social morphology of the adaptive cycle, scale breaks and cross-scale fold networks
- Future implementation: D4R – bring those ideas into the culture and mainstream. Reframe concepts of sustainability, growth and development.
- Establish (Viennese) Talks on Resilience and Networks as annual gathering

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