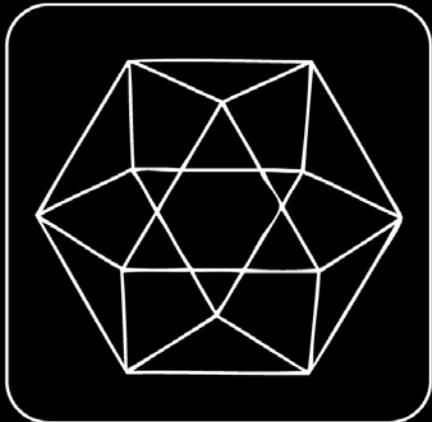# Things Fall Apart

**Eleanor Saitta**
**@dymaxion**

**Philips Design Probe: Livable Cities**

# Framing

- **This is explicitly political**
- **60 million people die of poverty annually**
- **Oil is going away**
- **No society has survived catabolic collapse**
- **A one-planet lifestyle looks like Cuba**
- **Our job is to learn how to be poor gracefully**

# Where Are We Starting From?

- **Cities are power structures**
- **Better communications and flexible value abstraction allows larger power structures**
- **We're seeing cracks in our infrastructure**
  - **The US transport system**
  - **The Euro**
  - **Oil**

- **Coercive efficiency and pressure to grow; privatization of services not risk**
- **Economic deficit**
- **Time-scale mismatch**
- **Capacity deficit**
- **Colonial deficit**
- **Environmental deficit**
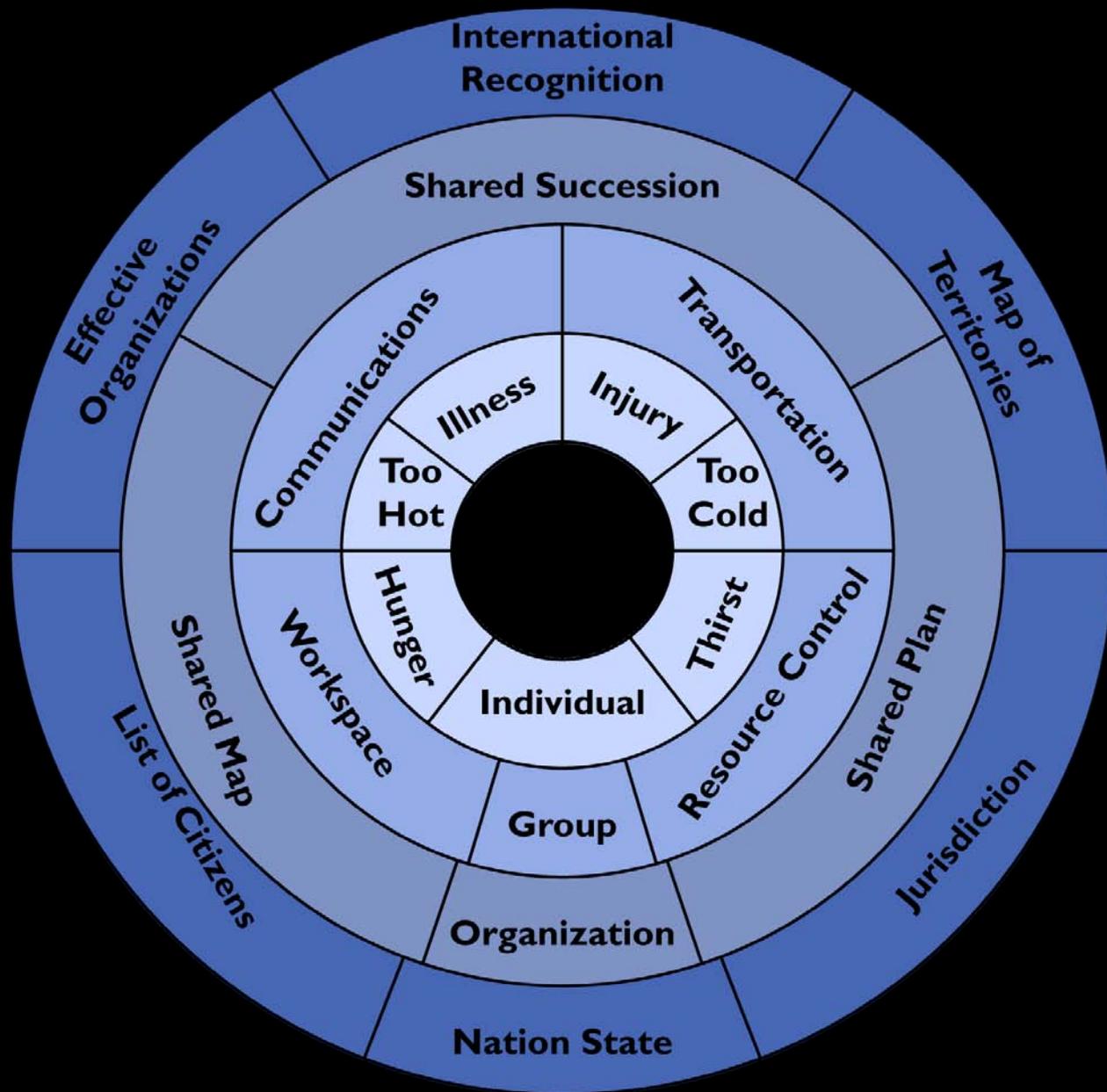
# Understanding Failure

- **Simple vs. chained failure**
- **Connectivity is optimization**
- **Social complexity and supply chains**
- **Modern infrastructure is fragile**
- **Chained failures accelerate**
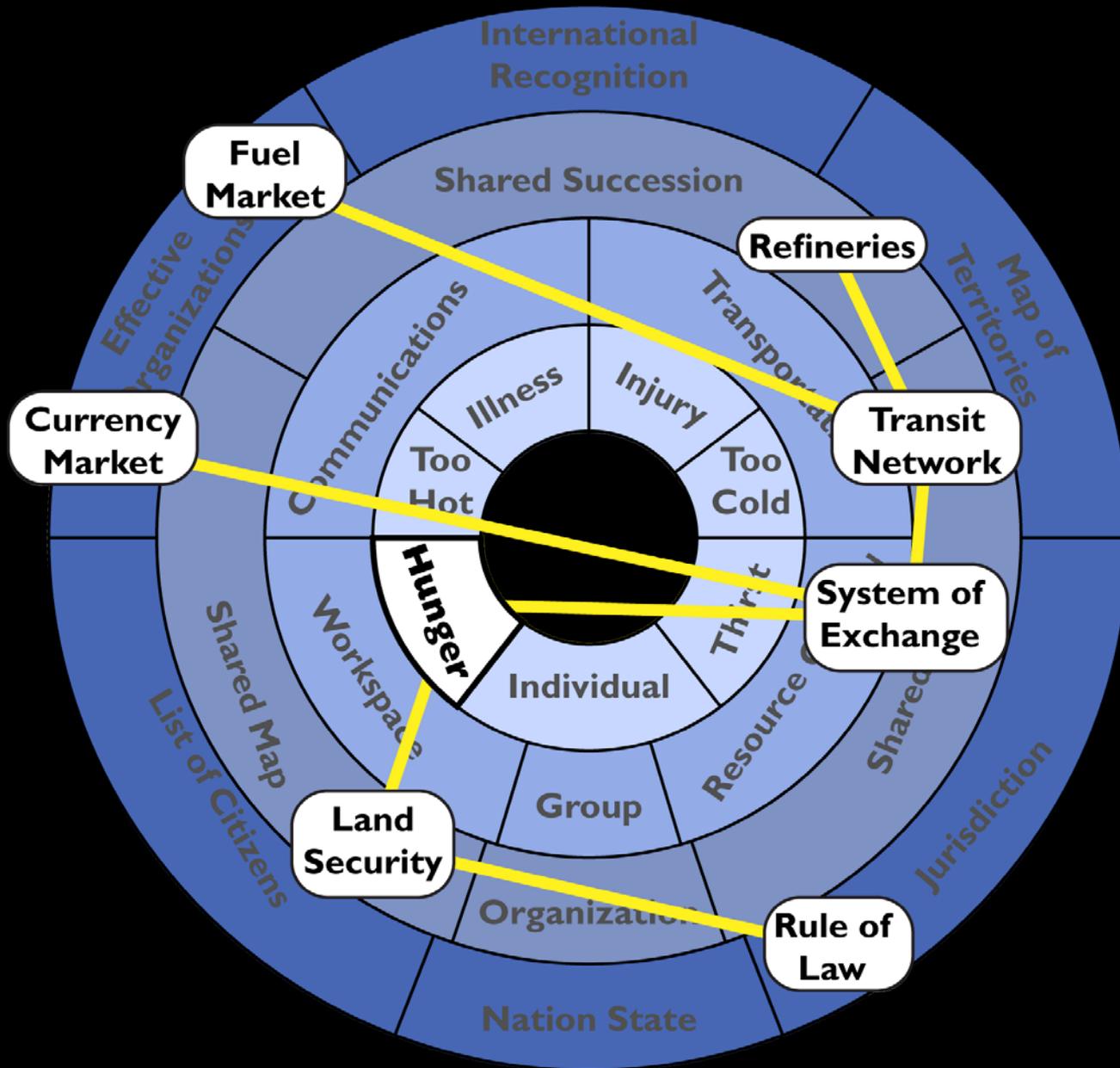- **Conceptual maps**
- **Diversity**

# Six Ways To Die

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**Integrated Needs Analysis** — SCIM

| | individual | household | village / neighborhood | town / city / municipality | region | country | world |
|---|---|---|---|---|---|---|---|
| | | | | | | army | |
| | | toilets | sewer system | sewage plants | | | |
| | | water supply | water mains | water processing | | | |
| | | | food supply chain | retailer logistics | bulk logistics | imports | intl markets |
| | heating | local grid | power plants | national grid | fuel imports | intl markets | |
| | cooling | | | | | | |
| | housing | | | | | | |

resilience gap

injury
illness
thirst
hunger
too cold
too hot

not shown
power company
air/ports/harbors

| | fuel supply | | ports / airports | travel / embargos |

transport
space
communications
resource control

diesel generators

| | electricity | cell towers, cables | local hubs | regional hubs | fiber lines | undersea cables / satcom |
| | sharing | administration | rule of law | civil | jurisdiction | |

**SCIM:INAM for a typical developed world nation**

shared succession
shared plan
shared map

| | rule of law | corporate | jurisdiction |
| | cohesion | | |
| | consensus | | objective facts ("legal facts") |

international recognition
effective institutions
citizens list
territory map
jurisdiction

consent of governed
staff — space, transport, communications, resource control - succession, plan, map

legitimacy of state

hexayurt@gmail.com

land registries

identity files
sovereign lands
legal processes

# Tools for Understanding Failure

- **Threat modeling**
- **Understanding the intent of a system**
- **Finding cascading failures**
- **Adaptable – Ushahidi and the Icelandic constitution**
- **Can't stand alone, but doesn't need to**

- **Finding the shape of failure**
  - **The electrical grid**
  - **Supply chain**
  - **Financial system**
- **Designing the shape of failure**
- **Infrastructure is a tool for social enforcement**
- **Resilience gives us social options**

# Understanding Soft Infrastructure

- **A huge variety of forms**
  - **Smart grids**
  - **Foursquare**
  - **Monitoring systems**
- **Infrastructure exhibits behavior**
- **Soft infrastructure embodies it**

# Understanding Networks

- **Decentralized structures**
- **Networks are a culture**
- **Anonymous, not Facebook**
- **Networks scale very well**
- **Openness is a core feature**
- **Can't change fixed physical costs**
- **Can impact resilience**

- **Networks are a new power structure**
- **Resisted and co-opted by neoliberalism**
- **Tools for corporate value capture**
- **DNS, SSL, DRM, Twitter and Facebook**
- **Single points of failure**
- **Value capture is inefficiency**
- **Differential privacy**
- **The Internet is starting to react**

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- **Financial crisis hits governments**
- **Big Society devolution**
- **A network-organized solution needs authority and resources**
- **Side-benefits – breaking distribution chains**
- **Only as much hierarchy as the problem**

- **Cheap sensors allow APIs for objects**
- **API contract enforcement**
- **Vernacular infrastructure**
- **Decreasing the footprint of soft infrastructure**

# Good Luck.