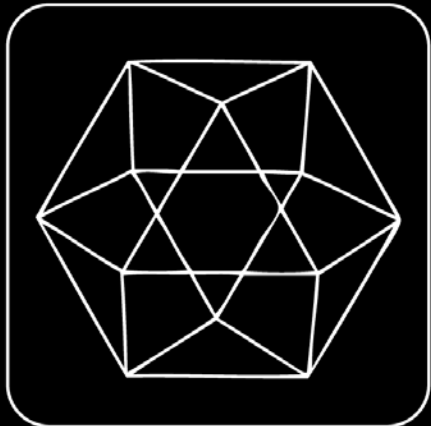




Things Fall Apart




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





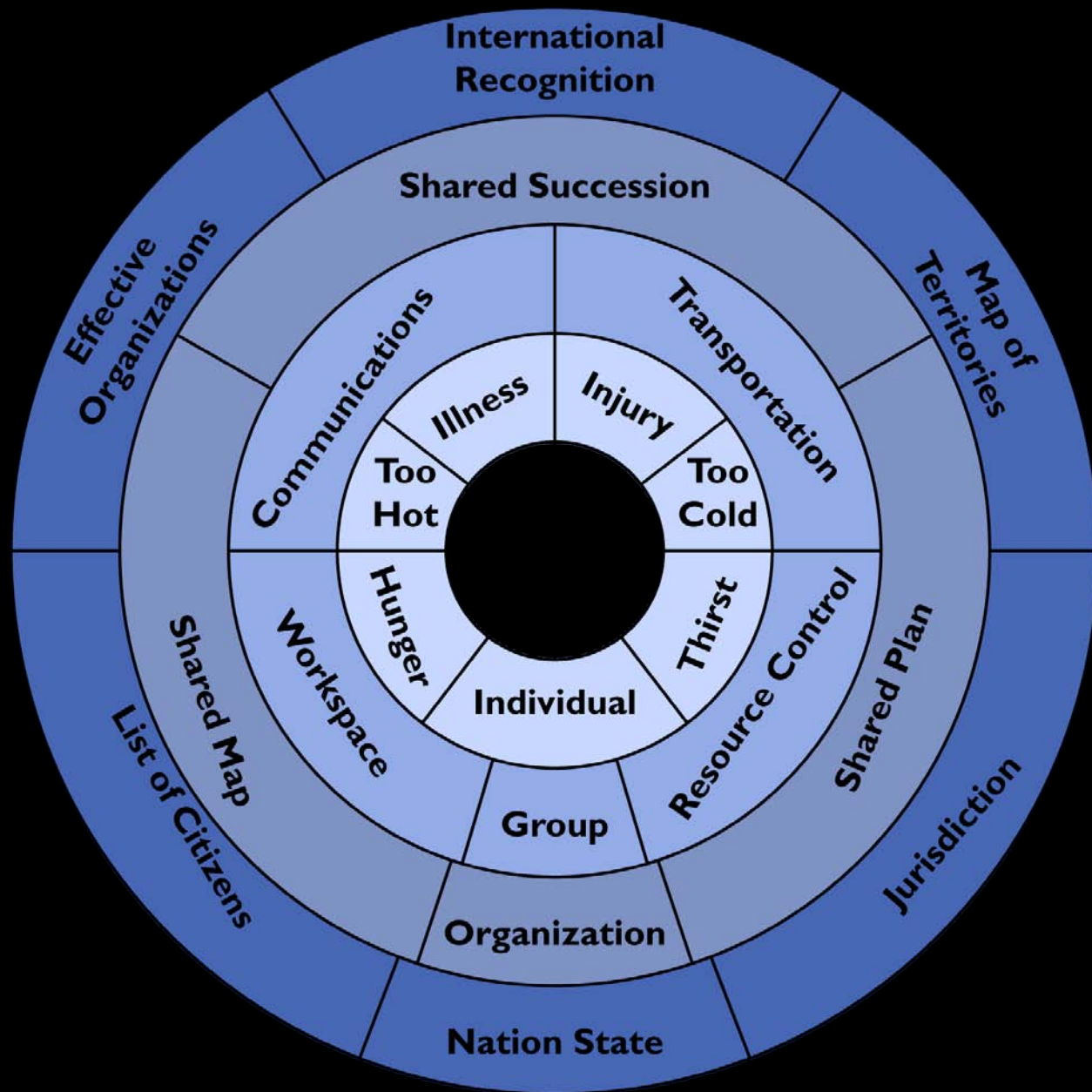
- **Simple vs. chained failure**
- **Connectivity is optimization**
- **Social complexity and supply chains**
- **Modern infrastructure is fragile**
- **Chained failures accelerate**
- **Conceptual maps**
- **Diversity**

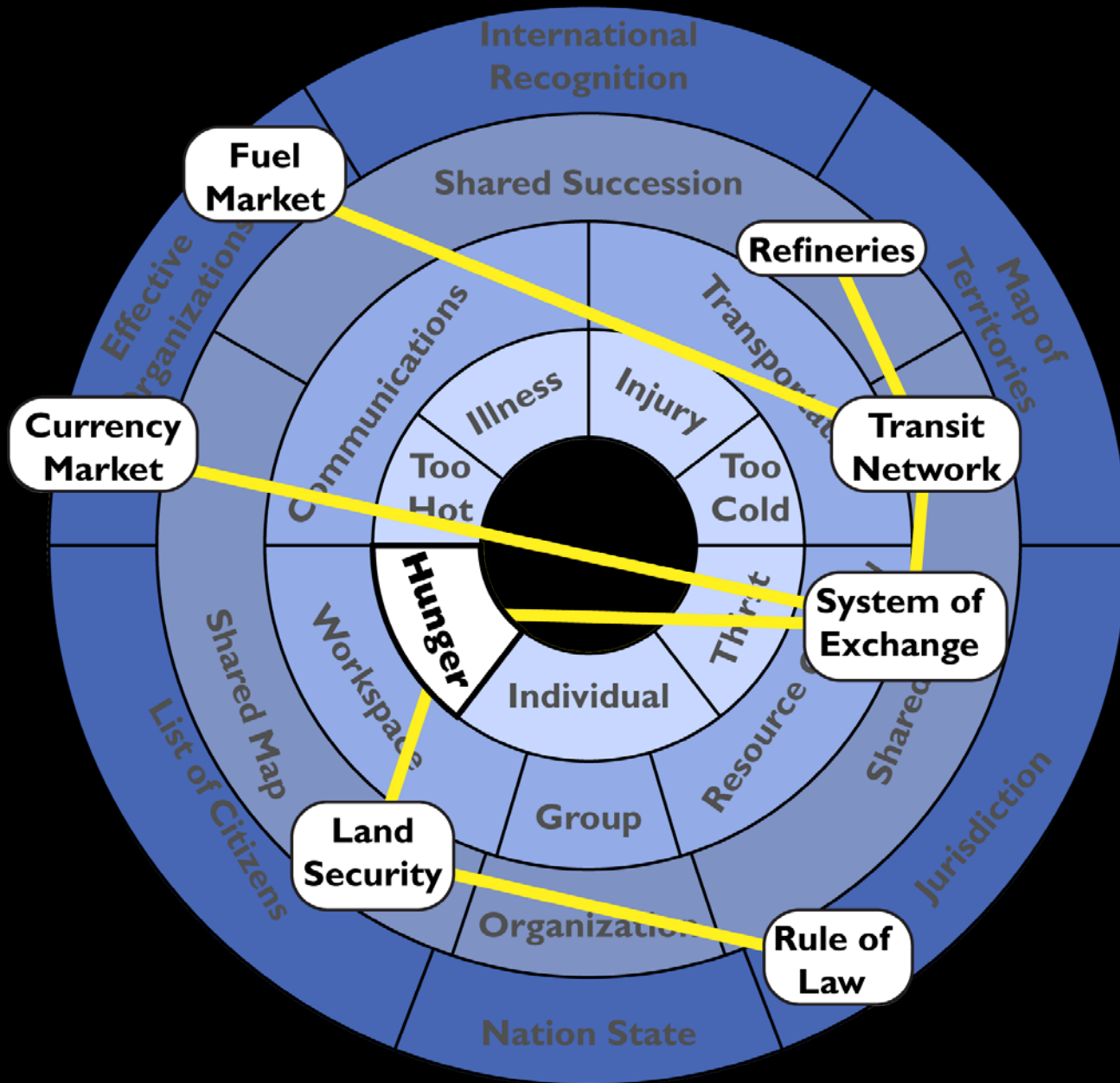




Six Ways To Die







Integrated Needs Analysis



	individual	household	village / neighborhood	town / city / municipality	region	country	world	
injury	resilience gap			medical / police		army		
illness			toilets	sewer system	sewage plants			
thirst			water supply	water mains	water processing			
hunger				food supply chain	retailer logistics	bulk logistics	imports	intl markets
too cold			heating	local grid	power plants	national grid	fuel imports	intl markets
too hot			cooling				not shown	
transport					fuel supply	air/ports/harbors	ports / airports	travel / embargos
space					diesel generators			undersea cables
communications		electricity	cell towers, cables	local hubs	regional hubs	fiber lines		satcom
resource control		sharing	administration	rule of law	civil	jurisdiction		
shared succession		SCIM:INAM for a typical developed world nation			rule of law	corporate	jurisdiction	
shared plan				cohesion				
shared map				consensus		objective facts ("legal facts")		
international recognition	consent of governed						legitimacy of state	
effective institutions	staff	space, transport, communications, resource control - succession, plan, map						
citizens list						identity files		
territory map	hexayurt@gmail.com			land registries		sovereign lands		
jurisdiction						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



Philips Design Probe | Things Fall Apart




- **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**



- 
- **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.

