



Source <http://phas1.com>

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Seeing the Forest

Learn to Systematically Cultivate Relationships

- ✓ To concentrate on mission *and network the rest!*
- ✓ Pinpoint members *well-positioned* to offer more support
- ✓ See every transaction and relationship as an opportunity to further *know* and *knit* the network as an expert *WEAVER*

Source [socialnetworking.com](#)

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Leveraging SNA Workshop – Learning Objectives

1. Build stronger bonding and bridging ties
2. Determining your *natural* partners at different scales
3. Crowdsourcing, Crowdfunding ➡ Campaigns for Cohesion
4. Gaps – who aren't you reaching? or mission unrealized...

Source [socialnetworking.com](#)



Seeing the Forest

Basis of Analysis

Basic Sociology And Network Concepts

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Source: www.sna-network.com



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Underlying Social Structure

controls how networks may develop

- BELIEFS** – views about what is true *“equality”*
- VALUES** – matter of preference *“right, beautiful”*
- NORMS** – expected patterns of behavior by *role*
- SANCTIONS** – rewards and penalties for behavior

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Source: www.sna-network.com

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Network Concepts – Actor/Tie = Node/Link

Node individual, group, country

Link relationship vs. *transaction* - interaction, flow, purchases

Network Boundary – what’s included, and what’s not

Emergent Property – *whole greater than sum of its parts*

Source: [http://www.sna.com](#)

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Network Concepts: Two Main Data Representations

1. **Adjacency Matrix** (+ node attributes in 2nd table) – NoSQL graph DB

	BOS...	NY	DC	MIAMI	CHICAGO	SEATTLE	SF	LA	DENVER
BOSTON	0	206	429	1504	963	2976	3095	2979	1949
NY	206	0	233	1308	802	2815	2934	2786	1771
DC	429	233	0	1075	671	2684	2799	2631	1616
MIAMI	1504	1308	1075	0	1329	3273	3053	2687	2037

2. **Network Graph** (*digraph*, if bi-directional)

GEPHI

NETLOGO

UCINET NETDRAW

Source: [http://www.sna.com](#)



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Network Concepts – Actor Characteristics



Attributes – inherent node features, color by race, size by age, or show icon for different company positions

Attribute Analysis – what attributes lead to this structure

Network Analysis – which structure produces share values

Statistical Analysis – Determining explanatory variables among node attributes, link types, and measures of the network structure

Source www.sna.com



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Network Concepts – Centrality and Bonding Ties

Closeness Centrality

- Distance between one node and all others

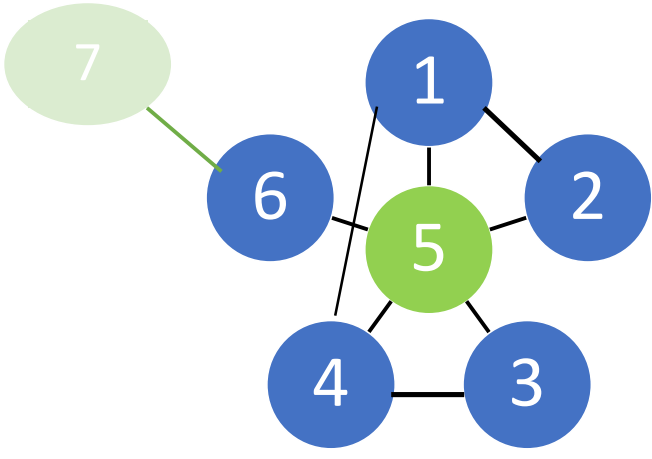
Degree Centrality

- Number of links entering a node
- Attached, if uni-directional links

Eigenvector Centrality

- How important are your neighbors? → Facebook likes

Bonding tie -- Further binds already connected ties closer together by adding paths between them, like 1 & 2



Source www.sna.com

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Network Concepts – Bridging Ties

Betweenness Centrality

- Broker or Facilitator
- Connecting the otherwise disconnected
- Shortest path between two other entities
- Closes gaps, increasing access to new resources

Bridging tie – between otherwise unconnected portions of the network

Source: [http://www.sna.com](#)

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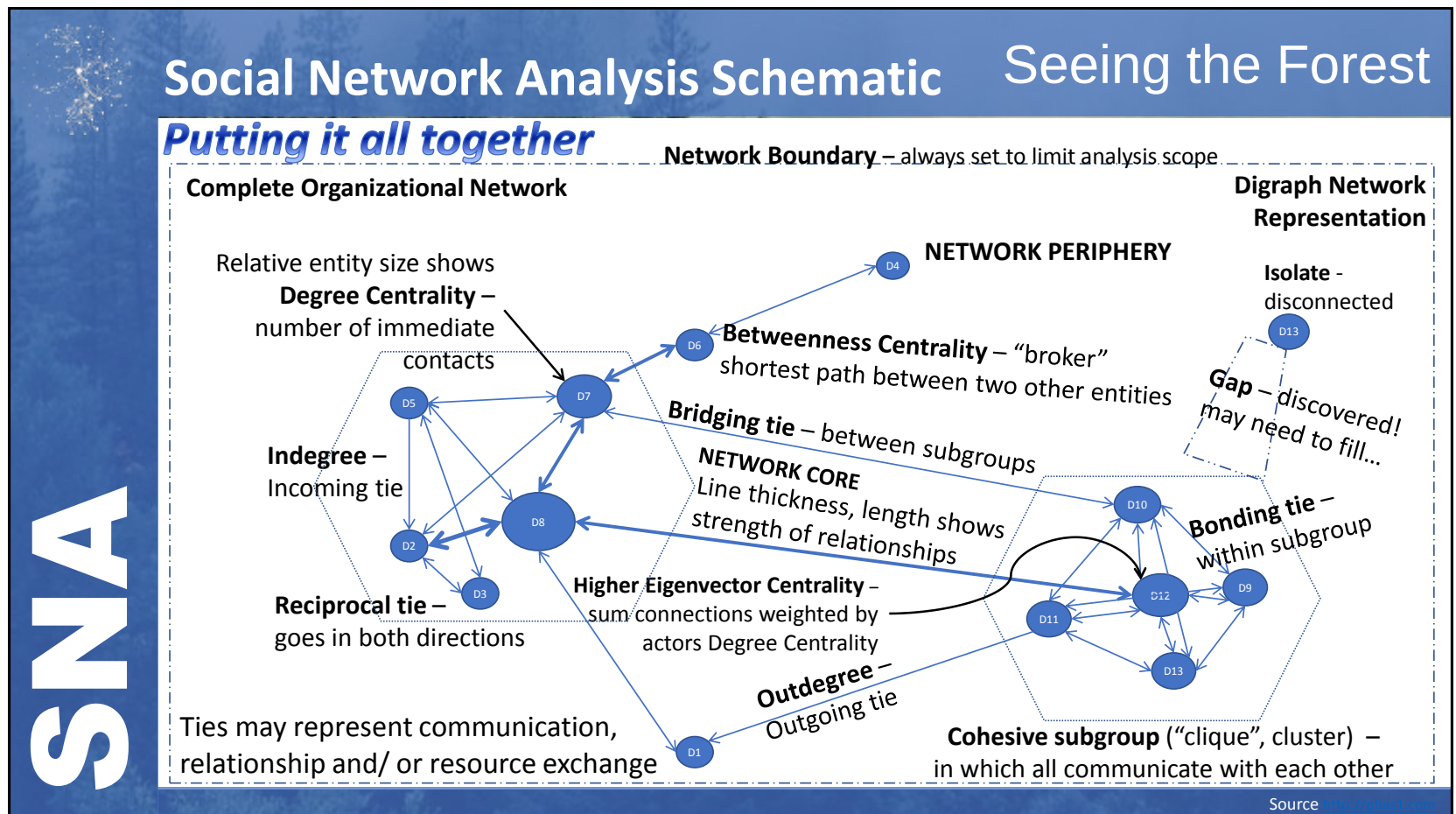
Are Bridging or Bonding Ties More Important?

Bonding Ties link members of a subgroup together, so no *missing links*, increasing group cohesiveness, sometimes to the exclusion of others

Bridging Ties link members of one subgroup to those of another, or an isolate to the rest of the network, aiding the transfer of information between *otherwise unconnected* actors

Both Bridging and Bonding Ties must be Systematically Cultivated!

Source: [http://www.sna.com](#)



EXERCISE #1: Seeing the Forest

Identify Organizational *Bridging* and *Bonding* Ties

- 1. BONDING**
 - Any vulnerable central hubs?
 - Can you strengthen the core team?
- 2. BRIDGING**
 - Are there any resource or knowledge gaps?
 - Can you connect to different scales / sectors?

Source: www.sna-network.com



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Organizational Network Analysis ONA

Source: [LinkedIn.com](#)

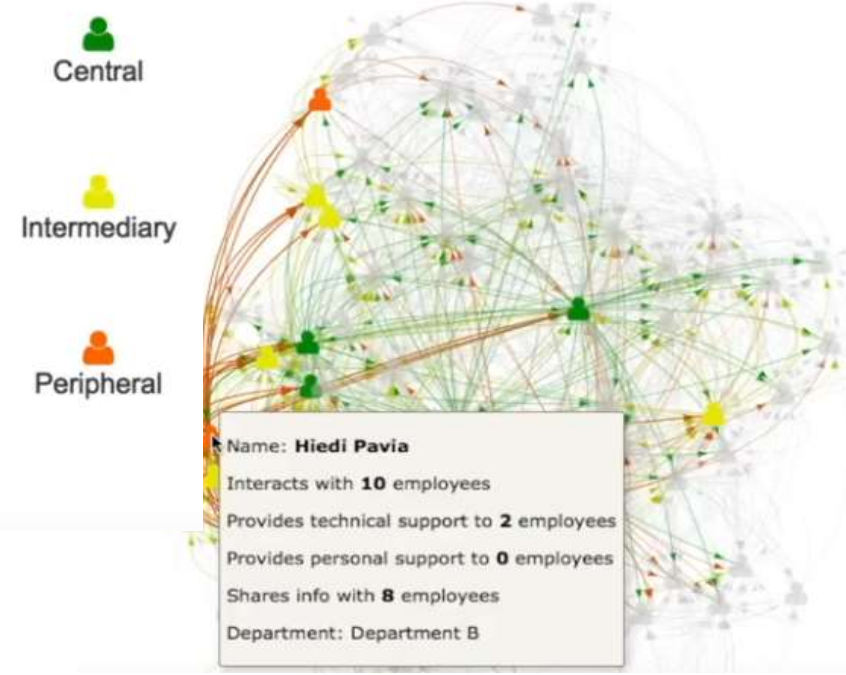


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Organizational Network Analysis (ONA)

- Analyzes formal and informal relationships
- Establishes better business strategies
- Promotes rapid adaption to new threats and opportunities



Central
Intermediary
Peripheral

Name: **Hiedi Pavia**
Interacts with **10** employees
Provides technical support to **2** employees
Provides personal support to **0** employees
Shares info with **8** employees
Department: Department B

Source: <https://www.youtube.com/watch?v=imUjRERZHUQ>

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Methods to Collect Network Data

Surveys – cross-check actor/links with each added

Observation – watch organizational efforts

Experiments – test theory artificially, model / fit

Secondary Sources – look up nonprofit's projects

Electronic Records – Wikipedia contributors, Likes

Name Generators – stack of cards of all members

Consensus – sticky notes: who is the go-to person? snowball

**Always
TRIANGULATE!**

Source: [www.danah.org](#)

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One-on-One (Time) - Interviews

- Richness of data
- Semi-structured (quantitative and qualitative)
- Already building trust and a REAL relationship!
- Now you are “known by that person”
- Can provide small gift or meal to increase gain
- Improved understanding eases next steps
- Will learn who to contact next and who matters

**Informal
Hub,
Bridge
Missing?
Invite
to
Coffee...
record
thoughts**

Source: [www.danah.org](#)

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Detecting Communities

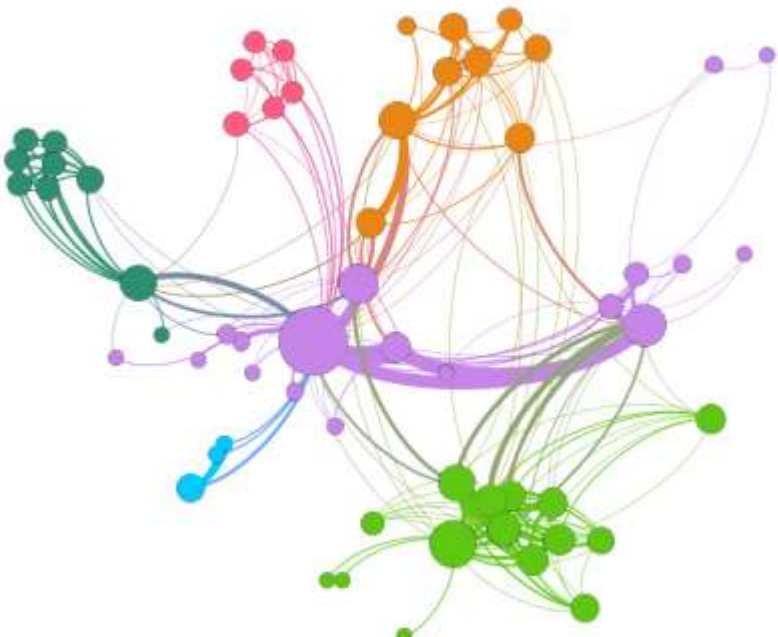
7 communities

Stronger Communities

Purple
Green
Orange

Weaker Community

Blue



Source: [visualizing.com](#)

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Track Network Measures

Tracking measures of connectivity in networks:

- The depth of relationship between participants
- The degree to which participants are communicating with each other
- The history of participants' collaboration with one another.

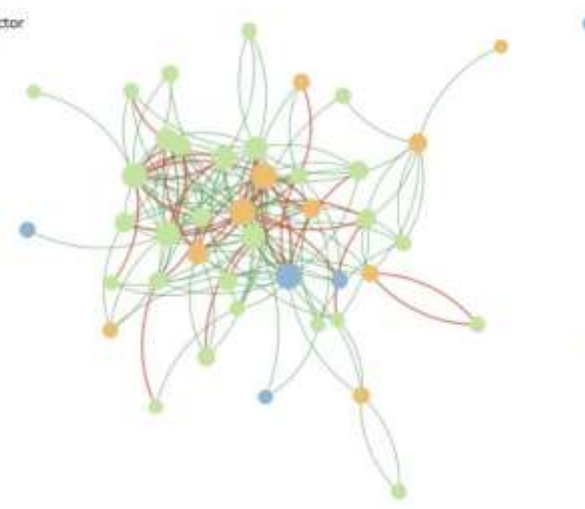
Visualizing Active & Past Collaboration

Collective Action Network

Legend

- Active Collaboration
- Past Collaboration
- Nonprofit/ Social Sector
- Public/ Government
- Private

Node size = Degree



Source: <https://blog.kumu.io/asking-the-right-questions-collecting-meaningful-data-about-your-network-dcb4b5f9383c>

Dr. MT Herzog, mherzog@phas1.com, 303-238-0419
<http://sna.wateractionnetwork.org>

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Enrich Data - Study Affiliation Networks

infer connection by projects, events, or other indirect secondary links

Dedisee Park Partnering for Restoration

Study past joint participation to build new project collaborations quickly

The diagram shows five logos arranged in a circular pattern, connected by red lines. The logos are: Wildlands Restoration Volunteers (top), Evergreen Metropolitan District (top right), Bear Creek Watershed Association (right), Denver Mountain Parks (bottom right), and Evergreen Trout Unlimited (bottom left). The red lines connect the logos in a circular fashion, suggesting a network of affiliations.

Source

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Network Concepts – *Small World*

Random Network – ties formed by chance aren't clustered

Real Networks – ties are not random, so cluster *much* more

The graph plots 'average shortest path' on the y-axis (ranging from 0 to 20) against 'num nodes' on the x-axis (logarithmic scale with markers at 1, 100, 10000, and 1000000). The data points form a nearly straight line, demonstrating that the average shortest path increases linearly with the logarithm of the number of nodes.

While number nodes increases *exponentially*, shortest path between any two increases only *linearly*

Strength of Weak Ties
Who is most likely to find you your next job?

TEST: Six Degrees of Separation to *Anyone in the WORLD*? Google [Actor] + Bacon Number

Source

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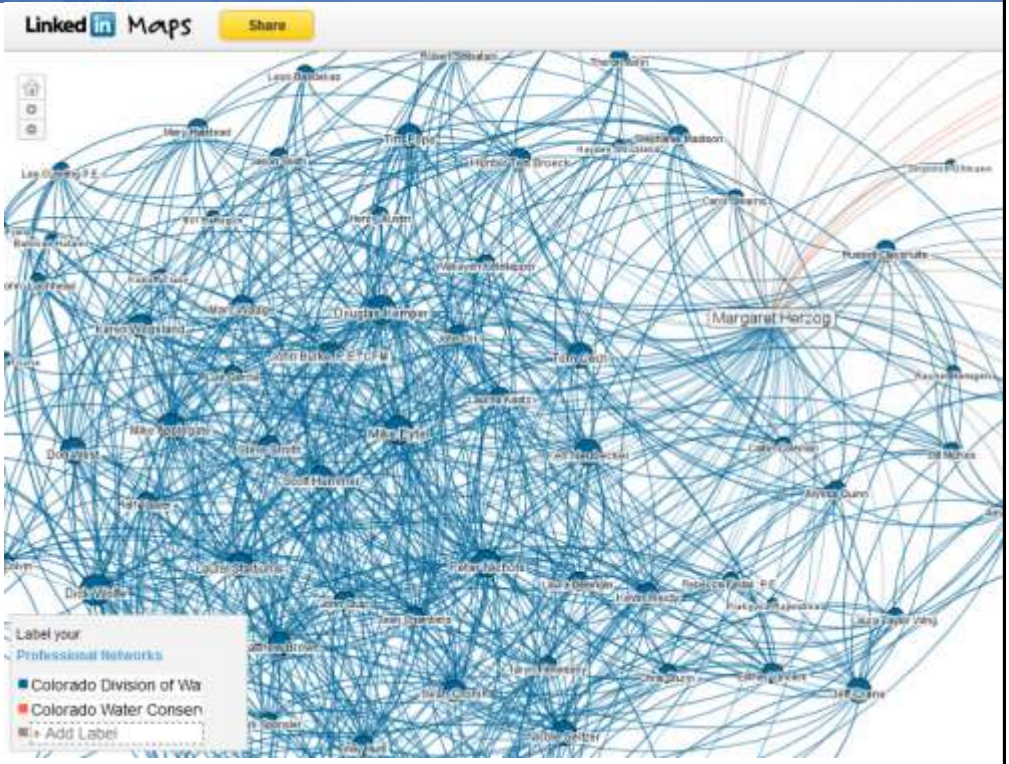
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MAP MEMBERSHIP ON LINKEDIN

If you find certain fundraisers, donors, members or clients in hub positions, do additional analysis on secondary characteristics – or simply give them a call!

To better determine next steps to bridging divides, reaching resources, and increasing cohesiveness.



Source: <https://www.linkedin.com/maps/>

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EXERCISE #2:

Social Media Network Test

1. Plan how to Tweet or message on FB, LinkedIn, or through your own network system where your constituents congregate
2. Percentage of total who respond? Cluster by location, age, role?
3. Who's first? Who follows who? How strengthen your hubs?
4. How use funnels? (special offers to drive to deeper involvement)
5. Systematically record progress in moving individuals and clusters into greater connectedness and action orientation

Source: <https://www.linkedin.com/maps/>



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Four Stage Maturity Model

Source: [Building Smart Communities through Network Weaving](#)

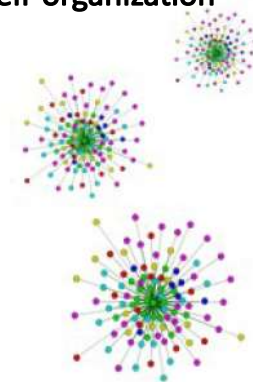


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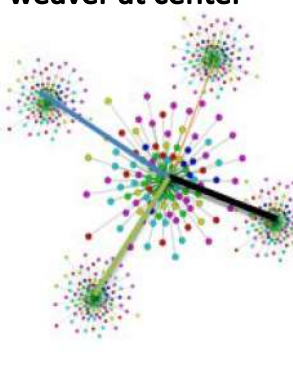
Four Stage Maturity Model

Using Analysis Results to Move Communities Forward

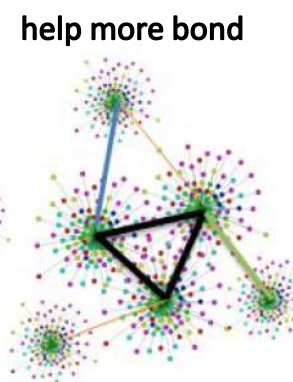
Small clusters through self-organization



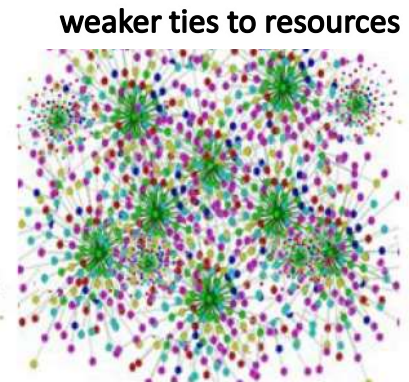
Intentional Hub - weaver at center



Closed Triads - as help more bond



Strongly affiliated hubs connected to a constellation of weaker ties to resources



Stage 1.
Unlinked Clusters

Stage 2.
Hub / Spoke

Stage 3.
Multi-Hub

Stage 4.
Core-Periphery

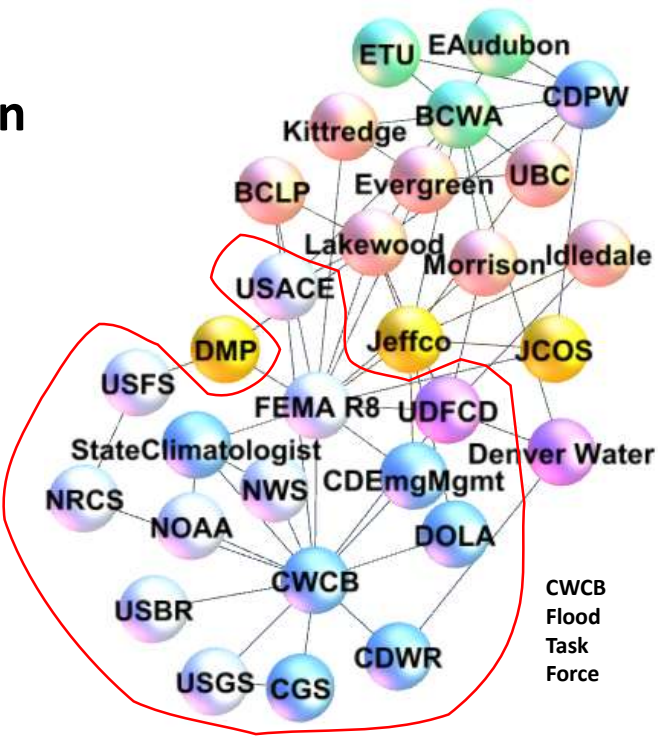
From: Zolli, A. and A.M. Healy. 2012. Resilience: Why things bounce back. Simon&Shuster:NY
Excerpted it from: *Building Smart Communities through Network Weaving*, Krebs & Holley, Source: <https://www.socnetd.com/buildingsmartcommunities.pdf>

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CO 2013 Flood Alignment and Cooperation

An optimized network for:

- Collaboration
- Funding & Resources
- Regulatory Compliance
- Emergency Response
- Flood Mitigation & Planning
- Design Guidance
- Water Quality / Quantity
- Multi-Objective Projects



Source: [Colorado Flood Task Force](#)

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Broken Machine – Systematic vs. Reactive Diagnosis

- Couldn't find anything wrong
- Started looking for new one, but lose matching combo, time, \$
- So tore washer apart, discovered small worn out coupling
- Ordered part on Amazon, installed in 2 hours
- Savings? or more important... Sense of *Shared* Accomplishment!



Source: [Colorado Flood Task Force](#)

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Lessons Learned – Broken Washer, Coupling KEY!

1. Never underestimate the importance of *any* small cog

2. There’s a *HUGE* cost to lack of systematic analysis

3. See your nonprofit as an adapting organism

4. Build resilience over time through SNA review

Source [http://www.sna.org](#)

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How to get all the cogs humming?

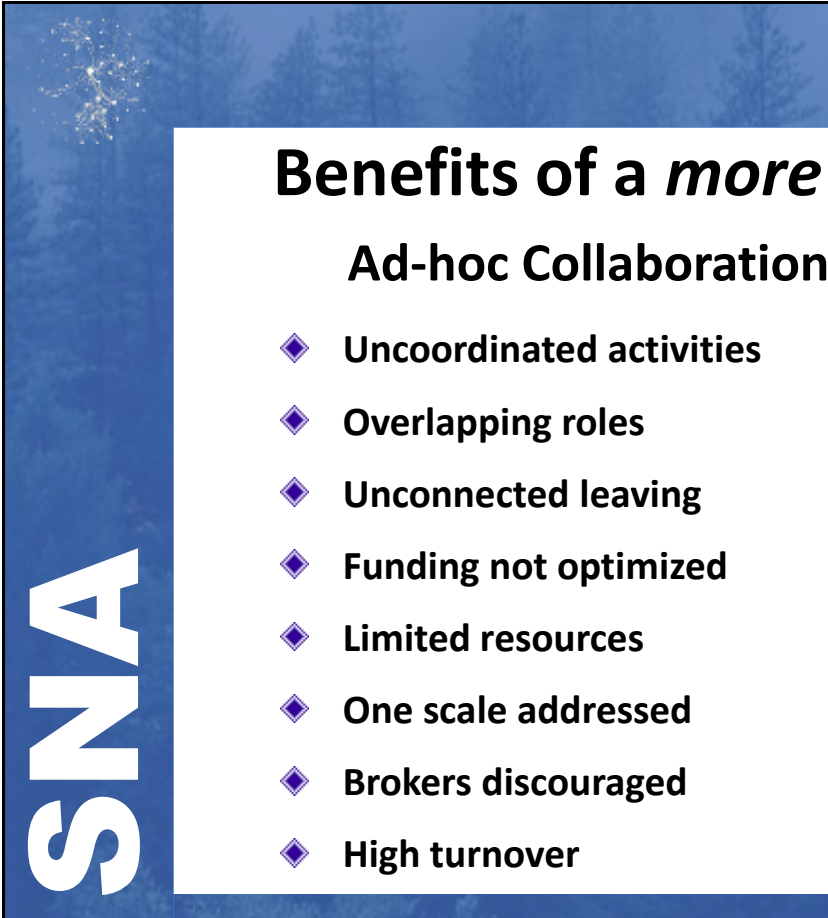
What mechanisms are available to your nonprofit or supporting role now to permit you to help build a more cohesive, more expansive machine to complete the mission?

```
graph TD; FP[Federal Forests, Lands, and Parks] --- SP[State Parks]; FP --- CP[City Parks]; FP --- COS[County Open Space]; FP --- R[Residents]; FP --- WP[Water Providers]; FP --- C&I[Commercial & Industrial]; FP --- SPs[Service Providers]; FP --- CR[County Regulators]; FP --- LO[Local Ordinance]; FP --- FR[Federal Regulators]; FP --- SR[State Regulators]; FP --- WG[Watershed Groups]; FP --- FBG[Fish and Bird Groups]; FP --- OG[Other Groups]; SP --- CP; CP --- COS; COS --- R; R --- WP; WP --- C&I; C&I --- SPs; SPs --- CR; CR --- LO; LO --- FR; FR --- SR; SR --- WG; WG --- FBG; FBG --- OG; OG --- SP; SP --- R; R --- WP; WP --- C&I; C&I --- SPs; SPs --- CR; CR --- LO; LO --- FR; FR --- SR; SR --- WG; WG --- FBG; FBG --- OG; OG --- SP
```

Source [http://www.sna.org](#)

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Benefits of a *more* Systematic Approach

Ad-hoc Collaboration	Network Weaving
◆ Uncoordinated activities	✓ Network maturing
◆ Overlapping roles	✓ Staff can interchange roles
◆ Unconnected leaving	✓ More joining / donating
◆ Funding not optimized	✓ Funding increasing
◆ Limited resources	✓ Resource access expands
◆ One scale addressed	✓ Business & Industry sponsors
◆ Brokers discouraged	✓ Ready for the unknown
◆ High turnover	✓ Adapt and transform

Source: [Bodin O. and C. Prell. eds. 2011. Social Networks and Natural Resource Management, Cambridge University Press](#)



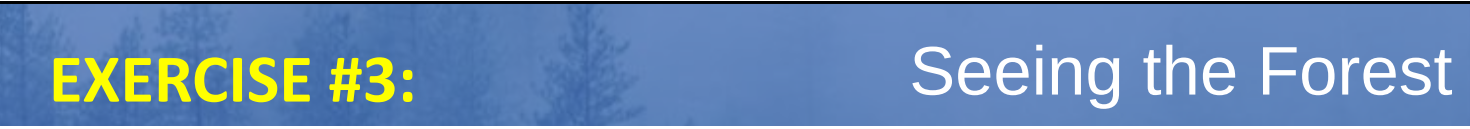
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Institutional Entrepreneurs

- Strengthen informal networks by coalition building
- Experts in building trust and resolving conflicts
- Mobilize key resources from various groups
- Respond to crisis with pre-planned adaptive mode
- Foster exchange and collaboration
- Transform failing systems
- Knowledge brokering

Source: Bodin O. and C. Prell. eds. 2011. Social Networks and Natural Resource Management, Cambridge University Press

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**EXERCISE #3:**

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Leveraging the Core – Periphery Network Structure

1. Connect any disconnected clusters – members, volunteers, donors, fundraisers, beneficiaries, sister orgs, biz supporters
2. Move from vulnerable hub to multiple points of connectivity
3. Strengthen cluster cohesiveness and increase links between
4. Study the periphery, what resources should you link up?

Source [socialnetworking.com](#)

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Case Studies

Source [socialnetworking.com](#)

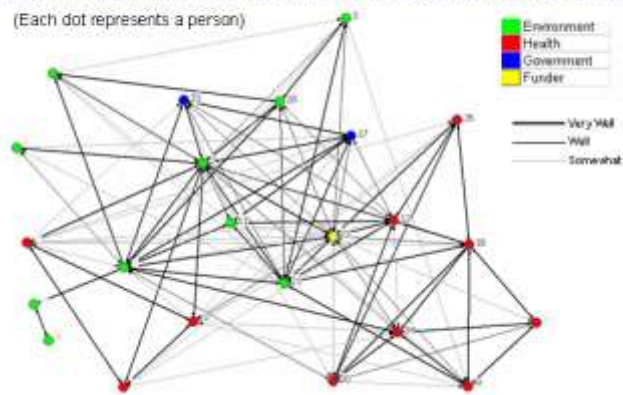
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Boston Green & Healthy Building Network

Measuring Change in a Network: Before and After

At the first meeting of a network of environmental and health non-profits, participants were asked: "How well do you know this person?"
(Each dot represents a person)



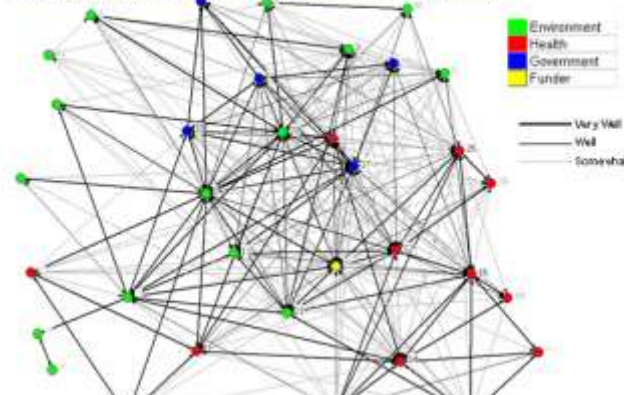
Environment
Health
Government
Funder

Very Well
Well
Somewhat

Connections among participants were limited

Measuring Change in a Network: Before and After

Two years after the network had been regularly meeting, participants were again asked: "How well do you know this person?"



Environment
Health
Government
Funder

Very Well
Well
Somewhat

Connections among participants grew stronger

Source: <http://www.ndcollaborative.com/ghbn/>

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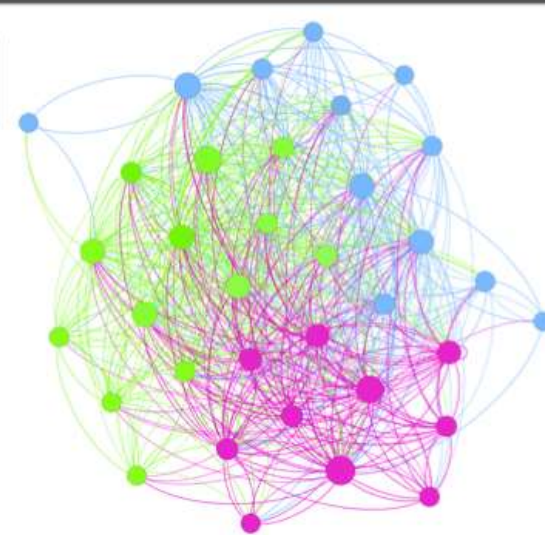
The New Leadership Network

- Connect 48 communities
- Cohort 1 just education and non-profit leaders
- Recruitment strategy to attract
 - Healthcare
 - Government
 - Private sector leaders
- Promote new connections

Network Cluster – after 1 year, Cohorts 1+2+3

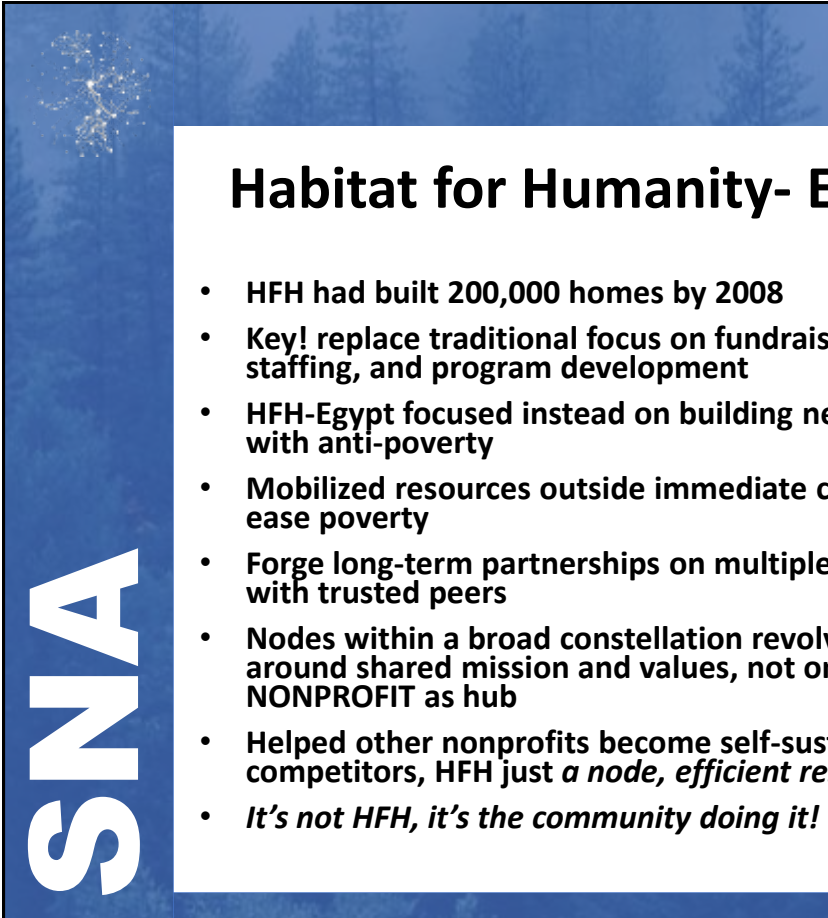
Network Cluster

Government + Business
Education + Nonprofit
Health + Human Rights



Cohort 1

Source: <https://blog.convergeforimpact.com/nln-network-analysis-case-study/>



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Habitat for Humanity- Egypt

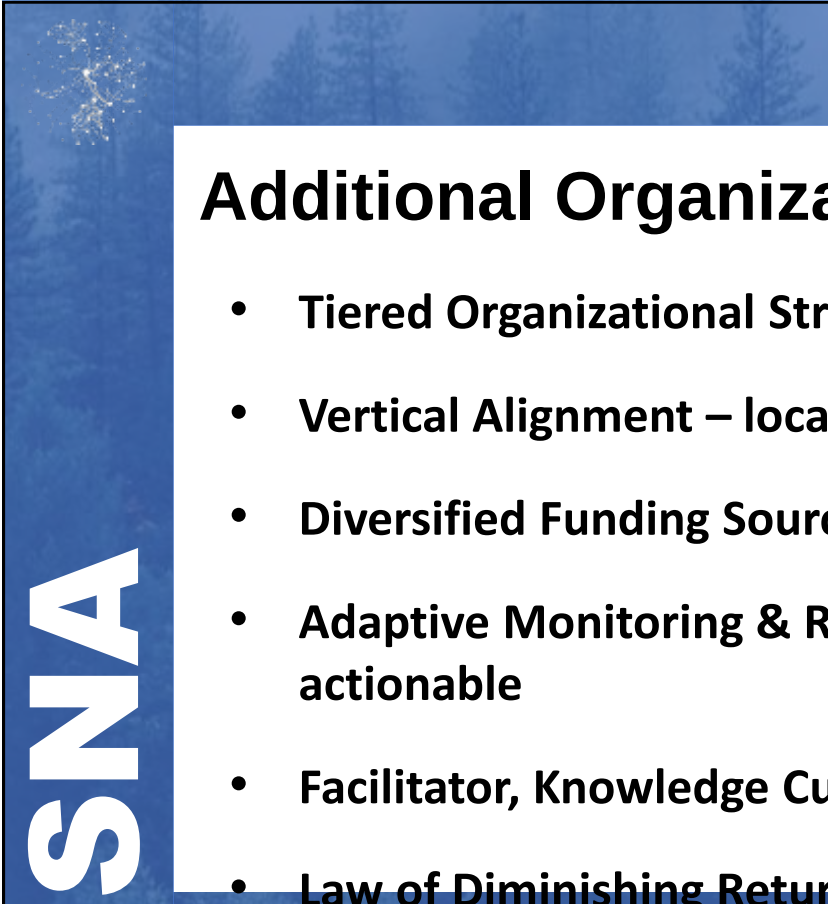
- HFH had built 200,000 homes by 2008
- Key! replace traditional focus on fundraising, staffing, and program development
- HFH-Egypt focused instead on building networks with anti-poverty
- Mobilized resources outside immediate control to ease poverty
- Forge long-term partnerships on multiple fronts with trusted peers
- Nodes within a broad constellation revolving around shared mission and values, not one's NONPROFIT as hub
- Helped other nonprofits become self-sustaining competitors, HFH just *a node, efficient resource use*
- *It's not HFH, it's the community doing it!*

Mission, Not Organization

Shifting from organization goals to network level improvement

Collaborating for Systems Impact

Source: Networked Nonprofit, Marciano, 2013, STANFORD SOCIAL INNOVATION REVIEW

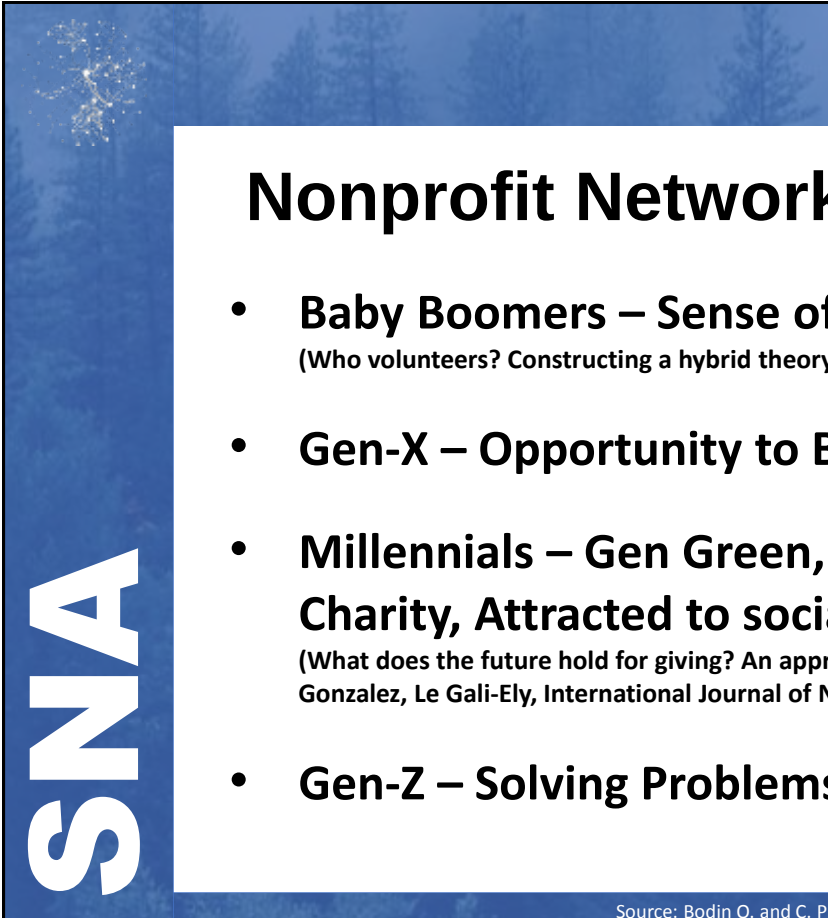


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Additional Organizational Success Factors

- Tiered Organizational Structure – PT, consultants, volunteers
- Vertical Alignment – local to international mission linkages
- Diversified Funding Sources – events, donors, foundations
- Adaptive Monitoring & Reporting – citizens, apps, actionable
- Facilitator, Knowledge Curator, Fundraiser, Technical Guru
- Law of Diminishing Returns – must *right-size collaboration*

Source: Bodin O. and C. Prell. eds. 2011. Social Networks and Natural Resource Management, Cambridge University Press

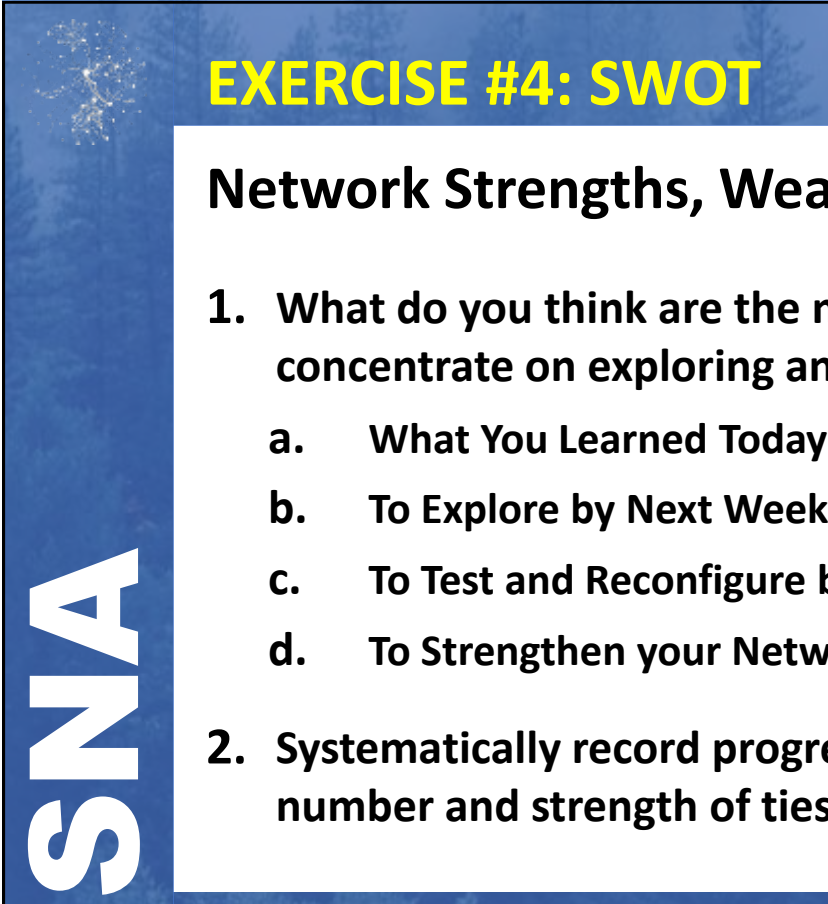


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Nonprofit Networking Across the Ages

- **Baby Boomers – Sense of Duty, More Time to Volunteer, \$\$\$**
(Who volunteers? Constructing a hybrid theory; Einolf, Intl Jrl of Nonprofit and Voluntary Sector Marketing, 2011)
- **Gen-X – Opportunity to Belong, Change Things for a Cause**
- **Millennials – Gen Green, More Sharing and Solidarity than Charity, Attracted to social networks, festive action, utility**
(What does the future hold for giving? An approach using the social representations of Generation Y; Urbain, Gonzalez, Le Gali-Ely, International Journal of Nonprofit and Voluntary Sector Marketing, 2013)
- **Gen-Z – Solving Problems, Being Involved in Process, Results**

Source: Bodin O. and C. Prell. eds. 2011. Social Networks and Natural Resource Management, Cambridge University Press



Seeing the Forest

EXERCISE #4: SWOT

Network Strengths, Weaknesses, Opportunities, Threats

1. What do you think are the most important network features to concentrate on exploring and / or reconfiguring based on:
 - a. What You Learned Today?
 - b. To Explore by Next Week with Staff?
 - c. To Test and Reconfigure by Year's End?
 - d. To Strengthen your Network's Depth and Breadth in 2019?
2. Systematically record progress in increasing network density, number and strength of ties, and transaction value over time

Source: <http://sna.wateractionnetwork.org>

Network Weaving Insights from Your Experience?

Workshop handout, exercise, survey: <http://sna.wateractionnetwork.org>

Source <http://phas1.com>