

Networks for Net Work: An Introduction to Networks and Network Analysis

Roberto Cremonini
October 16, 2008

rcremonini@pilothouse.com
www.barrfoundation.org

Today's challenge



*Networks
are present everywhere.*

*All we need
is an eye for them.*

[Albert-László Barabási](#)



Objectives

Introduce a common **vocabulary** to understand and talk about networks

Use **stories** to illustrate how networks form and work

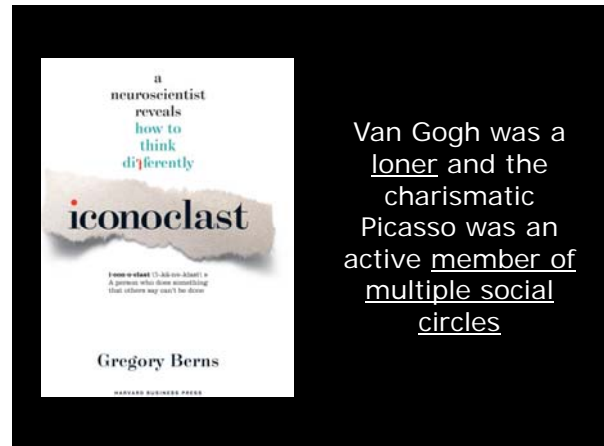
Share **tools** that help "develop an eye" for networks

Stimulate **questions** to help connect what you heard today to your work



Defining Networks





Van Gogh was a loner and the charismatic Picasso was an active member of multiple social circles

Definition I: Social Networks

A group of **individuals** that are **tyed by** one or more specific types of **relations**, such as friendship, kinship, work, emotional relationships (e.g., like/ dislike)

Purpose:
Individual support, growth, and knowledge

Benefits:
It's not *what* you know, it's *who* you know!

CIC - October 16, 2008 Networks for Net Work 9

We All Belong to Social Networks

- Families
- Alumni Networks
- Social Circles

CIC - October 16, 2008 Networks for Net Work 10

Social Capital Makes Communities Work

Much of the success of the United States as a nation had to do with its ability to generate social capital, that mysterious but critical set of characteristics of functioning communities

CIC - October 16, 2008 Networks for Net Work 11

Social Capital Makes Organizations Work

The stock of **active connections** among people; the trust, mutual understanding and shared values and behaviors that **bind** the members of human networks and communities and make cooperative action possible

CIC - October 16, 2008 Networks for Net Work 12

Social Capital in Nonprofit Collaborations

"Collaborations often run into trouble because they jump too quickly to outcomes without first building key relationships between organizations and their leadership"



"Being co-located, seeing how organizations operate, what issues they're dealing with and hearing their conversations helps us figure out how to serve them better"

Nonprofit/Nonprofit Collaboration in Boston

Nonprofit/Nonprofit Collaboration in Boston

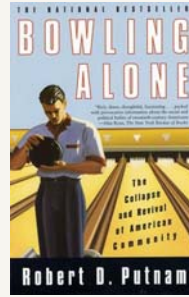
Nonprofit/Nonprofit Collaboration in Boston

Nonprofit/Nonprofit Collaboration in Boston

"True collaboration is not about bringing together financial and intellectual resources, true collaboration is about collaborative relationships"

"I think it is important to find a partner that you trust, with whom you can work closely and then work towards a broader collaboration"

Houston We Have a Problem



- Participation in group activities, the vehicle for creating and sustaining social capital, is declining in the United States

- It has become increasingly more difficult to get together

Meetup Real groups make a real difference.

Meetups had 74,000 meetings last month!

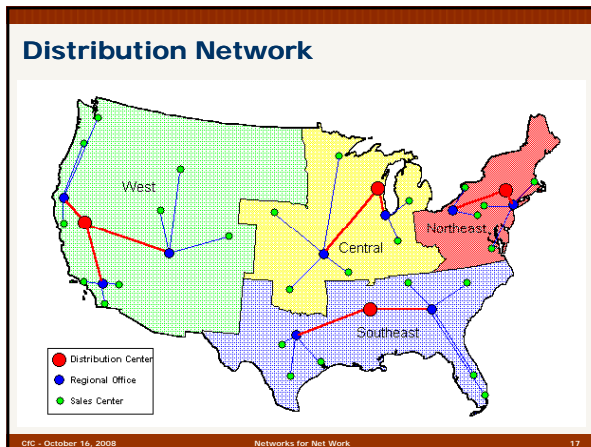
Enter an interest:

Top Cities:

- Atlanta, GA
- Boston, MA
- Chicago, IL
- Denver, CO
- Houston, TX
- Los Angeles, CA
- London, UK
- Los Angeles, CA
- San Francisco, CA
- Seattle, WA
- Washington, DC

Top Interests:

- Business Meetings
- Book Club Meetings
- Charity Meetings
- Entrepreneurial Meetings
- Finance Meetings
- Food Meetings
- Health Meetings
- Home Improvement Meetings
- Language Meetings
- Local Politics Meetings
- Networking Meetings
- Parenting Meetings
- Real Estate Meetings
- Religion Meetings
- Science Meetings
- Sports Meetings
- Travel Meetings
- Wine Meetings



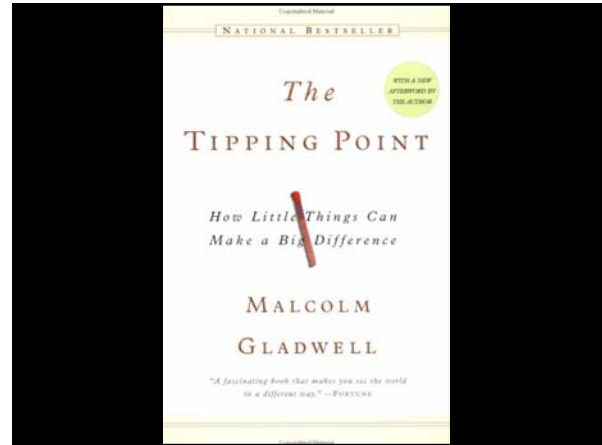
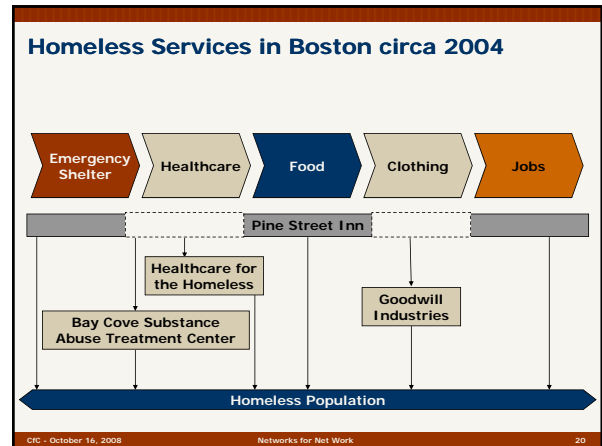
Definition II: Production Networks

A group of **autonomous organizations** that **coordinate efforts** to provide **improved services or products**

Purpose:
Creation of tangible value (e.g., production of goods and services) or any operationally output-focused project

Benefits:

- Operating efficiency
- Reduced costs
- New capacity to: produce, market, attract investment
- Decreased competition

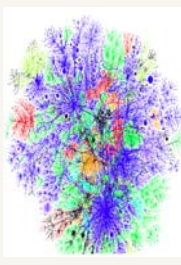


Definition III: Action Networks

What: Groups of **independent organizations** working in concert

Why: To create **value** around a **commonly-** defined purpose

How: As **equal partners** who **voluntarily** contribute their knowledge, experience, and resources for joint action and who rely on their **relationships** to support their own objectives



Adapted from: *Networks and Capacity*, ecdpm and *Networks that Work*, Vandeventer & Mandell

CIC - October 16, 2008 Networks for Net Work 23

Types of Action Networks

Learning

Idea

Mission

Purpose

- Continuous improvement and enhancement of collective knowledge

Who Benefits

- Participants in a discipline of knowledge or field and the discipline itself

Source: Anklam, *Net Work*, 2007

CIC - October 16, 2008 Networks for Net Work 24

Example of Learning Network:

YOU!

Culture for Change

BIRD STREET/COFFINA PROJECT

Most of our projects are going well, and some I don't get a chance to tell you about. I'll be sure to let you know when I do. I'll be sure to let you know when I do. I'll be sure to let you know when I do.

BORTON HEARD Y.E. & HAYING & BLAIR

I have all of you with all the projects. I'll be sure to let you know when I do. I'll be sure to let you know when I do. I'll be sure to let you know when I do.

PRESENTATION ON NETWORKING WITH ROBERTO CRONIN

Date and Time: Thursday October 16, 2008, 8:00am - 12:00pm
Location: Bart Foundation, 1000 Avenue of the Americas, New York, NY 10018

Networks for Net Work: An Introduction to Networks and Network Benefits

"Networks are powerful instruments. If we build an open for them" - Robert Cronin

CIC - October 16, 2008 **Networks for Net Work** **25**

Types of Action Networks

Learning

Purpose

- Continuous improvement and enhancement of collective knowledge

Who Benefits

- Participants in a discipline of knowledge or field and the discipline itself

Idea

Purpose

- Generative thinking for innovation, problem solving, advocacy

Who Benefits

- The network in general

Mission

Source: Anklam, Net Work, 2007

CIC - October 16, 2008 **Networks for Net Work** **26**

Example of Idea Network: Sharing a Problem to Find a Solution

INNOCENTIVE Where the World Innovates.

Clean Tech and Renewable Energy

Sponsored by **Barr Foundation** and **The Clean Energy Fund**

The Barr Foundation Prize: Energy efficient air conditioning

Challenge Type: Technical/Engineering

Challenge Period: 2008-2009

CIC - October 16, 2008 **Networks for Net Work** **27**

Barr Foundation Challenge Solver Locations

Where the World Innovates.

Location of 477 Solvers who have reviewed the Detailed Description of the Challenge,

CIC - October 16, 2008 **Networks for Net Work** **28**

Barr Foundation Challenge Solver Locations

Where the World Innovates.

Location of 37 Solvers who submitted a complete solution for the Challenge,

CIC - October 16, 2008 **Networks for Net Work** **29**

THE CASE FOUNDATION

MAKE IT YOUR OWN

Make It Your Own: Be the Case

MAKE IT YOUR OWN

Make It Your Own: Be the Case

MAKE IT YOUR OWN

Make It Your Own: Be the Case

MAKE IT YOUR OWN

Make It Your Own: Be the Case

CIC - October 16, 2008 **Networks for Net Work** **30**

THE CASE FOUNDATION

MAKE IT YOUR OWN

Take Action and Lead

Take Action and Lead

Take Action and Lead

The Final Four

Providing youth engagement through the final four... (text continues)

Citizen Participation

How do you create a permanent mechanism for the people... (text continues)

Creating Barriers

How do you create a barrier to a particular... (text continues)

Juveniles & Justice (J&J)

How do you create a barrier to a particular... (text continues)

Leaders of the New School

How do you create a barrier to a particular... (text continues)

Types of Action Networks

Learning

Purpose

- Continuous improvement and enhancement of collective knowledge

Who Benefits

- Participants in a discipline or field and the discipline itself

Idea

Purpose

- Generative thinking for innovation, problem solving, advocacy

Who Benefits

- The network in general

Mission

Purpose

- Social good or improvement of conditions at the local, regional, national, or global level

Who Benefits

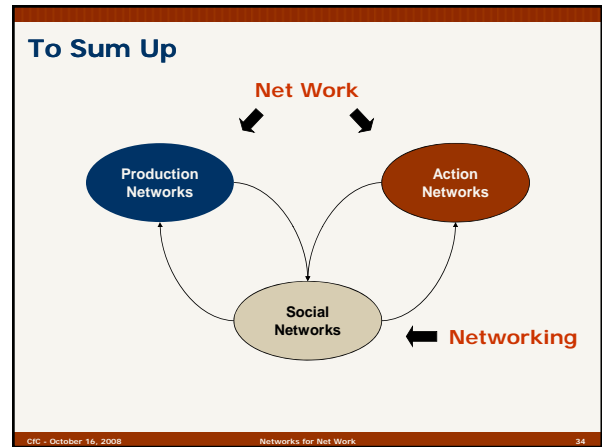
- A target population

Source: Anklam, *Net Work*, 2007

Example of Mission Network: Habitat for Humanity Egypt




"To Eliminate Poverty Housing in Egypt"

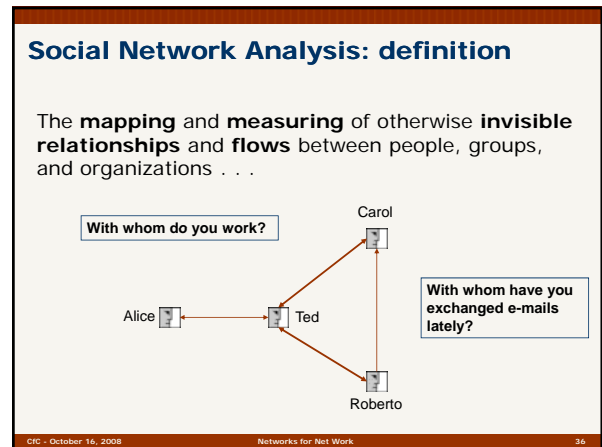


Emerging principles about networks

1. Networks are systems of human **relationships**
2. Every network has an underlying **purpose**, and every network creates **value**
3. If it's a network, you can **draw** it



Source: Anklam, *Net Work*, 2007



Social Network Analysis: Mapping

With whom do you work?

Nodes (Actors)

Links (Relationships, Flows)

Boston, MA - 05.28.2008 BEN - Introduction to Social Network Analysis 37

Social Network Analysis: Mapping

The links between nodes can vary in direction

From whom have you received advice during the past year?

Symmetrical Links (Reciprocal Relationships)

Asymmetrical Link (Non-reciprocal Relationship)

Boston, MA - 05.28.2008 BEN - Introduction to Social Network Analysis 38

Social Network Analysis: Mapping

The links between nodes can vary in width

How often have you received advice from this person during the past year?

Stronger Link (e.g., weekly)

Weaker Link (e.g., monthly)

Boston, MA - 05.28.2008 BEN - Introduction to Social Network Analysis 39

A Social Network Diagram for an IRC Channel

#a_and_c.xml

ACT I SCENE I. Alexandria. A room in CLEOPATRA's palace.

Developed by Patches for Mac OS X using Perl 5.0.0
 Uses edge thickness and direction to denote strength of relationship.
 The source code is available. The source code is available from <http://www.cleopatra.org>

Network maps make revealing pictures

Hierarchy
A group of individuals that propagates authority from a single person at the "top" through structured subgroups

Mesh
A network in which all members are equally connected to everyone else (*heterarchy*)

Core-Periphery
A network in which all a number of people well-known to each other are surrounded by a larger set of people on the periphery

Organizational Clusters
Patterns of either connected or isolated groupings, or *clusters*, of nodes

CIC - October 16, 2008 Networks for Net Work 41

Social Network Analysis: Measuring

The unit of analysis can be:

1. The Individual Actors

- Who connects to whom?
- Who is isolated?
- Who are the gatekeepers?

Boston, MA - 05.28.2008 BEN - Introduction to Social Network Analysis 38

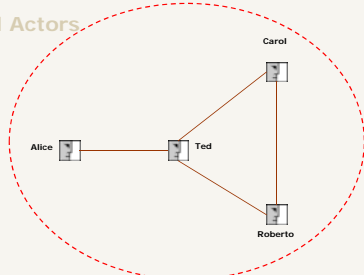
Social Network Analysis: Measuring

The **unit of analysis** can be:

1. The Individual Actors

2. The Entire Network

- How do things flow through the network?
- How is the network evolving?



CfC - October 16, 2008

Networks for Net Work

43

Beware of the fact that . . .

- "What you map is what you measure"
- It's like **looking in the mirror**

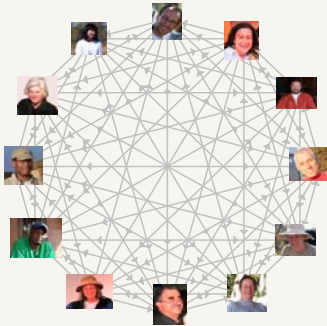


CfC - October 16, 2008

Networks for Net Work

44

Example: The Barr Fellows Program

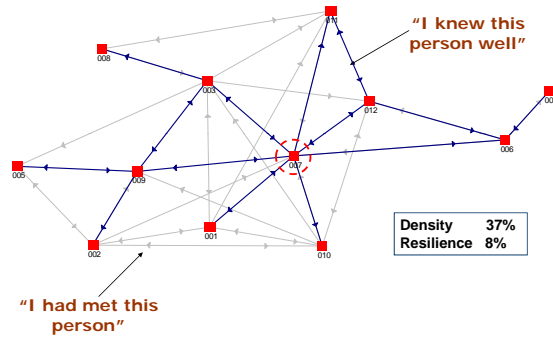


CfC - October 16, 2008

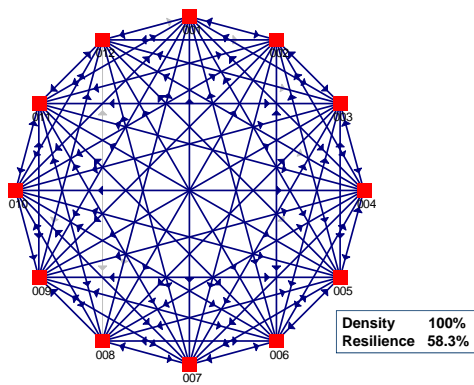
Networks for Net Work

45

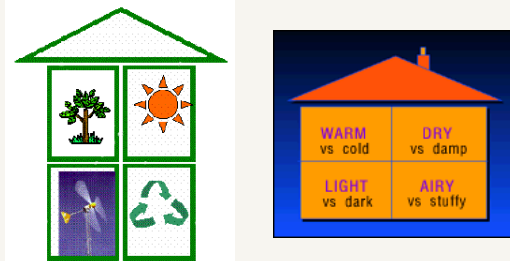
How well did you **KNOW** this person **BEFORE** the Barr Fellows Orientation Dinner (February 2005)?



How well do you **KNOW** this person **NOW** (September 2006)?



Example: Green & Healthy Buildings



CfC - October 16, 2008

Networks for Net Work

46

Example: Green & Healthy Buildings

How well do you **KNOW** this person ?

CIC - October 16, 2008 Networks for Net Work 49

Example: Social Support of Youth out of Foster Care

CIC - October 16, 2008 Networks for Net Work 50

Example: Green & Healthy Buildings

Who do you go to for support?

Red color designates influence on the overall network.
Individual "48" is the single most central subject in the network.
46, 32 are social workers. 48 works for an agency contracted by DCH to provide educational support.

Source: OMG & Annie E. Casey Foundation

CIC - October 16, 2008 Networks for Net Work 51

Social Network Analysis can Help ...

Evaluate and Understand networks

Maximize network benefits
 Increased access
 Increased efficiency
 Multiplier effect
 Increased visibility

Minimize network costs
 Diversion of time and resources
 Loss of control
 Frustrations with collaborations
 Insufficient recognition

Source: Connective Associates

CIC - October 16, 2008 Networks for Net Work 52

Social Network Analysis is a Process

Follow up

- Frame the Problem**
 - Goal
 - Problem/ Opportunity
 - Hypotheses
 - Who/ Boundaries
 - Relationships/ Flows
 - Demographics
- Collect Data**
 - Surveys
 - Interviews
 - Focus groups
 - Data mining
- Analyze Data**
 - Visually (Maps)
 - Quantitatively (Metrics)
- Validate & Discuss Results**
 - Preliminary review
 - One-on-one interviews
 - Interactive feedback session
 - Formal presentation
- Identify Next Steps**
 - Nothing
 - Planning
 - Training
 - Organizational Changes
 - Specific interventions

CIC - October 16, 2008 Networks for Net Work 53

Net Work is not easy

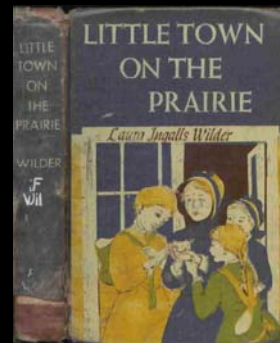
- Groups organizing into networks will always encounter difficulties
- Networks mean greater complexity for inter-organizational relationships
- The decision to form a network needs to be the better trade off when compared to business as usual

CIC - October 16, 2008 Networks for Net Work 54

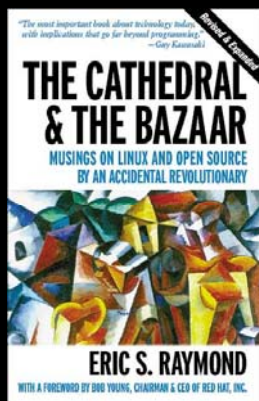
"The first thing in order," he said, "will be a roll call of members. I will then hear nominations for temporary chairman. The temporary chairman will take charge, and we will then proceed to nominate and ballot for permanent officers."

Everyone was a little taken aback, and felt less jolly, but it was an interesting question, who could be elected President. Then Pa stood up by his seat, and said, "Mr. Clewett and townfolks, what we've come here for is some fun to liven us up. It does not seem necessary to organize anything."

"From what I've seen," Pa went on, "the trouble with organizing a thing is that pretty soon folks get to paying more attention to the organization than to what they're organized for."



"the trouble with organizing a thing is that pretty soon folks get to paying more attention to the organization than to what they're organized for."



"I take it we're pretty well agreed on what we want.

If we start organizing and electing, the chances are we won't be as well agreed on who's to be elected to fill office.

So I suggest, let's go straight ahead and do what we want to do without officers. We've got the schoolteacher, Mr. Clewett, to act as leader. Let him give out a program, every meeting, for the next meeting.

Anybody that gets a good idea can speak up for it, and anybody that's called on will pitch in and do his share in the programs the best he can, to give everybody a good time."

Anybody that gets a good idea can speak up for it, and anybody that's called on will pitch in and do his share in the programs the best he can, to give everybody a good time."



Emerging principles about networks

1. Networks are systems of human **relationships**
2. Every network has an underlying **purpose**, and every network creates **value**
3. If it's a network, you can **draw it**
4. Everyone in a network **influences** the relationships in and the outcomes of the network



Source: Anklam, *Net Work*, 2007

CIC - October 16, 2008

Networks for Net Work

61

You mean,
"Nobody is
in charge?"



THE STARFISH AND THE SPIDER



THE UNSTOPPABLE POWER OF
LEADERLESS ORGANIZATIONS

DEI SHAFMAN and ROD A. BECKSTROM

Emerging principles about networks

1. Networks are systems of human **relationships**
2. Every network has an underlying **purpose**, and every network creates **value**
3. If it's a network, you can **draw** it
4. Everyone in a network **influences** the relationships in and the outcomes of the network
5. A network leader's work is to create and maintain the conditions that **enable** productive relationships

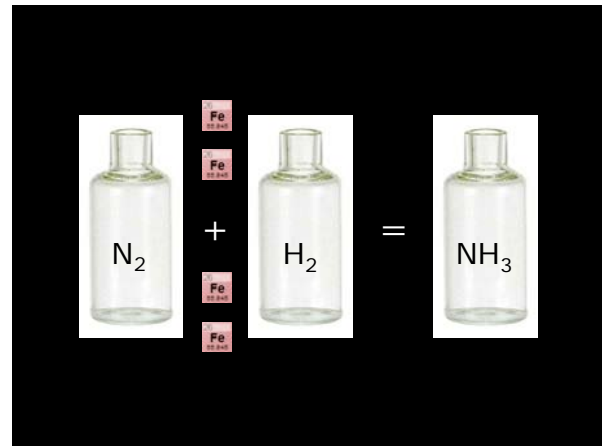


Source: Anklam, *Net Work*, 2007 and ECDPM, *Networks and Capacity*

CIC - October 16, 2008

Networks for Net Work

67



Network leaders are like Catalysts: They create the environment that lets the network do its work, by

1. Holding the collective vision



CIC - October 16, 2008

Networks for Net Work

69

Network leaders are like Catalysts: They create the environment that lets the network do its work, by

1. Holding the collective vision
2. Creating relationships ("weaving the network")



CIC - October 16, 2008

Networks for Net Work

70

Network leaders are like Catalysts: They create the environment that lets the network do its work, by

1. Holding the collective vision
2. Creating relationships ("weaving the network")
3. Managing collaborative processes



CIC - October 16, 2008

Networks for Net Work

71

Network leaders are like Catalysts: They create the environment that lets the network do its work, by

1. Holding the collective vision
2. Creating relationships ("weaving the network")
3. Managing collaborative processes



CIC - October 16, 2008

Networks for Net Work

72

Creating Relationships Increases the Social Capital and the Capacity of the Network

Brokerage (Bridging)

- Access
- Resources
- Innovation
- Impact
- Profit

↓

Differentiation

Closure (Bonding)

- Affinity
- Efficiency
- Trust
- Support
- Community

↓

Integration

Source: Ronald Burt

Are you a natural network weaver?

Emerging principles about networks

1. Networks are systems of human relationships
2. Every network has an underlying structure that creates value
3. If it's a network, you can draw on it
4. Everyone in a network influences and is influenced by the network and the outcomes of the network
5. A network leader's work is to create and maintain the conditions that enable productive relationships
6. Networks emerge and evolve in response to challenges and opportunities in the environment in which they operate

Source: Anklam, *Net Work*, 2007 and ECDPM, *Networks and Capacity*

Organization vs. Network Scorecard

Adapted from "The Starfish and The Spider"

There's someone in charge		There's no one in charge
There are headquarters		There are no headquarters
There's a clear division of roles		There's a fluid division of roles
Knowledge and power are concentrated		Knowledge and power are distributed
The organizational structure is rigid		The organizational structure is flexible
Units are funded by the organization		Units are self-funding
You can count the employees		You cannot count the members
Working groups communicate through intermediaries		Working groups communicate directly
If you take out a unit , the organization is harmed		If you take out a unit , the organization is unharmd
If you thump it on the head , it dies		If you thump it on the head , it survives

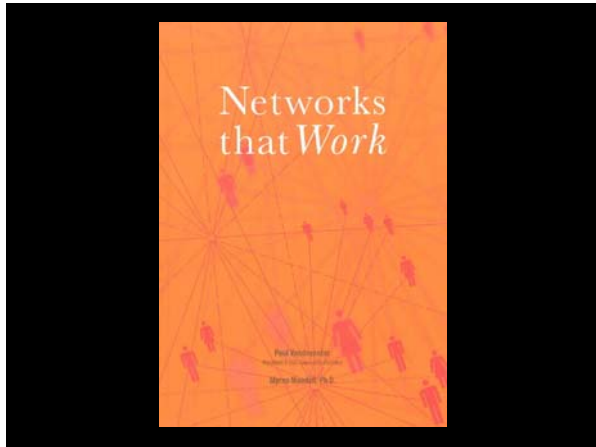
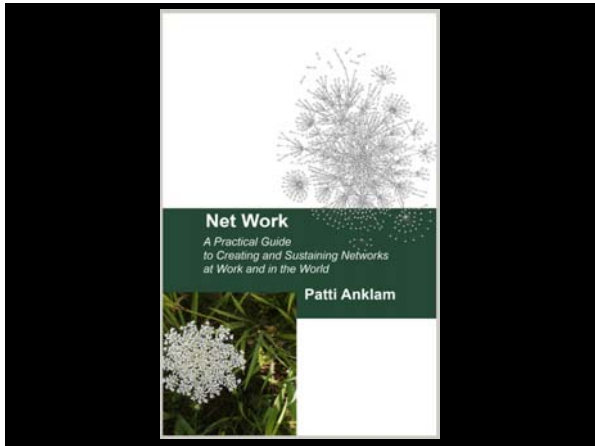
ORGANIZATION

NETWORK

The trick to starting and maintaining networks is to find the “balancing point” in the tensions that allow the network to thrive at any given point in time

Network	← [] →	Form	Organization
Open	← [] →	Boundaries	Closed
Distributed	← [] →	Leadership	Centralized
Intangible	← [] →	Value	Tangible
Emergent/ Adaptive	← [] →	Strategy	Directive/ Planning

CIC - October 16, 2008 Networks for Net Work 79



“Our lives are connected by a thousand invisible threads, and along these sympathetic fibers, our actions run as causes and return to us as results.”

Herman Melville