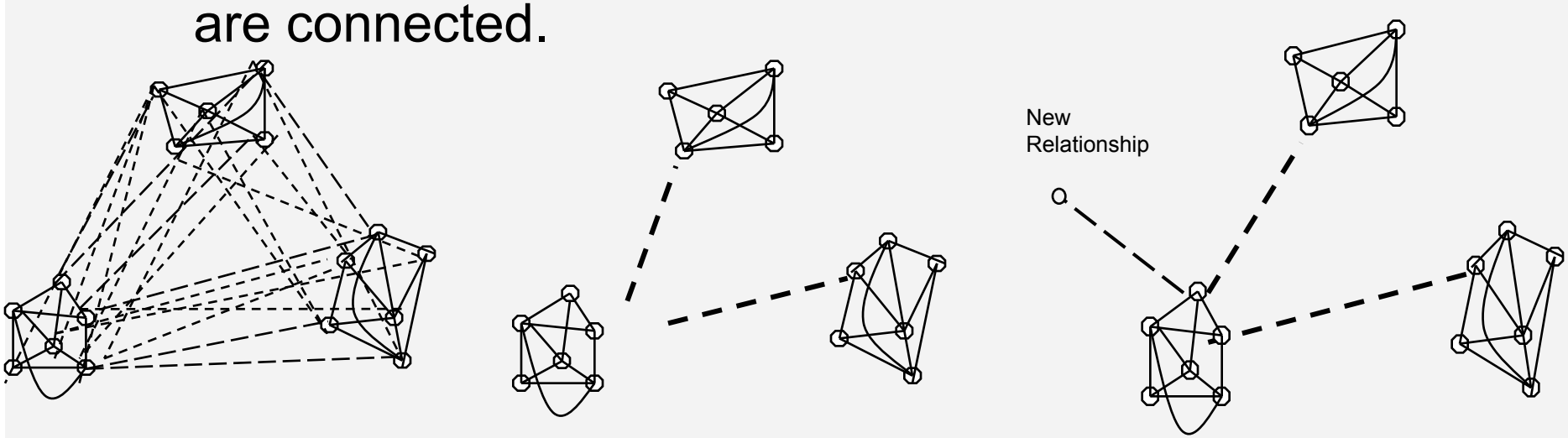
Measuring and Monitoring Connectivity in Public Health Collaboratives:

PARTNER

Danielle M. Varda
Anita Chandra, Stefanie Stern, and Artur Usanov
RAND Corporation
varda@rand.org

Goal of PARTNER

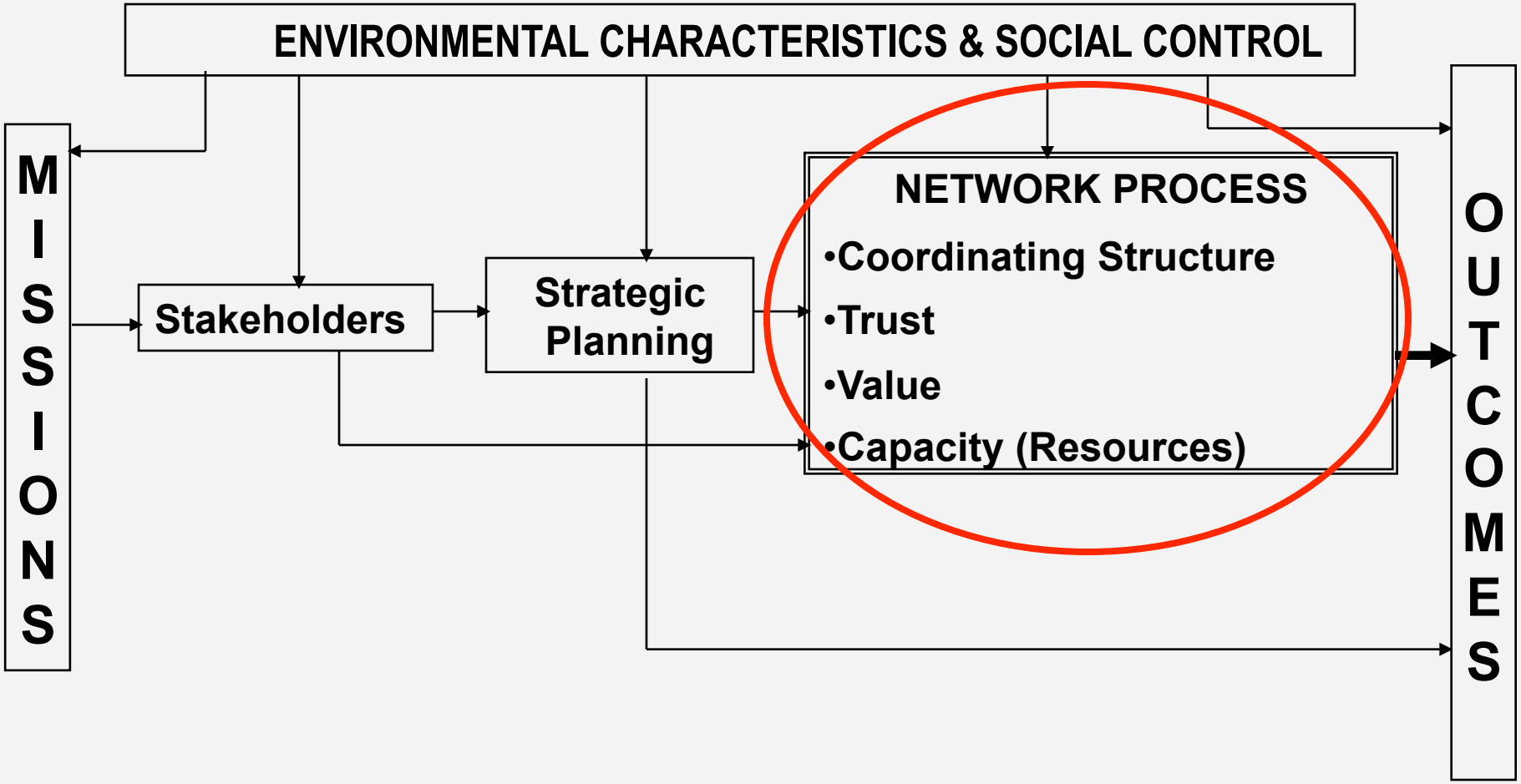
- Provide an additional way to evaluate partnerships.
- Current Assumption = More is better.
  - More partners = successful collaboration (counting noses)
- PARTNER Assumption = Alternatives exist to “more is better”.
  - Not based on how many partners you have, but how they are connected.



Connectivity in Public Health Collaboratives Project

- Funding from RWJF
- Lit Review
  - Conceptual Framework
- Advisory Panel: Experts in PH Collaboration
  - Guidance, Preliminary Measures, Interview Guide
- Interviews: End Users
  - Operationalize Measures
- Tool Development
  - Survey
  - Analysis Tool
  - Technical Manual

Framework for Community Collaboration



(Network Process is a unique piece of this framework)

Operationalizing Measures

- Social Network Analysis
- Measure of the relationships between actors rather than a measure of the actors themselves
- How those relationships produce varying effects
- Variables = Not independent
- Include typical SNA measures like centrality and density

Value of Members to Goals

- Power/Influence
- Level of Involvement
- Resources

  - Each Dimension = Equally important
  - Cumulative Value Score

Trust Among Members

- Reliable
- In Support of Mission
- Open to Discussion

  - Each Dimension = Equally important
  - Cumulative Value Score

Relative Connectivity

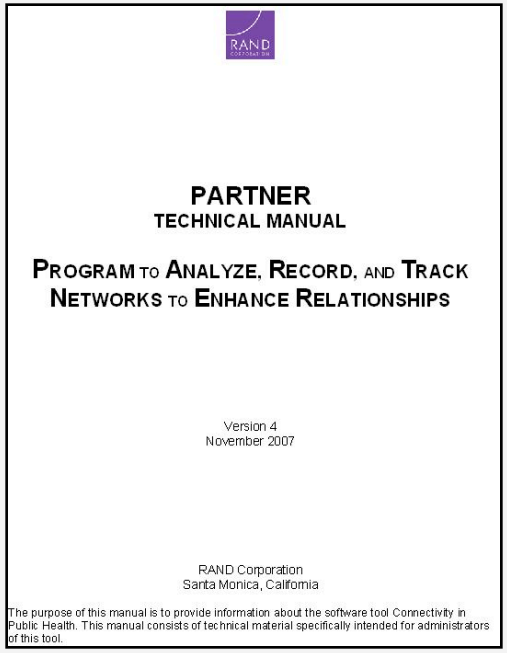
- Utilizes qualitative + structural nature of ties
- Connectivity(j) = $$\sum_{i=1, i \neq j}^{n} \delta_{ji} \cdot V_i \cdot T_{ij}$$
  - Where:
    - V*i* – value score for organization (node) *i*;
    - Tij – trust that organization (node) *i* has in organization *j*;
    - δ*ij* – binary variable (0 or 1) for connection between *i* and *j*.
  - Then, to find the relative connectivity score we just divide the above connectivity score by the maximum score among all organizations in the network:
  - Relative connectivity (j) = $$\frac{Connectivity(j)}{\underset{i=1,..n}{Max}[Connectivity(i)]}$$

PARTNER

PROGRAM TO ANALYZE, RECORD, AND TRACK NETWORKS TO ENHANCE RELATIONSHIPS

3 Components:

- Technical Manual
- Survey
- Analysis Tool



PARTNER
TECHNICAL MANUAL

PROGRAM TO ANALYZE, RECORD, AND TRACK NETWORKS TO ENHANCE RELATIONSHIPS

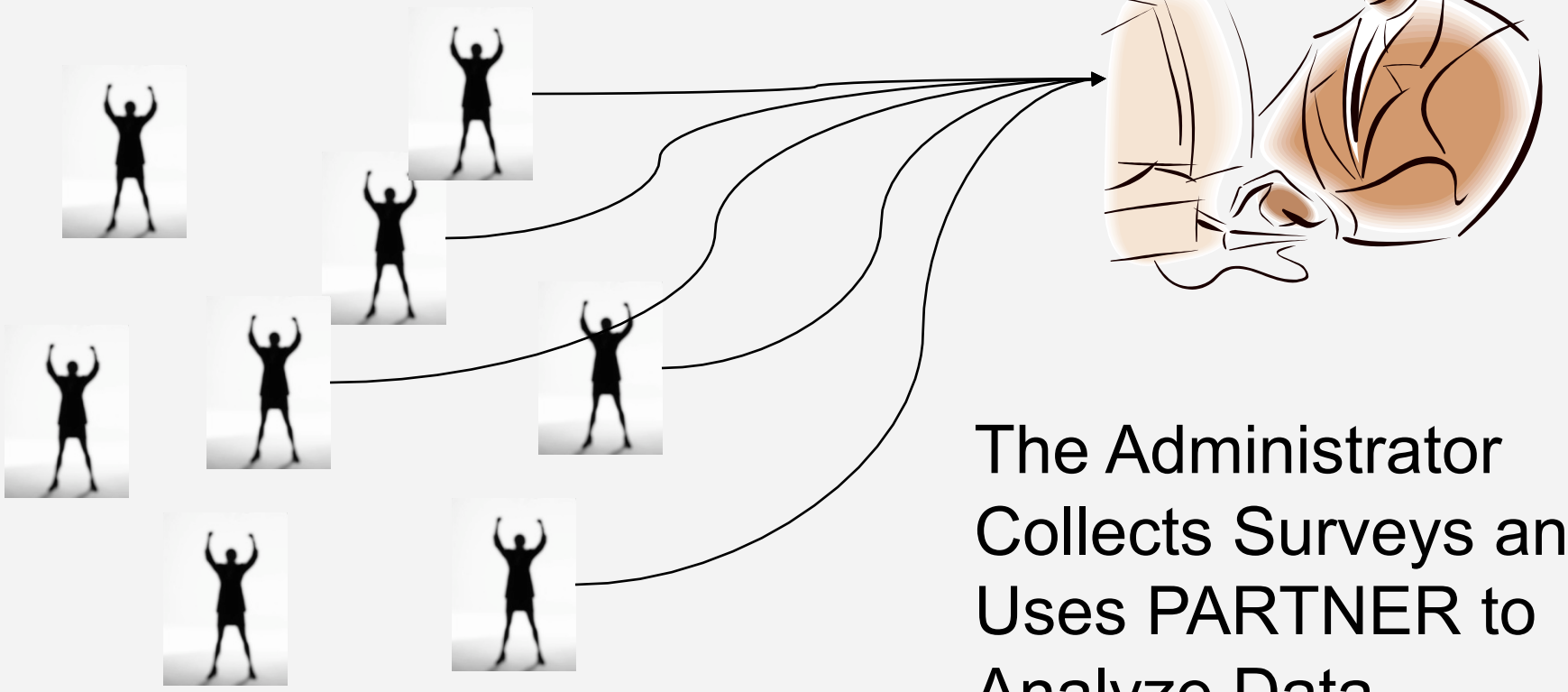
Version 4
November 2007

RAND Corporation
Santa Monica, California

The purpose of this manual is to provide information about the software tool Connectivity in Public Health. This manual consists of technical material specifically intended for administrators of this tool.

PARTNER

Members of the Collaborative Answer Surveys



The Administrator Collects Surveys and Uses PARTNER to Analyze Data

PARTNER

Data Gathering: Survey

Microsoft Excel - PARTNER Survey v2.xls

PARTNER Survey

Thank you for agreeing to participate in this survey.
The results will help us analzye, record, and track the way our collaborative works together to address health issues.

From: FILL IN

Collaborative: FILL IN

What are the benefits?

1) To measure how well our collaborative scores on dimensions of connectivity and
2) To visualize our connections (see network map to the right).

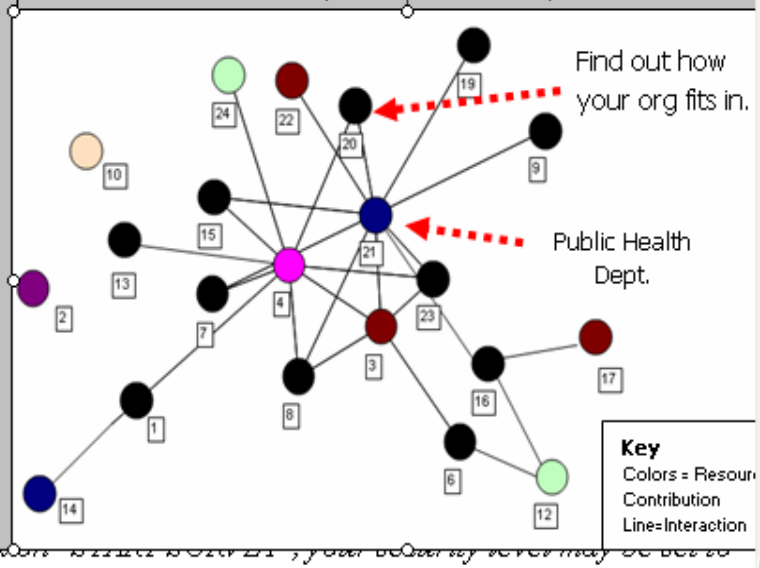
The survey should take # minutes to complete.

Your organization will always appear in the network maps, although we need your responses to understand your specific relationships with others.

START SURVEY

Return Email: FILL IN

Example of Network Map



Survey | Org_Info | Results | Admin Data Entry Page

Ready

Organizational Information

Please answer the following questions about your organization.

Select your organization from the list: Organization One

Please type your job title:

How long has your organization been a partner in this collaborative (in months)?

Please indicate what your organization contributes to the collaborative (choose as many as apply).

- ☐ Funding or Fundraising
- ☐ In-Kind Resources
- ☐ Paid Staff
- ☐ Volunteer Staff
- ☐ Data Set(s)
- ☐ Info/Feedback
- ☐ Specific Health Expertise
- ☐ Expertise Other Than in Health
- ☐ Community Connections
- ☐ Decision-Making
- ☐ Leadership
- ☐ Facilitation
- ☐ Advocacy

Which of the above describes your organization's most important contribution to the collaborative?

Next

Survey

Please answer the following questions for the organization/person listed here: Organization Three

Progress Indicator:

1. Do you know this organization/person?

- (•) Yes
- ( ) No

Frequency of Contact

2. How frequently does your organization work with this organization/person on issues related to the collaborative through e-mail, via phone, or in person?

- ( ) Never/We only interact on issues unrelated to the collaborative
- ( ) Once a year or less
- ( ) Every few months
- ( ) Every few weeks
- ( ) Every week
- ( ) Every day

Value

3. How valuable is this organization/person to achieving the overall mission of the collaborative in terms of:

More Info About Terms Used

(a) Power/Influence
- ( ) Not at all
- ( ) A small amount
- ( ) A fair amount
- ( ) A great deal

(b) Level of Involvement
- ( ) Not at all
- ( ) A small amount
- ( ) A fair amount
- ( ) A great deal

(c) Resources
- ( ) Not at all
- ( ) A small amount
- ( ) A fair amount
- ( ) A great deal

Trust

4. To what extent is this organization/person:

More Info About Terms Used

(a) Reliable
- ( ) Not at all
- ( ) A small amount
- ( ) A fair amount
- ( ) A great deal

(b) In Support of Mission
- ( ) Not at all
- ( ) A small amount
- ( ) A fair amount
- ( ) A great deal

(c) Open to Discussion
- ( ) Not at all
- ( ) A small amount
- ( ) A fair amount
- ( ) A great deal

Previous | Next

Microsoft Excel - PARTNER Survey v2.xls

PARTNER Survey

Thank you!

Thank you for your participation in the survey.

You can either choose to email the file back right now by selecting the"Email it now" button, or you can save this file in a place where you can easily find it later, and email it back to the email address you received it from when you ready. We recommend you email it now.

E-mail it now

Save this file and e-mail it later

From: FILL IN

Collaborative: FILL IN

What are the benefits?

1) To measure how well our collaborati

2) To visualize our connections (see ne

The survey should take # minutes t

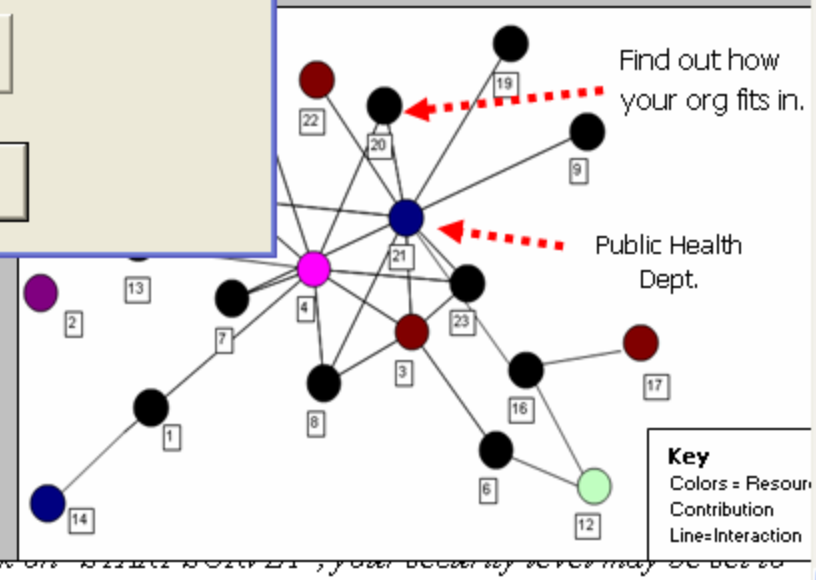
**Your organization will always appear

responses to understand your specific relationships with others.**

START SURVEY

Return Email: FILL IN

Example of Network Map



Survey | Org_Info | Results | Admin Data Entry Page

Ready

NUM

PARTNER

Analysis Tool

Microsoft Excel - Partner Tool w Groups 04.06.08.xls

File Edit View Insert Format Tools Data Window Partner Tool Partner Tool Partner Tool Partner Tool Partner Tool Help

PARTNER TOOL

Program to Analyze, Record, and Track Networks to Enhance Relationships

Purpose: To allow public health departments (and their partners) to measure and monitor relationships among a group of partners in a collaborative over time. Doing so will allow the collaborative to better understand the frequency and quality (e.g. levels of trust, resource exchange, etc.) among partners. By using the tool, you will be able to demonstrate to stakeholders and funders how your collaborative activity has changed over time and progress made in regard to how collaborative partners participate.

Elements of the Tools:

- A survey that members of the collaborative will complete (separate file).
- Two databanks to record partner interaction information (Worksheets: "Org_Info" & "Results").
- A set of network scores to compare over time (Worksheet: "Network Scores").
- Network graphs of your collaborative (Worksheet: "Network Graphing").
- A technical guide that includes instructions, definitions, technical help, and other resources (separate file).

Choose from the Options Below:

Manage Your Data

Analyze Your Network Scores

Create Network Maps

For Additional Help

See technical guide for more information about how to use the tool, technical help, interpreting the network scores and graphs, and a glossary.

Copyright © 2008 RAND Corporation

PARTNER is software copyrighted by the RAND Corporation. PARTNER can only be used for non-commercial purposes. For commercial applications or additional software development, please contact Danielle Varda at varda@rand.org or 310-393-0411 x6438.

Introduction | Data management | Network Graphing | Network Scores | Data | Org_Info | List

Ready

Microsoft Excel - Partner Tool.xls

File Edit View Insert Format Tools Data Window Help

Open New Survey

Upload Survey Data

Check Data

Partner Tool

The following file(s) with survey results are open:

Org 8.xls
UNC.xls

Please select the file that you want to upload and then click 'OK'.

OK Cancel

Introduction | Data management | Org_Info | Data | Network Graphing | Network Scores | List

Ready

start | Preliminary report ... | Surveillance piece ... | 4 Microsoft Offic... | Varda 02.20.ppt | Demo | 3 Microsoft Offic... | 11:56 AM

Microsoft Excel - Partner Tool w Groups 04.06.08.xls

File Edit View Insert Format Tools Data Window Partner Tool Partner Tool Partner Tool Partner Tool Partner Tool Help

PARTNER TOOL

Program to Analyze, Record, and Track Networks to Enhance Relationships

Purpose: To allow public health departments (and their partners) to measure and monitor relationships among a group of partners in a collaborative over time. Doing so will allow the collaborative to better understand the frequency and quality (e.g. levels of trust, resource exchange, etc.) among partners. By using the tool, you will be able to demonstrate to stakeholders and funders how your collaborative activity has changed over time and progress made in regard to how collaborative partners participate.

Elements of the Tools:

- A survey that members of the collaborative will complete (separate file).
- Two databanks to record partner interaction information (Worksheets: "Org_Info" & "Results").
- A set of network scores to compare over time (Worksheet: "Network Scores").
- Network graphs of your collaborative (Worksheet: "Network Graphing").
- A technical guide that includes instructions, definitions, technical help, and other resources (separate file).

Choose from the Options Below:

Manage Your Data

Analyze Your Network Scores

Create Network Maps

For Additional Help

See technical guide for more information about how to use the tool, technical help, interpreting the network scores and graphs, and a glossary.

Copyright © 2008 RAND Corporation

PARTNER is software copyrighted by the RAND Corporation. PARTNER can only be used for non-commercial purposes. For commercial applications or additional software development, please contact Danielle Varda at varda@rand.org or 310-393-0411 x6438.

Introduction / Data management / Network Graphing / Network Scores / Data / Org_Info / List

Ready NUM

Microsoft Excel - Partner Tool.xls

File Edit View Insert Format Tools Data Window Partner Tool Help

To visualize your network, please choose from the following options:

Size of network area

DISPLAY FREQUENCY OF INTERACTIONS

Include only organizations interacting at least:

- Once a year or less
- Every few months
- Every few weeks
- Every week
- Every day

Display Network

Wipe it Clean

DISPLAY STRATEGIC VALUE ORGANIZATIONS

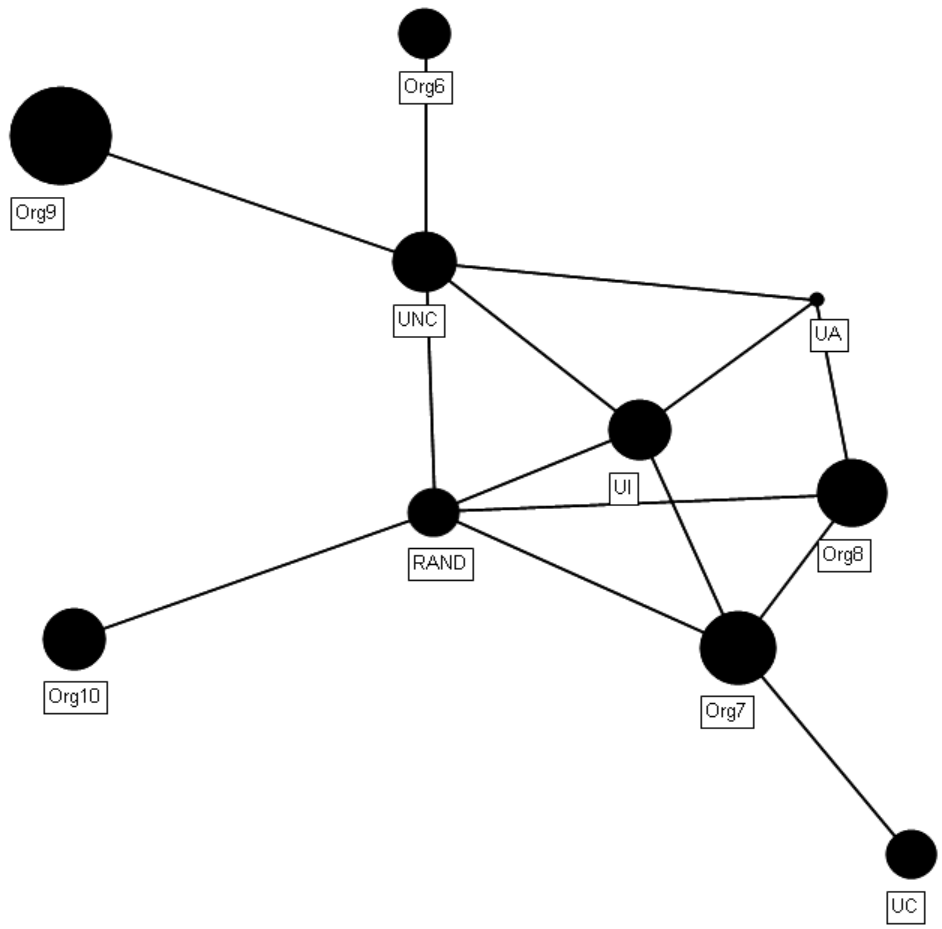
- Overall Value
- Power/Influence
- Level of Involvement
- Level of Resource Contribution

Update Map

DISPLAY RESOURCES (Choose One)

- None
- Each Organization's Most Important Contribution
- Funding
- In-Kind Resources
- Paid Staff

Update Map



Introduction / Data management / Org_Info / Data / Network Graphing / Network Scores / List

Ready

Microsoft Excel - Partner Tool.xls

File Edit View Insert Format Tools Data Window Partner Tool Help

A1 To visualize your network, please

To visualize your network, please choose from the following options:

Size of network area

DISPLAY FREQUENCY OF INTERACTIONS

Include only organizations interacting at least:

- Once a year or less
- Every few months
- Every few weeks
- Every week
- Every day

Display Network

Wipe it Clean

DISPLAY STRATEGIC VALUE ORGANIZATIONS

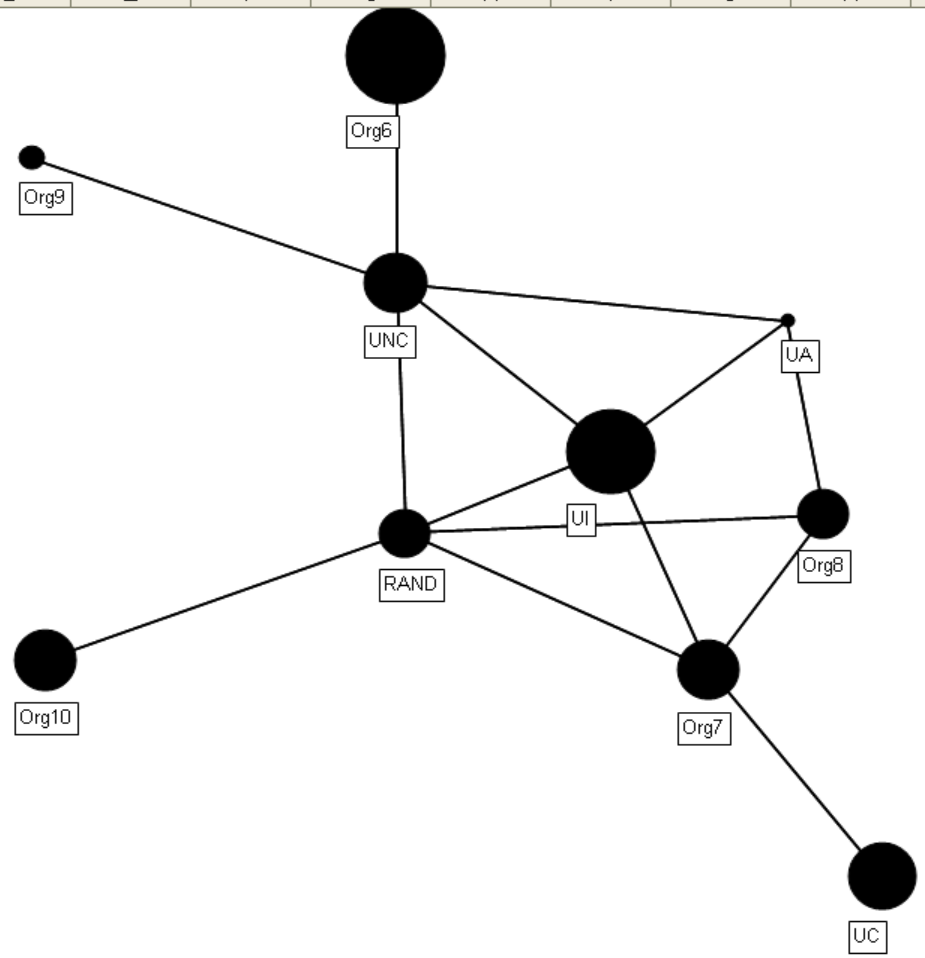
- Overall Value
- Power/Influence
- Level of Involvement
- Level of Resource Contribution

Update Map

DISPLAY RESOURCES (Choose One)

- None
- Each Organization's Most Important Contribution
- Funding
- In-Kind Resources
- Paid Staff

Update Map



Introduction / Data management / Org_Info / Data / Network Graphing / Network Scores / List

Ready NUM

Microsoft Excel - Partner Tool v10 ss2-20.xls

File Edit View Insert Format Tools Data Window Partner Tool Help

E40

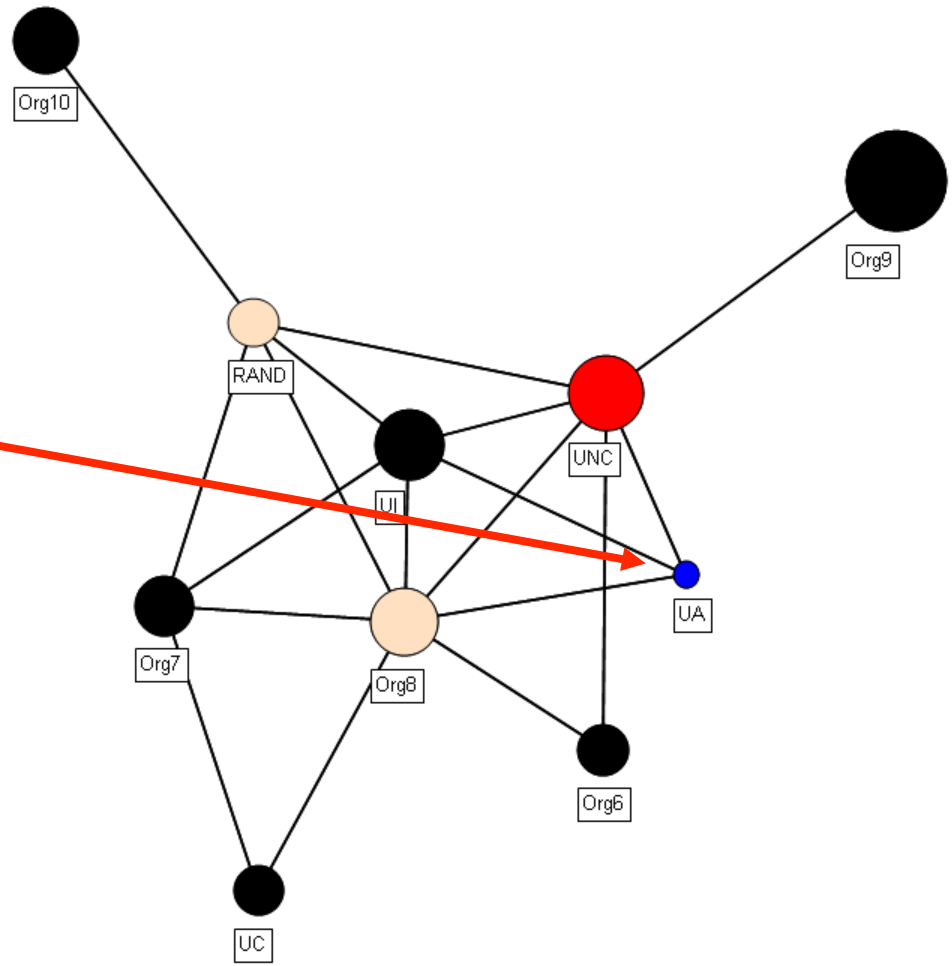
DISPLAY RESOURCES (Choose One)

Update Map

- None
- Each Organization's Most Important Contribution
- Funding
- In-Kind Resources
- Paid Staff
- Volunteer Staff
- Data Sets
- Info/Feedback
- Specific Health Expertise
- Expertise Other Than in Health
- Community Connections
- Decision-Making
- Facilitation
- Advocacy

Introduction / Data management / Data / Org_Info / Data1 / Network Scores / List

Ready



Microsoft Excel - Partner Tool w Groups v4.xls

File Edit View Insert Format Tools Data Window Partner Tool Partner Tool Partner Tool Help

Type a question for help

90% Arial 10

Reply with Changes... End Review...

N30

To visualize your network, please choose from the following options:

Show Names

Yes

Size of network area

CHOOSE WHICH GROUPS TO SHOW

All
A
B
X
Y

Display Network

Erase

Show group affiliation with

Different Shapes

Different Colors

Do not show

DISPLAY FREQUENCY OF INTERACTIONS

Include only organizations interacting at least:

Once a year or less

Every few months

Every few weeks

Every week

Every day

Display Network

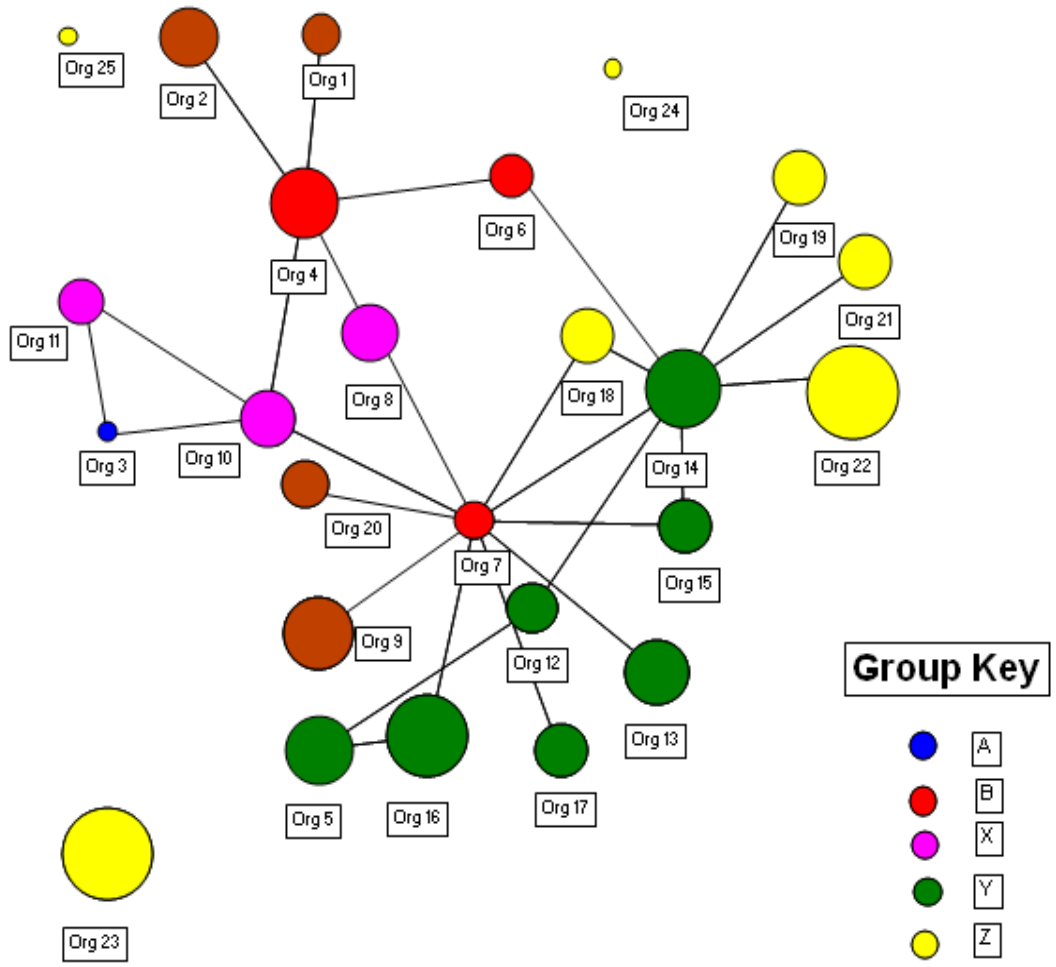
Erase

DISPLAY STRATEGIC VALUE ORGANIZATIONS

None

Overall Value

Update Map



Introduction | Data management | Network Graphing | Network Scores | Data | Org_Info | List

Ready

NUM

Microsoft Excel - Partner Tool v14 (2).xls [Read-Only]

File Edit View Insert Format Tools Data Window Partner Tool Help

Calculate Network Scores

Calculate Individual Scores

Calculate All Scores

Clean

Show/Remove Scores' Explanation

Network Scores

Density	4.00%
Degree Centralization	33.60%
Trust	69.10%

Density: Percentage of ties present in the network in relation to the total number of possible ties in the entire network.

Degree Centralization: The lower the centralization score, the more similar the members are in terms of their number of connections to others (e.g. more decentralized).

Trust: The percentage of how much members trust one another. A 100% occurs when all m

Individual Scores

	CENTRALITY/CONNECTIVITY/REDUNDANCY				VALUE (1-4)			
	Degree Centrality (max 23)	Effective Network Si	Closeness Centrality	Relative Connectivit	Total Value (1-4)	Influence/ Power (1-4)	Level of Involvement (1-4)	Res 4)
Mercer County Division o	0	0	n/a	0%	n/a	n/a	n/a	
Mount Olive Township, S	0	0	n/a	0%	n/a	n/a	n/a	
NJDHSS Office of Cancer	2	1.05	0.57	27%	3	2.5	3	
Burlington County Health	0	0	n/a	0%	3	3	3	
Clifton Health Departmer	0	0	n/a	0%	2.33	1	2	
Strategic Innovation	8	7.53	1	100%	2.33	2	3	
Union County Office of He	1	1	0.53	14%	2.67	2	3	
Salem/Cumberland Cour	0	0	n/a	0%	n/a	n/a	n/a	
Wayne Twp Health Depa	0	0	n/a	0%	3.17	3.5	3	
Long Beach Island Health	0	0	n/a	0%	n/a	n/a	n/a	
Manalapan Twp Departm	0	0	n/a	0%	2.67	2	3	
Denville Division of Health	4	2.39	0.67	52%	2.33	1	3	
Hudson Regional Health	0	0	n/a	0%	1.67	2	1	
Princeton Regional Health	0	0	n/a	0%	3	3	3	
Passaic County Department	1	1	0.53	0%	1.33	1	1	

Introduction / Data management / Network Graphing / Network Scores / Org_Info / Data / List

Ready NUM

How Will Public Health Collaboratives Use the Results?

- Consider levels of trust and value
- Increase/Decrease network ties
- Leverage existing relationships
- Identify gaps
- Account for the cost of strategizing and fostering new relationships
- Report progress of collaborative to funders, stakeholders, community members, partners

Pilot Testing PARTNER

- Completed initial pilots for functionality
- March/April:
  - NJ State Public Health Department (MAPP)
    - 7 Counties, Interest from 10 More
- May: Datasets for up to 20 PHCs

Analysis Plan: Comparing Across/ Within Collaboratives

- Are data clean? Do computations run accurately?
- Descriptively: similarities, differences across collaboratives.
- Correlations: value, trust, density, centralization, relative connectivity, length of partnership (QAP)

	Trust	Value	Resource Exchange	Length	Org Type	Network Position	Relative Connectivity	Whole Network
Trust								
Value								
Resource Exchange								
Length								
Org Type								
Network Position								
Relative Connectivity								
Whole Network								

- Inferential: What is the probability of certain characteristics occurring? (p* models)

Next Steps for the Research

- **Project #1:** Custom Survey Form & Analysis Tool
  - Workgroups
  - Create your own questions
- **Project #2:** Public Health Preparedness Planning & Evaluation Tool
  - Pandemic Working Group (ASU)
  - Connectivity as a Preparedness Measure

Next Steps for the Research

- **Project #3:** Maintaining Database of Whole Network Data
  - Requirement of using PARTNER
- **Project #4:** Workshops for Public Health Departments
  - Training on strategic network management
  - Linking collaboration to outcomes

Questions?

Danielle M. Varda
RAND Corporation
varda@rand.org