

Network Analysis of a Shared Governance System

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USIECR Conference
Tucson, Arizona
May 21, 2008

A stylized, dark teal silhouette of a mountain range is positioned in the bottom right corner of the slide, extending from the right edge towards the center.

Social Networks and Shared Governance

Governing through networks:

- ◆ Creates a new structure reflective of the needs and functions of society.
- ◆ Helps government expand its effective capacity by engaging both individuals' and organizations' innovative spirit and creativity to solve complex problems.

Social Networks and Shared Governance

Social interaction is necessary to achieve effective resource management outcomes.

Abstract

This study contributes to the growing body of literature on key social interactions (network characteristics) that lead to effective systems of shared governance.

Research Questions

- ◆ Do the network characteristics of social capital, network management, and network structure influence network performance?
- ◆ What are the relationships between these three network characteristics and network performance?

Defining RACs and Network Performance

- ◆ A RAC network is defined operationally as a 15 member network composed of three broadly defined interest groups created to recommend projects as mandated by P.L. 106-393.
- ◆ Network performance is measured by (Ingles, 2004; Kusel, 2006; Birkhoff & Lowry, 2003):
 - Project dollars leveraged
 - Increase in Title II allocations over the lifespan of the Act
 - Commitment of RAC members to continue meeting the goals and objectives set forth in the Act

Characteristic: Network Structure

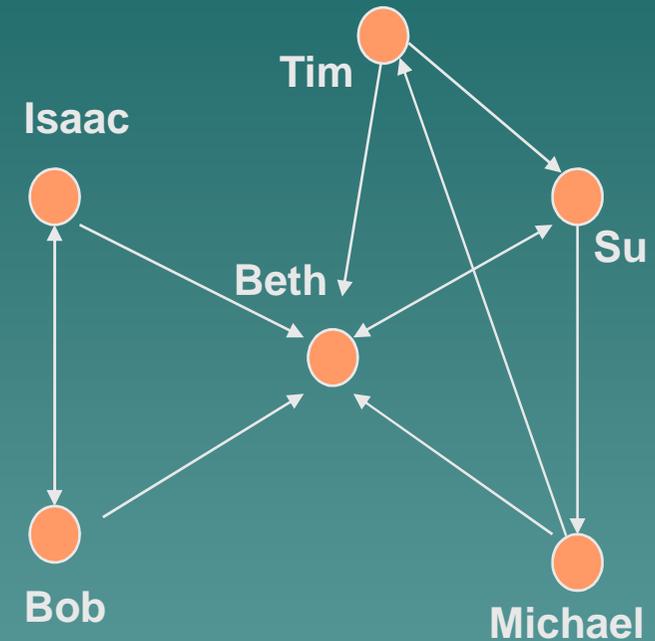
- ◆ Key to social network theory is the relationship between individuals in terms of nodes and ties (nodes are individuals, ties are the relationships between them)
- ◆ A social network is essentially a map of all the relevant relationships between the network members being studied

Characteristic: Network Structure

Relationships Are 'Uncovered'
Through Questions We Ask

Network Structure Analyzed Based On
Key Indicators:

- Direction of info flow
- People who are overly central
- People who are loosely connected and may be under-utilized
- Divisive subgroups
- Network level of overall connection



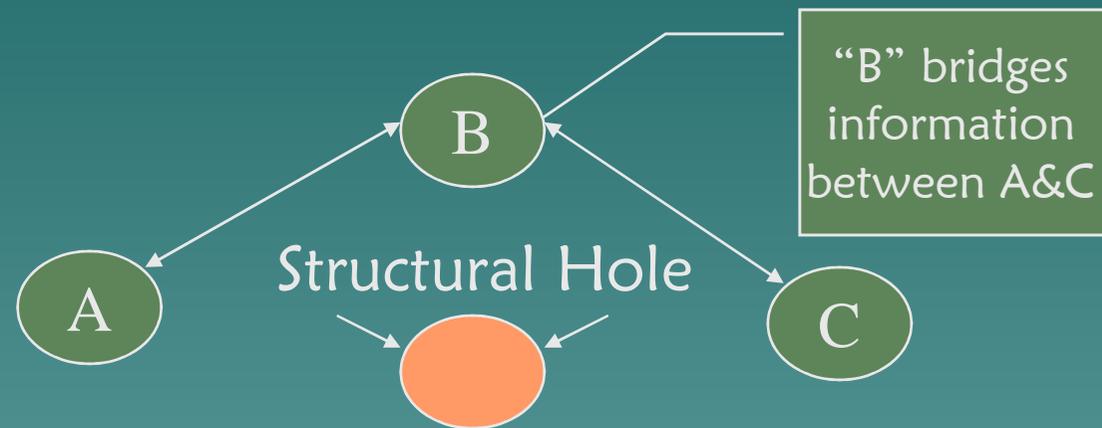
- Information/Knowledge
- Task flow
- Trust or energy

Characteristic: Network Structure

Degree Centrality

- ◆ Displays how well connected each individual is
- ◆ Technical definition: The number of ties a persons has

Characteristic: Network Structure

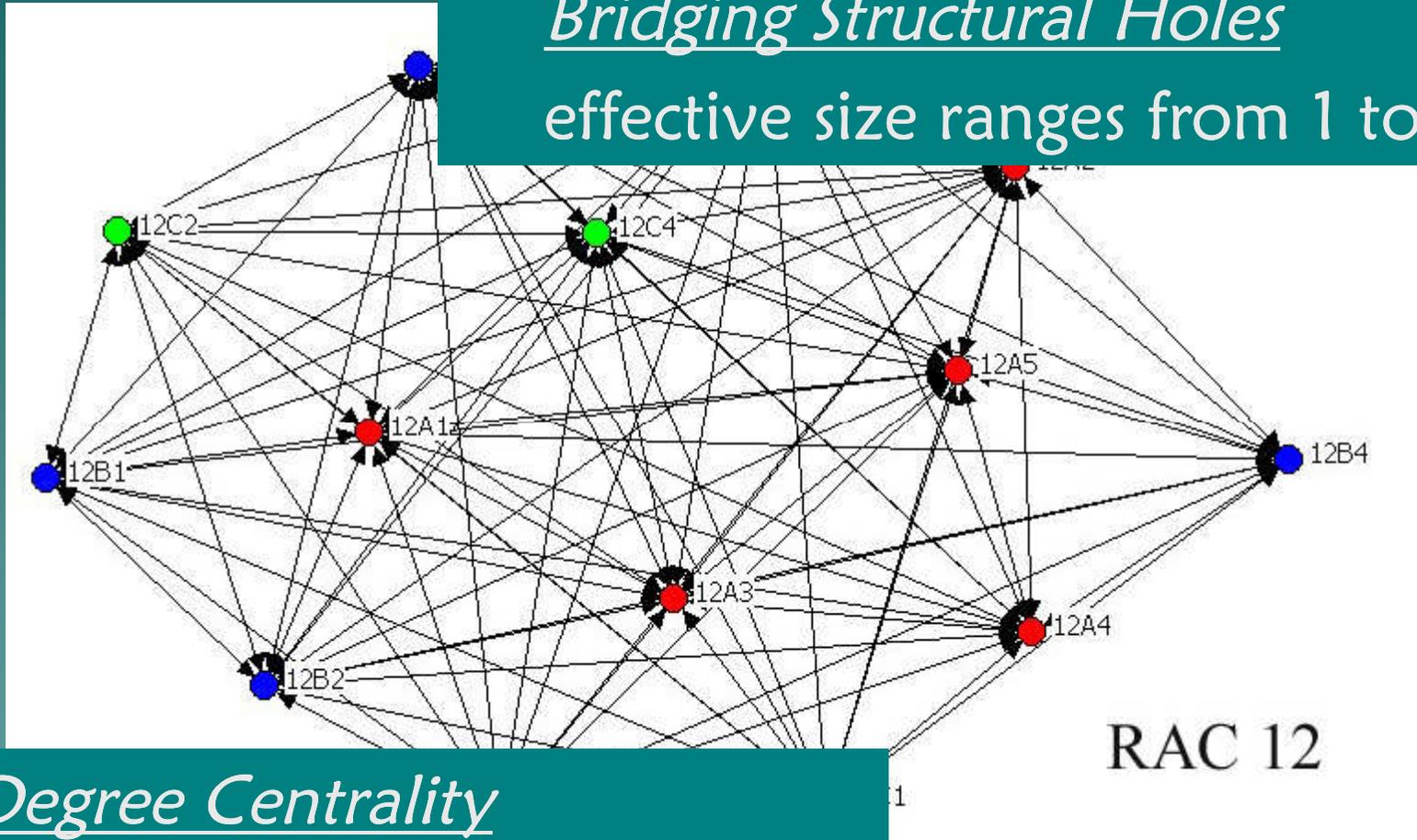


- *Bridging Structural Holes*
 - *bridging* new information and resources between unconnected individuals
 - *focus power* among certain individuals

Network Structure

Bridging Structural Holes

effective size ranges from 1 to 1.3



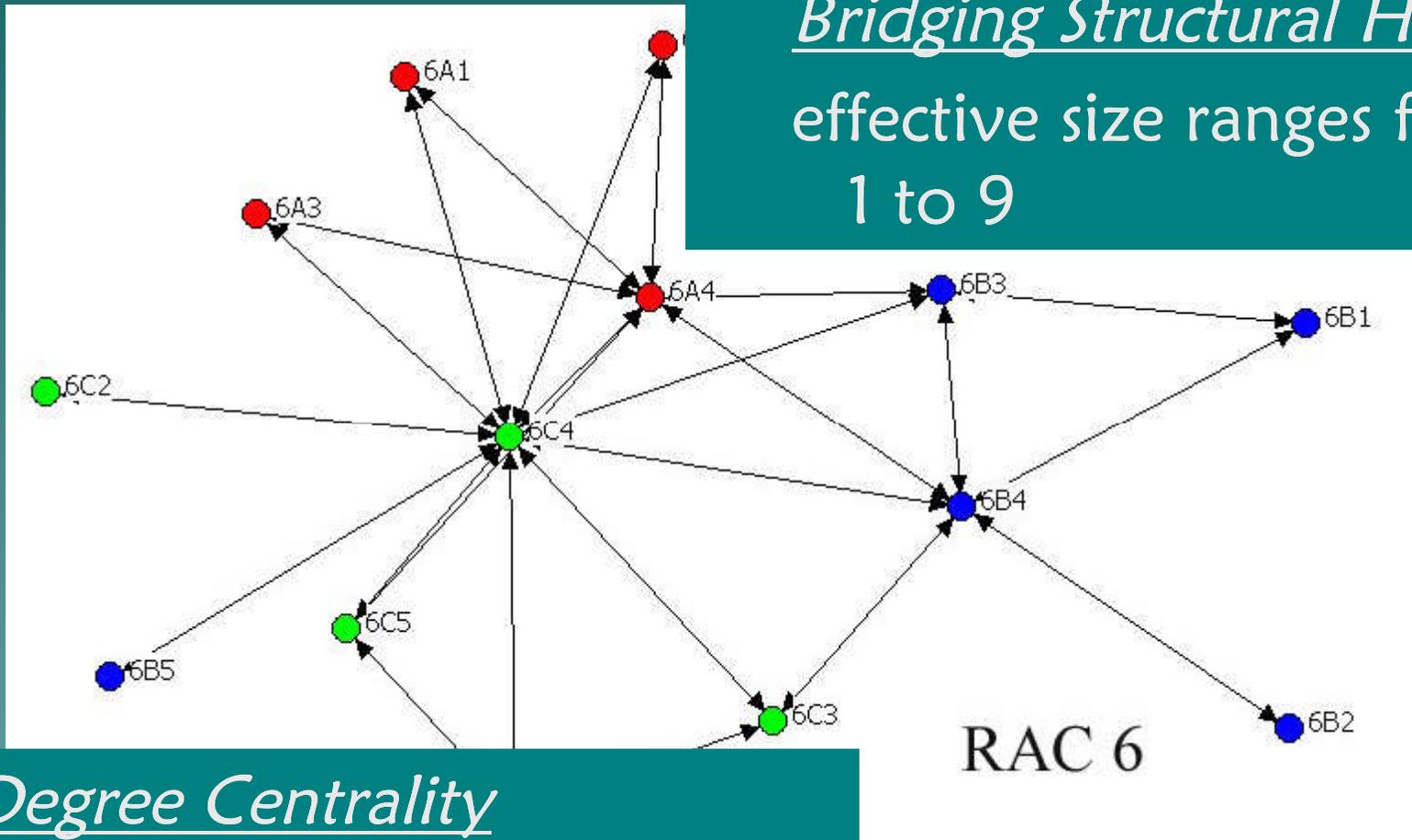
Degree Centrality

high of 13, low of 11

Average number of ties is 12.7

Network Structure

Bridging Structural Holes
effective size ranges from
1 to 9



Degree Centrality

high of 11, low of 1

Average number of ties is 3.4

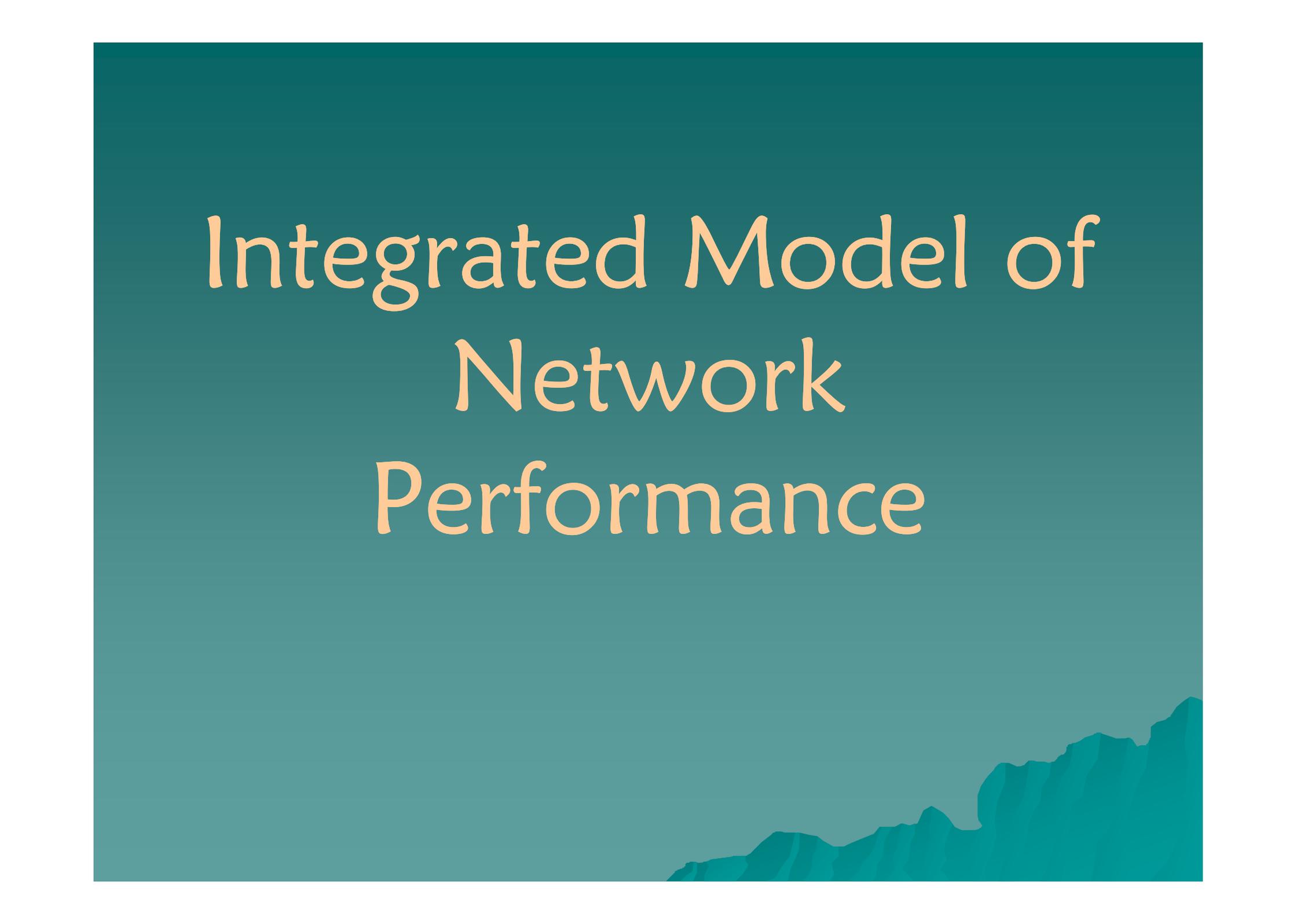
Characteristic: Social Capital

- ◆ Network social capital focuses on network *interactions* that create value and facilitate the productivity of network participants (Putnam, 1993, Ring & Van de Ven, 1994; Plummer & FitzGibbon, 2006)
- ◆ Ostrom (1992) identified concepts such as common understanding, trust, and reciprocity as attributes of social capital

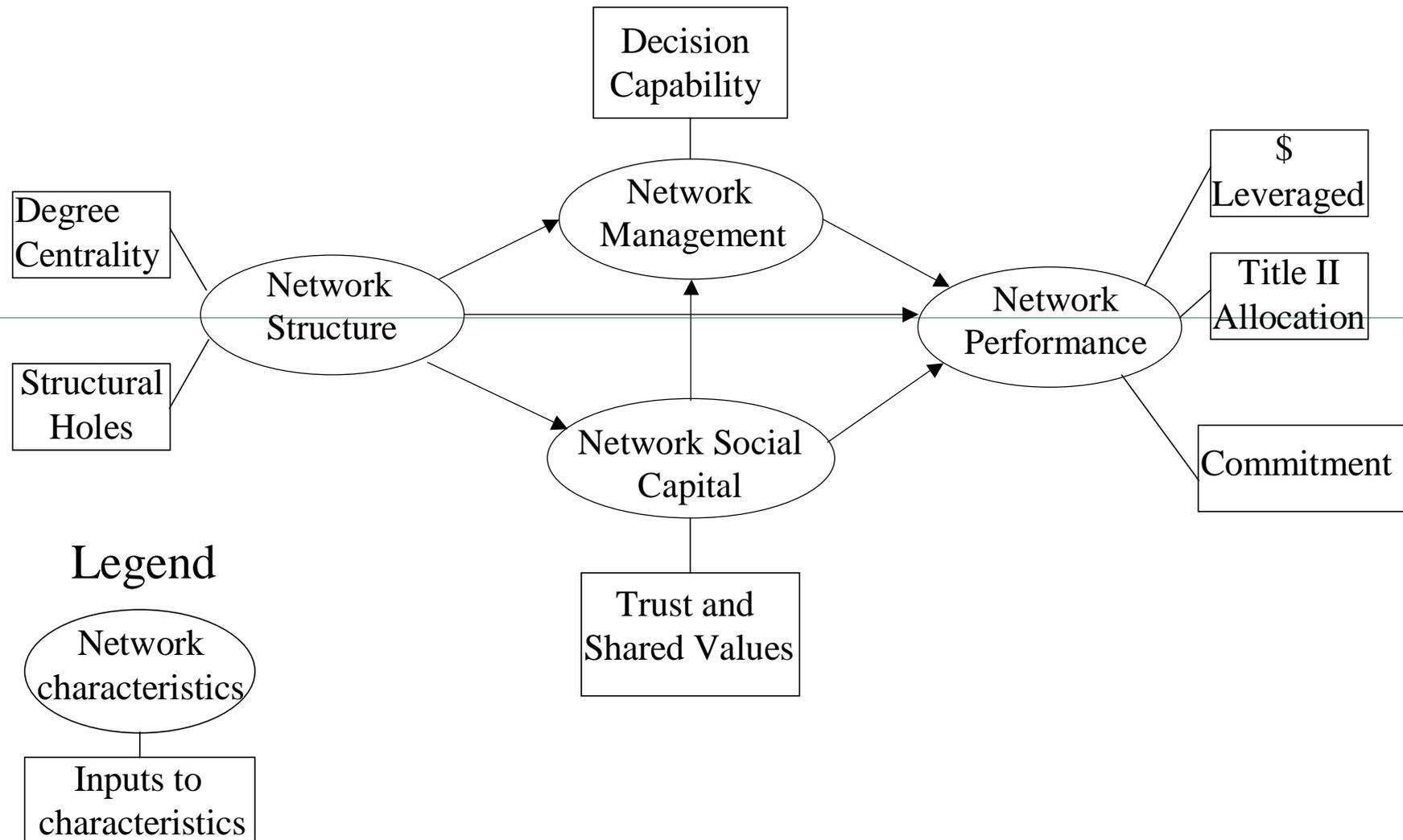
Characteristic: Network Management

- ◆ Management practices shape network patterns and performance outcomes (Cross & Parker, 2004).
- ◆ The domain of dispute resolution offers the concept of “all-gain agreements” where participants recognize that stability depends upon relationships (Susskind & Cruikshank, 1987).
- ◆ Practices that build strong relationships are critical to network performance (Wondolleck & Yaffee, 2000; Gibson, McKean & Ostrom, 2000; Doppelt, 2003).

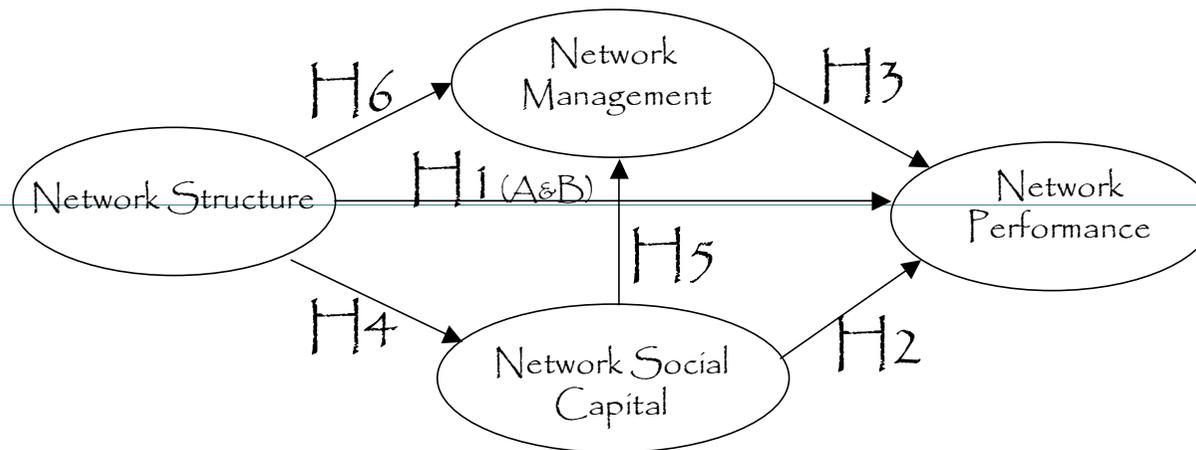
Integrated Model of Network Performance

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Integrated Model of Network (RAC) Performance



Integrated Model of Network (RAC) Performance



Study Population

- ◆ 55 active RACs in 13 states: this equates to 825 RAC members.
- ◆ Unit of Analysis is the Individual:
 - Analyze individual members, enumerating the local networks around them to predict individual outcomes
 - Financial indicators of performance while applied individually, represent a group score for the RAC in which they participate.

Sampling Method

- ◆ Self-Administered written survey
- ◆ Historical data

Data Analysis Procedures

- ◆ Descriptive information provided for all variables: means, variances, and standard deviations.
- ◆ Correlational analyses and multiple linear regression were used to test the direct and indirect effects of the predictor variables on the outcome (performance)

Testing Mediation

To test the significance of the indirect effect, the approach used involved computing the partial regression coefficients and calculating standard errors.

Results



Data Collection

- ◆ Final sample size was 302 respondents for a 37% response rate.
- ◆ Of the 55 RACs, 38 responded to the survey, for a group response rate of 69%.



Diagnostic Analyses

Correlational Analyses:

- Commitment and the number of ties increased with an increasing level of trust and effective size
- Decision capability was positively correlated to commitment, degree centrality and trust
- Trust levels and decision capability were highest in Group C and lowest in Group A, with Group B falling midway

Study Findings – Network Structure

- Hypothesis 1a. While positive effective size was significantly associated with positive commitment, the overall contribution of effective size in predicting the performance outcome commitment was minimal ($R^2 = .014$).
- Hypothesis 1b. While degree centrality did significantly predict both commitment and the average percent change from Title III to Title II, it accounted for a small percent of the variance ($R^2 = .043$ for commitment, and $R^2 = .011$ for the average percent change from Title III to Title II).

Study Findings – Network Social Capital

Hypothesis 2. Trust significantly predicted both the average percent change from Title III to Title II and commitment (R^2 for trust and Title III to II was .014 and .066 for trust and commitment).

Study Findings – Network Social Capital

Hypothesis 5. Trust significantly predicted decision capability ($R^2 = .645$), yet a correlation of .803 exists between trust and decision capability, indicating that the two variables may be tapping the same construct.

Study Findings – Network Management

Hypothesis 3. Decision capability significantly predicted commitment ($R^2 = .057$)

Study Findings - Mediation

Hypothesis 4. Greater numbers of structural holes as well as increasing the total number of ties is significantly associated with higher levels of trust ($R^2 = .13$ and $R^2 = .14$, respectively). Also, the effects of degree centrality and effective size on commitment were mediated by trust.

Study Findings - Mediation

Hypothesis 6. The effect of degree centrality on commitment was fully mediated by decision capability ($R^2 = .19$)

- However, when the mediational analysis was run with both trust and decision capability as mediators, the results indicated that, when controlling for trust, the mediational affect of decision capability was no longer significant.

Contributions

- ◆ While a direct relationship does exist between network structure and performance, the effects of network social capital and network management also mediate it.
- ◆ Policy implications include:
 - Ensuring government employees have network skills reflective of today's needs;
 - Balancing accountability with the decentralized, flexible, and creative nature of networks; and
 - Understanding that sharing information from non-traditional sources potentially transforms the knowledge base for decisions.

Limitations of Study

- ◆ A snap-shot in time...
- ◆ All RACs are not created equal...
- ◆ Infrequent RAC meeting schedule...
- ◆ This study accounted for 50% of the variance...other inputs might include: leadership styles and relationships with FS officials and county commissioners.
- ◆ Difficulty in detecting ecological change...

Implications for Future Research

- ◆ How does the increased level of trust among RAC members extend to the community it serves in building community resilience and adaptive capacity?
- ◆ How do RACs continue to evolve and change over time?
- ◆ How do other network characteristics, such as network learning, or how leadership styles contribute to network management, broaden the scope of how network characteristics influence performance?
- ◆ How do Forest Service officials, particularly Designated Federal Officials and RAC Coordinators affect RAC performance?

Policy Implications – Discursive Democracy

Over 4400 resource improvement projects at a cost of 200 million dollars (Title II) were recommended, approved by the DFO, and implemented *without appeal*

Policy Implications - Networks and Traditional Bureaucratic Models

- ◆ A networked environment requires an approach and skill-set different from traditional government models
 - cultural norms embedded within federal land management agencies affect their ability to collaborate effectively.
 - government systems can transform the way they recruit, train, and reward employees

Policy Implications – Networks and Accountability

- ◆ An over reliance on rule compliance can lead to an adversarial relationship with partners, thus the key is balancing accountability measures with the purpose of the network: to provide a decentralized, flexible, creative response to a public problem (Goldsmith & Eggers, 2004).
 - clear definitions of the public good to be produced
 - a determination of who was accountable for what and by whom
 - incentives for producing results
 - open and transparent public input processes
 - government control systems for tracking expenditure of funds

and finally...

Americans of all ages, all conditions, and all dispositions, constantly form associations...if they never acquired the habit of forming associations in ordinary life, civilization itself would be endangered.

-Alexis De Tocqueville, 1835