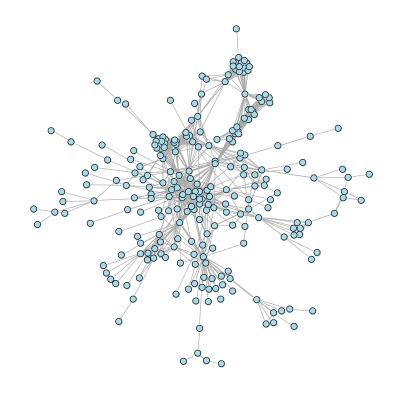
#### Deloitte.

Connecting the Dots: Social Network Analysis and its Application to Insurance



**CAS Cutting Edge Ideas Seminar Baltimore** 

October 2011

Steve Berman, FCAS, MAAA Jim Guszcza, FCAS, MAAA

**Deloitte Consulting LLP, University of Wisconsin-Madison** 

### Agenda

Introduction / Background

**Definitions and SNA Basics** 

**Interpreting Networks** 

**Network Metrics** 

**Case Studies** 

**Insurance Applications** 

**Tools and Resources** 

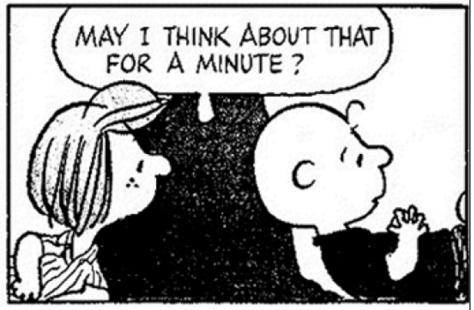
Q&A

## Background

#### **Opening Thoughts**

"Only Connect" – E.M. Forster "It's not what you know, it's whom you know" – ubiquitous





#### The Development of Social Network Analysis

- Social Network Analysis arose in the social sciences
  - Sociology, psychology, anthropology
  - Study of connections started in the mid-1800's
  - More formal structure to field added in 1920's-1930's
  - Jacob Moreno invents the "sociogram" in 1930's
    - now known as network maps
  - Development of SNA metrics as early as 1950's
  - Stanley Milgram (1960's) six degrees of separation analysis
  - 1970's different fields begin to merge into one

#### **Social Network Analysis Today**

- Culture: Social networking analysis has gained prominence in past few years
  - Social media has gone mainstream... and changed our culture













- Analytics: SNA packages have proliferated
  - Many packages are free or cheap
  - Readily calculate key SNA statistics
  - Allow graphing of hundreds or thousands (or millions!) of nodes
  - Recent improvements in network layouts and clustering algorithms
  - Data collection from expensive surveys to automatic database logging

#### What is Social Network Analysis?

 Social network analysis (SNA) is the mapping and measurement of relationships and flows between people, groups, organizations or other actors

#### Examples:

- Groups of friends (analysis of playground relations an early application)
- Business organizations, connections
- Linked websites
- Academic and artistic collaborations
- Social network web links
- Political organizations

#### Some Key Considerations

- SNA structural relations can be as important to understanding behavior as demographics and past behavior
- Attitudes, beliefs, habits can be affected by mechanisms represented by SNA
- Structural relations are dynamic in nature

# For the rest, see us in Baltimore

