Social Media, Social Networks and Social Network Analysis
What is Social Network Analysis (SNA)?

- The “engine” behind new ways of examining epidemics, terrorism, crime, companies, schools, etc.
- A provider of nuanced and textured insights into how organizations really work
- The enabler of targeted marketing and political campaigns on social media and the Web
Social Networks (SNs) are not groups or links

Thanks to Dan Halgin and Scott Soltis at the LINKS Center, University of Kentucky
What’s the difference between connected groups and SNs?

- Actors and their actions are viewed as interdependent rather than independent.
- Relational ties between actors are channels for transfer/flow of resources, material or non-material.
- Network models focusing on individuals view the network structure as providing opportunities or constraints on individual action.
- Network models conceptualize structure (social, economic, political, etc.) as lasting patterns of relations among actors.

Wasserman and Faust, P. 5
We use SNA to visualize and examine flows

- Disease spread (epidemics)
- Habitual behavior (drugs, smoking, obesity)
- Issue networks (policy, politics, ideas)
- Collaboration networks (co-authors, citations)
- Communications in organizations (businesses, gov’ts, NGOs, terrorist)
- And many, many other kinds

- It employs both your left and right brain to
  - Visualize info and comms connections
  - Organize data so that we can
  - Analyze the networks
Benefits and Issues of SNA

**BENEFITS**

- Seeing ‘unseeable’ and unanticipated patterns in organizations (See Flight patterns)
- Very powerful way to present ideas
- Can be used to challenge conventional thinking, especially in HR evaluations

**ISSUES**

- It is a diagnostic, not an answer—one of many assessment tools available to managers
- Only a snapshot of a slice of time
- Difficult to determine meaningful unit of measurement for relationships and connections
Social Network Analysis helps visualize the bigger picture

**Database**
- Focused on individuals
- Limited info can be drawn out

**SNA**
- Focused on connections
- Identifies “Key People” and patterns
- Clear picture of opportunities

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<table>
<thead>
<tr>
<th>Student 1</th>
<th>Porsche</th>
<th>M2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 2</td>
<td>IKEA</td>
<td>M6</td>
</tr>
<tr>
<td>Student 3</td>
<td>Amazon</td>
<td>P1</td>
</tr>
<tr>
<td>Student 4</td>
<td>Puma</td>
<td>P6</td>
</tr>
</tbody>
</table>
And presents multiple potential levels of analysis

- **University** Network
  - **HHL Alumni**
  - **Companies** (connected through HHL Alumni)

- There is great potential to increase the Network within HHL and companies
  - Not only with the Key companies

- Easy to identify key Alumni (connectors, bridges, etc)

- Marketing purposes

- Connections

- Find different paths to connect with companies or alumni
SNA helps us understand how organizations really work

Informal Structure as Revealed by Social Network Analysis

Formal Versus Informal Structure

Informal Structure as Revealed by Social Network Analysis

Note: This example has been substantially disguised at the request of the organization.
The only way to establish the importance (positive or negative) is by interviews.

Happy in isolation, e.g. researcher?

Not yet integrated into company?

Outlier? Boundary-spanner?

Connector? Influencer? Bottleneck?
Network theory evolved out of a range of fields

- **Mathematics**
  - Graph Theory/Koenigsberg Bridge
- **Sociology**
  - Simmel
  - Moreno
- **Psychology**
  - Milgram and “Six Degrees”
- **Anthropology**
  - Granovetter’s “Strength of Weak Ties”
- **Economics**
  - Coase, Williamson, and Powell
- **Physics**
  - Barabasi – Scale-Free Networks and the Internet
Euler, Graph Theory, and the 7 Bridges of Königsberg
Euler, Graph Theory, and the 7 Bridges of Königsberg
1928: Moreno and Sociometry
From physics: three main whole-network configurations

- **Centralized (A)**
- **Decentralized (B)**
- **Distributed (C)**

**FIG. 1** - Centralized, Decentralized and Distributed Networks
Decentralized Networks (also called “Small World,” “6-degree,” or “Weak Tie” Networks)

- **Strong Ties:**
  - One Degree of Separation

- **Strong/Weak Ties:**
  - Two Degrees of Separation

- **Weak/Latent Ties:**
  - ≥ Three Degrees of Separation

- **Weak/Latent Ties:**
  - etc.
What made Social Network Analysis relevant: 9/11

Figure 2 - All nodes within 1 step [direct link] of original suspects
SNA at the NSA, thanks to Mr. Snowden...
You (and FB marketers) can see who your friends are

To do this on your own FB page, search for “TouchGraph” App.
You (or others) can see your lifetime on Gmail: MIT Project
Why is SNA becoming such a popular skill to have?

- Everyone wants to measure the impact of social media (think Arab Spring/Syria, Twitter’s role in elections, or Facebook marketing)

- Social network analysis is becoming a key tool in analyzing a multi-networked, technologically-linked world (think PRISM, multinationals, NGOs, AIDS, bin Laden)

- Fast-growing, multi-disciplinary field in academia, think-tanks, and management consulting (think jobs)
Most SM campaigns are based on “if we post it, they will come”

SOCIAL MEDIA EXPLAINED

TWITTER  I’m eating a #donut
FACEBOOK  I like donuts
FOURSQUARE  This is where I eat donuts
INSTAGRAM  Here’s a vintage photo of my donut
YOU TUBE  Here I am eating a donut
LINKED IN  My skills include donut eating
PINTEREST  Here’s a donut recipe
LAST FM  Now listening to “donuts”
G+  I’m a google employee who eats donuts.
Let's start a crowdfunding page!

Let's start another crowdfunding page!
SNA is an essential tool in planning a social media strategy

- Knowing what kind of network you operate in is the key to assessing efficiency and effectiveness of any campaign
- There is a growing number of sophisticated but accessible (and free) forms of social network analysis to help
- SNA is becoming a sought-after skill, now taught at Fletcher (and many other places)
How Fletcher students use it

- Analyzing data they already have (e.g. trade flows, co-membership, voting records—see my class project examples)
- Asking a network question on a survey (e.g. who do you go to for advice?)
- Analyzing hashtag or friend nets on all kinds of social media
- Tracing issue flow through web links
A selection of projects by my current and previous students

- A network analysis of the global arms trade network
- Old-girl vs. old-boy networks in US Boards of Directors
- Issue networks in young Islamic women across MENA
- Mapping the “experts” shaping media coverage of Hezbollah’s role in Syrian crisis
- Creating and analyzing the @nycvolunteerathon
- Doing business in Tanzania
- Trends in the New York Food Dialogues event
- History of cooperation and conflict networks in Somalia
- Mapping Egyptian political networks
- Patterns of food-system philanthropy in a large US city
- Slave-resettlement networks in Liberia in the 1840s
- Strong- and weak-tie networks at Fletcher and how they might help improve job searches (Pilot project)
The latest trend: Sentiment analysis using Twitter