

Networks

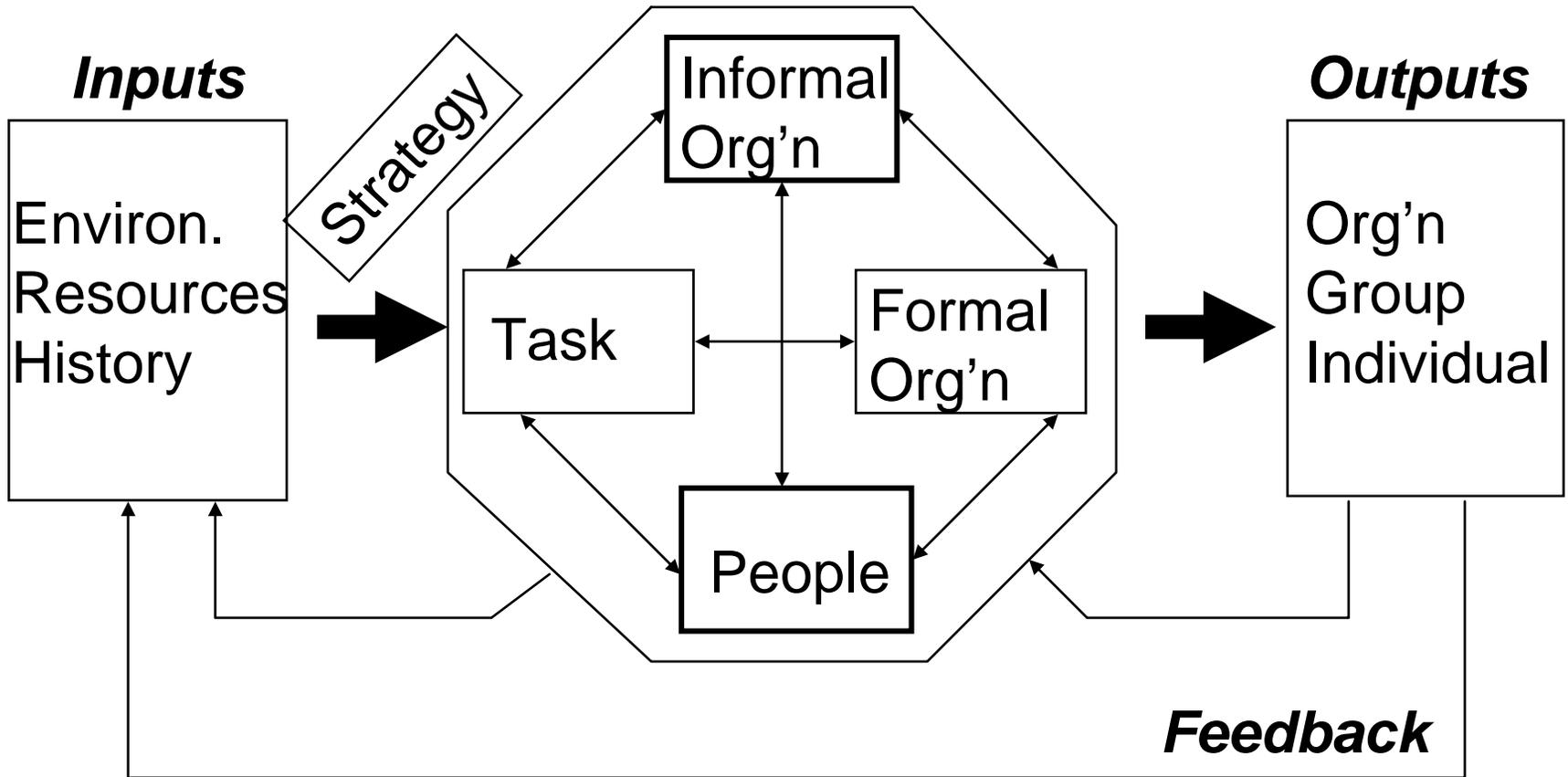
15.301 Managerial Psychology

John S. Carroll

Congruence Model

(Nadler & Tushman)

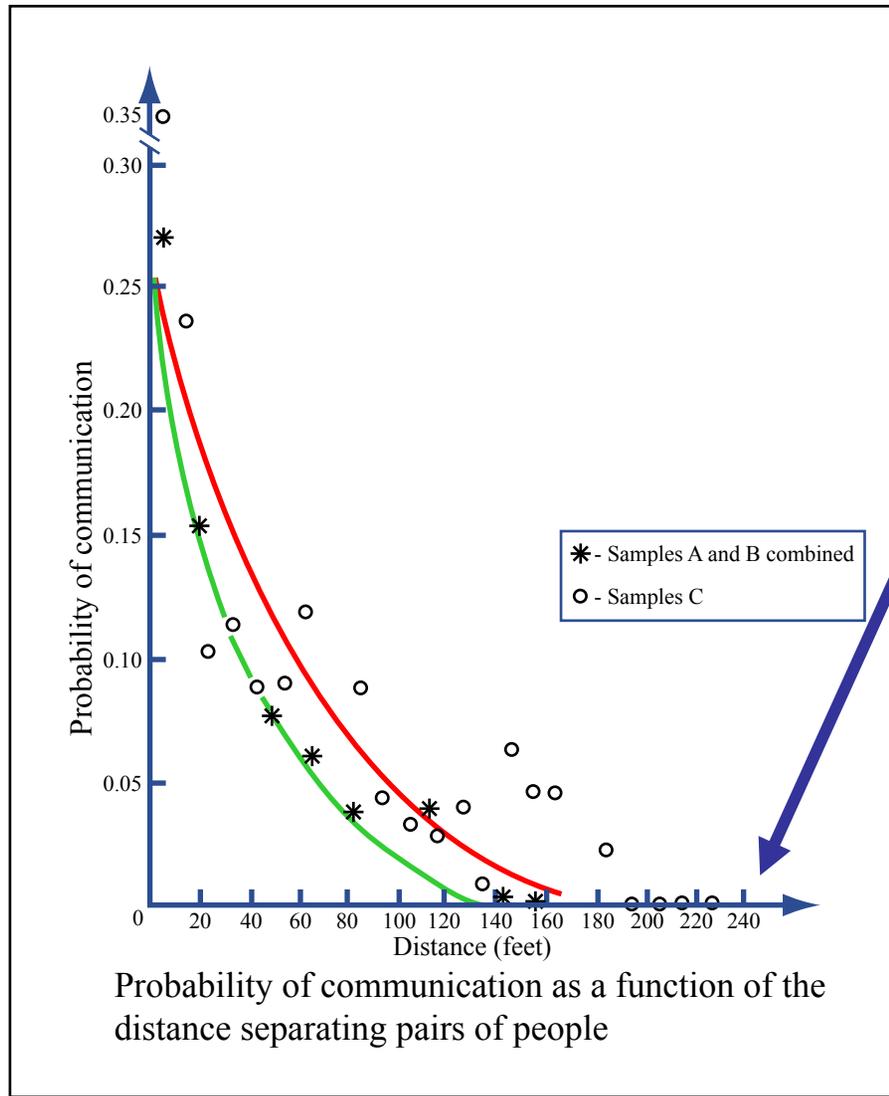
Transformation Process



Social Networks

- Two powerful social principles:
 - **Similarity**: people who are similar tend to like each other and spend more time together
 - **Propinquity**: people who are in proximity tend to spend more time together
- Your friends are most likely people who are similar to you (on what dimensions?) and who are nearby
- What about in the workplace?

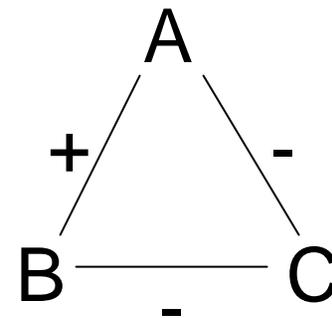
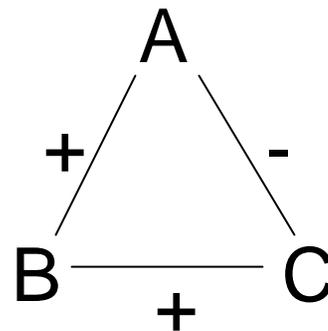
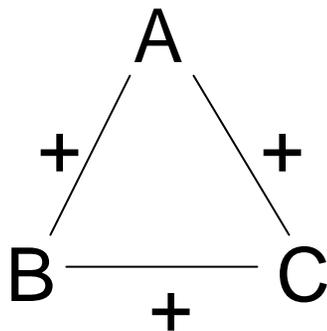
Communication At Work (T. Allen)



> 200' apart,
people don't talk

What Makes It A Network?

- Similarity and propinquity tend to be transitive, i.e., A is similar to B, B is similar to C, so A is probably similar to C
- Balance Theory – we like things to be consistent



Sample Network

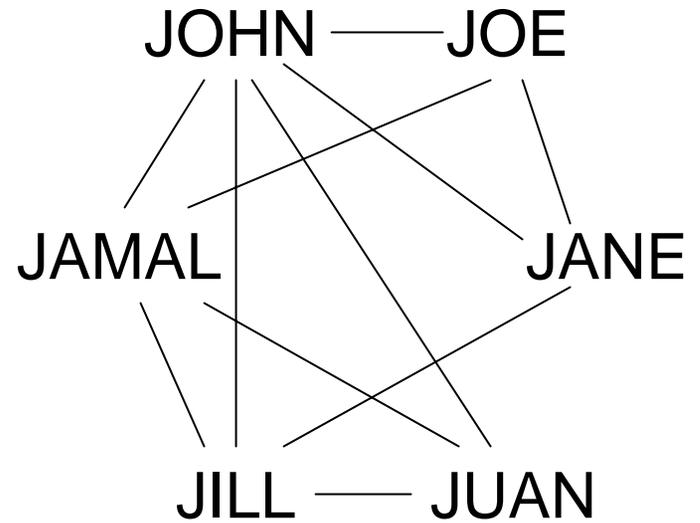
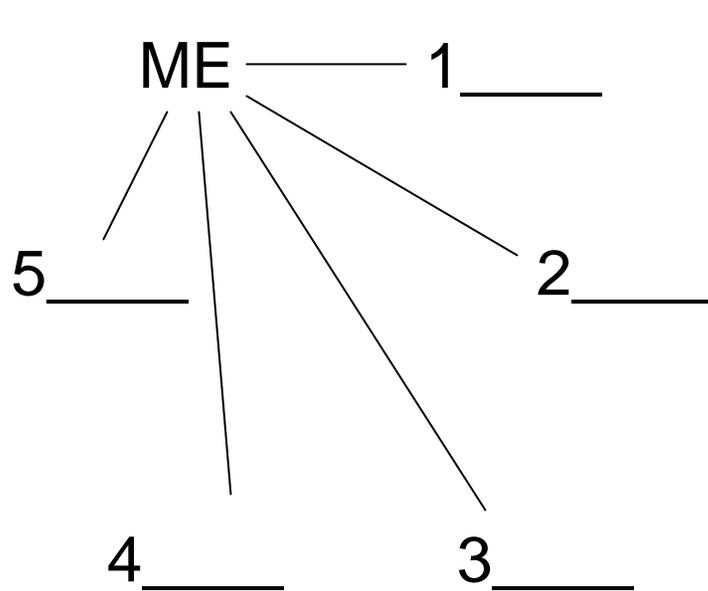
- Who are your 5 best friends at MIT?
- What do you have in common with each (similarity) and how near are they in space (e.g., same dorm room, same floor,...)?

Name	Common	Near
1 _____		
2 _____		
3 _____		
4 _____		
5 _____		

Are Your Friends Friends?

	1_____	2_____	3_____	4_____	5_____
1_____	X	X	X	X	X
2_____		X	X	X	X
3_____			X	X	X
4_____				X	X
5_____					X

Network Diagram



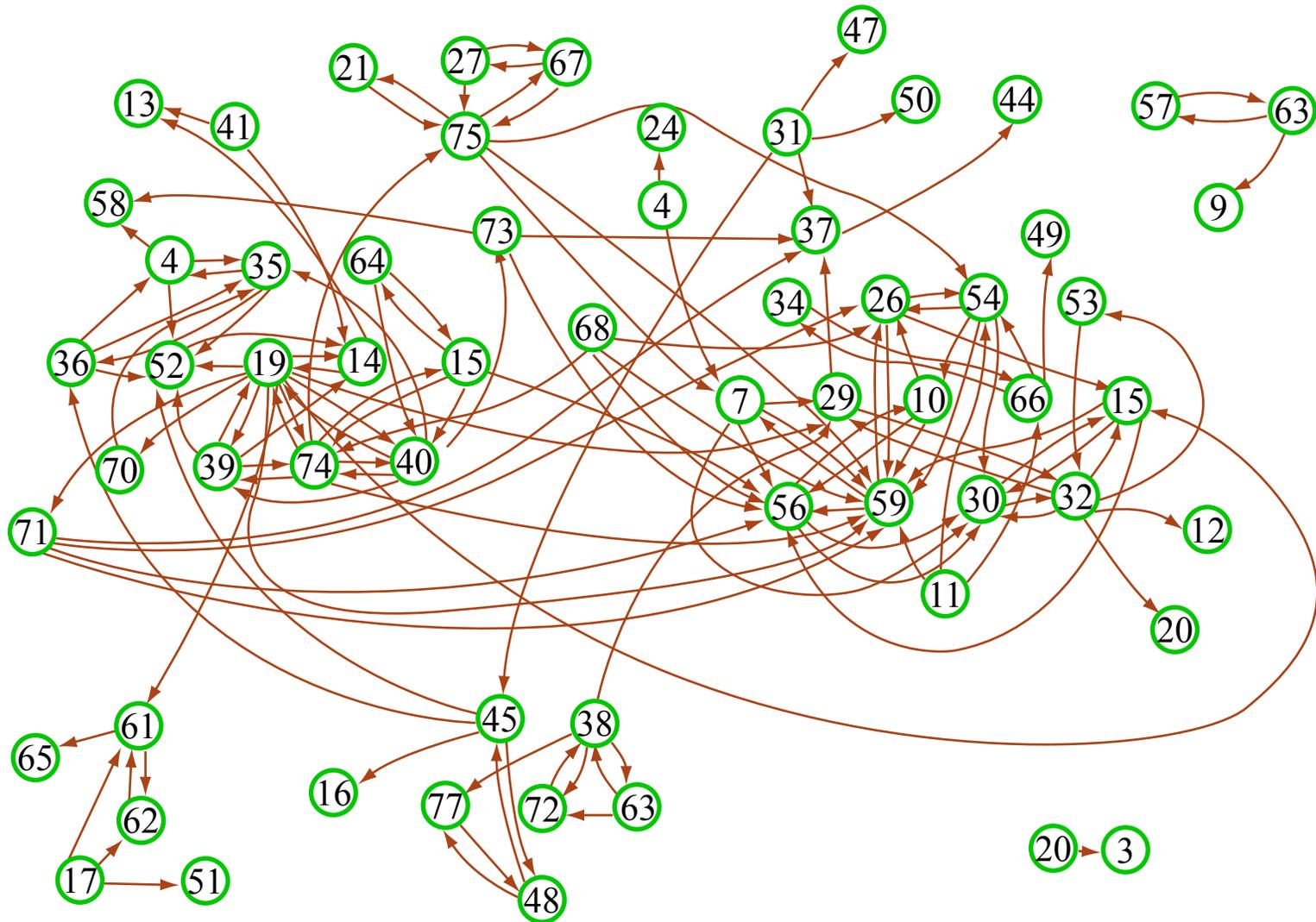
Are You A “Connector”?

- “Connectors” (Malcolm Gladwell, The Tipping Point) or “Stars” (Tom Allen) are people who link to many other people
- Gladwell has a test (see attached) based on random names from Manhattan phone book
- Students average around 20, older people around 40
- Connectors score around 100 or more

Score a point for anyone you know (friends and acquaintances) with that last name. You may count multiple people for the same name.

Algazi, Alvarez, Alpern, Ametrano, Andrews, Aran, Arnstein, Ashford, Bailey, Ballout, Bamberger, Baptista, Barr, Barrows, Baskerville, Bassiri, Bell, Bokgese, Brandao, Bravo, Booke, Brightman, Billy, Blau, Bohlen, Bohn, Borsuk, Brendle, Butler, Calle, Cantwell, Carrell, Chinlund, Cirker, Cohen, Collas, Couch, Callegher, Calcaterra, Cook, Carey, Cassell, Chen, Chung, Clarke, Cohn, Carton, Crowley, Curbelo, Dellamanna, Diaz, Dirar, Duncan, Dagostino, Delakas, Dillon, Donaghey, Daly, Dawson, Edery, Ellis, Elliott, Eastman, Easton, Famous, Fermin, Fialco, Finkelstein, Farber, Falkin, Feinman, Friedman, Gardner, Gelpi, Glascock, Grandfield, Greenbaum, Greenwood, Gruber, Garil, Goff, Gladwell, Greenup, Gannon, Ganshaw, Garcia, Gennis, Gerard, Gericke, Gilbert, Glassman, Glazer, Gomendio, Gonzalez, Greenstein, Guglielmo, Gurman, Haberkorn, Hoskins, Hussein, Hamm, Hardwick, Harrell, Hauptman, Hawkins, Henderson, Hayman, Hibara, Hehmann, Herbst, Hedges, Hogan, Hoffman, Horowitz, Hsu, Huber, Ikiz, Jaroschy, Johann, Jacobs, Jara, Johnson, Kassel, Keegan, Kuroda, Kavanau, Keller, Kevill, Kiew, Kimbrough, Kline, Kossoff, Kotzitzky, Kahn, Kiesler, Korte, Liebowitz, Lin, Liu, Lowrance, Lundh, Laux, Leifer, Leung, Levine, Leiw, Lockwood, Logrono, Lohnes, Lowet, Laber, Leonardi, Marten, McLean, Michaels, Miranda, Moy, Marin, Muir, Murphy, Marodon, Matos, Mendoza, Muraki, Neck, Needham, Noboa, Null, O'Flynn, O'Neill, Orlowski, Perkins, Pieper, Pierre, Pons, Pruska, Paulino, Popper, Potter, Purpura, Palma, Perez, Portocarrero, Punwasi, Rader, Rankin, Ray, Reyes, Richardson, Ritter, Roos, Rose, Rosenfeld, Roth, Rutherford, Rustin, Ramos, Regan, Reisman, Renkert, Roberts, Rowan, Rene, Rosario, Rothbart, Saperstein, Schoenbrod, Schwed, Sears, Statosky, Sutphen, Sheehy, Silverton, Silverman, Silverstein, Sklar, Slotkin, Speros, Stollman, Sadowski, Schles, Shapiro, Sigdel, Snow, Spencer, Steinkol, Stewart, Stires, Stopnik, Stonehill, Tayss, Tilney, Temple, Torfield, Townsend, Trimpin, Turchin, Villa, Vasillov, Voda, Waring, Weber, Weinstein, Wang, Wegimont, Weed, Weishaus

R&D Lab Network (T. Allen)



Typical communication network of a functional department in a large R&D laboratory

Figure by MIT OCW.

p.s. look for “stars” and “isolates”

Network Structure

- **Density** is measured as the number of ties out of the number possible (is more always better?)
- **Symmetry** is whether ties are reciprocated – liking often is, but respect?
- **Structural holes** are places where ties are missing, and therefore opportunities for brokers to gain power or social capital by becoming key links, at the extreme becoming “bowties” where many people are dependent on a single link
- Networks also connect externally, e.g., **gatekeepers** are conduits for external info (in R&D labs, they go to conferences, read journals)

Corporate Architecture

- If communication patterns follow distance between people, then how is that distance determined?
- For face-to-face communication, it's the architecture of buildings that matters
- What kinds of designs inhibit or facilitate communication? E.g., is engineering “inside the fence”?
- We are just beginning to understand what new technologies (email, IM, etc.) do to networks. What would you predict?

Strength of Ties

- Strong ties are like “cohesiveness” in that they create closed systems: “us” and “them”
- Granovetter’s famous paper “The Strength of Weak Ties” found that people get jobs through acquaintances, i.e., weak ties, rather than close friends (strong ties)
- Hansen found that different kinds of information travels by strong vs. weak ties: you need weak ties to search broadly for quick and simple stuff, but transmission of tacit or complex information requires strong ties

Kinds of Networks

- We drew a friendship or liking network, but networks can be drawn on other bases:
 - Who do you talk to every day?
 - Who do you go to for help or advice?
 - Who do you respect?
 - Who do you trust?
- These networks are separate facets, not necessarily a single network

Network Analysis

- The informal network may explain why things happen in organizations, good and bad
- Krackhardt & Hanson report studying a bank with 80% turnover rate among tellers. It turned out that when key players who were trusted by tellers left, the others in their trust network left in droves
- One bank fired someone who appeared to be an “isolate” in their internal network, but neglected to consider that the person had very strong ties with the bank’s largest customer!
- Following a transfer between divisions of a large chemical firm, the transferred persons provided an increasingly effective communication link for 1½ years, then decreased so after 5 years, isolation and poor perf.

Computer Company Case

- Customized office information systems
- Field design group designs and installs, generates most revenue, led by tech superstar
- CEO tried to address missed opportunities from not using other divisions more; conflict and jealousy among divisions
- CEO formed a strategic task force, put a credible, proven performer in charge, but the task force deadlocked in conflict. Why? What would you do as CEO to fix this?

Org Chart Shows Who's On Top

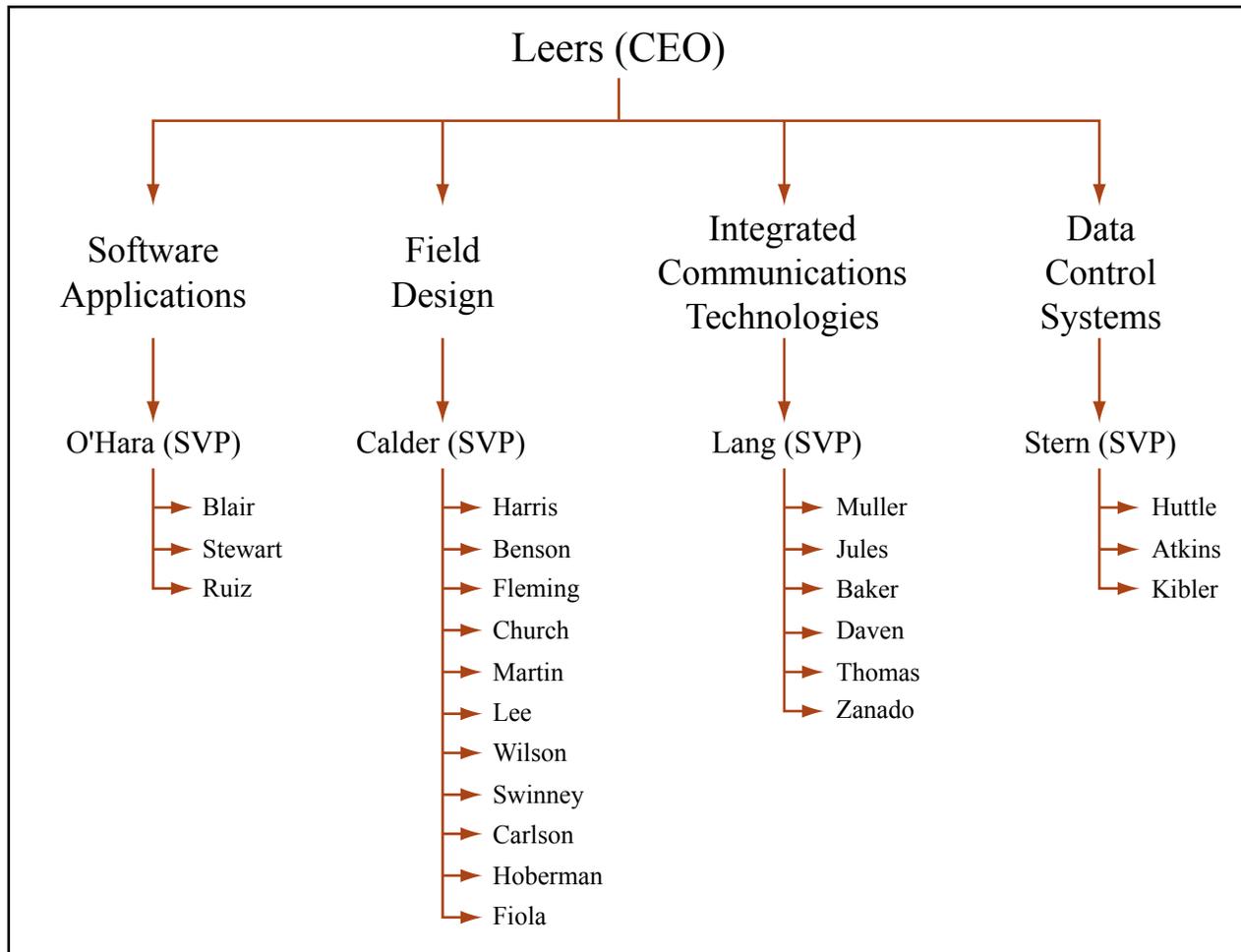


Figure by MIT OCW.

Advice Network Reveals Experts

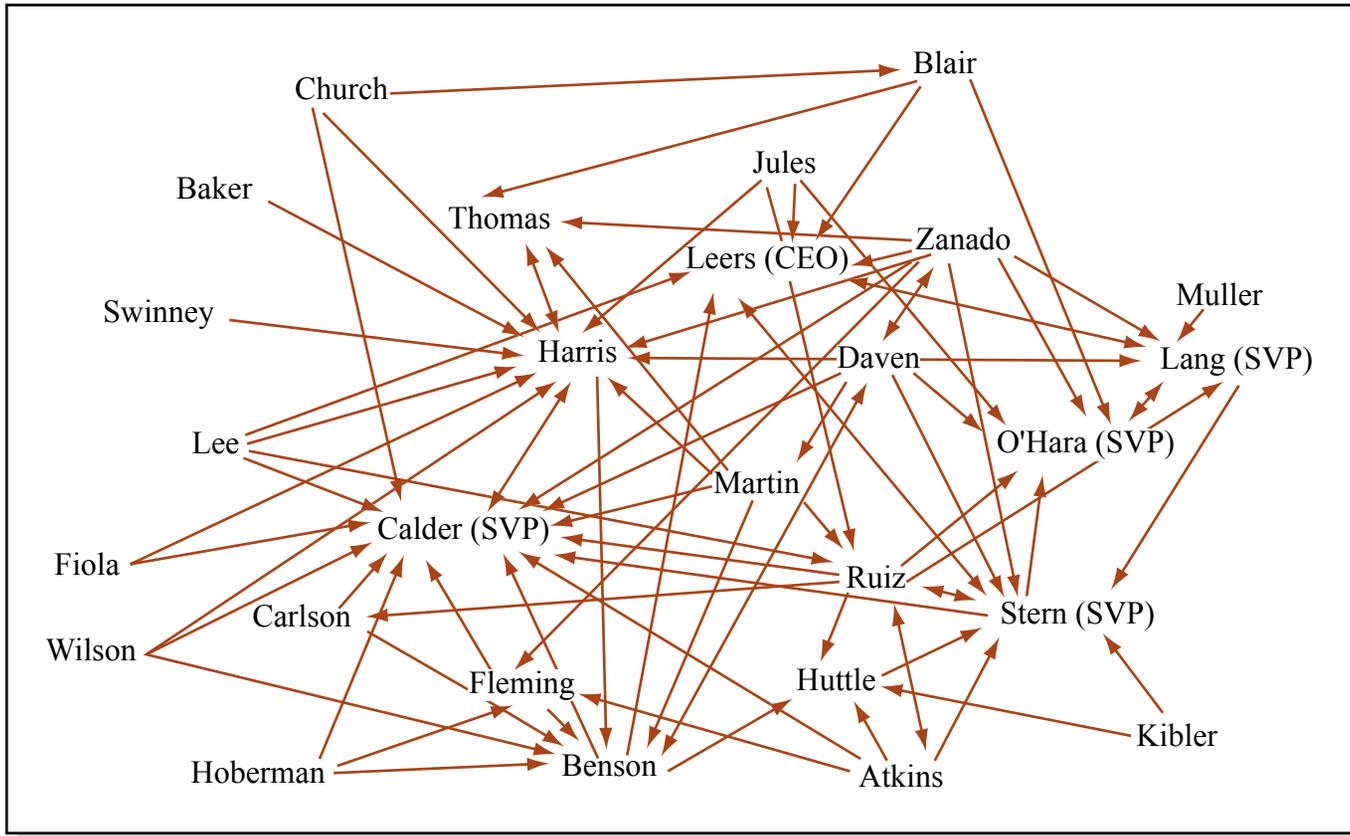


Figure by MIT OCW.

But When It Comes To Trust...

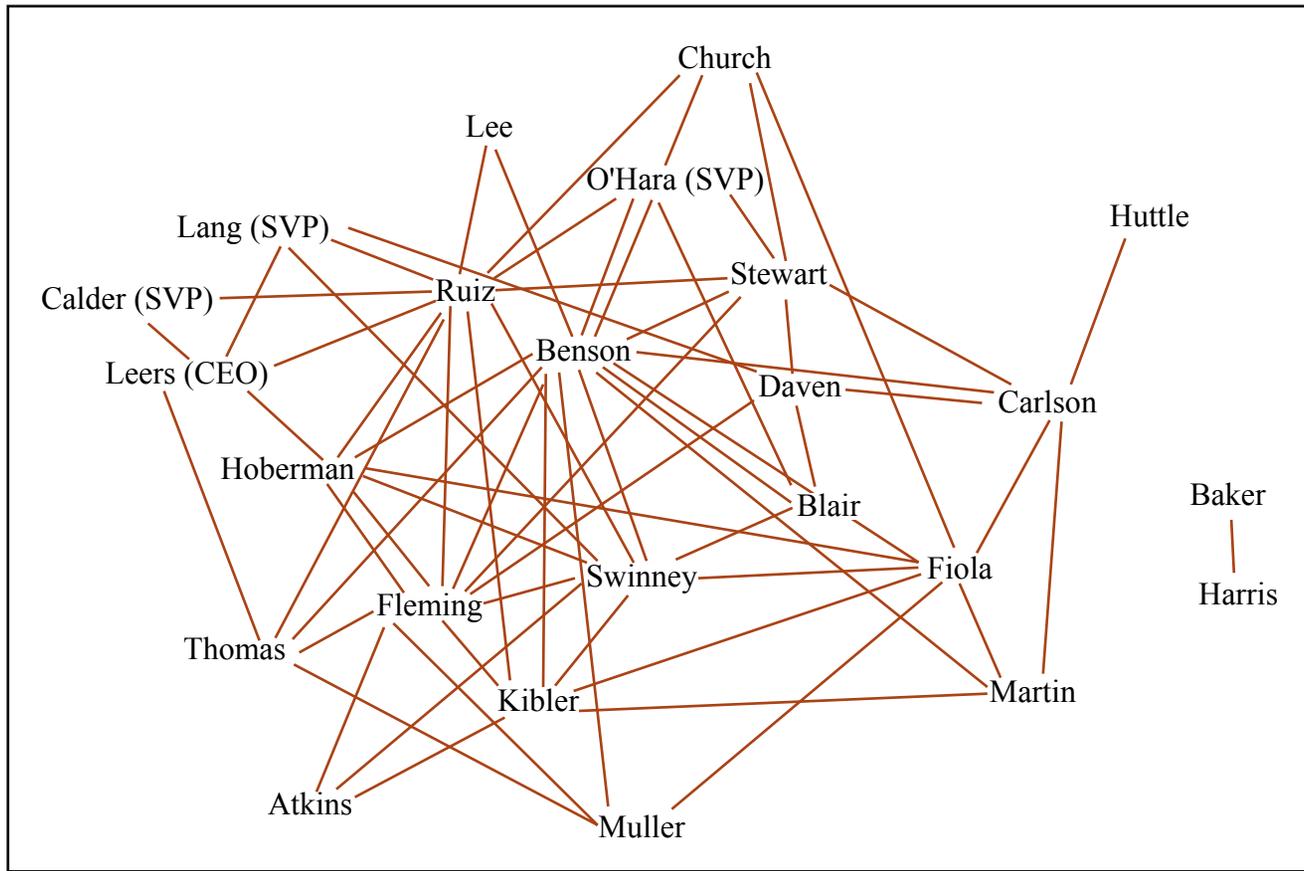


Figure by MIT OCW.

Another Trust Problem

- Look back at the charts to find another problem with a key manager who had also been promoted because he was the best producer
- Unfortunately, this person regularly told people they were stupid and paid little attention to their professional concerns. The CEO had assumed that this leader had good relationships with this team (see next chart on CEO's perception of the trust network).
- What to do?

How the CEO Saw Trust

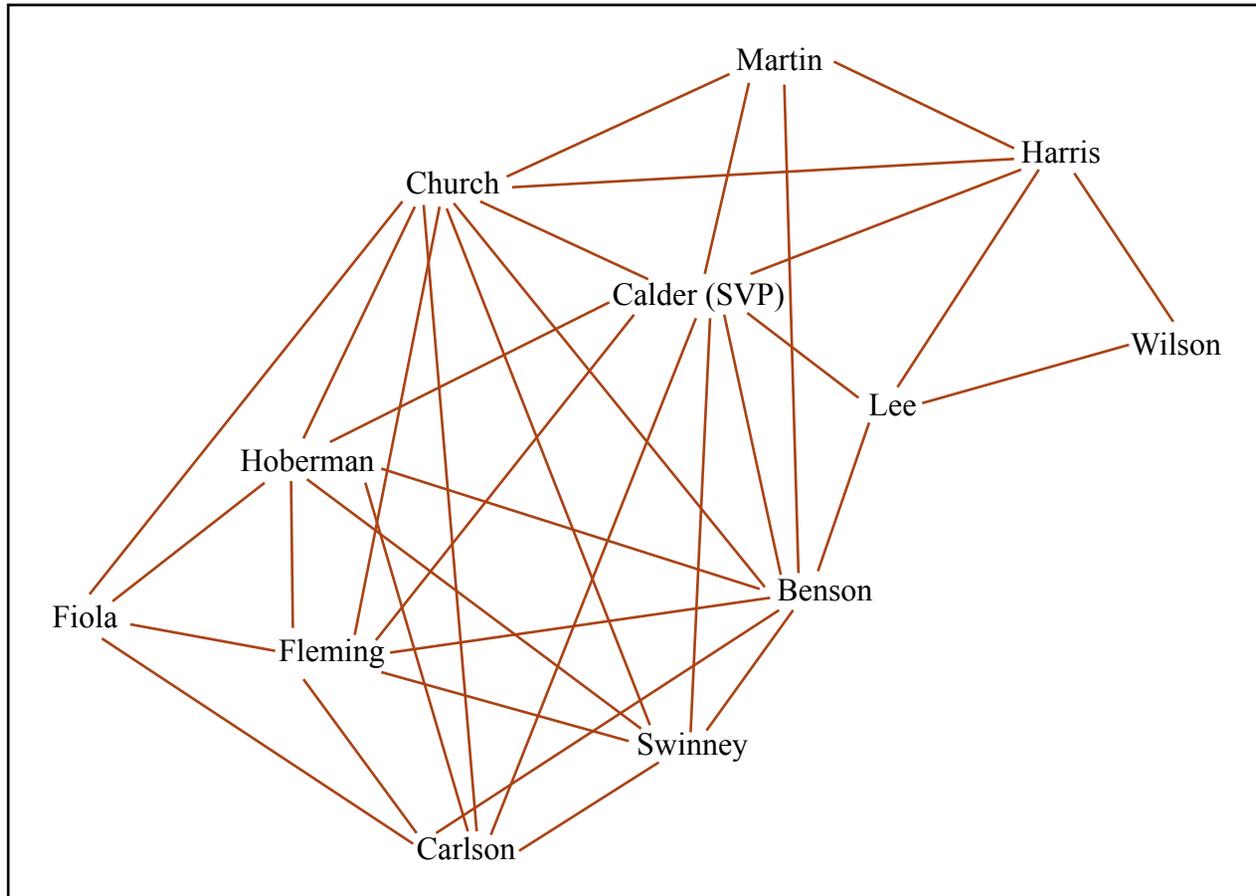


Figure by MIT OCW.