

Knowledge Sharing and Collaborative Network Structures at XYZ*

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Today's agenda

1. **Research background:** i.e., intent of survey, the importance of knowledge sharing and collaborative networks, list of data collected, and our investigative framework
2. **Descriptive statistics I:** Summary of descriptive statistics for each of the surveyed variables
3. **Key takeaways I:** i.e., answers to the question of “*What factors shape the behaviors that facilitate knowledge sharing and collaboration between employees?*”
4. **Descriptive statistics II:** Summary of descriptive statistics for each of the computed network metrics
5. **Key takeaways II:** i.e., answers to the question of “*What factors shape the relationships that facilitate knowledge sharing and collaboration between employees?*”



Research background

- The **overarching aim** of this survey was to better understand **knowledge sharing** and **collaborative structures** between employees at XYZ.
- Our survey was designed to explore various inter-related questions such as:
 - How frequently do employees engage in knowledge sharing and other related behaviors?
What kinds of psychological and work-related factors are related to such behaviors?
 - How does work-related knowledge and information flow between XYZ's employees? Are there patterns regarding who sends/receives information to/from whom?
 - Who is central in XYZ's collaborative network? Who occupies brokerage and other strategically advantageous network positions, and what kinds of psychological and organizational factors shape individuals' network positions?

Research background (cont.)

Knowledge sharing and collaborative relations between employees are important because...

For organizations:

- Individual and group performance
- Change management
- Employee retention
- Innovation and creativity
- Conflict dynamics
- Newcomer onboarding
- Perceptions of employees, teams, and organizations
- Spread of information (real and imagined), ideas, behaviors, culture

For individuals:

- Positive career outcomes: compensation, promotions, assignments
- Become a magnet for opportunities
- Access to information and resources
- Ability to get things done and perform
- Innovation and creativity
- Control of resources
- Source of influence and power
- Status/Visibility

Research background (cont.)

To examine knowledge sharing and collaboration at XYZ, we gathered data regarding the following:

1. **Behaviors** that facilitate knowledge sharing and collaboration
 - Specifically, we measured *knowledge sharing* and *networking behaviors*.
 - To do this, we asked individuals to “self-report” his/her frequency of knowledge sharing and networking behaviors.
2. **Social relations** that facilitate knowledge sharing and collaboration
 - Essentially, we asked people, “*To whom do you reach out to for work-related information or advice?*” which allowed us to map the instrumental/collaborative network ties between employees.
 - We also asked people, “*Within the company, who do you consider as friends?*” which allowed us to map a “friendship network.”
 - This *sociomatrix* data was then used to compute other network-related metrics such as *centrality* and *brokerage*.

Research background (continued)

Additionally, we gathered data regarding various other factors that may shape knowledge sharing behaviors and collaborative structures between employees.

Specifically, we measured:

- **Psychological factors** such as *self-interest* and self-perceived *power* and *status*
- **Strategic orientations** regarding the social network process of *brokerage* (e.g., the tendency to introduce one's contacts to each other versus keeping them apart from each other)
- **Organization** factors such as *organizational level* (i.e., title) and *tenure*

Research background (cont.)

Below is the full list of the data we collected:

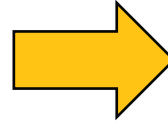
- **Behaviors:**
 - Knowledge sharing
 - Networking behavior
- **Psychological factors:**
 - Sense of power
 - Self-perceived status
 - Self-interest orientation
 - Other-interest orientation
- **Strategic orientations toward brokerage:**
 - Tertius iungens orientation
 - Tertius gaudens orientation
 - Tertius conduit orientation
- **Sociomatrix data:**
 - List of persons whom one goes to for advice or other work-related issues.
 - List of persons considered as a friend
 - This data is used to compute various network metrics such as Centrality, Reach, Density, and Brokerage.
- **Organization factors:**
 - Organizational level (i.e., title)
 - Firm tenure
- **Work characteristics** (e.g., job complexity)
- **Demographics:**
 - Age, gender, and education level

Research background (cont.)

Broadly, our investigative framework looked something like this:

Inputs

1. Psychological variables: Power, Status, Self-interest orientation, and Other-orientation
2. Strategic brokering orientations: Tertius iungens orientation (TIO), Tertius gaudens orientation (TGO), and Tertius conduit orientation (TCO)
3. Organizational factors: Organizational level and tenure



Outputs I: Behaviors

- Knowledge sharing
- Networking behavior

Outputs II: Social relations

- Degree centrality
- Reach
- Density
- Brokerage

**Next, let's look at the descriptive statistics
for each of the surveyed variables**

First, let's talk about sample characteristics, i.e., “about you”

- **Number of respondents:** $N = 125$
- **Gender:** 88 women (70.4%) and 37 men (29.6%)
- **Organization level:**
 - 32 (25.6%) in [entry level](#)
 - 79 (63.2%) in [mid level](#)
 - 9 (7.2%) in [senior level](#)
 - 5 (4.0%) in [executive level](#)
- **Tenure:** Mean = 6.56 years, S.D. = 5.61 years, Range = 2 – 33 years

Second, let's talk about work characteristics, i.e., “about your job”

- **Information availability** (scale of 1 to 5):
 - Sample item: *“All the information I need is available even without a special request”*
 - Mean = **3.02**, S.D. = **.80**, Range = **1.00 – 5.00**
- **Job complexity** (scale of 1 to 5):
 - Sample item: *“The job requires that I only do one task or activity at a time.”* (reverse scored)
 - Mean = **4.22**, S.D. = **.75**, Range = **1.50 – 5.00**
- **Information processing** (scale of 1 to 5):
 - Sample item: *“The job requires me to monitor a great deal of information.”*
 - Mean = **4.14**, S.D. = **.78**, Range = **1.00 – 5.00**
- **Problem solving** (scale of 1 to 5):
 - Sample item: *“The job involves solving problems that have no obvious correct answer.”*
 - Mean = **3.76**, S.D. = **.94**, Range = **1.25 – 5.00**

Knowledge sharing

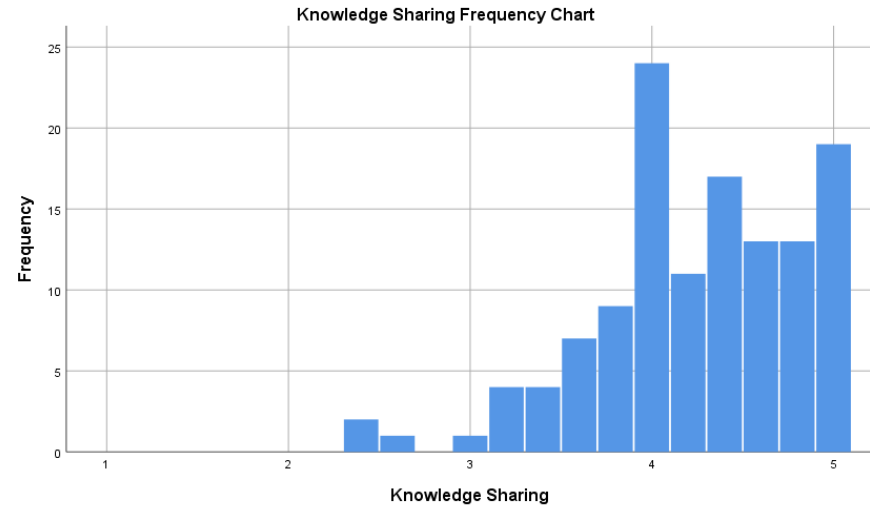
- **What it measures:** the frequency with which one shares various types of knowledge with his/her colleagues.
- **Survey question:**

“On average, how often did you share each type of knowledge during the project with your work colleagues?

 - (a) *General overviews (e.g., project goals, milestone estimates, or member responsibilities)*
 - (b) *Specific requirements (e.g., numerical projections, market forecasts, or order requests)*
 - (c) *Analytical techniques (e.g., statistical tools, detailed methods, or testing procedures)*
 - (d) *Progress reports (e.g., status updates, resource problems, or personnel evaluations)*
 - (e) *Project results (e.g., preliminary findings, unexpected outcomes, or clear recommendations)”*
- **Response scale** is from 1 to 5

Knowledge sharing (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	4.03	0.71
Mid level	79	4.29	0.52
Senior level	9	4.29	0.43
Executive level	5	4.64	0.22
All	125	4.24	0.58



- ANOVA test reveals *marginally* significant differences *in knowledge sharing across organizational levels* ($p = .06$), i.e., higher knowledge sharing at higher org levels.
- *Tenure* is not significantly related to *knowledge sharing*.

Networking behavior

- **What it measures:** the extent to which one engages in networking behaviors with his/her colleagues
- **Survey question:**

“To what extent have you...

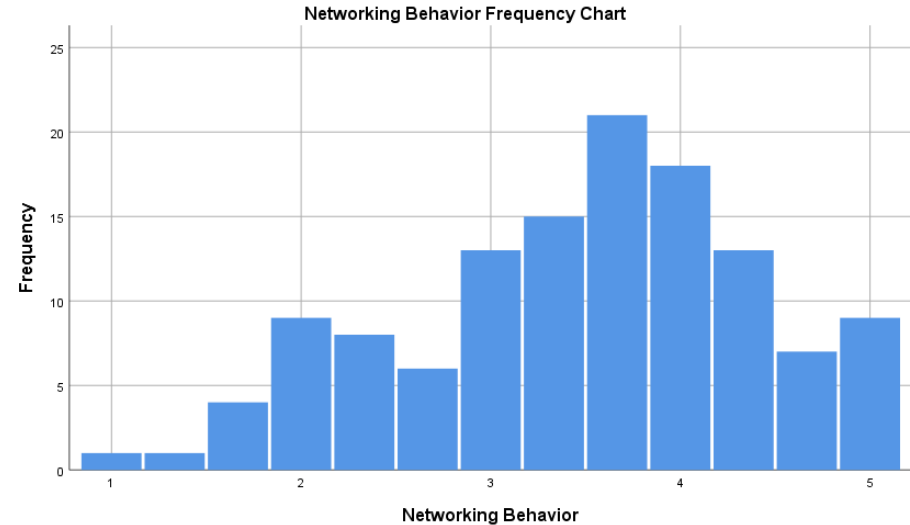
...started conversations with people from different segments of the company?

...tried to socialize with people who are not in your department/unit?

...tried to get to know as many people as possible in other sections of the company on personal basis?”
- **Response scale** is from 1 to 5

Networking behavior (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	3.21	0.93
Mid level	79	3.53	0.92
Senior level	9	3.70	0.99
Executive level	5	3.67	1.03
All	125	3.47	0.93



- ANOVA test reveals no statistically significant differences in *networking behavior* across *organizational levels*.
- *Tenure* is not significantly related to *networking behavior*.

Power

- **What it measures:** the extent to which one feels influential in his/her work environment
- **Survey question (abridged):**

“Recently, at work, I have felt that...

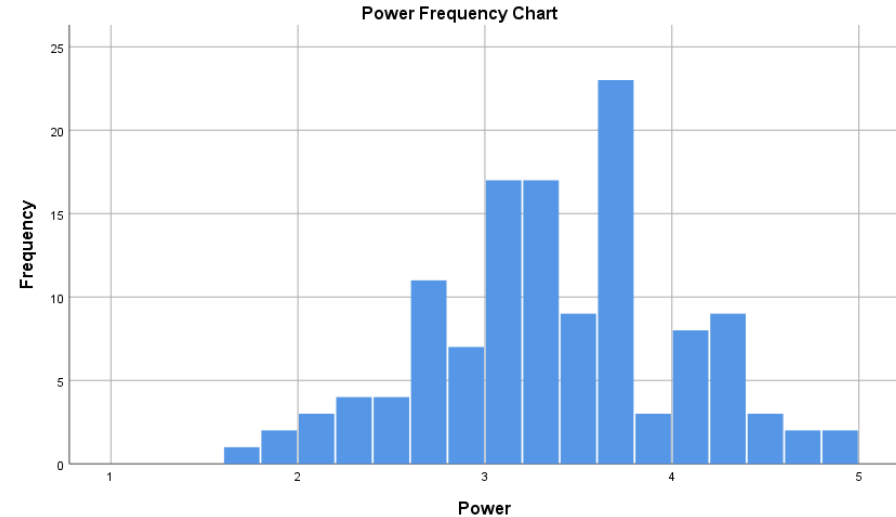
...I can get people to listen to what I say

...I can get people to do what I want

...if I want to, I get to make the decisions”
- **Response scale** is from 1 to 5

Power (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	2.94	0.59
Mid level	79	3.42	0.61
Senior level	9	3.82	0.44
Executive level	5	4.35	0.58
All	125	3.37	0.67



- ANOVA test reveals statistically significant differences in *power* across *organizational levels*, i.e., greater sense of power at higher org levels.
- *Tenure* is not significantly related to *power*.
- *Power* is significantly related to *networking behavior* ($r = .20$, $p < .05$) but not *knowledge sharing*.

Status

- **What it measures:** the extent to which one feels he/she possesses high status in his/her work environment
- **Survey question:**

“Recently, at work, I have felt that...

... I have a great deal of prestige in my organization

... I possess high status in my organization

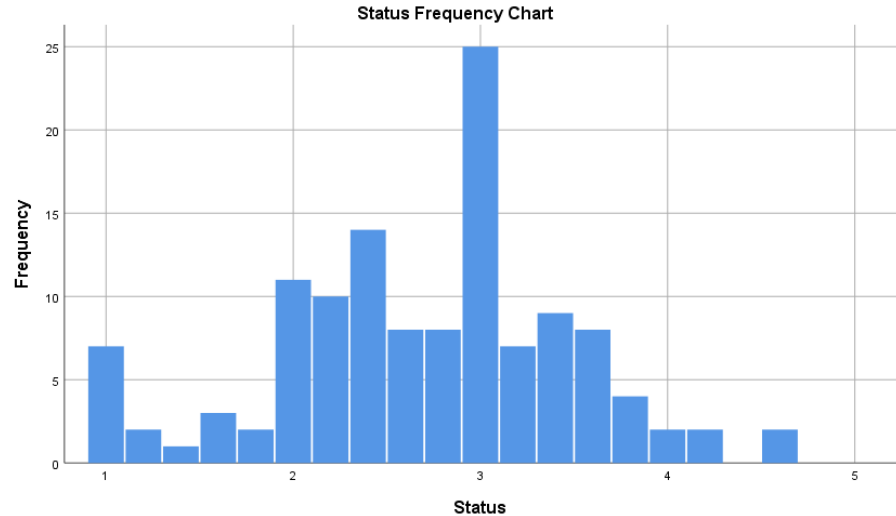
... I occupy a respected position in my organization

... I have a position of prestige in my organization

... I possess a high level of prominence in my organization”
- **Response scale** is from 1 to 5

Status (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	2.39	0.72
Mid level	79	2.70	0.75
Senior level	9	3.13	0.30
Executive level	5	4.00	0.60
All	125	2.71	0.78



- ANOVA test reveals statistically significant differences in *status* across *organizational levels*, i.e., greater status at higher org levels.
- *Tenure* is not significantly related to *status*.
- *Status* is not significantly related to *knowledge sharing* or *networking behavior*.

Self-interest orientation

- **What it measures:** the extent to which one views his/her goals, aspirations, and desires as important
- **Survey question:**

“At work...

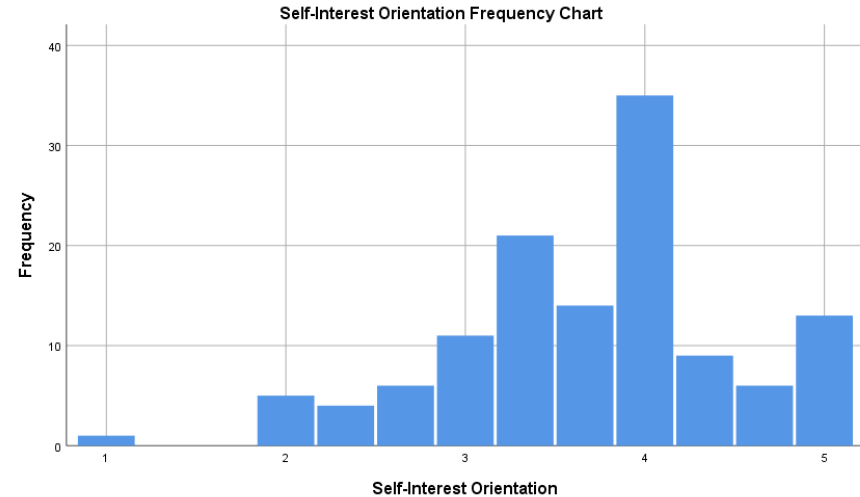
...I am concerned about my own needs and interests

...my personal goals and aspirations are important to me

...I consider my own wishes and desires to be relevant”
- **Response scale** is from 1 to 5

Self-interest orientation (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	3.74	0.89
Mid level	79	3.72	0.80
Senior level	9	3.52	0.53
Executive level	5	3.60	0.55
All	125	3.70	0.80



- ANOVA test reveals no statistically significant differences in *self-interest orientation* across *organizational levels*.
- *Tenure* is significantly, negatively related to *self-interest orientation* ($r = -.19, p < .05$).
- *Self-interest orientation* is not significantly related to *knowledge sharing* or *networking behavior*.

Other-interest orientation

- **What it measures:** the extent to which one views the goals, aspirations, and desires of his/her colleagues as important
- **Survey question:**

“At work...

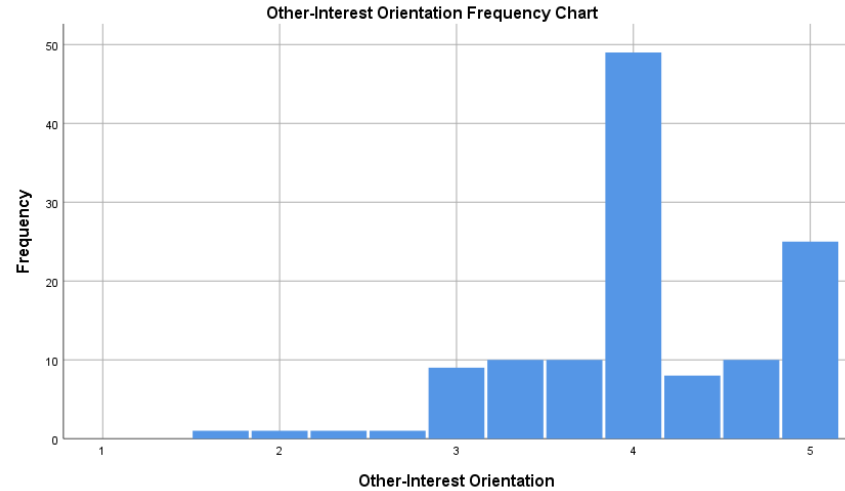
...I am concerned about the needs and interests of others such as my colleagues

...the goals and aspirations of colleagues are important to me

...I consider others' wishes and desires to be relevant”
- **Response scale** is from 1 to 5

Other-interest orientation (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	4.23	0.61
Mid level	79	3.93	0.71
Senior level	9	4.22	0.47
Executive level	5	4.67	0.41
All	125	4.06	0.68



- ANOVA test reveals statistically significant differences in *other-interest orientation* across *organizational levels*, i.e., higher other-interest orientation at higher org levels.
- *Tenure* is not significantly related to *other-interest orientation*.
- *Other-interest orientation* is significantly related to *knowledge sharing* ($r = .43, p < .01$) and *networking behavior* ($r = .18, p < .05$).

Tertius iungens orientation

- **What it measures:** the extent to which one tends to actively “join” network contacts whom may not yet know each other.
- **Survey question (abridged):**

“At work...

...I introduce two people when I think they might benefit from becoming acquainted

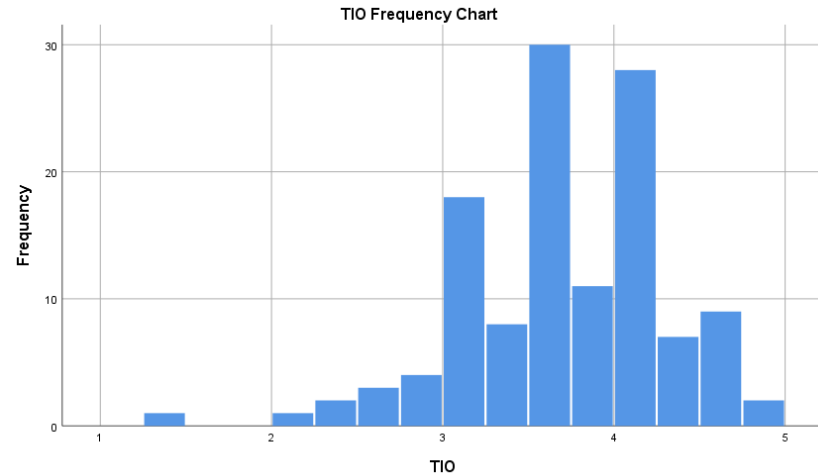
...I will try to describe an issue in a way that will appeal to a diverse set of interests

...I forge connections between different people dealing with a particular issue

...I see opportunities for collaboration between people”
- **Response scale** is from 1 to 5

Tertius iungens orientation (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	3.52	0.69
Mid level	79	3.70	0.59
Senior level	9	3.65	0.39
Executive level	5	4.30	0.40
All	125	3.67	0.61



- ANOVA test reveals no statistically significant differences in *tertius iungens orientation* (TIO) across *organizational levels*. *Tenure* is not significantly related to *TIO*.
- *TIO* is significantly, positively related to *power* ($r = .21, p < .05$) and *other-interest orientation* ($r = .18, p < .05$) but not *status* or *self-interest orientation*.
- *TIO* is also significantly, positively related to *knowledge sharing* ($r = .32, p < .01$) and *networking behaviors* ($r = .34, p < .01$).

Tertius gaudens orientation

- **What it measures:** the extent to which one tends to actively “keep apart” network contacts whom may not yet know each other.
- **Survey question (abridged):**

“At work...

...I seek to prevent my contacts from becoming too closely acquainted with one another

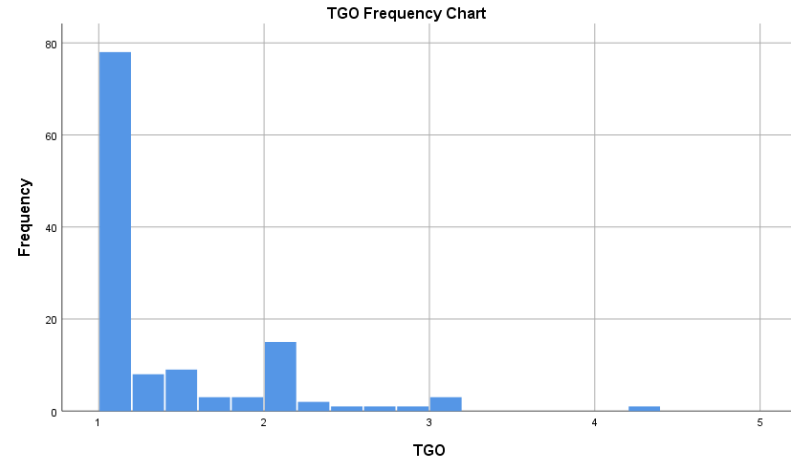
... I seek to control when and how different actors interact with each other

... Sometimes I aim to strategically undermine the relationships between my contacts

... I seek to gain control over acquaintances by keeping them apart”
- **Response scale** is from 1 to 5

Tertius gaudens orientation (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	1.36	0.70
Mid level	79	1.36	0.52
Senior level	9	1.56	0.69
Executive level	5	1.07	0.09
All	125	1.36	0.57



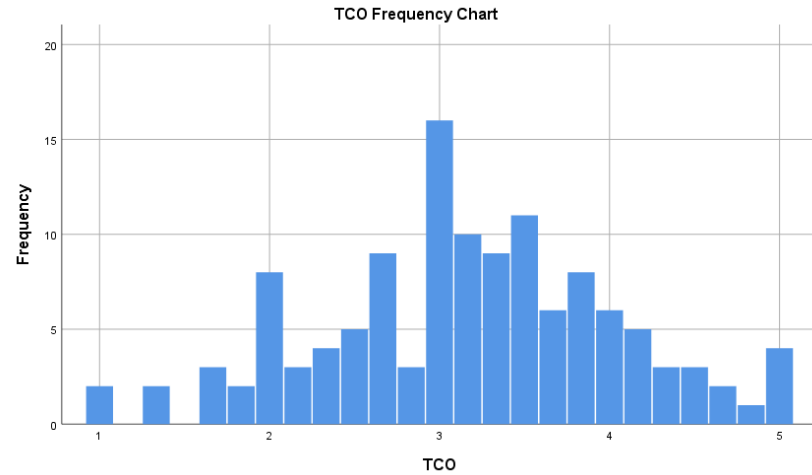
- ANOVA test reveals no statistically significant differences *in tertius gaudens orientation (TGO)* across *organizational levels*. *Tenure* is not significantly related to *TGO*.
- *TGO* is significantly, negatively related to *power* ($r = -.19$, $p < .05$). But, it is not significantly related to *status*, *self-interest orientation*, or *other-interest orientation*.
- *TGO* is not significantly related to *knowledge sharing* or *networking behaviors*.

Tertius conduit orientation

- **What it measures:** the extent to which one tends to “channel/relay” resources between network contacts whom may not yet know each other.
- **Survey question (abridged):**
“At work...
...I tend to take a role of a messenger who moves knowledge from one person to another
... Moving ideas between different groups is a critical aspect of my behavior
... When I have a choice I prefer to relay ideas between parties
... I seek to pursue objectives by moving information from one person to another”
- **Response scale** is from 1 to 5

Tertius conduit orientation (continued)

Means and standard deviations			
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Entry level	32	2.73	0.94
Mid level	79	3.33	0.80
Senior level	9	3.04	0.93
Executive level	5	3.73	0.42
All	125	3.17	0.87



- ANOVA test reveals statistically significant differences *in tertius conduit orientation (TCO)* across *organizational levels*, i.e., higher TCO at higher org levels. *Tenure* is not significantly related to *TCO*.
- *TCO* is significantly, positively related to *power* ($r = .20, p < .05$), *status* ($r = .23, p < .05$), and *other-interest orientation* ($r = .24, p < .01$), but not *self-interest orientation*.
- *TCO* is significantly related to *knowledge sharing* ($r = .41, p < .01$) and *networking behaviors* ($r = .33, p < .01$).

Takeaways I: Knowledge sharing & Networking behaviors

“Why do it?”: **Knowledge sharing** and **Networking behaviors** facilitate the transfer of important work-related information and other resources between individuals and are thus critically important for employee performance and organizational success.

“Who does it?”: Data revealed that...

- Individuals at higher **organizational levels** scored (marginally significantly) higher on **knowledge sharing** behaviors. Perhaps this is due to their particular work demands, e.g., they do more leadership work that necessitates greater knowledge sharing.

Takeaways I: Knowledge sharing & Networking behaviors (cont.)

“Who does it?” (cont.): Data revealed that...

- Individuals who scored higher on ***other-interest orientation*** scored higher on both ***knowledge sharing*** and ***networking behavior***.
 - Furthermore, multiple regression analysis revealed that ***other-interest orientation*** significantly predicts ***knowledge sharing*** while controlling for organizational level and tenure:
 - $B = .40$ ($p < .001$); $F = 11.18$ ($p < .001$); $R^2 = .22$, $\Delta R^2 = .16$ ($p < .001$)
- It appears that, generally, XYZ employees view engaging in ***knowledge sharing*** behaviors as being well-aligned with their colleagues' work-related self-interests, goals, needs, and desires.
- It is possible that ***other-interest orientation*** shapes ***networking behaviors***, i.e., people who are concerned with others' interests are more likely to socialize with others. It is also possible that this relationship is “flipped,” i.e., people who socialize with others in turn become more concerned with the interests of others.

Takeaways I: Knowledge sharing & Networking behaviors (cont.)

“Who does it?” (cont.): Data revealed that...

- Individuals who scored higher on the *tertius iungens orientation (TIO)*, i.e., tendency to “join” others who may otherwise be unfamiliar with each other, scored higher on **both behaviors**.
- Similarly, individuals who scored higher on the *tertius conduit orientation (TCO)*, i.e., tendency to “channel” resources between other people, scored higher on **both behaviors**.
- Furthermore, multiple regression revealed that *TIO* and *TCO* predict **both behaviors** while controlling for org level and tenure.

1. TIO → Knowledge sharing: $B = .26$ ($p < .01$); $F = 5.46$ ($p < .01$); $R^2 = .12$, $\Delta R^2 = .06$ ($p < .01$)
2. TIO → Networking behavior: $B = .31$ ($p < .01$); $F = 5.52$ ($p < .01$); $R^2 = .12$, $\Delta R^2 = .09$ ($p < .01$)
3. TCO → Knowledge sharing: $B = .37$ ($p < .001$); $F = 9.16$ ($p < .001$); $R^2 = .19$, $\Delta R^2 = .13$ ($p < .001$)
4. TCO → Networking behaviors: $B = .30$ ($p < .01$); $F = 5.19$. ($p < .01$); $R^2 = .12$, $\Delta R^2 = .08$ ($p < .01$)

**Next, a brief theoretical background on
networks**

Networks as a discipline

- Social networks are: The web of ties that connect people to each other, in a group, an organization, a community, etc...
- “Tie”: Interpersonal relationship between two people



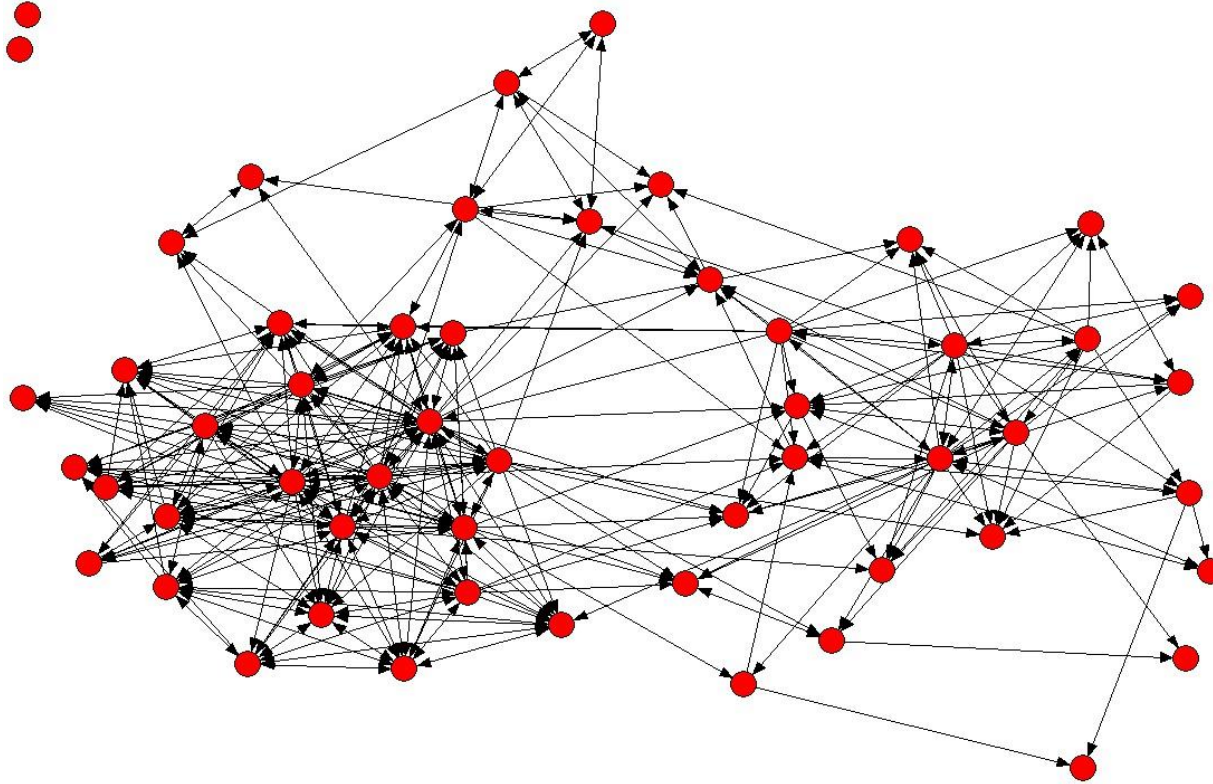
Conduits for the flow of interpersonal resources:

- Information
- Expertise
- Funding
- Emotional support
- Animosity

- The focus of our survey was (1) *instrumental* ties, i.e., relationships that facilitate the flow of work-related information and advice, and (2) *friendship* ties, i.e., relationships that facilitate the exchange of affective resources.

Network: Pattern of interpersonal ties that connect people to each other

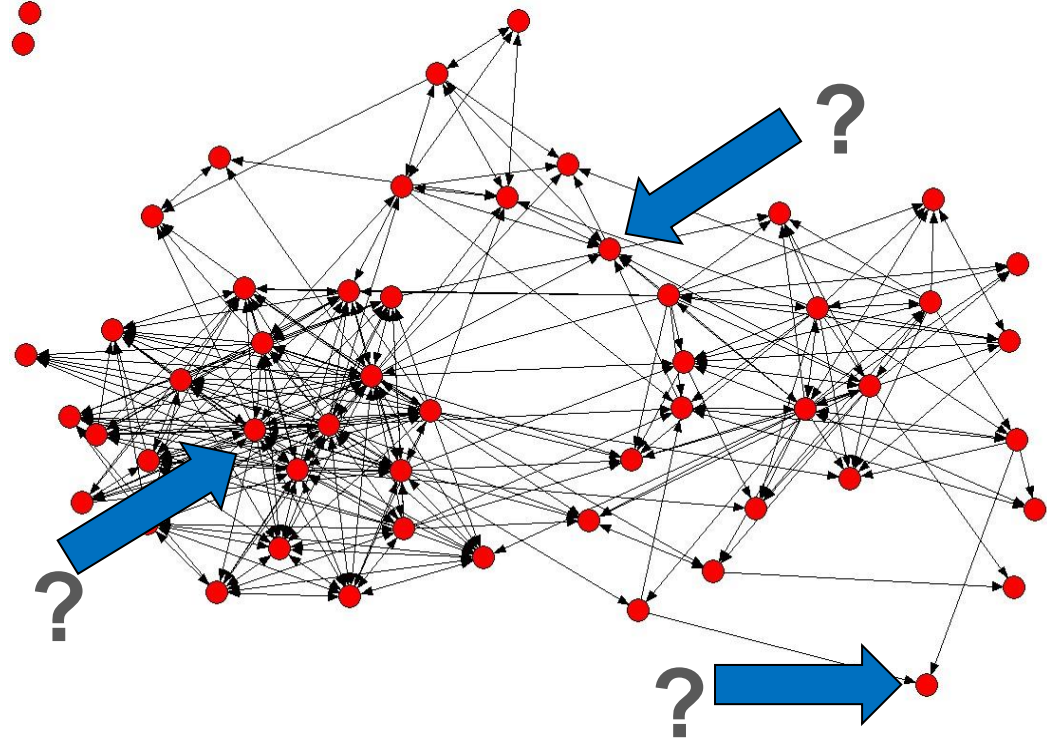
Below is a map of a hypothetical network:



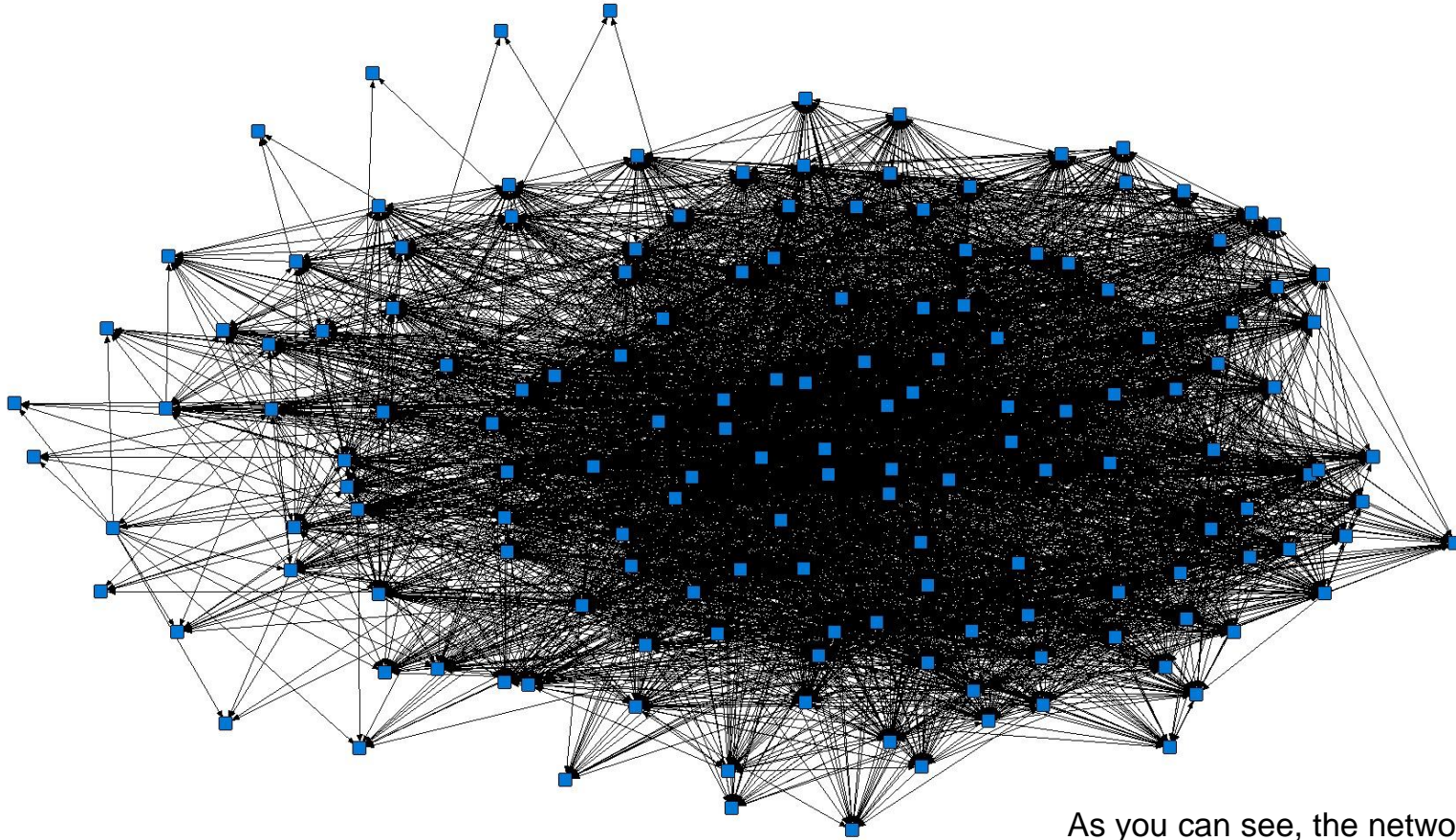
The importance of network position

Your “network position” has important implications regarding the flow of work-related resources between you and your colleagues.

For example, consider the three “nodes,” i.e., actors represented as circles, marked on the right. What are the possible strengths and weaknesses of each position?



XYZ's Instrumental Network Structure

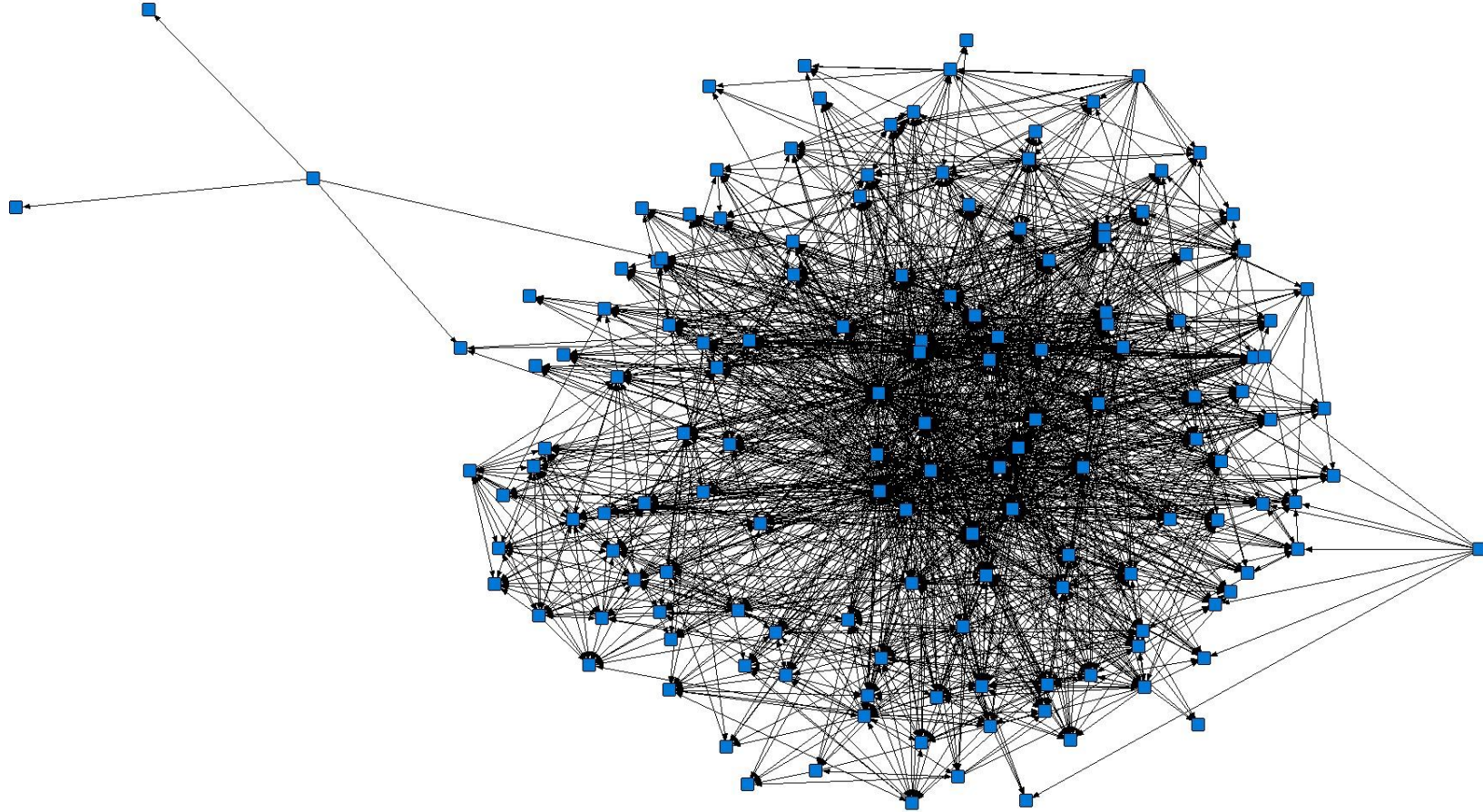


As you can see, the network is quite dense, i.e., looks like a “hairball”



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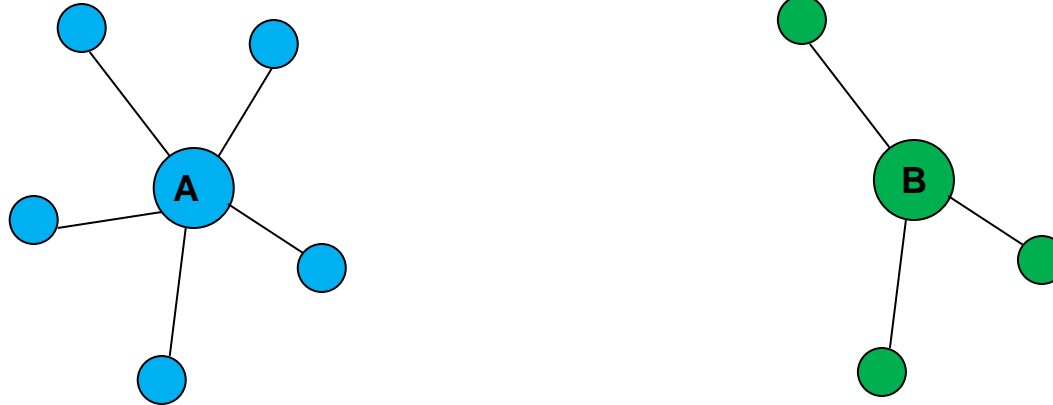
XYZ's Affective Network Structure



**Next, let's look at the descriptive statistics
for each of the computed network metrics**

Centrality

- **What it measures:** **Centrality** is the raw count of the number of persons who reported “you” as a network contact. **In-degree centrality** measures the number of people who reach out to you for resources, whereas **out-degree centrality** measures the number of people to whom you reach out for resources.



Actor A has higher centrality than Actor B

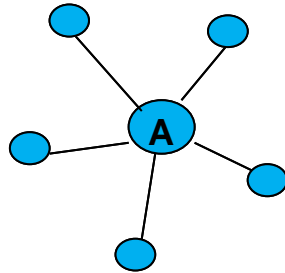
Centrality (cont.)

		In-degree centrality (Instrumental)			Out-degree centrality (Instrumental)			Centrality (Affective/Friendship)		
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>Range</i>	<i>Mean</i>	<i>S.D.</i>	<i>Range</i>	<i>Mean</i>	<i>S.D.</i>	<i>Range</i>
Entry	32	41.91	13.86	4-66	62.34	34.59	1-146	16.75	7.18	0-29
Mid	78	46.58	19.31	0-113	48.38	28.21	1-145	16.04	7.01	0-32
Senior	9	54.22	21.51	0-70	61.33	30.73	1-94	14.22	9.37	0-29
Executive	5	46.80	17.66	31-76	46.60	34.48	22-106	8.80	2.86	5-12
All	124	45.94	18.21	0-113	52.85	30.70	1-146	15.80	7.22	0-32

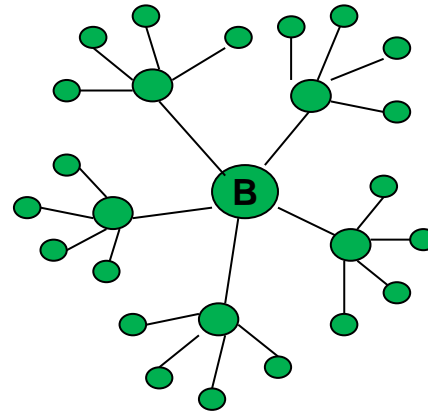
- ANOVA reveals no significant differences in any of the three *centrality* scores across *org levels*.
- However, friendship *centrality* has significant, negative correlations with self-reported *power* ($r = -.22, p < .05$) and *status* ($r = -.25, p < .01$).
- Instrumental *out-degree centrality* has a significant and negative correlation with *TGO* ($r = -.22$).
- *Networking behavior* has significant and positive correlations with instrumental *in-degree* ($r = .42, p < .01$) and *out-degree centrality* ($r = .28, p < .01$) and friendship *centrality* ($r = .38, p < .01$).

Reach

- **What it measures:** *Reach* reflects the extent to which an individual, through his/her direct connections, can contact other members of a network. In this study, we computed the 2-step (inbound and outbound) reach, that is, what percentage of the entire network one can reach within 2 steps (e.g., “friend of a friend”).
- Inbound reach thus reflects the breadth of information that can flow *into* you in 2 steps or less, whereas outbound reach reflects how far you can disseminate information in 2 steps or less.



Low reach



High reach

Reach (cont.)

		Inbound reach (instrumental)			Outbound reach (instrumental)		
Org level	N	Mean	S.D.	Range	Mean	S.D.	Range
Entry level	32	99.92	0.46	97.4-100	96.77	12.21	30.3-100
Mid level	78	97.44	15.91	0-100	96.64	4.89	60.7-100
Senior level	9	88.60	33.24	0-100	92.97	16.29	49.7-100
Executive level	5	99.48	1.15	97.4-100	97.42	1.58	96.1-100
All	124	97.52	15.42	0-100	96.44	8.42	30.3-100

- ANOVA reveals no significant differences in *inbound* or *outbound reach* across *org levels*.
- *Inbound reach* has a significant and positive correlation with *self-interest orientation* ($r = .18$, $p < .05$).
- *Outbound reach* has a significant and negative correlation with *TGO* ($r = -.44$, $p < .01$).

Density

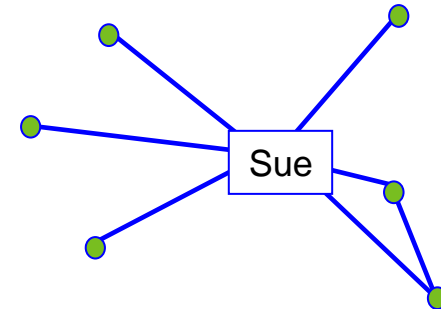
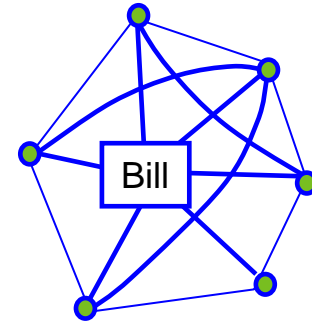
- **What it measures:** *Density* reflects the degree to which the people you're connected to are connected amongst themselves. It ranges from 0 (zero closure) to 100 (full closure).
- Both dense and sparse (personal) networks are beneficial for different reasons. The key is “striking a balance.”

Benefits of dense personal networks (see Bill's network)

- Greater trust and socio-emotional support
- Ease of coordination
- Transfer of complex, tacit, sensitive knowledge
- Stability, reliability of access to idiosyncratic resources
- Reputational effects are stronger

Benefits of sparse personal networks (see Sue's network)

- Access to non-redundant information
- Access to entrepreneurial opportunities
- Flexibility, mobility
- Control of information and resources
- Relative freedom from reputation effects



Density (cont.)

		Instrumental network density (in-bound)			Friendship network density		
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>Range</i>	<i>Mean</i>	<i>S.D.</i>	<i>Range</i>
Entry	32	45.49	9.05	26.1 – 66.7	40.94	16.58	0 – 84.7
Mid	78	48.28	8.03	28.5 – 66.9	38.01	12.85	10.7 – 68.6
Senior	9	41.74	6.89	30.3 – 53.6	36.87	20.40	0 – 70.3
Executive	5	46.53	6.58	39.0 – 56.6	40.69	18.56	13.4 – 62.2
All	124	47.01	8.31	26.1 – 66.9	38.79	14.59	0 – 84.7

- ANOVA reveals no significant differences in either *density* scores across *org levels*.
- *Networking behavior* is negatively related to *density* ($r = -.27$, $p < .01$ for both networks)
- Friendship *density* has significant, negative correlations with *tenure* ($r = -.19$, $p < .05$) and *TIO* ($r = -.19$, $p < .01$), and a significant, positive correlation with *TGO* ($r = .18$, $p < .01$).

Brokerage

- **What it measures:** Actor A brokers actors B and C if A is connected to both B and C, but B and C are not connected. In this study, we computed **brokerage** as the extent to which your personal contacts must “go through” you in order to reach others (i.e., you lie in the shortest path between X and Y, meaning X must go through you to reach Y).
- Conceptually, it is more-or-less an “inverse” of *density*.
- **Brokerage** ranges from **0** (i.e., 0% of pairs in your network must go “through you” to reach each other as quickly as possible) to **1** (i.e., 100% of pairs in your network must go “through you” to reach each other as quickly as possible).
- Occupying brokerage positions is strategically advantageous, because brokers are able to control the flow of resources, and is the center point of innovation and idea creation.

Brokerage (cont.)

Brokerage in one's personal instrumental network				
<i>Org level</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>Range</i>
Entry level	32	0.18	0.03	0.10 – 0.24
Mid level	78	0.20	0.05	0.00 – 0.31
Senior level	9	0.21	0.08	0.00 – 0.25
Executive level	5	0.21	0.03	0.18 – 0.27
All	124	0.20	0.05	0.00 – 0.31

- ANOVA reveals no significant differences in *brokerage* scores across org levels.
- *Brokerage* has significant and positive correlations with *networking behavior* ($r = .34, p < .01$), self-perceived *status* ($r = .24, p < .01$), and TCO ($r = .25, p < .01$).

Key takeaways II (centrality, reach, density, and brokerage)

“Why examine networks?”

- Social network metrics describe (and reveal patterns among) social relations that facilitate knowledge sharing and collaboration.
- For example, in instrumental networks, **centrality** and **reach** is indicative of the amount and breadth of information that flows in and out of you.
- **Dense** personal networks can be effective at facilitating tacit and sensitive knowledge, forming interpersonal trust, and coordinating group activities.
- On the other hand, **sparse** personal networks enable one to potentially occupy powerful **brokerage positions** that allow strategic control of the flow of resources between other people.

Key takeaways II: Centrality, reach, density, and brokerage (cont.)

Data revealed that:

- People who engage in more **networking behavior** tended to score higher on **centrality** (in both instrumental and friendship networks) and **brokerage**, but lower on **density**.
 - It is likely that people who actively “network” frequently form new relationships with people outside of their pre-existing personal networks and are thus able to acquire more *brokerage* positions.
- Individuals with higher **power** and **status** tended to be less **central** in the friendship network.
 - People with higher power and status may be at greater risk of social isolation, despite being “instrumentally” well-connected. Perhaps other people often overlook the friendship value of individuals possessing higher power and status or are intimidated by them.
 - In particular, multiple regression analysis reveals that **status** negatively predicts friendship **centrality** after controlling for *tenure* and the psychological factors of *self-interest* and *other-interest orientations*.
 - Status → Friendship centrality: $B = -.26$ ($p < .01$); $F = 2.49$ ($p < .05$); $R^2 = .08$, $\Delta R^2 = .06$ ($p < .01$)

Key takeaways II: Centrality, reach, density, and brokerage (cont.)

Data revealed that:

- **Self-interest orientation** is positively related to **inbound reach** in the instrumental network.
 - It suggests that people recognize *inbound reach*, i.e., the breadth of information flowing into you in 2 steps or less, as being important to accomplishing their work-related goals, interests, and desires, and may thus be spurred to form relationships with people who are well-connected themselves.
- **Status** and **tertius conduit orientation (TCO)**, i.e., tendency to “channel” resources between people, are positively related to **brokerage** in the instrumental network.
 - These relationships were also significant after controlling for organizational level and tenure.
 - Status → Brokerage: $B = .21$ ($p < .05$); $F = 3.03$ ($p < .05$); $R^2 = .07$, $\Delta R^2 = .04$ ($p < .05$)
 - TCO → Brokerage: $B = .22$ ($p < .05$); $F = 3.45$ ($p < .05$); $R^2 = .08$, $\Delta R^2 = .05$ ($p < .05$)
 - Perhaps **status** attracts diverse clusters of people in an instrumental network, leading to brokerage.
 - People with high **TCO** may acquire more brokerage positions through “channeling resources” between diverse clusters of people.

Thank you for listening!