# PEOPLE ANALYTICS: COLLABORATION

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ONLINE

# 1. INTRODUCTION

# What is collaboration?


"Collaboration is the action of working with others to produce or create something"

Our focus:

**Collaboration between employees inside an organization**

# Why is collaboration important?











## The Big Question

How can we improve collaboration inside organizations?

# Analyzing Collaboration

**How can we describe collaboration patterns between employees?**

**How can we map these collaboration patterns?**

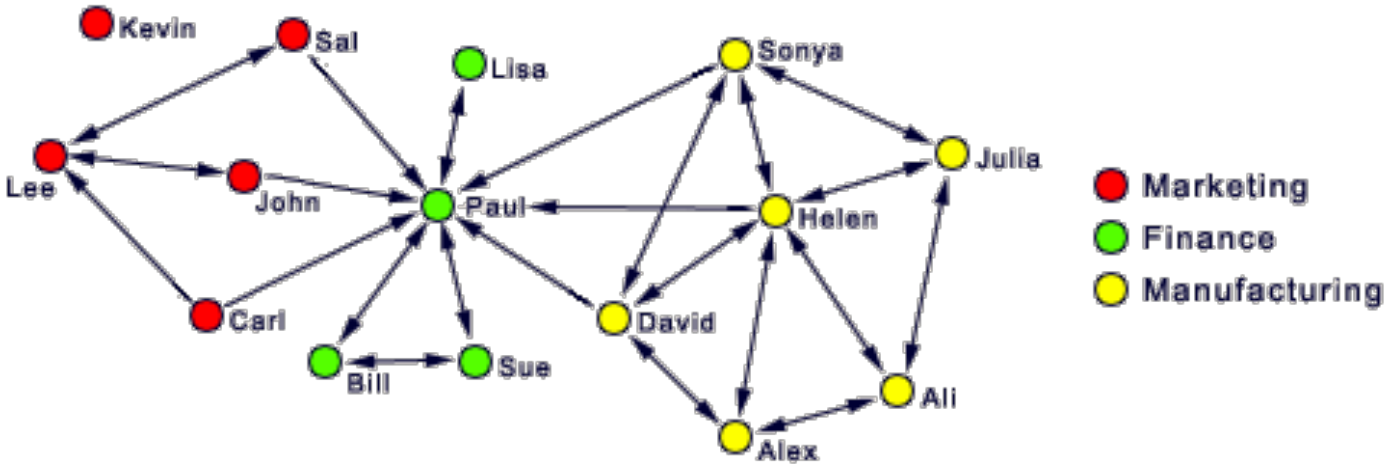
**How can we evaluate these collaboration patterns?**

**How can we improve these collaboration patterns?**

# The Role of People Analytics

People Analytics is a data-driven approach to managing people at work

# Organizational Network Analysis (ONA)

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# Analyzing Collaboration

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- How can we map these collaboration patterns?
- How can we evaluate these collaboration patterns?
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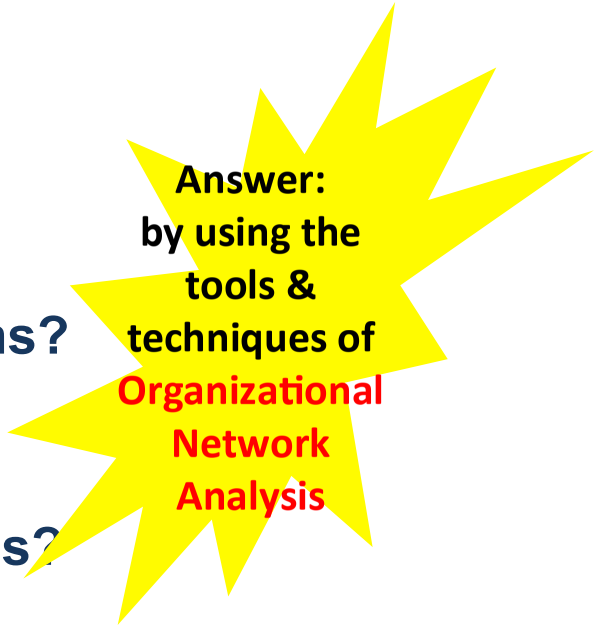


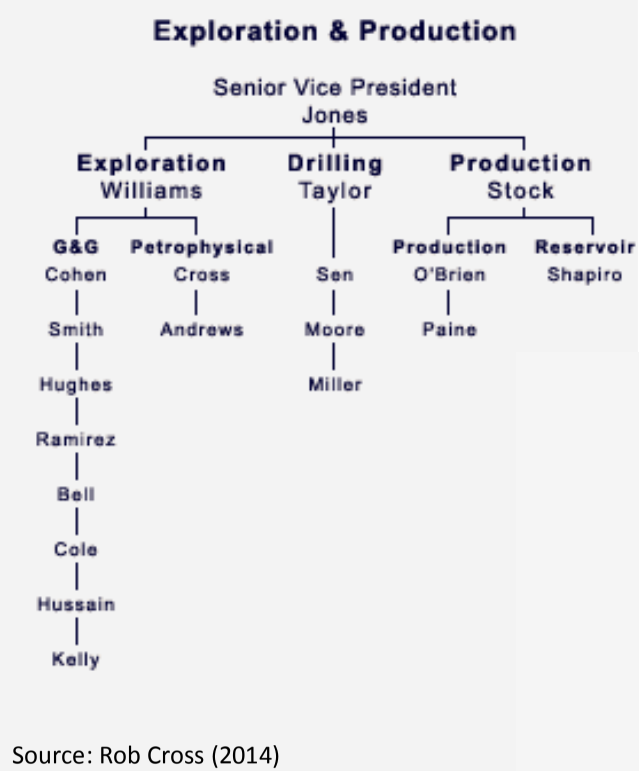
# People Analytics: Collaboration

1. Introduction
2. Describing Collaboration Networks
3. Mapping Collaboration Networks
4. Evaluating Collaboration Networks
5. Intervening in Collaboration Networks

# 2. DESCRIBING COLLABORATION NETWORKS

# What are organizational networks?

**Formal structure (organizational chart)**

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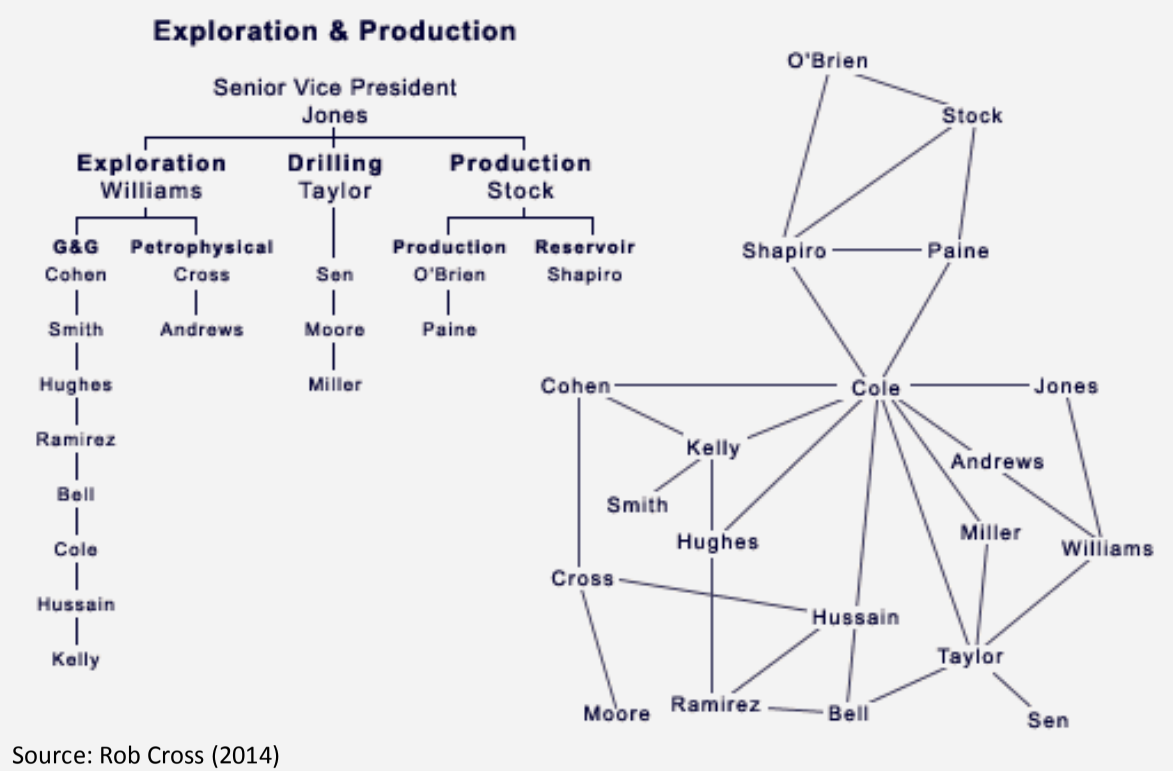


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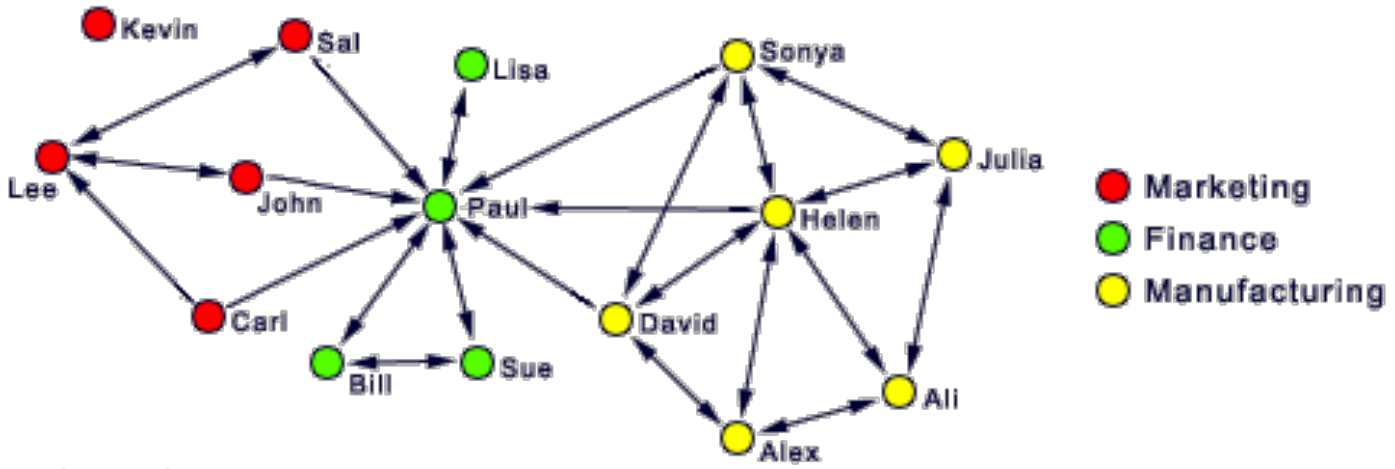
**Informal structure (network map)**

# Types of organizational networks

- Collaboration networks (information flows, knowledge sharing)
- Communication networks
- Friendship networks
- Advice networks
- Trust networks

etc

# Example of a collaboration network

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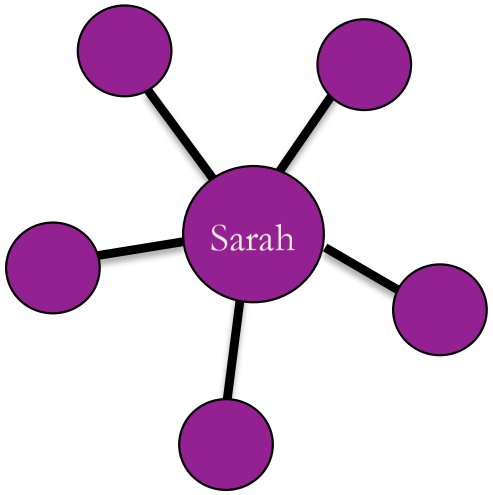
**Who do you want to be, and why?**

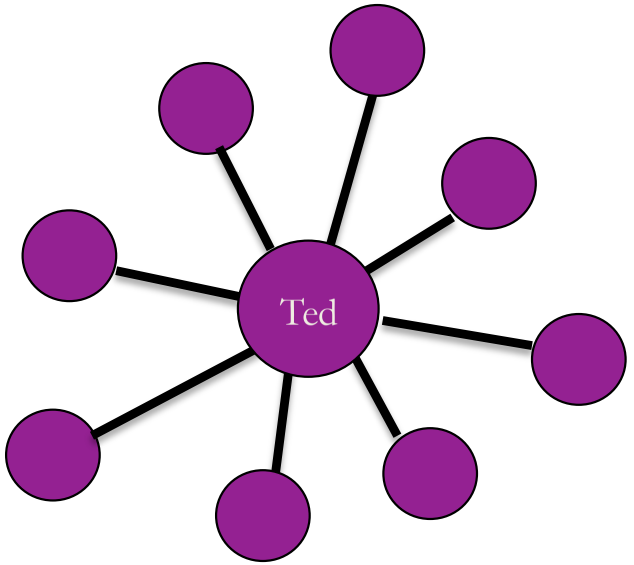
## How can we describe collaboration patterns?

# 5 Building Blocks:

1. Network size
2. Network strength
3. Network range
4. Network density
5. Network centrality

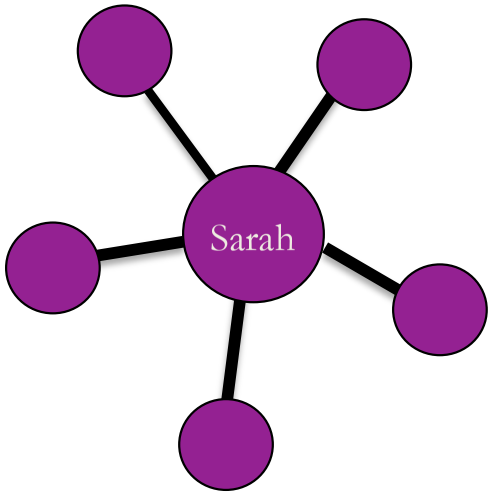
# Building Block 1: Network Size

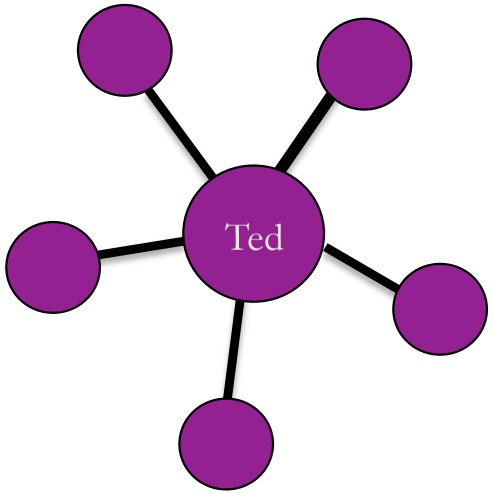


# Building Block 2: Network Strength

Stronger ties

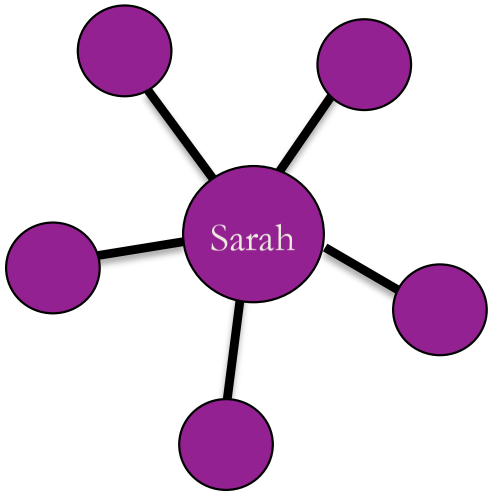


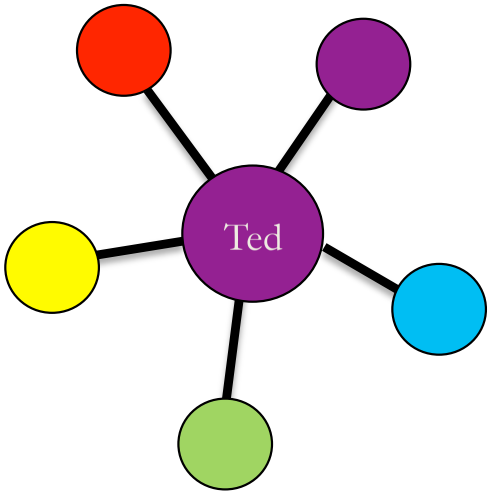




Weaker ties

# Building Block 3: Network Range

Low range network

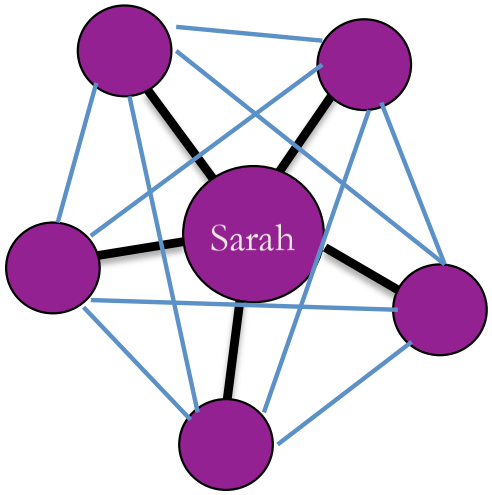


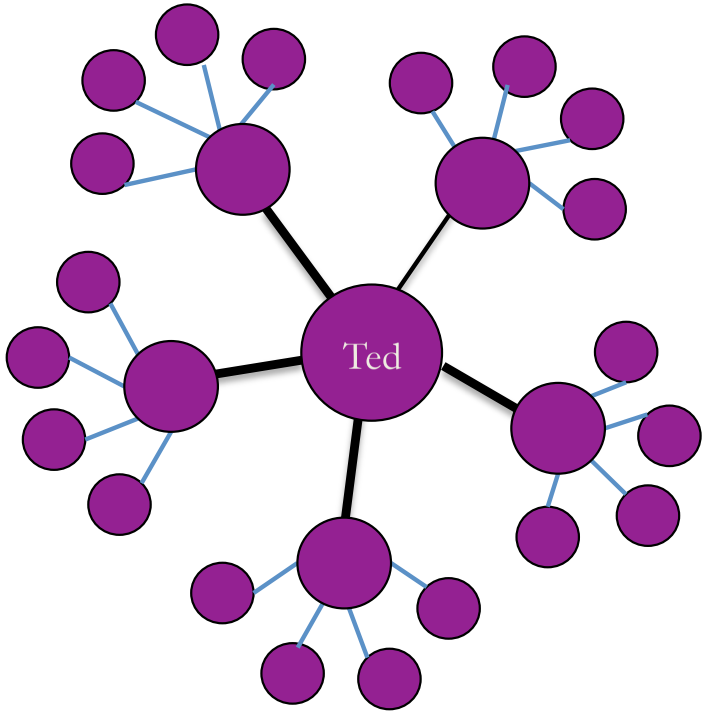




High range network

# Building Block 4: Network Density

High density network

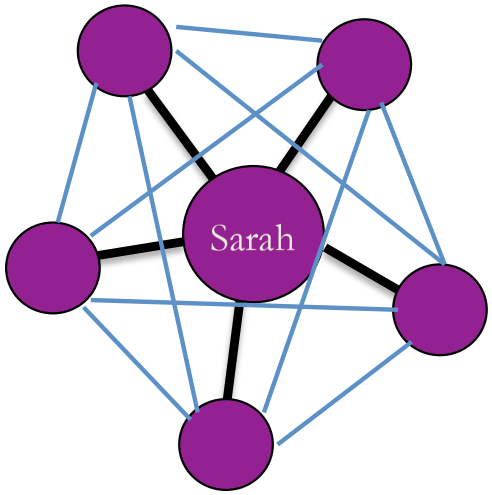


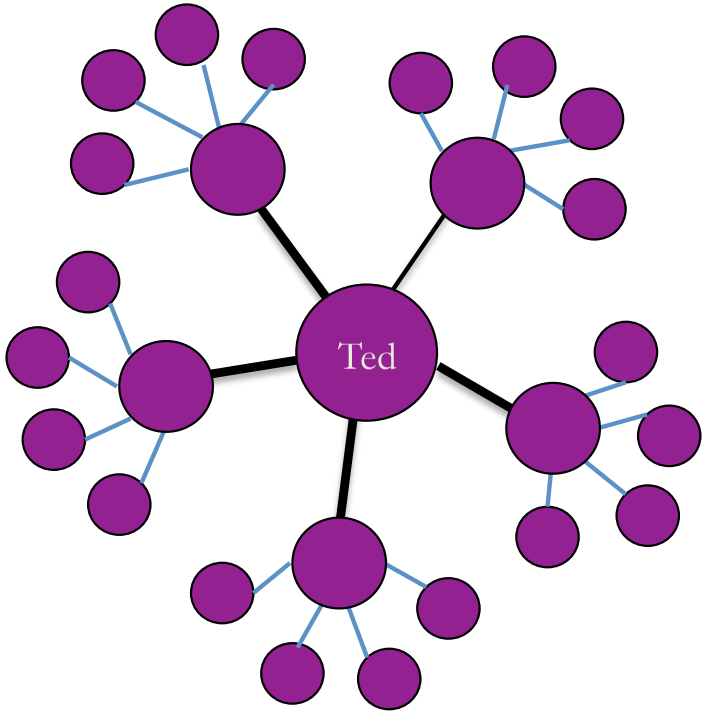




Low density network

# Building Block 5: Network Centrality

Sarah and her contacts all have the same centrality in the network



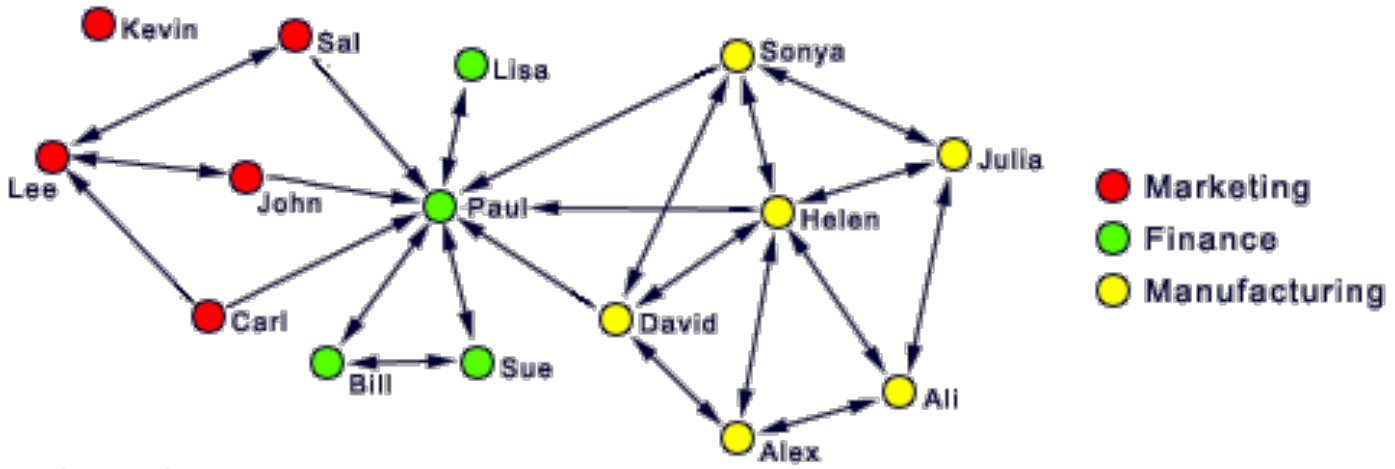




Ted has the highest centrality

his first-order contacts have moderate centrality

his second-order contacts have low centrality

# Example of a collaboration network

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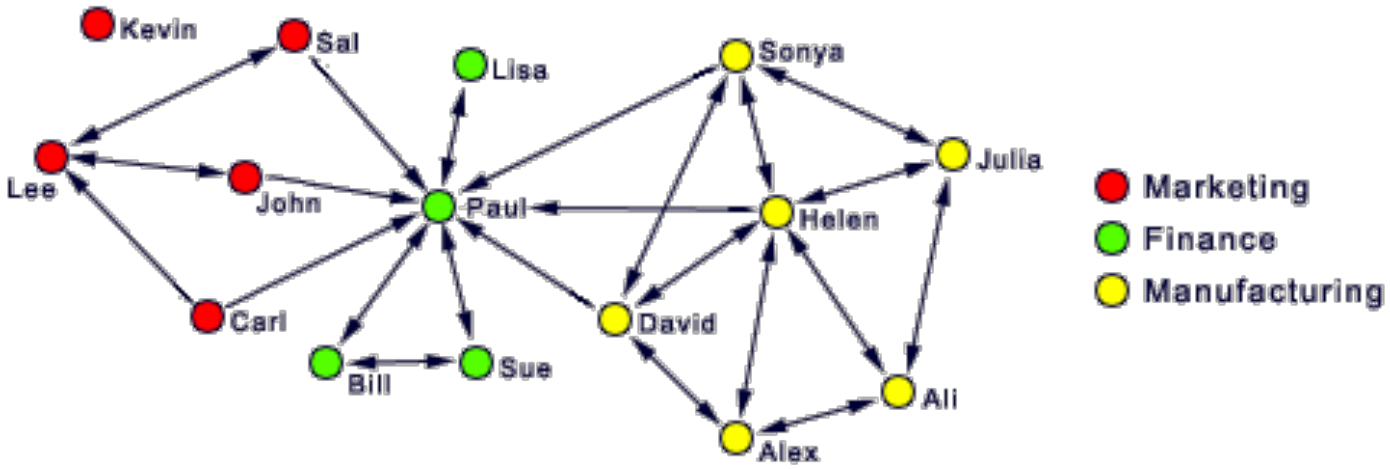
# 3. MAPPING COLLABORATION NETWORKS

# How can we capture collaboration patterns?

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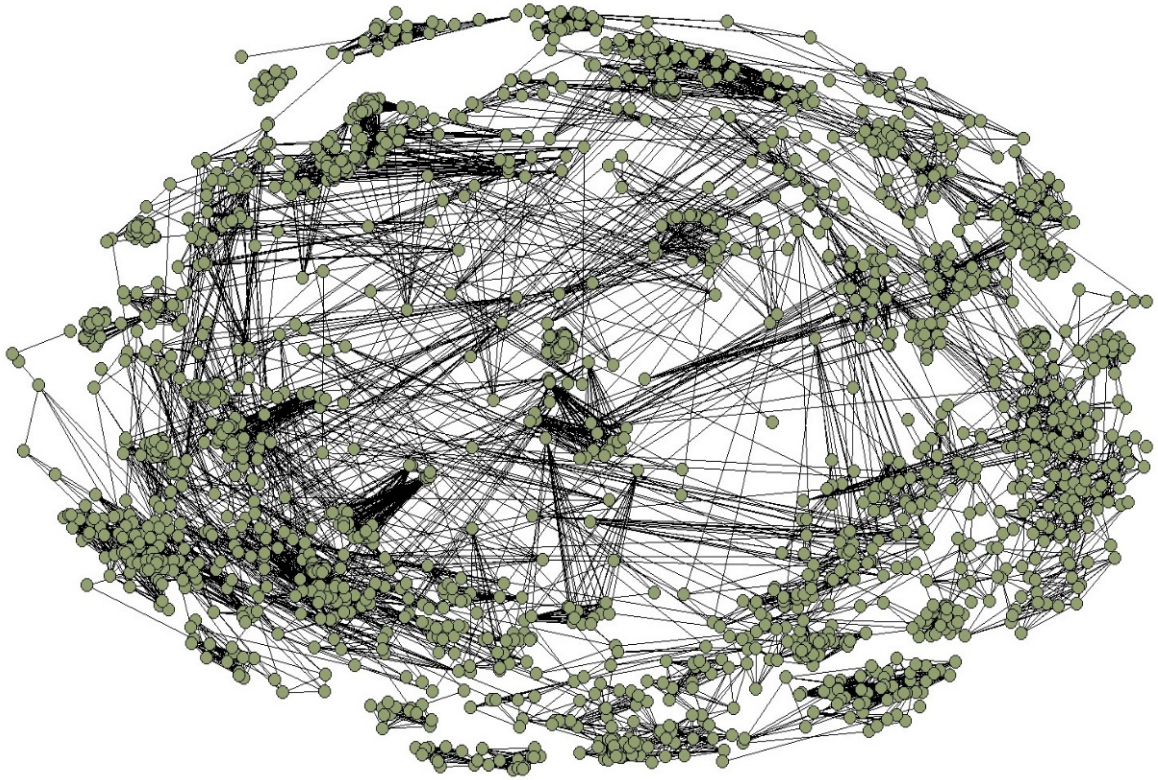

# Network Data: Example

How frequently does A seek information from B?

| | Alex | Ali | Bill | Carl | David | Helen | John | Julia | Kevin | Lee | Lisa | Paul | Sal | Sonya | Sue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alex | x | | | | | | | | | | | | | | |
| Ali | | x | | | | | | | | | | | | | |
| Bill | | | x | | | | | | | | | | | | |
| Carl | | | | x | | | | | | | | | | | |
| David | | | | | x | | | | | | | | | | |
| Helen | | | | | | x | | | | | | | | | |
| John | | | | | | | x | | | | | | | | |
| Julia | | | | | | | | x | | | | | | | |
| Kevin | | | | | | | | | x | | | | | | |
| Lee | | | | | | | | | | x | | | | | |
| Lisa | | | | | | | | | | | x | | | | |
| Paul | | | | | | | | | | | | x | | | |
| Sal | | | | | | | | | | | | | x | | |
| Sonya | | | | | | | | | | | | | | x | |
| Sue | | | | | | | | | | | | | | | x |

# Collecting Network Data

- Surveys
- Other sources

# Collecting Network Data via Surveys

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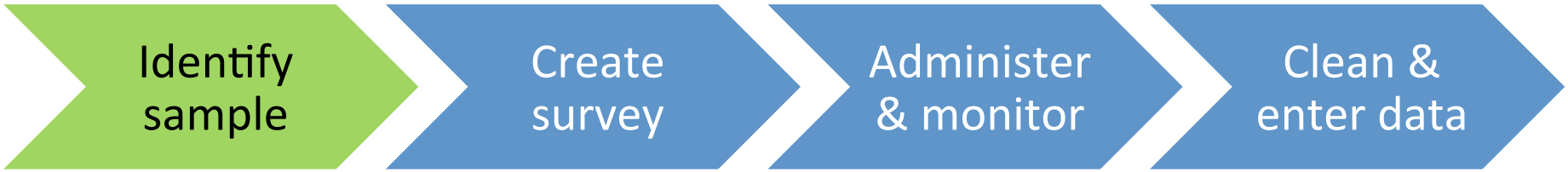


- Sample boundaries:
  - formal units
  - locations
  - communities
  - cohorts
  - teams, etc
- Sample size:
  - N=25-300

# Collecting Network Data via Surveys


- Sample boundaries:
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- Sample size:
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- Opening statement
  - Purpose
  - Confidentiality
- Network questions
- Additional questions
- Order & format
- Test & refine
- 10-15 mins MAX

# Network Questions: Example

Below is a list of all the members of your product development team.
How frequently do you go to each of these individuals to seek information related to your work?

| | Less than once a month | About once a month | About 2 or 3 times per month | About once per week | About 2 or 3 times per week | Daily or almost daily |
|---|---|---|---|---|---|---|
| Alex | ○ | ○ | ○ | ○ | ○ | ○ |
| Ali | ○ | ○ | ○ | ○ | ○ | ○ |
| Bill | ○ | ○ | ○ | ○ | ○ | ○ |
| Carl | ○ | ○ | ○ | ○ | ○ | ○ |
| David | ○ | ○ | ○ | ○ | ○ | ○ |
| Helen | ○ | ○ | ○ | ○ | ○ | ○ |
| John | ○ | ○ | ○ | ○ | ○ | ○ |
| Julia | ○ | ○ | ○ | ○ | ○ | ○ |
| Kevin | ○ | ○ | ○ | ○ | ○ | ○ |
| Lee | ○ | ○ | ○ | ○ | ○ | ○ |
| Lisa | ○ | ○ | ○ | ○ | ○ | ○ |
| Paul | ○ | ○ | ○ | ○ | ○ | ○ |
| Sal | ○ | ○ | ○ | ○ | ○ | ○ |
| Sonya | ○ | ○ | ○ | ○ | ○ | ○ |
| Sue | ○ | ○ | ○ | ○ | ○ | ○ |

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- Cover note from senior sponsor
- Timing
- Incentives?
- High response rate is critical

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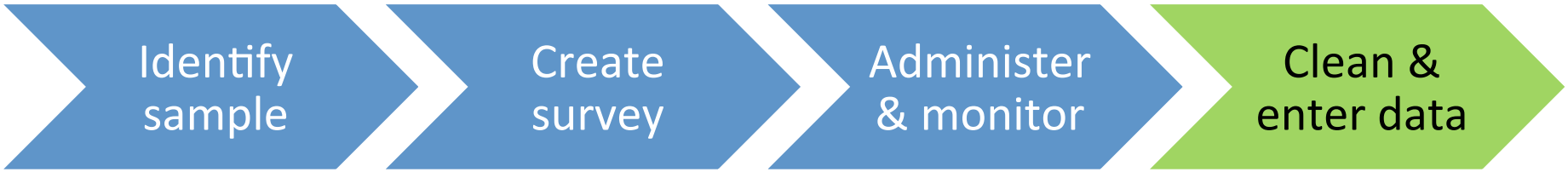


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- Collate, clean, and enter (e.g. in excel)
- Visualize and analyze data using customized software packages (e.g. UCINET, Netdraw)

# Network Data: Example

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| Carl | | | | x | | | | | | | | | | | |
| David | | | | | x | | | | | | | | | | |
| Helen | | | | | | x | | | | | | | | | |
| John | | | | | | | x | | | | | | | | |
| Julia | | | | | | | | x | | | | | | | |
| Kevin | | | | | | | | | x | | | | | | |
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| Sonya | | | | | | | | | | | | | | x | |
| Sue | | | | | | | | | | | | | | | x |

# Collecting Network Data via Surveys: Some issues

PROS:

- Customized, detailed information from target sample

CONS:

- High response rates are critical
- Network cannot be too large
- Survey cannot be too long
- Questions must be worded and interpreted with care
- Confidentiality is critical
- Relatively costly method of data collection

# Collecting Network Data from Other Sources

- Big Data:
  - interactions via email, phone calls, computer conferencing, bulletin boards, social media, etc
- Archival records:
  - corporate databases - e.g. info on shared project assignments, work histories, event attendance
  - public databases - e.g. info on co-patenting, co-authorship, co-citations
- Fieldwork:
  - observations, diaries, electronic tags, etc

# Collecting Network Data from Other Sources: Some issues

PROS:

- Information on larger networks may be available
- May be less invasive
- May be less expensive
- May provide more objective measures

CONS:

- Privacy concerns
- What do available measures actually capture?
- Large datasets can generate statistically significant but unimportant findings

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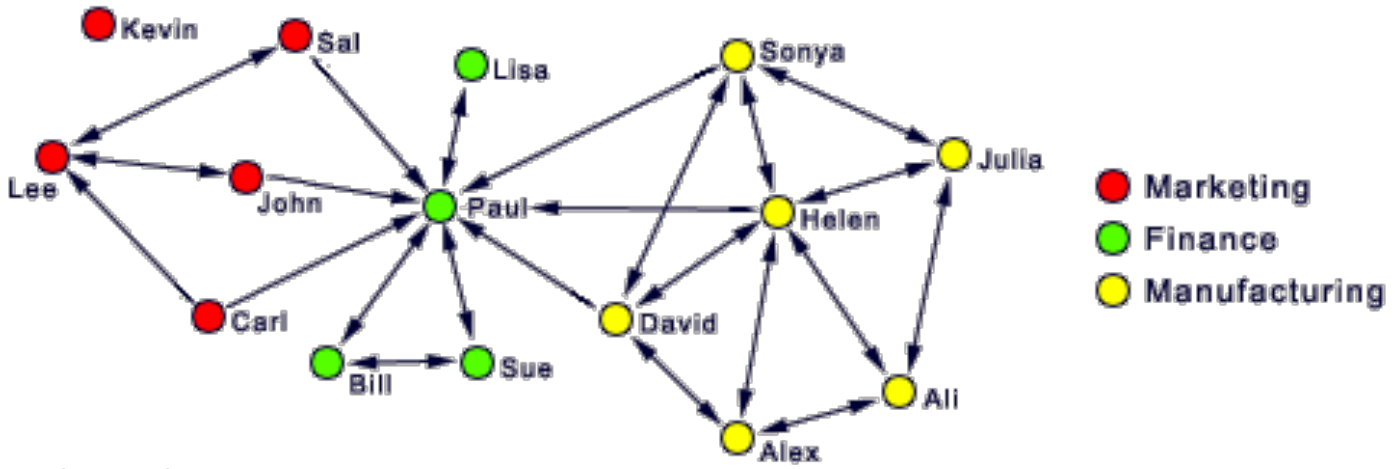
# 4. EVALUATING COLLABORATION NETWORKS

# How can we evaluate collaboration patterns?

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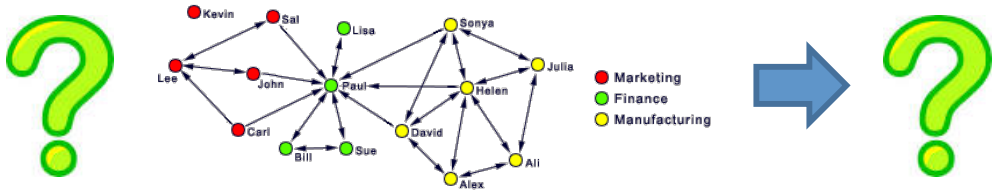
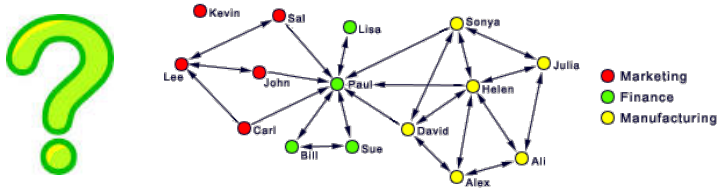



How do collaboration patterns vary?

How do collaboration patterns matter for important outcomes? (individual, group, or organizational)

# How do collaboration patterns vary?

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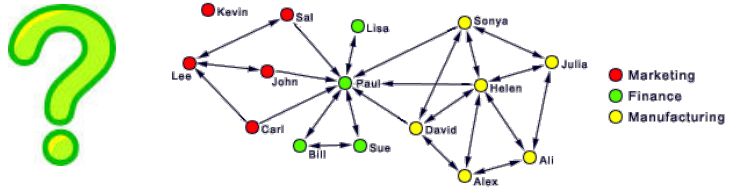



| | Lee | John | Paul | Helen | Julia |
|---|---|---|---|---|---|
| Network size (inbound ties: number of people who seek information from X) | 3 | 1 | 9 | 5 | 3 |
| Network size (outbound ties: number of people from whom X seeks information) | 2 | 2 | 3 | 5 | 3 |

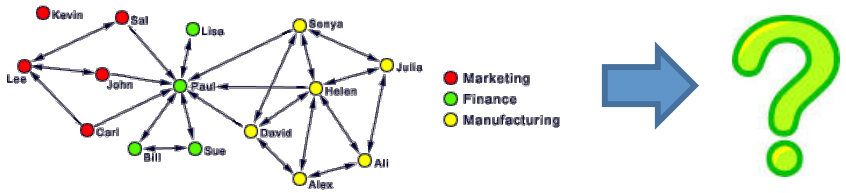
*Simple descriptive statistics:*

- *Compare across individuals*
- *Compare changes over time*

*Implications for managing employees:*

- Performance assessment
- Roles & responsibilities
- Pay & promotions
- Training & mentoring

# How do collaboration patterns matter for important outcomes?

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## Individual outcomes:

- Performance
- Satisfaction
- Commitment
- Burnout
- Turnover etc

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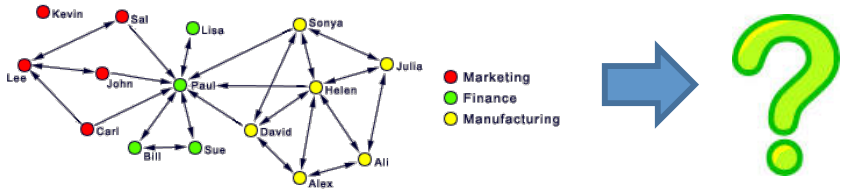



*Correlational & multivariate analysis*

- *Identify relationships between network variables and outcomes*

*Implications for managing employees:*

- Performance assessment
- Roles & responsibilities
- Pay & promotion
- Training & mentoring
- Job rotations & career development
- Retention

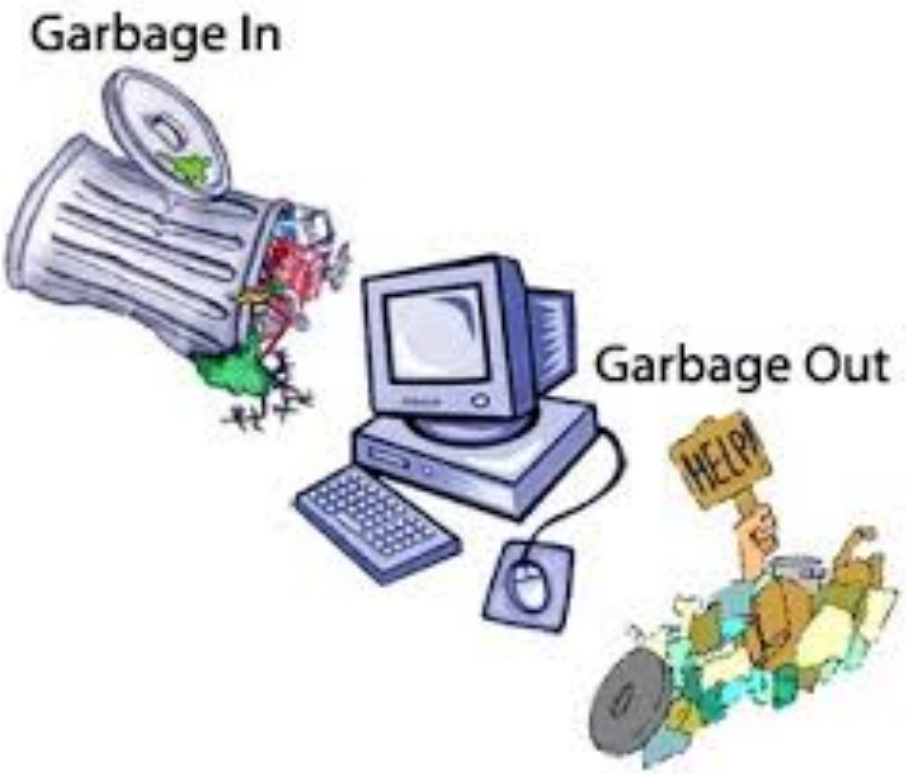
| | **Outcome variable:** |
|---|---|
| | Performance |
| **Network variables:** | |
| Network size (inbound ties: number of people who seek information from X) | + |
| Network size (outbound ties: number of people from whom X seeks information) | – |


There is no one “best” collaboration network for every organization in every situation!

To understand what’s best for your particular organization in your particular situation, you’ll need to collect and analyze the data!

# Measuring Outcomes

# REMEMBER!



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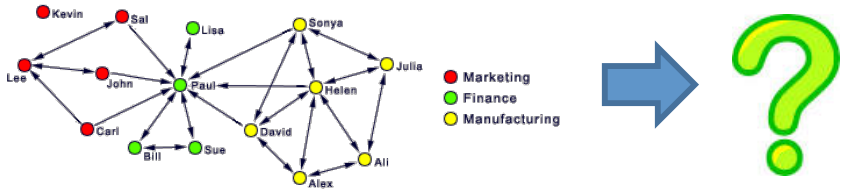


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- Performance
- Satisfaction
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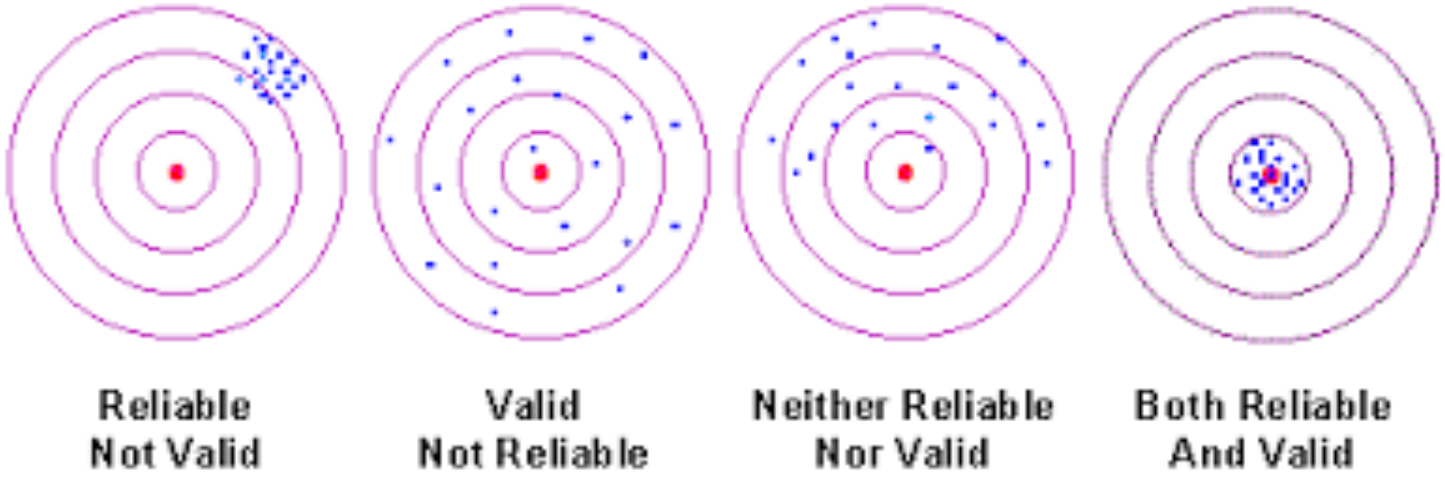
# Example: Measuring Performance

- **What is a strong measure of performance?**
  - Level of analysis – is the focus on performance of employees? teams? organization?
  - Reliability – are assessments consistent? (e.g., over time, across raters)
  - Validity – are assessments accurate? (i.e. measure what they are supposed to measure)

# Validity & Reliability



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  - Validity – are assessments accurate? (i.e. measure what they are supposed to measure)
  - Comparability – consistently measured and meaningful for all units in the dataset
  - Comprehensiveness – available for all or most units in the dataset
  - Cost effectiveness – not too expensive to collect
  - Causality – defensible as an outcome variable

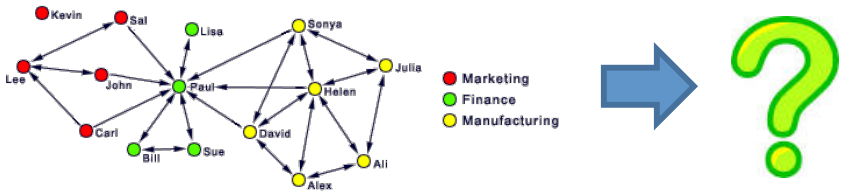
# Example: Measuring performance

- **What is a strong measure of performance?**

  - Level of analysis
  - Reliability
  - Validity

  - Comparability
  - Comprehensiveness
  - Cost effectiveness

  - Causality




Individual outcomes:

- Performance

**Sales per quarter?**
**Cost savings?**
**Self-reported 1-3 ratings?**
**Manager-reported 1-3 ratings?**
**Bonus? etc**

# The Role of People Analytics

People Analytics is a data-driven approach to managing people at work

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5. Intervening in Collaboration Networks

# 5. Intervening in Collaboration Networks

# How can we improve collaboration patterns?

## Is more collaboration needed?

- More is not always better!

## Where is more collaboration needed?

- Build ties strategically

## How to increase collaboration?

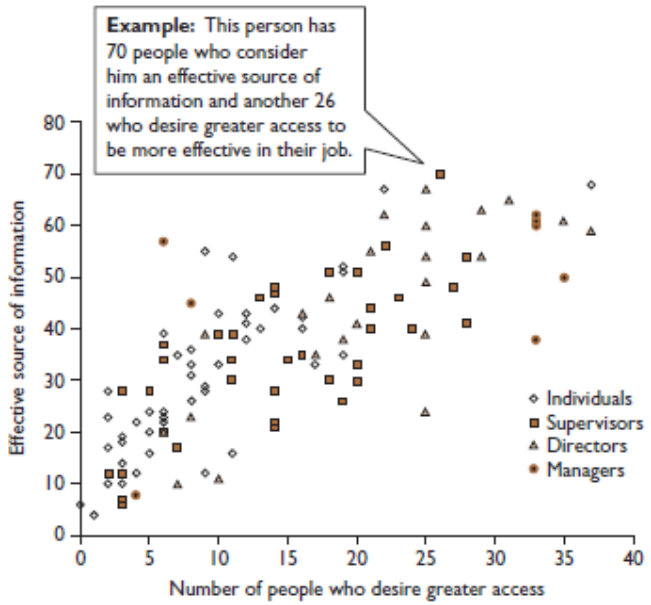
- Provide motivation to build ties:
  - Emphasize & promote collaboration
  - Recognize & reward collaboration
- Provide opportunities to build ties:
  - Cross-functional meetings, conference calls, job rotations, site visits, events, etc

# Intervening in Collaboration Networks: Five Examples

1. Reducing employee overload
2. Improving resiliency of global teams
3. Reducing collaboration inefficiencies
4. Eliminating organizational silos
5. Enhancing career paths

# 1: Reducing employee overload

## … by rebalancing collaboration demands




Source: Cross & Gray (2013), California Management Review

Problem:

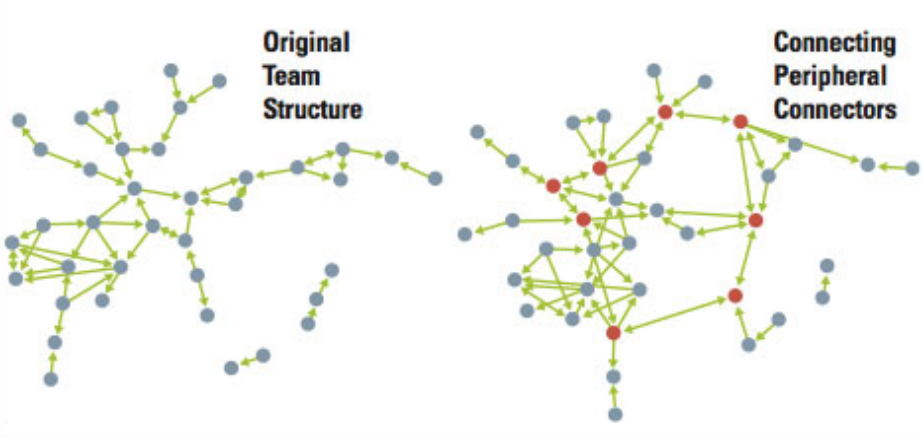
- In this **financial services organization** (like many organizations), a network analysis revealed that about 5% of people accounted for up to 35% of the value-added collaborations; these valuable people often felt very overloaded.

Intervention:

- Identify overloaded people (top right corner), and match them with well-regarded employees who are relatively underutilized (often from bottom left corner), who can relieve some of the burden.

# 2: Improving resiliency of global teams

## … by connecting peripheral members




Source: Cross et al. (2010), MIT Sloan Management Review

Problem:

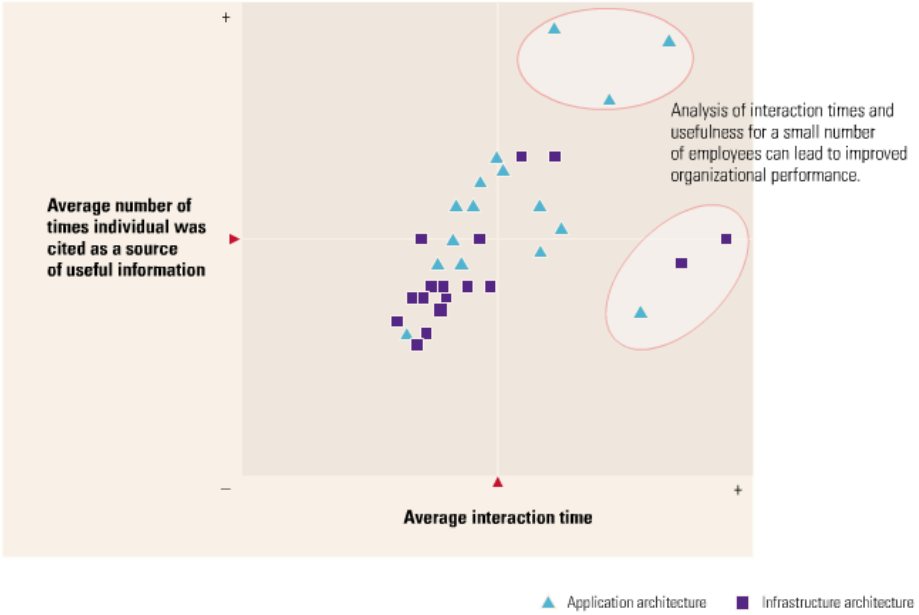
- A **multinational agribusiness company** found that its global IT teams often relied on only a few key people to connect their members across the world; if a few key people left, these teams were vulnerable to breakdown.

Intervention:

- Identify a small number of new connections that would have the biggest positive impact on team connectivity, and shift responsibilities more evenly across the members.

# 3: Reducing collaboration inefficiencies

## … through targeted coaching




Source: Cross, Martin & Weiss (2014), McKinsey Quarterly

Problem:

- A **major utility company** asked employees how much time they spent interacting with each other and how useful those interactions were; the analysis revealed some employees who were very highly regarded, but also a small number of employees who were much less effective than the rest.

Intervention:

- Focus personalized coaching efforts on collaborative issues unique to each of the low performers.

# 4: Eliminating organizational silos

## … by building cross-divisional ties

**EXHIBIT 2.** Collaboration Across Merged Divisions within a Conglomerate

| | Div. 1 | Div. 2 | Div. 3 | Div. 4 | Div. 5 | Div. 6 | Div. 7 | Div. 8 |
|---|---|---|---|---|---|---|---|---|
| **Division 1** | **33%** | | | | | | | |
| **Division 2** | 5% | **76%** | | | | | | |
| **Division 3** | 11% | 18% | **45%** | | | | | |
| **Division 4** | 2% | 11% | 21% | **38%** | | | | |
| **Division 5** | 6% | 7% | 12% | 6% | **75%** | | | |
| **Division 6** | 7% | 2% | 13% | 7% | 2% | **76%** | | |
| **Division 7** | 1% | 3% | 16% | 6% | 8% | 2% | **36%** | |
| **Division 8** | 10% | 2% | 9% | 6% | 3% | 10% | 0% | **90%** |

Source: Cross, Borgatti & Parker (2002), California Management Review

Problem:

- A **Fortune 500 conglomerate** had grown by acquisition, but analysis of collaboration among the top 126 executives revealed that some divisions were much less integrated than others.

Intervention:

- Identify and target network connections that hold most strategic relevance for the firm, and track changes to these ties over time to assess the impact of interventions.

# 5: Enhancing career paths

## … through better performance management processes

Source: Cross, Martin & Weiss (2014), McKinsey Quarterly

Problem:

- A **global consulting firm** mapped the networks of about 80 partners, and found two types of collaboration that were very valuable for the firm but not recognized at all in its performance management processes, which focused on individual revenue production:
  - Collaborating to win clients
  - Collaborating to serve clients

Intervention:

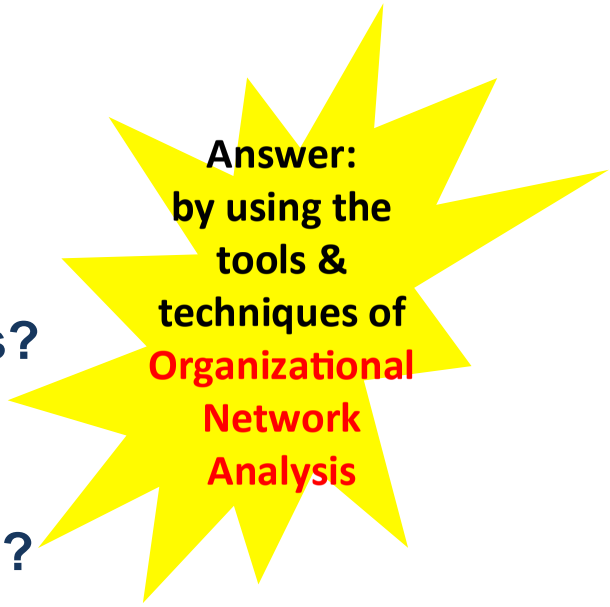
- Revise performance evaluation systems to recognize contributions of partners who help others to win new clients or serve current clients

# CONCLUSIONS

How can we improve collaboration inside organizations?

# Analyzing Collaboration

- How can we describe collaboration patterns between employees?
- How can we map these collaboration patterns?
- How can we evaluate these collaboration patterns?
- How can we improve these collaboration patterns?



# People Analytics: Collaboration

1. Introduction
2. Describing Collaboration Networks
3. Mapping Collaboration Networks
4. Evaluating Collaboration Networks
5. Intervening in Collaboration Networks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