

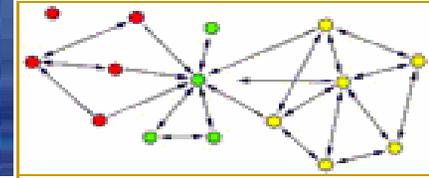
# **Construction Company Case Study: Improving the Performance of Offices, Teams, and Individuals with Network Analysis**

March 2006



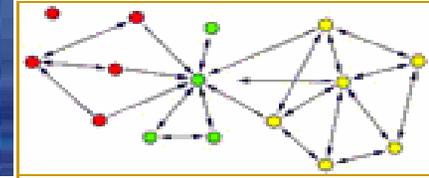
*The* **NETWORK ROUNDTABLE** *at the* **UNIVERSITY OF VIRGINIA**

# Agenda



- The Role of Organizational Network Analysis (ONA)
- ONA Project Plan
- Key Findings and Recommendations
  - Overloaded and Peripheral People
  - Information Flow and Expertise Awareness
  - Relevance and Placement of Expertise
  - Team Connectivity
  - Individual Performance
- Critical Success Factors
- Appendix
  - Why ONA is Important
  - How to Interpret a Network Diagram
  - The Value of Network Analysis Over Time

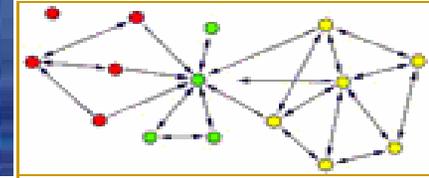
# As a Construction Industry Leader, the Company Strives to Optimize Office, Team, and Individual Performance



- **Over 50 business units (BUs) globally**
  - The BUs range from mature, profitable entities to newly established, growing units.
  - To help the newer BUs become profitable quickly, best practices and lessons learned from successful BUs must be transferred rapidly and systematically to the newer BUs.
- **At any point-in-time, there are many projects running within each BU**
  - Every project has its own staff and dynamics, potentially creating tens of silos, or tens of learning opportunities, within each office.
  - How these projects share knowledge and how they connect within and beyond their immediate group is critical to organization performance.

**Three BUs were selected to pilot organizational network analysis. The goal was to make the inner workings of the BUs visible, allowing management to compare interactions across groups and assess their effectiveness.**

# Network Analysis Quickly Provided Insights into the Effectiveness of Selected Offices



Survey design is a critical element of a successful network analysis. This company spent time early in the process to get it right, to ensure meaningful results.

## Plan

- create network survey
- define community members
- obtain senior sponsor

## Run

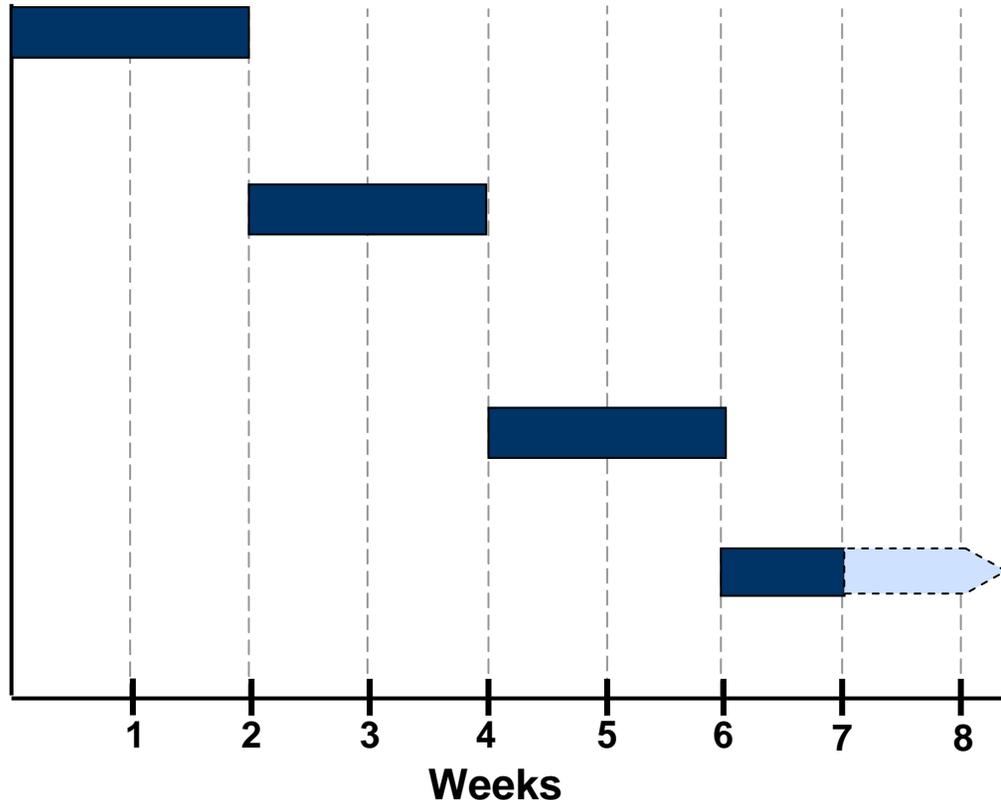
- test diagnostic with small sub-group
- administer Web-based diagnostic
- send system-generated e-mails to obtain responses

## Assess

- create recommendation report
- provide personalized Web sites

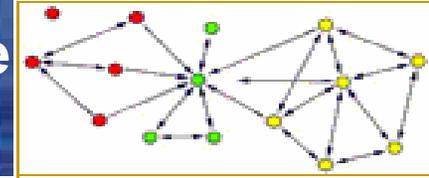
## Apply

- develop and implement project plan
- take action on personal network results



In less than two months, network analysis provided important insights into how people were working within several offices and identified what actions would have the biggest impact.

# Findings and Recommendations Started at the Office Level and Worked Down to the Individual Level



## Findings

## Recommendations

<p><b>Several people are overloaded and others are very peripheral. Balance connectivity to make the offices more effective and efficient.</b></p>	<ul style="list-style-type: none"> <li>• Reduce collaborative demands on overly-connected people by reallocating information access and routine decision rights</li> <li>• Integrate peripheral people (particularly newcomers and those in field offices) by creating ties with central brokers</li> <li>• Assign key players a mentoring role with newcomers</li> </ul>
<p><b>Facilitate information flow and awareness of expertise across important silos to help the sales, pricing and delivery of projects.</b></p>	<ul style="list-style-type: none"> <li>• Target areas where greater collaboration could yield benefits by transferring best practices and better leveraging expertise</li> <li>• Build awareness of expertise through staffing (client and internal projects), problem-solving sessions, and persona books</li> </ul>
<p><b>Ensure relevant expertise is in-house and well placed in the network to substantially impact profitability and innovation.</b></p>	<ul style="list-style-type: none"> <li>• Build key skills by assessing individual expertise and identifying current blind spots; hold after-action reviews</li> <li>• Use the network view to balance the influence of expertise, its' distribution, and ensure certain individuals don't impede the flow of ideas (i.e. creating an Innovator's Dilemma)</li> </ul>
<p><b>Build appropriate team and team leader connectivity to improve job performance.</b></p>	<ul style="list-style-type: none"> <li>• Improve performance of teams by ensuring they: build appropriate connections into the client; have external relationships (where relevant); develop effective lateral coordination; and aren't overly reliant on a leader.</li> </ul>
<p><b>Drive individual performance through high performers' networks</b></p>	<ul style="list-style-type: none"> <li>• Replicate high performers' networks through leadership coaching, training programs, career development and mentoring</li> <li>• Ensure a healthy balance of relationships among high-level leaders and leaders in transition to avoid over-reliance on people who were depended upon in past roles</li> </ul>

**Office Network**

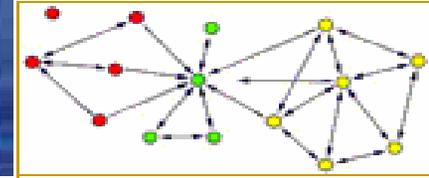


**Team Network**



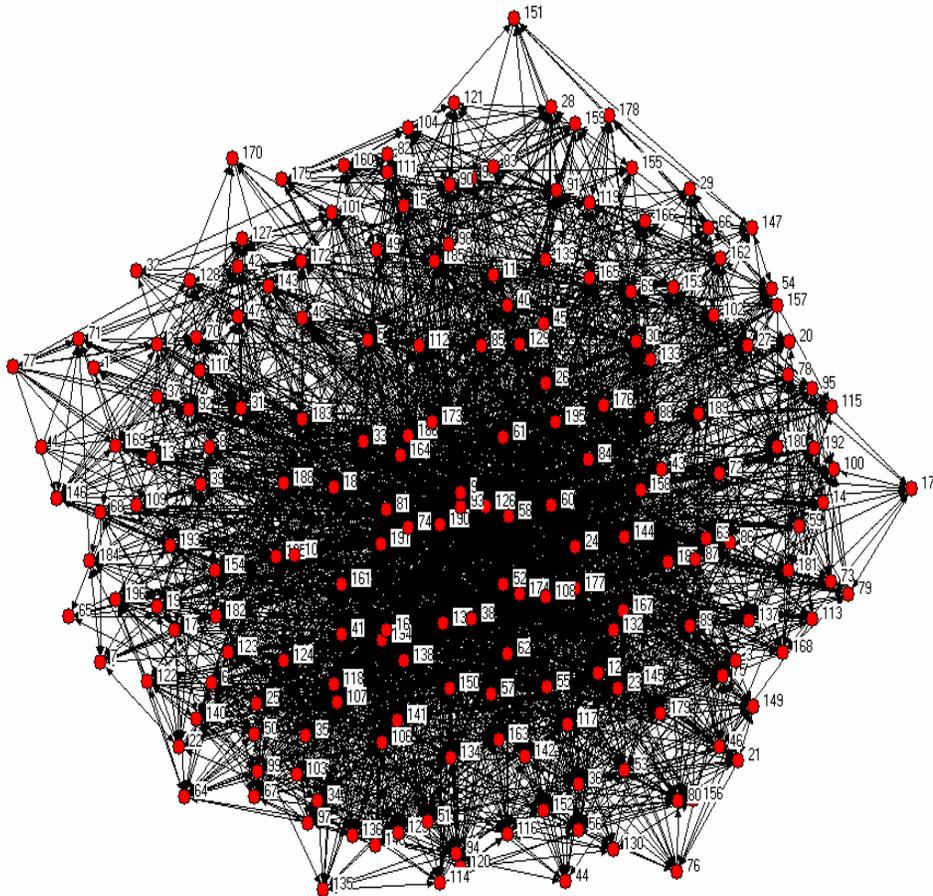
**Individual Network**

# In This Office, the Network is Well Connected but Needs to be Balanced



“Please indicate how frequently the people listed below provide you with information that helps you to accomplish your work.”

**Response of monthly or more often**



The metrics indicate the network is well connected. However, several people are overly central while several others are too peripheral. Network connectivity can be better balanced through distributing information access, decision-rights and possibly portions of roles.

Network Measures	Current State	Target
Density	12%	13%
Cohesion	2.1	2.0
Centrality	24	25

*Note: Targets were determined by The Network Roundtable high performer benchmark database.*

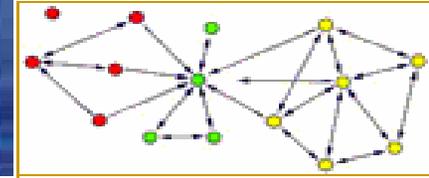
## Definitions of Network Measures

**Density:** The number of connections that exist out of 100% possible in that network. More points connected means quicker and more accurate information flow.

**Cohesion (Distance):** Shows average distance for people to get to all other people. Shorter distances mean faster and more accurate transmission/ sharing.

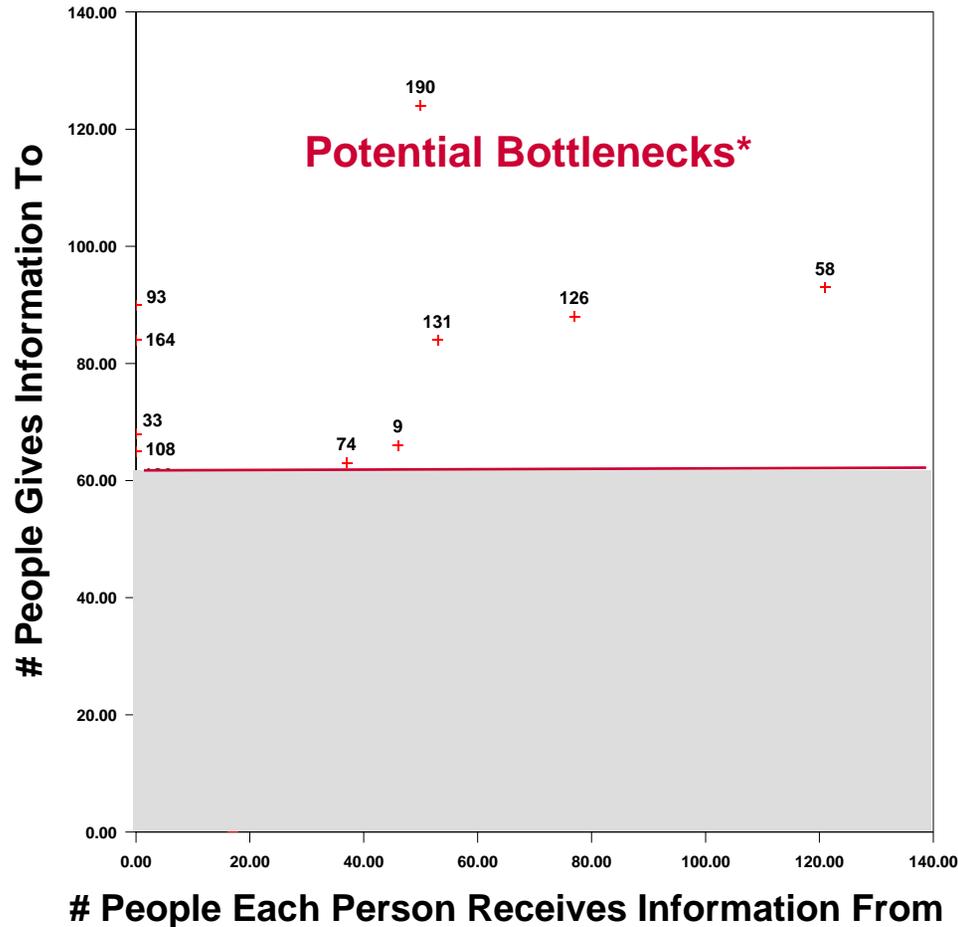
**Centrality (Degree):** Identifies influential people (individual measure). Number of direct connections (ties) that individuals have with others in the group.

# Interviews Reveal if the Relationships of Overly-Connected People Should be Redistributed



“Please indicate how frequently the people listed below provide you with information that helps you to accomplish your work.”

Response of monthly or more often



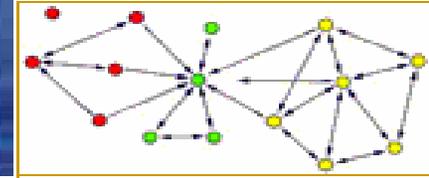
The vast majority of potential bottlenecks are people in the positions of function head. Removing these 10 most central people reduces the number of relationships in the network by 18%.

To avoid over-reliance on individuals, it is important to employ a retention and redundancy strategy. Vulnerability to key departures can be addressed by:

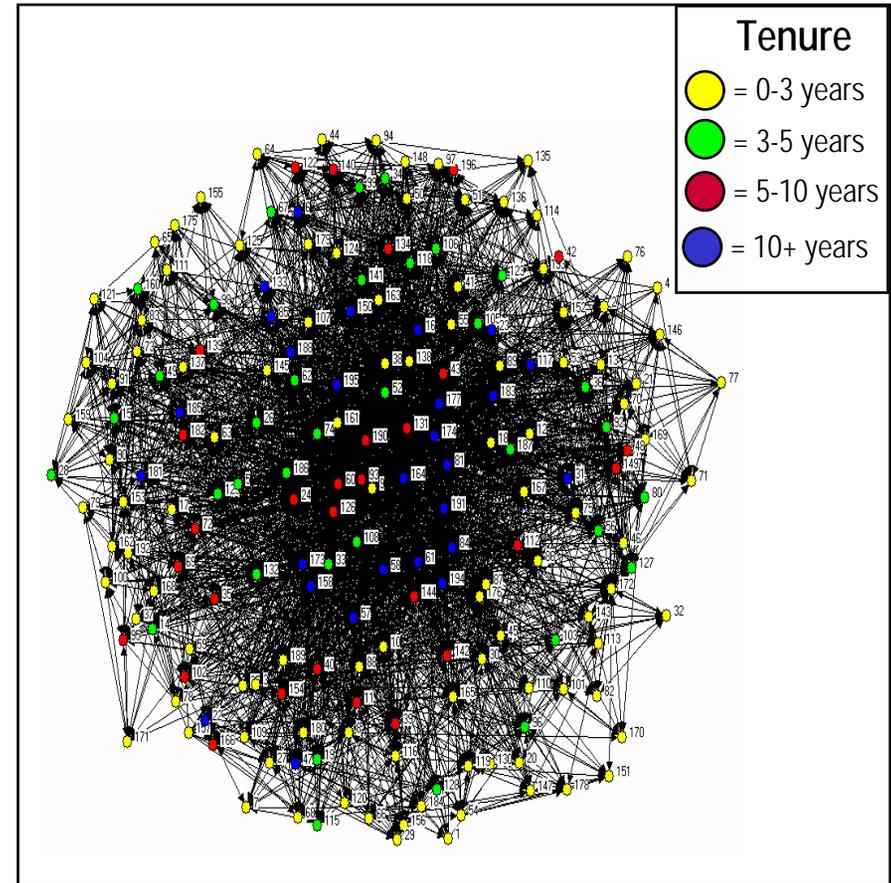
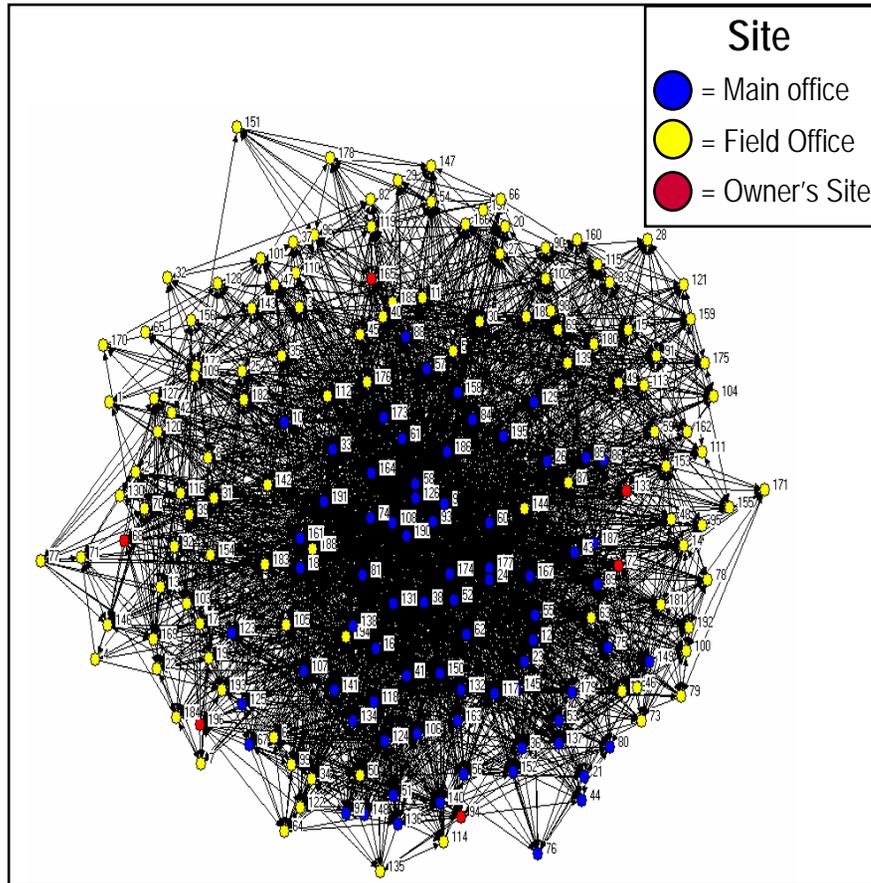
- 1) re-allocating information access and decision rights;
- 2) using staffing or internal projects to help fill network voids created upon a central member's departure; and
- 3) using exit interviews to define key relationships that must be replaced (both external and internal ties).

\* Potential bottlenecks are those more than two standard deviations above the mean.

# People Who are in Field Offices and Those With Low Tenure are Marginalized and Underutilized



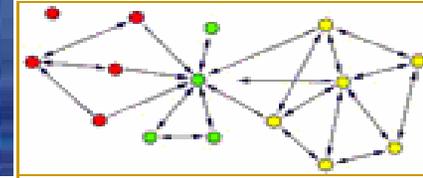
“Please indicate how frequently the people listed below provide you with information that helps you to accomplish your work.” **Response of monthly or more often**



**There are typically three categories of peripheral people who should be approached differently:**

- 1) Performance problems or cultural “misfits” that are working their way out of the network;
- 2) Legitimate peripheral players (e.g., experts or those balancing work life issues that if forced in might leave); and
- 3) Those trying to figure out how things work but who have not been able to connect well due to on-boarding or staffing.

# Collaboration Within and Between Positions in this Office Should be Higher Across Functions



## Better collaboration within groups (on diagonal) could:

- **Superintending** – lead to better knowledge transfer and fewer field mistakes.
- **Engineering** – lead to risk avoidance during the preconstruction phase.
- **Quality** – help identify risks and reduce job-site incidents.

## Information Providers

	Super	Engineer	Purchasing	Estimating	Prjct Mgmt	Funct Head	Admin	Sales	Quality
<b>Information Seekers</b> Superintending (44)	8%	7%	8%	2%	10%	20%	9%	2%	11%
Engineering (48)	7%	9%	11%	5%	9%	19%	11%	2%	8%
Puchasing (6)	4%	11%	57%	20%	16%	37%	23%	19%	10%
Estimating (16)	1%	6%	29%	61%	15%	32%	13%	26%	1%
Project Mgmt (27)	8%	11%	22%	14%	16%	52%	18%	23%	12%
Function Head (15)	9%	11%	33%	18%	23%	48%	18%	31%	15%
Administrative (22)	7%	8%	11%	10%	12%	25%	22%	15%	9%
Sales and Marketing (6)	2%	3%	3%	15%	22%	67%	15%	77%	0%
Quality (8)	10%	8%	10%	2%	12%	24%	15%	2%	41%

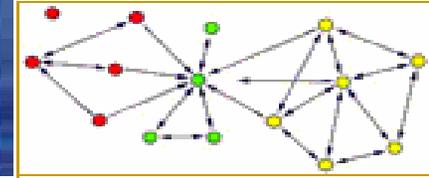
## Better collaboration across groups (off diagonal) could:

- **Sales to Supers and Engineers** – increase the transfer of knowledge of the “deal” to superintendents and engineers.
- **Quality to Superintendents** – help identify risk and reduce job-site incidents.
- **Project Managers to Supers and Engineers** – improve knowledge of the project requirements and reduce risks and changes.

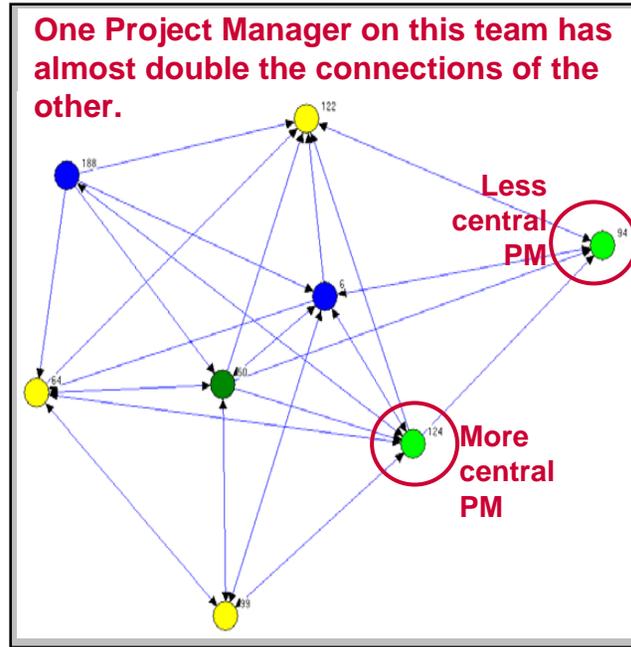
## Chart Interpretation

Each cell reflects the percent of information seeking ties out of 100% that could exist if everyone were connected to everyone else at that juncture. The table is read from row to column when assessing who seeks info from whom.

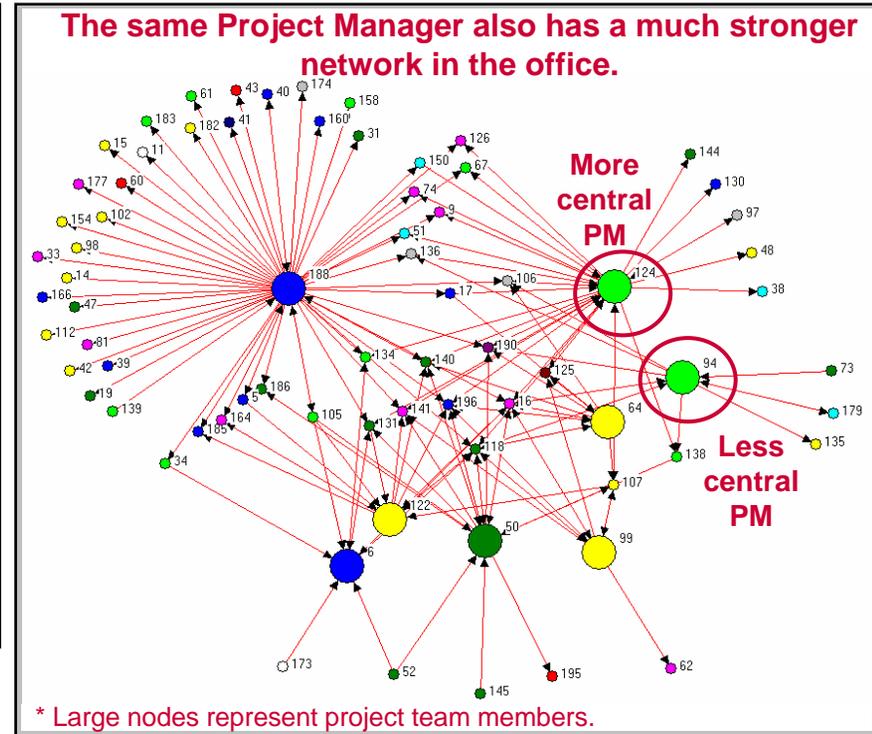
# Network Connectivity on Project Teams Can Be Linked to Project Performance



## Weekly Connections on One Project Team



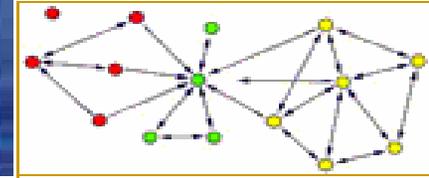
## The Project Team's Weekly Connections to Others in the Office (not including those to each other)



### The goal is for all project teams to uphold the characteristics of high-performing teams:

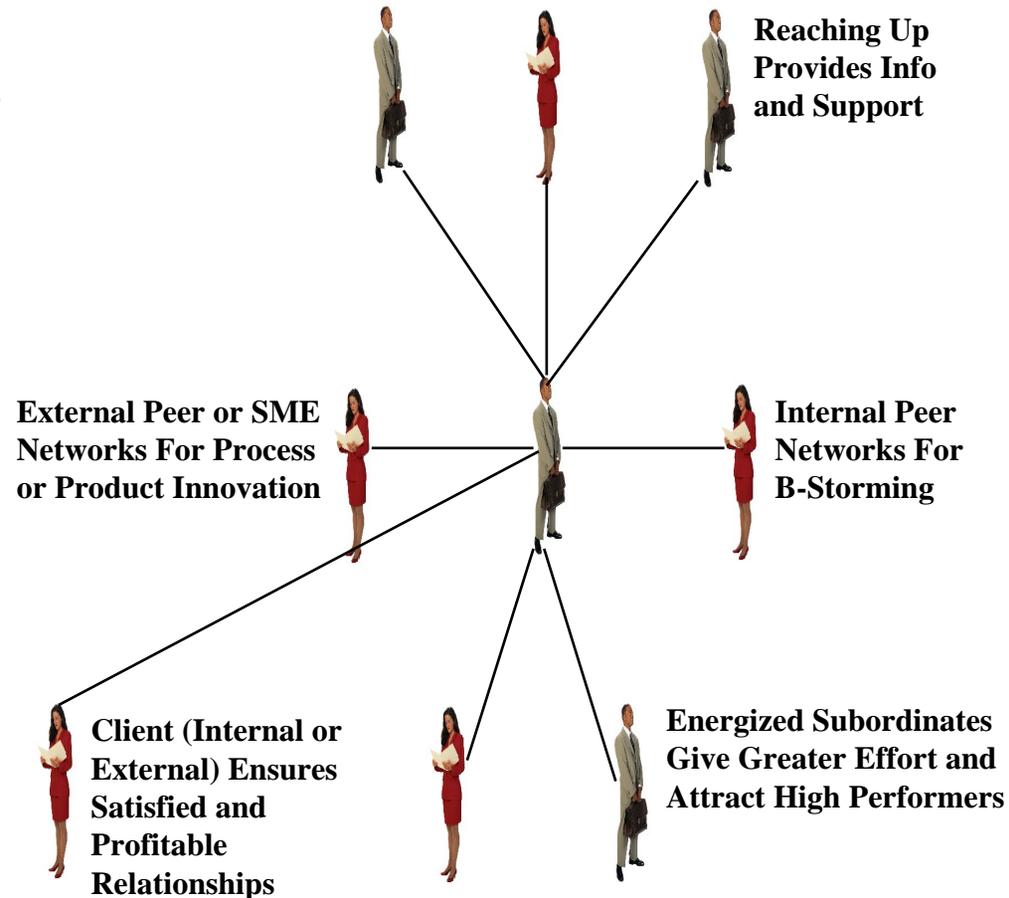
- Focused connectivity between roles at relevant points in a project.
- Lateral connectivity amongst all team members.
- Lack of hierarchy (i.e., leaders that force reliance on themselves hurt team performance).
- Diverse external ties to relevant parties inside and outside the organization.

# Characteristics of Individual's Personal Networks Can Also Be Examined for Higher Performance

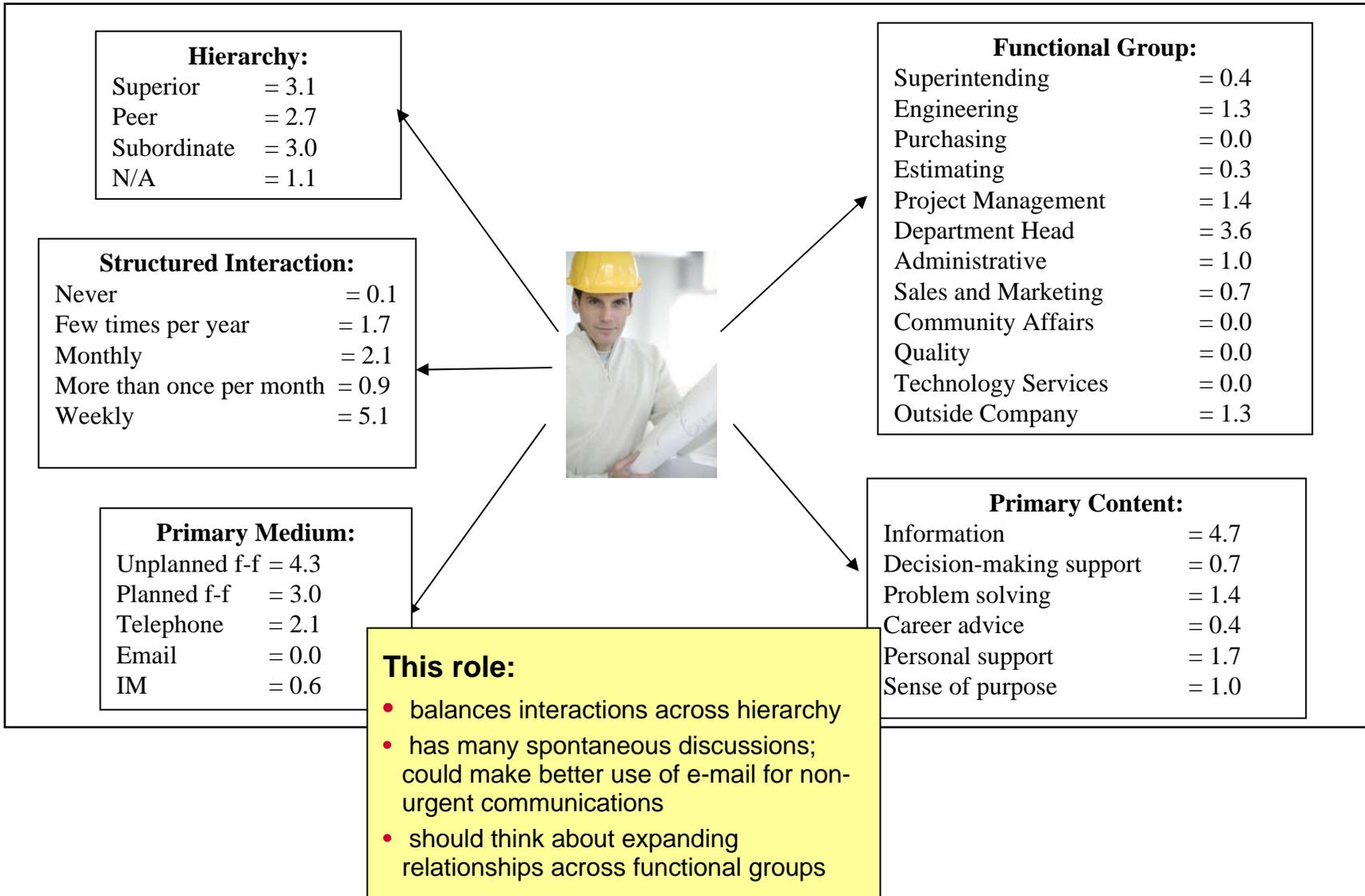
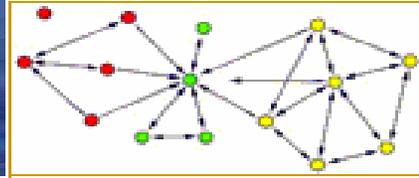


## High Performers (i.e., top 20%) Have Non-Insular Networks:

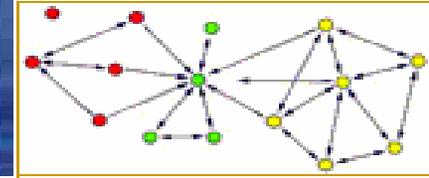
- Select ties up in the hierarchy (to your boss and others) provides a breadth of information, context, resources and political support for your initiatives.
- Lateral connections to peers within the organization are important for brainstorming and best practice transfer as these people face similar issues.
- High quality (i.e., energizing) relations to those lower in the hierarchy creates reputation and draws emerging high performers to you over time.
- Select ties to experts outside of the organization yield innovations and novel opportunities not circulating within company.
- Quality relationships with clients help ensure relevance and profitable work.



# The Personal Networks of Function Heads Reveals How People in These Roles Interact



# Factors Critical for Successful Network Analysis Projects at This Construction Company



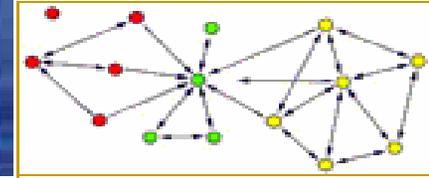
- **Spending time upfront to get the survey right. Proper survey design will ensure that it is responsive to what you want to learn.**
- **In this case, the company identified a senior champion for overall support as well as local sponsorship at the office level. The office general manager required that everyone participate, resulting in a very high response rate.**
- **Identifying and communicating the value the network analysis will provide on both a group and a personal level helps to obtain engagement.**
- **Driving the analysis into a set of specific actionable items that have high impact is critical to obtaining executive support.**
- **Have a clear process for sharing and taking action on the results of the analysis.**

# Appendix



*The* **NETWORK ROUNDTABLE** *at the* **UNIVERSITY OF VIRGINIA**

# Why We Should Focus Our Attention on Organizational Networks



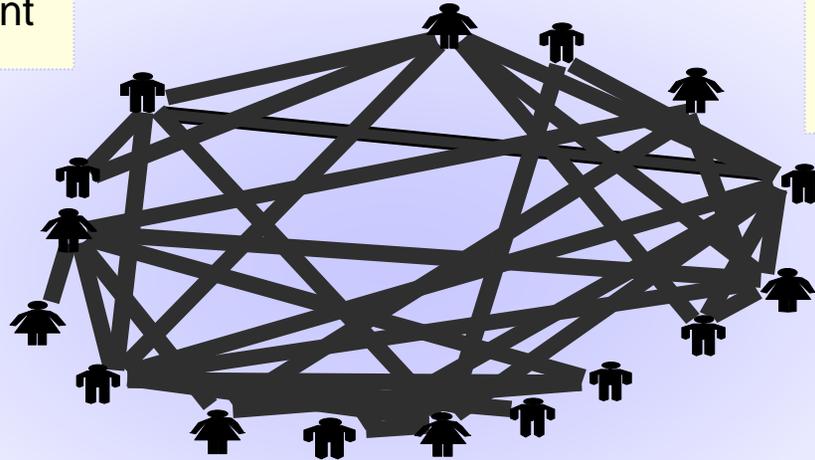
## Key Reasons Why Organizational Networks Are Important

### Where Work Happens

- Lack of boundaries
- Informal networks increasingly important

### Where People Engage

- Join and commit to people
- Trust accrues in networks of relations



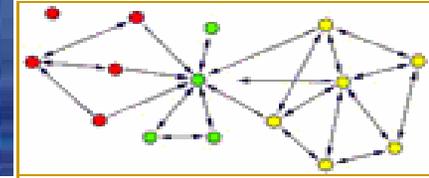
### Where Knowledge Lives

- Rely on people for information
- People can provide more than databases

### BUT...

- Invisible
- Complements formal structure

# How to Interpret a Network Diagram



- **Central People**

- Are an important source of expertise
- May become bottlenecks

- **Peripheral People**

- Are underutilized resources
- Feel isolated from the network
- Have a higher likelihood of leaving

- **External Connectivity**

- Provides balanced and appropriate sources of learning
- Holds relevant influence with key stakeholders

- **Brokers**

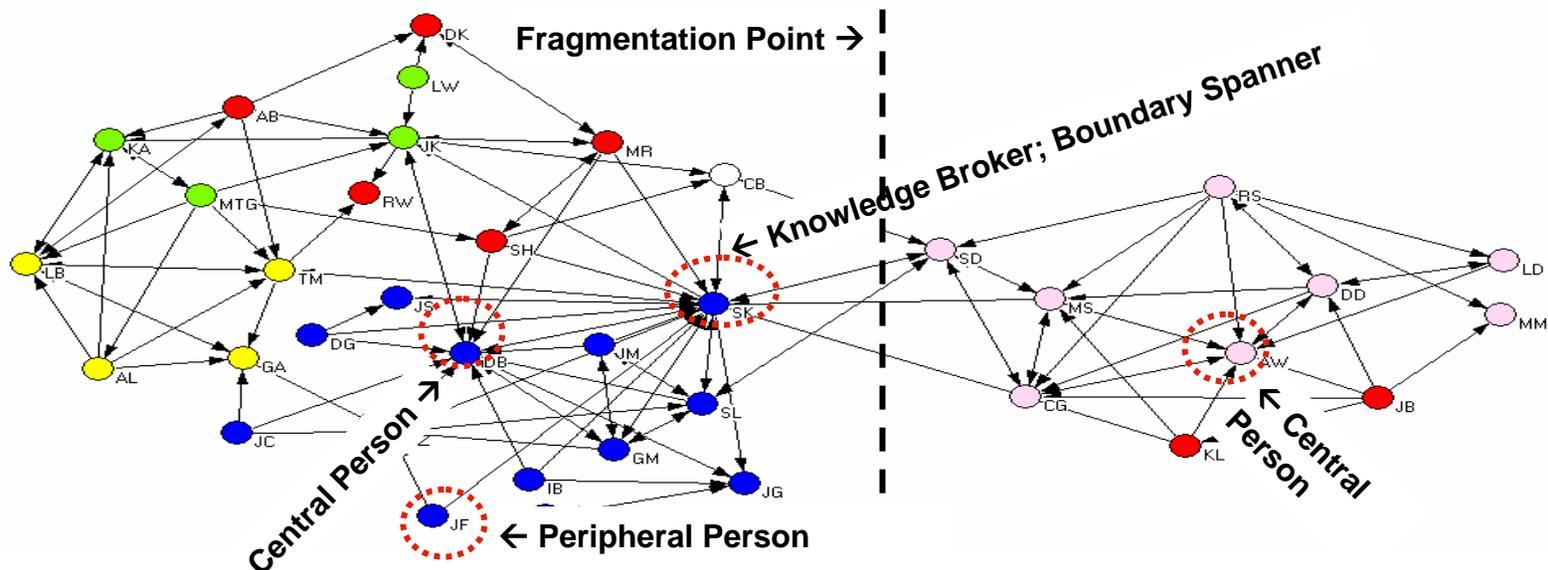
- Are critical connectors between diverse information sources and specific kinds of expertise. High leverage points.

- **Fragmentation Points**

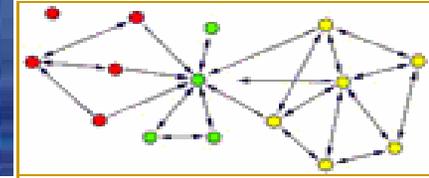
- Affect information flow across boundaries (e.g., cross functional, hierarchical, geographical, or expertise)
- Provide targeted opportunities

- **Personal Connectivity**

- Improves community leader effectiveness
- Enables grass roots network development efforts



# Network Analysis Can Provide Insight into Potentially Important Performance Gaps



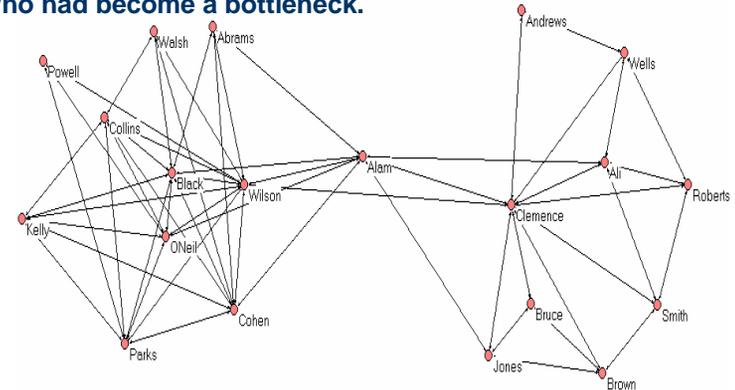
- **Network Analysis Can Help Identify the Current State of a Network**

- Understand the current state
- Establish a baseline of measurement
- Produce and act on a handful of meaningful action items
- Identify resources for revitalizing a new or established network



## Initial analysis in an illustrative network:

Initial analysis revealed that these two groups were divided. Expertise was not being tapped across silos and the central person (Alam) was an overloaded manager who had become a bottleneck.



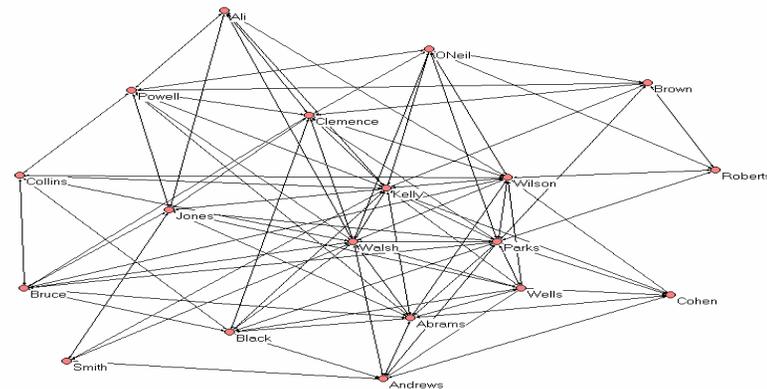
- **Network Analysis Can Help Track Progress and Target Future Efforts**

- Survey community members at future date
- Analyze impact of productivity interventions
- Validate investment and expand scope as warranted



## After interventions in an illustrative network:

Nine months later, after interventions, the groups operated much more fluidly. Projects were staffed with members from each group, new incentives were introduced, and the overloaded manager was transferred.



**By taking a before and after snapshot of collaboration a leader can both improve effectiveness of their interventions and track progress over time.**