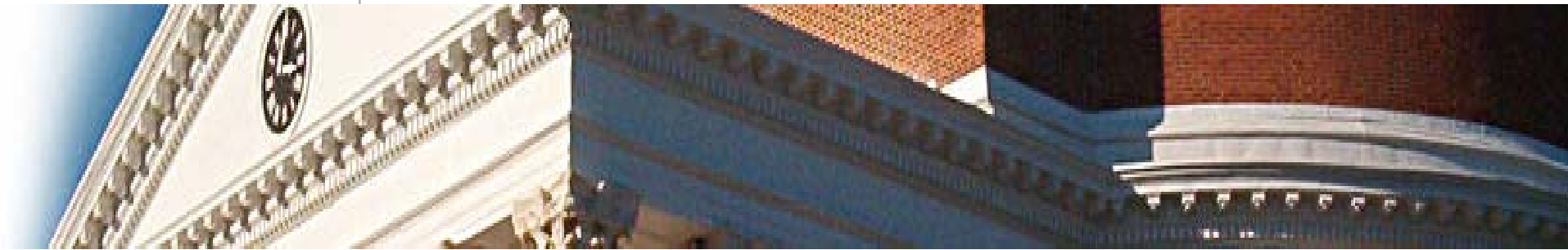


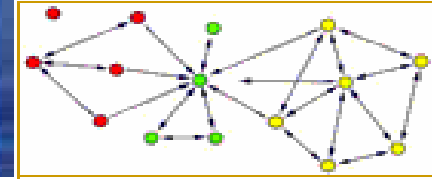
# MWH Case Study: Transitioning Regional IT Departments Into a Single, Unified Global Group

May 2006



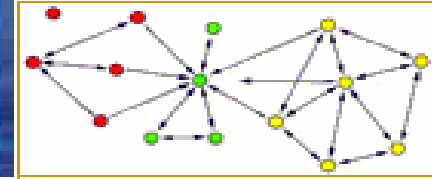
*The* **NETWORK ROUNDTABLE** *at the* **UNIVERSITY OF VIRGINIA**

# Agenda



- About MWH
- Situation Overview
- Organizational Network Analysis (ONA) Themes
- Comparisons of Findings from 2003 to 2005
- Actions and Results
- Appendix
  - Why Network Analysis is Important
  - How to Interpret a Network Diagram
  - Overview of Project Plan

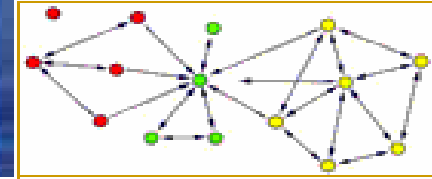
# About MWH



- **MWH** is a global leader in providing knowledge-driven services. With more than \$1 billion in revenue, 6,100 specialists in 36+ countries provide solutions to municipalities, government agencies, multinational companies, industrial concerns and military organizations worldwide.
- MWH professionals have expertise in a wide array of integrated solutions, including environmental engineering, power generation, facilities development, laboratory services, construction, multi-sector program management, asset management, financial services, IT consulting, government relations and applied science.
- MWH optimizes their clients' operations overall performances, forecasts future needs, addresses regulatory concerns, satisfies diverse stakeholders, manages complex programs and achieves maximum benefit from capital investments.



Sharing knowledge effectively is the key to MWH's success. MWH's KnowledgeNet system, which permits access to the company's resources and diverse expertise, was honored with the annual [DM Review "2003 World Class Solutions Award"](#) competition. MWH hosts more than 190 virtual communities on KnowledgeNet's global knowledge portal, KNet.



## Challenge

In 2003, MWH created a unified organization and governance structure for the Information Technology (IT) function. iNet, the name of the reorganized IT function, effectively consolidated each of the three regional IT groups (Americas -North and South, Europe, and Asia) into a single entity combining expertise to enhance the delivery and standardization of engineering and business solutions around the world.

iNet was the first organization at MWH to be managed and governed on a global basis and serves as a roadmap for other staff functions that will become global in the future.

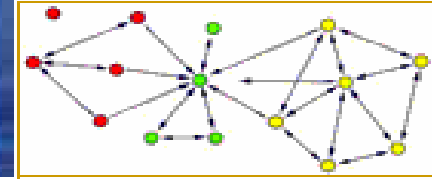
## The Role of Network Analysis

The Chief People and Knowledge Officer sponsored several Organizational Network Analyses (ONA) for iNet. The goal of the first one was to provide a baseline view at the point that the new organization was implemented. ONA would provide an x-ray of the inner workings of the group in order to assess risks and potential trouble areas, as well as identify people who already worked collaboratively and could serve as change agents in the new organization.

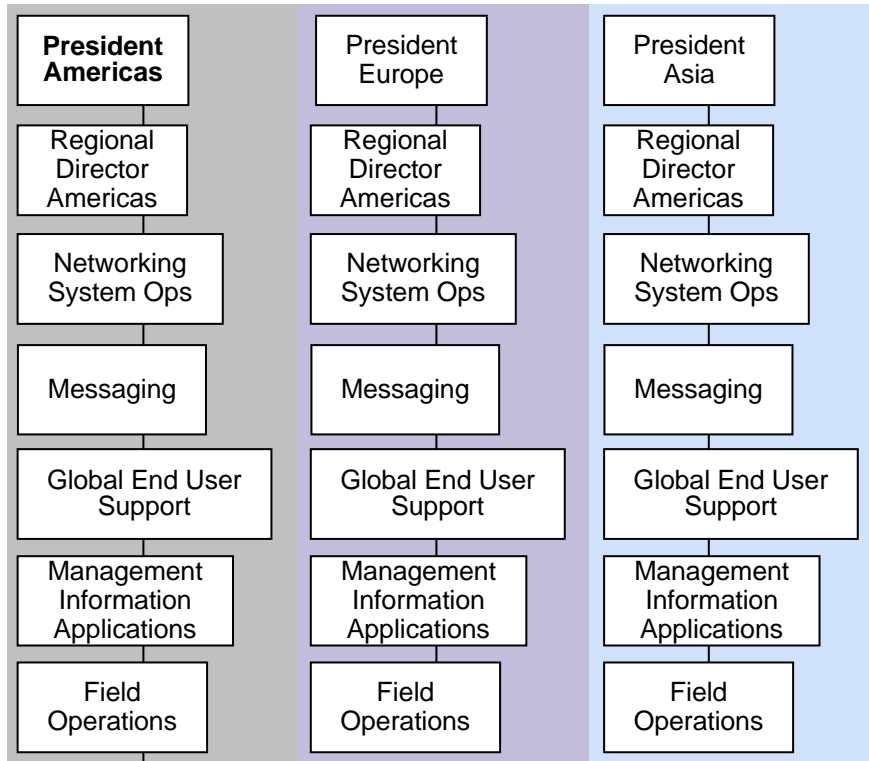
The first baseline ONA was conducted in 2003. Since then, one ONA was conducted each year for the iNet group. The objectives of the ONAs were to:

- Identify ways to improve collaboration within the iNet organization
- Better understand ways to improve the effectiveness of the iNet senior management team
- Identify networking strengths and areas for improvement

# All Regional IT Departments Dramatically Changed to Reflect a New Global Structure

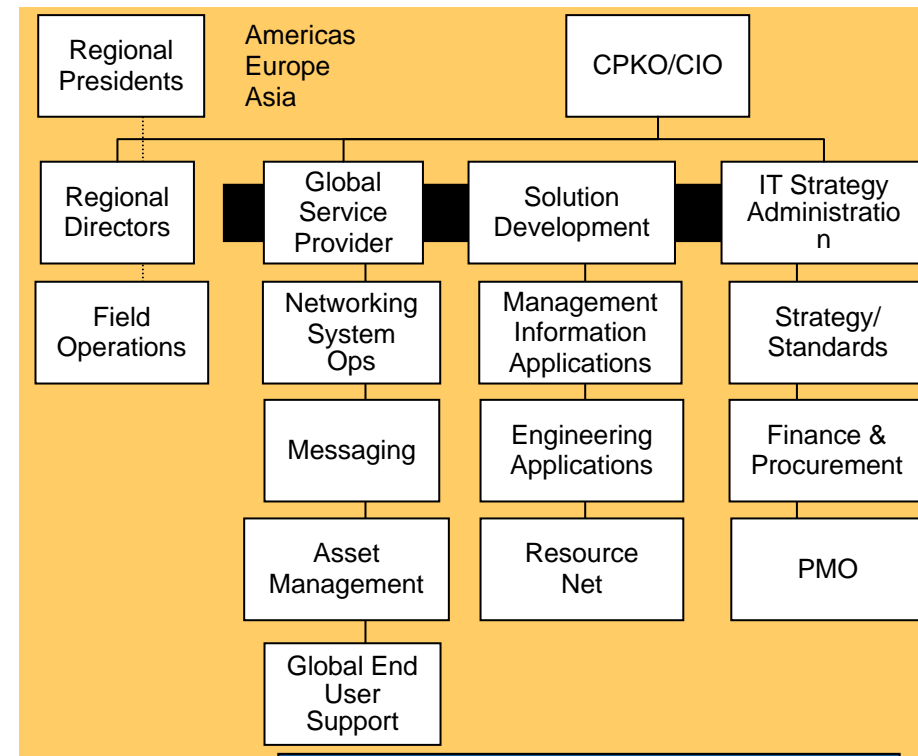


## Old Siloed IT Organization



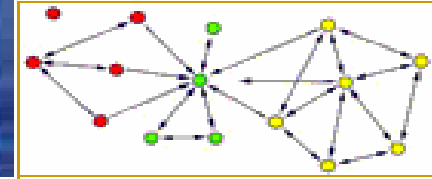
- Regionally organized resulting in multiple duplicate functions
- IT leadership reporting to regional presidents
- Limited collaboration on process and technology
- Varying levels of service, application functionality, and costs for technical solutions and applications

## Restructured Aligned IT Organization



- Consolidation of multiple functions
- Improved ability to transfer technical solutions and expertise on a more standard basis around the world
- More innovation, creativity, and collaboration—rapidly and at low cost
- Improved staff productivity, business infrastructure, and business efficiency

# iNet Network Analyses Were Conducted in 2003, 2004 and 2005 to Establish a Baseline and Track Progress

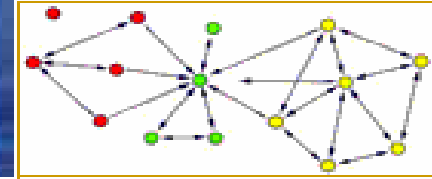


Each iNet ONA analyzed four major networks. The surveys have been refined over the years and new measurements, such as value, have been added to reflect business interests.

- 1. Information Network**
- 2. Awareness Network**
- 3. Energy Network**
- 4. Value Network**

**Improving work and collaboration among the iNet groups was critical to standardizing the level of service, reducing overhead costs, and exploiting new revenue opportunities around the world.**

# Themes That Emerged Reveal Significant Progression Based on Each Previous Year



## 2003 Themes

- The information network was sparse and fragmented.
- Expertise groups were not well connected across geographies or within geographies.
- Information flows were rigid, especially at lower levels in the organization.
- There were bottlenecks and over-reliance on certain key people.
- The group was overly insulated, relying on relatively few connections to the business and external experts.
- Connectivity was relatively serendipitous.

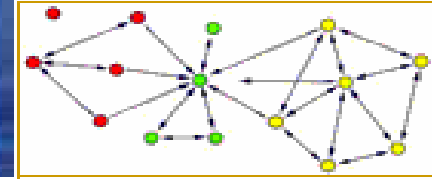
## 2004 Themes

- Impacting change in social networks is hard work and takes time.
- Improved connectivity has occurred, especially within expertise groups.
- Areas where less change has occurred points to known leadership and business process issues.
- Changes in leadership and organization are not direct facilitators of change.
- Communicate, communicate, communicate!

## 2005 Themes

- Information sharing within all expertise groups and hierarchies has risen dramatically.
- Silos within each region are starting to disappear, indicating a more seamless flow of information.
- The US and South Asia-Pacific are less fragmented while Europe continues to be separated.
- The awareness levels of all people in iNet have increased by a significant amount indicating that information can be more readily available to iNet and clients.
- The flow of positive energy is apparent among all peer groups. More impressively, the lower level staff receive great energy from those in higher level positions. This indicates that communication and visibility is becoming more transparent.

# The Information Network Indicates All Network Measures Have Improved From 2003 to 2005



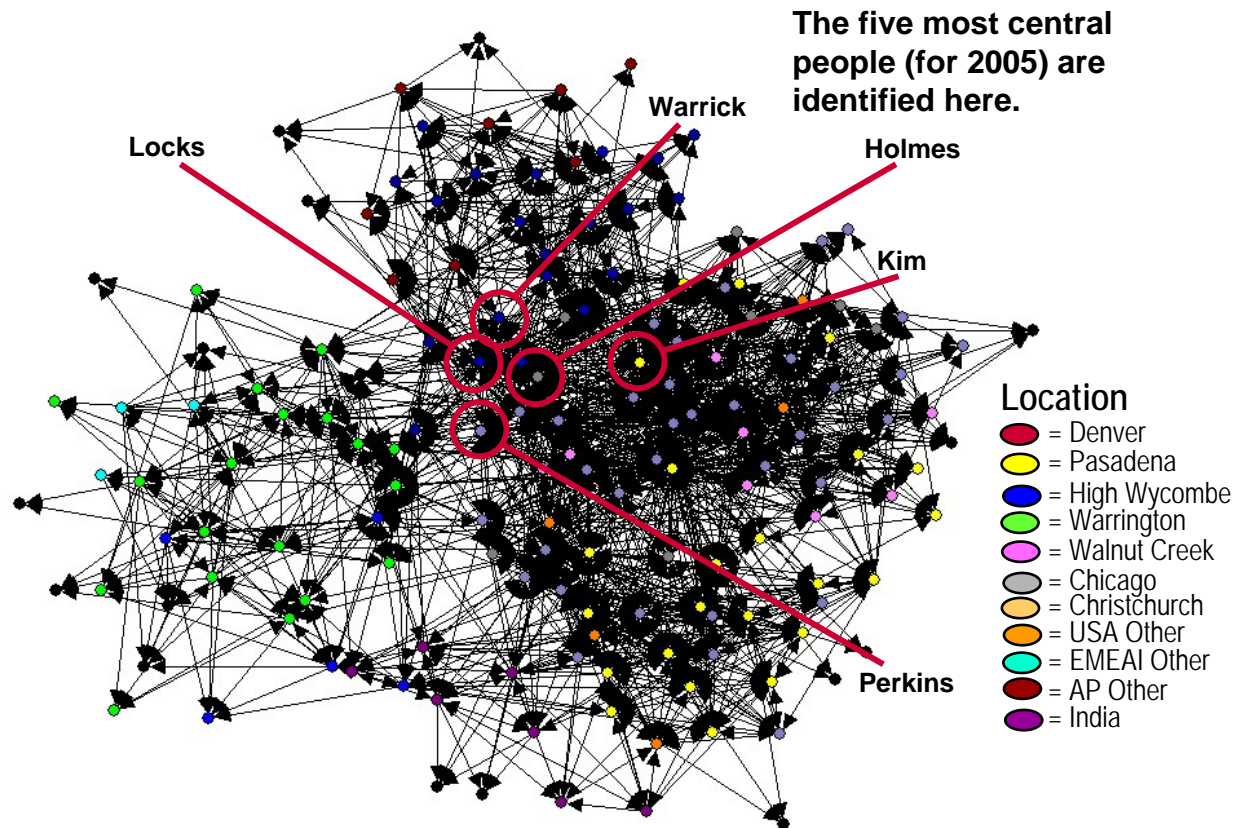
| Network Measures* |             |              |
|-------------------|-------------|--------------|
|                   | 2003        | 2005         |
| Density           | 6%          | 8%           |
| Cohesion          | 3.2         | 2.5          |
| Centrality        | 9           | 13           |
| Central People    | Land (29)   | Perkins (36) |
|                   | Willis (26) | Holmes (35)  |
|                   | Kim (21)    | Locks (32)   |
|                   | Dayton (21) | Kim (29)     |
|                   | Town (21)   | Kim (29)     |
|                   | Holmes (21) | Warrick (20) |

“Extent to which the people listed below provide you with information you use to accomplish your work.”  
**Responses of frequently and very frequently.**

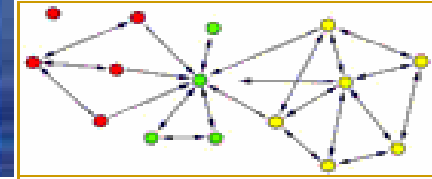
\* Refer to appendix for definitions of network measures.

## Comparison of 2003 and 2005 Network Measures

- The number of connections formed (density) has improved by 33%, from 6-8%. (6% x 1.33 = 8%)
- Cohesion is much lower, enabling people to obtain information faster and more accurately.
- An increase in centrality indicates that, on average, people have increased their number of relationships.

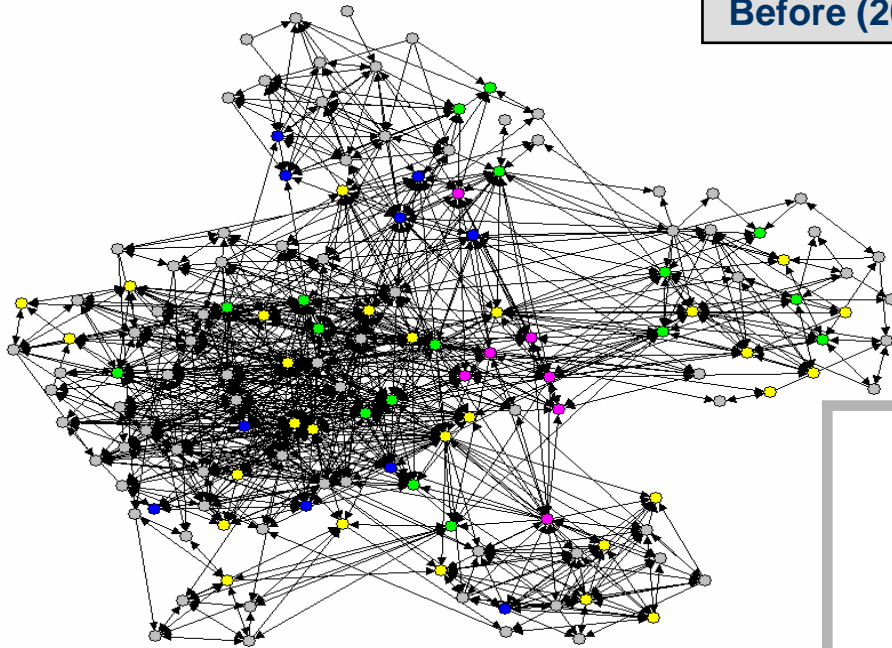


# As the Network Matures, Information Sharing is Being Better Distributed Across Hierarchy Roles



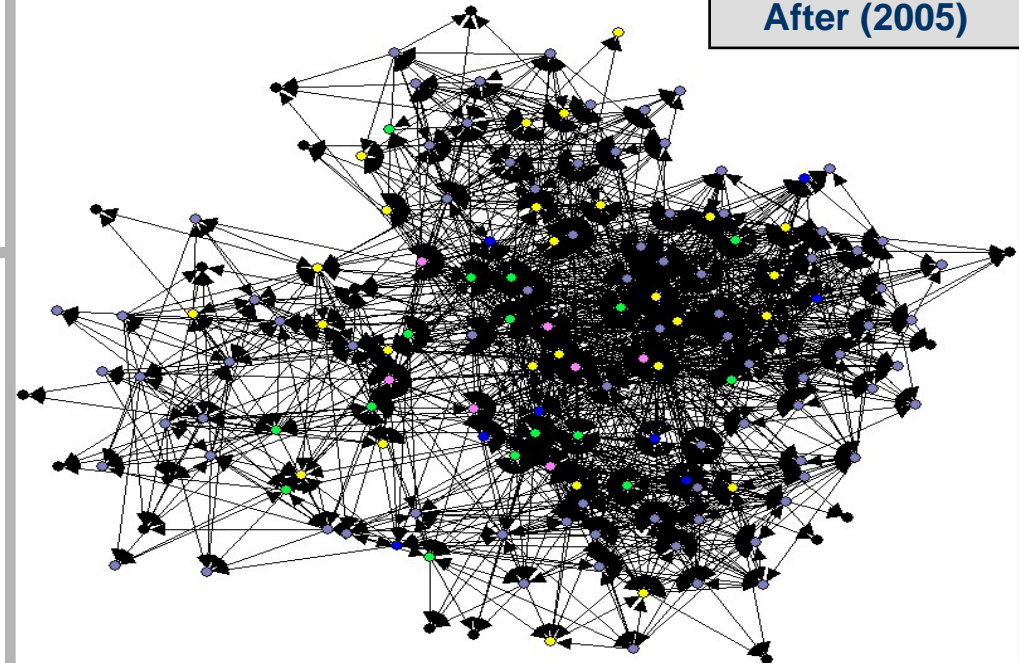
“Please indicate the extent to which the people listed below provide you with information you use to accomplish your work.” **Responses of frequently and very frequently.**

Before (2003)



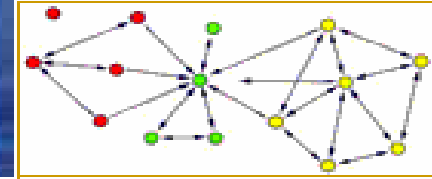
Historically, spanners were found among the Directors. However, the last analysis showed that Supervisor/Team Leaders and BU Leaders were also serving as boundary spanners between regions.

After (2005)



- Hierarchy
- = Individual Contributor
  - = Supervisor/Team Leader
  - = Project Mgr/Program Mgr
  - = Manager/BU Leader
  - = Director

# With Two Exceptions, Connectivity Strengthened Across the Board from 2003-2005



## Percent of Connections in 2005 (x%) and Change from 2003 (arrow)

|                     |                        | Information Providers  |            |                 |         |          |
|---------------------|------------------------|------------------------|------------|-----------------|---------|----------|
|                     |                        | Individual Contributor | Supervisor | Project Manager | Manager | Director |
| Information Seekers | Individual Contributor | 8% ↑                   | 9% ↑       | 6% →            | 9% ↑    | 7% ↑     |
|                     | Supervisor             | 11% ↑                  | 14% ↑      | 12% ↑           | 16% ↑   | 21% ↑    |
|                     | Project Manager        | 6% →                   | 7% ↓       | 16% ↑           | 17% ↑   | 18% ↑    |
|                     | Manager                | 9% ↑                   | 13% ↓      | 17% ↑           | 25% ↑   | 35% ↑    |
|                     | Director               | 6% ↑                   | 13% ↑      | 30% ↑           | 39% ↑   | 79% ↑    |

Above Density Table: density levels represent the number of connections in a group. Numbers on the diagonal identifies collaboration within skill sets, such as sharing of best practices. Density levels off the diagonal represent collaboration across skill sets. The table is read from row to column when understanding who goes to whom for information.

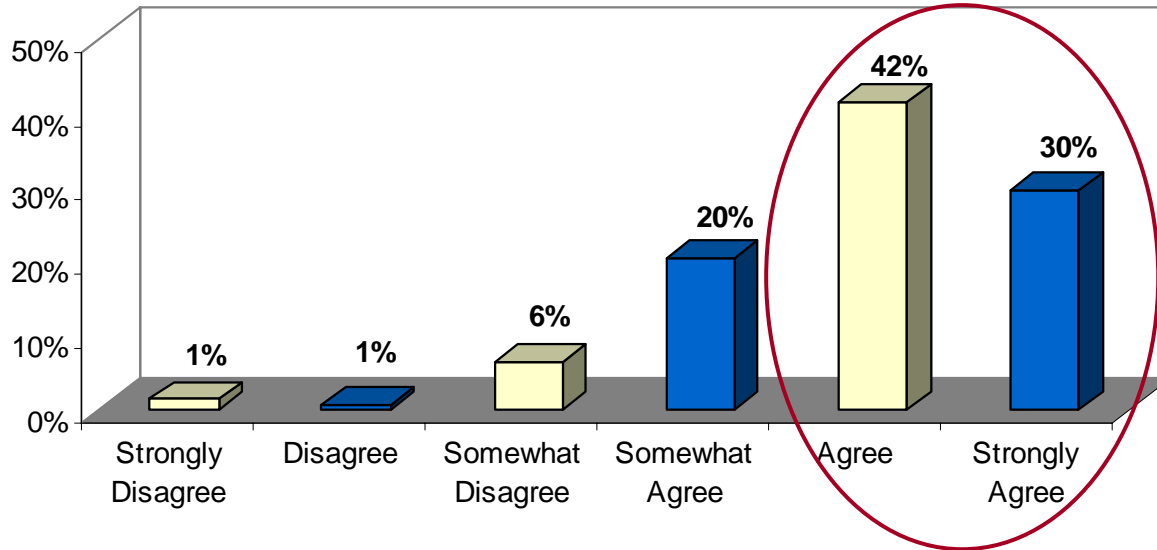
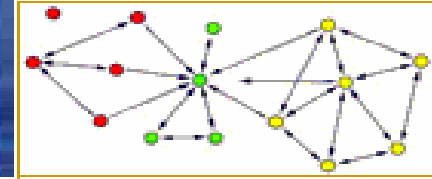
### This chart reveals findings worth exploring:

- In general, the more senior people are more collaborative. The Directors are by far the most connected group.
- Connectivity among those on the front line had improved, important for sharing expertise to solve client problems as well as for on-boarding new people.
- The biggest opportunity area is with individual contributors.
- Information sharing from within all expertise groups and most hierarchies has significantly improved.

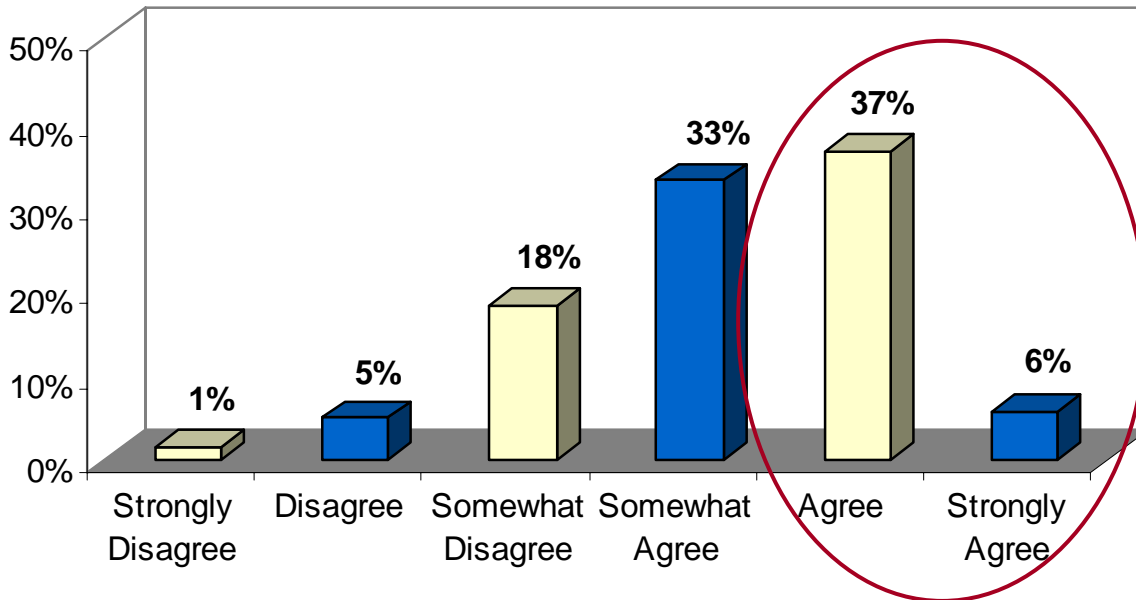
### Change from 2003 to 2005

|                         |        |   |
|-------------------------|--------|---|
| Significant Improvement | >= 10% | ↑ |
| Moderate Improvement    | 5-9%   | ↑ |
| Slight Improvement      | 1-4%   | ↑ |
| No Change               | 0%     | → |
| Less Connectivity       | <0%    | ↓ |

# Survey Results Indicate Positive Trends, Partially Due to a Strengthened Network

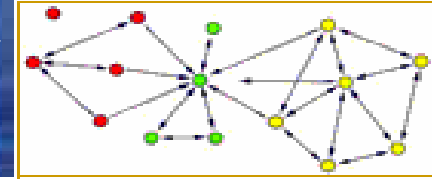


**"I understand how my role connects to the overall iNet vision/mission."** 72% of iNet agree or strongly agree they understand how their role links to iNet Strategy an increase of 17% from 2004 (55%).



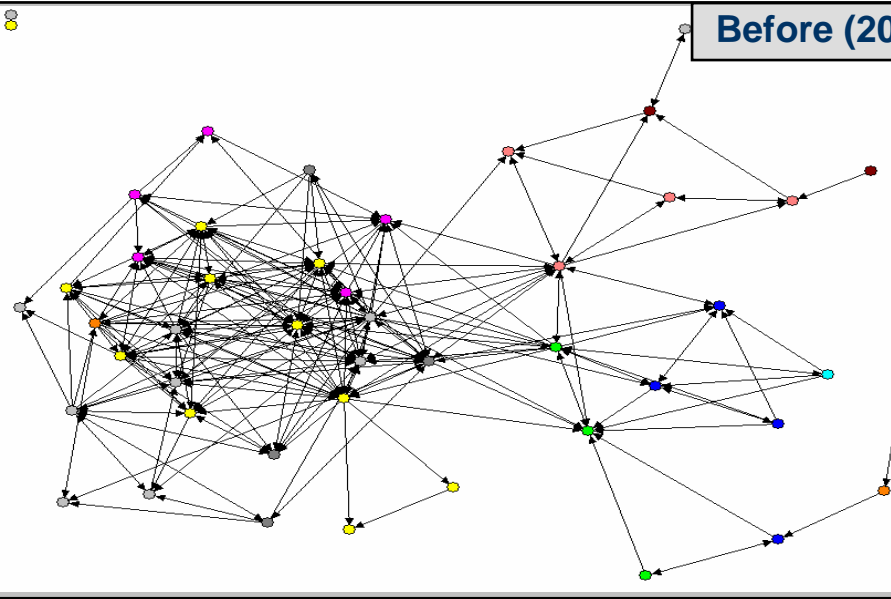
**"I feel that iNet communication is effective and adequate."** This year, there was a 19% increase (24% to 43%) in those who agree or strongly agree communication efforts are adequate.

# Expertise Groups are Working Much More Collaboratively as Evidenced by the Networks/Servers Group



“Please indicate the extent to which the people listed below provide you with information you use to accomplish your work.” **Responses of frequently and very frequently.**

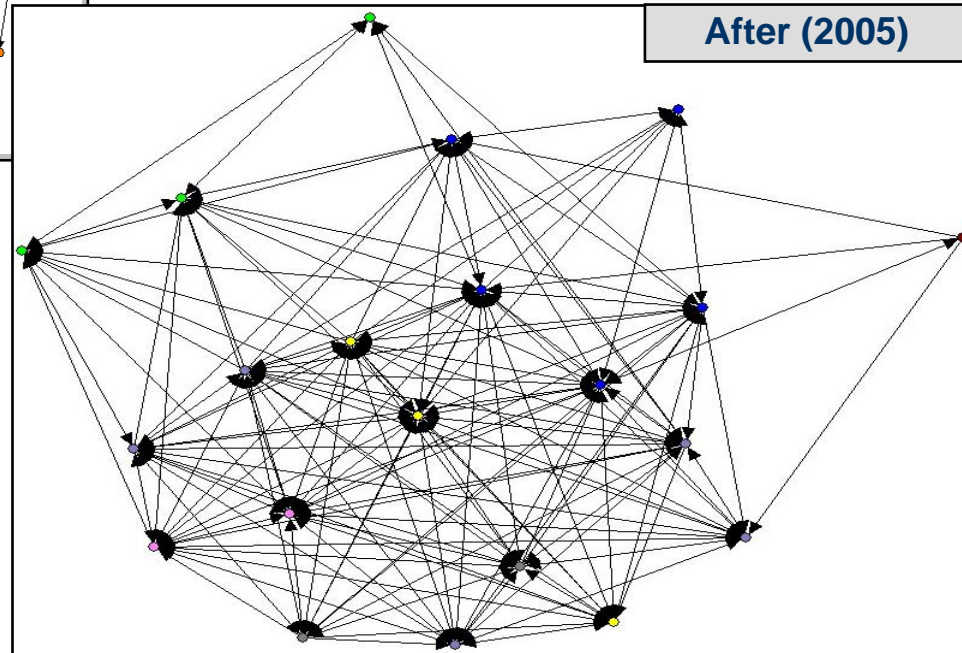
Before (2003)



The number of connections in the Networks/Servers Group rose from 19% in 2003 to 46% in 2005!

This was particularly important due to recent critical projects: global consolidation of infrastructure and support, reduced staff and capital requirements, and a change in location for end-user support.

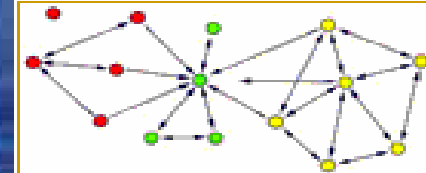
After (2005)



## Location

- = Denver
- = Pasadena
- = High Wycombe
- = Warrington
- = Walnut Creek
- = Chicago
- = Christchurch
- = USA Other
- = EMEA Other
- = AP Other
- = India

# Awareness of Who Knows What Has Increased Among All Office Locations



## Percent of Connections in 2005 (x%) and Change from 2003 (arrow)

|                     |              | Information Providers |          |           |            |          |         |          |       |       |       |       |
|---------------------|--------------|-----------------------|----------|-----------|------------|----------|---------|----------|-------|-------|-------|-------|
|                     |              | Denver                | Pasadena | H Wycombe | Warrington | Walnut C | Chicago | Christch | USA   | EMEAI | AP    | India |
| Information Seekers | Denver       | 67% ↑                 | 46% ↑    | 21% ↑     | 15% ↑      | 57% ↑    | 57% ↑   | 28% ↑    | 58% ↑ | 0% →  | 11% ↑ | 17% ↑ |
|                     | Pasadena     | 49% ↑                 | 79% ↑    | 15% ↑     | 7% ↑       | 47% ↑    | 46% ↑   | 20% ↑    | 43% ↑ | 0% →  | 6% ↑  | 19% ↑ |
|                     | High Wycombe | 27% ↑                 | 25% ↑    | 85% ↑     | 69% ↑      | 8% ↑     | 20% ↑   | 31% ↑    | 12% ↑ | 47% ↑ | 10% ↑ | 17% ↑ |
|                     | Warrington   | 9% ↑                  | 3% ↓     | 61% ↑     | 73% ↑      | 5% ↑     | 10% ↑   | 15% ↑    | 1% ↓  | 60% ↑ | 5% ↑  | 4% ↑  |
|                     | Walnut Creek | 46% ↑                 | 41% ↑    | 10% ↑     | 9% ↑       | 86% ↑    | 50% ↑   | 18% ↑    | 63% ↑ | 0% →  | 9% ↑  | 0% →  |
|                     | Chicago      | 43% ↑                 | 28% ↑    | 15% ↑     | 10% ↑      | 38% ↑    | 70% ↑   | 23% ↑    | 38% ↑ | 0% →  | 6% ↑  | 4% ↑  |
|                     | Christchurch | 3% ↑                  | 20% ↑    | 25% ↑     | 21% ↑      | 20% ↑    | 29% ↑   | 91% ↓    | 10% ↓ | 6% ↑  | 81% ↑ | 6% ↓  |
|                     | USA Other    | 53% ↑                 | 38% ↑    | 16% ↑     | 6% ↑       | 63% ↑    | 50% ↑   | 19% ↑    | 30% ↑ | 0% →  | 8% ↑  | 17% ↑ |
|                     | EMEAI Other  | 2% ↑                  | 0% →     | 40% ↑     | 67% ↑      | 0% →     | 0% →    | 5% ↑     | 0% →  | 50%   | 0% →  | 0% →  |
|                     | AP Other     | 8% ↑                  | 6% ↑     | 10% ↑     | 6% ↑       | 14% ↑    | 5% ↑    | 71% ↑    | 13% ↑ | 0% →  | 64% ↑ | 0% →  |
|                     | India        | 16% →                 | 17% ↑    | 3% ↑      | 9% ↑       | 0% →     | 4% →    | 8% ↑     | 20% ↑ | 0% →  | 0% →  | 81% ↓ |

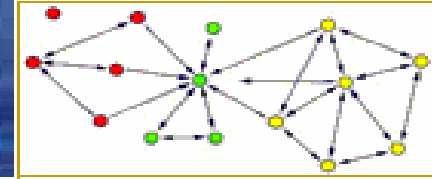
### This chart reveals interesting findings worth exploring:

- Collaboration increased substantially in most locations, but the highest levels of awareness increase is seen in Denver and Pasadena.
- Silos within each region are starting to disappear indicating a more seamless flow of information. There is an opportunity to build relationships with EMEAI.
- The newly created IT Knowledge Communities are helping to break down regional silos and encourage collaboration and knowledge sharing thus creating global best practices and lessons learned.

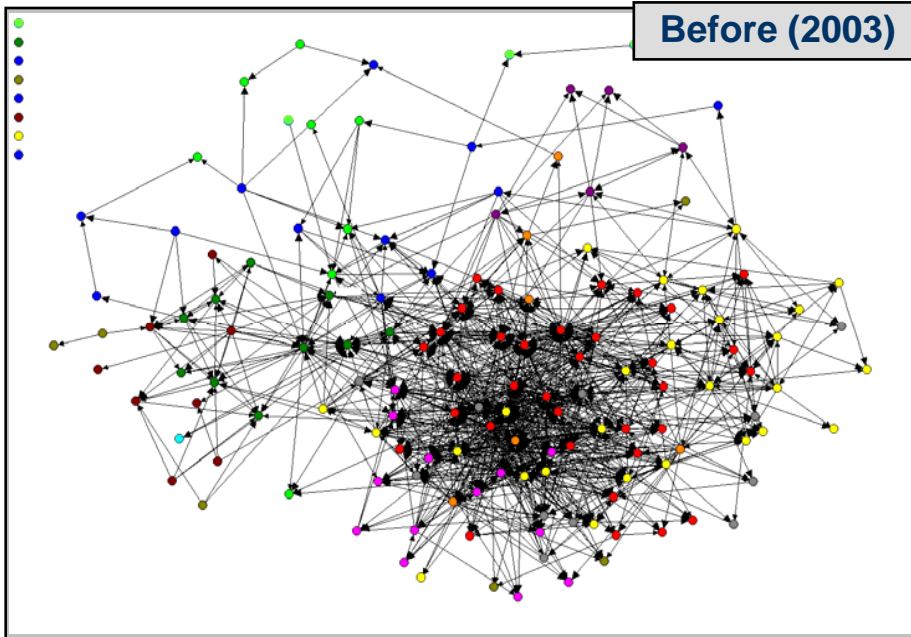
### Change from 2003 to 2005

- High Growth  $\geq 10\%$  ↑
- Moderate Growth 5-9% ↑
- Slight Growth 1-4% ↑
- No Change 0% →
- Reduction  $<0\%$  ↓

# Energy is Strong in Local Offices But Not as Widespread From Region to Region



“When you interact with this person, how does it affect your energy level?”  
**Response of Energizing.**



| Network Measures* |      |      |
|-------------------|------|------|
|                   | 2003 | 2005 |
| Density           | 5%   | 6%   |
| Cohesion          | 3.1  | 2.7  |
| Centrality        | 8    | 9.8  |

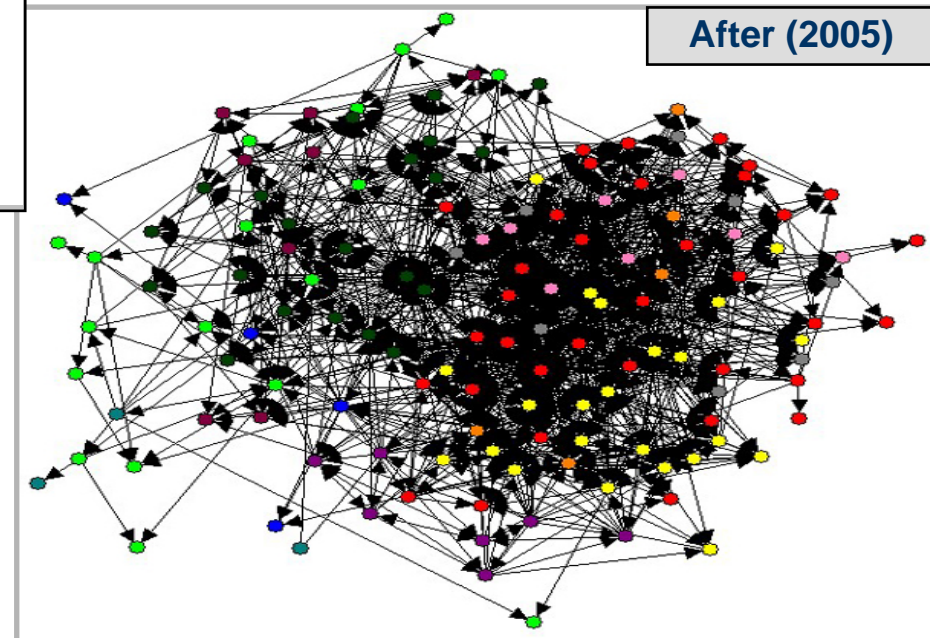
\* Refer to appendix for definitions of network measures.

## Comparison of 2003 and 2005 Network Measures

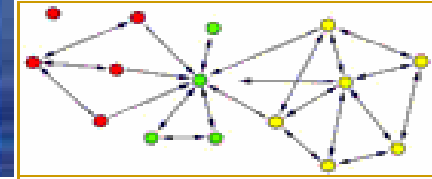
- Density improved by 20%. ( $5\% \times 1.2 = 6\%$ )
- Cohesion is substantially lower, enabling better information flow.
- People have formed more relationships.

## Location

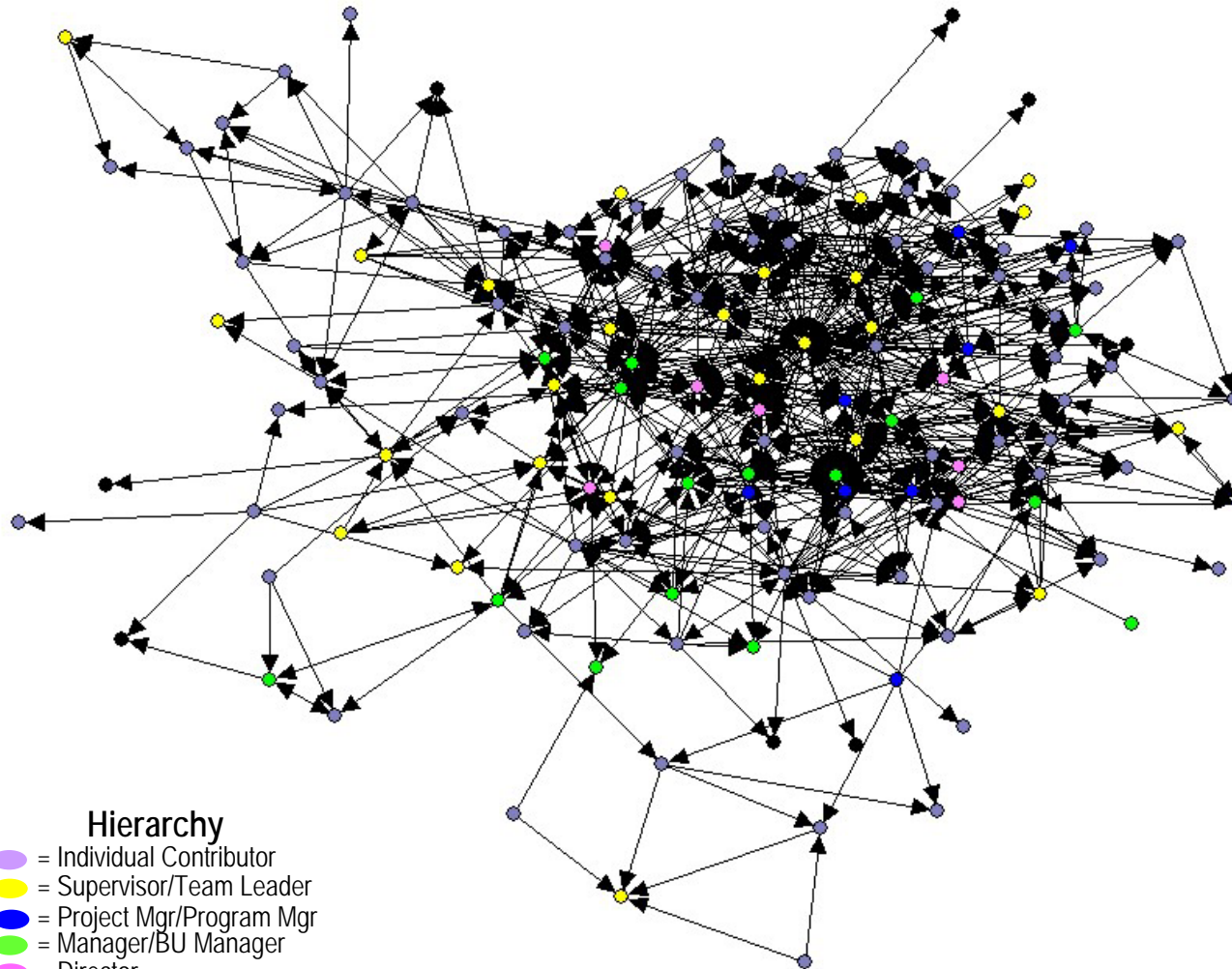
- = Denver
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- = AP Other
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- = USA Other
- = Walnut Creek
- = India
- = HighWycombe
- = EMEA Other
- = Chicago



# Time Saved Through Collaboration Translates into Money Saved



Please provide an estimate below for the typical time saved per month as a result of information, advice or other resources received from each person. **Responses of 4 to 13+ hours.**



## Hierarchy

- = Individual Contributor
- = Supervisor/Team Leader
- = Project Mgr/Program Mgr
- = Manager/BU Manager
- = Director
- = Other

## Value Provided by Top Eight People\*

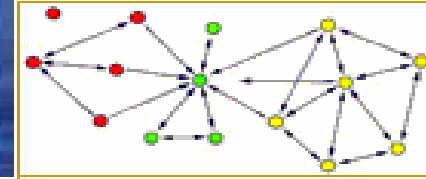
|         |           |
|---------|-----------|
| Holmes  | \$155,736 |
| Kim     | \$139,968 |
| Warrick | \$138,672 |
| Staples | \$120,528 |
| Conway  | \$120,096 |
| Sherpa  | \$112,104 |
| Charles | \$111,024 |
| Stinner | \$109,728 |

## Value Provided by Bottom Eight People\*

|         |         |
|---------|---------|
| Cho     | \$864   |
| Steel   | \$864   |
| Hally   | \$3,456 |
| Burnell | \$5,184 |
| Garrett | \$5,184 |
| Early   | \$6,048 |
| Cows    | \$6,264 |
| Amber   | \$7,374 |

\*Value based on time savings per year (36.00 USD).

# Evaluating the Network Along Value Dimensions Provides Additional Insights



## Value by Hierarchy – Total Dollar Amount

|              |                        | Information Providers  |            |            |            |            |
|--------------|------------------------|------------------------|------------|------------|------------|------------|
|              |                        | Individual Contributor | Super/TL   | PM         | BUL        | Director   |
| Info Seekers | Individual Contributor | \$ 1,567,400           | \$ 579,882 | \$ 100,273 | \$ 321,971 | \$ 116,555 |
|              | Super/TL               | \$ 1,004,670           | \$ 405,960 | \$ 108,039 | \$ 259,294 | \$ 129,838 |
|              | PM                     | \$ 276,307             | \$ 88,134  | \$ 38,242  | \$ 90,161  | \$ 54,451  |
|              | BUL                    | \$ 708,242             | \$ 296,331 | \$ 101,323 | \$ 269,600 | \$ 158,349 |
|              | Director               | \$ 206,552             | \$ 108,954 | \$ 85,885  | \$ 185,258 | \$ 85,531  |

Although the Individual Contributor had the highest dollar value, the Supervisor/Team Leader had the highest value per person, since there were many fewer Supervisor/Team Leaders.

\*Value is defined as the number hours saved by the people in each group times the average salary.

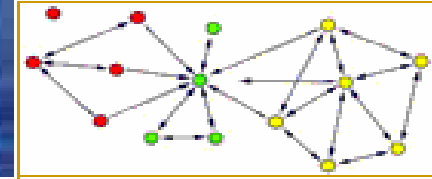
## Value by Role – Average Dollar Amount Saved Per Person

|              |                        | Information Providers  |           |           |           |           |
|--------------|------------------------|------------------------|-----------|-----------|-----------|-----------|
|              |                        | Individual Contributor | Super/TL  | PM        | BUL       | Director  |
| Info Seekers | Individual Contributor | \$ 15,217              | \$ 5,630  | \$ 974    | \$ 3,126  | \$ 1,132  |
|              | Super/TL               | \$ 37,210              | \$ 15,036 | \$ 4,001  | \$ 9,603  | \$ 4,809  |
|              | PM                     | \$ 34,538              | \$ 11,017 | \$ 4,780  | \$ 11,270 | \$ 6,806  |
|              | BUL                    | \$ 44,265              | \$ 18,521 | \$ 6,333  | \$ 16,850 | \$ 9,897  |
|              | Director               | \$ 29,507              | \$ 15,565 | \$ 12,269 | \$ 26,465 | \$ 12,219 |

### Value by Role Shows:

- The BU leaders, second in command, are transparent and open in their communications as seen by high values cascading to the lower levels.
- The value that would be lost by someone leaving the network.

# Focused Efforts to Break Down Regional Silos Have Been Taken, Producing Significant Results



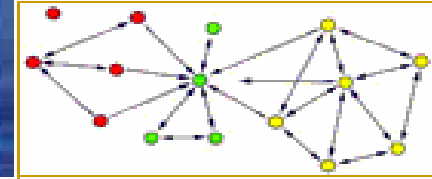
**Some change naturally occurred simply by creating the new formal organization. However, several initiatives were directed at solving the challenges uncovered in the SNA.**

- Extensive communication efforts:
  - Newsletters
  - Staff Meetings
  - Teambuilding
- Creation of Knowledge Bases in primary expertise areas.
- Development of cross-functional project management teams around key initiatives.
- Increased travel to facilitate more face to face meetings.

## Results

- In 2005, iNet SNA results demonstrated that it is truly a global organization.
- Silos are breaking down from region to region and especially within each region.
- Significant change has occurred, particularly within the Information Sharing Network.
- Many expertise groups and peer groups are finding ways to overcome geography and collaborate more frequently than ever.

# Factors Critical for Successful Network Analysis Projects at the MWH

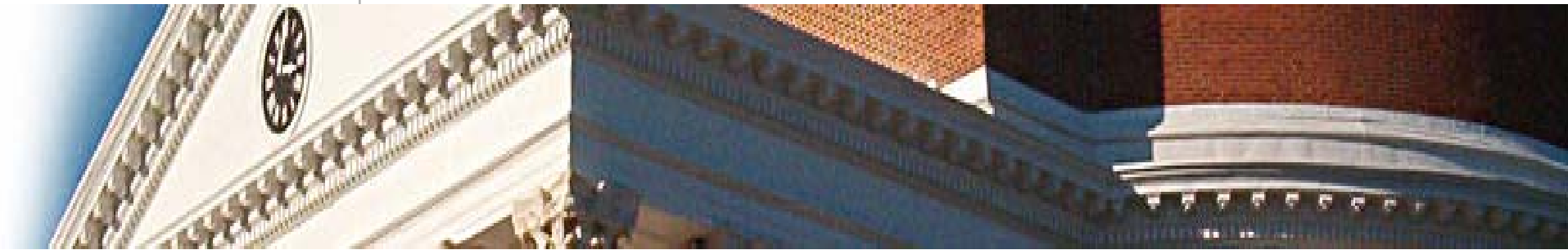


- iNet has the support of MWH top executives—globally.
- iNet serves as the model for other groups who will undergo globalization in efforts to increase efficiency and transform MWH from an international firm to a truly global firm.
- The CPKO is fully committed and understands the power that SNA can bring to an operation and because of that he does what it takes to ensure a high response rate to the SNA survey.
- After analysis of the survey, the CPKO holds global Webcasts and conference calls with the iNet senior leaders to communicate results and build action plans.
- SNA is a tool used to improve organizational effectiveness and assist with major change efforts.

**At the beginning, SNA provides a powerful communication tool for "how things are going" in a reorganization. Now, managers in iNet are using it as a tool to actually manage and structure interventions into their operations. As we keep using this methodology, greater insights into the performance of the iNet operation will be developed and, hopefully, transferred for use into other company operations.**

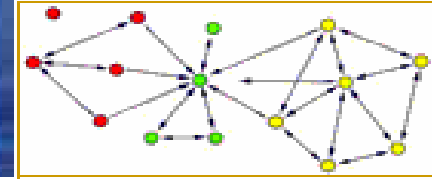
***—Vic Gulas, Chief People and Knowledge Officer***

# Appendix



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

# Why We Should Focus Our Attention on Organizational Networks



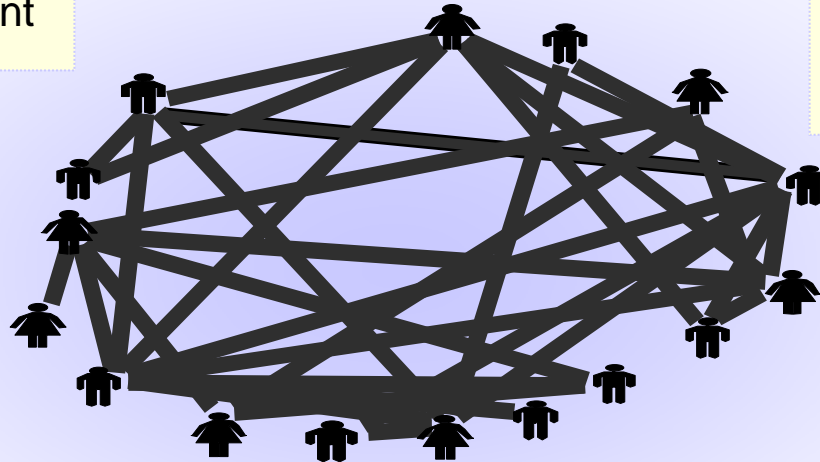
## Key Reasons Why Organizational Networks Are Important

### Where Work Happens

- Lack of boundaries
- Informal networks increasingly important

### Where People Engage

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



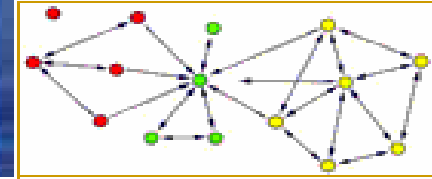
### Where Knowledge Lives

- 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**

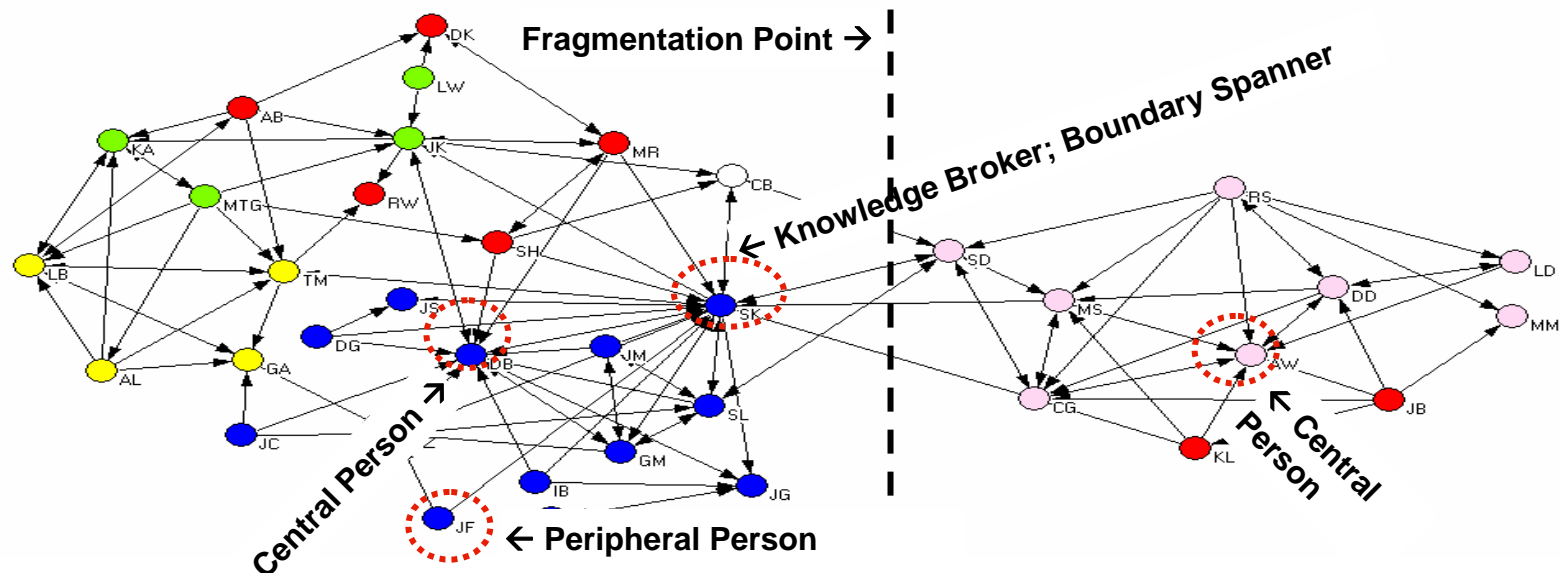
- Are critical connectors between diverse information sources and specific kinds of expertise. High leverage points.

- **Fragmentation Points**

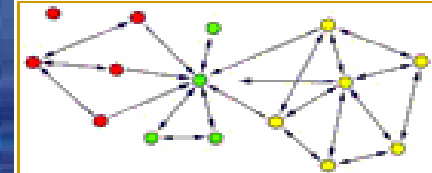
- Affect information flow across boundaries (e.g., cross functional, hierarchical, geographical, or expertise)
- Provide targeted opportunities

- **Personal Connectivity**

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



# Key SNA Terms—Quantitative Metrics



## **Density: Robustness of network (group measure)**

- Number of connections that exist in the group out of 100% possible in that network.
- **Bottom Line:** More points connected means quicker and more accurate information flow.

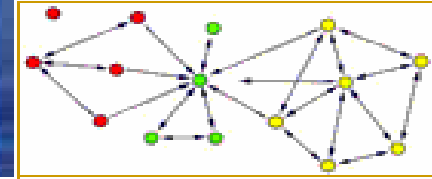
## **Cohesion (Distance): Ease with which a network can connect**

- Shows average distance for people to get to all other people.
- **Bottom Line:** Shorter distances mean faster, more certain, more accurate transmission/ sharing.

## **Centrality: Identifies influential people (individual measure)**

- Number of direct connections (ties) that individuals have with others in the group.
- **Bottom Line:** Individuals with more ties to others may be in more advantaged positions and may have access to more of the information or knowledge in the network.

# The Network Analyses Projects Typically Run for Seven Weeks



## Plan

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

## Run

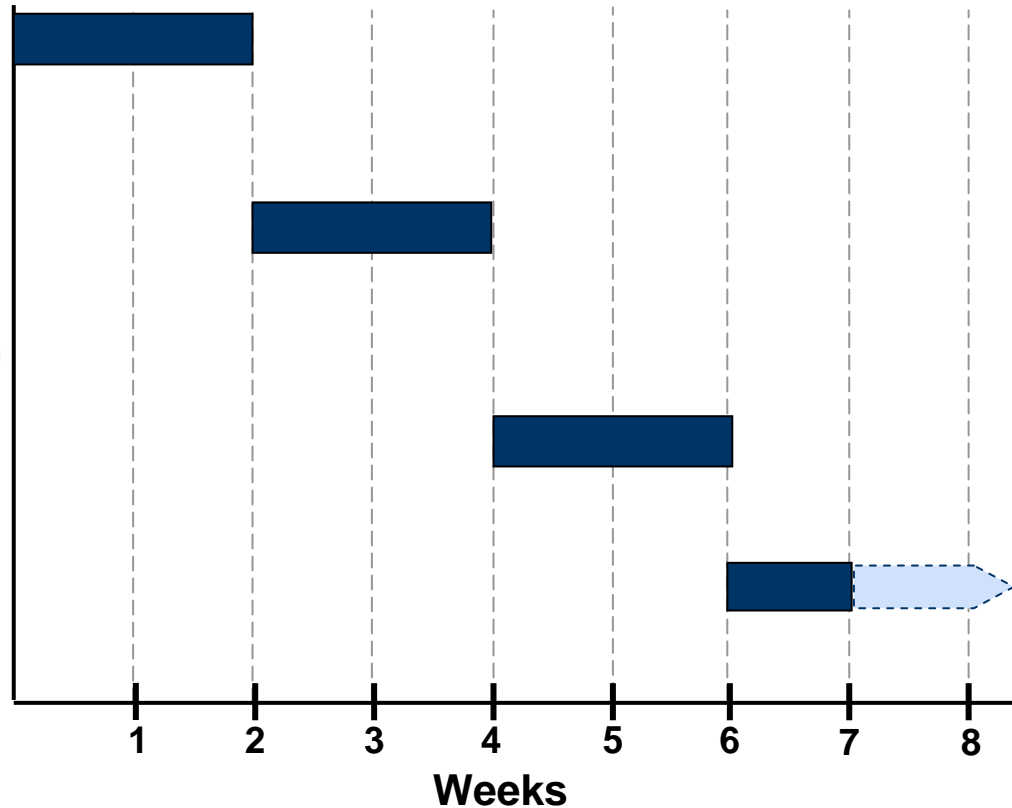
- test diagnostic with small sub-group
- administer Web-based diagnostic
- send system-generated e-mails to obtain responses

## Assess

- create recommendation report
- provide personalized Web sites

## Apply

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



The network analysis projects have provided important insights and identified actions which enable the IT organization to operate more efficiently.