Marathon Oil and MConnect

- Independent E&P, upstream oil and gas company
- About 125 years old
  - Completed spin-off of downstream in July 2011
- Operates in 12 countries
  - Staff of ~3,400
  - ~750 petrotechnical staff (22%)
- Marathon’s KM program is about 3 years old
- Cornerstone of program is MConnect – Community of Practice portal
- Built on SharePoint 2010, social capabilities are OOB
  - Content viewable by all, must be a member of a CoP to contribute
  - Contributions in any thread can come from any MConnect member, any CoP
What’s Important to Marathon Oil

- Community of Practice optimization
  - Improved collaboration and efficiency post company split

- The Big Crew Change
  - Mitigate risks associated with retiring expertise
  - Speed to autonomy for early career professionals

- Knock down the image of headquarters “ivory tower”
  - More involvement from non-Houston based staff
Overview of SNA

- A “network” is an interconnected group or system
  - We all have an account to Twitter

- “Social networks” are networks with relationships
  - We all follow (or being followed by) each other, directly or through another person

- Social Network Analysis is the study of social networks and those relationships
  - How tweets are spread (re-tweeted) through a social network
  - Formation of groups, i.e. sports, politics or KM
  - Can find “lynchpins” who connect parts of the network together
  - Can find “influencers” who have many followers
SNA Objectives

- Look for community clusters
  - We think we know how our members are concentrated
- How are non-Houston staff represented
- How are supervisors represented
- How are retirement eligible staff represented
- Lynchpins – Bridges across parts of the network
- Influencers – Many connections, including to other influencers
The three flavors of community of practice structure

INFORMAL
- Voluntary, self-joining
- Organic growth
- No formal sponsor
- Member-defined goals
- Promote individual development
- Building trust and collaboration

SUPPORTED
- Join by member invite or manager suggestion
- One or more managers as sponsors
- Member and manager jointly defined goals
- Develop capabilities that support organizational goals
- Support collaboration across boundaries

STRUCTURED
- Members are selected according to criteria
- Senior management sponsorship
- Goals are directed by business objectives
- Speeds up execution of strategies
- Enhanced effectiveness of organizational structure

Current state of MConnect
SNA Preparation

- MConnect
  - 17 Communities of Practice
    Primarily petrotechnical & support
  - 990 Employees
    (~30% of company)

- Data collection from SharePoint
  - Employee
  - Community

- Data collection from SAP
  - Location
  - Years of service (Career Level)
  - Supervisor status
  - Retirement eligibility
Network Rendering

SNA Nerds Only

- "Force Atlas" Algorithm
- Attraction Strength: 10
- Repulsion Strength: 2000
- Cluster by Modularity Class
Community Clusters

Harel-Koren Fast Multiscale algorithm

CoP size based on node degree
Community Clusters continued

Group by Cluster

Groups collapsed
Knowledge Silos

Reasons why we have knowledge silos

- Physical distance
  - Beyond 200 feet, communication is rare

- Image sourced from The Collaborative Organization by Jacob Morgan

Figure 2.1  Probability of communication as a function of the distance separating pairs of people

Knowledge Silos continued

- Reasons why we have knowledge silos
  - Awareness of others
    - Poor expertise location
  - The “echo chamber”
    - Pierre Omidyar started eBay to sell Pez dispensers for his wife
    - Prominent in journalism
91% of the links originating within either the conservative or liberal communities stay within that community.

Why is breaking out of the “echo chamber” and collaborating with non-core communities important?

* Totally not true
Lynchpins – Conduits Across Communities

Connectivity across Drilling/Completions/Production CoPs to Environmental/Safety CoPs

- Lisa – Engineering Technician, 4 yrs
- Ken – HES Manager, 16 yrs

Groups out of focus: Visibility = Skip Nodes with degree >3
Power Influencers

Kristin
Engineering Tech, 1 yr
Member of 4 CoPs
Connected to 619 people
(61% of network)
2.8 steps away

Nick
Reliability Mgr, 15 yrs
Member of 8 CoPs
Connected to 291 people
(29% of network)
3.46 steps away
Retirement Eligible Staff

Complete Network

Retirement Eligible Only

Average 28.9 years industry experience
~15% of network

* Eligible for Retirement = 50 yrs of age + 10 yrs company service
Supervisor Staff

Complete Network

Supervisors Only

Average 21.2 years industry experience
~12% of network
Non-Houston Staff

Complete Network

Non-Houston Staff Only
Lessons Learned – Home Community

- Members need a home community so we can measure who is collaborating with who

- SNA calls this External-Internal (E-I) Index
  - A measurement of how inward or outward the connections are
    - Negative E-I Index could be a symptom of an echo chamber
    - Positive E-I Index could imply a lack of access to expertise

- Considering community groupings, 2-tiers instead of flat architecture
  - Similar to ConocoPhillips’ Functional Excellence Teams
Lessons Learned – The Big Crew Change

- Require CoP participation of retirement eligible and supervisor staff
  - Qualify CoP participation for knowledge sharing performance commitments
  - As staff advance in experience:
    - Training expectations lower
    - Knowledge sharing expectation increase

- Place them in “lynchpin” positions
  - They have the richest, most discipline diverse experience, the most to give

- Develop and reward trusted influencers
  - ILOVEYOU virus
    - 50 million infections in 10 days, $5-8 billion in damages, $15 billion to remove it
    - Worked because sender was trusted
  - Triadic Closure
    - Opportunity, Trust, Incentive
References

- **NodeXL** - http://nodexl.codeplex.com
  Or get fancy with **Gephi** – http://www.gephi.org

- **Recommended Reading:**
  - Analyzing Social Media Networks with NodeXL
  - Networks, Crowds, and Markets by Easley and Kleinberg

- **Kent State University**
  - IAKM Graduate Program, M.S. Knowledge Management

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