



## Talent Management: Organizational Network Analysis

One of the fastest growing industries that is utilizing the now-online deluge of data is Talent Management. Organizations large and small are utilizing analytics methods to further collaboration to ensure more efficiency and boost profits. Connections matter in organizations. Inter-organizational connections can take many forms. Some examples are problem-solving relationships, decision making relationships, personal support relationships, and strategic partner relationships.

Organizational development professionals face challenges of properly utilizing the array of analytic firepower available to them. One of the more effective analyses for measuring and improving collaboration and efficiency of their human systems now widely available is organizational network analysis.

### What is a Collaborative Network?

A collaborative network is a network consisting of a variety of entities (e.g., organizations and people) that are largely autonomous and geographically distributed. They are heterogeneous in terms of their operating environment, culture, social capital, and goals, but they collaborate to better achieve common goals. Their interactions can be simulated by computer networks. This is called Organizational Network Analysis.

This article explains how HR/People Analytics professionals can use Organizational Network Analysis to understand the operational collaboration within their organizations and how to innovate and optimize organizational collaboration. I will first provide a brief overview of an Organizational Network Analysis vs. a more formal organizational structure. Next we will demonstrate how to create an Organizational Network Analysis from employee survey data. Finally, we will demonstrate an Organizational Network

Analysis derived from existing data sources such as email or bulletin boards, and its possible collaborative uses.

### Network Analysis

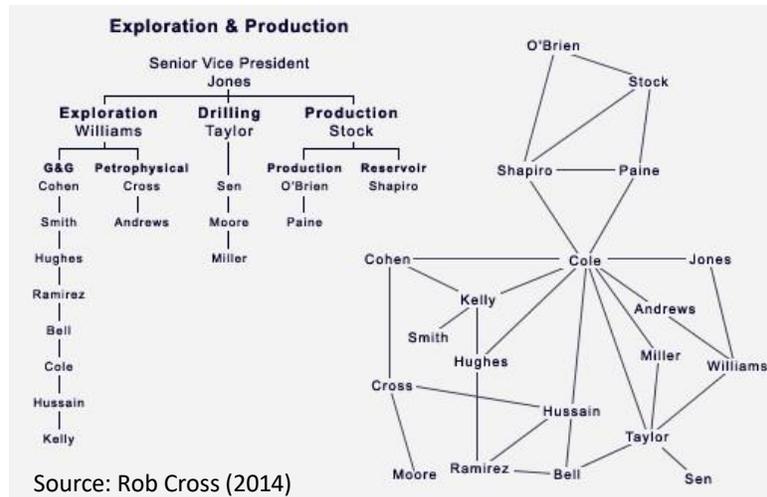
Network Analysis views employee relationships in terms of network theory, consisting of nodes (representing individual actors within the network, or corporate structure) and ties (which represent connections between the individuals, such as co-workers, management hierarchy, email correspondence, hyperlinks, or social network relationships). These networks are often depicted in network diagram, where nodes are represented as points and ties are represented as lines.

Studies conducted as far back as the 1930s have shown social interactions affect organizational productivity. Within the last few years advanced software has given us the ability to more efficiently analyze them. Stephen Garcia, in his article “Improving Innovation with Organizational Network Analysis” states: “We have learned that these relationships serve as important conduits for the transfer of new ideas, knowledge, energy, and personal support.” Garcia goes on to say that “the configuration or structure of these relationships in an organization significantly impacts organizational performance, as well as individual performance.” In other words, it not just what people know, but who they know that matters.

### Formal Organization Structure vs. Informal Structures (Network Map)

It is surprising how different the network relationships within an organization is from what is shown in an established organizational chart. I have borrowed the chart (next page) from Professor Rob Cross of Babson College to illustrate the difference.

## Formal structure (organizational chart)



Source: Rob Cross (2014)

## Informal structure (network map)

In the formal structure of this organization, Jones, as Senior Vice President, sits on top of the structure of the division. In the informal structure, though, the lines indicate which employees have frequent interaction with each other. The person with the largest central tendency (the most connected to other members of the team) has, in theory, the most influence within the network structure.

Cole, though a relatively junior member of the team, is in fact quite central and plays a critical role in facilitating communication across the Exploration & Production team. The Senior Vice President, Jones, is in fact rather isolated from two of the three people who report to him directly. In terms of collaboration, this is a key finding.

This is where the term “influencer” originated from. When running an Organizational Network Analysis this central tendency is called Eigenvector Centrality. Eigenvector Centrality is the basis of search engines such as Google. Within the HR community a more common term is “Central Connectors.”

## Organizational Network Analysis Collecting Network Data via Surveys

Engagement surveys and other such culture surveys have become a mainstay of the workplace. There are several options for such surveys such as comprehensive employee satisfaction surveys, or real-time pulse surveys, which are common in large organizations’ human capital departments.

One of the largest complaints from such surveys is that once managers see the

results, they are unsure of next steps and actions.

Organizational Network Analysis, when combined with such engagement surveys, change the way that leaders use and leverage these results. Because Organizational Network Analysis allows managers to see the context behind the survey, they can actually understand how to leverage these results.

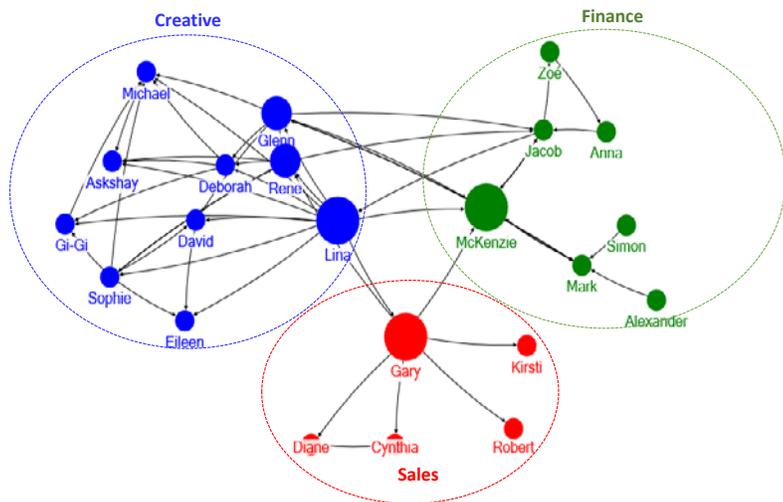
To illustrate the design of an Organizational Network Analysis survey, or section of a larger employee survey, let’s examine a small advertising agency with 22 employees. These employees are broken into three departments, Sales, Creative, and Finance. These 22 employees are shown a matrix like the one below. They are asked to check off the people they are in communication with on a regular basis.

How frequently do you interact with each other?

	Alexander	Anna	Askahay	David	Deborah	Diane	Eileen	Francine	Gary	Gigi	Glenn	Hiroshi	Kirsti	Lina	Margaret	Mark	Michael	Rene	Scott	Simon	Sophie	Zoe	
Alexander	x																						
Anna		x																					
Askahay			x																				
David				x																			
Deborah					x																		
Diane						x																	
Eileen							x																
Francine								x															
Gary									x														
Gigi										x													
Glenn											x												
Hiroshi												x											
Kirsti													x										
Lina														x									
Margaret															x								
Mark																x							
Michael																	x						
Rene																		x					
Scott																			x				
Simon																				x			
Sophie																					x		
Zoe																						x	

Once captured, the data is shaped (I use SPSS) and then placed into a Network Analysis software (I use NodeXL, but there are several on the market).

The resulting network illustrates the com-



**Figure 1.** Organizational Collaboration Map – Advertising Agency.

munications between employees. I have grouped the graphic by department, which the analysis itself reveals. The size of the employee’s spheres shows their position in the agency.

Analyzing the collaborative nature of the network, we see that inter-department communications is largely at the top. There is some talking going on between some lower level Creatives and the Finance Department.

The Sales team, perhaps because they work independently, report directly to their boss, Gary. Is this an issue? Should the Sales team speak more to the Creatives?

McKenzie’s Finance team is completely siloed. Moreover, McKenzie has no communication with the third tier of her team, Zoë, Anna, Simon, and Alexander. There seems to be a collaborative hole in this department, and action needs to be taken.

### Organizational Network Analysis – Collecting Network Data from Other Sources

“Today’s computer networks, including the internet and wireless networks, create human-connection grids that are larger than ever,” quotes Bill Roberts of *HR Magazine*. “This may be why social network analysis, which has existed for decades, is becoming a more popular way to understand organizations and change.”

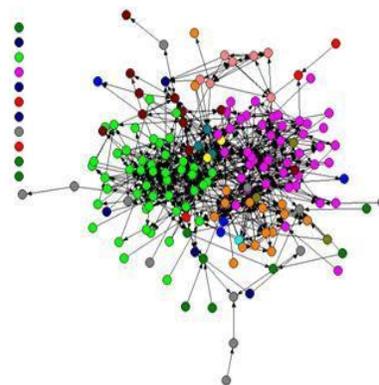
Big Data: interactions via email, phone calls, computer conferencing, bulletin boards, social media, archival records, work histories, event attendance, public databases, are all part of the data tsunami.

The advantages of collecting data via large, existing data sources:

- Information on larger networks may be available,
- May be less invasive to employees,
- May be less expensive, and
- May provide more objective measures.

With a large dataset, the raw results may look like Figure 2.

Figure 2 is a digital communication network (email, chat, Skype calls, etc. combined) of participants (of four teams) in a company.



**Figure 2.** Organizational Units of an International Development Example. Source: *Connected Commons*

This visual (Figure 2) more closely resembles what a raw network analysis would look like. A detailed analysis is beyond the scope of this article. However, when entering into an Organizational Network Analysis project, certain objectives are kept in mind.

- For each organizational team, determine how well the existing informal network supports the soon-to-be-formed organizational teams.
- Identify:
  - Current patterns of interaction across organizational boundaries
  - Brokers and central connectors who can play integration roles
- Produce tailored reports for each manager to leverage in building their new teams.

In the practice of People Analytics, below are some of the key goals to undertake an Organizational Network Analysis study:

- Reducing employee overload,
- Improving resiliency of global teams,

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- Reducing collaboration inefficiencies,
  - Eliminating organizational silos, and
  - Enhancing career paths.

## Conclusion

These Organizational Network Analysis-driven strategies tend to require very little additional resources. Often the difference comes down to tracking and encouraging a very small number of pivotal relationships.

However, in most organizations, those pivotal relationships are invisible.

Traditional research explained the outcome of an individual, a team, or a company as a function of behavioral attributes or an aggregate of characteristics. Network analysis adds social structure into the equation by considering processes, influence, and social capital in the larger construct of how work gets done.

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## About the Author

Michael D. Lieberman has more than 26 years of experience as a researcher, statistician and strategist in the marketing, advertising, and political research fields. He has worked extensively with clients in financial services, information technology, food service, telecommunications, human resource, political polling, public relations, and advertising testing fields. He founded Multivariate Solutions in 1998 and now works with an international clientele including advertising firms, political strategy groups, and full service market research companies. Lieberman is an Amazon featured author and has written more than 70 professional articles. He has taught at City University of New York and the University of Georgia as an adjunct professor of statistics and market research. He holds a B.A. degree in Mathematics from Rutgers University, an M.A. degree in International Affairs from George Washington University, and an M.S. degree in Statistics from Rutgers University.