

## Inside Social Network Analysis

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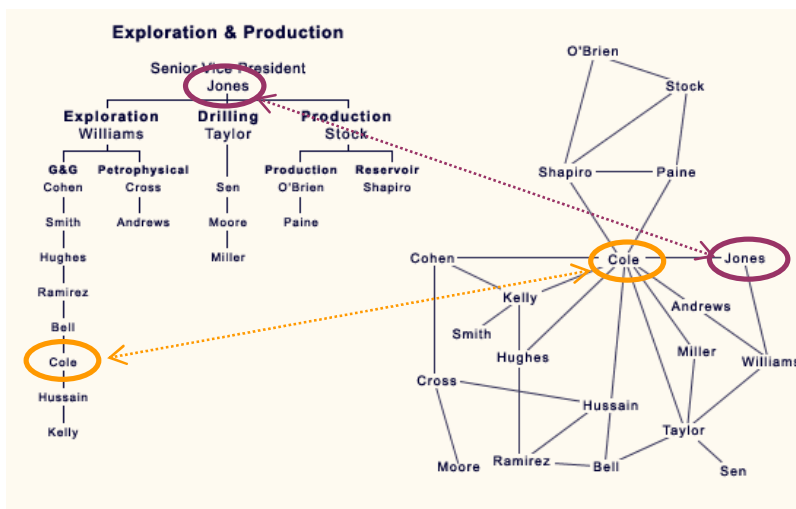
### Introduction

*Pinnacle, a management consulting firm, hopes to win a lucrative contract with a large international financial institution. After weeks of intense preparation, the team sends off a proposal. Shortly thereafter, they learn that contract was given to a competitor with whom the client had worked previously. Almost six months later, one of the team members finds out that another group at the management consulting firm had worked on a project with the prospective client and had an in-depth knowledge of the client's culture. Why, asked the frustrated team member, wasn't this knowledge shared with the team?*

This scenario is becoming increasingly familiar in today's business environment. In the networked organization, individual success and the success of a team depends less on reporting structure and more on who you know. The questions raised by the scenario would normally be investigated using a standard set of surveys and in-depth interviews with employees. However, a new approach called "Social Network Analysis" or SNA, has been gaining currency amongst business consultants as a method for revealing the hidden connections between people that drive how work gets done. This article introduces the major SNA concepts and their application to business problems.

### Beyond the organizational chart

If we want to understand how a group functions we might go to an organization chart to find the senior people or to see how the work is divided between functions. But in the evolving networked organization, this chart is no longer an adequate guide to how the group really works. Consider the following diagrams,<sup>1</sup> which represent the production division of a large petroleum corporation.



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The diagram on the left shows the organizational chart for this group; the one on the right, the result of an SNA. Upper management undertook an SNA to find out how this group was preparing to share important drilling knowledge. They learned that mid-level managers, particularly Cole, were playing a pivotal role in the group's communication network. Not only was Cole linked to many people, making him very central to the group, but he was also the only link between the cluster of people at the top who represented production and the rest of the group who were involved in other distinct but critical activities. The SNA and additional interviews also revealed that the leader of the group, Jones, was not central in the informal network and that he had become removed from many of the day-to-day workings of the group. As a result of the SNA, upper management made significant changes to the group including formalizing Cole's role.

## What is a Social Network Analysis?

Social Network Analysis (SNA) is a set of survey methods and statistics that reveals the hidden connections between people. The outcome of an SNA shows where collaboration is breaking down, where talent and expertise could be better leveraged, where decisions are getting bogged down or where opportunities for innovation are being lost. The data give leaders the picture they need to create a set of remedial actions including changes to role and responsibilities to foster cross-group communication, methods for improving trust, better use of technology to reach others, re-alignment of rewards and incentive programs.

### Ties

An SNA measures the connections or *ties* between people. These ties can be direct or indirect, strong or weak, one-way or two-way.

- **Are ties direct or indirect?** A direct connection is the connection between two people. As we saw in the previous example, Cole had many direct connections in the network of people in exploration and production of the petroleum company. He was *central* in this network. Central people have more influence in their network, tend to receive better performance reviews, and tend to be more satisfied with their jobs than people who are less central.
- **Are ties strong or weak?** Strong ties are characterized by frequent interaction, feelings of closeness, and multiple types of relationships. For example, a strong tie may provide you with emotional support, job-related information, and a person to go see your favorite sci-fi movies with. On the other hand, it also requires a good deal of energy to maintain. A weak tie may not provide as much social support, but it is easier to maintain and can provide you with new information. Weak ties can be critical for innovation. For example, a researcher is much more likely to learn about a line of relevant research in an otherwise unrelated field from a casual acquaintance than from a good friend. This is because good friends tend to have access to the same information whereas casual acquaintances tend to offer new information. In business settings, it is important to have a good balance between strong and weak ties.

- **Are ties one-way or two-way (reciprocal)?** When a tie goes in both directions we think of it as being reciprocal. This matters because in general, reciprocated ties are stronger than ties that only go in one direction. For instance, a group will generally function better when a key decision-maker is not only sought after for information and advice but he or she also seeks information from the group.

### **Conducting an SNA**

**Group.** An SNA is conducted with a group of people (typically between 25 and 150 at a time). The group could be an intact workgroup, a distributed software development group, a sales team, a community of interest, a consulting practice, the business units in a single organization, or companies in a particular industry.

**Relationships.** Ties can represent a range of relationship types. For example, a tie can indicate if one person *likes, trusts, respects, reports to, communicates with, or gets information from* another.

**Attributes.** We also want to know if there are systematic barriers in our collaboration. For instance, are the people who develop new products talking with the people who market and sell those same products? Are the people who work for the managing consulting company in France sharing their client experiences with the people in the U.S? And if not, is it just a few people or the group as a whole who are not working together? Are people who have been with the company for many years sharing their knowledge with new hires? These generalized effects result from aggregating ties within and between attributes such as business unit, geography, and time in the company.

### **An Example: Applying SNA to Pinnacle**

Let's return to Pinnacle, the management consulting company profiled at the beginning of this article. They needed help to improve their consultants' awareness of related projects. Before embarking on potentially costly organizational changes and other initiatives, the executive leadership commissioned an SNA to find where information was not getting passed on. The SNA was conducted with a group of consultants from different geographies, practices, levels of seniority, and tenure in the company.

Questions included: "How aware are you of the projects done by this person in the past 12 months?" and "How often does this person provide you with information you need to develop client proposals?" By looking at who was central in the awareness and information-sharing networks, the company could see which people the team tended to go to for information. By looking at how often people from each group interacted with each other, the SNA revealed that consultants who had been with the company the longest tended to get information from each other; newer employees only turned to each for more information if they were located in close physical proximity. Follow-up interviews revealed that time pressures left members of the team with few opportunities to develop relationships with newer or more distant employees. As a result of the SNA, upper management initiated a mentor system to help new employees, sponsored events several times a year that brought people together from different parts of the company, and developed an award program for any new engagements that were won as a result of existing relationships from outside the immediate team.

## Business applications of SNA

SNA has been applied to a broad range of business problems a few of which are summarized here.

- **Knowledge Management and Collaboration.** To help locate expertise, seed new communities of practice, improve cross-functional knowledge-sharing and strategic decision-making across leadership teams.
- **Team-building.** To facilitate post-merger integration or help leaders identify how to structure teams for innovation or structure and manage distributed teams.
- **Human Resources.** To identify and monitor the effects of workforce diversity, hiring practices and leadership development to improve on-boarding, retention, employee satisfaction and productivity.
- **Sales and Marketing.** To speed or expand the adoption of new products, technologies or ideas as part of an overall communication strategy.
- **Strategy.** To support planning and strategy for engaging in partnerships and alliances.

### SNA: A final word...

SNA is a new approach to solving traditional problems in business and management. It assumes that people are interconnected, that connections have real consequences for performance and satisfaction, and that connections can be structured to optimize individual, group, and organizational outcomes. SNA responds to the growing awareness that something intangible is in danger of being lost as the marketplace (and the workplace) becomes increasingly dispersed.

#### Notes

<sup>1</sup>Cross, R., Parker, A., Prusak, L. & Borgatti, S.P. 2001. Knowing What We Know: Supporting Knowledge Creation and Sharing in Social Networks. *Organizational Dynamics* 30(2): 100-120. [[pdf](#)]

### Authors

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