

Good management of subordinates is an art. Can it be made into a science? A UCLA professor is exploring the possibilities.

Who's mentoring whom?

By Tim W. Ferguson

MAYBE THE UNDERLING hanging around the watercooler is your most valuable asset after all. On the other hand, the in-your-face manager you've got whipping the troops into shape may be doing more blocking than tackling.

How would you know? Perhaps because you stay in close touch with your subordinates and have good instincts. But if you are not endowed with these talents, there may be another way. Get an expert to scientifically analyze your staff.

Isn't good management more art than science? Is management something you can reduce to scientific measures? To a surprising degree, the answer to the second question is yes, according to some academic researchers who are applying social-network analysis, a decades-old discipline, to the workplace. A leader in the field is Karen Stephenson, a 45-year-old assistant professor at UCLA's Anderson School of Management. She uses surveying, which can be backed up by telephone or computer logs, to show who is dealing with whom in an organization—the "hot spots." These signal the "entrusted relationships" that she believes are critical to amassing knowledge capital and generating innovation.

A firm's organizational chart will tell you about authority. It doesn't always show how things get done or created. You know the rules, but you don't know the ropes. For that, you need a map to the network, the corresponding informal structure that is usually invisible. Who's mentoring whom? Or, in Stephenson's words: Who are the hubs, the gatekeepers and the pulse takers? They are pivotal, but they may not be high on the organizational chart.

When the answers are displayed in graphical form, says Professor



Karen Stephenson of UCLA

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Stephenson, "you're looking at an organization from 50,000 feet. You see things." For instance:

- One aerospace giant learned that a procurement staffer three layers below the divisional hierarchy was an informal "personnel department." She was assessing colleagues' competencies and matching them to the right jobs or directing them to appropriate training. Stephenson's work helped to identify this shadow leader. The woman got rewarded.

- A midlevel university administrator with personal problems was, as a control mechanism, letting work collect on his desk, thus keeping it out of others' hands. He'd taken up with a clique of grouches who reinforced his negative aura. The surprising solution? A promotion (it's hard to fire in academia). That, Stephenson says, "disabled" him from his negative support group and also removed

him as a bottleneck.

- The Los Angeles Philharmonic orchestra, dependent on donor goodwill, upset some sponsors because their names weren't showing up in the printed programs. The reason became clear in Stephenson's electronic graphs: The development and marketing staffs simply didn't listen to each other about new projects (*see diagram*). One likely cause: The marketers were 15-year veterans, for the most part, and older than the development staffers. (The analysis codes these and other personal characteristics.) A committee was appointed to force the two sides to get more acquainted.

Presently, this kind of shadow organizational chart is available only through consultants. Within a year, however, Stephenson and a Norwegian high-tech financier, Svein Hana, aim to take network analysis

and turn it into a shrink-wrapped software tool.

The software would walk users through the surveying and could allow for automated input (like E-mail traffic). Then it would generate graphical outputs that Stephenson now does by hand, using programs such as Microsoft's Pointcast. The trick is in getting the graphs to mean something to a nonexpert.

Stephenson's work aims to make it easier to identify the quiet wonders who make a place tick but don't get the glory. It also acts to distinguish them from mere busybodies or know-it-alls who tie up the workings of an organization. How does it manage that? By distinguishing one-way from two-way communications (the busybody is rarely asked for advice) or by noting where information trails seem to end.

Social-network analysis feeds off a discipline known as graph theory, which has applications in communications webs, transportation, criminal fraud detection and public health. One of Stephenson's early assignments: tracking the spread of the AIDS virus. So there is a mathematical flavor to this work—mixed

with large doses of biology and anthropology. Stephenson's Ph.D., from Harvard, is in the latter subject.

The anthropologist shows through in Stephenson's frequent references to tribal instincts—us-versus-them feelings. Breaking down these barriers is key to innovation. Natural affinity groups are fine for smooth and quick accomplishment of defined tasks, she says, but a wide variety of inputs is better for breaking molds. That's why, she believes, family firms are slow to change. It also explains why homogeneous cultures such as Japan's trail in innovation: "There is no just-in-time innovation. The secret of innovation is in its unruliness and unpredictability."

Stephenson joined UCLA in 1990 and teamed up with human resources specialist David Lewin, whom she describes as a "tribal elder." Together they have amassed a client roster that includes banks, airlines, biotech companies and the Los Angeles Police Department.

Herbert Furch, an executive at Austria's VA Tech, an engineering-services giant spun off by the government, retained Stephenson a year ago. When VA Tech was privatized,

he says, units sought to decentralize rapidly. Later, the company determined that some recentralization was needed for global competitiveness, but it seeks to attain that through the informal structure instead of the hierarchy.

Allen Barnes, provost of IBM's Advanced Business Institute, began working with Stephenson in the early 1990s as the parent firm was building its management consulting practices. In reengineering companies, he says, you want to "make sure you haven't somehow hobbled the key route in which communication happens, and thus the means to a faster work flow."

Stephenson, whose academic career followed 15 years of corporate work in Utah, drew on theoretical work in networks by Frank Harary, a noted mathematician, and by Linton Freeman of the University of California, Irvine. Thomas Allen of MIT pioneered practicing the concepts. IBM is putting Stephenson's handiwork to use, and other consultancies are scrambling to get into the act.

Networking graphs won't replace smart managers, but they will make smart managing a little easier. ■

Failure to communicate

When Karen Stephenson surveyed staffers of the Los Angeles Philharmonic on how they interacted, a glaring gap appeared between two departments—development and marketing—that ought to work closely. The mapped responses (each dot is a person, each line a "handoff") showed that when it came to putting together new programs, the two units weren't connecting, and as a result recruited sponsors were being left out of promotional copy. Stephenson warns: "Mapping programs are a dime a dozen. What's hard is the science that makes the visualization easy to use."

