

Network analysis, a decades-old discipline that pinpoints social relationships, is now being applied to the workplace with impressive results. **Karen Stephenson**, a leader in the field, explains how it can help HR professionals

Of human bonding

The business challenges that face us at the dawn of the new millennium are unique. Never before have humans worked in enterprises that are so global and virtual at their core. New leadership is called for in this strange world, which is so fundamentally different from industrial models.

In the old world of win-lose competition, the working model was one of allocating scarce resources between competing entities. In the networked world, businesses compete in some fields but co-operate in others. And here the economic pie is not of fixed size, but varies according to business need.

An example is Synchronet, based in San Francisco. Synchronet knew that shipping firms compete on cargo. Yet it was able to persuade established shipping companies to co-operate on the use of empty containers. By working together and exchanging information about how many empty containers existed and where, the costs of repositioning were substantially reduced for everyone. This was initially achieved by co-operating in regional networks while at the same time competing over the core business of cargo. It required quite complex behaviour from employees, who had to share information in one area, but withhold it in others.

In today's techno-parlance, "network" can mean anything from the sharing of information about shipping containers to complex interlocking computer hardware or the web of human relationships in the world of work. I want to apply the

term to human systems and their impact on the knowledge assets of the business.

The critical issue now is the recruitment, retention, development and succession of talent. This talent is buried in enterprise-wide networks operating below the radar of hierarchical management. So it is strategically important to understand the formation of networks and how to control them.

Research has shown that inside every network, there are some individuals who take on key roles. These roles can be grouped into three categories which I have termed "hubs", "gatekeepers" and "pulsetakers" (see diagram, page 57). The pattern of these categories in an organisation contains its cultural identity in much the same way that DNA encodes the biological identity of individuals.

Hubs are individuals with a large number of direct links to others. They are crucial for the rapid dissemination of knowledge. They are the people who seem to know everything that is going on in the organisation. But the hubs cannot reach everyone.

Gatekeepers serve the critical function of bridging gaps between parts of the

organisation or connecting hubs. Instead of many links, they have a strategic few.

Pulsetakers are indirectly connected to the greatest number of people in the firm and so have a finger on the pulse of the organisation; they know what everyone is thinking. Machiavelli was a pulsetaker, unseen but all-seeing.

These three positions are so strategically embedded that they can either lock an organisation's culture into place and prevent change, or unlock the structure and accelerate change. It all depends on whether these key players agree with the change that is proposed. I call them "culture carriers", for they carry within them the seeds of their own culture and can make or break any change effort.

Levers for change

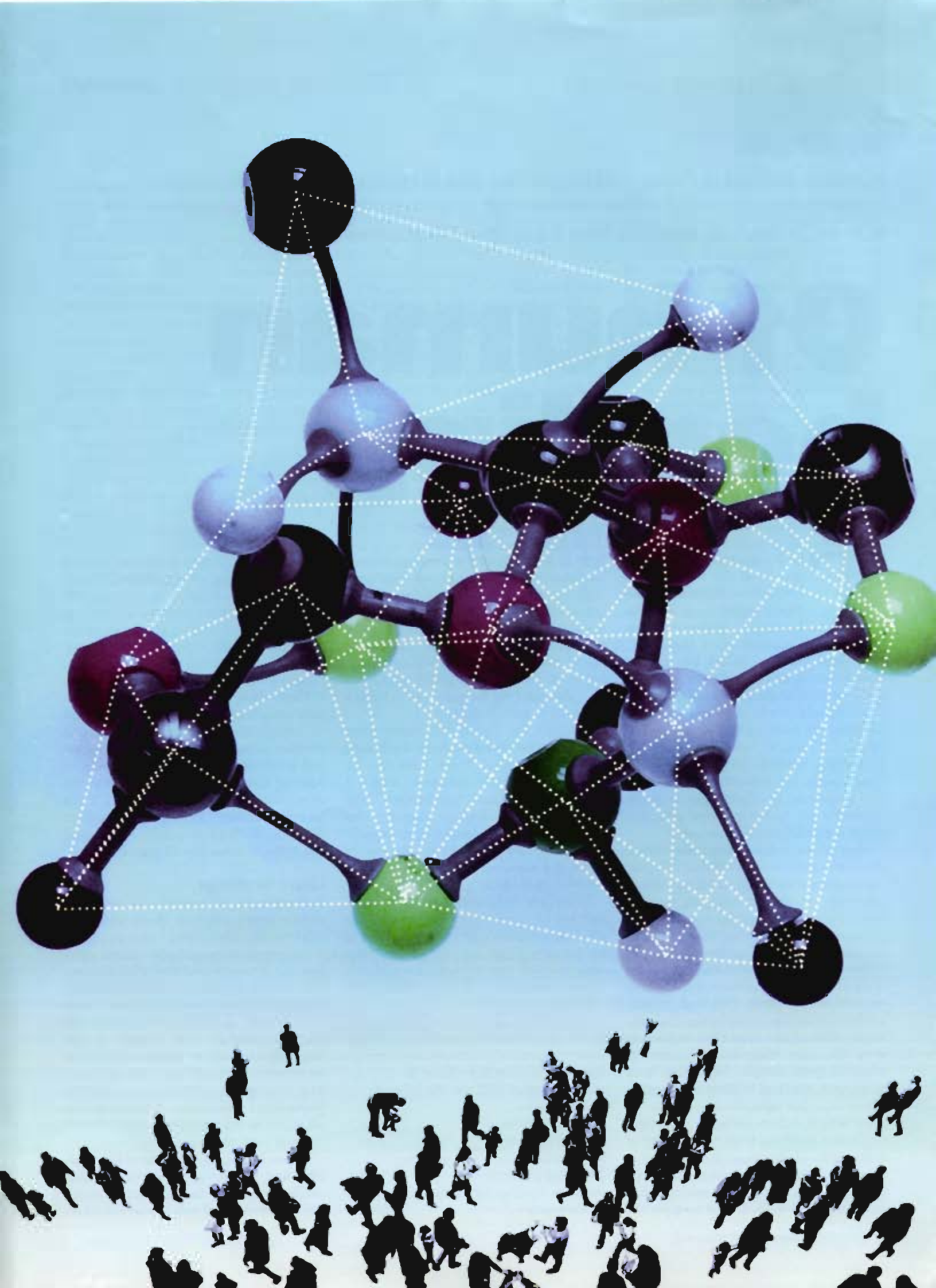
In every organisation there are networks, and in every network there are these three roles. Identifying who are your hubs, gatekeepers and pulsetakers gives you access to powerful levers for change.

Networks are like a separate organisational species, existing wholly apart from management structure yet symbiotically tied to hierarchy. Any change in the hierarchy can have an unexpected impact on networks, sometimes crushing them. Any change in networks can deflect hierarchical control and, at times, diminish it. Networks can also be controlled to improve performance.

Network analysis is a method of visualising and measuring networks by using employee surveys. Because networks are stable, surveys need only be carried out on

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a yearly or six-monthly basis. But if the firm is undergoing change, then progress may be monitored more frequently, using the methodology as a "before and after" assessment. Network analysis can become a core part of corporate renewal during reorganisations and mergers. It can aid project management, innovation, performance appraisal, assimilation of new recruits, retention of knowledge workers and succession planning.

The approach consists of five steps:

- **Determination of project scope.** You need to address the symptoms of organisational malaise to determine the size of the sample for your survey. Which divisions show the symptoms and how deep do the problems go?

- **Data acquisition.** After a detailed discussion of the symptoms and probable causes, you can compose five to 10 questions that ask people whom they associate with in the spheres of work, innovation, expertise, decision-making, social events and so on - whichever is most relevant to the problem at hand.

Data is collected from individuals via these surveys and aggregated at the organisational level to produce a picture of knowledge networks. Software that I have developed with a Norwegian company, NetForm, automates this process and provides an integrated analysis.

The networks that emerge are "traces" of past organisational behaviour painted from the palette of human memory. Although individuals may falsify their answers or remember incorrectly, the collective aggregation of individual responses renders false responses statistically insignificant. In the end, what one actually sees in a network is a robust rendering of organisational behaviour. And behaviour, not perception, is what affects the bottom line.

- **Mapping and measuring.** The data is visually mapped and the "DNA" or cultural core of each network is measured using statistical algorithms that locate the hubs, gatekeepers and pulsetakers. Each network may be mapped on to present and future scenarios as well as on different organisational groupings such as department, race, age, sex and so on. You can experiment with different networks in alternative scenarios to achieve the results you want.

- **Analysis.** Different networks produce different patterns. For instance, patterns shaped by natural attributes, such as race or sex, result from primordial drivers of

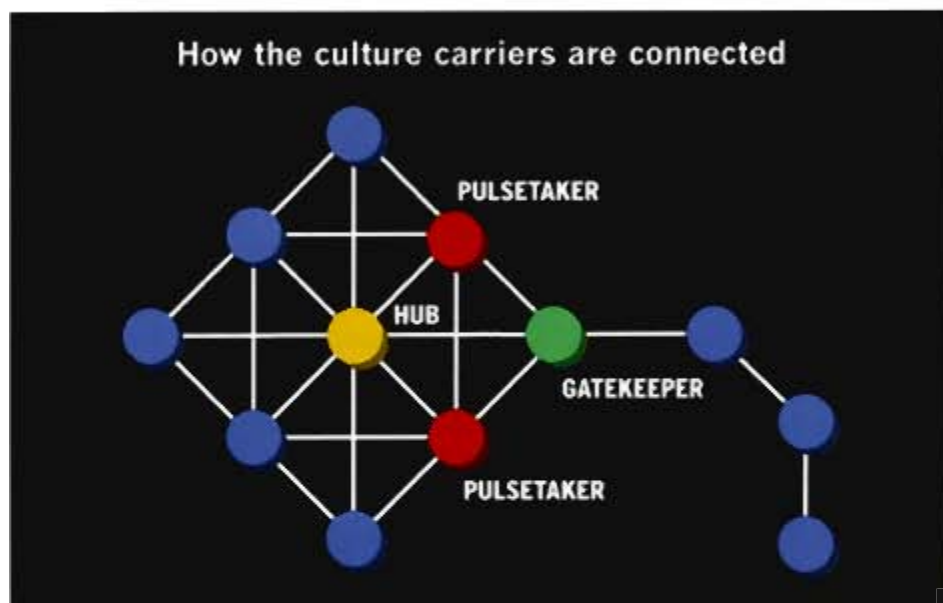
behaviour. The barriers that they create can be anticipated and addressed. Network patterns shaped by cultural data, such as past reorganisations, show conventional barriers to group behaviour, arising from old loyalties.

- **Action.** Most executives know where they want to go with their business but don't know how to get their people motivated and mobilised to get there apart from through traditional and inadequate hierarchical means. But the construction of a future state and its com-

technical publications and direct marketing, that were disconnected from the rest of marketing."

Once the communication gap was identified and addressed, Duff formed cross-functional teams. A follow-up network analysis indicated that the gap had been closed and communication was there. The real measure was improved departmental performance.

How can HR professionals make use of this approach? There are many uses, but I will sketch out two. The misalign-



parison with the present one enables the formulation of a step-by-step campaign for bridging gaps and building business.

I have been able to apply this methodology in a wide range of companies over the past five years.

For instance, Mike Duff, vice-president at the Telecommunications Techniques Corporation, a manufacturer of communications systems and software in the US, used network maps to help to turn around a department that showed communication gaps between functions.

These gaps were symptomatic of unresolved issues between individuals and groups. The initial network analysis indicated that the technical publications and marketing groups were "out of the loop" with the rest of the department.

Duff says: "If you have a marketing communications department, there's a great need to communicate among different groups, such as trade show people, publications and corporate communications. We did that on a selected basis. But there were groups, such as

ment that occurs between performance, appraisal and reward has cost businesses an untold sum in both human and financial capital. When people complain that they are not getting recognised for the work that they do, they are usually correct, because at least half of their work is done through networks that remain invisible to their managers. And when employees don't get recognition, they vote with their feet. They leave, taking others with them, and the business's knowledge capital dwindles. How can this oversight be addressed?

Net assets

When employees are rewarded for their jobs, they are recognised through the hierarchy, as it is often the only visible means to measure performance. But this is only one side of the work equation. What if a performance evaluation included a network index in addition to other measures?

A simple example would be a chief executive scoring highly on hierarchical

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placement, but poorly on internal company networks (a chief executive's networks are mostly external to the firm). An employee working in research and development might have a low score on hierarchical placement, commensurate with their seniority, but have a high network index because that employee is a critical part of the innovation network. Including both hierarchical and network measures ensures greater accountability for everyone, because it objectively measures their contribution. Here, "return on assets" can be recast as "recognition of the human asset" and a significant step in advancing accountability.

International financial services firm Merrill Lynch has assessed the global performance of its HR division using such an approach, showing that these large-scale studies are feasible.

Network analysis can also be used when initiating change or in succession planning. During change programmes, you need to get the support of your hubs, gatekeepers and pulsetakers. Their influential status within the knowledge

networks will do more to mobilise the workforce than any communication or IT infrastructure. The DNA of organisational networks is your cultural infrastructure and the key to rapid change and future leadership.

The selection of future leaders is usually achieved by interviewing people to check their skills, which can then be assessed against a leadership profile. Ironically, the interview is the least reliable and least valid of all predictor instruments. Yet it is the one instrument that we all rely upon, because face-to-face contact sends a familiar – if sometimes false – message.

Consequently, once successors are picked, their success rate may be poor. In other words, the predictor model "predicted" that they would succeed, but they didn't. This statistical error is extremely costly to the business and could have been avoided if network analysis had been used to cross-validate the interview technique. More than half of succession failures are the result of candidates not being internally networked in the firm.

In other words, they are not trusted, and, when they lead the charge, they do so alone, in the end being hoisted on their own petard. Pulsetakers make very good successors, because they are indirectly connected to many people within the organisation and can be readily identified through network analysis.

Knowing your knowledge networks is perhaps the single most important step that any executive can take in mobilising the workforce for change. The challenge is to manage knowledge assets by appreciating, not depreciating, the human capital component. In the final analysis, executives and managers are the stewards of human capital, which materially bears on shareholder investment capital – the ultimate test of accountability.

We have come a long way from the days when Henry Ford complained: "Why is it that when I want another pair of hands, a head has to come along with it?"

Further information

For more details about network analysis, contact the web site at www.netform-stephenson.com

This article is based on a Master Class presentation delivered to the Institute of Personnel and Development National Conference, 28 - 30 October 1998 - Harrogate, England.
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