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Strategies for Preventing a Knowledge-Loss Crisis

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Strategies for Preventing a **Knowledge-Loss Crisis**

Departing employees leave with more than what they know; they also take with them critical knowledge about who they know. That information needs to be a part of any knowledge-retention strategy.

When many experienced mechanics left Delta Air Lines Inc. in the mid-1990s, the company was able to reduce compensation costs in the short term, but the remaining, less-experienced employees took much longer to diagnose and repair airplanes. The result: flight delays and cancellations, unhappy customers and an overall increase in Delta's cost-per-seat mile. After the 9/11 terrorist attacks, Delta had to substantially reduce its workforce to remain competitive. This time, though, management was keen to ensure that critical knowledge wasn't departing with the 11,000 employees who were leaving.[1] In addition to retaining those who were high performers or were in positions with few backups, Delta also focused on employees identified as "go to" people during crises as well as workers who had substantial relationships both inside and outside the organization.[2] In doing so, management recognized that critical knowledge loss is not simply what the departing employees know about their job tasks, but also who they know and collaborate with to get work done on time.

As Delta has learned, knowledge loss resulting from employee turnover is becoming a critical issue that cannot be ignored. In terms of broad demographics, aging baby boomers present a major challenge, with nearly 20% of the American workforce holding executive, administrative and managerial positions set to retire by 2008.[3] In certain sectors, these departures are nearing crisis proportions. In the oil and gas industry, for example, the average employee age has risen dramatically — current estimates suggest that roughly 60% of experienced managers will retire by 2010.[4]

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About the Research

We have studied knowledge loss using organizational network analysis in several ways. Over the past several years, we performed ONAs at 80 organizations of different sizes and across different industries. After conducting each analysis, we also performed interviews to understand, among other objectives, the characteristics and implications of different roles in a network: central connector, broker and peripheral player. More recently, our post-ONA interviews have focused on the types of knowledge and the knowledge-loss risk associated with each of those three roles. We have conducted about 100 post-ONA interviews across 20 organizations that specifically addressed this issue. In addition, we have interviewed managers at organizations that are implementing knowledge-retention practices, consultants who are providing knowledge-retention services and other researchers on the topic.

In addition, critical knowledge loss also occurs more subtly via job mobility and alternative work arrangements. Specifically, substantial but often unrecognized knowledge loss takes place when established employees quit or contract employees (representing one in six American workers[5]) move to another organization. In a recent survey of 5,000 executives, 46% indicated that they expected to remain in their positions for only two to five years.[6]

These dynamics represent a large and growing concern that most companies have failed to address. In a recent study, only half of the organizations surveyed had identified a list of critical skills needed for future growth. Moreover, more than one-quarter viewed defining critical skills as "unimportant."[7] But the cost of losing important expertise can be enormous. General Mills Inc., for example, has estimated that the departure of just one experienced marketing manager could cost millions of dollars from the loss of critical marketing and client knowledge.[8]

Not Just "What" but "Who"

Many forward-thinking institutions have taken action, but their efforts have tended to be ad hoc and reactive. The typical approach is to capture and store what a departing person knows by codifying electronic files and reports, conducting subject-matter interviews and capturing lessons learned or best practices from projects in which the employee played a lead role. Although sometimes helpful, such measures often lead to two substantial problems.

First, just because knowledge has been captured and stored in a database or a process manual does not mean it will ever be found, interpreted in the right way or given enough credibility to be used. Moreover, the key problem with these retention approaches is that they capture only a small fragment of what made an individual successful and knowledgeable to begin with. Departing employees take many kinds of knowledge with them: subject-matter expertise, organizational memory of why certain key decisions were made and awareness of past company projects (the results of which may never have been documented).

Second, retention approaches often focus on a person's knowledge independent of the network of relationships critical to getting work done. As work has become more complex and interdependent, individuals rarely accomplish anything of substance on their own; they rely on both coworkers and external parties. Yet few knowledge-retention approaches focus on this relational or network-based aspect, and so they capture only a portion of the knowledge that made a person successful and that must be transferred to colleagues to avoid disruptions in work.

At one pharmaceutical company, for example, a few key scientists possess not only important technical expertise about their therapeutic areas but also critical relationships with academia that help the organization remain at the forefront of research. Senior management has estimated that if those scientists left, the time required to re-create their capabilities — both their individual expertise and the trusted contacts they have with key scientific advisers — would be at least five years.

In short, when employees leave they depart with more than what they know; they also leave with critical knowledge about who they know. Studies have repeatedly demonstrated that such relationships are crucial sources of information and performance in organizations.[9] The fact is that an employee who has been with a company for 10 or so years can't simply be replaced by another individual — even by someone with very similar skills — without incurring disruptions in the web of formal and informal relationships that get work done. Coworkers require time to understand a new person's true expertise and determine when to seek out that individual. And it takes even longer to develop trust in the newcomer's intentions and capabilities. Thus, the departure of key people — not just those high in the hierarchy but also central to the inner workings of a network — can significantly affect the relationship structure and consequent functioning of an organization.

How, then, can companies uncover these important interpersonal relationships to avoid critical disruptions? In our work, we have used an approach called organizational network analysis, or ONA, also known as social network analysis. Based on qualitative and quantitative research with 20 organizations, we have found that ONA can help reveal the critical relational fabric of a company that must be considered in any knowledge-retention strategy. Specifically, we have found the approach helps to (1) identify key knowledge vulnerabilities by virtue of both what a person knows and how that individual's departure will affect a

network and (2) address specific knowledge-loss issues based on the different roles that employees play in the network. (See "About the Research.") In particular, ONA can highlight the unique knowledge held by three important types of employees: central connectors, brokers and peripheral players. (See "Three Key Network Roles: Central Connector, Broker and Peripheral Player.") Each of these roles has different knowledge-loss risks that need to be addressed. (See "Knowledge-Retention Strategies by Network Role," p. 34.)

When Central Connectors Leave

Central connectors are people who have a high number of direct information relationships, typically because they have a high level of expertise in one or more areas. (Occasionally, though, people might assume a central-connector role due to other factors, such as job redesign or organizational politics.) To appreciate the importance of central connectors, consider the information network of a key group of employees in a government intelligence agency. (See "The Importance of Central Connectors," p. 35.) What happens with the removal of the most highly connected people (specifically, the top 10% of employees receiving requests for information)? Should those key individuals depart, then other employees on the periphery of the network would have a much more difficult time communicating with their coworkers. In fact, the overall connectivity of the network would drop by 46%, and there would be a 50% fall-off in cross-divisional relationships, which are considered critical to gathering and acting on intelligence in a prudent and timely fashion.

The loss of centrally connected employees can also have a substantial economic impact. At a financial services organization, for example, each person estimated the typical amount of time saved per month as a result of resources, information and help received from coworkers. This approach allowed the company to quantify the value of its network by multiplying the time savings by a fully loaded compensation figure for each employee. The analysis revealed that a handful of centrally connected people were contributing a great deal of timesaving value to the organization. The most central person in a 73-person network, for instance, generated savings of $21,300 per month compared with a total monthly savings of $103,500 across the entire network.

Because of their hublike positions in a network, central connectors are very aware of their coworkers' expertise. When they do not have an answer, central connectors usually know who does, and have sufficient social capital to get a response quickly. With their depth of expertise and central position in a network, central connectors pose two types of knowledge risks.

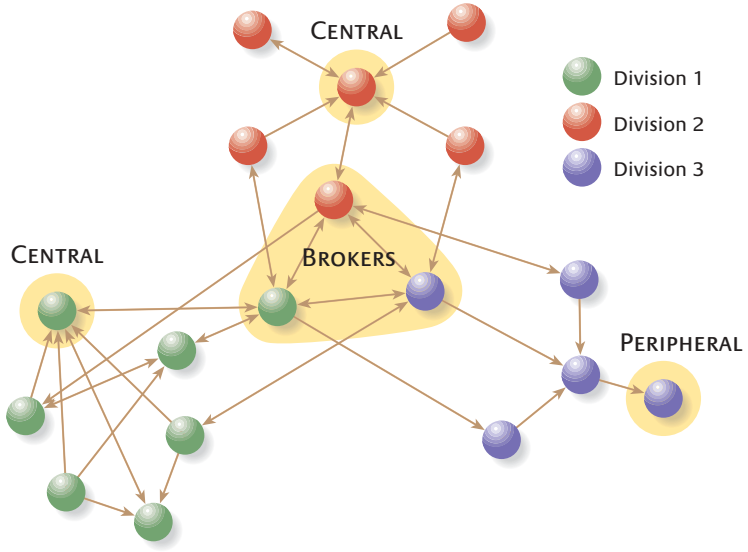
Loss of Deep, Network-embedded Expertise Critical to Operations

Often, the knowledge that central employees possess is so-called "deep smarts" — expertise based on experiences, intuitive judgments and the ability to analyze problems from different perspectives.[10] In the petroleum industry, for example, geoscientists with deep smarts are highly valued for their decades of experience prospecting for oil and gas. According to a vice president of exploration, "The rule of thumb has always been that 10% of your people find you about 90% of your hydrocarbons." The most effective central connectors are trusted, have credibility and are willing to help. They make day-to-day work possible for many others and are often the "go to" people in crisis situations.

An organization needs to do more than just develop the individual skills of its potential central connectors. It must also develop their collaborative behavior (which often does not come

Three Key Network Roles: Central Connector, Broker and Peripheral Player

Central connectors are the hubs of a network: People regularly seek them out for information. Brokers are those who have ties across subgroups and thus serve to integrate the entire network. As shown here, the three brokers act as bridges across the three divisions. (Note: Some employees can serve as both central connectors and brokers in a network.) Peripheral players are those who reside on the boundaries of a network, only infrequently seeking information from coworkers (and seldom being sought for information by others).



naturally to them) and position them at the inner workings of a network so that other members can become aware of and develop trust in their abilities. One effective means of doing this is to make network assessments a part of a person's performance review to encourage that individual to focus on specific relationships that he or she needs to develop.

Of course, the natural unit of work — whether a financial transaction, consulting task or new-product development — is an efficient way to develop budding central connectors. Through such projects, people learn when and how to rely on others. Because veteran central connectors typically have high social capital, energy and trust, they ususally make ideal candidates to lead such ventures so that they can then impart some of their knowledge to others.

Another effective approach for transferring knowledge is to have central connectors lead communities of practice around their areas of expertise. Companies can also use after-action reviews — detailed, illustrative and analytical conversations that can help call attention to and codify the tacit knowledge of what went right (and wrong) on a project. Such reviews can be designed not only to capture actionable guidelines but also to facilitate connections between experienced team members and those who might be new to a task. These and other approaches can serve to reduce the burden on central connectors by helping develop other, less-connected employees in ways that enmesh them more firmly into the social networks of an organization.

Loss of Capacity to Get Newcomers up to Speed Quickly Most new employees get connected in a network through serendipitous processes that, in a large organization, typically take two or three years. Some savvy fast movers, however, establish ties early with central connectors and thereby bootstrap their own efforts to get embedded in a network. Such a tactic helps to avoid a number of relational challenges faced by newcomers. First, the newcomer's expertise is rarely known to the rest of the network, so he or she is rarely sought out. The central connector can help by directing people to these peripheral members and telling others about their expertise. Second, the newcomers are often not trusted or deemed credible. Here, a central person can help by vouching for a newcomer, essentially allowing the latter to use the reputation of the former to help get established. Third, although newcomers might have a number of great ideas, they rarely have insight into the norms, politics or work practices in the organization. Central connectors are the best possible advisers in that regard.

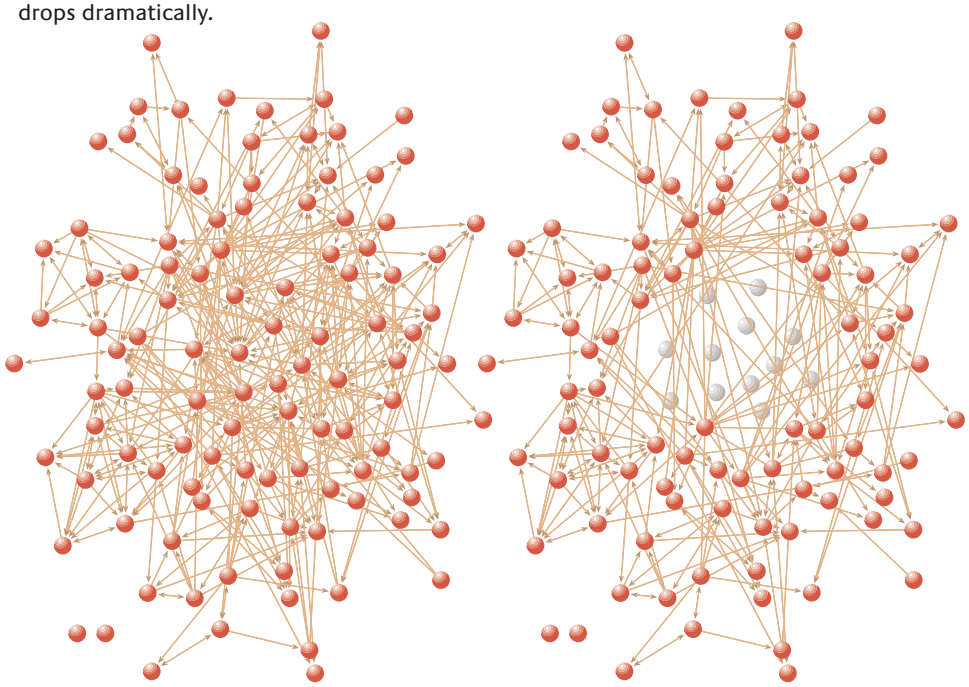
Central connectors maintain continuity over time by helping the organization avoid repeat mistakes, and they can pass this knowledge to newcomers. At one research organization, a newcomer was given an assignment to create a diagnostic that had actually been tried 10 years earlier. After three months, the newcomer, who was totally unaware of the initial project, presented his progress at a management meeting. Fortunately, a knowledgeable central person was present at the meeting and put the newcomer in touch with employees who had worked on the first project.

Knowledge-Retention Strategies by Network Role

Network Role	Knowledge-Loss Risks	Actions
Central Connector	• Technical expertise and organizational memory as well as a set of relationships that help many others get information or other resources to do their work. • Experiential knowledge and reputation that enable rapid onboarding of new employees.	• Use personal network profiles in career development and onboarding practices to create network redundancies systematically where departures might dramatically fragment a network. • Reallocate information access and decision rights to ensure that one point does not become too vulnerable in the network. • Have central connectors lead communities of practice as a means of creating connections around them. • Require central connectors to help newcomers get acclimated through strategic introductions, "shadowing," mentoring and joint projects.
Broker	• Broad knowledge of how the organization operates and ability to recognize opportunities that require integration of disparate expertise. • Ability to mobilize and coordinate efforts of disparate groups to pursue those opportunities.	• Identify and develop brokers through staffing and rotation across division, geographic and expertise groups. • Assign brokers strategically where information gaps exist or where ideas can move from concept to action. • Give brokers preauthorized decision limits to tap into network resources. Allow them to experiment to obtain real-time information.
Peripheral Player	• Niche (and often marginalized) expertise or early-adopter ideas that have the potential to reshape offerings or operations. • Set of external relationships built on trust and familiarity.	• Ensure relevant peripheral people are visible and engaged, for example, by encouraging their hosting of "lunch-and-learns" and webcasts. • Invite external partners to conduct workshops and attend meetings to broaden the network. • Reward employees for bringing external ideas and connections into the organization.

The Importance of Central Connectors

This information network of a government agency shows the various connections between different employees (left). When the top 10% of people with the greatest number of links are removed (as represented by the gray circles, right), the overall connectivity of the network drops dramatically.



In some organizations, central employees are formally assigned the role of acclimating newcomers to the organization's network. At one pharmaceutical organization, for example, centrally connected scientists are often teamed with junior researchers on projects so that they can collaboratively perform the data analysis. The process helps build the junior scientists' relationships throughout the organization. A similar approach is used at a consulting firm in which partners are responsible for helping to bring some of the junior consultants on board. The junior person basically becomes a "shadow," following the partner on projects or client engagements and observing how that individual makes decisions — all while making important contacts throughout the organization.

Other, more structured approaches can help establish important links between peripheral and central employees. At some companies, first work assignments are crafted such that newcomers must connect with coworkers, especially central people.[11] Other knowledge-management initiatives, such as the documenting of lessons learned on a project (including contact info for the team members), can be effective ways to maintain organizational memory. One company is piloting the use of both audio and video segments to capture an employee's experience at a customer site, including what to expect and how to behave in certain situations. The goal is to help new employees get acclimated and integrated into the network as quickly as possible.

When Brokers Leave

Brokers are people who have links across subgroups in a network. They may not have the greatest number of connections, but they possess a disproportionate ability to help an organization capitalize on opportunities requiring the integration of disparate expertise. With their knowledge of the expertise and terminology of different groups, brokers often play the key role of technical translator. That role also applies on a cultural level because brokers typically understand and appreciate the differences in values and norms across different groups, such as between manufacturing and research and development. Having such a perspective is why brokers are so effective in spotting and exploiting opportunities that require integration.

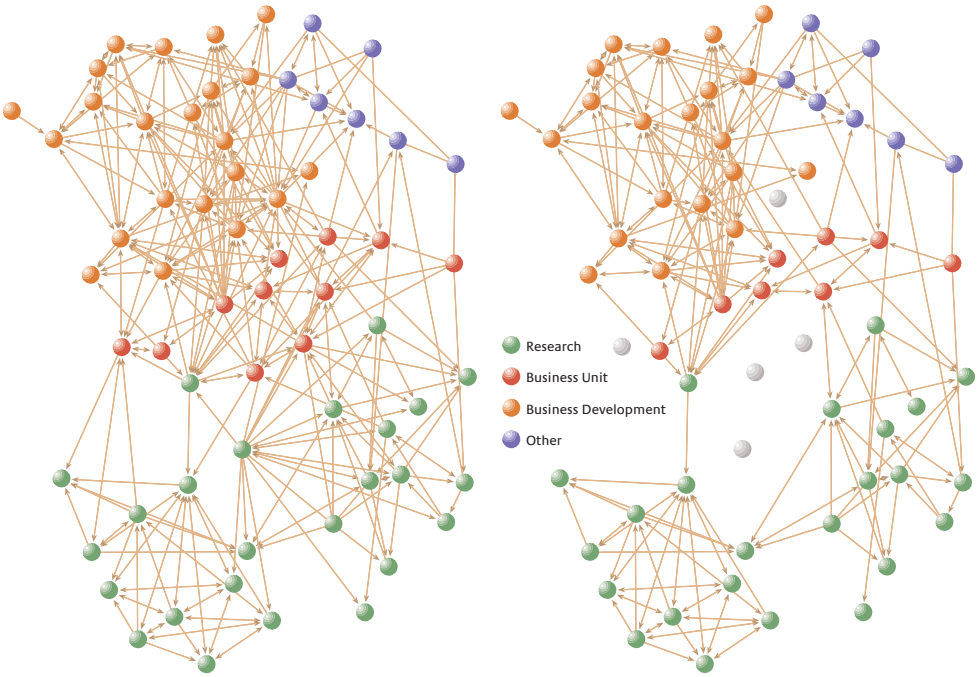
The departure of brokers might not directly affect as many people as when a central connector leaves, but their absence can still fragment a network at key junctures. Consider the network of a professional services firm. (See "The Importance of Brokers," p. 36.) If the top five brokers are removed from an organization, the information network would suffer significant disruptions. Two of the research clusters would become nearly isolated, and the connections between the research side of the organization and the business unit and development groups become tenuous. Interestingly, when shown these network diagrams, one manager at the firm was surprised at the identities of some of the top brokers because they weren't as central or as visible as some of the other employees.

For a qualitative example of the importance of brokers, consider a recently departed strategy executive from an automobile manufacturer. The executive was on the decision review board for the company's vehicle programs, through which he was effective in translating and transferring relevant processes and data from one vehicle program to another. This individual also acted as a liaison between two teams with vastly different work cultures: an analytic group that was very "process-rich and data-poor" and another unit responsible for collecting customer and

market data. According to the executive, "I've been sufficiently accepted by each group, but I haven't been technically or functionally drawn so strongly into one of them that I couldn't connect to another." Since his departure, the effectiveness of the market research organization has declined as each functional division now conducts research in its own way. The company has also lost important bridges to many outside consultants and academics — a third group for which the executive served as a broker. Even though the executive made his Rolodex available to his successor, the relational capital he had accumulated over the years was not so easily transferred.

The Importance of Brokers

This diagram shows the information network of a services organization (left), with the green, red, orange and purple circles representing the research, business units, business development and other groups, respectively. If just the top five brokers are removed (as represented by the gray circles, right), the network becomes much more fragmented.



Brokers are especially important in organizations struggling with silos driven by formal structure, deep technical expertise or occupational subcultures. Unfortunately, though, the type of relational knowledge and organizational perspective they possess is rarely captured in retention programs. The irony is that when brokers leave, many organizations don't even know what's been lost. To avoid getting caught off-guard, companies need to make concerted efforts to develop, identify and position brokers. Three practices can help.

First, companies can encourage and reward lateral movement for employees across projects, divisions and geographic areas. Such job rotations can help people acquire the work experiences that provide a deep understanding of different expertise, subcultures and work processes. Traditionally, job rotations have been used mainly in manufacturing, but they could also be deployed in knowledge work environments. Some professional services firms, for instance, staff projects in ways that help connect people across various networks.

Second, organizations should identify and groom employees with broker potential. Such individuals can be found by using ONA or by considering employee profiles — brokers tend to be well-tenured (with work in different groups), highly credible, effective translators and skilled negotiators. To train brokers, companies should communicate an understanding of key strategic imperatives, such as new-product development, which demand better connectivity across units. Here, the organization should help brokers see how their role contributes to each imperative, for example, by creating formal expectations with respect to those initiatives. Next, the company can help brokers map or document their vast personal networks, both internal and external, as well as the knowledge obtained and provided through each of those relationships. By connecting specific relationships to strategic objectives, the broker can find opportunities for integrating knowledge that others in the organization might miss.

Third, organizations need to position brokers strategically where their skills can best be deployed. It makes no sense to place brokers in noncritical areas or where collaboration is unimportant. Ideally, brokers should be located wherever tighter integration between groups would benefit the organization and wherever new ideas need to move from the concept stage to actionable results, such as between R&D groups and business units.

It is important to remember that brokers need greater authority and flexibility to make decisions. After all, an organization benefits little when a broker can see opportunities or threats in the marketplace but cannot act on them in a timely manner. At one online retailer, for example, product managers often acted as brokers among marketing, operations and information technol-

Peripheral players might be tangential to their organization but well connected within external networks. As such, they present the risk of two kinds of information loss: niche expertise and outside knowledge.

ogy groups. In order to do their jobs well, these managers needed real-time customer and market feedback concerning new-product ideas, and data on the impact of advertising, discounts and Web site layout on product sales. But focus groups and surveys took weeks to run, and the product managers could not wait for IT to perform an extensive data-mining analysis, most of which would not pertain to their individual products anyway. So, company executives decided to give the product managers the authority to run their own experiments on the company Web site without requiring IT's approval. And because of their broker positions, the product managers knew to whom to turn for specific help. The result was real-time, cost-effective feedback from customers about product and marketing ideas, resulting in a more effective Web site and ultimately more product sales.

When Peripheral Players Leave

Peripheral employees have the fewest number of ties and reside on the boundaries of a network. They thus tend to be more disengaged (and, consequently, sometimes more dissatisfied) with the organization than others who are better connected. As a result, they are more likely to leave. Furthermore, because they are on the periphery, their knowledge tends to be overlooked when a company implements a retention strategy. This, however, could be a huge mistake. Peripheral players might be tangential to their organization but well connected within external networks. As such, they present the risk of two kinds of information loss: niche expertise and outside knowledge.

Loss of Relevant but Marginalized Perspectives Peripheral players often have niche expertise that might not be important for daily operations but can often be crucial during a crisis. At one of the companies in our study, for example, a peripheral player supported the accounting and logistics scheduling functions that ran on the organization's mainframe computer. The person had written technical manuals, but much of what he knew couldn't be documented; it was based on his vast experience handling crises. This niche expertise helped ensure that computer downtimes lasted no longer than one hour, while coworkers would require an estimated half day or longer for handling similar situations. Another advantage of peripheral players is that they usually aren't as steeped in existing paradigms of thought as are people who are more centrally connected. As a result, peripheral players are frequently able to combine fresh insights with an understanding of the inner workings of an organization to generate unlikely but valuable innovations. Employees on the periphery also tend to be "early adopters," so their departure can result in a much more cautious approach toward novel ideas and technologies.

For these reasons, it is important to include peripheral employees in any knowledge-retention strategy. One effective practice is to connect them to a broker. Typically, companies can identify the top 10 or so brokers in a network. Then, for instance, by adding just one connection from each top broker to someone peripheral, an organization can greatly increase the overall connectivity of its network. In one divisional network of 100 people, for example, the addition of simple connections from the top 12 brokers to people on the periphery resulted in a simulated improvement of 25% in cohesion. (Note: Cohesion is a measure of the average distance for information to travel across an entire network. Shorter distances indicate greater cohesion.) Generally speaking, 3% to 5% of a network is composed of these key brokers who are very influential because of their level of network connectivity and credibility in the eyes of their peers. Linking brokers with peripheral players can be mutually rewarding, with the former enjoying the respect of being mentors and the latter benefiting from receiving insights and introductions into the organization that they might not otherwise have had.

To ensure that peripheral employees are not disengaged or disinterested, a company can get them involved in activities that make them feel connected to the organization, while at the same time making others aware of the expertise they possess. One approach is to encourage peripheral players to do webcasts, teleconferences and "lunch and learns" to talk about their work. A company can also encourage peripheral people, especially newcomers, to join a community of practice. That gives them the opportunity to meet people who have similar interests, keeping them engaged (especially if they are not satisfied with their formal work assignments) and connected into the company's knowledge network.

Loss of Valuable External Ties Although peripheral people may not be well connected within their own work areas, they can often be active participants in an extensive network outside their immediate group or organization. In fact, peripheral players tend to have, on average, roughly an equivalent number of relationships outside the organization as central employees do. This is particularly true in sales divisions or other groups that have direct interactions with customers. But the external connections don't necessarily have to be customers. Vendors, academics, independent research centers and colleagues from previous jobs are all sources of important external knowledge. Often, departing employees take such outside contacts with them as they walk out the door. The loss to the organization could include keen insights about markets, technologies and products; a deep understanding of customer requirements; and the relational capital that encourages the external party to keep the best interests of the organization in mind, especially in times of crisis.

External relationships are often a source of new ideas, which can help an organization avoid insular thinking, but only if that knowledge is deployed. At one company, for example, a junior programmer has benefited more from his external sources, including technical blogs and membership in a Linux user group and other forums, than he does from interacting with programmers at his own organization. He has incorporated this outside knowledge into the software he writes, but because he is not well connected internally, the organization as a whole hasn't been able to leverage the new ideas. Moreover, if the programmer were to leave, this expertise could be lost for good.

Companies can formalize these "hidden" external relationships in a number of ways. At a pharmaceutical company, for instance, a peripheral researcher regularly brings in outside scientists and colleagues to give talks and workshops. The benefits are twofold: Fresh ideas flow into the organization to help with drug discovery, and new connections are formed between employees who attend the workshops and the external scientists. Because there is often a disincentive for employees to share their contacts — salespeople, for one, would rather land an account on their own than split a commission — organizations might need to rethink their reward systems to discourage any "go-it-alone" mentality. A company might, for example, use collaboration-type metrics to appraise the performance of individuals in the sales force. One drug company rewards its scientists who publish papers jointly with both an external partner and another colleague. In addition to monetary bonuses, the researchers benefit from peer recognition and access to an even larger network of scientists. The awards are given by a scientific advisory committee that consists of (or has access to) some of the top scientists in their respective fields around the world.

Clearly, the issue of knowledge loss is not just about specific expertise walking out the door but also about a group's collective ability to get work done. A network approach allows organizations to identify people, their roles, their relationships and the knowledge they possess in accomplishing their jobs. With that information, organizations can take the actions necessary to keep a potential loss of knowledge from ever becoming a crisis.

At Pfizer Inc., for example, a network approach and various career development and staffing practices help to fill important holes created by potential departures before such people leave. The company assesses both traditional individual knowledge and relational knowledge during certain change situations, including executive transitions and reorganizations in both the sales and drug development groups.[12] During its merger with Pharmacia Inc., for example, Pfizer gave top priority to retaining leadership talent and managing relationships, thus easing the integration of the two companies.[13] Such proactive measures will increasingly be needed as organizations deal with ever-rising levels of employee turnover.

REFERENCES

1. D.W. DeLong and T.O. Mann, "Knowledge Management: Stemming the Brain Drain," Outlook Journal, no. 1 (January 2003): 39-43.

2. D.W. DeLong, "Lost Knowledge: Confronting the Threat of an Aging Workforce" (Oxford: Oxford University Press, 2004).

3. H. Beazley, J. Boenisch and D. Harden, "Continuity Management: Preserving Corporate Knowledge and Productivity When Employees Leave" (Hoboken, New Jersey: John Wiley & Sons, 2002).

4. S. Poruban and J. Clark, "Managing Data & Knowledge: Oil, Gas Industry Makes Advances in Managing Data, Knowledge," Oil & Gas Journal 99, no. 50 (Dec. 10, 2001): 74-82.

5. Beazley, "Continuity Management."

6. Ibid.

7. Deloitte & Touche, "Retiring Workforce, Widening Skills Gap, Exodus of 'Critical Talent' Threatens Companies: Deloitte Consulting Survey," Feb. 15, 2005.

8. L.C. Lancaster and D. Stillman, "When Generations Collide: Who They Are. Why They Clash. How to Solve the Generational Problem of Work" (New York: Harper Business, 2002).

9. An overview of the importance of social networks is provided in R. Cross and A. Parker, "The Hidden Power of Social Networks: Understanding How Work Really Gets Done in Organizations" (Boston: Harvard Business School Press, 2004).

10. D. Leonard and W. Swap, "Deep Smarts: How to Cultivate and Transfer Enduring Business Wisdom" (Boston: Harvard Business School Press, 2005).

11. K. Rollag, S. Parise and R. Cross, "Getting New Hires up to Speed Quickly," MIT Sloan Management Review 46, no. 2 (winter 2005): 35-41.

12. Pfizer information obtained from interviews and from C. Vollhardt, "Pfizer's Prescription for the Risky Business of Executive Transitions," Journal of Organizational Excellence 25, no.1 (2005): 3-15.

13. R. Smith, "Learning and Development's Critical Role in Successful Mergers and Acquisitions" (presentation at American Society of Training and Development [ASTD] Southern Connecticut Chapter, Oct. 24, 2005).

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