**Knowledge Workers: The Last Bastion of Competitive Advantage**
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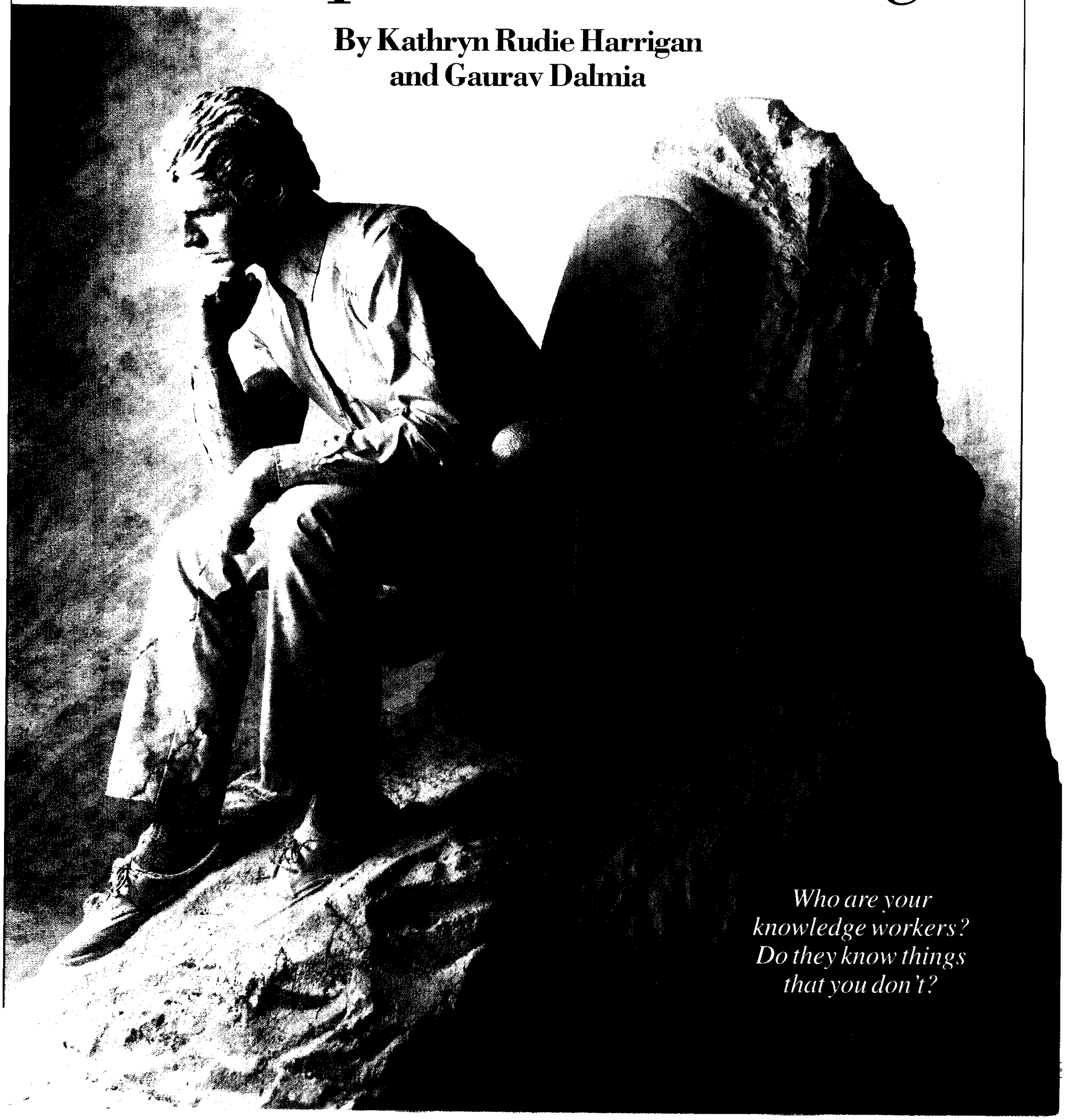
# Knowledge Workers: The Last Bastion of Competitive Advantage

**By Kathryn Rudie Harrigan and Gaurav Dalmia**



*Who are your knowledge workers? Do they know things that you don't?*

> "To share an asset, usually it must first be divided.
> But knowledge is one of the few assets
> that multiplies as it is shared."
> --Indian Proverb

In the Nineties, most industries will become increasingly competitive and customers will grow ever more demanding. The pace of innovation has accelerated and companies that can't keep up will quickly find themselves in trouble. Frequently the only source of sustainable competitive advantage firms possess in such settings is their talented employees and the management systems that empower them. Unfortunately many managers do not understand how to identify and harness the power of their firms' talent.

Savvy managers, however, are learning how to train and empower their "knowledge workers"—their firm's international repositories of problem-solving skills—to implement competitive maneuvers faster. The process by which they identify people with critical knowledge and authorize them to act is shaking up old ideas, especially those about managing international strategy. The result of these changes has been dramatic:

- Products have been introduced faster.
- Corporate cultures have grown stronger.
- Value creation by knowledge workers has become more critical to firms' success.

What are knowledge workers? Let's define them as key employees who create intangible value-added assets (and often transport those assets in their heads when they change employers). Knowledge workers are most common in high-tech innovation centers like Silicon Valley. But they also reside inside mature organizations—often in places where the managerial hierarchy seldom thinks to look.

How can organizations maximize the contribution of their knowledge workers? For a start, formal and informal organizational changes are needed to enhance strategic information sharing among knowledge workers. But managing knowledge workers also requires top management to make philosophical changes. By learning to see the future from the perspective of the knowledge worker, a visionary leader can successfully harness these key employees as a source of competitive advantage.

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## Knowledge Workers In Global Markets

**Global Markets Require Information Sharing.** Knowledge workers often possess the critical information needed for effective global marketing and logistics. With such information, managers could pursue successful preemptive strategies. Without it, firms would be perpetuating products, policies, and practices that are inadequate for the needs of a changing marketplace.

A giant British assembler of engines and light machinery with problems in its newly opened German subsidiary found that its traditional approach to serving customers did not cater well to the highly sophisticated buyers it was now encountering. The British parent had not considered customer differences when it transferred technical knowledge and work practices to its German subsidiary. When these differences started surfacing, they were ignored—both by the British parent and local German executives—because their information systems (and subsequent reward systems) did not tell them what really mattered to customers. While the local managers earnestly tried to implement directives handed down from headquarters, the British parent blamed the local German marketing managers and sales force for ineffective handling of their products. The most knowledgeable sales representatives and service personnel took jobs elsewhere.

After three years of poor performance, the British parent finally realized that fundamental product changes were indeed needed to sell its products in Germany and that allowing these changes to occur would also initiate other improvements on the shop floor. Two years after headquarters let local managers upgrade and broaden their product line, change its positioning, and modify their distribution and sales incentive system to accommodate differences in the German marketplace, the firm was finally able to penetrate the German market and recover their investment. However, the firm was less successful in recruiting back the knowledge workers who jumped ship.

### Shared Information Should Transcend Narrow Boundaries.

Even when managers adopt programs to share information, they often limit them to specific product, market, or technological topics instead of recognizing the need to disseminate strategic information. Frequently, managers cannot anticipate critical events because their firm's method of organizing information flows isolates the knowledge workers who should be sharing experiences and insights. Instead of facilitating the creation of knowledge pools, some firms' management systems drive knowledge workers into ivory towers of specialization.

**The Learning Process Is as Important as the Knowledge Shared.** The process by which knowledge workers solve problems and make decisions that contribute to their companies' success is critical in developing logistical excellence. It is more than just sharing hard facts. To be effective, it must encompass the sharing of their ideas and experiences throughout the diverse parts of an international firm. If firms can induce their knowledge workers to share information effectively, they gain strategic flexibility. This, in turn, allows them to implement strategies faster and gives them the organizational tools for bringing the right products to market sooner.

In highly competitive industries where the product life cycles grow ever shorter and few technologies remain proprietary for long, almost everything that makes a product successfully distinctive can be easily copied. Some firms discover too late that the only way to distinguish themselves from the pack is through improving service or response time. However, the logistical skills needed to excel in those areas necessitates knowledge workers sharing information on a wide range of subjects.

> The six global subsidiaries of *a Fortune* 100-sized metal fabrication firm shared information about new products and process technologies adequately but they did not share information about customers well enough. This was unfortunate because substitute products were eroding the firm's market position, even though the firm was a technological leader in its field. Analysis showed that this industry trend had been readily apparent in some countries for at least eight to ten years, and that some regional subsidiaries had modified products in their respective countries to serve newer applications. Unfortunately, these forward-looking divisions had failed to communicate to the others that this trend was occurring and how they were responding to it.

**Problem: Global Customers Have Individual Needs.** There are still enough important differences among customers throughout the world to merit recognizing their distinct needs. Having the flexibility to serve local needs is often more important than the ability to deliver large volumes of homogeneous products for global distribution. Firms can nurture this flexibility by recognizing that their knowledge workers already know or know how to learn the differences in customer sophistication, availability of infrastructure, and other critical factors. The largest markets are still composed of customers who do not fit any global profiles.

**Problem: Simple Idea Transplants Aren't Sufficient.** Marketing specialists are once again earning their paychecks by advising firms how customers differ in each marketplace. But ideas may not cross borders well. Recognizing the worldwide fragmentation of markets is a problem for firms that are only willing to serve the needs of familiar customers. Their management systems do not permit knowledge workers to adapt to local differences in operations.

**Problem: Global Value Chains Can Suffer from Centralization.** Top management often copes with the complexity of international operations by dividing their firms into strategic business units (SBUs). While they hope to simplify intra-firm relationships, they frequently complicate them instead. It is often impossible to segment a company into SBUs that will be equally appropriate in terms of products, markets, and technologies. The danger is that SBUs placed inside the same division exchange information more readily than SBUs in different divisions.

**Problem: Divisions Don't Share Similar Strategic Intents.** Differences in the strategic focus of different subsidiaries cause problems for effective information sharing. A division that focuses on being a low-cost producer may not have any interest in sharing information with a sister unit that focuses on product innovation or one that operates in a more dynamic geographic environment. Regional differences may also be asymmetrical. For example, North American and European subsidiaries may position themselves at the high end with a broad line of customized products and excellent service, while South American subsidiaries must play a missionary role to build up generic demand for their products. When sister divisions have different orientations, it is difficult for them to learn from each other's experiences—even if they once faced similar problems.

Misunderstandings can be as simple as cost differences arising from resources being readily available to some subsidiaries but very scarce elsewhere. For example, in countries where manpower costs are low—even for high-level managers—the perceived cost of flying managers around the globe for face-to-face meetings is much higher than in countries where manpower costs are higher. Lower wage divisions may be reluctant to spend their scarce resources to participate in such meetings even though they have much to share if they attended.

When different divisions are organized as profit centers, their mutual inclination is to compete for corporate resources. Divisions often have little incentive to coordinate, especially if it is unclear who will reap the benefits. These concerns are well founded if their firm has no explicit reward system for information exchange and coordinated action. This is particularly true at the lower corporate levels, where day-to-day information sharing is the most effective.

**Problem: Often Strategic Alliances Don't Facilitate Knowledge Sharing.** Joint ventures and other forms of strategic alliance suffer from special informa-

> *"Knowledge workers understand critical success factors better than managers they report to."*

tion-sharing problems. Just as the transfer of knowledge is usually from headquarters to subsidiary as firms expand internationally, it begins from parent to child in strategic alliances. Later—when one might expect two-way information flows to develop—strategic alliances are in danger of becoming derailed, especially where there is no clear understanding of the roles and capabilities of the participating firms.

The international divisions of a major U.S. factory automation firm had shared information very well in Asia. But then it hit problems with cross-divisional communications involving three divisions that were not wholly owned subsidiaries of the firm. (All three were joint ventures with local companies that had been in existence for quite a while.) There was little interaction because headquarters had failed to establish links between the respective employee groups when they formed the alliance. Without this foundation for sharing information and coordinating activities, no communications were occurring in activities that needed substantial coordination to meet developmental deadlines.

To improve the situation, key executives were rotated from each of the ventures to the divisions to give them a broader corporate perspective and to allow them to build personal working relationships. Divisional knowledge workers were sent to the ventures. Within three years, international project activity had become more effective, the problem of not meeting deadlines was almost eliminated, and more accurate information was being provided on customer requirements and competitor activities.

## How To Improve the Management of Knowledge Workers

**Problem: Knowledge Workers Don't Feel Part of Corporate Family.** Old ideas about managing human resources were fine when capital assets provided greater sources of competitive advantage than human assets. But now that knowledge workers have risen in importance in many international firms, the old wisdom about organizational design has been turned on its head.

Knowledge workers often have a better understanding of critical success factors than the managers they report to. However, because they believe that bureaucracies slow them down, they often try to take organizational shortcuts to get their jobs done. Chafing under centralized coordination, they prefer to be organized like hospital physicians or college faculties. Because knowledge workers crave access to specialized knowledge and peer recognition, all too frequently they focus only on their own jobs—not their firm's global situation. Still, they cannot be forced to share the knowledge stored in their heads; sharing must be voluntary.

Appeals to corporate teamwork rarely inspire knowledge workers because they feel they are an elite. They often overtly resent authority and reject hierarchical organization designs. This attitude makes it difficult for managers to share decision-making power with these upstarts without losing face.

But this may be a self-limiting problem. The difference between manager and non-manager is fast deteriorating as technology makes hierarchical notions of work groups hopelessly obsolete. Increasingly, there must be direct contact between the sources of information and the users in order to speed decision making and increase responsiveness to customer needs.

One of the most common responses to managing knowledge workers has been to rotate them around the organization so they will build a wide network of working relationships. This also gives them the chance to meet the key people who are repositories of desired information. And, yet, the true solution to the problem of knowledge sharing often means restructuring an entire organization.

The local managers of a European telecommunications firm operating in Korea had developed an intelligent data-collection system that was more sophisticated than the one used by headquarters. Because the Korean managers felt the head office wouldn't be interested in this development, they didn't share information about it. On the other hand, because headquarters didn't actively solicit information from its Korean subsidiary, it was not aware of the development and its significance.

When the corporate vice president for new product development saw this technology during one of her visits to Korea, she was understandably surprised to learn that information about this development had not been made available to the international marketing group at the head office. She saw to it that overseas assignments were given to key knowledge workers from this subsidiary—not only to share this specific information but also to send signals to the entire organization regarding the importance of knowledge sharing. Thereafter, engineering personnel in regional offices were rewarded for soliciting information from each other in an effort to encourage the cross-fertilization of ideas. Special efforts were made to overcome the barriers that prevented the divisions from sharing information throughout the firm.

**Problem: To Be Motivated, Knowledge Workers Need Special Rewards.** Traditional monetary appeals do not always motivate knowledge workers. Some are willing to sacrifice, or at least defer, monetary rewards in order to satisfy their personal needs. This is why fast-track personnel in some countries choose government jobs over higher paying corporate jobs, while others leave to open their own businesses.

Because knowledge workers are motivated by professional recognition, they want to work with the right teams—ones that will enhance their résumés. Sales and service personnel, for example, want to represent the products of only the best firms. Knowledge workers are also motivated by opportunities to learn and increase their own specialized knowledge. Two good examples: Cray Research's links to Seymour Cray's expertise and their state-of-the-art research labs attract top computer scientists. And Warren Buffet's expertise attracts fast-track financial managers to Berkshire Hathaway like moths to a flame.

Because knowledge workers want to be part of the action and enjoy creating value, they are likely to split their loyalty between their profession and peers on one hand, and their employing organization on the other. They stay committed to particular firms as long as those firms provide them with the needed resources for working on interesting projects. If this isn't forthcoming, knowledge workers will swiftly trade up to bigger sandboxes.

## Redesigning Global Organizations to Gain Competitive Advantage from Knowledge Workers

How can international firms integrate knowledge workers into their international strategy? What cultural and management system changes are needed to attain an appropriate balance between the laissez-faire environment that knowledge workers crave and the centrally coordinated system necessary to achieve operating synergies? The solution could be to align knowledge workers' needs with corporate strategy needs. This would require developing a different view of international operations and the systems that coordinate them.

**One Solution: Partial Integration of Vendors.** Some international firms obtain the benefits of vertical and horizontal integration through very close relationships with suppliers, distributors, and competitors (quasi-integration). By using this kind of strategic alliance, firms can draw from the expertise of a broader base of people without necessarily employing them.

Unfortunately, the closely coupled work among vendors and customers on technical and marketing matters that is key to fast responses to competitive challenges only works if firms realize that each division working for the corporate good is also pursuing its own competitive marketing strategies. Unless the mission of a particular business unit is explicitly geared to support the other profit-generating businesses in the family, it must be assumed that sister business units will share resources with or help each other only when it is convenient, or profitable, to do so. The trick is getting knowledge workers to want to share information with their counterparts.

Problems seem to arise when sister organizations are direct competitors, have a vendor-distributor relationship, or are generally contemptuous of each other's capabilities and performance. Sometimes their better knowledge of each other's activities and resources makes managers more critical of in-house suppliers and distributors than they are of outsiders. Where knowledge workers are involved, managers must sell their ideas by appealing to logic and intellect to elicit the commitment and cooperation they seek.

The managers of the world's largest Japanese electrical firm had attained U.S. dominance in electronic products and refused to allow its American sales representatives to call or write up orders from what appeared to be (from their Tokyo vantage point) fledgling firms. Tokyo-based plants would ship products only to well-established U.S. firms such as IBM, AT&T, or General Electric. After U.S. managers tried valiantly (but unsuccessfully) to persuade their parent firm to broaden their list of acceptable customers, their sales force's access to those innovative "fledgling" clients was cut off. The smaller firms refused to discuss ideas with the electronic firm's personnel. Without a continuing stream of information about cutting-edge innovations to inform the firm's investment strategies, the Japanese firm was relegated to the position of manufacturing low-margin products. Even that temporary advantage, which was based on lowest cost production technologies, was soon challenged by firms with even lower operating costs.

## New Ideas About the Role of Knowledge Workers

To be effective, knowledge workers need to bond with their employing firms. In the United States, a major Japanese auto maker recruited people who had never before worked in an automobile assembly plant and sent many of them to Japan for training. This information exchange process worked well because expectations and work habits were shaped among the assemblers from the beginning. But when marketing, engineering, and other knowledge workers were hired away from other auto makers, they were not similarly indoctrinated. They dragged their heels on accepting their new employer's problem-solving methodologies, and soon, the transfer of ideas from Japan to the United States became very difficult.

The tasks of the knowledge workers in this example were erroneously viewed differently than that of hourly employees. In spite of the advanced training and critical experiences of the knowledge workers, they also needed the experience of being key parts of a new team. Knowledge workers must be recognized as the linchpins that hold operating units together and make timely logistics possible.

In companies with international operations, the roles and responsibilities of knowledge workers have become broader and more interrelated. Yesterday, knowledge workers may have been working for the plastics division in the Middle East. Today, they may be in the aerospace division in Japan. Tomorrow, they may be loaned out to value-added resellers to develop self-monitoring hospital beds. Everywhere they go, cross-fertilization of knowledge should be occurring. To attain this level of performance, firms must give knowledge workers the freedom to break away from the pack and push exciting ideas through to completion. While they are limited to operating on a project-by-project basis, formal reporting relationships become hazy at best. To elicit their cooperation, knowledge workers must become members of a cadre of innovators.

A very special relationship existed between Honda's body fabrication division and its composite materials division. The two divisions worked very closely to bond composites to steel in making automobile frames. However, this kind of close working relationship did not develop between the same body fabrication division and a structural design division because of elitist attitudes among the design engineers. They didn't feel that turning the body fabrication division's suggestions into workable prototypes was worthy of their attention. The difference lay in how knowledge workers thought of their work.

Having special knowledge gives workers the potential to create change, but a corporation must encourage their leadership skills. Knowledge workers must not believe that their responsibility to transfer technology ends once they pass on information to their sister units. To be effective, the receiving end of the transfer must be taught to assimilate and use the knowledge provided. Instead of allowing divisions to hoard power by withholding information, knowledge workers must learn to see their jobs as part of a corporate-wide communications process.

A European electrical engine manufacturer created vertical relationships between divisions to share information about the future of costs, technologies, and market. But the strategy was undermined because divisions tried to operate as autarchies—self-sufficient units. They took the information provided by sister divisions for granted or ignored it because they wanted no transactions with other parts of their firm. Although the divisions had been created to monitor and improve upon outside vendors' designs, costs, and quality, they did not realize that performing these tasks for sister business units was an important part of their mission. The engine manufacturer did not realize the strategic potential of the vertical relationships it fostered until they were made an explicit part of each job description.

In another case, BBC ASEA found that employees in the Airbus division did not exchange information with other divisions. Management began making special efforts to communicate to its employees the role of that division in the firm's overall strategy. They next designed a program to make certain that entering engineers built relationships with members of the design staff in other divisions. Within two years, the Airbus division saw remarkable improvement in the information-exchange process, evidenced by greater and faster standardization, an increased number of cross-developed technologies, and a lower bill for materials for newer products.

## New Management Systems for Knowledge Workers

To persuade knowledge workers to see their jobs differently, managers must be creative about designing incentives. These should take into consideration the unique motivations of these employees, their decision-making processes and career paths, and the role of knowledge workers in pursuing international strategies. Only team players should be fully rewarded with opportunities for international travel, peer recognition, and opportunities to work with cutting-edge innovators.

Effective information sharing requires the forging of internal company alliances that will appeal to the unique attitudes of knowledge workers. For example, establishing formal devices that determine whether managers communicate through a product-division structure, matrix organization, or country-by-country functional bases. Also, less formal devices could also be used, such as teams of temporary management organizations (TMOs), sharing rallies, and skillful use of symbolism. All of these techniques have proved useful at encouraging knowledge workers to enhance international operations.

**Decision-Making Processes.** Knowledge workers favor evolutionary, consensual decision-making processes in which they consult other professionals whose opinions they value. When they are supervised by managers who lack their own technical training, progress must be assessed primarily through the knowledge workers' own judgments.

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**Leadership Style.** Knowledge workers need visionary leadership, not rules and cumbersome management systems. They need guidance from leaders they respect—people who grasp corporate strategy needs and can lobby effectively for resources that will enable knowledge workers to achieve their goals. Because their organizational acumen tends to be limited, knowledge workers also need protection and advice from their team leaders. Each leadership need could be satisfied by a different type of manager:

- An integrating genius could inspire the visionary leadership.
- Skillful "handlers" could become the negotiators who balance the needs of knowledge workers for operating autonomy with the organization's international strategy needs.

**Career Paths.** Because effective international strategies must have a feel for the "hot news" from different parts of the firm, a network of information-sharing relationships—formal and informal, internal and external—must be developed and maintained. This means moving knowledge workers around and rewarding them for applying the ideas they developed by observing practices inside sister business units around the world.

It also means showing knowledge workers how other firms—suppliers, customers, venture partners, or even competitors—do things. Aircraft engine manufacturers, Pratt and Whitney often lend some of their engineers to customers while continuing to pay their salaries. Daewoo both trains its suppliers' personnel and donates key Daewoo employees to them. Semiconductor manufacturers build their gossamer information-gathering networks through alliances in which their engineers work with counterparts employed by competitors to develop and commercialize key technologies.

A petrochemical firm found that the effectiveness of its information-sharing process varied considerably among its different divisions worldwide. When a well-known consulting firm investigated the causes, it found that key engineers and other knowledge workers had informally played a significant role in shaping the information-sharing process as they accompanied key division managers through assignment rotations. As these managers were rotated, they carried their unique mind-sets with them. And when division managers moved from one division to another, communication patterns in the new divisions they entered had to adapt to their ways of doing things.

To improve the interdivisional communications process, as well as the mind-sets of divisions with histories of communication breakdowns, the petrochemical firm created an internal program of team rotations whenever they found appropriate knowledge workers who could produce this desirable result. Thereafter, division managers were not the only successful employees rewarded with overseas assignments—critically skilled employees also traveled.

**Rewards.** Rewards for knowledge workers need to reflect their desires for recognition and personal skills development; access to world-class superstars, or even membership on their respective teams; and a sense of ownership. When knowledge workers feel the broader sense of responsibility that ownership provides, they become more loyal to their employers. They are eager to run that extra mile to deliver the goods.

**Role in International Strategy.** To foster the knowledge sharing that is so important in information-intensive businesses, expectations of reciprocity must be created. Knowledge workers who do not cooperate by sharing germane information are then cut off from the insider's pipeline. They lose their membership in the international meritocracy. Because many of the challenges that knowledge workers want to tackle are too big and costly to undertake alone, they must be shown that playing their appropriate role in international operations is the price of access to the equipment, supplies, and colleagues they value.

## A Global Network of Knowledge Workers

The vision of a network of knowledge workers seems attractive for international firms because of the significant advantages that would result from sharing information across structural and geographic barriers. Problems arise, however, when middle managers are reluctant to give up power to the joint decision making outcomes implicit in such information-sharing arrangements. Ways must be found to prevent managers from losing face when they are implicitly demoted. This is especially true if they have always used access to information to indicate status. It is difficult to give up this perk and adjusting to the new reality that knowledge workers control an ever larger portion of the critical information.

Our research has suggested several ways of developing logistical excellence by asking the knowledge workers themselves to develop innovative methods of organizational information sharing. These include both formal and informal mechanisms for attaining strategic flexibility as managers reposition their firms in a market, deliver products appropriate to their customers' evolving needs, and change their firms' game plans in arenas where technological change accelerates the pace of operational innovations. Recognizing these changes—and their implications for implementation of international strategies—is necessary to empower the people who can provide firms with a sustainable competitive advantage in a world where few other sources of advantage remain.