GATEKEEPERS IN THE INDUSTRIAL SETTING

Irene S. Farkas-Conn

Arthur L. Conn & Associates, Ltd.

Chicago, Illinois, U.S.A.

I very much appreciate the kind invitation of Fujiwara-sensei to come to Hiratsuka to meet with you. I am also glad to have the opportunity to see the fulfillment of a vision. I heard about the plans for the Research Institute for Information and Knowledge. I was here when the intellectual work had already begun. Now I can see the physical reality. The work of the Institute, its creative spirit, will make a special contribution to the world community.

I would like to talk to you briefly about an international organization that arose from a vision nearly 100 years ago, in 1895. It is the International Federation for Information and Documentation, FID, in which Prof. Fujiwara has great interest. The concern of FID is the entire breadth of information science, from the fundamental aspects to information use, marketing, management, and policies. As some of you must know, Prof. Fujiwara has contributed much to FID over the years as vice president. He is an honorary fellow of FID and still continues his interest in it. Prof. Yuzuru Fujiwara is now a member of the Council of FID.

About the time the new constitution was promulgated in Japan, two Belgian lawyers, Paul Otlet and Henri La Fontaine were preparing a bibliography of sociology. Their work led

them to the idea of finding ways to make it possible for people to have access to all the the knowledge in the world. The Dewey Decimal Classification (DDC) had just been developed and they recognized that the DDC could be the tool to retrieve by subject all papers and documents, not only books. They modified this code to reveal the full subject content of the documents. Thus this Universal Decimal Classification (UDC) became a tool for finding documents by subject instead of a guide for placing and finding books on library shelves.

La Fontaine and Otlet expanded their vision beyond documentation and, what we would today call information retrieval. At the time when nationalism became ever stronger in Europe, they opened national boundaries on the intellectual terrain--a fact little known among information workers. They established the Union of International Organizations to bring about a supra-national network of people, the intellectual elite of the time. Their work earned the Nobel peace prize in 1913.

FID changed its name several times since it was founded as the International Institute of Bibliography, but its structure is the same. FID consists of national members-- usually institutions or national committees--and carries out its work through its committees. The national member in the U.S. is the National Committee of FID, which is under the auspices of the U.S. Department of State. FID reaches out beyond the core groups to involve others through its special interest groups (SIGs). Prof. Fujiwara started one of the

first SIGs, on Safety and Risk Management, (SIG/SCRM). This summer the SIG will hold a symposium as part of the International Conference on Analytical Science, sponsored by Japan Society for Analytical Chemistry.

The information for industry committee, FID/II, actively promotes on an international basis

o   the uses of information
o   information management techniques
o   information technologies

for the benefit of business and industry.

The chairman of FID/II, Karl Kalseth, is head of information services of Norsk Hydro, the largest company of Norway. Rudolf Krebs, Daimler Benz, and I are vice chairmen of the committee. The meeting will be held in Berlin October 12-17, with the theme: "Information Management for Industrial Corporations at a Time of Change."

Other seminars have dealt with information as a strategic tool to improve industrial competitiveness, business information for industry, a strategy for development, and the integration of external and internal sources of information.

FID/II also cooperates closely with several special interest groups, such as the special interest group on training for information resource management (FID/TRIM) and others. It works with international organizations and carries out projects either jointly or in their behalf.

A Spanish translation project is in the planning stage. The objective is to select a body of works that would be useful for directors of information services. The first step

would be to identify such works, which then could be translated into other languages at a later stage. So much of the literature is written in English. Having these professional works available in several languages would be useful to those entering the field. An indirect advantage of the project would be to draw on the experiences of industrial information groups in various countries and to benefit from all of their experience. Such a project would also strengthen the ties among FID/II members and information managers in various countries.

We can look at this translation project as a gatekeeper project: people with practical experience and knowledge of the field selecting information relevant to others, and transmitting it to the community of information specialists who can use it.

GATEKEEPERS AND GATEKEEPING

I will now move to talk about gatekeepers and who they are; then continue with a look at gatekeepers at various levels of the corporate hierarchy and the importance of selecting the right frame for communication. I will talk about gatekeepers external to the organization and conclude with a look at the challenges and opportunities to make gatekeeping more effective in the competitive arena.

In our discussion today we are concentrating on gatekeepers in industry. But gatekeeping activities go on in all organizations--in universities and government offices, we

must remember. My discussion will reflect the American perspective. Yet when we look in detail at corporate activities, we willalso become aware of great similarities, as we have found out in our consulting work.

Since the times of Otlet and La Fontaine we have gradually learned more about information and how we use it. Today we know that to have intellectual access to information is not enough. The impact of information on corporate activities is recognized and only gradually have people realized how complex the information interchange spectrum is. This expansion of our understanding reminds me of the changes in astronomy. Astronomers have observed stars for generations. But modern tools have enabled them to look beyond the stars they knew so well and discover a new universe. They discovered galaxies, and, more recently, a new class of far away blue stars that are so distant that their light is bent by the closer, more visible stars.

We have expanded the ways we handle information. Our problem often is the volume and breadth of information we must absorb--a continuous information overload. We need filters to enable us to manage this. Ideally they are intelligent human filters, who understand our needs. Computing and telecommunication technologies also offer some help in coping with large quantities of information.

Automotive engineers, who had a narrow outlook in the past, have to be concerned about new areas, requiring wider information support, as pointed out by Rudolf Krebs of Daimler

Benz. In the automotive industry the traditional information
seeking has expanded to new technologies, environment. also
computer modeling, and new materials.

What is the kind of information these filters should
select. Surely, we need a clear sense that we are getting
good information. We want accurate and timely data. In most
cases--in real life--this is not possible. Therefore we want
to know at least the degree of uncertainty and reliability of
the information we are receiving.

Testing the accuracy and authenticity of the information
is often impossible. Thus we rely on people to help us in our
quest to act as filters. We would want gatekeepers to

o   use judgement and select authentic, reliable
information

o   select the information we want

o   put the information in perspective to be most useful
for our interests

o   communicate it in a way that we can best absorb it

Gatekeepers must be able to listen.

Looking at this list should make us realize that
gatekeeping is a special aspect of information transmission,
working at the interfaces of people and information, of data,
knowledge, and wisdom.

The term *gatekeeper* entered the information vocabulary
in the 1960s. Thomas J. Allen introduced it in his seminal

work of research and development laboratories. He found that some scientists or engineers acting as gatekeepers of information couls be a critical factor in how well research and development laboratories performed. These laboratory workers brought in news about the outside world to the laboratory. They gathered the news at meetings or contacts with colleagues and shared the information on their return.

Some people are natural gatekeepers. Recently I had dinner with two psychologists, each heading up his own organization. They had just returned from a convention of their professional association. The first psychologist, a natural gatekeeper, was telling about the number of interesting people with whom she had discussions at the convention and how stimulated her group became when she discussed the latest developments with them after her return. The second psychologist is intellectually much stronger than his colleague but is more withdrawn. He had evaluated the presentations at the meeting, useful new developments, theories, and data showing that some work was of little value. He had collected data, used his knowledge and may even have grown in wisdom. His own work might well be affected by what he heard at the convention. Yet, others in his group will not gain new insights from his participation in the convention and will also miss the stimulation of discussing the ideas presented there.

What characterizes gatekeepers? They know their field, know the needs of the company, can judge what information would be most useful to their people, and can communicate with them. I also found in our study that the gatekeepers I observed are respected professionally and also personally for their honesty and integrity. They can easily establish a relationship with their counterparts because in the American pioneer tradition they not only take in information they also give out information about activities in their organization, keeping in mind what they can share with others without giving out confidential matters.

Thus gatekeepers will *integrate* the material absorbed and *make judgements* about the information they received. They will *select* the information they think is significant for the people in the organization and will *communicate* it in a way that it can be readily absorbed.

In industrial research laboratories gatekeepers are extremely valuable. So useful are these gatekeepers that an American research director of Pfizer's pharmaceutical laboratory on his return from his assignment in England, said that the most useful advice he received, was to make sure that each group in the laboratory has at least one gatekeeper.

Allen considered that his findings about gatekeepers were valid only for the research and development laboratories. In the context of our work we have found that this is not the

case. Gatekeepers can be found among maintenance people and among managers. All good managers are also gatekeepers.

As you certainly must know, people across the globe believe that the every Japanese traveling abroad is a natural gatekeeper. But for those not naturally inclined to be gatekeepers can be trained to function as such. Entire groups, such as the corporate information center, or a strategic planning group can become gate-keeping organizations serving the company and making it more competitive. On the other hand, there are external gatekeepers who can also serve a company and can make it more competitive.

Trade associations and industrial research institutes can serve the member companies within the same industry, like the American Petroleum Institute (API) serves members in the oil industry; while the California based Electric Power Research Institute, EPRI, carries out work for U.S. electric utilities.

Consultants are another group of gatekeepers who transmit selectively news from the outside world and attempt to transmit it to their client companies in the form most useful for them. Sometimes these are technological, managerial, and at times, they can be multi-client studies. Governments also provides much useful information, and so does the mass media. News analysts have become the most popular gatekeepers in recent years. In case of the news media, we know that additional filtering is often necessary although additional

filtering might be necessary to be sure that the information is reliable.

For consultants or internal information services it is a challenge to decide is what information to present to a client and how to communicate it. Sometimes clients can be delighted to receive information they had not requested. For instance, a research director who asked for a patent search was pleased that the library also gave him copies of the background patents. But expanding the search does not always bring approval.

At another time the information service of a research institute was asked a highly specific question; the latest developments in oil shale by a specific company within the last two years. An over-eager on-line searcher surprised the client with a printout or citations, 5 cm thick. The client, a president of a small company, had not asked for an online search since.

THE VALUE OF FRAMING

People on different levels, with different interest have to interact with one another to determine the focus of the question. Thus gatekeepers within the company and, also external gatekeepers must understand their client's frame of mind to provide truly useful information. To be able to explain their needs the clients must also have a sense of the mental frame of the information specialist. If the divergence is too great, the results will not be satisfactory.

It is illuminating for us to look at a case history in connection with a UNIDO funded project. UNIDO had contracted for a series of reports that would be useful for ministers in developing countries to help them decide whether or not the country should embark on biotechnology projects. A European university-based information group put together information on the manufacture and market potential of various polysaccharides. Then an expert on biotechnology was asked to critique the report. He was shocked to see the report that was given to him and found it necessary to re-write it. His experience led him to entirely different conclusions about the potential of the processes. Furthermore, he thought it would be wrong to recommend any of the manufacturing processes for developing countries because of the inherent difficulties of building and operating such plants.

What was the problem? The university-based group compiled the literature but did not have sufficient knowledge of the field to prepare a document for decision makers who, in this case, did not know the field either. The compilers did not have the knowledge needed to be selective and judge the viability of the various processes. The expert had the knowledge to determine what biotechnology processes were best. Yet he also used his wisdom, gained from years of experience when he recommended that none of the processes be considered in the given situation.

This brings us to the question: How can an information services judge what a client really needs? There is a

considerable body of work that deals with the engaging the
user in a dialogue. To provide the gatekeeping function
before starting to formulate the response, the information
specialist must first consider who asked the question and in
what context. Here the image of mind-frames of the persons
is helpful, as they consider the different mind-sets of people
in scientific research, in development, in marketing, or
manufacturing.

Without personally knowing the research scientist we must
assume that his or her frame is different from the engineer
working on development. The frame of mind of the research
director is different from the people in the laboratories. and
and the frame of mind of middle managers is not the same as
that of senior management.

Scientists and their immediate superior, are concerned
about developing principles, basic proofs, and concepts. They
would be concerned about what others did in the field and
about the latest developments in technology.

The development environment, on the other hand, is much
more market oriented. The concerns of engineers carrying out
development work are more immediate. The emphasis is on
current know-how. But competition of other companies,
competing technologies, substitute products, processes, and
materials are also his concern. Environmental and health
issues must be considered to a different degree than they
would concern a scientist.

Research managers must be aware of current operations and must also look further ahead. They must consider what the trends are, and where the growth in scientific areas will be ten years hence and what major areas of science will then be of commercial interest. Developing technologies, having the people and facilities in place for the next decade is a major concern. The manager must consider where the industry will be, what forces will shape its markets, who will be the competitors, and what will be competing processes or substitute products. Senior management's window extends even further into the future to ensure that the company will play a significant role in industry two decades hence. The group developing an executive information system for ALKO Ltd. in Helsinki was surprised how much the information interest of senior management differed from those of middle management. Corporate managers must look at long term patterns and the long term market. Their concern is the viability of the company and that it should be a strong player in whatever industries exist ten to twenty years hence. They will have to look at major trends in the industry, in society, in politics, as well as economics.

Thus the information service responding to a question ought to know the frame of mind of the client. Only then can they respond properly. This principle is not restricted to communications with the information service. Whether the communication flows laterally or hierarchically, to

communicate well the participants must be able look through similar windows.

Gatekeeping cannot be unilateral. The failure of early MIS managers or so-called chief information officers (CIOs) can be attributed to not having even considered this concept. Typically the head of the computer center who had taken on this title, wanted to undertake all activities without understating the business in which the company was. I was told about one the most successful CIOs of a bank, who was given the job after an overseas assignment. It was agreed that he could take a year or more to meet with all departments of the Bank of Boston to understand their needs. He could communicate well with fellow bankers and had good personal relations with the chief executive officer of the bank (CEO).

PROBING--DIALOGUES, INTERMEDIARIES

Specialists in information services can best respond to straightforward, specific questions. But even then, some discussion with the client are needed to clarify questions. In the case of the company president who was overwhelmed by the online printout, it would have been good for the searcher to have known more about the client. Then she would have known the man had all the background information, was familiar with current shale developments. He was about to testify to the U.S. Congress and only wanted to find out whether he might have missed any published information about a certain project.

How could this have been prevented? By a dialogue between the searcher and the president of the company, or discussions with the president's assistant, an intermediary who knew the thinking of the president. Because their questions rarely have simple answers managers typically do not use information services directly. As a vice president of Borg-Warner chemical company once told me: "They don't understand my questions." Usually there is not enough discussion for the staff of the information service department to be able to set themselves into the framework of the manager. Managers, on the other hand, might not wish to take the time for such discussion is and they themselves might not understand their own need or will not be able to express their need very clearly.

Moving from the *tatemae* to the *honne* of the question is not always easy. You may have heard before how the management of a company hired a consulting group to determine what the best locations were for gasoline stations. After careful study, observation, and modeling of traffic and markets, the consultants handed in their recommendations where new gas stations should be placed. Only then was it made clear that the company wanted to eliminate gasoline stations and wanted to know which ones to close.

Very often an assistant to the manager who understands the manager's intention and knows the company concerns can serve as an interpreter of the question in a dialogue with the

information center or consultant. These assistants now become gatekeepers themselves. But only if they understand their manager's intent and can also communicate it clearly to the information providers will they fulfill their expected task. Because action follows their interpretation these assistants, no matter how well this double communication works, they have a far greater influence than their position would imply.

In some companies extensive discussions of queries works out very well. When there is not sufficient understanding because of the corporate culture or the culture of the society does not encourage such discussions, the situation becomes difficult. The Japanese words *honne* and *tatemae* do not exist in the European languages. But to penetrate beyond tatamae through the mist to get to the real concerns is not easy in Western cultures either.

Networks and Their Effects

We are just beginning to assess the changes telecommunications have brought about. Networks provide easier and more direct access to people, as well as to data. Originally computer centers had the data-manager in their midst. For some time it has become clear that the data belong to the user community. The computer center provides the electronic channels, clears the roads and builds the gates. But the gatekeepers sits out in the field, in engineering, marketing or process design.

Having data more easily accessible thrugh databases, with
the clients using a greater variety and a much larger volume
of data there is some pressure for do-it-yourself searches in
companies for charging for the service. The first means
reducing the gatekeeper role, not only speeding up searches.
But there is a loss as well because the searcher will have to
do the filtering.

EXTERNAL GATEKEEPERS

I will mention briefly the suppliers and customers, and
external industrial organizations that also support the
business of the company.

Suppliers and Customers

Too often companies do not realize that suppliers and
customers are valuable gatekeepers. Suppliers know their own
product best, and often carry out their own research. The
experience of suppliers has saved many a firm from expensive
mistakes. Feedback from these valuable contributors to the
company has too often been ignored, in the past

Companies in Japan have focused for a long time on the
customer. In America, companies like 3M traditionally have
always been listening to their customers, whose comments have
always influenced product planning and manufacturing. Other
companies are just beginning to follow suit. To bring about
significant changes in attitude, a decision must be made
within the company that the relationship with suppliers and

customers goes beyond placing orders. Their comments and criticisms are valuable and must be considered by the entire company. In U.S. companies policies would have to be set, and new procedures would have to be followed.

The comments of suppliers and customers will be more diffuse and someone in the company will have to be assigned to integrate them and direct them to the appropriate people. Typically this would not be the information center. But, the information services department could take on the role of integrating and summarizing the data, ensuring that it become accessible within the company, and distribute it to those who need it,

The setting up of networks, which would allow access to the information in aggregate and in detail, has another advantage. Electronic mail (and bulletin boards) bring together a virtual community. The informality and ease of electronic communication creates a sense of community among the participants who may be geographically dispersed and may not even have met. I will not discuss now the advantages and disadvantages here, except to mention that new contacts are established and individuals can be in touch with gatekeepers outside their circle of acquaintances. The validity of the gatekeepers and the integrity of the individuals, on the other hand, cannot be assessed through the electronic media.

Industry Trade Associations and Research Institutes

Professional societies, as well as trade association, and industrial research institutes also act as gatekeepers. They package, repackage and sell information. API's information services have expanded far beyond the traditional library, abstracting and indexing services, and over the years has added considerably to the portfolio of its offerings. Now members can access legislative decisions on line, as well as other data useful to the oil industry. By the criterion of gatekeepers, the API has become knowledgeable as to the needs to the oil industry. It gathers data and authenticates them. The director of information services, Don Gilbert, deserves much credit for recognizing that the trade association can become a super-gatekeeper. Gilbert went through great effort to establish electronic links with information managers of member companies.

The Electric Power Research Institute (EPRI) also provides data, carries out research on the use of energy, and carries out development work. Its reports are widely used, especially now that their abstracts are available on online databases. The added value of the database is that it connects the client to a person as well, who is an expert in the area of interest to him.

In an industry that typically does not have superior information services in its companies, EPRI also provides access to the cumulated experience of the utilities. EPRI collects data from the utilities, analyzes them, and then makes them public without revealing confidential information.

The institute also evaluates and develops software useful to the electric utilities. The expert system software EPRI provides allows the utilities to plug in their data and have better tools for analysis.

Setting up electronic mail and electronic bulletin boards createss a virtual community of EPRI, its customers (the utilities) and its contractors, ensuring much closer cooperation between project directors and the utilities. Project directors within EPRI and member utilities are now in closer contact, benefiting both. Thus, through electronic mail is offered by EPRI, gatekeeper activities have been modified. These experiences show that knowledge of the industry and wisdom in setting up services makes the contribution of external information providers valuable.

EXTENDED INFORMATION SERVICES ACTIVITIES

Information centers moving to become stronger partners in the life of their companies have become imaginative in reshaping their services. For instance, Norsk Hydro established consultancies within the company. The information services department people go out to clients and work with them. In a sense the information people are like outside consultants to the business units but with one big difference: being members of the same firm, they are familiar with the company, its directions, its practices, and its culture.

Information centers themselves assign special gatekeepers. The AT&T laboratories are a good example of

information services rising to become outwardly like other divisions or the company. The information center assigns managers to "major accounts" just as marketing departments assign them for major clients. These managers go to the business units and serve as effective two-way gatekeepers. They bring information and deepened understanding of the specific needs of the clients in that unit, with ideas about fitting the services to the needs of particular groups. At the same time they can make it clear to the "client unit" what the information center can do for them. In large companies this is particularly valuable because people often are unaware of the capabilities of the center. A new corporate vice president of one of the biggest American multinationals noted with surprise the capabilities of the information center, which began reporting to him. Had he but known, he said, his division dealing with the real estate holdings of the company could have used the center extensively.

To serve the company best, the interfaces between the information center and business units are best kept flexible. Inthe past information centers were hesitant to press forward and take on activities that management did not consider important. In some companies the director of the center preferred the traditional role and was not ready to take on responsibilities for, what he considered, unusual services.

Opposing views can be harmonized. The importance is to consider the benefit of the company first, rather then the

convenience of status quo or the benefit of the separate units.

CONCLUSION

Gatekeeping is a special and complex relationship of transmission of information and knowledge transfer. With he changing organizations and changing technologies it is valuable to reconsider and examine these activities carefully and decide deliberately the areas where human gatekeepers are preferable to electronic filters and how information and knowledge can best be transmitted.

To do that one will have to get at the *honne* of true information needs. The information services department cannot and should not even attempt to do it by itself. It can, however, be the organizational entity guiding this quest and helping others units and individuals within the firm.
Such improvements will lead to improved corporate practices and a stronger competitive position of the company.