"Tacit Knowledge" versus "Explicit Knowledge"

Approaches to Knowledge Management Practice

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by

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Abstract

This paper explains two fundamental approaches to knowledge management. The *tacit knowledge* approach emphasizes understanding the kinds of knowledge that individuals in an organization have, moving people to transfer knowledge within an organization, and managing key individuals as knowledge creators and carriers. By contrast, the *explicit knowledge* approach emphasizes processes for articulating knowledge held by individuals, the design of organizational approaches for creating new knowledge, and the development of systems (including information systems) to disseminate articulated knowledge within an organization. The relative advantages and disadvantages of both approaches to knowledge management are summarized. A *synthesis* of tacit and knowledge management approaches is recommended to create a *hybrid design* for the knowledge management practices in a given organization.

JEL code: Moo

Introduction

Managers concerned with implementing knowledge management in their organizations today face a number of challenges in developing sound methods for this still emerging area of management practice. Both the growing literature on knowledge management and the advice offered by various knowledge management consultants, however, seem to advocate forms of knowledge management practice that often appear incomplete, inconsistent, and even contradictory. This paper suggests that the current lack of coherence in the diverse recommendations for knowledge management practice results from the fact that the development of both theory and practice in this emerging field is being driven by two fundamentally different approaches to identifying and managing knowledge in organizations. These two approaches are characterized here as the "tacit knowledge" approach and the "explicit knowledge" approach.

This paper first clarifies how these two fundamental approaches differ in both their philosophical premises and derived recommendations for practice, and it summarizes the main strengths and weaknesses of each of the two approaches in practice. We then suggest that sound knowledge management practice requires a creative synthesis of the two approaches that enables the strengths of one approach to offset the inherent limitations of the other approach, and *vice versa.*

1. Tacit Knowledge *versus* Explicit Knowledge Approaches

Even a casual review of the many articles and consulting recommendations on knowledge management practice today soon reveals a plethora of recommended processes and techniques. Unfortunately -- especially for the many managers looking to researchers and consultants for insights to guide development of sound knowledge

management practices -- many of these recommendations seem unconnected to each other, and in the worst cases many seem to be quite at odds with each other. Close analysis of these recommendations, however, usually reveals that the many ideas for practice being advanced today can be grouped into one of two fundamentally different views of knowledge itself and of the resulting possibilities for managing knowledge in organizations. These two views are characterized here as the "tacit knowledge" approach and the "explicit knowledge" approach. Let us consider the basic premises and the possibilities for knowledge management practice implied by each of these two views (see Table 1 for a summary of the differences in the two approaches).

The Tacit Knowledge Approach

The salient characteristic of the tacit knowledge approach is the basic belief that knowledge is essentially personal in nature and is therefore difficult to extract from the heads of individuals. In effect, this approach to knowledge management assumes, often implicitly, that the knowledge in and available to an organization will largely consist of *tacit knowledge* that remains in the heads of individuals in the organization.[1]

Working from the premise that knowledge is inherently personal and will largely remain tacit, the tacit knowledge approach typically holds that the dissemination of knowledge in an organization can best be accomplished by the transfer of people as "knowledge carriers" from one part of an organization to another. Further, this view believes that learning in an organization occurs when individuals come together under circumstances that encourage them to share their ideas and (hopefully) to develop new insights together that will lead to the creation of new knowledge.

Recommendations for knowledge management practice proffered by researchers and consultants working within the tacit knowledge approach naturally tend to focus

[1] Some writers and consultants have even gone so far as to argue that *all* knowledge is tacit in nature. The irony in trying to communicate to others the "knowledge" that all knowledge is tacit, however, should be obvious.

on managing people as individual carriers of knowledge. To make wider use of the tacit knowledge of individuals, managers are urged to identify the knowledge possessed by various individuals in an organization and then to arrange the kinds of interactions between knowledgeable individuals that will help the organization perform its current tasks, transfer knowledge from one part of the organization to another, and/or create new knowledge that may be useful to the organization. Let us consider some examples of current practice in each of these activities that are typical of the tacit knowledge approach.

Most managers of organizations today do not know what specific kinds of knowledge the individuals in their organization know. This common state of affairs is reflected in the lament usually attributed to executives of Hewlett-Packard in the 1980s: "If we only knew what we know, we could conquer the world." As firms become larger, more knowledge intensive, and more globally dispersed, the need for their managers to "know what we know" is becoming acute. Thus, a common initiative within the tacit knowledge approach is usually some effort to improve understanding of who knows about what in an organization -- an effort that is sometimes described as an effort to create "know who" forms of knowledge.[2] An example of such an effort is the creation within Philips, the global electronics company, of a "yellow pages" listing experts with different kinds of knowledge within Philips' many business units. Today on the Philips intranet one can type in the key words for a specific knowledge domain -- say, for example, knowledge about the design of optical pickup units for CD/DVD players and recorders -- and the yellow pages will retrieve a listing of the people within Philips worldwide who have stated that they have such knowledge. Contact information is also provided for each person listed, so that anyone in Philips who wants to know more about that kind of knowledge can get in touch with listed individuals.

[2] *Know-how*, *know-why*, and *know-what* forms of knowledge can also be described (see Sanchez 1997).

An example of the tacit knowledge approach to transferring knowledge within a global organization is provided by Toyota. When Toyota wants to transfer knowledge of its production system to new employees in a new assembly factory, such as the factory recently opened in Valenciennes, France, Toyota typically selects a core group of two to three hundred new employees and sends them for several months training and work on the assembly line in one of Toyota's existing factories. After several months of studying the production system and working alongside experienced Toyota assembly line workers, the new workers are sent back to the new factory site. These repatriated workers are accompanied by one or two hundred long-term, highly experienced Toyota workers, who will then work alongside all the new employees in the new factory to assure that knowledge of Toyota's finely tuned production process is fully implanted in the new factory.

Toyota's use of Quality Circles also provides an example of the tacit knowledge approach to creating new knowledge. At the end of each work week, groups of Toyota production workers spend one to two hours analyzing the performance of their part of the production system to identify actual or potential problems in quality or productivity. Each group proposes "countermeasures" to correct identified problems, and discusses the results of countermeasures taken during the week to address problems identified the week before. Through personal interactions in such Quality Circle group settings, Toyota employees share their ideas for improvement, devise steps to test new ideas for improvement, and assess the results of their tests. This knowledge management practice, which is repeated weekly as an integral part of the Toyota production system, progressively identifies, eliminates, and even prevents errors. As improvements developed by Quality Circles are accumulated over many years, Toyota's production system has become one of the highest quality production processes in the world (Spear and Bowen 1999).

The Explicit Knowledge Approach

In contrast to the views held by the tacit knowledge approach, the explicit knowledge approach holds that knowledge is something that can be explained by individuals -- even though some effort and even some forms of assistance may sometimes be required to help individuals articulate what they know. As a result, the explicit knowledge approach assumes that the useful knowledge of individuals in an organization can be articulated and made explicit.

Working from the premise that important forms of knowledge can be made explicit, the explicit knowledge approach also believes that formal organizational processes can be used to help individuals articulate the knowledge they have to create *knowledge assets.* The explicit knowledge approach also believes that explicit knowledge assets can then be disseminated within an organization through documents, drawings, standard operating procedures, manuals of best practice, and the like. Information systems are usually seen as playing a central role in facilitating the dissemination of explicit knowledge assets over company intranets or between organizations via the internet.

Usually accompanying the views that knowledge can be made explicit and managed explicitly is the belief that new knowledge can be created through a structured, managed, scientific learning process. Experiments and other forms of structured learning processes can be designed to remedy important knowledge deficiencies, or market transactions or strategic partnering may be used to obtain specific forms of needed knowledge or to improve an organization's existing knowledge assets.

The recommendations for knowledge management practice usually proposed by researchers and consultants working within the explicit knowledge approach focus on initiating and sustaining organizational processes for generating, articulating,

categorizing, and systematically leveraging explicit knowledge assets. Some examples of knowledge management practice in this mode help to illustrate this approach.

In the 1990s, Motorola was the global leader in the market for pagers. To maintain this leadership position, Motorola introduced new generations of pager designs every 12-15 months. Each new pager generation was designed to offer more advanced features and options for customization than the preceding generation.[3] In addition, a new factory with higher-speed, more flexible assembly lines was designed and built to produce each new generation of pager. To sustain this high rate of product and process development, Motorola formed teams of product and factory designers to design each new generation of pager and factory. At the beginning of their project, each new team of designers received a manual of design methods and techniques from the team that had developed the previous generation of pager and factory. The new team would then have three deliverables at the end of their project: (i) an improved and more configurable next-generation pager design, (ii) the design of a more efficient and flexible assembly line for the factory that would produce the new pager, and (iii) an improved design manual that incorporated the design knowledge provided to the team in the manual it received -- plus the new and improved design methods that the team had developed to meet the product and production goals for its project. This manual would then be passed on to the next design team given the task of developing the next generation of pager and its factory. In this way, Motorola sought to make explicit and capture the knowledge developed by its engineers during each project and to systematically leverage that knowledge in launching the work of the next project team.

In addition to its tacit knowledge management practice of moving new employees around to transfer knowledge of its production system, Toyota also follows a highly

[3] Using modular product architectures to create increasingly configurable product designs, Motorola was able to increase the number of customizable product variations it could offer from a few thousand variations in the late 1980s to more than 120 million variations by the late 1990s.

disciplined explicit knowledge management practice of documenting the tasks that each team of workers and each individual worker is asked to perform on its assembly lines. These documents provide a detailed description of how each task is to be performed, how long each task should take, the sequence of steps to be followed in performing each task, and the steps to be taken by each worker in checking his or her own work (Spear and Bowen 1999). When improvements are suggested by solving problems on the assembly line as they occur or in the weekly Quality Circle meetings of Toyota's teams of assembly line workers, those suggestions are evaluated by Toyota's production engineers and then formally incorporated in revised task description documents.

In addition to developing well-defined and documented process descriptions for routine, repetitive production tasks, some organizations have also created explicit knowledge management approaches to supporting more creative tasks like developing new products. In the Chrysler unit of DaimlerChrysler Corporation, for example, several "platform teams" of 300-600 development engineers have responsibility for creating the next generation platforms[4] on which Chrysler's future automobiles will be based. Each platform team is free to actively explore and evaluate alternative design solutions for the many different technical aspects of their vehicle platform. However, each platform team is also required to place the design solution it has selected for each aspect of their vehicle platform in a "Book of Knowledge" on Chrysler's intranet. This catalog of developed design solutions is then made available to all platform teams to consult in their development processes, so that good design solutions developed by one platform team can also be located and used by other platform teams.

Other firms have taken this explicit knowledge management approach to managing knowledge in product development processes even further. For example, GE

[4] A platform includes a system of standard component types and standardized interfaces between component types that enable "plugging and playing" different component variations in the platform design to configure different product variations (see Sanchez 2004).

Fanuc Automation, one of the world's leading industrial automation firms, develops design methodologies that are applied in the design of new kinds of components for their factory automation systems. In effect, instead of leaving it up to each engineer in the firm to devise a design solution for each new component needed, GE Fanuc's engineers work together to create detailed design methodologies for each type of component the firm uses. These design methodologies are then encoded in software and computerized so that the design of new component variations can be automated. Desired performance parameters for each new component variation are entered into the automated design program, and GE Fanuc's computer system automatically generates a design solution for the component. In this way, GE Fanuc tries to make explicit and capture the design knowledge of its engineers and then to systematically re-use that knowledge by automating most new component design tasks.

Advantages and Disadvantages of Tacit *versus* Explicit Knowledge Approaches

Like most alternative approaches to managing, each of the two knowledge management approaches we have discussed has both advantages and disadvantages. We now briefly summarize the main advantages and disadvantages of the two approaches (these are also summarized in Table 2).

Advantages and Disadvantages of the Tacit Knowledge Approach

One of the main advantages of the tacit knowledge approach is that it is a relatively easy and inexpensive way to begin managing knowledge. The essential first step is a relatively simple one -- identify what each individual in the organization believes is the specific kinds of knowledge he or she possesses. Managers can then use this knowledge to assign individuals to key tasks or to compose teams with appropriate sets of knowledge to carry out a project, to improve performance in current processes, or to try to create new knowledge in the organization. As Philips did with its intranet-based "yellow pages," managers may also elect to create an open database listing the knowledge claimed by individuals in the organization to facilitate knowledge sharing between individuals.

A tacit knowledge approach may also lead to improvements in employee satisfaction and motivation when an organization "officially" recognizes and makes visible in the organization the kinds of knowledge that individual workers claim to have. In addition, the tacit knowledge approach is likely to avoid some of the practical and motivational difficulties that may be encountered in trying to secure the cooperation of individuals in making their knowledge explicit (discussed under the explicit knowledge approach below).

A further advantage often claimed for tacit knowledge management approaches derives from the view that making knowledge explicit increases the risk that knowledge will be "leaked" from an organization, so that leaving knowledge in tacit form also helps to protect a firm's proprietary knowledge from diffusing to competing organizations. (The potential disadvantages of leaving knowledge in tacit form are summarized below.)

Although relatively easy to begin, the tacit knowledge approach also has some important long-term limitations and disadvantages. One disadvantage in the tacit knowledge approach is that individuals in an organization may claim to have knowledge that they do not actually have or may claim to be more knowledgeable than they really are (Stein and Ridderstråle 2001). The knowledge that various individuals have is likely to evolve over time and may require frequent updating to correctly communicate the type of knowledge each individual in the organization claims to have now. In addition, if knowledge only remains tacit in the heads of individuals in an organization, then the *only* way to move knowledge within the organization is to move people. Moving people is often costly and time-consuming and may be resisted by individuals who fear disruptions of their careers or family life. Even when knowledgeable individuals are willing to be moved, an individual can only be in one place at a time and can only work so many hours per day and days per week, thereby limiting the reach and the speed of the organization in transferring an individual's knowledge. Moreover, sometimes transferred individuals may not be accepted by other groups in the organization or may otherwise fail to establish good rapport with other individuals, and the desired knowledge transfer may not take place or may occur only partially.

Most seriously, leaving knowledge tacit in the heads of key individuals creates a risk that the organization may lose that knowledge if any of those individuals becomes

incapacitated , leaves the organization, or -- in the worst case -- is recruited by competitors.[5]

Advantages and Disadvantages of the Explicit Knowledge Approach

In general, the advantages and disadvantages of the explicit knowledge approach constitute an inverted "mirror image" of the advantages and disadvantages of the tacit knowledge approach. Whereas the tacit knowledge approach is relatively easy to start and use, but has important limitations in the benefits it can bring, the explicit knowledge approach is much more challenging to start, but offers greater potential benefits in the long term. Let us first consider the long-term advantages of the explicit knowledge management approach, and then the challenges that have to be overcome to start and sustain this approach in an organization.

Perhaps the main advantage of the explicit knowledge approach is that once an individual articulates his or her knowledge in a document, drawing, process description, or other form of explicit knowledge asset, it should be possible through use of information systems to quickly disseminate that knowledge throughout an organization or indeed anywhere in the world. In effect, converting tacit knowledge into explicit knowledge creates an asset that is available 24/7 and is free from the limitations of time and space that constrain the dissemination of tacit knowledge by moving individuals.

Moreover, knowledge that has been made explicit within an organization can often be more carefully codified and more effectively leveraged than tacit knowledge assets. To codify some forms of knowledge is to categorize and order the knowledge so that important interrelationships between different kinds of knowledge within the firm can

[5] Of course, under patent, copyright, or trade secrecy laws, an organization may have *intellectual property rights* in the tacit knowledge developed by individuals in the organization, and these rights may discourage -- though not entirely prevent -- individuals from sharing such knowledge with other organizations.

be identified. For example, forms of knowledge that are related by sharing a similar theoretical or practical knowledge base can be identified, as can forms of (complementary) knowledge that are interrelated by being used together in an organization's processes. Once the various forms of explicit knowledge in an organization are codified in this way, knowledge created in one part of an organization can be proactively leveraged through information systems to people and groups elsewhere in the organization that can benefit from having that knowledge.

Moreover, by disseminating some instance of explicit knowledge to other individuals who have expertise in that knowledge domain, the explicit knowledge can be discussed, debated, tested further, and improved, thereby stimulating important "incremental" forms of organizational learning processes. Such processes also help to identify which individuals in the organization are actually capable of making significant contributions to the organization's knowledge base, and which are not.

An important further advantage of systematically articulating and codifying an organization's knowledge is that this process makes an organization's current knowledge base more visible and analyzable, and this helps an organization to discover deficiencies in its knowledge assets. In effect, by making an organization's current knowledge base more visible, so that the organization can begin to see more clearly what knowledge it does have, it should be possible for an organization to begin to see more clearly what knowledge it does not have. Focused, structured, managed learning processes to remedy important knowledge deficiencies can then be launched and may lead to more "radical" forms of organizational learning.

Once an organization establishes processes for articulating, codifying, and leveraging explicit knowledge assets, the systematic dissemination of explicit knowledge within the organization should minimize the risk that it will lose vital knowledge if key individuals become unavailable or leave the organization.

To obtain the potentially significant benefits of an explicit knowledge management approach, however, a number of organizational challenges must be overcome. These challenges arise primarily in assuring adequate articulation, evaluation, application, and protection of knowledge assets.

Individuals may not have sufficient skill or motivation to *articulate* their useful knowledge. Individuals vary greatly in the precision with which they can state their ideas, and some individuals -- perhaps many -- may need organizational support to adequately articulate their knowledge into useful knowledge assets.[6] Providing organizational support to individuals to articulate their knowledge may have a significant financial cost and inevitably takes time.

An even more fundamental challenge arises when an individual is capable of articulating his or her knowledge, but resists requests by the organization to do so. At the heart of such resistance is usually a belief that an individual's job security or position of influence in an organization depends on the tacit knowledge that he or she has and that the organization needs. Such beliefs result in fear that full revelation of an individual's important knowledge would be followed by dismissal or loss of influence in an organization, because -- presumably -- the individual would no longer be as necessary or important to the organization. Overcoming such fears is likely to require a profound rethinking of the employment relationship in many organizations, especially with regard to key knowledge workers. New employment norms may have to be defined and institutionalized that both seek and reward ongoing learning by individuals and their continuing contributions of explicit knowledge to the organization.[7]

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[6] Of course, the more knowledge-intensive an organization's work is, and the more an organization is populated by "knowledge workers" with advanced education and training in formally communicating their ideas, the less difficult the articulation of explicit knowledge within the organization should be.

[7] Further, not all knowledge of individuals will necessarily be worth more to the organization than it may cost the organization to help or to reward individuals who try to articulate their knowledge. Essentially, managers must try to understand when the marginal cost of articulating knowledge is becoming greater than the marginal benefit of

Organizations must also meet the challenge of adequately *evaluating* knowledge that has been made explicit by individuals. Individuals with different backgrounds, education, and organizational roles may have varying sets of knowledge, with resulting differences in their deeply held ideas about the most effective way to get something done. Such differences will be revealed in the process of making their ideas and knowledge explicit, and managers implementing explicit knowledge approaches must establish a process for evaluating the individual knowledge that has been made explicit and for resolving conflicting knowledge beliefs of individuals. Organizations with experience in managing this process have found that the people involved in such evaluation processes must be respected within the organization for their expertise, objectivity, and impartiality. In most organizations, the time of such people is usually both very valuable and in short supply, and involving such people in evaluating explicit knowledge in many forms may impose a significant cost on the organization (although the resulting benefits may far outweigh the costs).

Since knowledge is useful to an organization only when it is *applied* in action, a further challenge in implementing explicit knowledge management approaches is assuring that knowledge articulated in one part of the organization is not rejected or ignored by other parts of the organization simply because they prefer to stay close to their own familiar knowledge base -- i.e., because of an intra-organizational "not invented here" syndrome. One approach to managing this concern is the implementation of organizational "best knowledge" and "best practice" practices.

In this practice, the committee of experts responsible for a knowledge evaluation process (discussed above) examines both the theoretical knowledge and practical applications of knowledge articulated within the organization, and defines the "best

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extracting the next bit of knowledge from an individual. Since no one currently knows exactly how to make such a cost-benefit analysis at the margin, as a practical matter organizations that implement the explicit knowledge approach do not strictly try to optimize this process and tend to prefer to "err" on the side of articulating more -- rather than less -- knowledge.

knowledge" and "best practice" in applying that knowledge currently available within the organization. The various groups within the organization to whom this knowledge or practice applies are then required either to adopt and use the currently defined "best knowledge" and "best practice," or to demonstrate convincingly to the committee of experts that they have developed better knowledge or better practice in applying knowledge. If a group persuades the expert committee that their knowledge or practice is better than the currently defined "best knowledge" or "best practice" in the organization, the expert committee then modifies the current "best knowledge" or "best practice" for the organization in light of the new knowledge they have received from the group. Implementing such a process for assuring that an organization's best knowledge and practice are actually used requires a high degree of organizational discipline in adhering to the organization's current best knowledge and best practice, and such discipline will normally require building a high degree of organizational trust that the process of the expert committee for deciding best knowledge and best practice is objective, impartial, and transparent.

Finally, an organization that creates explicit knowledge assets must take care that those assets remain within the boundaries of the organization and do not "leak" to other organizations, especially competitors. Security measures of the type most organizations now routinely use to protect their databases must be extended to provide security for the organization's explicit knowledge base.

Conclusions

As described above, the tacit and explicit knowledge management approaches involve quite different emphases and practices, and one might naturally be led to ask, "Which approach is right?" As with most alternative approaches to management issues, however, the answer is "Both are right -- but in the right combination." As the discussion in this chapter has suggested, there are important advantages to be obtained through both the tacit and explicit knowledge management approaches, and in many respects, the advantages of each approach can be used to help offset the disadvantages of the other. In any organization, therefore, the goal is to create a *hybrid design* for its knowledge management practice that synthesizes the "right" combination and balance of the tacit and explicit knowledge management approaches.

What the "right" combination and balance may consist of will vary with a number of factors -- the technology the organization uses or could use, the market conditions it faces, the "knowledge intensity" of its strategies and operations, the current attitudes of its key knowledge workers toward the organization, the degree of geographical dispersion of its knowledge workers, the resources available to the organization to invest in developing infrastructure and processes for its knowledge management practice, and so on. However, some basic guidelines may be suggested.

Organizations that have not implemented systematic knowledge management approaches should in most cases begin with tacit knowledge management practices of the type discussed in this chapter. Such practices are relatively inexpensive, fast to implement, and less challenging organizationally than full-blown explicit knowledge management practices, and they often create surprising organizational interest in and energy for developing more extensive knowledge management practices. In any event, implementation of tacit knowledge management practices should be seen and communicated within the organization as only the first step in an evolving management

process that will eventually include more formal and systematic explicit knowledge management practices. Achieving some initial organizational successes through use of tacit knowledge practices also helps to build confidence that the much greater organizational demands involved in implementing explicit knowledge management practices will be worth the effort.

We have discussed here a number of reasons why in the long run organizations that manage to implement effective explicit knowledge approaches not only will be more effective at leveraging their knowledge, but will also become better learning organizations. When the respective advantages of tacit and explicit knowledge management practices can be combined, an organization should be able to develop and apply new knowledge faster and more extensively than organizations that do not try to manage knowledge or that use only tacit or only explicit knowledge management practices. Thus, the eventual goal for most organizations will be to devise and implement hybrid knowledge management practices in which explicit knowledge management practices complement and significantly extend their initial tacit knowledge practices.

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Table 1

Basic Beliefs in Tacit *versus* Explicit Knowledge Management Approaches

Tacit Knowledge Approach	Explicit Knowledge Approach
Knowledge is personal in nature and very difficult to extract from people.	*Knowledge can be articulated and codified* to create explicit knowledge assets.
Knowledge must be transferred by *moving people* within or between organizations.	Knowledge can be *disseminated (using information technologies)* in the form of documents, drawings, best practices, etc.
Learning must be encouraged by *bringing the right people together* under the right circumstances.	Learning can be designed to remedy knowledge deficiencies through *structured, managed, scientific processes.*

Table 2

Advantages and Disadvantages of Tacit *versus* Explicit Knowledge Management Approaches

Tacit Knowledge Approach	Explicit Knowledge Approach
Advantages: Relatively easy and inexpensive to begin. Employees may respond well to recognition of the (claimed) knowledge. Likely to create interest in further knowledge management processes. Important knowledge kept in tacit form may be less likely to "leak" to competitors.	**Advantages:** Articulated knowledge (explicit knowledge assets) may be moved instantaneously anytime anywhere by information technologies. Codified knowledge may be proactively disseminated to people who can use specific forms of knowledge. Knowledge that has been made explicit can be discussed, debated, and improved. Making knowledge explicit makes it possible to discover knowledge deficiencies in the organization.
Disadvantages: Individuals may not have the knowledge they claim to have. Knowledge profiles of individuals need frequent updating. Ability to transfer knowledge constrained to moving people, which is costly and limits the reach and speed of knowledge dissemination within the organization. Organization may lose key knowledge if key people leave the organization.	**Disadvantages:** Considerable time and effort may be required to help people articulate their knowledge. Employment relationship with key knowledge workers may have to be redefined to motivate knowledge articulation. Expert committees must be formed to evaluate explicit knowledge assets. Application of explicit knowledge throughout organization must be assured by adoption of best practices.