We set out to present in one concise volume a discussion of the fundamental issues of knowledge management (KM) as they relate to innovative organizations. The preceding chapters present critical issues that cover important concepts and methodologies as well as providing evidence from industry, healthcare, and the community. We do not claim to cover the whole gamut of issues, indeed this would not be possible if we are to present a concise volume on the subject matter, however we have attempted to provide the reader with the most important aspects and trust that spurred by this introduction further research and reading into this vital area will occur. We are also confident that the material presented will enable all our readers to develop a greater appreciation of core aspects of KM and innovative organizations and this in turn will serve to develop a sustained extant knowledge base which will be beneficial to both practitioner and academician.

In closing, we would like to highlight one important aspect about knowledge management in general. KM is indeed a new, nascent field and as such is still developing and evolving. To facilitate such an understanding and appreciation it is useful to recall Everett M. Rogers’ theory of innovation and diffusion to first understand diffusion in organizations and then apply it to see how knowledge management could be used differently according to different organizational contexts.

When trying to define knowledge management, as we have discussed in several chapters, it seems as though everyone’s opinion is different. One of the primary reasons for this is due to the many fields where KM is utilized. In practice, knowledge management often encompasses identifying and mapping intellectual assets within an organization, generating new knowledge for competitive advantage within an organization, making vast amounts of corporate information accessible, sharing of best practices, and technology that enables all of the above.
Specifically, KM draws from a wide range of disciplines and technologies including:

- **Cognitive science.** Insights from how we learn and know will certainly improve tools and techniques for gathering and transferring knowledge.

- **Expert systems, artificial intelligence, and knowledge base management systems (KBMS).** AI and related technologies have acquired an undeserved reputation of having failed to meet their own and the marketplace's high expectations. In fact, these technologies continue to be applied widely, and the lessons practitioners have learned are directly applicable to knowledge management.

- **Computer-supported collaborative work (groupware).** In Europe, knowledge management is almost synonymous with groupware and therefore with Lotus Notes. Sharing and collaboration are clearly vital to organizational knowledge management with or without supporting technology.

- **Library and information science.** We take it for granted that card catalogs in libraries will help us find the right book when we need it. The body of research and practice in classification and knowledge organization that makes libraries work will be even more vital as we are inundated by information in business. Tools for thesaurus construction and controlled vocabularies are already helping us manage knowledge.

- **Technical writing.** Also under-appreciated as a professional activity, technical writing (often referred to by its practitioners as technical communication) forms a body of theory and practice that is directly relevant to effective representation and transfer of knowledge.

- **Document management.** Originally concerned primarily with managing the accessibility of images, document management has moved on to making content accessible and reusable at the component level.

- **Decision support systems.** Researchers working on decision support systems bring together insights from the fields of cognitive sciences, management sciences, computer sciences, operations research, and systems engineering in order to produce computerized artifacts for helping knowledge workers in their performance of cognitive tasks and to integrate such artifacts within the decision-making processes of modern organizations; i.e. various aspects of KM however, in practice the emphasis has been on quantitative analysis rather than qualitative analysis, and on tools for managers rather than everyone in the organization.

- **Semantic networks.** Semantic networks are formed from ideas and typed relationships among them (i.e., hypertext without the content), but with far more systematic structure according to meaning. Often applied in such arcane
tasks as textual analysis, semantic nets are now in use in mainstream professional applications, including medicine, to represent domain knowledge in an explicit way that can be shared.

- **Relational and object databases.** Although relational databases are currently used primarily as tools for managing “structured” data and object-oriented databases are considered more appropriate for “unstructured” content, we have only begun to apply the models on which they are founded to representing and managing knowledge resources.
- **Simulation.** This covers computer simulations, manual simulations, as well as role plays and micro arenas for testing out skills.
- **Organizational science.** The science of managing organizations increasingly deals with the need to manage knowledge often explicitly.

This is at best only a partial list. Other technologies include: object-oriented information modeling; electronic publishing technology, hypertext, and the World Wide Web; help-desk technology; full-text search and retrieval; and performance support systems.

“Knowledge management” has been a buzzword in the corporate world for several years and many are even cynical that it is essentially “old wine in new bottles.” KM efforts have met with varying degrees of success as organizations hire knowledge managers with different skills and expect them to make order out of chaos. The knowledge management movement has made obvious what librarians have known for a long time: Collecting information is a good first step, but if you do not have pertinent information, relevant data, and germane knowledge, the collected information is useless. Knowledge management is the process of identifying, capturing, disseminating, and using the knowledge created by an organization. KM involves both technology and non-technology elements.

As can be seen, KM has its roots in many different fields. This has both advantages as well as disadvantages. The advantages are that there are endless resources to draw from when trying to find one that will fit with a specific application. The disadvantage is that it may be challenging to narrow down a specific plan to work for a specific context, be it within healthcare or for a particular innovative organization.

According to one of the most well known and early social science researchers in the area of diffusion, Everett Rogers (1995), innovation is an idea perceived as new by the individual and diffusion is the process by which an innovation spreads. Rogers used well established theories in sociology, psychology, and communications to develop a concise and easily understood approach to the diffusion of innovations. Originally, Roger’s model was used by rural sociologists to study the diffusion of
agricultural technologies in social systems. It has also been successfully applied to specific information technology products.

Change agents actively work to promote an innovation. The innovation spreads slowly at first and then picks up speed as more and more people adopt it. Eventually it reaches a saturation level, where virtually everyone who was going to adopt the innovation has done so.

A key point, early in the process, is called take-off. After the forward-thinking change agents have adopted the innovation, they work to communicate it to others in the society by whatever means they believe appropriate. When the number of early adopters reaches a critical mass—between 5 and 15%—the process is probably irreversible. The innovation has a life of its own, as more and more people talk about or demonstrate the innovation to each other. What makes an innovation successful? Innovation diffusion theorists have identified five critical characteristics that may be helpful in explaining this. Note that these are not requirements for a successful innovation, but their presence or absence could greatly affect the rate at which it gets adopted.

Succinctly stated, key aspects of Rogers’ Theory include:

- **Relative Advantage**: Is the innovation better than the status quo? Will people perceive it as better? If not, the innovation will not spread quickly, if at all.
- **Compatibility**: How does the innovation fit with people’s past experiences and present needs? If it doesn’t fit both well, it won’t spread well. Does it require a change in existing values? If members of the culture feel as though they have to become very different people to adopt the innovation, they will be more resistant to it.
- **Complexity**: How difficult is the innovation to understand and apply? The more difficult, the slower the adoption process.
- **Trialability**: Can people “try out” the innovation first? Or must they commit to it all at once? If the latter, people will be far more cautious about adopting it.
- **Observability**: How visible are the results of using it? If people adopt it, can the difference be discerned by others? If not, the innovation will spread more slowly.

According to Rogers, the individuals within a social system do not adopt an innovation at the same time. Rather, they adopt in an over-time sequence, so that individuals can be classified into adopter categories on the basis on when they first begin using an idea. We know more about innovativeness (the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than
other members of the system), than about any other concept in diffusion research. Because increased innovativeness is the main objective of change agencies, it became the main dependent variable in diffusion research. Innovativeness indicates overt behavioral change, the ultimate goal of most diffusion programs, rather than just cognitive or attitudinal change.

For innovation diffusion theorists, innovativeness is related to such independent variables as: (1) individual (leader) characteristics, (2) internal organizational characteristics, and (3) external characteristics of the organization.

The internal organizational characteristics include:

- **Centralization:** The degree to which power and control in a system are concentrated in the hands of relatively few individuals. Centrality has usually been found to be negatively associated with innovativeness; that is, the more power is concentrated in an organization, the less innovative the organization tends to be. The range of new ideas in an organization is restricted when a few strong leaders dominate the system. In a centralized organization, to leaders are poorly positioned to identify operational-level problems, or to suggest relevant innovations to meet these needs.

- **Complexity:** The degree to which an organization’s members possess a relatively high level of knowledge and expertise, usually measured by the members’ range of occupational specialties and their degree of professionalism expressed by formal training. Complexity encourages organizational members to conceive and propose innovations, but it may be difficult to achieve consensus about implementing them.

- **Formalization:** The degree to which an organization emphasizes following rules and procedures in the role of performance of its members. Such formalization acts to inhibit the consideration of innovations by organization members, but encourages the implementation of innovations.

- **Interconnectedness:** The degree to which the units in a social system are linked by the interpersonal networks. New ideas can flow more easily among an organization’s members if the organization has a higher network of interconnectedness. This variable is positively related to organizational innovativeness.

- **Organizational slack:** The degree to which uncommitted resources are available to an organization. This variable is positively related to organizational innovativeness, especially for costly innovations. Socioeconomic and personality individual characteristics will define the individual’s role in the diffusion process, which can be one of the following: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards.
Returning to what we have presented in the preceding material then, we must also remember, irrespective of industry and/or context, that as the field of KM evolves, so too will the manifestation of KM in a particular context. Innovating organizations are continually adapting and changing and thus, at all times if they are to maximize the full potential benefit of the specific KM initiative they have embraced it is vital for them to be aware of the fundamental dynamics captured by Rogers’ model of innovation and diffusion and realize that incorporating KM is a dynamic and ongoing process. We close by quoting a famous ancient saying, “even the thousand mile journey has a first step” and wish all our readers success as they traverse the KM path.

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REFERENCE