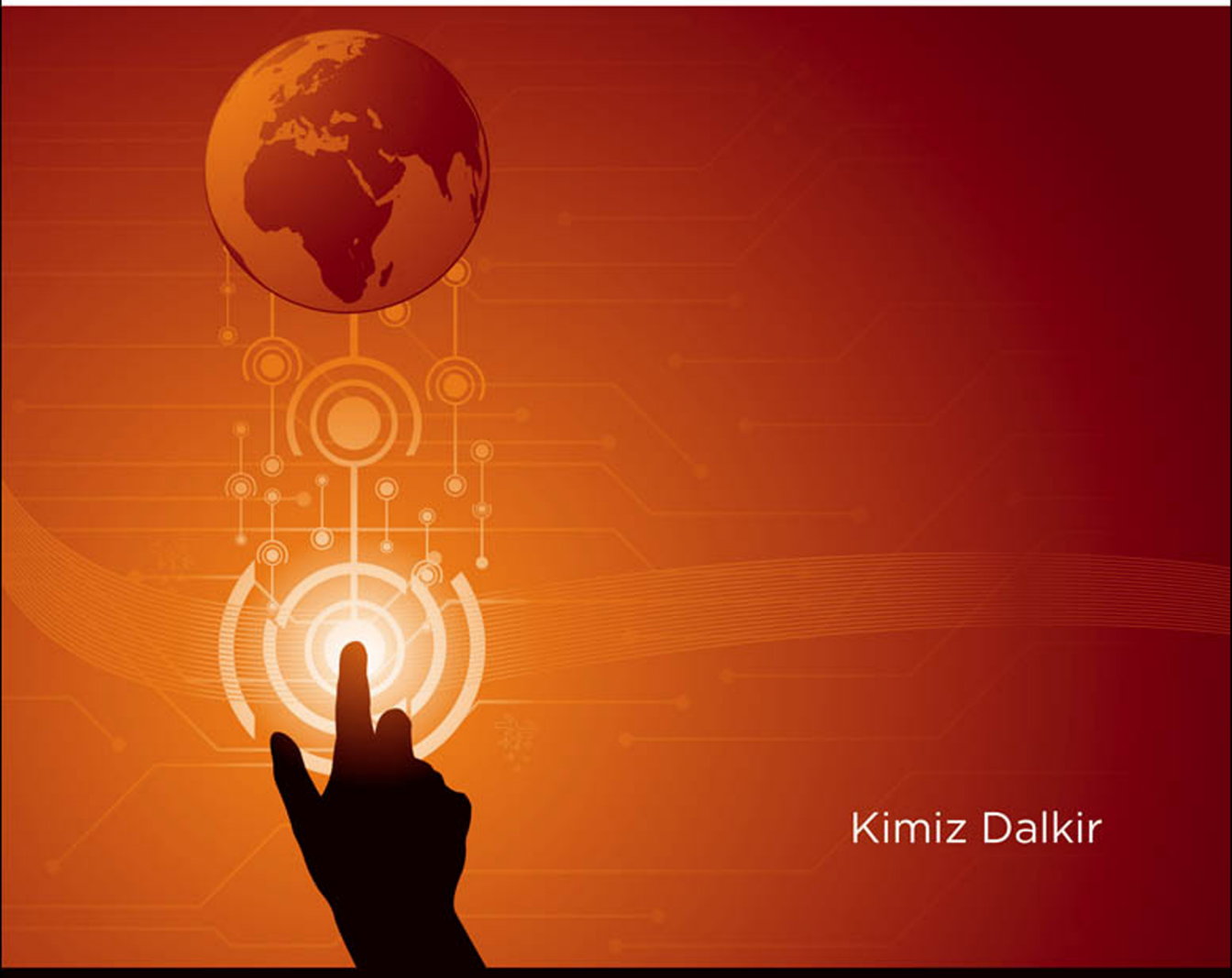
Knowledge Management in Theory and Practice

Fourth Edition



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1 Introduction to Knowledge Management

> The store of wisdom does not consist of hard coins which keep their shape as they pass from hand to hand; it consists of ideas and doctrines whose meanings change with the minds that entertain them.
>
> —John Plamenatz (1912–1975)

This chapter outlines the history of knowledge management (KM) concepts, noting that much of KM existed before the actual term came into popular use. The lack of consensus over a definition of KM is addressed, and the concept analysis technique is described as a means of clarifying the conceptual confusion that persists over what KM is or is not. The multidisciplinary roots of KM are enumerated, together with their contributions to the discipline. The two major forms of knowledge, tacit and explicit, are compared.

Learning Objectives

1. Use a framework and a clear language for KM concepts.
2. Define key KM concepts such as intellectual capital, organizational learning and memory, knowledge taxonomy, and communities of practice using concept analysis.
3. Provide an overview of the history of KM and identify key milestones.
4. Describe major objectives for KM applications.
5. Discuss the key benefits—the value created by KM—to individuals, groups, and organizations.

Introduction

Knowledge is an intellectual asset that has several unique characteristics:

- Using knowledge does not consume it.
- Sharing knowledge does not result in losing it.
- Much of an organization's valuable knowledge walks out the door at the end of the day.

The industrial age, when we made things, has made way for the knowledge age, when organizational success depends on what it collectively knows, how efficiently it uses what it knows, and how quickly it acquires and uses new knowledge (Davenport & Prusak, 1998). The most valuable benefits from KM arise from sharing knowledge with current fellow employees and with future (often unknown) employees. Sharing knowledge with current fellow employees ensures it moves around the organization so everyone can benefit from best practices (adopt newer, better ways of doing things) and lessons learned (avoid repeating things that failed).

KM, through knowledge use and reuse, has two major goals: improving organizational efficiency and increasing the organizational capacity to innovate.

KM creates value through a deliberate and systematic approach to cultivating and sharing a company's knowledge base—one populated with valid and valuable lessons learned and best practices. To succeed in today's challenging organizational environment, companies need to learn from their past errors and not reinvent the wheel repeatedly. Organizational knowledge is not intended to replace individual knowledge but to complement it by making it stronger, more coherent, and more broadly applied.

KM is defined as the process of applying a systematic approach to the capture, structuring, management, and dissemination of knowledge throughout an organization to work faster, reuse best practices, and reduce costly rework from project to project (Nonaka, Toyama, & Konno, 2000; Pasternack & Viscio, 1998; Pfeffer & Sutton, 1999; Ruggles & Holtshouse, 1999).

Intellectual capital management, in contrast, focuses on pieces of knowledge that are of business value to the organization—referred to as intellectual capital or assets. Stewart (1997) defines intellectual capital as "organized knowledge that can be used to produce wealth." Although some of these assets are more visible (e.g., patents, intellectual property), the majority consists of know-how, know-why, experience, and expertise that resides within the head of one or a few employees (Klein, 1998; Stewart, 1997). Intellectual capital management is characterized by curated content, or content that is filtered and judged, and only the best is inventoried (the top three best practices, for example).

A good definition of KM should incorporate both the capturing and storing of knowledge perspective, together with the valuing of intellectual assets. An example definition is the following:

> Knowledge management is the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure to add value through reuse and innovation. This is achieved through the promotion of creating, sharing, and applying knowledge and through the feeding of valuable lessons learned and best practices into corporate memory to foster continued organizational learning.

When asked, most executives often state that their greatest asset is the knowledge held by their employees. "When employees walk out the door, they take valuable organizational knowledge with them" (Lesser & Prusak, 2001, p. 1). Managers also invariably add that they have no idea how to manage this knowledge! Identifying the knowledge that is of value and also at risk of being lost to the organization through retirement, turnover, and competition is essential. The best way to retain valuable knowledge is to identify intellectual assets and then ensure legacy materials are produced, and subsequently stored in such a way as to make their future retrieval and reuse as easy as possible (Stewart, 2000). These tangible by-products need to flow from individual to individual, between members of a community of practice, and of course, back to the organization itself, in the form of lessons learned, best practices, and corporate memory.

Many KM efforts have been largely concerned with capturing, codifying, and sharing the knowledge held by people in organizations. Although there is a lack of consensus over what constitutes a good definition of KM, agreement is widespread as to the goals of an organization that undertakes KM. Nickols (2000) summarizes "the basic aim of knowledge management [as being] to leverage knowledge to the organization's advantage." Some of management's motives are obvious: preventing the loss of skilled people through turnover, avoiding reinventing the wheel, making organization-wide innovations in processes and products, managing risk, and adjusting to the accelerating rate of knowledge creation.

What Is Knowledge Management?

An informal survey I conducted identified over a hundred published definitions of KM, and of these, at least seventy-two were quite good in that they were distinct yet fairly complete definitions! Girard and Girard (2015) compiled a comprehensive list of more than a hundred KM definitions.[1] The large number indicates that KM is a multidisciplinary field of study that covers a lot of ground, and applying knowledge to work is integral to most business activities. However, the field of KM does suffer from the "three blind men and an elephant" syndrome. Each distinct perspective on KM

leads to a different extrapolation and a different definition. Some examples include the following:

> Knowledge management is a collaborative and integrated approach to the creation, capture, organization, access, and use of an enterprise's intellectual assets. (Grey, 1996)

> Knowledge management consists of "leveraging intellectual assets to enhance organizational performance." (Stankosky, 2008)

> Knowledge—the insights, understandings, and practical know-how that we all possess—is the fundamental resource that allows us to function intelligently. Over time, considerable knowledge is also transformed to other manifestations—such as books, technology, practices, and traditions—within organizations of all kinds and in society in general. These transformations result in cumulated expertise and, when used appropriately, increased effectiveness. (Wiig, 1993, p. 1)

> A systematic approach to manage the use of information in order to provide a continuous flow of knowledge to the right people at the right time enabling efficient and effective decision making in their everyday business. (Payne & Britton, 2010)

> The tools, techniques, and strategies to retain, analyze, organize, improve, and share business expertise. (Groff & Jones, 2003, p. 2)

Multidisciplinary Nature of KM

The 2018 International Standards Organization (ISO) 30401 KM standard (ISO, 2018) discusses the relationship of KM with adjacent disciplines:

- Information management
- Data management
- Business intelligence
- Customer relationship management
- Learning, organizational development and training
- Organizational learning
- Human resource management
- Innovation management
- Risk management
- Quality management

The term *discipline* is perhaps not the most accurate because this list represents adjacent processes. KM is also highly multidisciplinary because it draws on such fields as cognitive science, information and library science, organizational science, linguistics and computational linguistics, communication, media and journalism, anthropology,

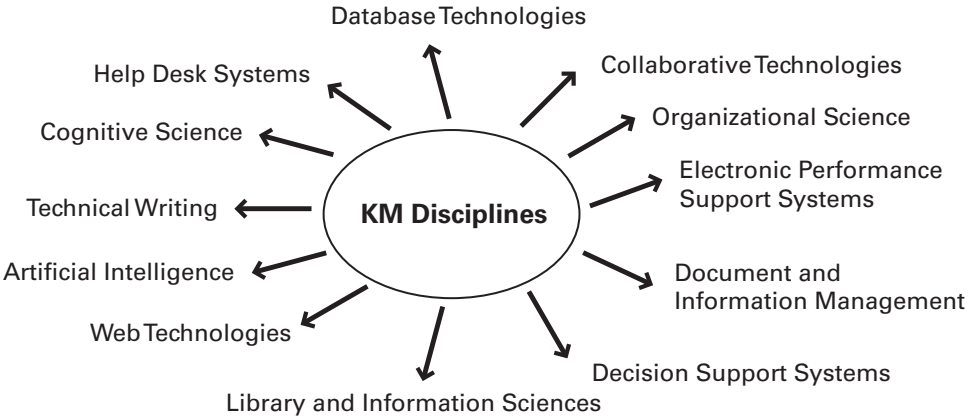

Figure 1.1
Multidisciplinary nature of KM

sociology, and education. This list is by no means exhaustive, but it shows the extremely varied roots KM grew out of and continues to be based on today. Figure 1.1 illustrates some of the diverse disciplines that have contributed to KM.

The multidisciplinary nature of KM represents a double-edged sword: On the one hand, it is an advantage because almost anyone can find a familiar foundation on which to base an understanding and even practice of KM. Those with a background in journalism, for example, can quickly adapt their skill set to the capture of knowledge from experts and reformulate this knowledge as organizational stories to be stored in corporate memory. Someone coming from a more technical database background can easily extrapolate his or her skill set to design and implement knowledge repositories that will serve as the corporate memory for that organization. On the other hand, what makes KM distinct is that it manages knowledge, which differs from tangible information resources.

Knowledge is a more subjective way of knowing, typically based on experiential or individual values, perceptions, and experience. Popular examples to distinguish data from information from knowledge include the following:

Data Content that is directly observable or verifiable: a fact; for example, movie listings giving the times and locations of all movies being shown today. I can download the listings.

Information Content that represents analyzed data; for example, I can't leave before five, so I will go to the seven o'clock show at the cinema near my office.

Knowledge At that time of day, it will be impossible to find parking. I remember the last time I took the car, when I was so frustrated and stressed because I thought I

would miss the opening credits. I'll therefore take the commuter train. But first, I'll check with Al. I usually love all the movies he hates, so his opinion will tell me whether it's worth seeing!

The Two Major Types of Knowledge: Tacit and Explicit

We know more than we can tell.

—Polanyi, 1966

Tacit knowledge is difficult to articulate and difficult to put into text or drawings. Explicit knowledge represents content captured in a tangible form such as words, audio recordings, or images. Tacit knowledge tends to reside within the heads of knowers, whereas explicit knowledge is usually contained within tangible or concrete media. However, it should be noted that this is a simplistic dichotomy. The property of tacitness is a property of the knower: what is easily articulated by one person may be difficult to externalize by another. The same content may be explicit for one person and tacit for another. Further, highly skilled, experienced, and expert individuals may find it harder to articulate their know-how. Novices, in contrast, are more apt to easily verbalize what they are attempting to do because they are typically following a procedure manual, or how-to process. Table 1.1 summarizes some of the major properties of tacit and explicit knowledge.

The more tacit knowledge is, the more valuable it tends to be. Paradoxically, the more difficult it is to articulate a concept, such as an organizational story, the more valuable that knowledge may be. This is often witnessed when people refer to knowledge versus know-how, or knowing something versus knowing how to do something. Valuable tacit knowledge often results in some observable action when individuals

Table 1.1
Properties of tacit and explicit knowledge

Tacit knowledge	Explicit knowledge
Ability to adapt, to deal with new and exceptional situations	Ability to disseminate, reproduce, access, and reapply throughout the organization
Expertise, know-how, know-why, and care-why	Ability to teach and to train
Ability to collaborate, share a vision, transmit a culture	Ability to organize and systematize; translate a vision into a mission statement and into operational guidelines
Coaching and mentoring to transfer experiential knowledge on a one-to-one, face-to-face basis	Transfer knowledge via products, services, and documented processes

understand and subsequently make use of knowledge. Another perspective is that explicit knowledge often represents the resulting product, whereas tacit knowledge is the know-how, or all the processes required to produce the product.

> We have a habit of writing articles published in scientific journals to make the work as finished as possible, to cover up all the tracks, to not worry about the blind alleys or how you had the wrong idea at first, and so on. So, there isn't any place to publish, in a dignified manner, what you did in order to do the work. (Feynman, 1966, p. 699)

A popular misconception is that KM renders what is tacit into more explicit or tangible forms, then stores, or archives, these forms somewhere, usually accessed via an intranet or knowledge portal. The "build it and they will come" expectation typifies this approach: Organizations take an exhaustive inventory of tangible knowledge (e.g., documents, digital records) and make it accessible to all employees. Senior management is then mystified as to why employees are not using this wonderful new resource. In reality, KM is a broader exercise and includes leveraging the value of the organizational knowledge and know-how that accumulates over time. This is a much more holistic and user-centered approach that begins not with an audit of existing documents but with a needs analysis to better understand how improving knowledge sharing may benefit specific individuals, groups, and the organization. Successful knowledge-sharing examples are gathered and documented as lessons learned and best practices, and these then form the kernel of organizational stories.

Several other attributes constitute a set of what KM should be about. The concept analysis technique identifies what these attributes are.

Concept Analysis Technique

Concept analysis is an established technique used in the social sciences to derive a formula that in turn can be used to generate definitions and descriptive phrases for highly complex terms. The lack of a consensus on KM-related terms indicates that these concepts merit the concept analysis approach. A great deal of conceptual complexity derives from the meaning of a word such as *knowledge* being necessarily subjective and its interpretation being value laden.

The concept analysis approach rests on obtaining consensus around three major dimensions of a given concept (figure 1.2).

1. A list of key attributes that must be present in the definition, vision, or mission statement
2. A list of illustrative examples
3. A list of illustrative nonexamples

Concept Name		
Key Attributes	Examples	Nonexamples
1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____

Figure 1.2
Illustration of the concept analysis technique

This approach can provide clear criteria to enable sorting into categories such as knowledge versus information, document management versus KM, and tangible versus intangible assets. Concept analysis is a technique used to visually map out conceptual information to define a word (Novak, 1990, 1991). This is a technique derived from the fields of philosophy and science education (Bareholz & Tamir, 1992; Lawson, 1994), and it is typically used in clearly defining complex, value-laden terms such as *democracy* or *religion*. It is a graphical approach to help develop a rich, in-depth understanding of a concept.

In defining KM the objective is for participants to agree on a list of key attributes that are both necessary and sufficient for an acceptable definition. This is completed by a list of examples and nonexamples, with justifications as to why each item was included on the example or nonexample list.

In some cases, participants are provided with lists of definitions of KM from several sources so they can try out their concept map of KM by analyzing these existing definitions. Definitions are drawn from the KM literature and internally, from their own organization. Concept analysis can help participants rapidly reach a consensus on a

formulaic definition of KM—that is, one that focuses less on the actual text or words used and more on which key concepts need to be present, what comprises a necessary and sufficient (complete) set of concepts, and rules of thumb to use in discerning what is and what is not an illustrative example of KM.

Ruggles and Holtshouse (1999) list key attributes of KM:

- Generating new knowledge
- Accessing valuable knowledge from outside sources
- Using accessible knowledge in decision making
- Embedding knowledge in processes, products, or services
- Representing knowledge in documents, databases, and software
- Facilitating knowledge growth through culture and incentives
- Transferring existing knowledge into other parts of the organization
- Measuring the value of knowledge assets, or the impact of KM

Key KM attributes that recur in several exercises of concept analysis include the following:

- Both tacit and explicit knowledge forms are addressed; tacit knowledge (Polanyi, 1966) is knowledge that often resides only within individuals or that is difficult to articulate, such as expertise, know-how, and tricks of the trade.
- There is a notion of added value (the "so what?" of KM).
- There is a notion of application or use of the knowledge captured, codified, and disseminated (the impact of KM).

It is highly recommended that organizations undertake the concept analysis exercise to clarify understanding of what KM means in each organization's context. The best way to do this is to work as a group to achieve a shared understanding and a clearer conceptualization of the KM concept. Each participant can take a turn to contribute an example of what KM is and another example of what KM is not. The entire group can then discuss this example-nonexample pair to identify one (or several) key KM attributes. Once the group feels they have covered as much ground as they are likely to, summarize the key attributes in a KM concept formula; for example,

> In our organization, knowledge management must include the following: both tacit and explicit knowledge; a framework to measure the value of knowledge assets; a process for managing knowledge assets . . .

This working, or operational, definition, derived through concept analysis, renders explicit the various perceptions people in a company have of KM and brings them together into a coherent framework.