Knowledge Management *UNIT-1*

Introduction

- **Introduction to KM**
- **The Foundations of KM**
- **Cultural Issues**
- **Technological Applications**
- **Organizational Processes and Applications**
- **Management Aspects – DSS**
- **The evolution of KM**
- **From Information Management to KM**
- **Key challenges**
- **Ethics for KM**

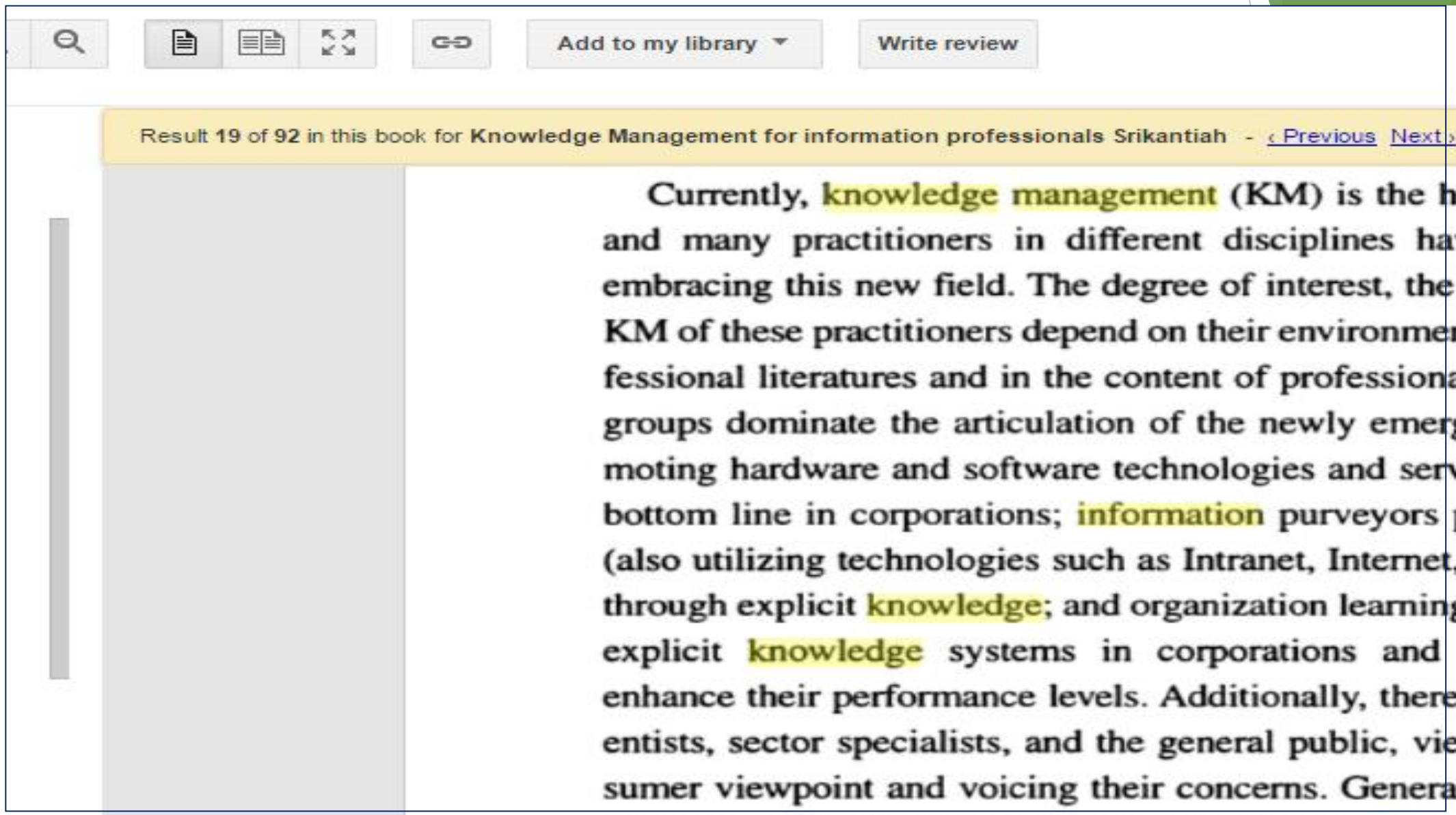
Introduction to KM

Knowledge management is a concept that has emerged explosively in the business community over the last few years.

Gartner Group's Definition

A discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets. These assets may include databases, documents, policies, procedures, and previously uncaptured expertise and experience in individual workers

Overview of KM

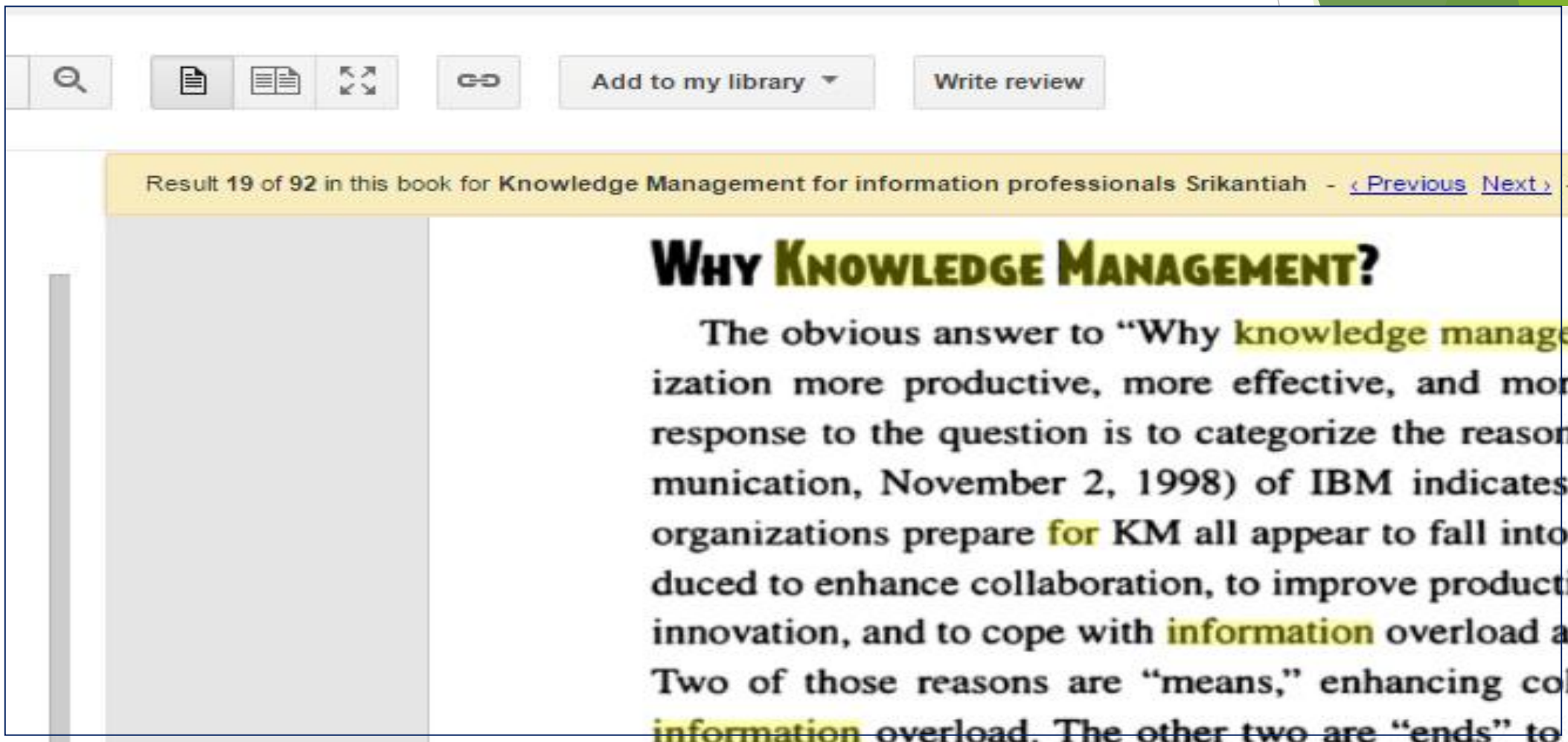


Perceptions of KM

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A recent World Bank report compared knowledge to light,
intangible, which can easily travel the world, enlightening the
everywhere.[1] While this notion seems reasonable, it is too vagu
almost as much of a variety of definitions for KM in the KM
erature. Obviously, the perceptions of knowledge managemen
person and his/her specialty. Information professionals suc
record managers, and archivists emphasize document
Information technologists such as software developers, progra
ilar technologists stress hardware, software, network, and telec
Sector specialists such as those in agriculture, education, a
organization learning specialists have their own perceptions of
while discussing KM, scientists, federal/state/local governme
cialists, legal specialists, business and finance analysts, and th

Why Knowledge Management

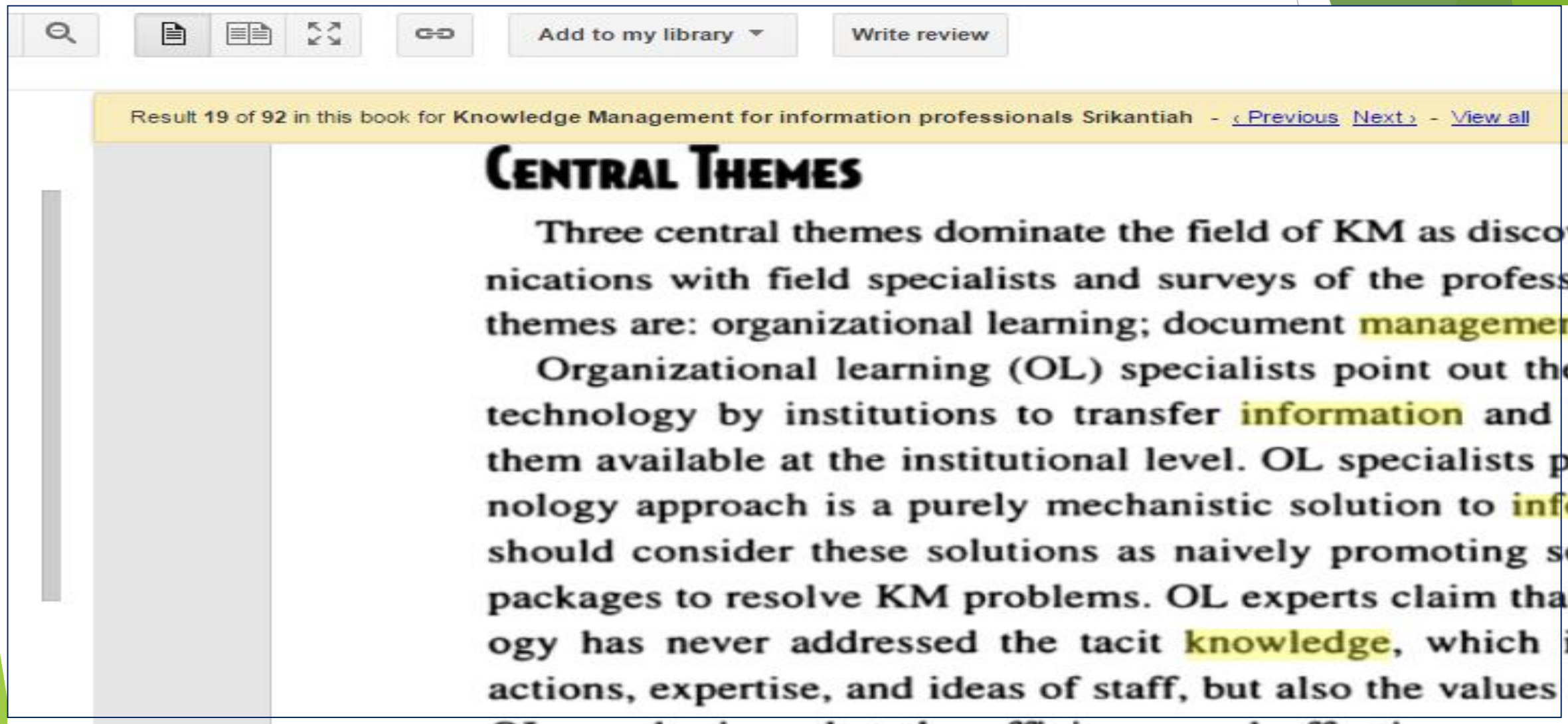


Justification for KM

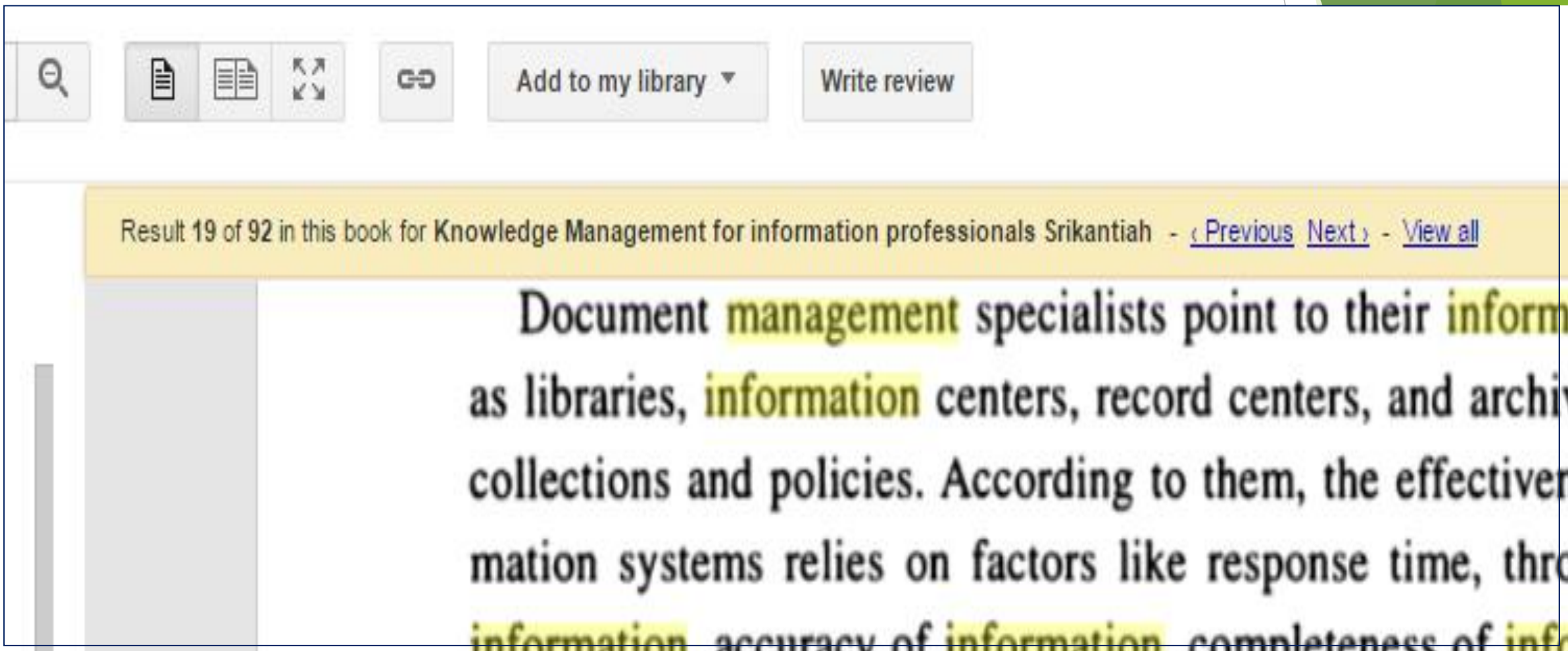
How you justify Knowledge Management and its use?

- Sharing knowledge, a company creates exponential benefits from the knowledge as people learn from it
- Building better sensitivity to “brain drain”
- Reacting instantly to new business opportunities
- Ensuring successful partnering and core competencies with suppliers, vendors, customers, and other constituents
- Shortens the learning curve
- It is essential that organizations capture and preserve the knowledge of senior colleagues so that younger employees can make immediate use of it and improve upon it

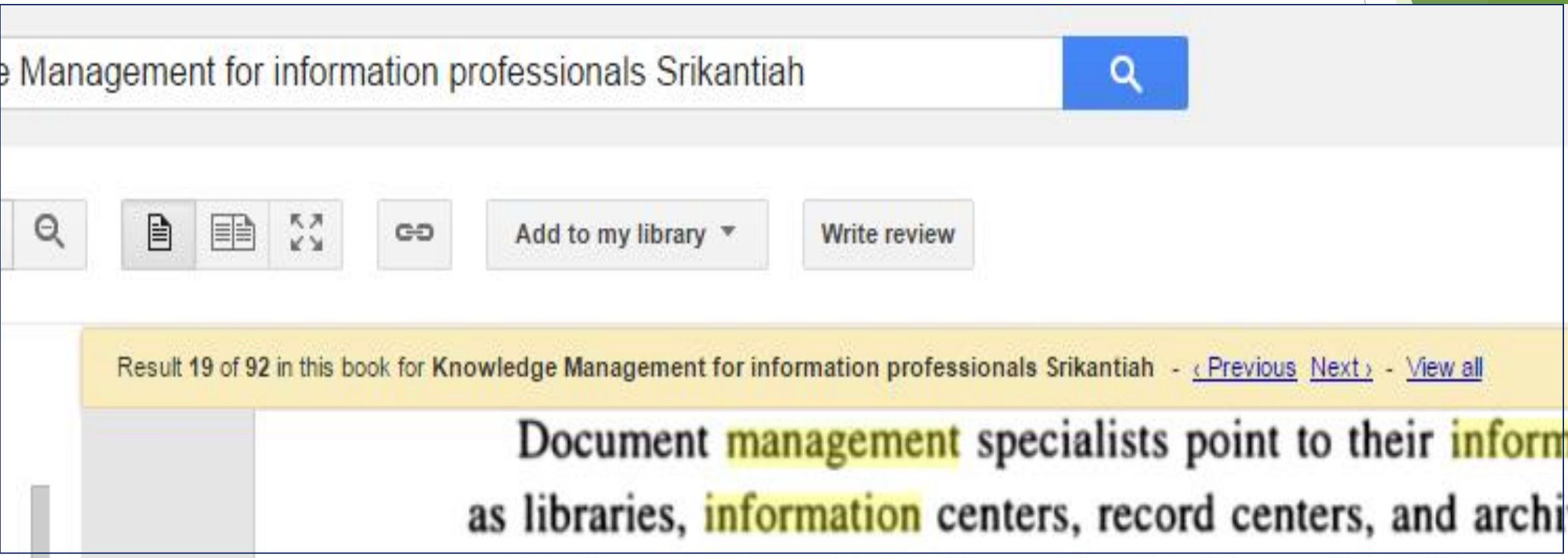
Central Themes – Organizational Learning



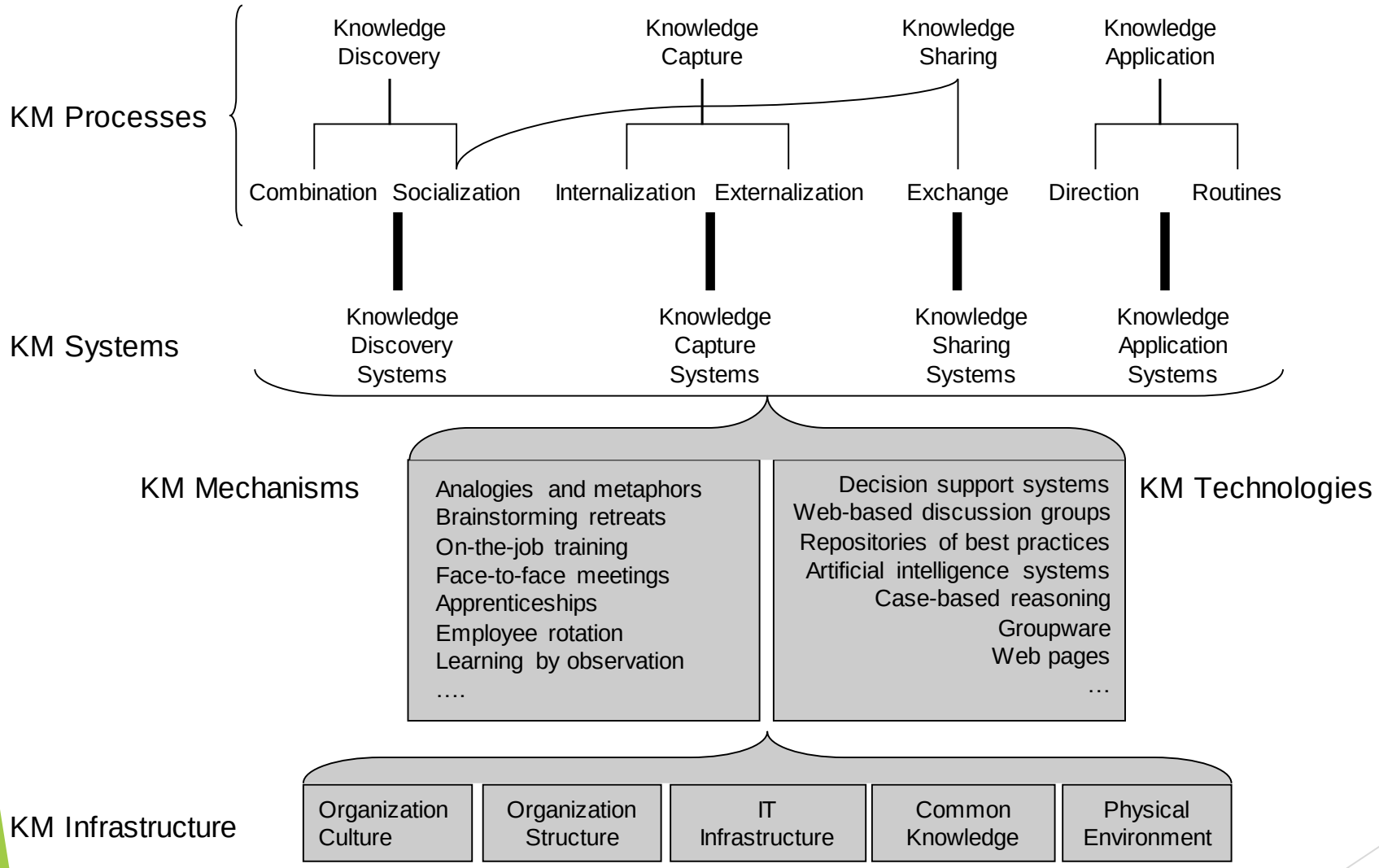
Central Themes – Technology



Central Themes – Document management



KM Foundations and Solutions



KM Infrastructure

KM mechanisms and technologies rely on the KM infrastructure, which reflects the long-term foundation for knowledge management

In an organizational context, KM infrastructure includes five major components:

1. Organization culture
2. Organization structure
3. Information technology infrastructure
4. Common knowledge
5. Physical environment

KM Infrastructure

Table 3.2

A Summary of Knowledge Management Infrastructure

Dimensions of KM Infrastructure	Related Attributes
Organization Culture	Understanding of the value of KM practices
	Management support for KM at all levels
	Incentives that reward knowledge sharing
	Encouragement of interaction for the creation and sharing of knowledge
Organization Structure	Hierarchical structure of the organization (decentralization, matrix structures, emphasis on "leadership" rather than "management")
	Communities of practice
	Specialized structures and roles (Chief Knowledge Officer, KM department, traditional KM units)
Information Technology Infrastructure	Reach
	Depth
	Richness
	Aggregation
Common Knowledge	Common language and vocabulary
	Recognition of individual knowledge domains
	Common cognitive schema
	Shared norms
	Elements of specialized knowledge that are common across individuals

Interdisciplinary Nature of KM

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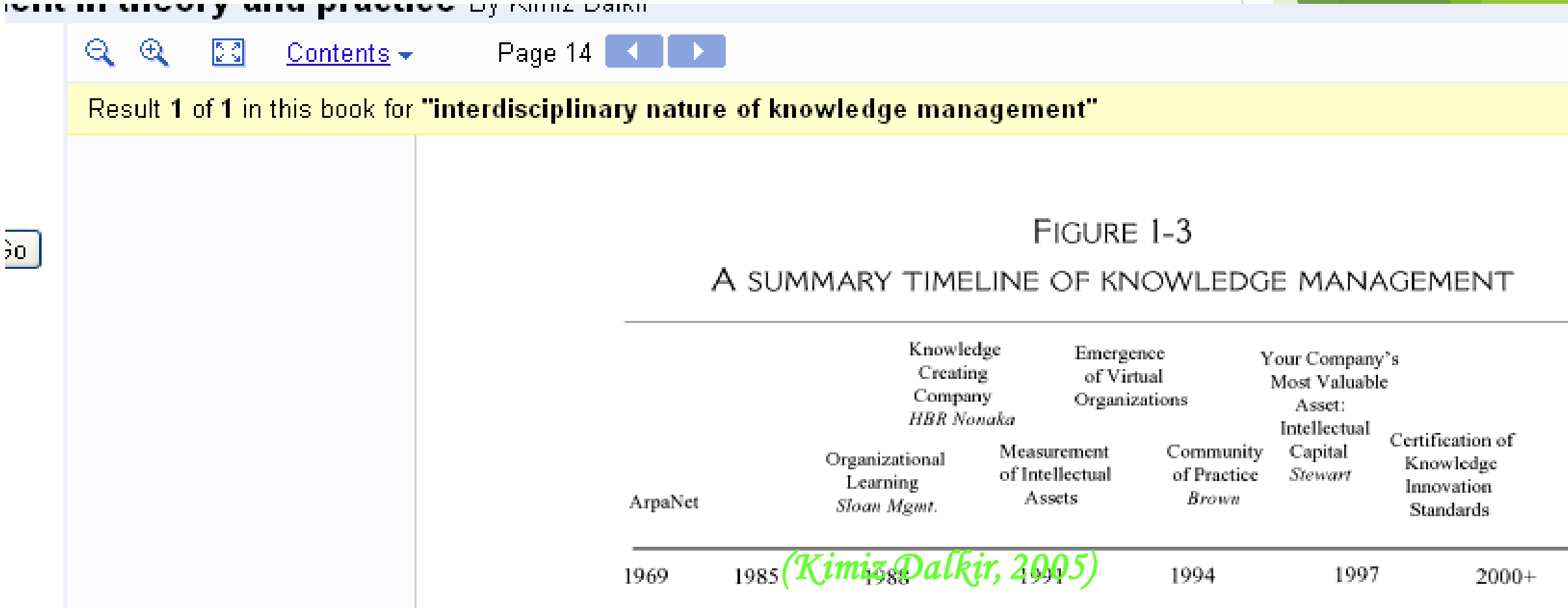
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FIGURE 1-1

THE INTERDISCIPLINARY NATURE OF KNOWLEDGE MANAGEMENT

History of KM

The history of managing knowledge goes back to the earliest civilizations (Wiig, 1997).



KM Milestones

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TABLE 1-2

KNOWLEDGE MANAGEMENT MILESTONES

Year	Entity	Event

ELEMENTS OF A KM INITIATIVE

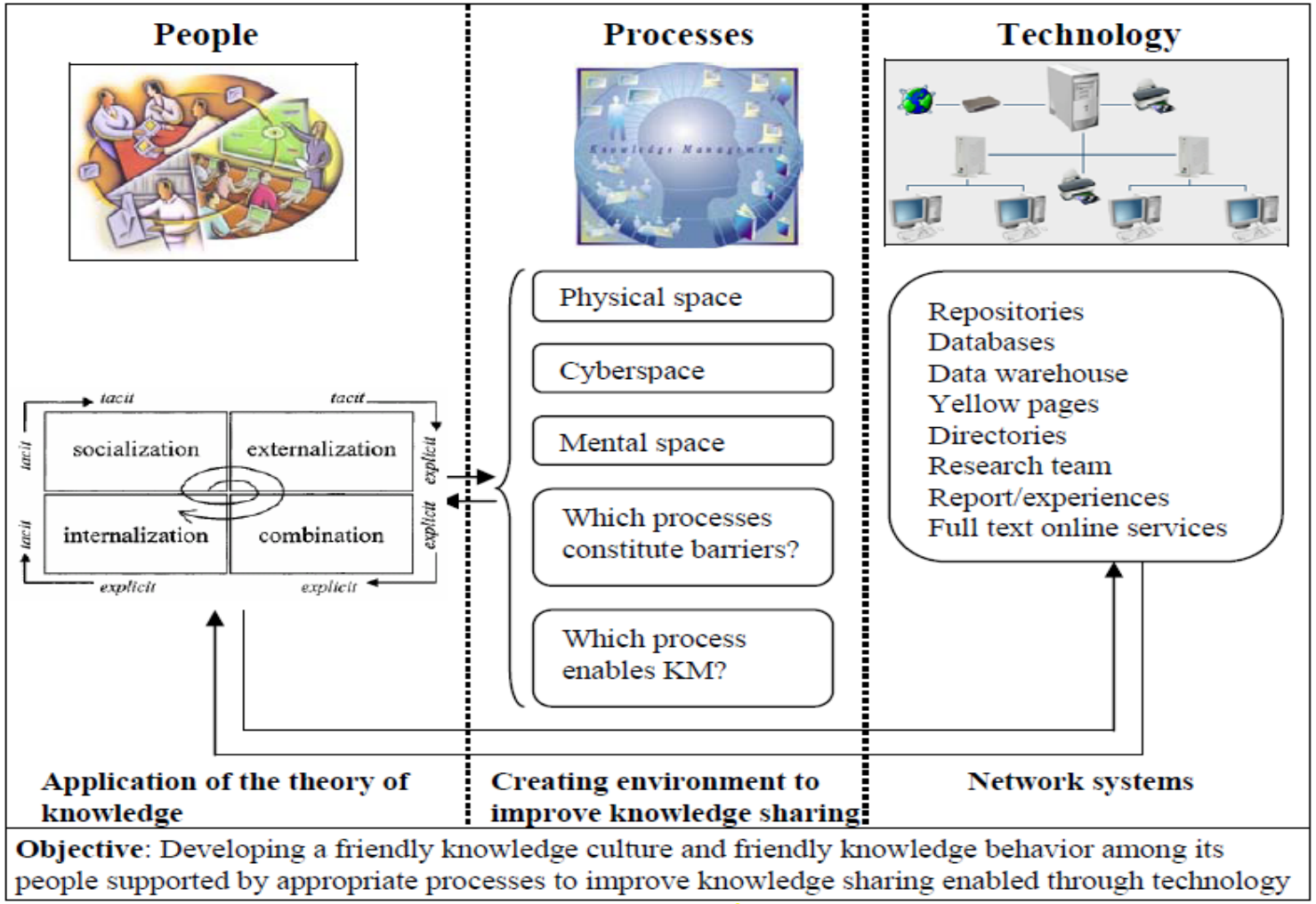


Figure 1 : Knowledge Management Programme

Model by Nonaka and Takeuchi, 1995

Cont.

I. PEOPLE

- Refers to cultural c
- Knowledge is crec
- In Japanese Firms can only happen

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People



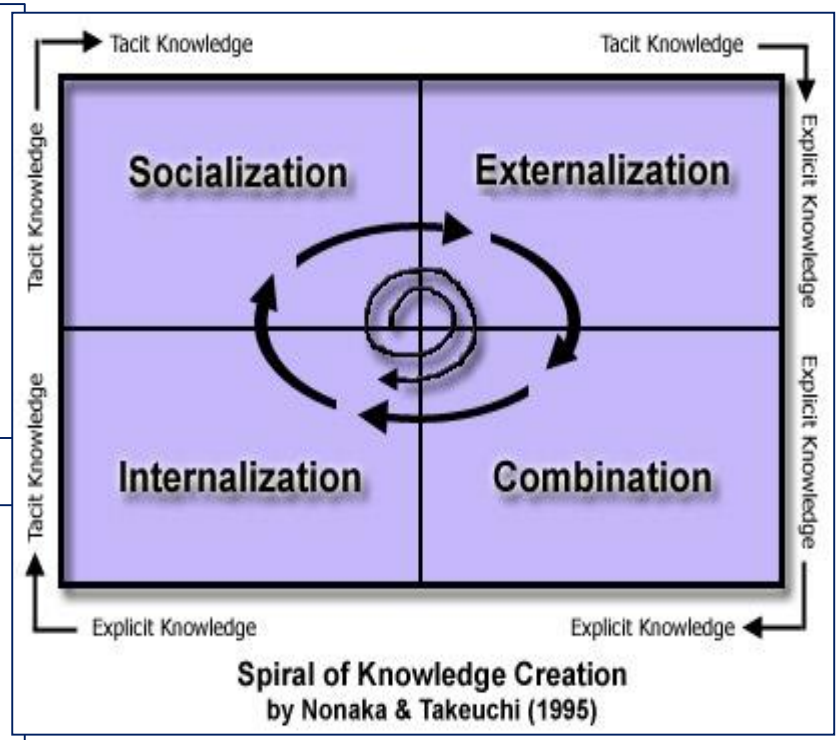
Cont.

II. *PROCESSES*

- Processes in contributing the knowledge management
- 4 processes of interactions is a spiral process that takes place repeatedly

a) *Socialization*

- Sharing tacit knowledge through face-to-face communication or shared experience.
  eg: meeting



Spiral of Knowledge Creation
by Nonaka & Takeuchi (1995)

b) *Externalization*

- Developing concepts and models to convert tacit knowledge to explicit knowledge
- Enable it to be communicated to others

c) *Combination*

- Combination of various elements of explicit knowledge to form more complex and systematic explicit knowledge

d) *Internalization*

- Understand explicit knowledge
- Closely linked to learning by doing

http://knowledgeandmanagement.wordpress.com/seci-model-nonaka-takeuchi/

Cont.

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III. TECHNOLOGY

- Refers to the n
- Facilitate conn
  a. Among kn with one a
  b. Between p
- Through ICT, e disseminated

People



Processes

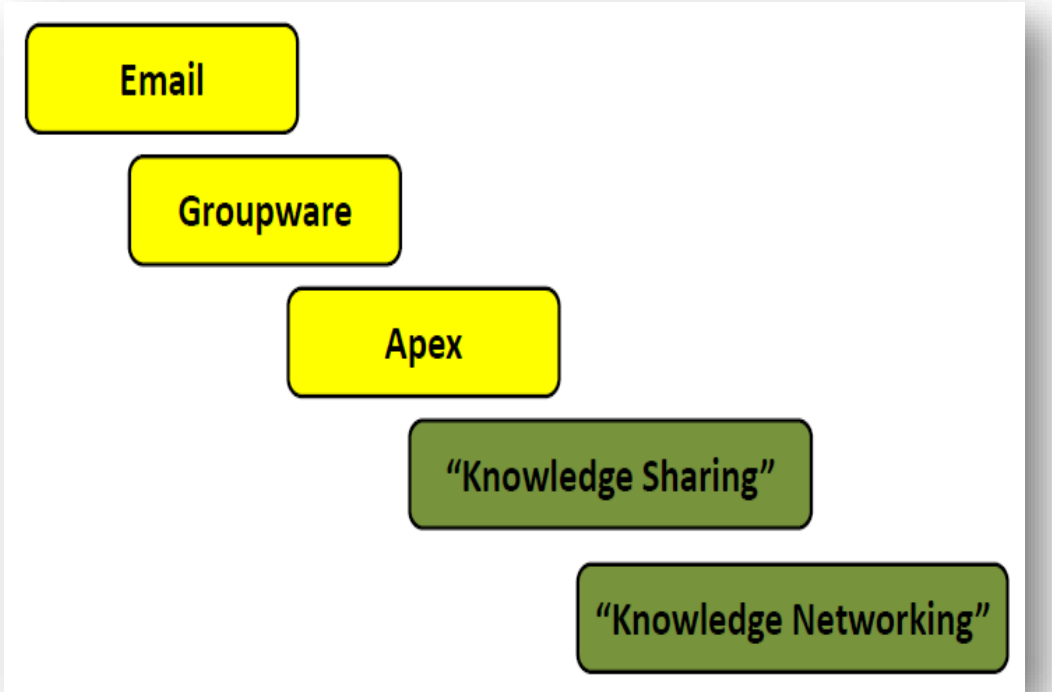


Physical space

THE EVOLUTION OF KM

KM has undergone a paradigm shift from a static, knowledge-warehouse approach towards a dynamic communication-based or network approach focusing more on tacit knowledge. KM is a dynamic people-centric approach especiqlly on cultural problems and motivational issues in knowledge sharing.

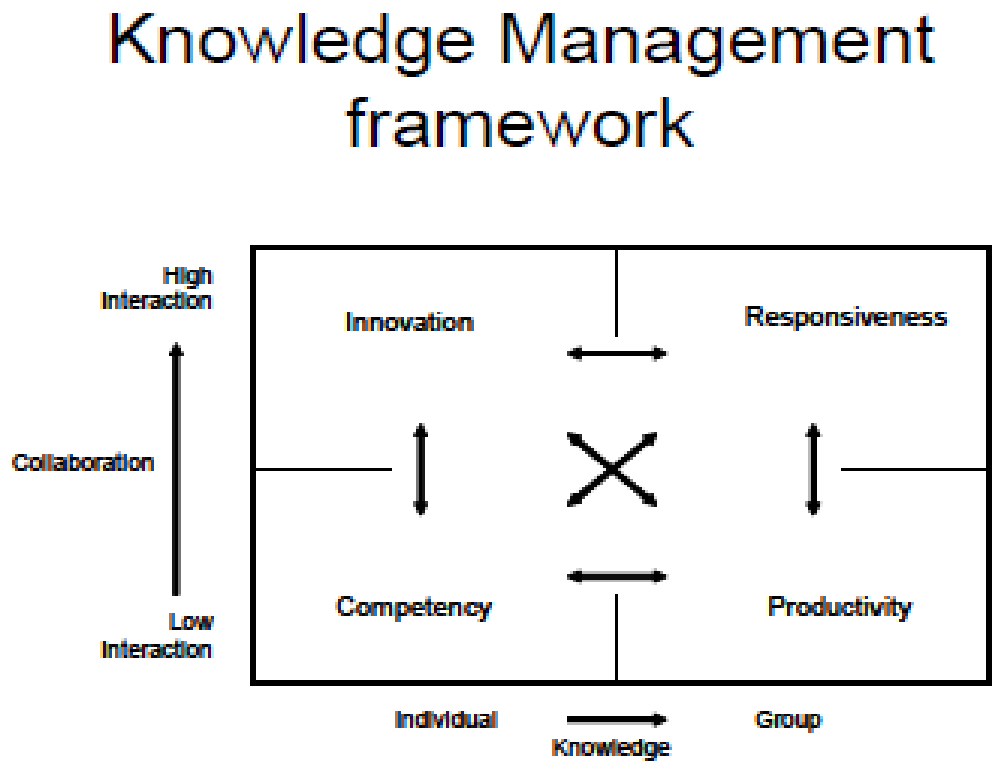
The use of information technology in KM



- Business process reengineering
- Communities & colaboration
- Tacit knowledge
- Incentives and reward

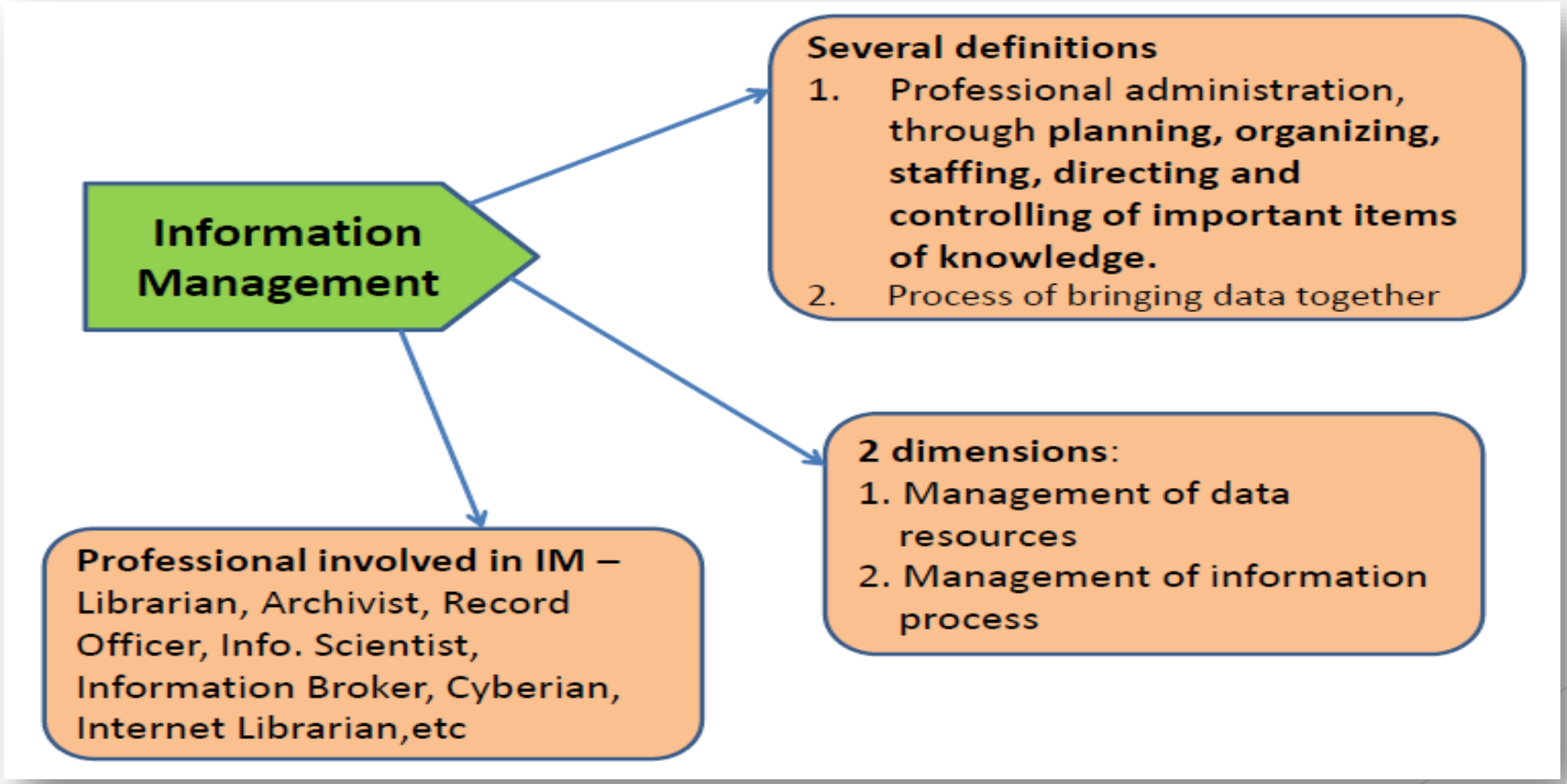
KM has evolve from the combination of 2 factors :

1. The business world's enthusiasm for "intelectual capital"
2. The appearance of corporate intranet (ideal tool to link and organisation together to share and disseminate knowledge throughout scattered offices and units



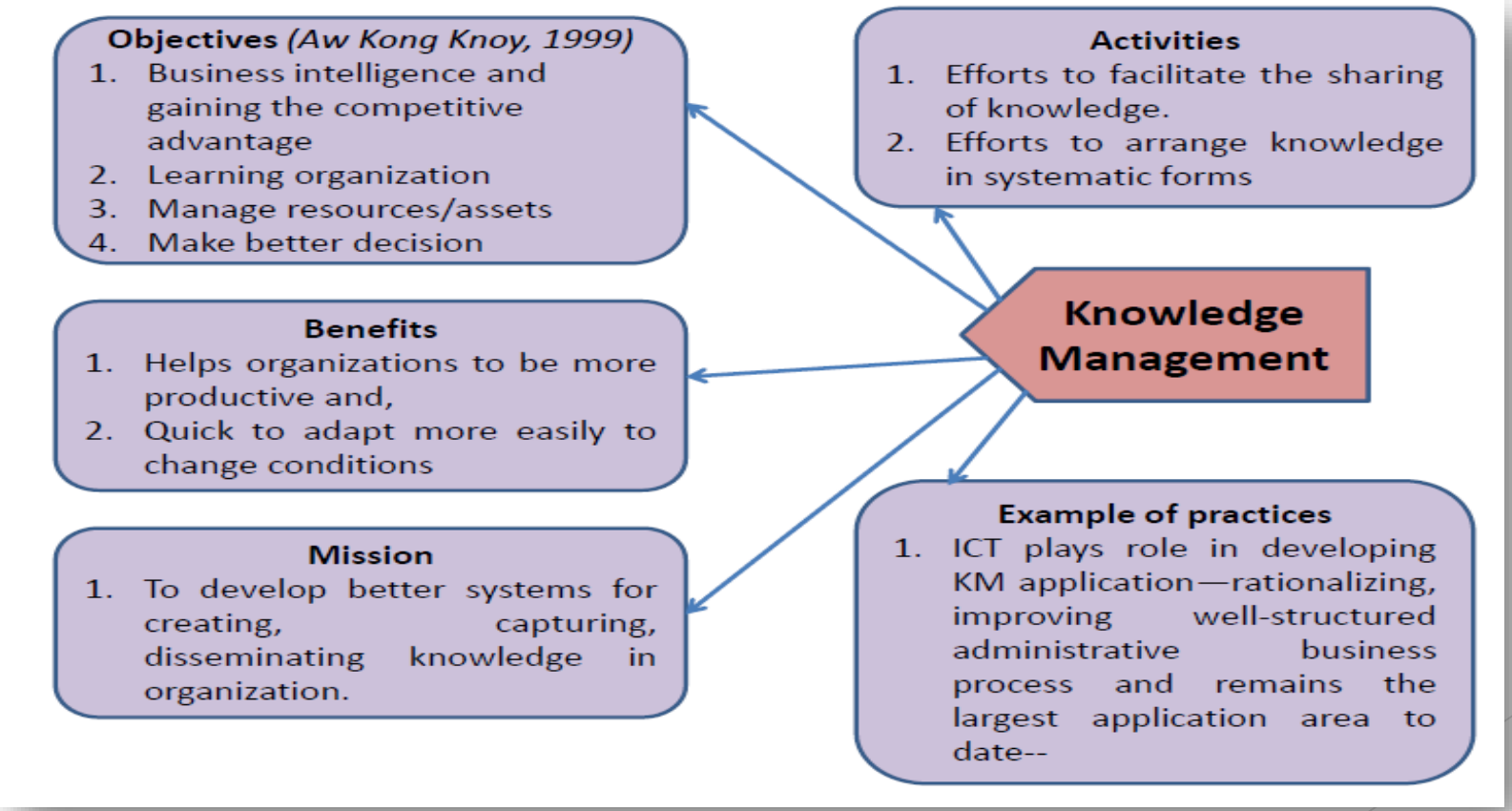
INFORMATION MANAGEMENT

- Focuses on information as a resource or collection.
- Practitioners select, describe, classify, index, and abstract this information to make it more accessible within and outside the organization.
- IM is concerned to provide transparent and standardized access using technology by storing and organize information.



KNOWLEDGE MANAGEMENT

- Focuses on its users.
- Practioners summarize, contextualize, value-judge, rank, synthesize, edit and facilitate to make information and knowledge accessible between people within or outside their organization. It concerns with the social interactions with sharing and use of knowledge.
- KM is largely based on tacit interpretation that relate to human behavior and interchange.



FROM INFORMATION MANAGEMENT TO KNOWLEDGE MANAGEMENT

Knowledge Management : The Information – Processing Paradigm

1. The process of collecting, organising, classifying and dissemination of information to make it purposeful to those who need it
2. Capture knowledge in the mind of in a central repository.
3. Organising and analyzing information in a companies computer database.
4. Identification of categories of knowledge needed to support overall business strategy
5. Combining, indexing, searching and push technology to help companies organize data stored and deliver only relevant information using Intranet, groupware, data warehouse, networks, and video conferencing.
6. Mapping knowledge and information resources both online and offline
7. Knowledge assets are created through computerized collection, storage and sharing of knowledge

KEY DIFFERENCES BETWEEN INFORMATION MANAGEMENT AND KNOWLEDGE MANAGEMENT

1. Interplay Between Information and Knowledge

   Information can easily, organized and distributed whereas knowledge resides in one's mind (human centric)

2. IM and KM Projects: different scopes, approaches and measurement systems

   KM rely on the willingness of individuals whereas IM rely on technical achievement to enable knowledge sharing

3. Organizational Learning and KM

   Organization can learn through self-knowledge, dialogue and reuse the existing knowledge into new information

4. Broad Concepts of KM

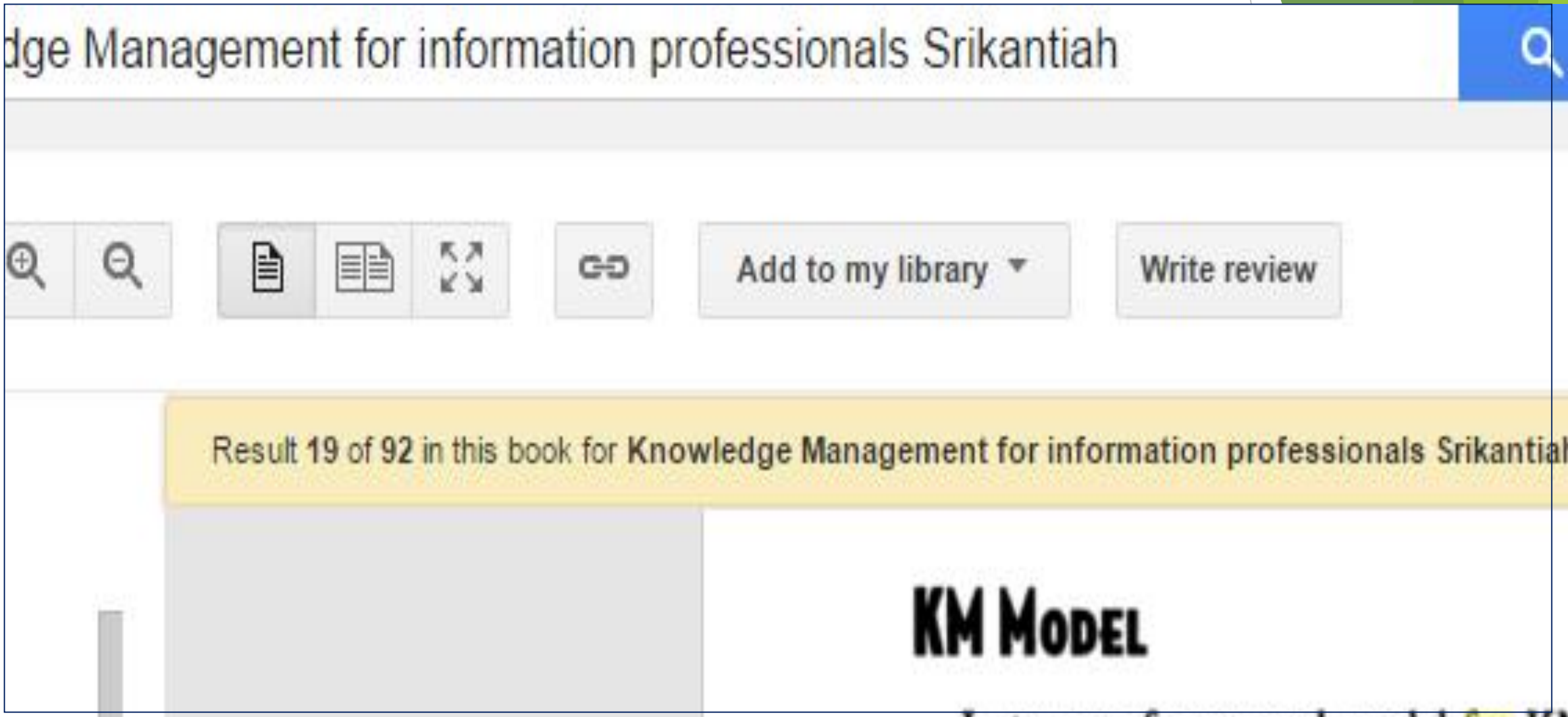
   - Time, Context, transformations and dynamics, social space and knowledge culture

5. Protecting Intellectual Capital: IM and KM Perspectives

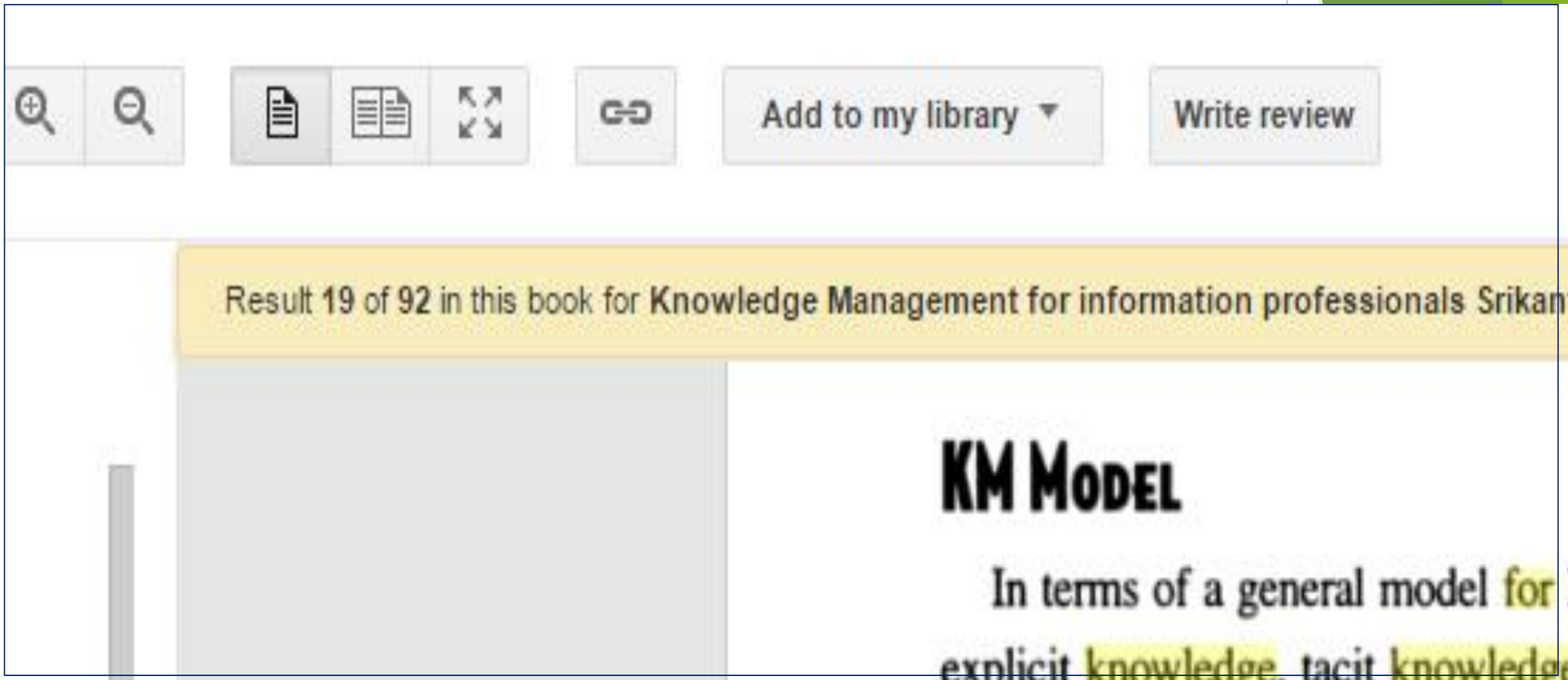
   IM used firewall, permission and access level whereas KM used retention policies and circulation of knowledge (senior to junior)

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

KM Model - Explicit Knowledge & Tacit Knowledge



KM Model Infrastructure



KM MODEL

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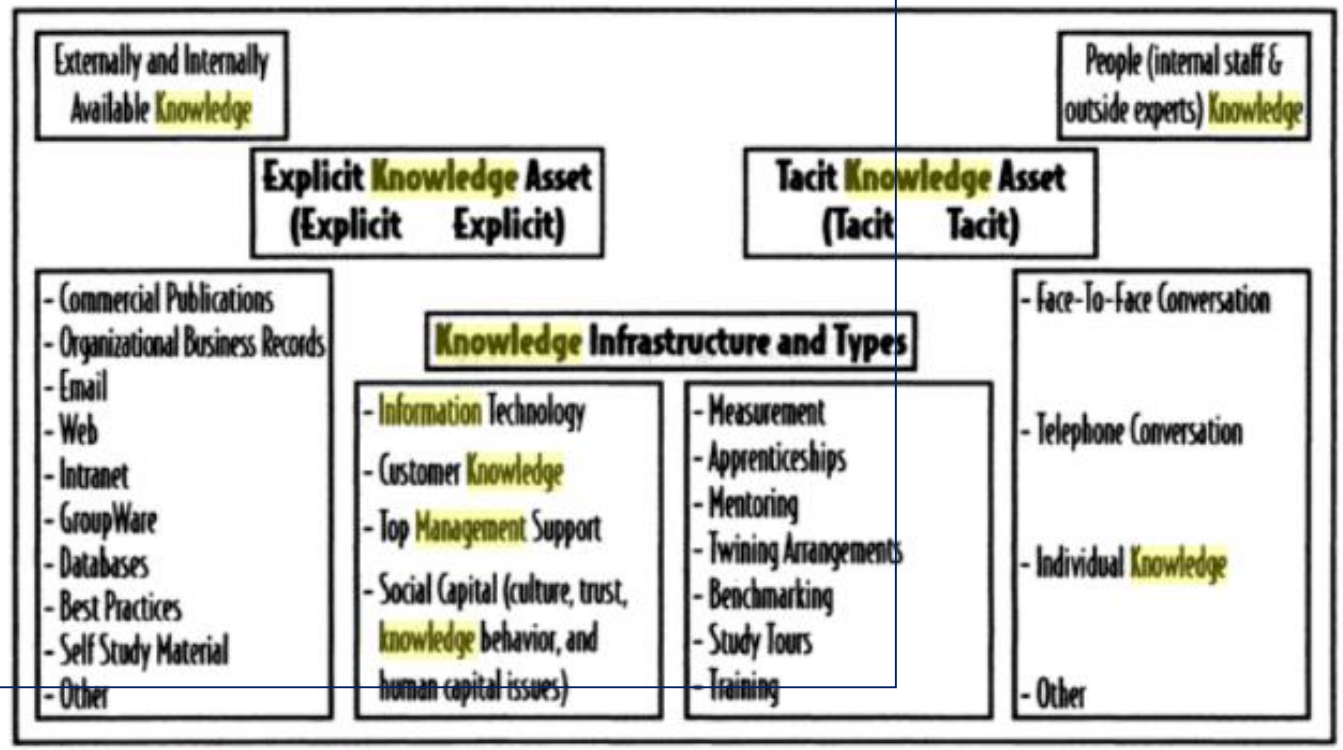


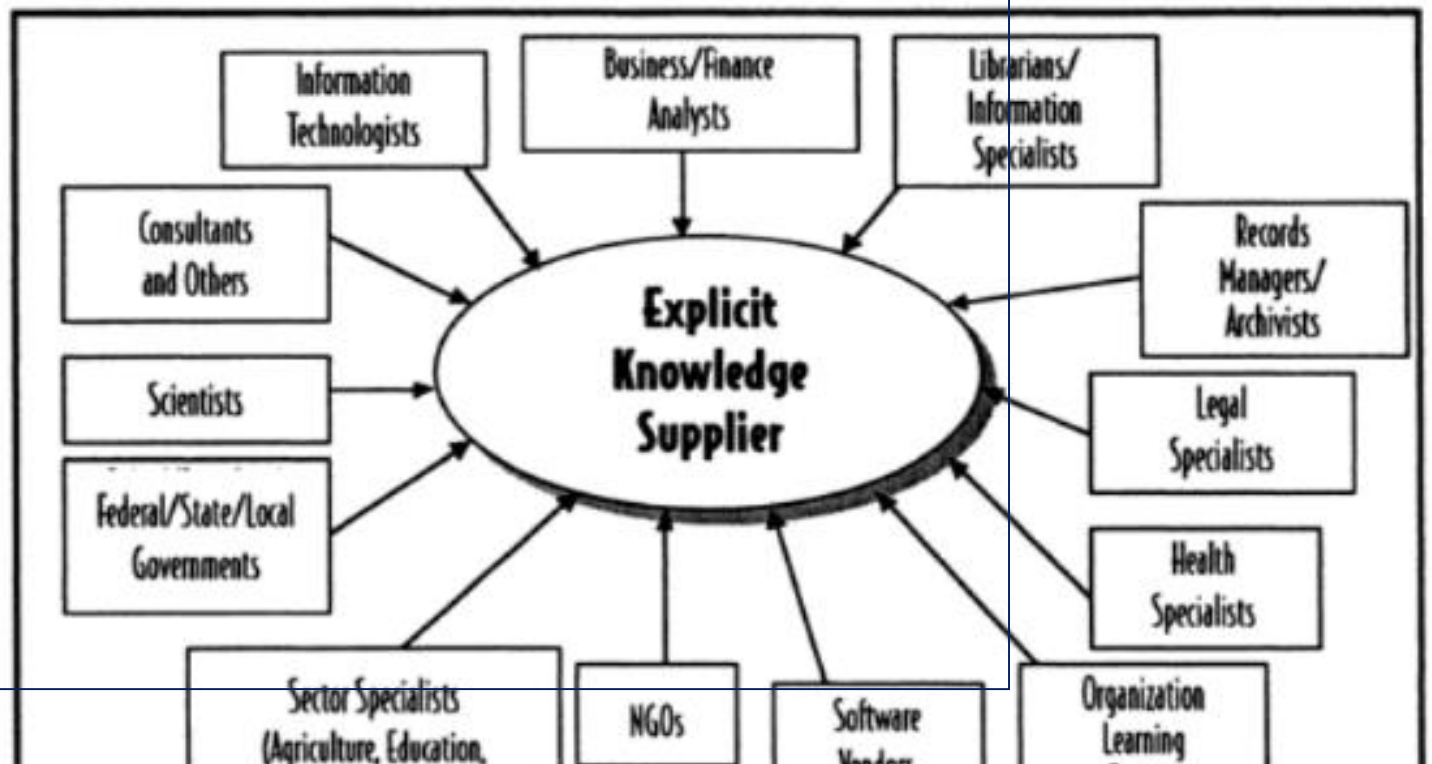
Figure 2.1 Knowledge Management Model (T. Kanti Srikantaiah 1/18/1999)

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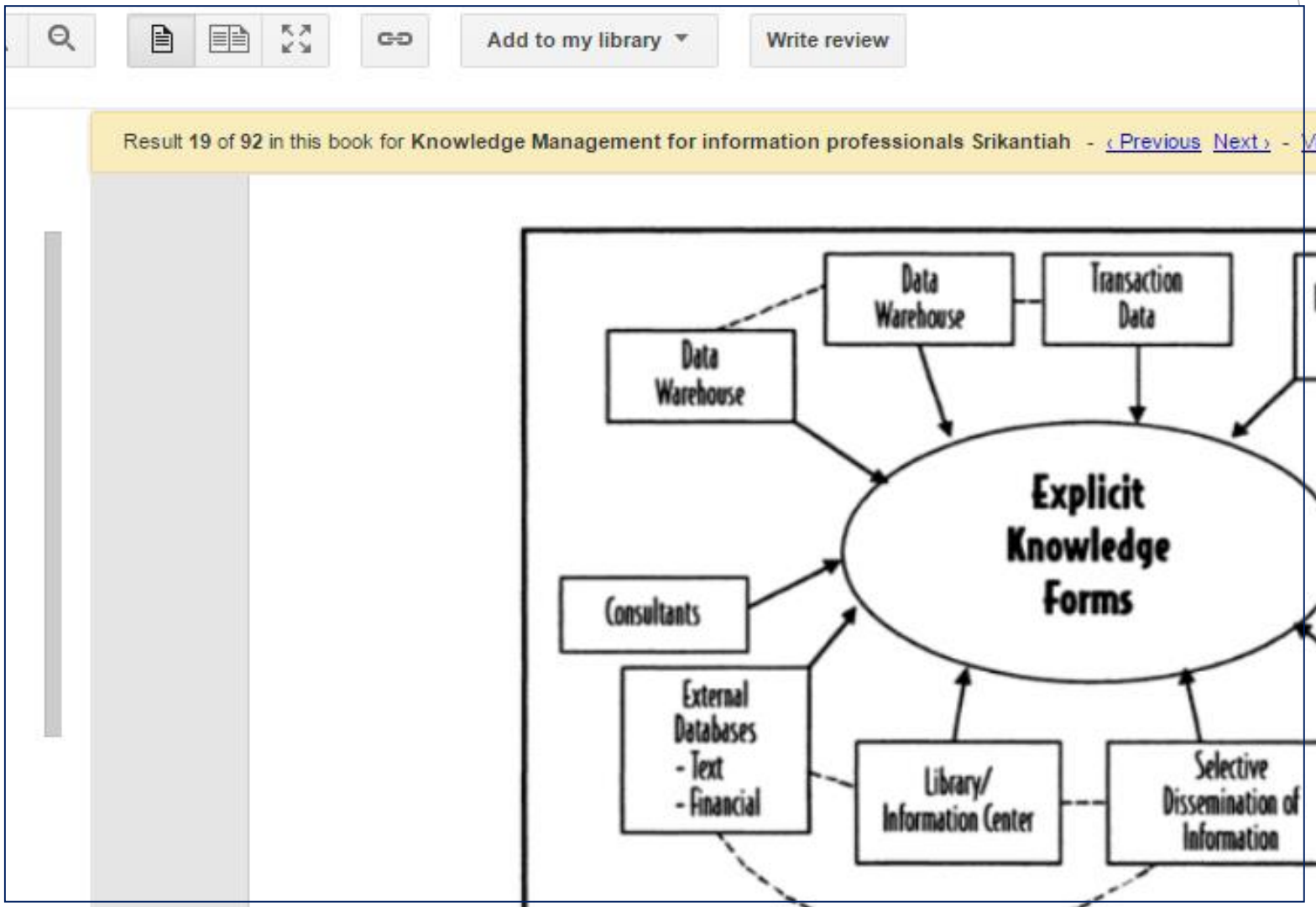
...vided for an understanding

Explicit Knowledge - Supplier

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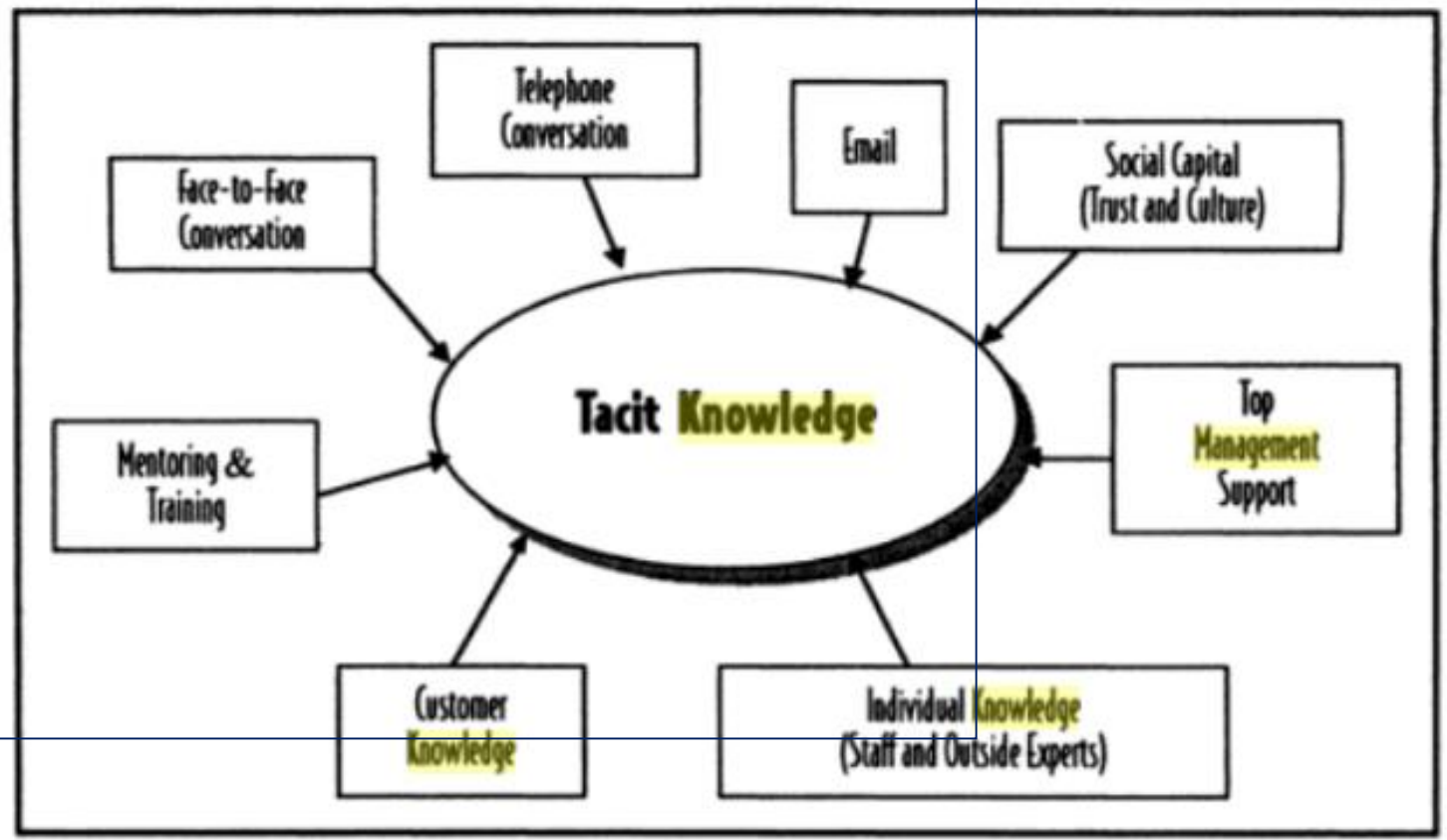


Explicit Knowledge - forms



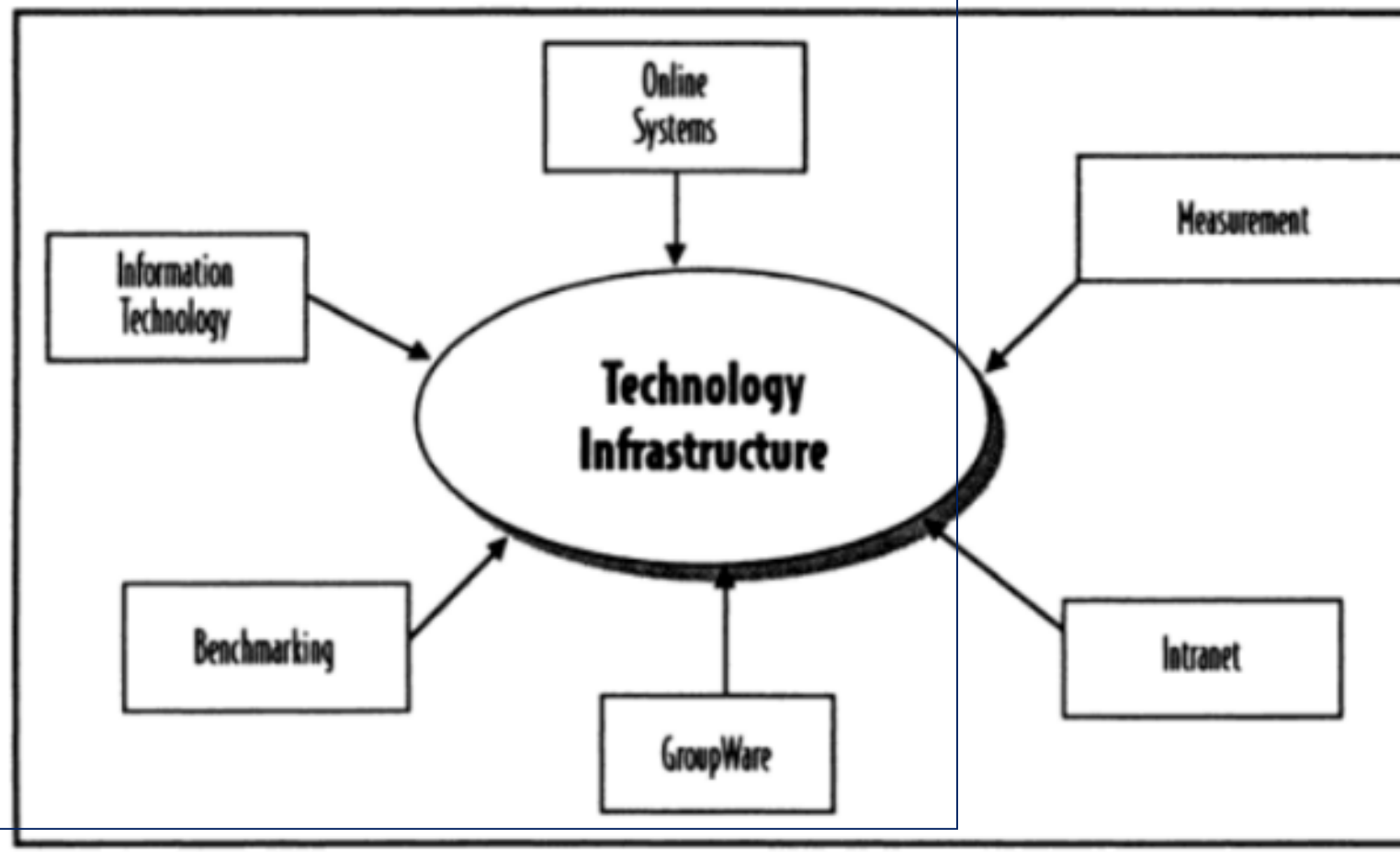
Tacit Knowledge

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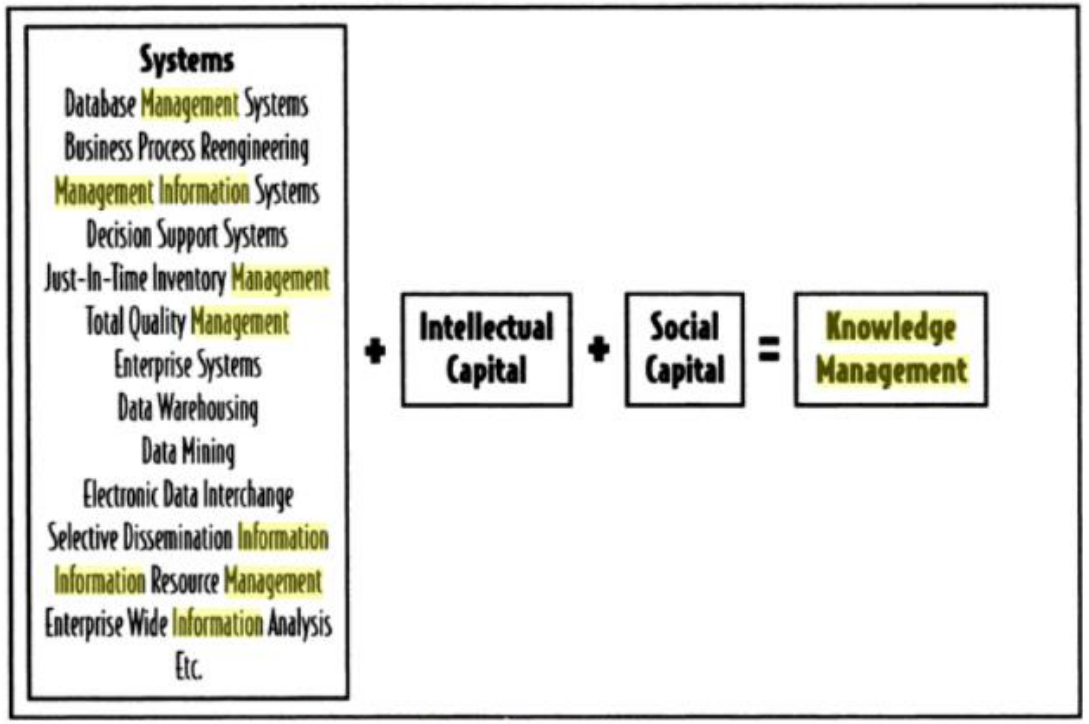
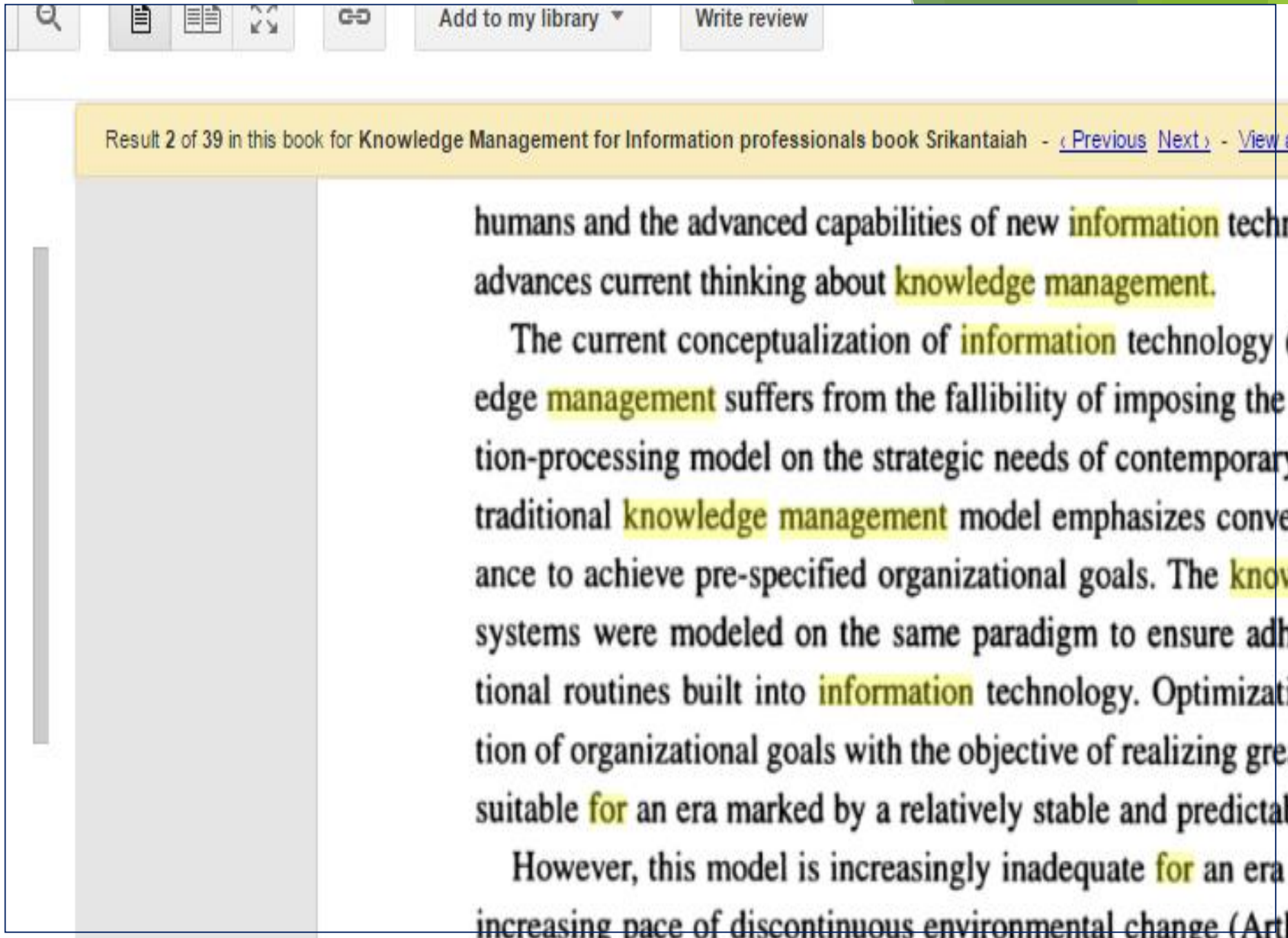


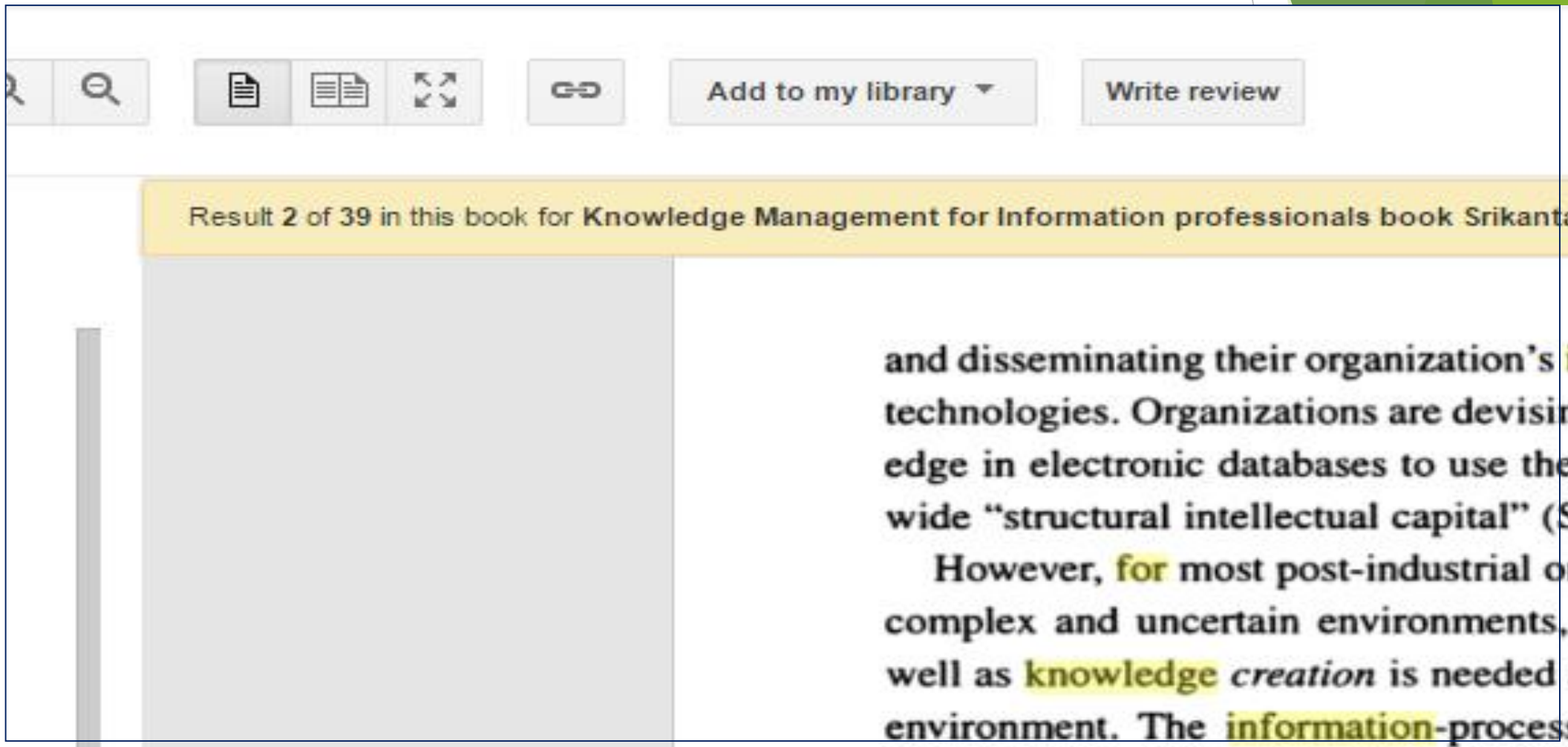
Figure 2.6 Evolution of Knowledge Management Integrating Intellectual Capital

Information Management to Knowledge management

The Primary focus is not doing things right rather Doing the right things is important



Information Management to Knowledge management



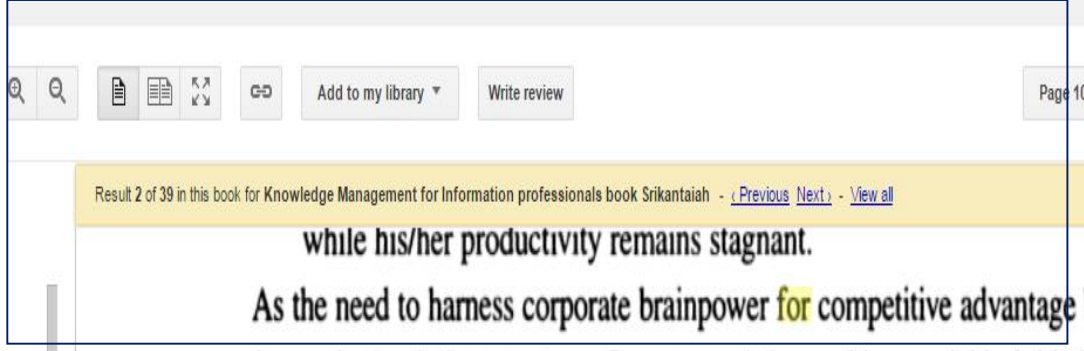
Ethics for Knowledge Management

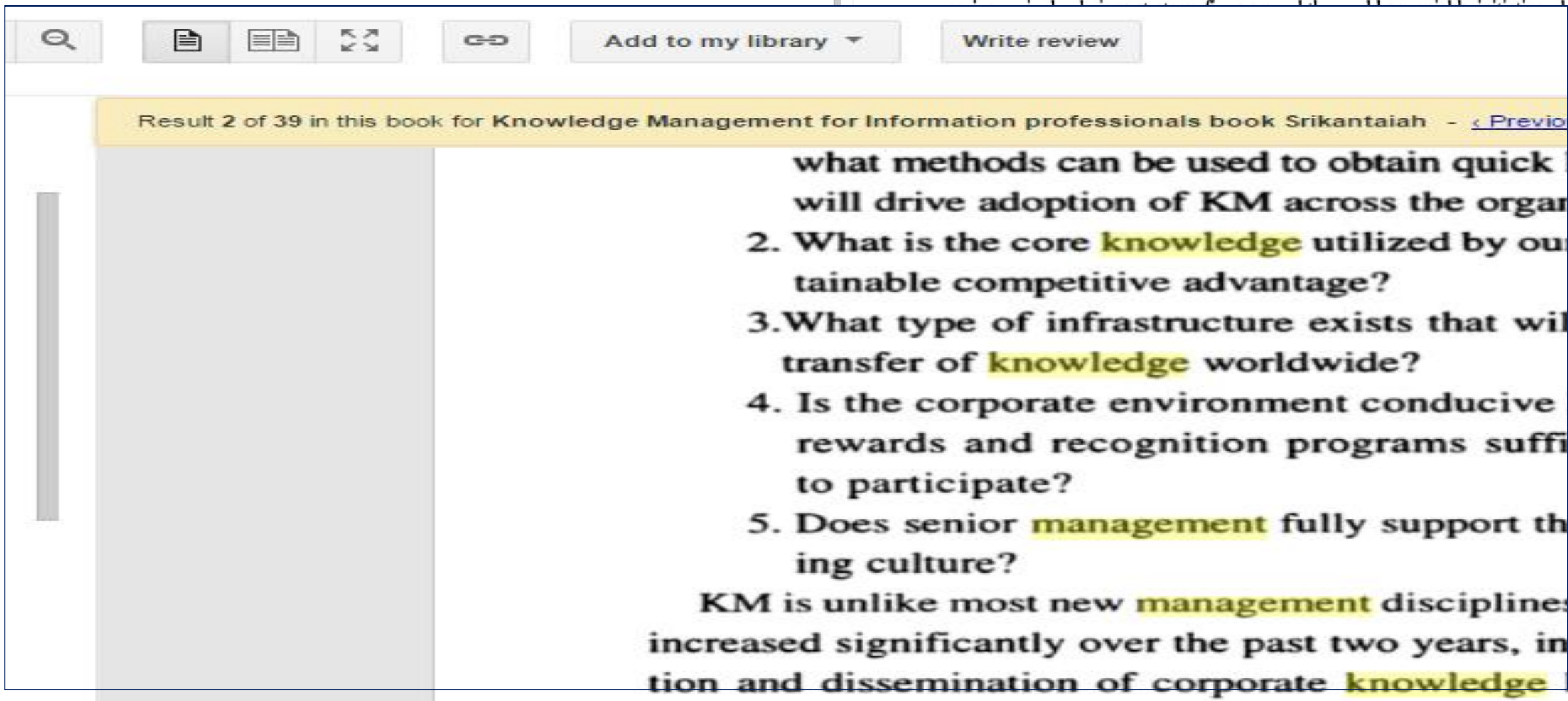
Overview

This chapter argues that ethics is first a matter of vision or discernment, not decision making about particular dilemmas. The implications of this position will be developed for the ethics of knowledge management by first reviewing the traditional approach to business ethics that uses normative theory to guide decisions. The chapter then develops the contrasting position of ethics as discernment, which is argued as more suited for illuminating the rapid changes in computer technologies that underlie knowledge management.

The chapter concludes with a call for an ongoing process of critical inquiry among knowledge managers, ethicists, consumers, and citizens to advance ethics in knowledge management.

KM- The issues to be addressed





Understanding Knowledge

Understanding Knowledge

- **Knowledge** can be defined as the *"understanding obtained through the process of experience or appropriate study."*
- Knowledge can also be an accumulation of facts, procedural rules, or heuristics.
  - A **fact** is generally a statement representing truth about a subject matter or domain.
  - A **procedural rule** is a rule that describes a sequence of actions.
  - A **heuristic** is a rule of thumb based on years of experience.

Understanding Knowledge

Intelligence, Expereience, common Sense

- **Intelligence** implies the capability to acquire and apply appropriate knowledge.
  - **Memory** indicates the ability to store and retrieve relevant experience according to will.
  - **Learning** represents the skill of acquiring knowledge using the method of instruction/study.
- **Experience** relates to the understanding that we develop through our past actions.
- Knowledge can develop over time through successful experience, and experience can lead to expertise.
- **Common sense** refers to the natural and mostly unreflective opinions of humans.

Data- Information - Knowledge

1.2 Data, Information and Knowledge

- **Data** represents unorganized and unprocessed facts.
  - Usually data is static in nature.
  - It can represent a set of discrete facts about events.
  - Data is a prerequisite to information.
  - An organization sometimes has to decide on the nature and volume of data that is required for creating the necessary information.

Data- Information - Knowledge

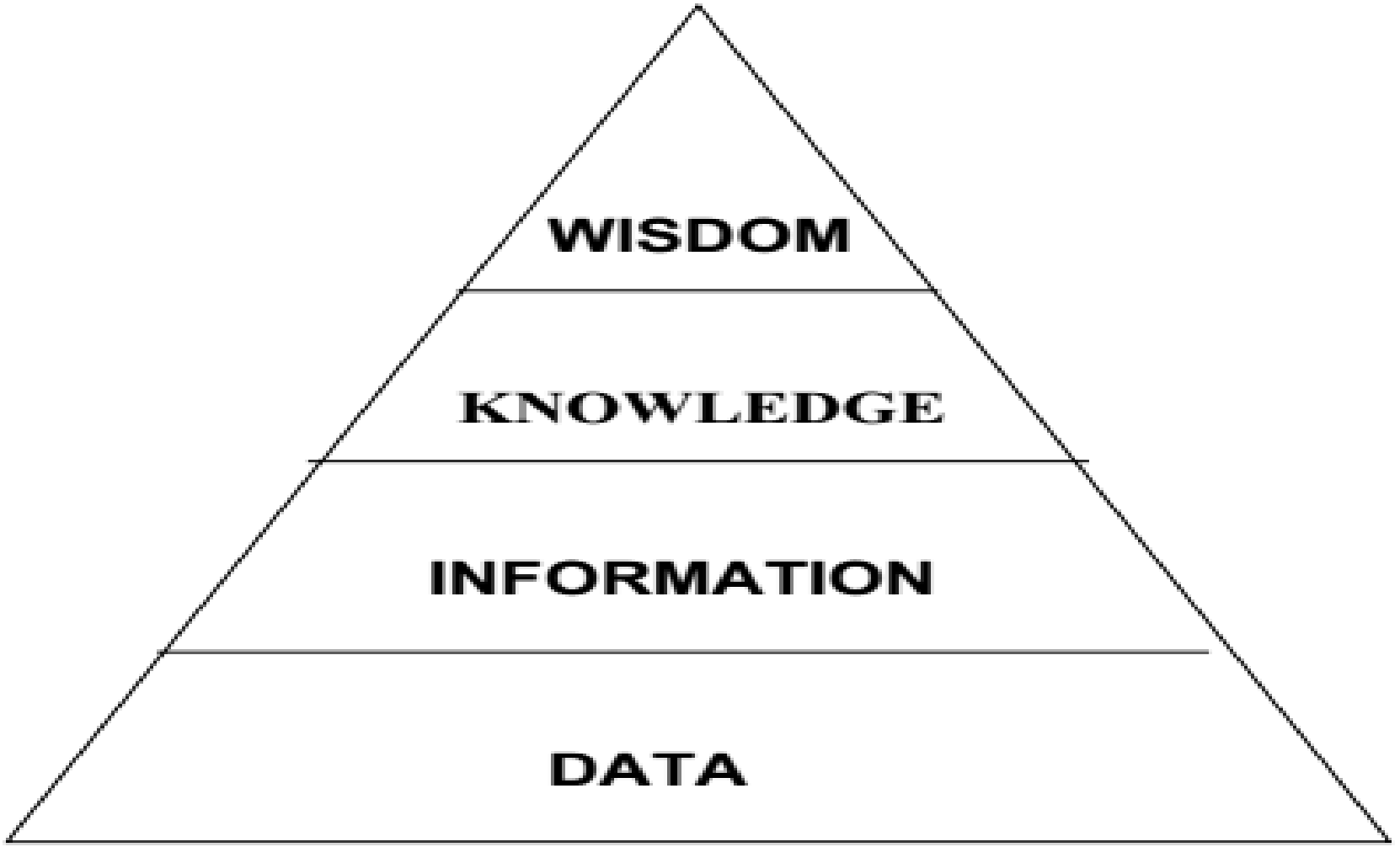


Figure 1.1: Data, Information, Knowledge and Wisdom

Data- Information - Knowledge

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  - An organization sometimes has to decide on the nature and volume of data that is required for creating the necessary information.

- Information can be considered as an aggregation of data (processed data) which makes decision making easier.
- Information has usually got some meaning and purpose.

Knowledge

- By knowledge we mean *human understanding of a subject matter that has been acquired through proper study and experience.*
- Knowledge is usually based on learning, thinking, and proper understanding of the problem area.
- Knowledge is not information and information is not data.
- Knowledge is derived from information in the same way information is derived from data.
- We can view it as an understanding of information based on its perceived importance or relevance to a problem area.
- It can be considered as the integration of human perceptive processes that helps them to draw meaningful conclusions.

Kinds of Knowledge

1.3 Kinds of Knowledge

- Deep Knowledge: Knowledge acquired through years of proper experience.
- Shallow Knowledge: Minimal understanding of the problem area.
- Knowledge as Know-How: Accumulated lessons of practical experience.
- Reasoning and Heuristics: Some of the ways in which humans reason are as follows:
  - Reasoning by analogy: This indicates relating one concept to another.
  - Formal Reasoning: This indicates reasoning by using *deductive* (exact) or *inductive* reasoning.
    - Deduction uses major and minor premises.
    - In case of deductive reasoning, new knowledge is generated by using previously specified knowledge.
    - Inductive reasoning implies reasoning from a set of facts to a general conclusion.
    - Inductive reasoning is the basis of scientific discovery.
    - A *case* is knowledge associated with an operational level.
- Common Sense: This implies a type of knowledge that almost every human being possess in varying forms/amounts.

Procedural, declarative, Semantic, episodic Knowledge

- We can also classify knowledge on the basis of whether it is *procedural*, *declarative*, *semantic*, or *episodic*.
  - *Procedural knowledge* represents the understanding of how to carry out a specific procedure.
  - *Declarative knowledge* is routine knowledge about which the expert is conscious. It is shallow knowledge that can be readily recalled since it consists of simple and uncomplicated information. This type of knowledge often resides in short-term memory.
  - *Semantic knowledge* is highly organized, "chunked" knowledge that resides mainly in long-term memory. Semantic knowledge can include major concepts, vocabulary, facts, and relationships.
  - *Episodic knowledge* represents the knowledge based on episodes (experimental information). Each episode is usually "chunked" in long-term memory.

Tacit – explicit Knowledge

- Another way of classifying knowledge is to find whether it is *tacit* or *explicit*
  - *Tacit knowledge* usually gets embedded in human mind through experience.
  - *Explicit knowledge* is that which is codified and digitized in documents, books, reports, spreadsheets, memos etc.

Knowledge Chunking

1.4 Expert Knowledge

It is the information woven inside the mind of an expert for accurately and quickly solving complex problems.

- Knowledge Chunking
  - Knowledge is usually stored in experts long-range memory as *chunks*.
  - Knowledge chunking helps experts to optimize their memory capacity and enables them to process the information quickly.
  - Chunks are groups of ideas that are stored and recalled together as an unit.

Knowledge as Attribute of Expertise

- Knowledge as an Attribute of Expertise
  - In most areas of specialization, insight and knowledge accumulate quickly, and the criteria for expert performance usually undergo continuous change.
  - In order to become an expert in a particular area, one is expected to master the necessary knowledge and make significant contributions to the concerned field.
  - The unique performance of a true expert can be easily noticed in the quality of decision making.
  - The true experts (knowledgeable) are usually found to be more selective about the information they acquire, and also they are better able in acquiring information in a less structured situation.
  - They can quantify soft information, and can categorize problems on the basis of solution procedures that are embedded in the experts long range memory and readily available on recall.
  - Hence, they tend to use knowledge-based decision strategies starting with known quantities to deduce unknowns.

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- Hence, they tend to use knowledge-based decision strategies starting with known quantities to deduce unknowns.
- If a first-cut solution path fails, then the expert can trace back a few steps and then proceed again.
- Nonexperts use means-end decision strategies to approach the the problem scenario.
- Nonexperts usually focus on goals rather than focusing on essential features of

Thinking and Learning in Humans

1.5 Thinking and Learning in Humans

- Research in the area of artificial intelligence has introduced more structure into human thinking about thinking.
- Humans do not necessarily receive and process information in exactly the same way as the machines do.
- Humans can receive information via seeing, smelling, touching, hearing (sensing) etc., which promotes a way of thinking and learning that is unique to humans.
- On macro level, humans and computers can receive inputs from a multitude of sources.
- Computers can receive inputs from keyboards, touch screens etc.

Thinking and Learning in Humans

- On micro level, both human brain and CPU of a computer receive information as electrical impulses.
- The point to note here is that the computers must be programmed to do specific tasks. Performing one task does not necessarily transcend onto other tasks as it may do with humans.
- Human learning: Humans learn new facts, integrate them in some way which they think is relevant and organize the result to produce necessary solution, advice and decision. Human learning can occur in the following ways:
  - Learning through Experience.
  - Learning by Example.
  - Learning by Discovery.