



# **Topic 2(Chap 2)**

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## **The Nature of Knowledge**



# Chapter Objectives

- Understand the difference between knowledge, data, and information
- Explain the alternative views of knowledge
- Understand the different types of knowledge
- Recognize the various locations of knowledge



# What is Data?

- Data comprises facts, observations, or perceptions
- Data represents raw numbers or assertions



# What is Information?

- Information is processed data
- Information is a subset of data, only including those data that possess context, relevance and purpose
- Information involves manipulation of raw data



# What is Knowledge?

- A justified true belief (Nonaka and Takeuchi)
- It is different from data & information
- Knowledge is at the highest level in a hierarchy with information at the middle level, and data to be at the lowest level
- It is the richest, deepest & most valuable of the three
- Information with direction



# Important Dimensions of Knowledge

- **Data:** Flow of captured events or transactions
- **Information:** Data organized into categories of understanding
- **Knowledge:** Concepts, experience, and insight that provide a framework for creating, evaluating, and using information. Can be tacit (undocumented) or explicit (documented)



# Important Dimensions of Knowledge

- **Wisdom:** The collective and individual experience of applying knowledge to the solution of problem; knowing when, where, and how to apply knowledge

## Knowledge is a Firm Asset:

- Intangible asset
- Requires organizational resources
- Value increases as more people share it



# Important Dimensions of Knowledge

## Knowledge has Different Forms:

- Tacit or explicit
- Know-how, craft, and skill
- Knowing how to follow procedures; why things happen





# Important Dimensions of Knowledge

## **Knowledge has a Location:**

- **Cognitive event involving mental models & maps of individual**
- **Social and individual basis of knowledge**
- **Sticky (hard to move),**
- **Situated (embedded in firm culture),**
- **Contextual (works only in certain situation)**



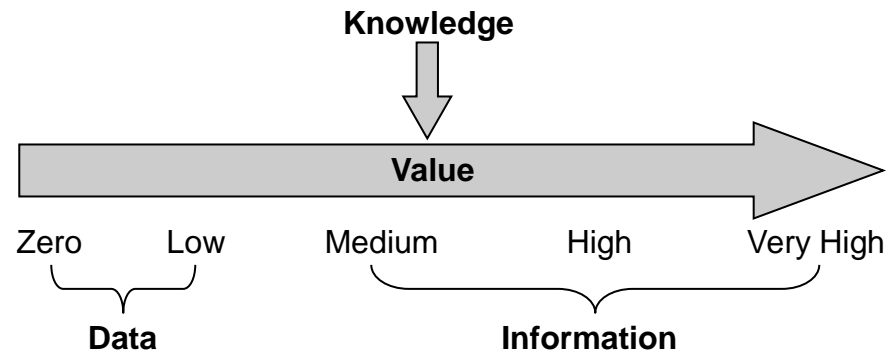
# Important Dimensions of Knowledge

## Knowledge is Situational:

- **Conditional**
  - Knowing when to apply a procedure is just as important as knowing the procedure
- **Contextual**
  - Must know how to use certain tool & under what circumstances

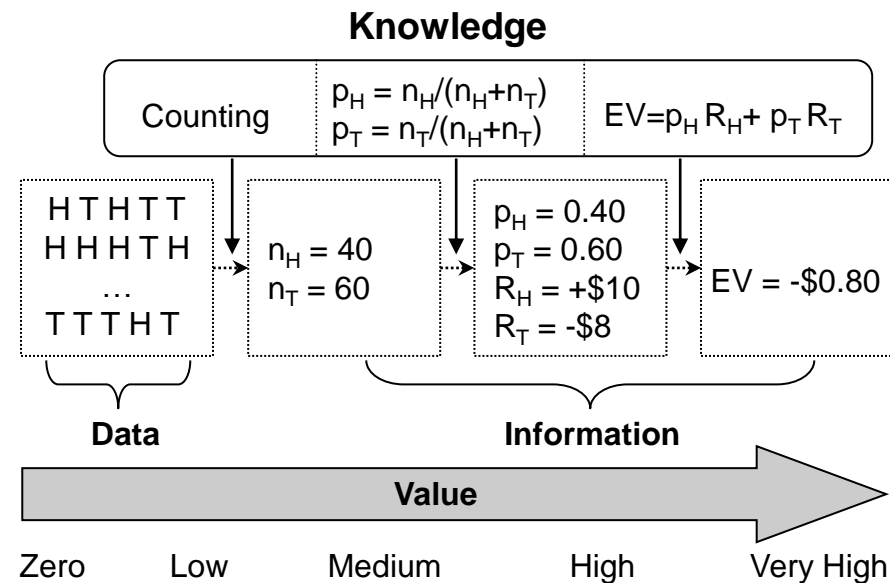


# Data, Information, and Knowledge



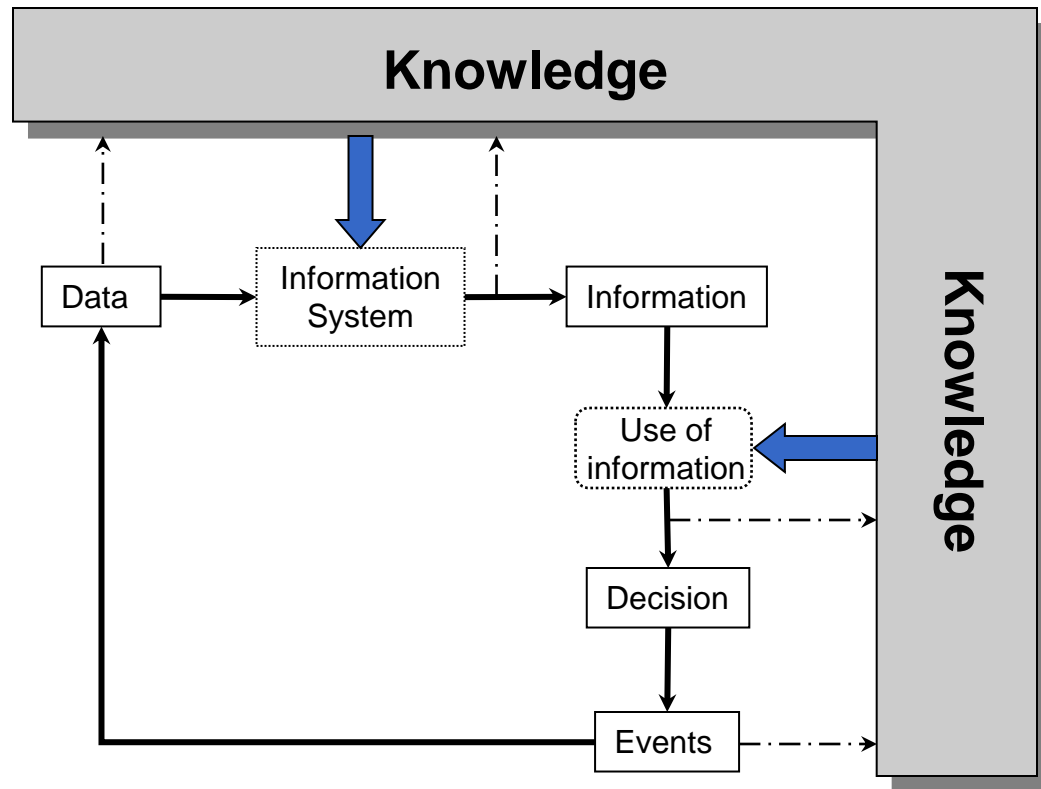


# Data, Information, and Knowledge: Example





# Data, Information, Knowledge and Events





# Subjective View of knowledge

- Knowledge as State of Mind
  - ♦ State of an individual mind
  - ♦ Organizational knowledge is views as the beliefs of individuals in an organization
- Knowledge as Practice



# Objective View of knowledge

- Knowledge as Objects
- Knowledge as Access to Information
- Knowledge as Capability



# Sources of Knowledge

- Sources will Includes books, films, computer databases, pictures, maps, flow diagrams, stories, case studies or observed behaviour.
- Divided into 2:
  - ♦ **Documented:** books, flow diagrams etc
  - ♦ **Undocumented:** Resides in people mind





# Levels of Knowledge

- Shallow knowledge:
  - ◆ Representation of only surface level information that can be used to deal with very specific situations.
- Deep Knowledge
  - ◆ Human problem solving is based on deep knowledge of a situation. It that can be applied to different tasks and different situations.



# Categories of Knowledge

- Procedural Knowledge
- Declarative Knowledge
- Meta Knowledge
- Heuristic Knowledge
- Structural Knowledge



# Categories of Knowledge

- Procedural knowledge
  - ♦ Describe how to solve a problem.
  - ♦ Provides direction on how to do something.
  - ♦ May include explanation and how to make inference.



# Categories of Knowledge

- Declarative knowledge:
  - ♦ Describe what is known about a problem. It tells us facts-what things are. Express in factual statement such as 'Smoking can cause cancer', 'Don't drink and drive'.



# Categories of Knowledge

- Meta-Knowledge
  - ♦ Describe knowledge about another knowledge.
  - ♦ Used to pick other knowledge that is best suited for a solving a problem.



# Categories of Knowledge

- Heuristics Knowledge
  - ◆ Describe rules of thumb that guides the reasoning process.
  - ◆ Often called shallow knowledge compile through experience.



# Categories of Knowledge

- Structural Knowledge
  - ♦ Describe overall mental model of the problem.
  - ♦ The mental model of concepts, sub-concepts, and objects; and are they related.



# Procedural and Declarative Knowledge

- Declarative knowledge (substantive knowledge) focuses on beliefs about relationships among variables
- Procedural knowledge focuses on beliefs relating sequences of steps or actions to desired (or undesired) outcomes





# Tacit and Explicit Knowledge

- Tacit knowledge includes insights, intuitions, and hunches
- Explicit knowledge refers to knowledge that has been expressed into words and numbers
- We can convert explicit knowledge to tacit knowledge



# General and Specific Knowledge

- General knowledge is possessed by a large number of individuals and can be transferred easily across individuals
- Specific knowledge, or “idiosyncratic knowledge,” is possessed by a very limited number of individuals, and is expensive to transfer
- Idiosyncratic: particular way of thinking
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# Technically and Contextually Specific Knowledge

- Technically specific knowledge is deep knowledge about a specific area
- Contextually specific knowledge knowledge refers to the knowledge of particular circumstances of time and place in which work is to be performed



# Knowledge and Expertise

- Expertise can be defined as knowledge of higher quality
- An “expert” is one who is able to perform a task much better than others



# Characteristics of an Expert

- Peers regard the expert decisions as good decisions.
- Whenever problem arises, people consult the expert.
- The expert admits not knowing that answer to a problem. This honesty indicates self-confidence and a realistic view of limitations.



# Characteristics of an Expert

- The expert avoids information that is irrelevant to the domain and instead sticks to the facts and works with a focus
- The expert is not arrogant about personal credentials, years of experience, or strong ties with people in power.



# Types of Expertise

- Associational Expertise
- Motor Skills Expertise
- Theoretical (Deep) Expertise



# Types of Knowledge

- Simple knowledge focuses on one basic area
- Complex knowledge draws upon multiple distinct areas of expertise
- Support knowledge relates to organizational infrastructure and facilitates day-to-day operations



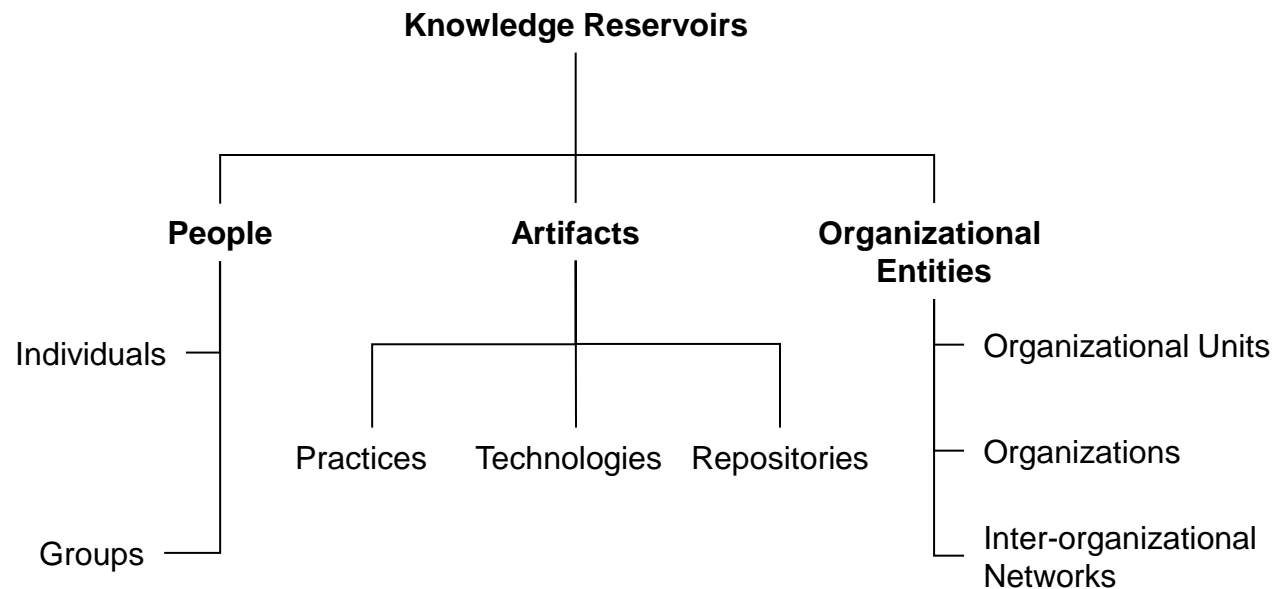


# Types of Knowledge

- Tactical knowledge pertains to the short-term positioning of the organization relative to its markets, competitors, and suppliers
- Strategic knowledge pertains to the long-term positioning of the organization in terms of its corporate vision and strategies for achieving that vision



# Reservoirs of Knowledge(Location)





# Characteristics of Knowledge

- Explicitness
- Codifiability
- Teachability
- Knowledge Specificity



# Conclusions

- Knowledge is different from data & information
- Knowledge in an area can be defined as justified beliefs about relationships among concepts relevant to that particular area
- Knowledge can be of different types
- Knowledge has several characteristics
- Knowledge resides in several different places



# Illustrations of the Different Types of Knowledge

		<b>General</b>	<b>Contextually Specific</b>	<b>Technically Specific</b>
<b>Declarative</b>	<b>Explicit</b>	A book describing factors to consider when deciding whether to buy a company's stock. This may include price to earnings ratio, dividends	A company document identifying the circumstances under which a consultant team's manager should consider replacing a team member who is having problems with the project.	A manual describing the factors to consider in configuring a computer so as to achieve performance specifications
	<b>Tacit</b>	Knowledge of the major factors to consider when deciding whether to buy a company's stock.	A human relations manager's knowledge of factors to consider in motivating an employee in a particular company.	A technician's knowledge of symptoms to look for in trying to repair a faulty television set.
<b>Procedural</b>	<b>Explicit</b>	A book describing steps to take in deciding whether to buy a company's stock.	A company document identifying the sequence of actions a consultant team's manager should take when requesting senior management to replace a team member having problems with the project.	A manual describing how to change the operating system setting on a computer so as to achieve desired performance changes.
	<b>Tacit</b>	Basic knowledge of the steps to take in deciding whether to buy a company's stock.	A human relations manager's knowledge of steps to take in motivating an employee in a particular company.	A technician's knowledge of the sequence of steps to perform in repairing a television set.