

Knowledge Management(INSY3093)

**Department of Information Systems
Year-III**

**Academic Year:2020
Semester-II**

Chapter 1: The Nature of Knowledge

Data, information, knowledge

- Knowledge is quite distinct from “data” and “information,” although the three terms are sometimes used interchangeably. However, they are quite distinct in nature.

Data

- Data represents unorganized and unprocessed facts: Raw numbers, images, words, sounds, derived from observations or measurements
- It can represent a set of discrete facts about events.
- Data in itself has no meaning; it is the raw material for information.
- It simply exists and has no significance beyond its existence.
- In computer parlance, a spreadsheet generally starts out by holding data.

Example : That a sales order at a restaurant included two large burgers and two medium-sized vanilla milkshakes

Information

- Information is processed data that has been given meaning by way of relational connection

- It is a subset of data, only including those data that possess context, relevance and purpose
- It involves manipulation of raw data, and is organized for some purpose.
- In computer parlance, a relational database makes information from the data stored within it.
- Information can be considered as an aggregation of data (processed data) which makes decision making easier.
- provides answers to "who", "what", "where", and "when" questions
- It is the raw material for knowledge
- *Example:* For the manager of the restaurant, the numbers indicating the daily sales (in dollars, quantity, or percentage of daily sales) of burgers, vanilla milkshakes, and other products

Knowledge

- It is understanding of information based on its perceived importance
- is a familiarity , awareness or understanding of some one or something , such as facts, information, descriptions of skills, which is acquired through experience or education, by perceiving, discovering and learning.

- Is as being at the highest level in a hierarchy with information at the middle level and data at the lowest level.
- is the summation of information into independent concepts and rules that can explain relationships or predict outcomes to particular area..
- Where, data refer to bare facts void of context, for example a telephone number, Information is data in context, for example a phone book.
- Knowledge is information that facilitates action, for example, individuals who are the domain experts within an organization.
- Example: recognizing that a phone number belongs to a good client who needs to be called once per week to get his orders.
- Knowledge helps produce information from data or more valuable information from less valuable information.
- It is specific to the knower, created from information, integrated with experience, reflected upon and interpreted in a particular context.
- Outside it exists as embodiments in the form of documents, man- made artifacts, cultural practices etc.

- Commonly answers the "how" questions

Example1: The daily sales of burgers can be used, along with other information (e.g., information on the quantity of bread in the inventory), to compute the amount of bread to buy. The relationship between the quantity of bread that should be ordered, the quantity of bread currently in the inventory, and the daily sales of burgers (and other products that use bread) is an example of knowledge. Understanding of this relationship (which could conceivably be stated as a mathematical formula) helps to use the information (on quantity of bread in the inventory and daily sales of burgers, etc.) to compute the quantity of bread to be purchased.

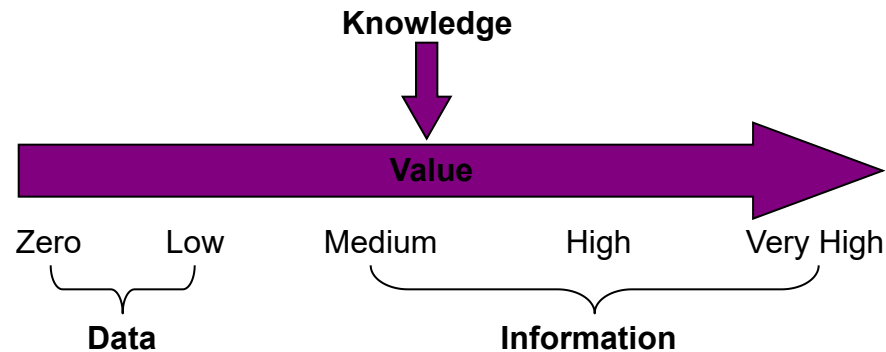
Example2: One form of knowledge is the ability to predict, in the physical world what will happen if an object is subjected to change. That is to know, with a relatively certain probability, that if you drop an egg, for example on a concrete surface from 3 feet, it will crack and disperse its' contents, "randomly" on the target surface. Further knowledge, might be an ability to calculate the amount of time it will take for that egg to hit the concrete, from that particular distance. And eventually, you reach a point where you might be able to estimate a distance the yolk and white of the egg will travel.

More Examples

- **Data:** I have one item. The data displays a 1, not a zero.
- **Information:** It's a tomato. Now, we understand the item and its characteristics.
- **Knowledge:** A tomato is a fruit. We can identify patterns in the information and apply them to the item.

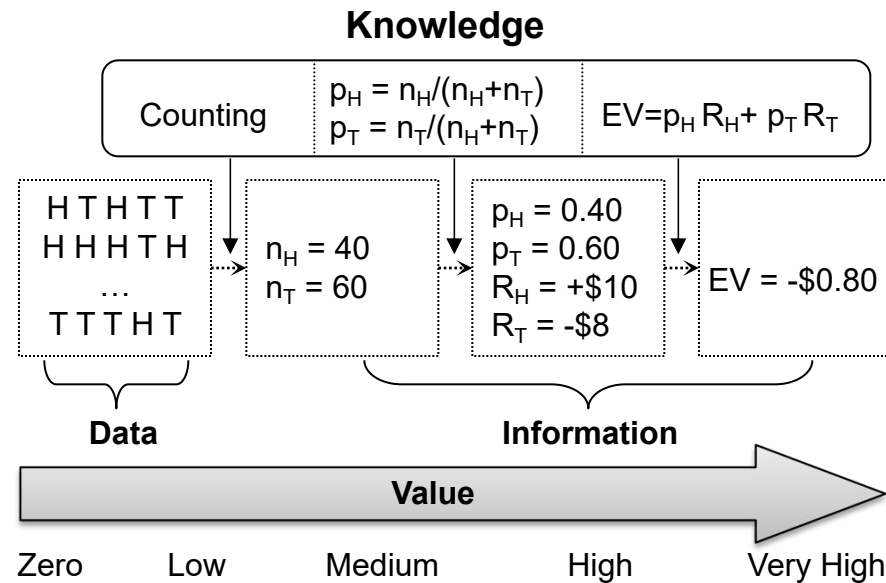
- Knowledge can be gained through experience or learning, perceiving, or discovering something. It practical or theoretical understanding of a particular subject. Data Information
- Knowledge is at the highest level in a hierarchy with information at the middle level, and data to be at the lowest level
- It is the richest, deepest & most valuable of the three
- A justified true belief

Data, Information, and Knowledge

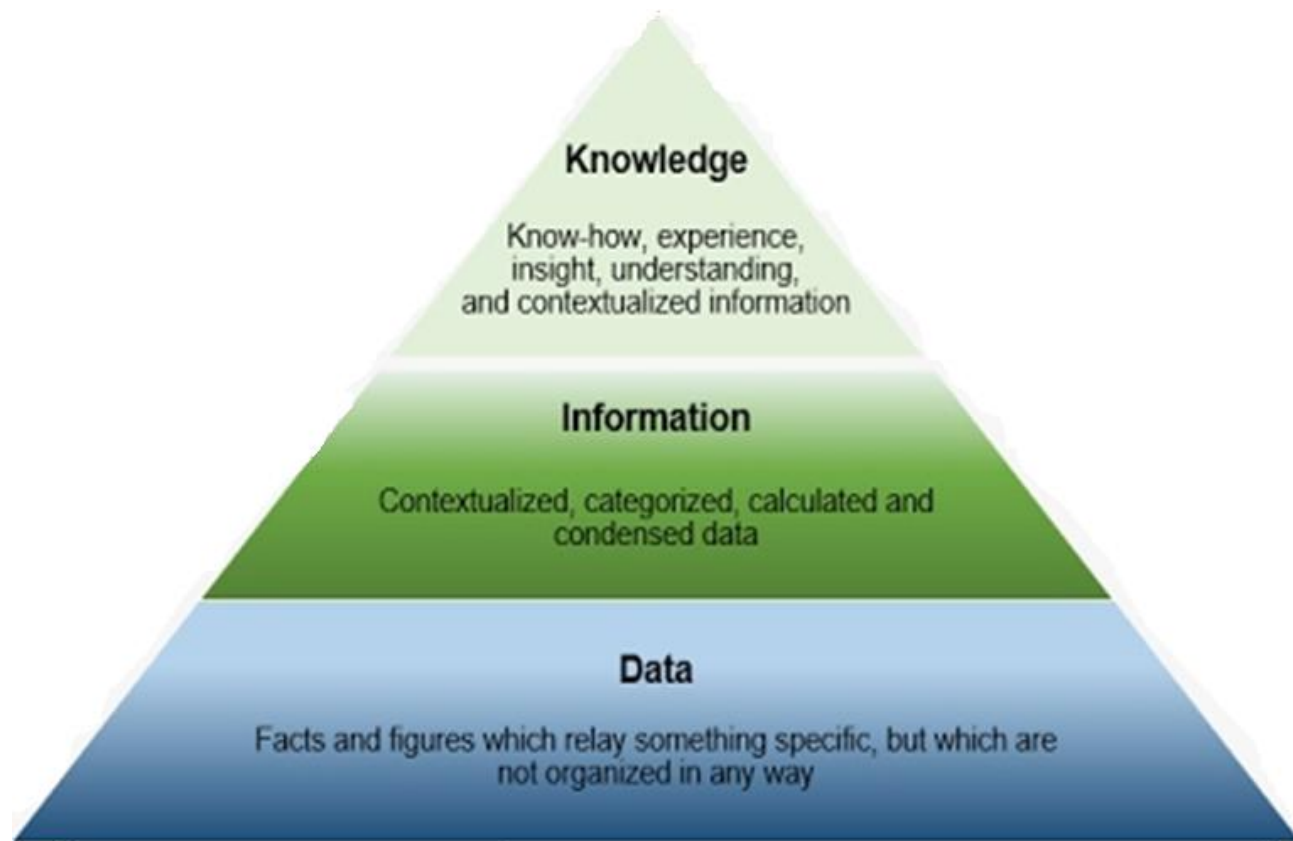


EV=Expected Value, P= probabilities, R= Returns, H=Heads, T=Tails

Data, Information, and Knowledge: Example



- The information about 40 heads and 60 tails (out of 100 tosses) can be used to compute the **probability** of heads (0.40) and tails (0.60). The probabilities can then be used, along with information about the **returns** associated with heads (\$10 from Susan's perspective) and tails (−\$8, again from Susan's perspective) to compute the **expected value** to Susan from participating in the bet. Both probabilities and expected values are information, although more valuable information than the facts that 40 tosses produced heads and 60 produced tails. Moreover, expected value is more useful information than the probabilities; the former can directly be used to make the decision, whereas the latter requires computation of expected value.
- The relationship between the **probability** of heads, the number of times the coin lands heads, and the total number of tosses (i.e., that probability of heads, or $p_H = n_H / (n_H + n_T)$, assuming that the coin can only land heads or tails) is an example of knowledge. It helps compute the probability from the data on outcomes of tosses. The similar formula for probability of tails is knowledge as well. In addition, the relationship between expected value (EV) and the probabilities (p_H , p_T) and returns (R_H , R_T) for heads and tails (i.e., $EV = p_H * R_H + p_T * R_T$) is also knowledge. Using these components of knowledge, probability of heads and tails can be computed as 0.40 and 0.60, respectively. Then, the expected value for Susan can be computed as $0.40 * (+\$10) + 0.60 * (-\$8) = -\$0.80$.



The Knowledge Triangle or Structure of Knowledge

Introduction to Knowledge Management

- **Knowledge management (KM)** may simply be defined as *doing what is needed to get the most out of knowledge resources*.
- It is a systematic process of acquiring, organizing, sustaining, applying, sharing and renewing of knowledge to enhance the organizational performance, increase organizational adaptability, increase values of existing products and services and/or create new knowledge intensive products, processes and services.
- From an information system perspective, it implies capturing and storing employees' knowledge to use by making accessible to others in the organization.
- a process of creating an interactive learning environment where people transfer and share what they know, internalize it and apply it to create new knowledge.
- the system that identifies the **knowledge** requirements and their sources, generates the required information, processes, analyses and suitably presents the information, stores and makes available the **knowledge** to the right people at right time in the right format.
- Systemic and organizationally specified process for acquiring, organizing, and communicating the knowledge of employees so that other employees may make use of it to be more effective and productive in their work.