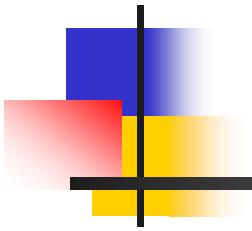


Knowledge Management: Overview

Why do we have to manage knowledge?

- **Marketplaces are increasingly competitive and the rate of innovation is rising.**
- **Reductions in staffing create a need to replace informal knowledge with formal methods.**
- **Competitive pressures reduce the size of the work force that holds valuable business knowledge**
- **The amount of time available to experience and acquire knowledge has diminished**

- **Changes in strategic direction may result in the loss of knowledge in a specific area.**
- **Early retirements and increasing mobility of the work force lead to loss of knowledge.**

What is Knowledge Management?

- ***(KM) may be defined simply as doing what is needed to get the most out of knowledge resources.***
- ***(KM) focuses on organizing and making available important knowledge, wherever and whenever it is needed.***
- ***(KM) is highly related to the concept of intellectual capital (both human and structural.***

Forces Driving Knowledge Management

- **Increasing Domain Complexity**
- **Accelerating Market instability**
- **Intensified Speed of Responsiveness**
- **Diminishing Individual Experience**

Why KM is important ?

Knowledge management provides benefits to individual, to communities of practice, and to the organization itself.

For the individual, KM:

- Helps people do their jobs and save time through better decision making and problem solving
- Helps people to keep up to date
- Provides challenges and opportunities to contribute

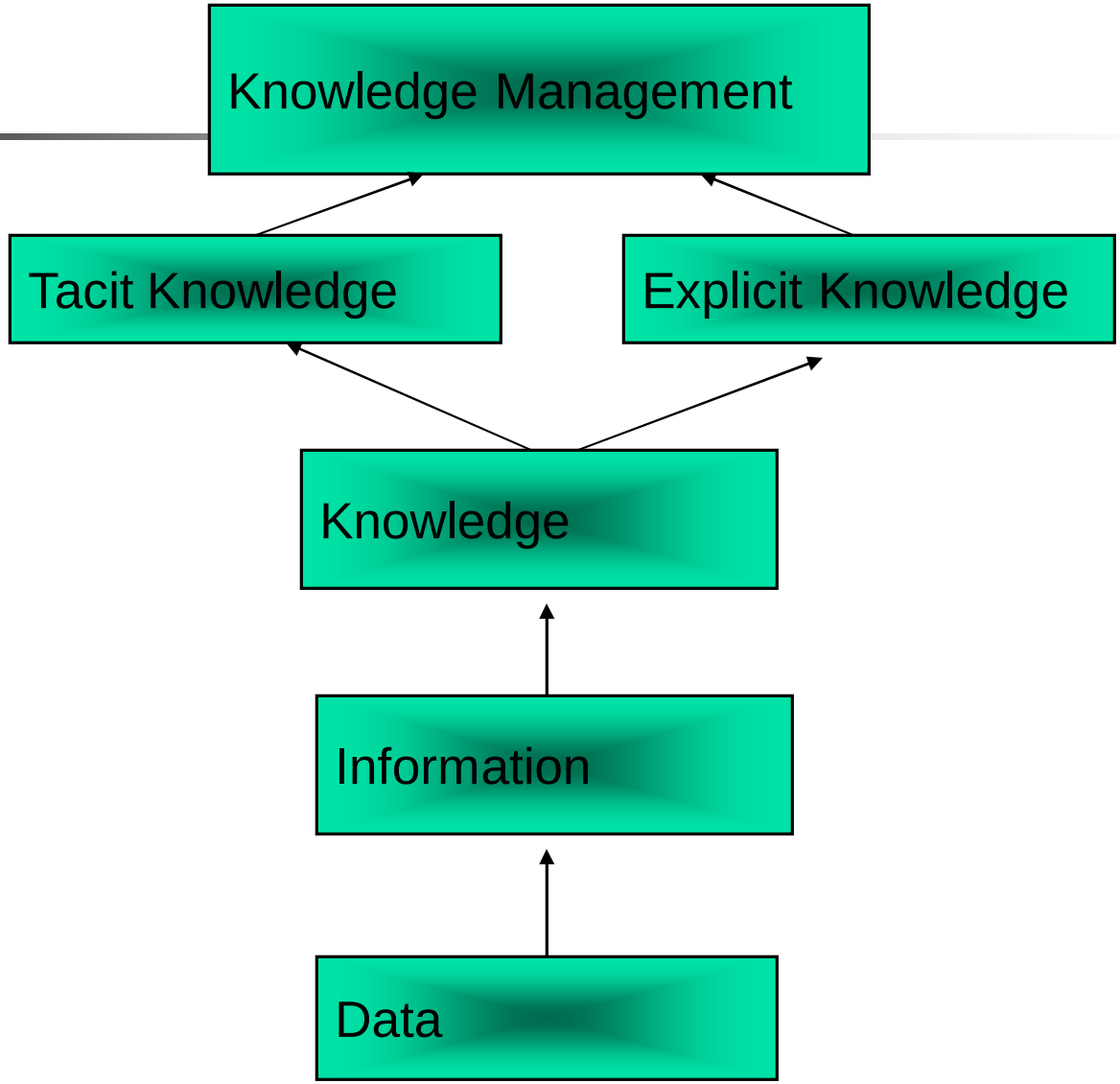
For the community of practice, KM

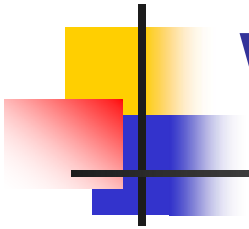
- Develops professional skills
- Promotes peer-to-peer mentoring
- Facilitates more effective networking and collaboration
- Develops a professional code of ethics that members can adhere to
- Develops a common language

For the organization, KM

- • Helps drive strategy
- • Solves problems quickly
- • Diffuses best practices
- • Improves knowledge embedded in products and services
- • Cross-fertilizes ideas and increases opportunities for innovation
- • Enables organizations to better stay ahead of the competition
- • Builds organizational memory

KM: The Basics





What is Data?

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

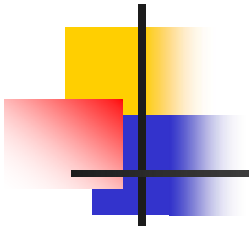
Example:

- A restaurant sales order including two large burgers and two medium-sized vanilla milkshakes.

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 (using knowledge) – data processing / information processing
  - Information systems must meet organizational / user requirements ☺

Information - Example

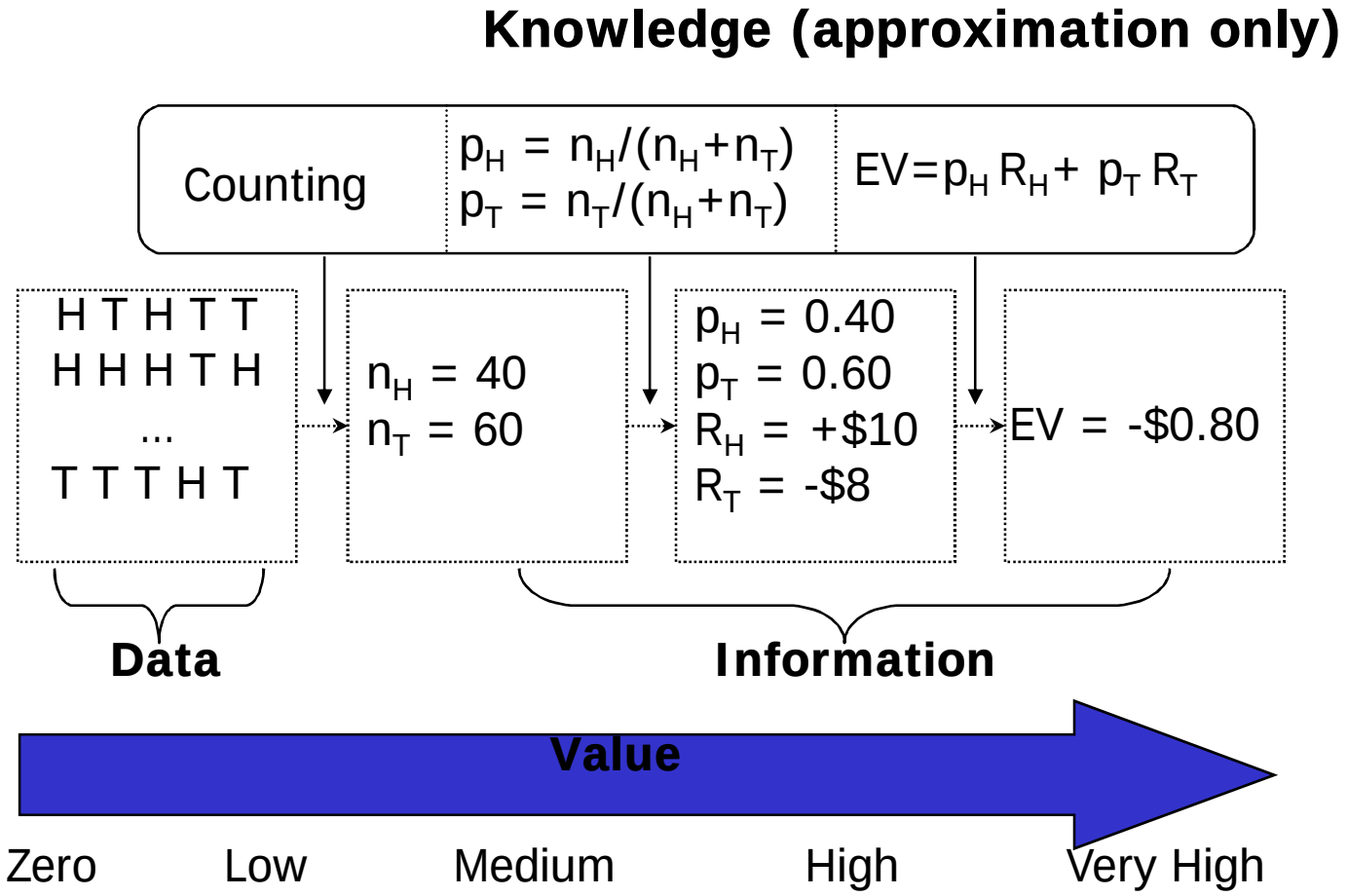


- Consider the numbers indicating the daily sales of burgers, vanilla milk-shakes, and other products of a restaurant
  - For the restaurant manager
    - *information* – he can use such to make decisions concerning pricing and raw material purchases.
  - For the CEO of the restaurant chain
    - *data* only – he need processing to consolidate such *data* of all the restaurants for his *information*.
  - For most customers
    - *data* – uninteresting things.

What is Knowledge?

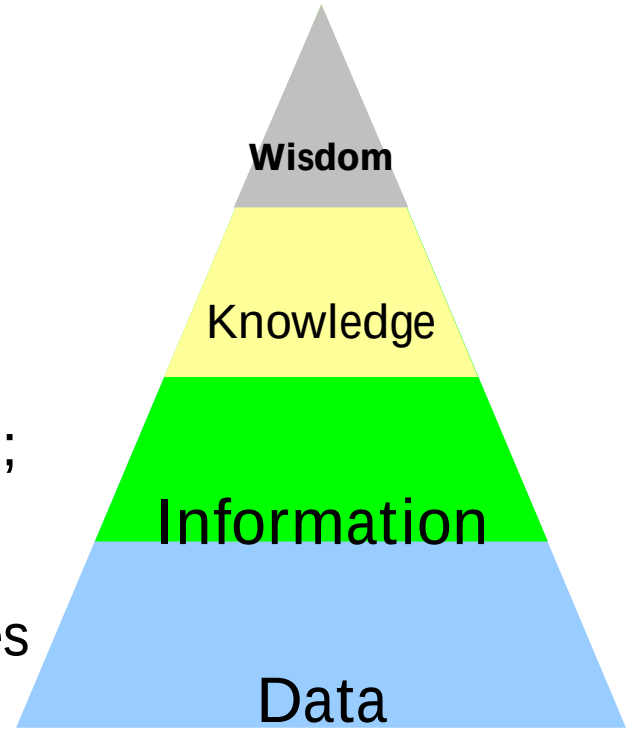
- A justified true belief
- It is different from data & information
- Knowledge is at the highest level in a hierarchy with information at the middle level, and data to be at the lowest level
- It is the richest, deepest & most valuable of the three
- Information with direction, i.e., leads to appropriate actions

Value of Data, Information, & Knowledge

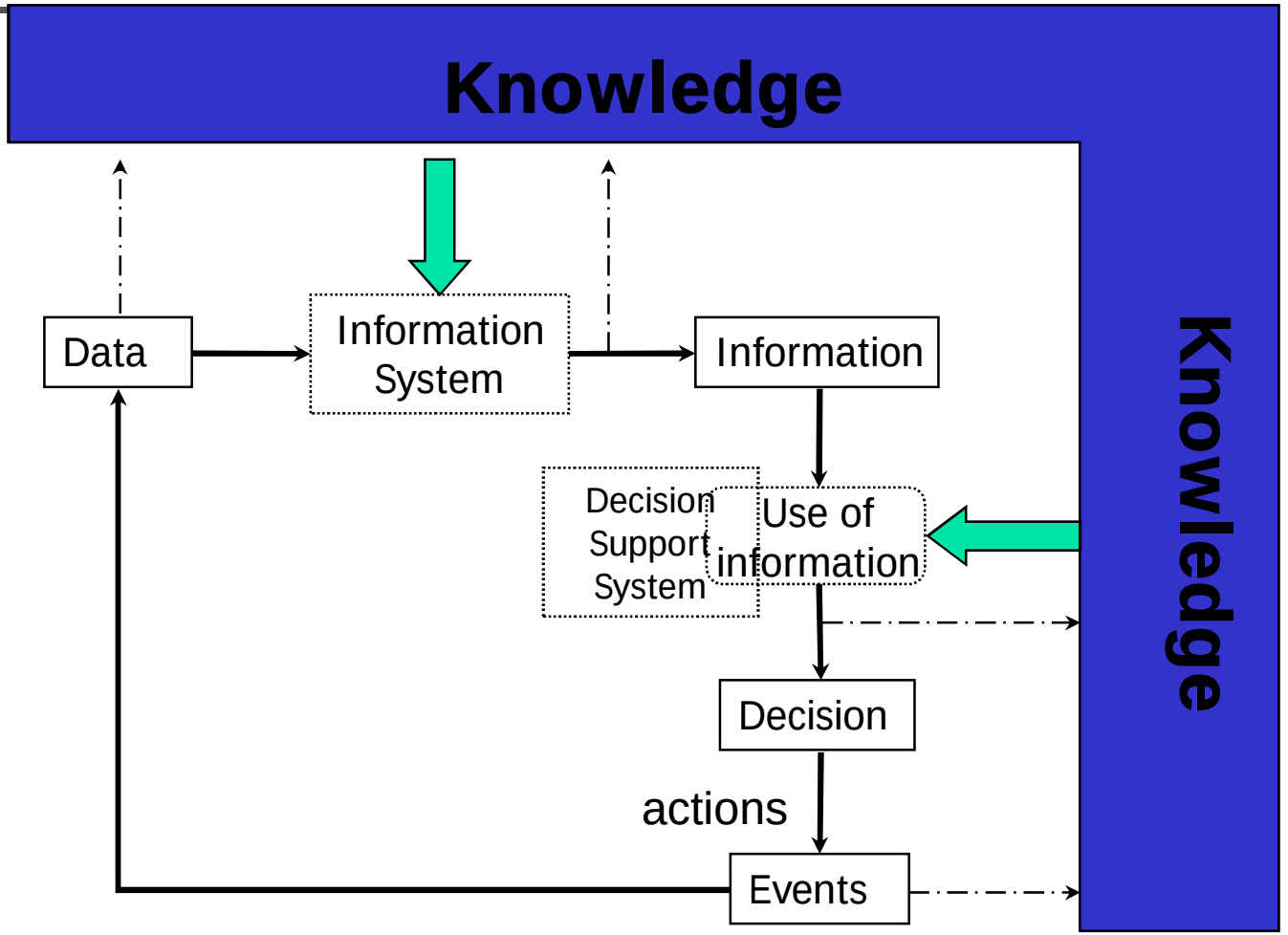


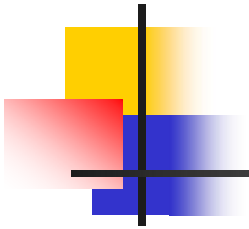
Beyond Knowledge

- Knowledge – the know how
  - actionable information
  - e.g., Increasing the production capacity before X'mas each year to handle the extra sales volume;
- Wisdom – the know why
  - e.g., why there is increasing sales volume just before X'mas?
  - inclination to adjust



Relating Data, Information, Knowledge to Events





Classification of “knowledge”

Types (Categorization) of Knowledge

- **Knowledge had been classified according to its orientation into :**

1. **know-what** ……

It is related to having information about facts and state of things

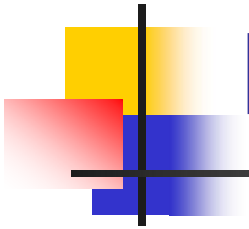
Know-Why

- **It is related to causal relationships between different element, it depends on the ability to articulate a conceptual understanding of an experience, it may called (conditional knowledge)**

- **know- how**
- is related to how people understood and how they learn including their physical ability to produce some action, it is called (procedural knowledge)
- know- who
- which related to who know- what and how.

Knowledge had been classified according to its importance to the operations into :

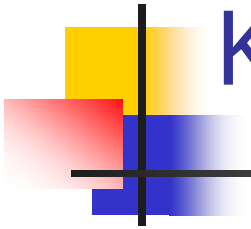
1. The core knowledge
2. The advanced knowledge
3. The innovative knowledge



Knowledge Classifications

- Procedural vs Declarative Knowledge
- Tacit vs Explicit Knowledge
- General vs Specific Knowledge
  - Technically vs Contextually Specific Knowledge

Procedural vs Declarative Knowledge



- *Declarative knowledge* (substantive knowledge) focuses on beliefs about relationships among variables
  - e.g., moon is round, Peter get married with Susan
  - round(moon), married(Peter, Susan)
- *Procedural knowledge* focuses on beliefs relating sequences of steps or actions to desired (or undesired) outcomes
  - Run a lecture: take attendance, open PPT, ...
  - Flowcharts
  - Procedure manuals

Tacit vs Explicit Knowledge

- Tacit (implicit) knowledge includes insights, intuitions, and hunches
  - e.g., don't dive on PP island when something wrong (tsunami's coming)
- Explicit knowledge refers to knowledge that has been expressed into words and numbers
  - e.g., $E=mc^2$
- We can convert explicit knowledge to tacit knowledge or vice versa

Basic distinction between tacit and explicit knowledge

Tacit Knowledge	Explicit Knowledge
Tacit knowledge is hidden and refers to intuitions experiences and insights.	Explicit knowledge can be articulated and codified items
Tacit knowledge dissemination is difficult and only happens through people	Explicit knowledge dissemination is easy and can happen through information technology
Tacit knowledge is personal, and can be easily lost if the key people of organizations leave them	Explicit knowledge is impersonal, so it can be stacked through the organizational memories.
Tacit knowledge can be found in the form of values, ideas, beliefs, insight and innovation	Explicit knowledge can be found in the form of rules, policies, procedures, researches and manuals
Tacit knowledge has more significance as a potential source for innovation and competitive advantage	Explicit knowledge has less significance as a source for innovation and competitive advantages

General vs Specific Knowledge

- General knowledge is possessed by a large number of individuals and can be transferred easily across individuals
  - E.g. operating MS Windows
- Specific knowledge, or “idiosyncratic knowledge,” is possessed by a very limited number of individuals, and is expensive to transfer
  - E.g. writing programs for MS Windows

Technically vs Contextually Specific Knowledge

- Technically specific knowledge is deep knowledge in a specific application domain
  - e.g, information technology, financial investment, etc.

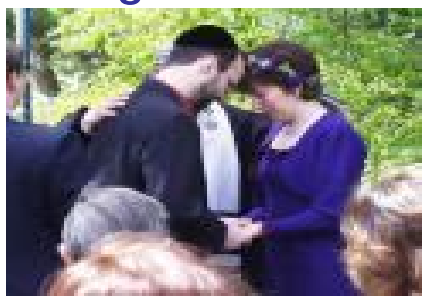
- Contextually specific knowledge refers to the knowledge of particular circumstances of time and place in which work is to be performed
  - E.g., work knowledge in a particular organization

Different Types of Knowledge

		General	Contextually Specific	Technically Specific
Declarative	Explicit	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
	Tacit	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.
Procedural	Explicit	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.
	Tacit	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.

Knowledge Originates and Resides in the Heads of People and the Two Types of Knowledge

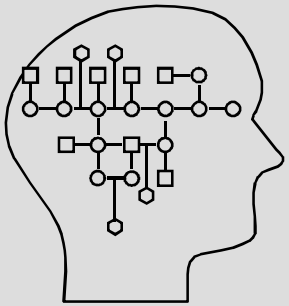
- **Explicit** – knowledge that is codified, recorded, or actualized into some form outside of the head
  - Books, periodicals, journals, maps, photographs, audio-recordings
  - Webpages, websites, portals
- **Tacit** – Knowledge from experience and insight, not in a recorded form, but in our heads, intuition
- Intellectual capital -
  - Doesn't mean much unless packaged in useful ways
  - technology and global environment is redefining "useful ways"



Explicit vs. Tacit Knowledge

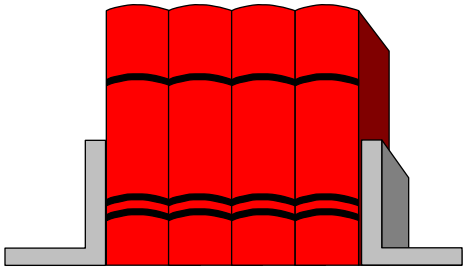
80-85 %

active

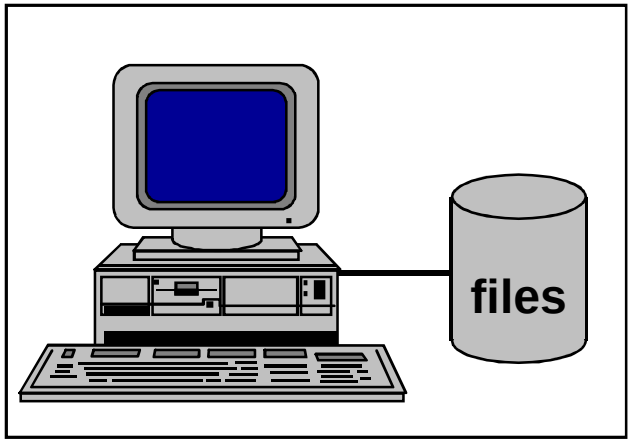


Tacit Knowledge

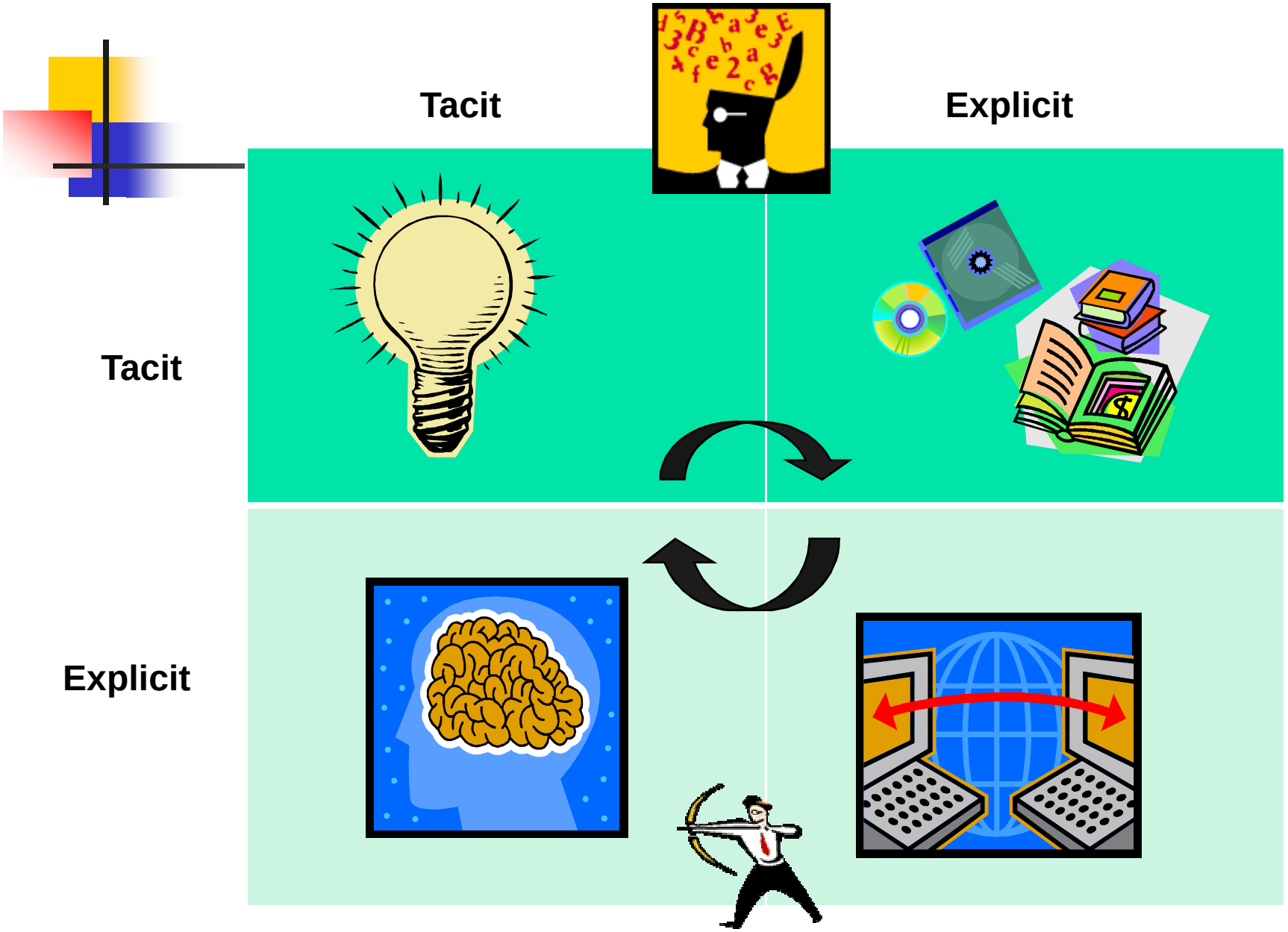
15-20 %



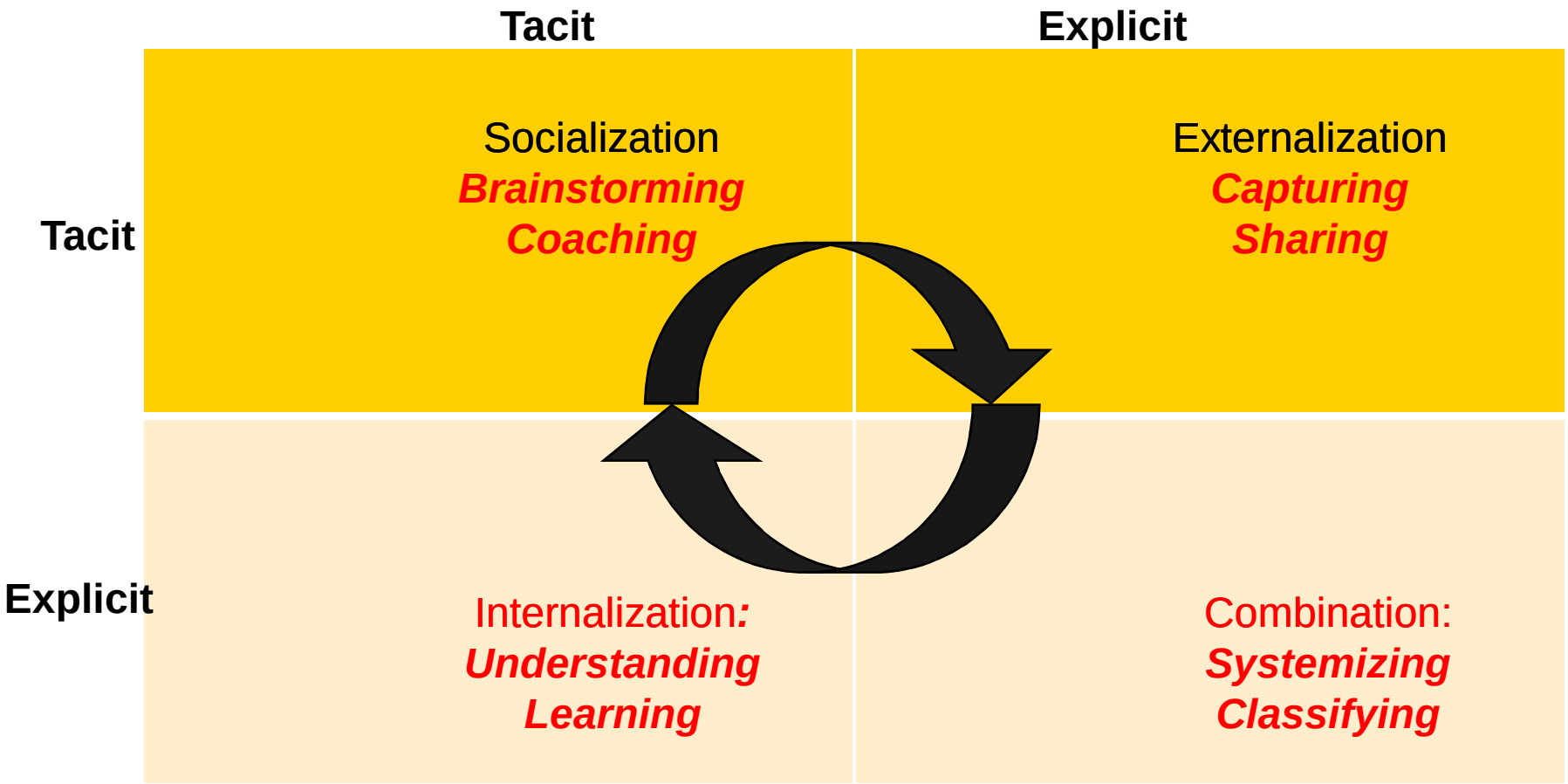
passive



Explicit Knowledge

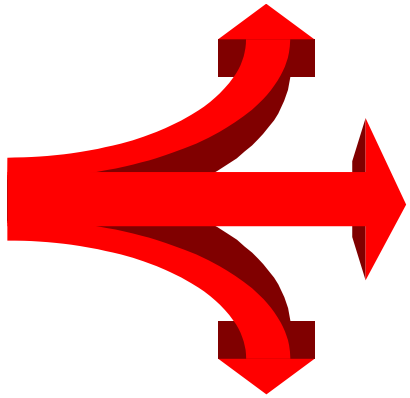

Tacit
Explicit
Tacit
Explicit

Knowledge Spiral Model



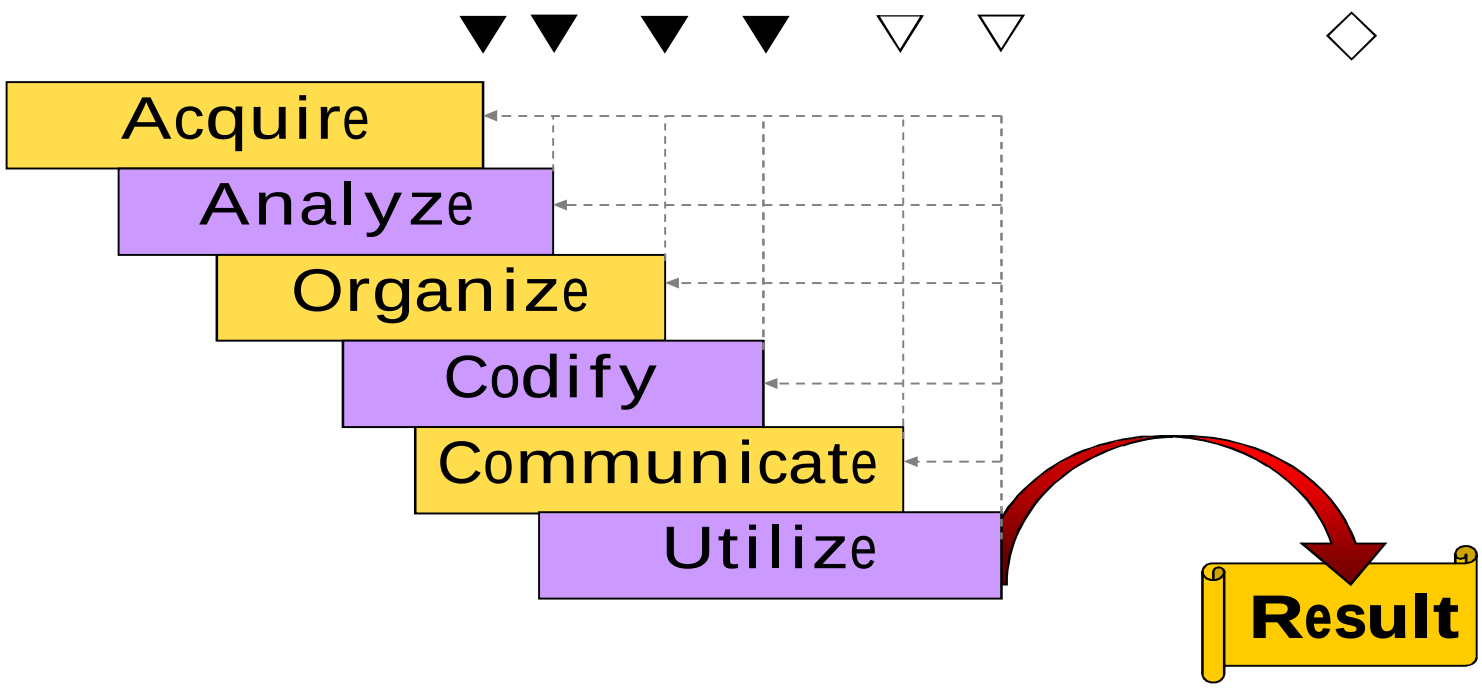
Knowledge Requires Capture, Organization, Access and Leverage

- **OLD WAY**
  - Capture form is written, auditory or graphical representations
  - Organization is via tables of content, indexes, classification systems used by publishers, libraries, etc
  - Access when physical body goes to where the knowledge is located...a library, a company, a research laboratory, a school
  - Tacit knowledge rarely tapped
  - Leverage is a sum game

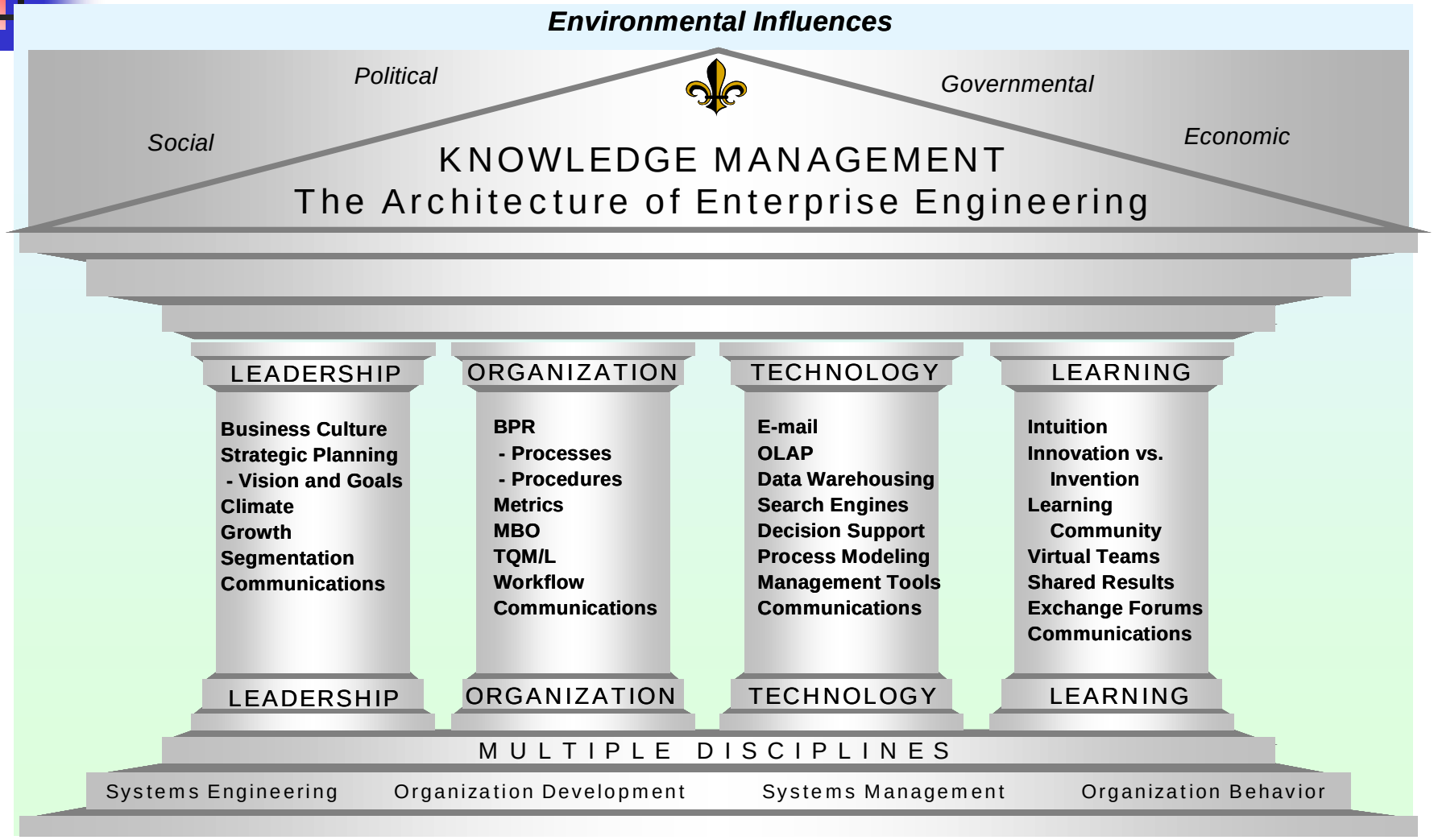


- **NEW WAY**
  - Capture from is digits in cyberspace
  - Organization via software programs designed upon engineering principles, mathematical equations, word associations in cyberspace 24/7/365
  - Access wherever the physical bodies link via computers
  - Tacit knowledge tapped using many different technological tools
  - Leverage is exponential, multiples upon multiples

Knowledge Work Activities



Knowledge Architectures: It Takes a Lot -- the Four Pillars KM



Stankosky, Calabrese, Baldanza, 1999

AKM Goals & Structure

KM is different from a KMS

- KM is whole ball of wax (people, technology, processes, learning, business)
- KMS is a knowledge management system that makes it happen
- KMS is comprised of four components
  - Content management applications
  - Expertise locator applications
  - Collaboration
  - Portal
- All tightly integrated