

# **Business Information Systems**

**Chiara Francalanci**

# Learning objectives

---

- Knowledge Management
  - What is knowledge?
  - Why do firms need to manage their knowledge?
  - Organizational strategies for KM
  - IT solutions for KM
  - Noticeable case studies

# What is knowledge?

---

- Knowledge that is used within an organization
- A state of the mind
  - “...a justified belief that increases an entity’s capacity for effective action...” (Nonaka 1994)
  - Knowing: “...understanding gained through experience and study; the sum or range of what has been perceived, discovered, or learned..” (Schubert 1998)
- An object
  - A thing to be stored and manipulated (Carlsson et al. 1996)
- A process
  - Knowledge is the process of applying expertise
- A capability
  - Knowledge is the potential to define and influence actions and to take decisions
- Data → Information → Knowledge
  - Information is raw data endowed with meaning
  - Information becomes knowledge when it helps in facing organizational issues
- Knowledge → Information → Data (Tuomi 1998)
  - Data may be forged only when people have knowledge to investigate facts in the environment

# Then...What is Knowledge?

---

## A general underlying agreement

- Knowledge may come from the possession of information, data, but it is not restricted to them
- Knowledge is strictly tied to creativeness and the ability to contextualize general advice, expertise, best practices in a given situation
- Knowledge is strictly tied to “action” (making choices, learning about the environment, innovating,...)

# Organizational Knowledge: A Taxonomy

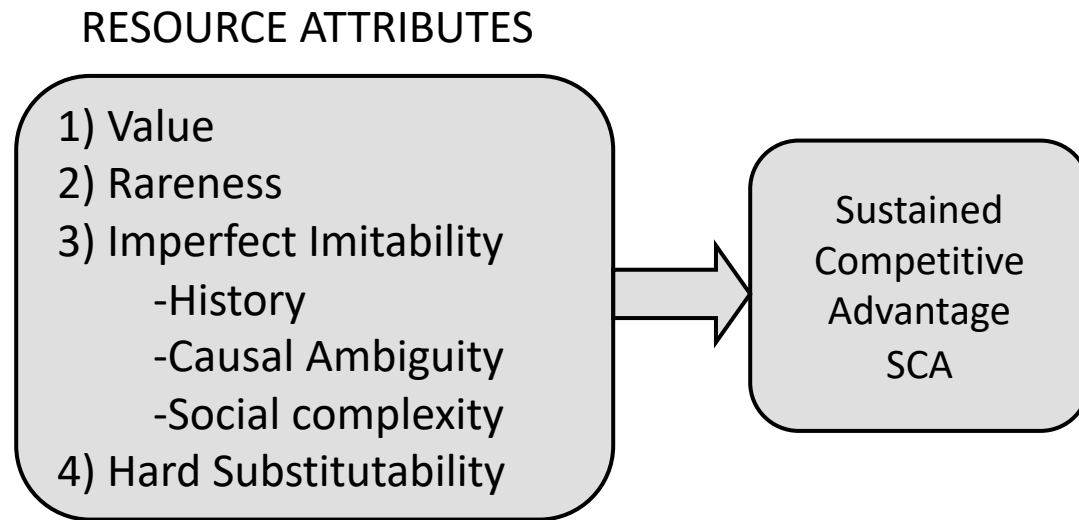
---

- Internal K
  - Resides within the firm boundaries
  - E.g., expertise, personal competencies, market and customers knowledge, technical skills
- External K
  - Resides outside the firm boundaries
  - Organizations take specific actions to get this knowledge (e.g., hiring a consultant)
  - E.g., Public agencies, Consulting firms, Internet, ...: they are all sources of external knowledge
- Personal (individual) K
  - Resides within the mind and the action of individuals
- Organizational (collective) K
  - Is specific of the organization and its culture, and internalized by its employees
  - E.g., routines, best practices, methodologies for strategy and project management
- Tacit K
  - Knowledge that cannot be codified and which resides in the expertise/competences of people and groups of people
- Explicit K
  - Knowledge that can be codified in some sort of artifact (sw program, rules, document, ...)

# Why is knowledge important for a company?

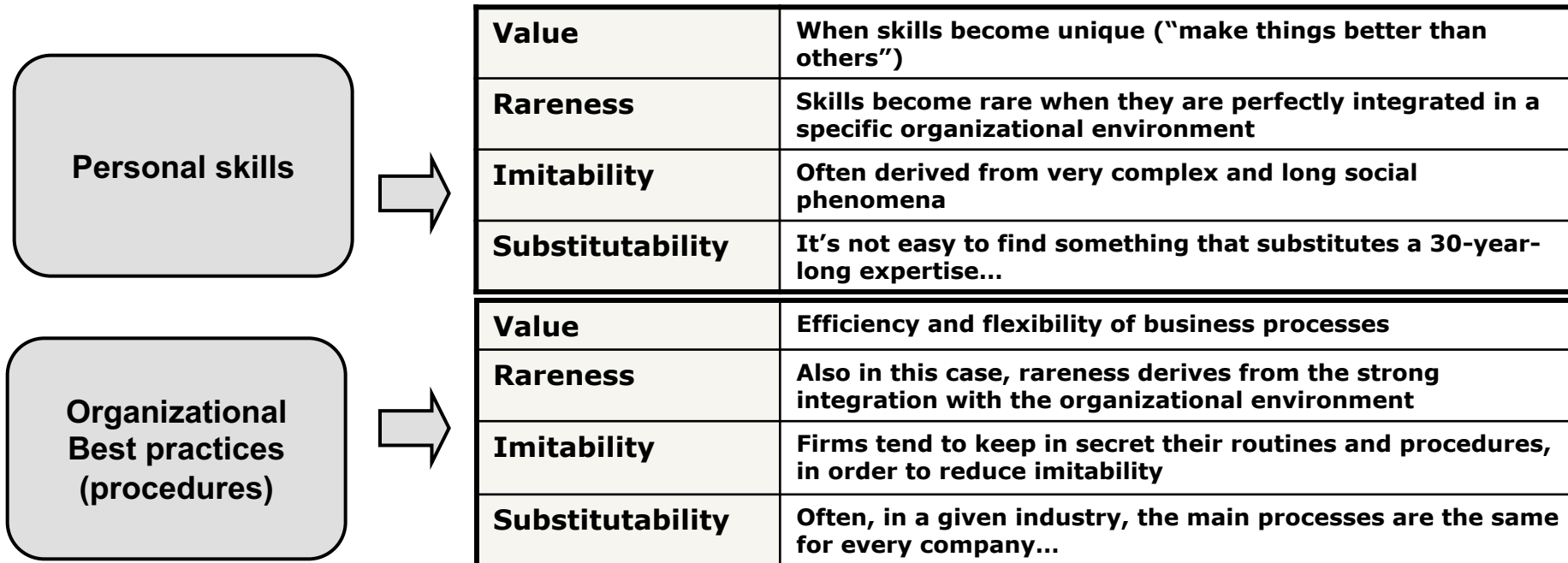
---

- The Resource-Based View of the firm: RBV
- The organization is a set of resources
- Some resources have the potential to become a source of sustained competitive advantage



# Knowledge and RBV

- Most of the knowledge owned by a firm clearly shows the potential to adhere to the principles of the RBV theory in order to become a source of SCA
  - Value
  - Rareness
  - Low imitability
  - Low substitutability



# Managing knowledge: how

---

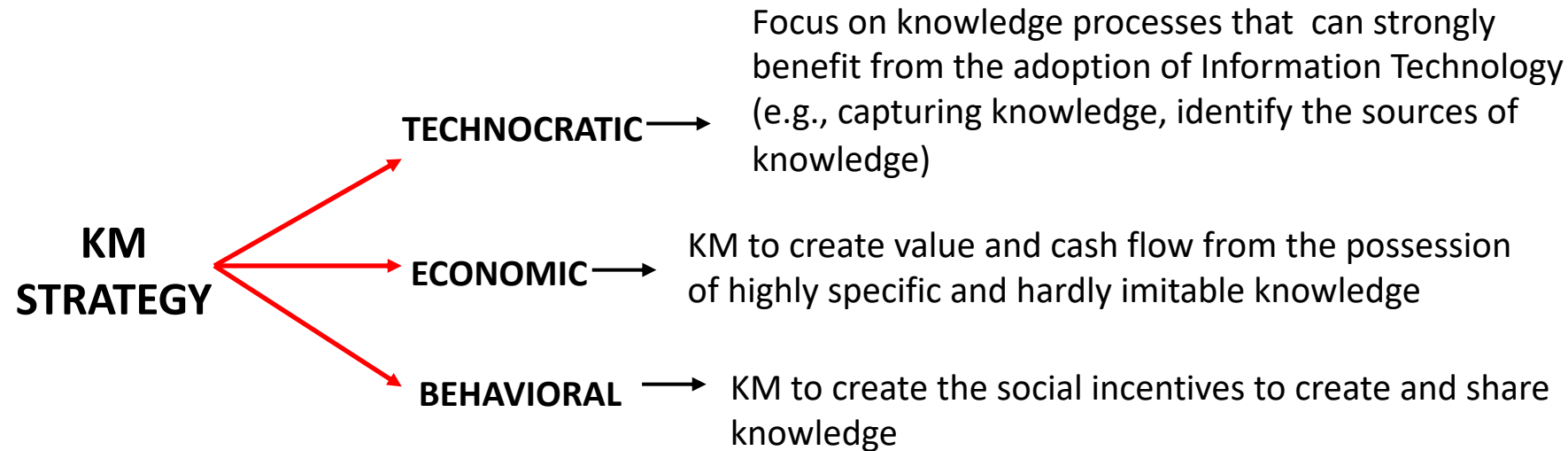
- Knowledge Management (KM) is a very complex issue
  - It's cross-divisional, enterprise-wide
  - It's primarily a management issue
    - Identify relevant forms of knowledge
      - Identify and cultivate virtuous cycles (and not *vicious* cycles of knowledge)
    - Create social incentives for sharing knowledge
    - Enable the knowledge sharing environment
  - It's boosted by IT tools: Knowledge Management Systems (KMS)
  - Costs / Benefits are not easy to be evaluated (see open issues)



# Managing knowledge within organizations

---

- Different (theoretical) strategies [Earl 2001]
- Each KM initiative may be classified as a combination of strategies



# KM Technocratic Strategies: capturing knowledge

---

- Strong reliance on the adoption of information and management technology
- Capturing knowledge and make it available to other people in the firm
  - E.g., knowledge networks (post-reply mechanisms for problem solving)
  - Insurance companies: formalize techniques and algorithms for risk assessment and make them available to others (e.g., new employees)
  - Generally: project documentation sharing
- CSFs
  - Connecting people
  - Incentives for providing content to systems
  - Content validation (cultivate *good* content and discard useless contributions)

# KM economic strategy

---

- Protecting and exploiting the knowledge assets of the firm to generate cash flow and revenue streams
- The perspective of managing knowledge as an asset
  - Patents
  - Copyrights
  - Non-disclosure agreements
  - Intellectual property management
  - Trade secrets
  - ...
- CSFs
  - Create specialized teams/division for managing knowledge assets
  - Identify the relevant knowledge that may generate revenue

# KM behavioral strategies: communities of practice

---

- Communities of Practice (CoP): loosely knit teams of people that work on common issues and problems
- Give tools (organizational and IT-based) to CoP to support knowledge sharing and transfer
  - Large corporations: Create strong links between people with the same qualification within the organization (e.g., lawyers, sw developers, HR managers of different divisions)
  - Product development: create support to different people in the development of a new product (e.g., technical design, graphical design, marketing,...)
- CSFs
  - Identify relevant CoPs
  - Connecting people

# KM behavioral strategies

## creating a knowledge sharing culture

---

- Exploit the design of the company's space and structures to create the antecedents of knowledge sharing (knowledge sharing culture)
  - Shared spaces: water cooler, coffee makers, vending machines...
  - Open office spaces: remove the barriers among individuals
- CSFs
  - Design of useful knowledge spaces
  - Encourage and legitimize people in sharing knowledge

# Knowledge management systems

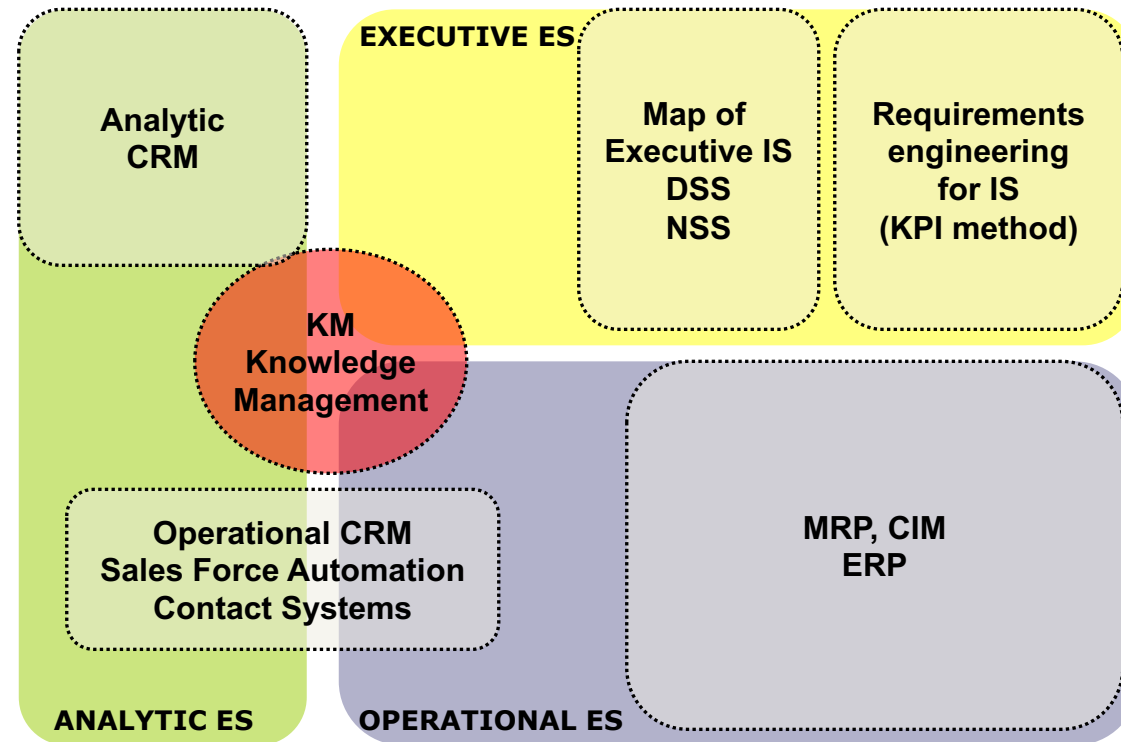
# IT and Knowledge Management: KMS

---

- Knowledge Management Systems (KMS)
- “...a class of information systems applied to manage organizational knowledge..., that is, IT-based systems to support and enhance the organizational processes of knowledge creation, storage/retrieval, transfer, and application” [Alavi and Leidner 2001]
- Every organizational IT-based system may adhere to the definition...

# ERP & Knowledge Management Systems

---





# How to assess the success of KM initiatives

---

## 1. Project-oriented evaluation

- Growth of the resources attached to KM problems (people, money,...)
- Reach of KM initiatives (number of offices, divisions,...)
- KM project survival
- Surveying people

## 2. KMS-oriented evaluation (IT-intensive KM)

- Usage of KMS (number of accesses, retrieved documents, KB extension,...)
- Reach of the electronic community (e.g., number of people)

## 3. Efficiency and financial evaluation

- Reduced cycle time, number of claims, ...
  - Improved customer satisfaction, satisfied phone calls,...
  - Evidence of financial benefits
- Generally, correlation between indicators in class 1 and 2
  - Financial indicators (when available!) often remain uncorrelated with the others...

# Open issue in IT & KM: the case of incentives

---

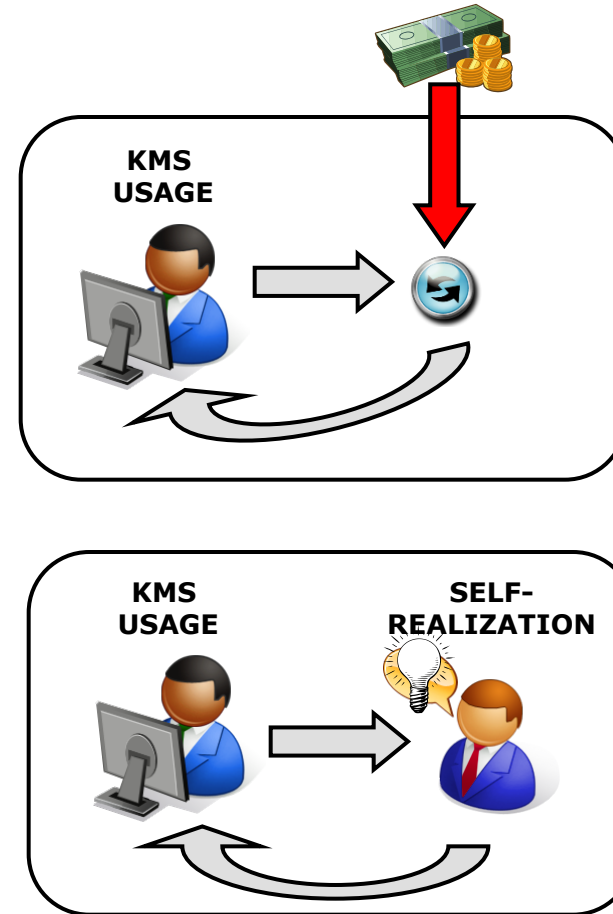
IT-intensive KM often tends to fail, why?

- Complex inter-organizational processes: **Governance problems**
  - Who is going to be accounted for costs of the KM initiative?
  - How to assess the benefits of the KM initiative?
  - Who is going to be accounted for the benefits?
- Tendency to overestimate the power of IT tools for KM
- ...
- KMS often remain unused by intended users

# Incentives for KMS usage

---

- External (extrinsic)
  - Prizes
  - Monetary rewards
  - Increased visibility
  - ...
- Internal (intrinsic)
  - Make System usage personally meaningful
  - Support self-realization of users



# The failure of external incentives

---

- The typical consequence of external incentives:
  - Increase the number of contributions
  - Decrease the quality of contributions
- Need for continuous adaptation of incentive schema
  - “Incentive alignment”
- Many examples
  - Siemens ShareNet
  - InfoSys KShop
  - ...