Chapter 10 & 11

Emergent Knowledge Management Practices and Factors Influencing KM

❖ Discuss how social networks facilitate knowledge sharing and how they benefit from communication technologies

❖ Explain how various KM solutions may have different impacts on performance depending on the circumstances

❖ Examine the key factors affecting the suitability of KM solutions

Emergent Knowledge Management Practices

- ❖ Knowing is a human capability. Knowledge itself can't be managed
- ❖ Collaboration is a pre-requisite for knowledge creation and sharing
- ❖ Collaboration is voluntary
- ❖ What we can do is create the right environment and provide appropriate tools for people to collaborate and create and share knowledge
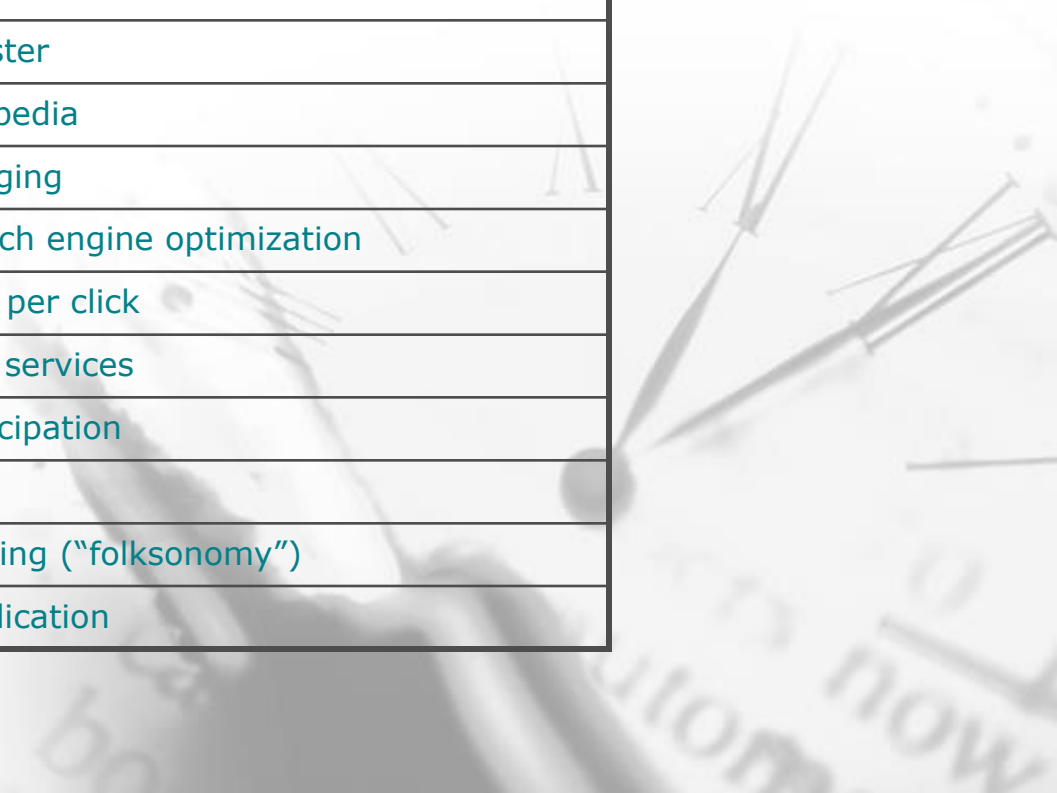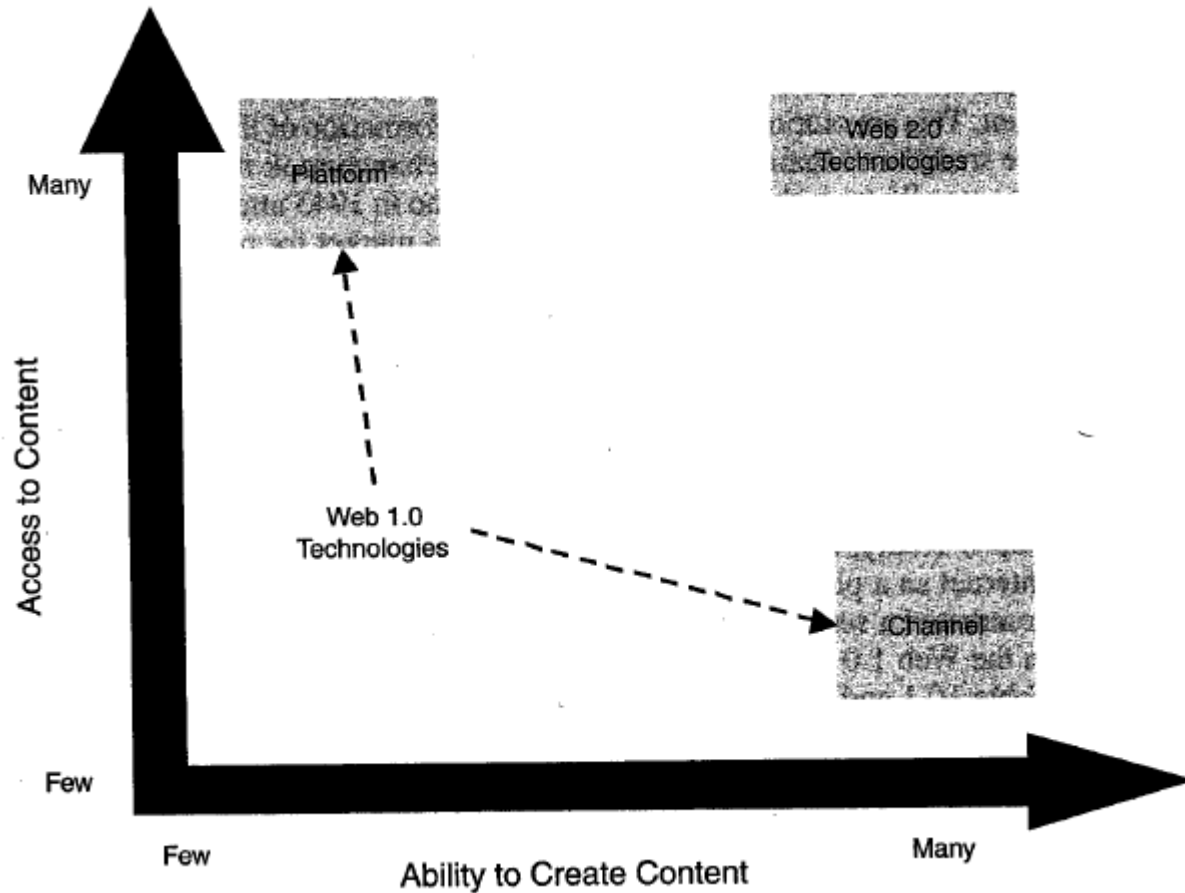
WEB 2.0 APPLICATIONS

Emerging Technologies

❖ Web 1.0 vs. Web 2.0

Web 1.0	Web 2.0
DoubleClick	Google AdSense
Ofoto	Flickr
Akamai	BitTorrent
mp3.com	Napster
Britannica Online	Wikipedia
Personal website	Blogging
Domain name speculation	Search engine optimization
Page views	Cost per click
Screen scraping	Web services
Publishing	Participation
Content management system	Wiki
Directories (taxonomy)	Tagging ("folksonomy")
Stickiness	Syndication

Figure 10.1   **Web 2.0 Technologies Compared to Web 1.0 Technologies**

Many

Access to Content

Few

Web 1.0
Technologies

Few   Many

Ability to Create Content

Web 2.0 Applications

- ❖ Blogs
- ❖ Collective intelligence
- ❖ Mash-ups
- ❖ Peer-to-peer networking
- ❖ Online games
- ❖ Podcast
- ❖ RSS (Really Simple Syndication)
- ❖ Social Networking
- ❖ Virtual worlds
- ❖ Web services
- ❖ Widgets
- ❖ Wikis

Social Networking

❖ Able to grow in terms of user base through the use of human relationships without the need of traditional marketing methods

❖ Knowledge held by entities (called *nodes*, meaning people or information systems) and the relationships between them (*ties*)

❖ Strong and weak ties have different effects on knowledge sharing relationships:

  ▪ Strong ties are better for cultivating trust and reliability

  ▪ Weak ties are more appropriate for searching for different types of knowledge

❖ The position of the individual within the network is also important in knowledge sharing effectiveness, whereas individual in central positions act as knowledge brokers in the network and pose knowledge sharing benefits in terms of timing, access and referral of knowledge
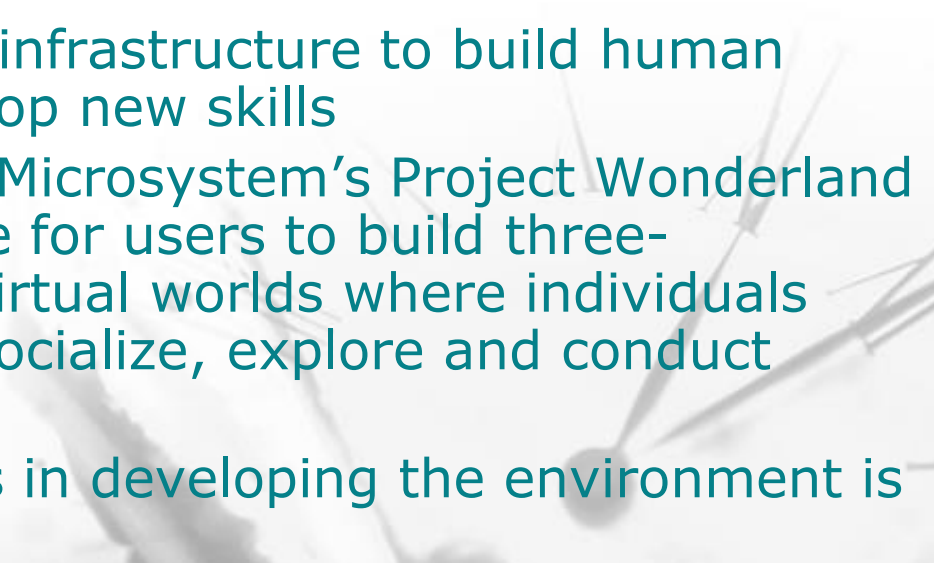
Wikis and Blogs

❖ Two specific types of web 2.0 technologies used to generate content:

- Wiki: a page or collection of web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified markup language

- Blog: a form of online digital diary that comprise a statement of opinion, a story, an analysis, description of events or other material

  - Businesses exploit blogs for agile new product development

Virtual Worlds

❖ Metaverse describes a multiplayer virtual world where humans (as avatars) interact with each other and software agents in a three-dimensional world that is a metaphor of the real world

❖ Supporting multiple simultaneous conversations of remoter coworkers

❖ Informal communication infrastructure to build human relationship, hence develop new skills

❖ Ex. Second Life and Sun Microsystem's Project Wonderland provide the infrastructure for users to build three-dimensional immersive virtual worlds where individuals represented by avatars socialize, explore and conduct business and learning

❖ Challenges: startup costs in developing the environment is high

Does IT Influence KM?

❖ **IT has positive influence on KM and organizational learning**
  - Groupware systems contributed to improved organizational learning as compared to those individuals that didn't have access to those KM systems
  - IT-enable learning mechanisms facilitate capabilities that have an effect on exploration and exploitation dynamics in organizational learning
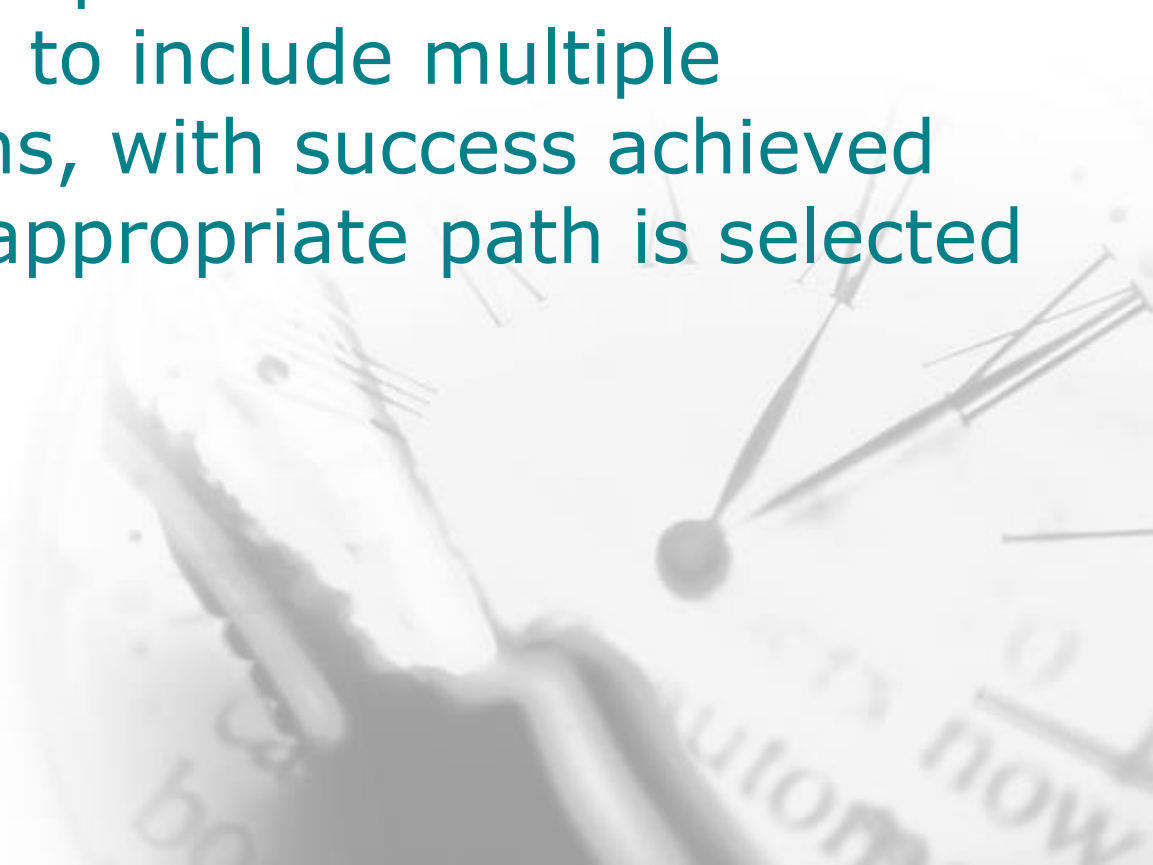
Factors Influencing Knowledge Management

Universalistic View of KM

❖ There is a single best approach of managing knowledge, which should be adopted by all organizations in all circumstances

❖ Knowledge sharing is recommended as useful to all organizations, although we believe that direction may sometimes represent an equally effective but more efficient alternative.

❖ Contingency view suggests that no one approach is best under all circumstances

❖ Contingency perspective considers the path to success to include multiple alternative paths, with success achieved only when the appropriate path is selected

Contingency Factors and KM Solutions
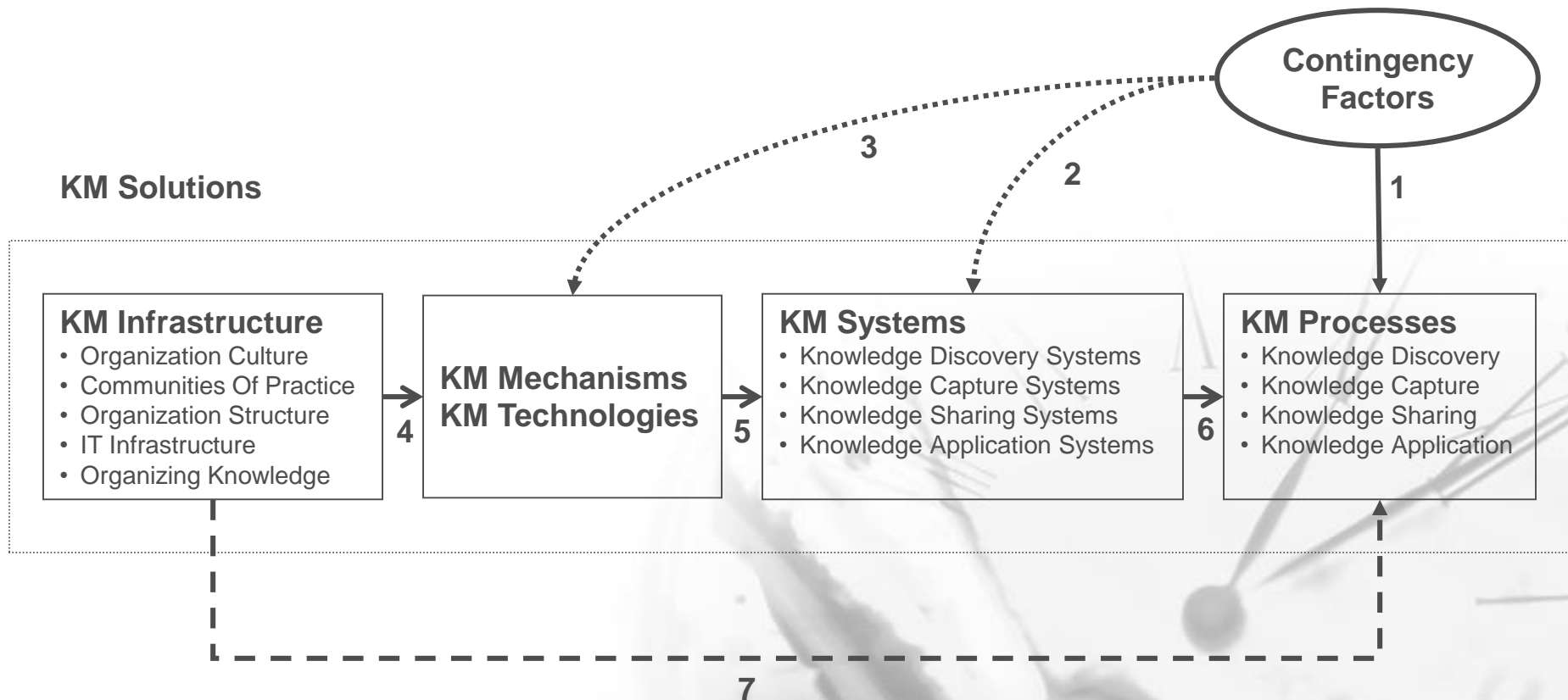
Contingency Factors

KM Solutions

KM Infrastructure
- Organization Culture
- Communities Of Practice
- Organization Structure
- IT Infrastructure
- Organizing Knowledge

**KM Mechanisms
KM Technologies**

KM Systems
- Knowledge Discovery Systems
- Knowledge Capture Systems
- Knowledge Sharing Systems
- Knowledge Application Systems

KM Processes
- Knowledge Discovery
- Knowledge Capture
- Knowledge Sharing
- Knowledge Application

3

2

1

4

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Categories of Contingency Factors

Environmental Characteristics

Organizational Characteristics

Task Characteristics

Knowledge Management

Knowledge Characteristics
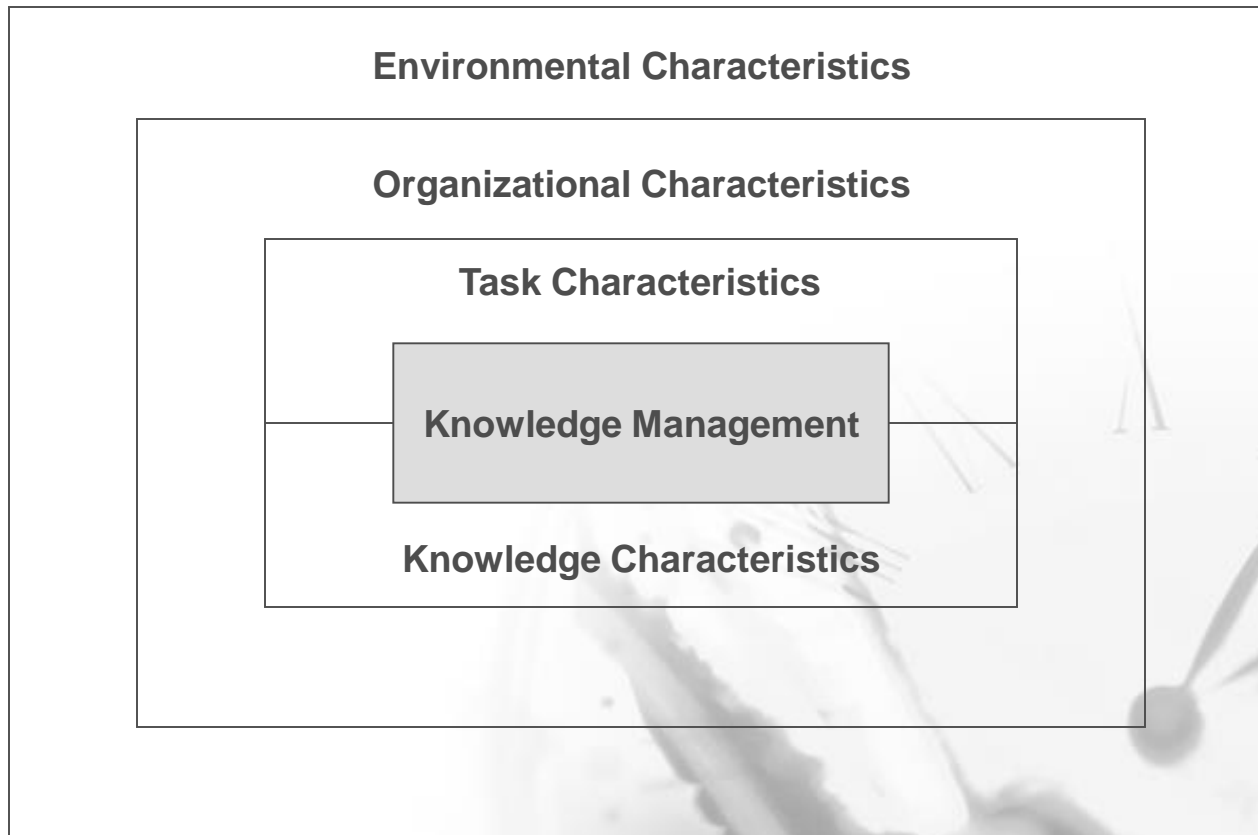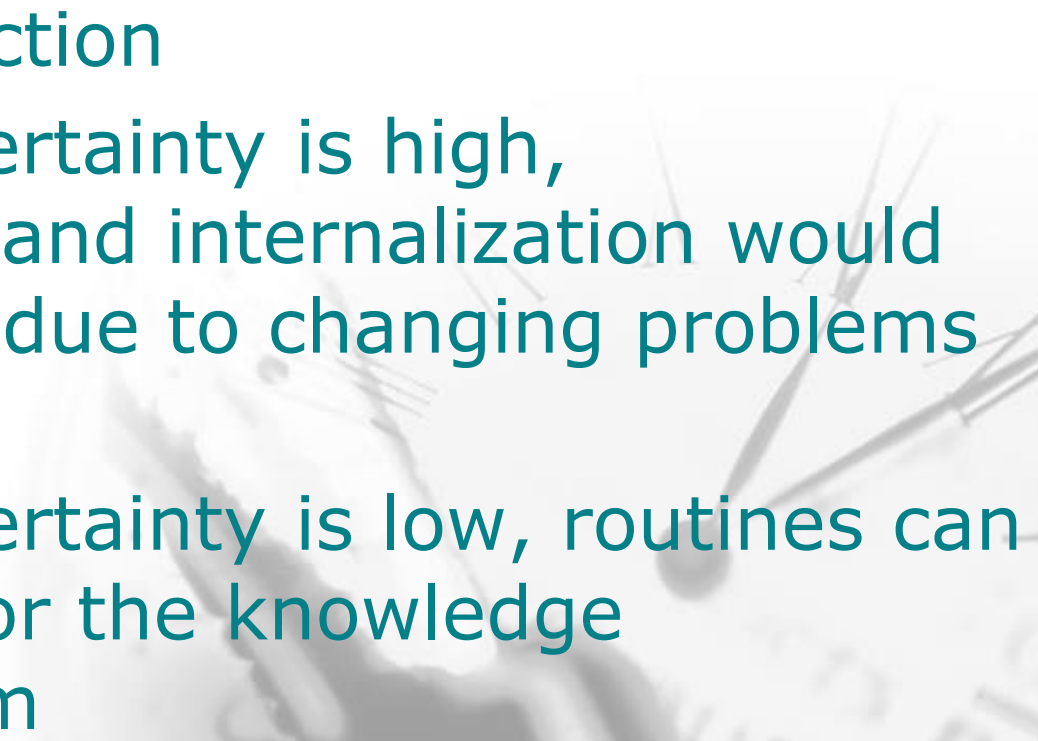
Task Characteristics

❖ KM processes that are appropriate for an organizational subunit depend on the nature of its tasks

- Task Uncertainty
- Task Interdependence

Task Uncertainty

❖ Task uncertainty is argued to reduce the organization's ability to develop routines, and hence knowledge application would depend on direction

❖ When task uncertainty is high, externalization and internalization would be more costly due to changing problems and tasks

❖ When task uncertainty is low, routines can be developed for the knowledge supporting them
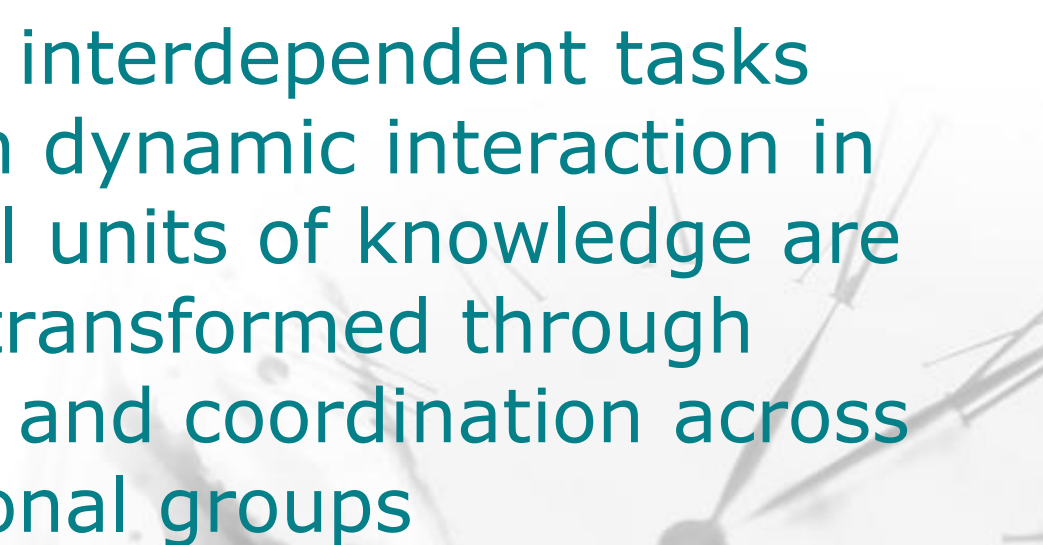
Effects of Task Characteristics on KM Processes

Exchange
Combination
Socialization
Direction
Routines

← - - - - High

Task Interdependence

Exchange Combination Routines	Direction Socialization
Internalization Externalization Routines	Direction

Internalization
Externalization
Direction
Routines

← - - - - Low

Low — **Task Uncertainty** — High

Routines
Internalization
Externalization
Exchange
Combination

Direction
Socialization
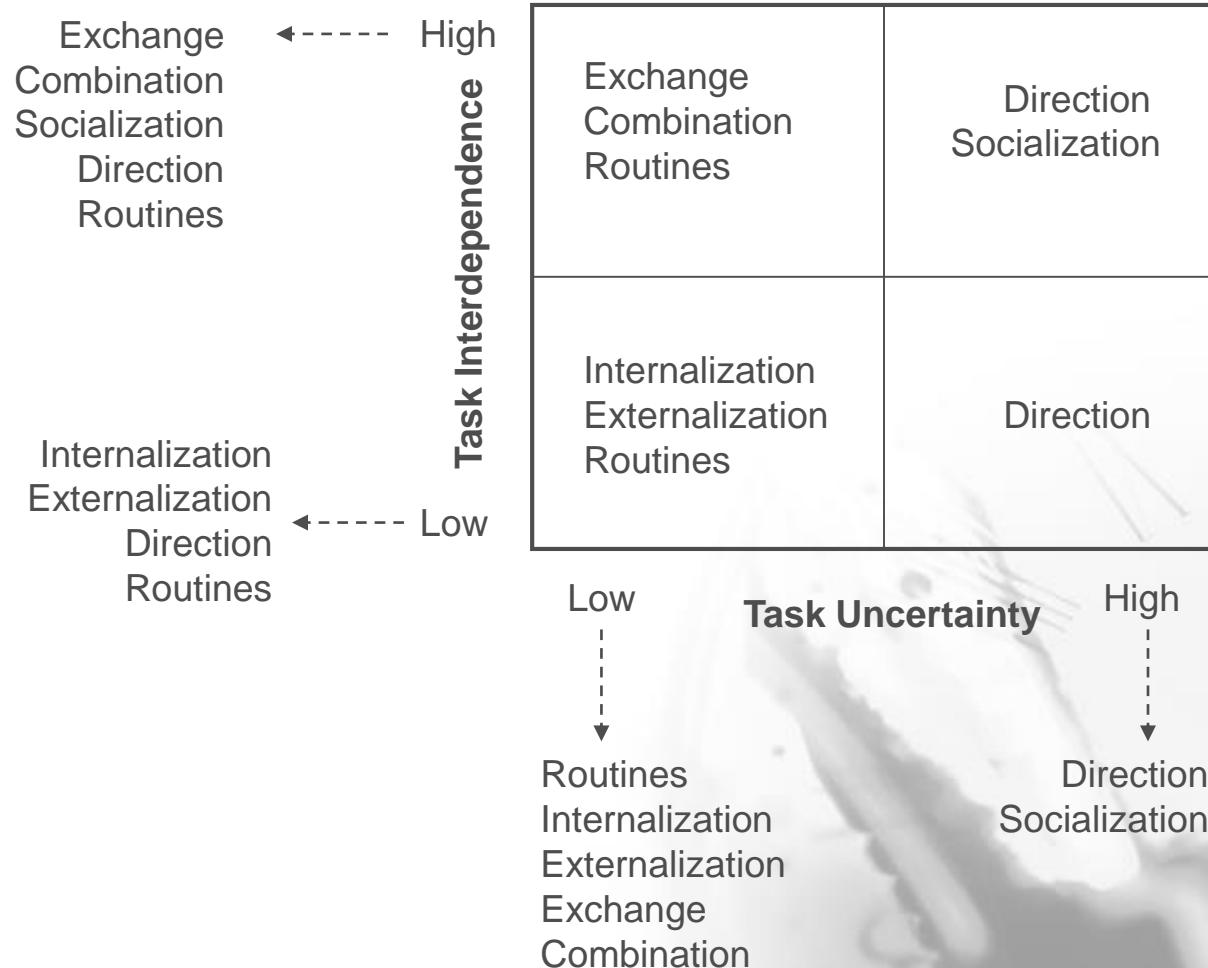
Task Interdependence

❖ Indicates the extent to which the subunit's achievement of its goals depends on the efforts of other subunits

❖ Performance of interdependent tasks relies mainly on dynamic interaction in which individual units of knowledge are combined and transformed through communication and coordination across different functional groups

Knowledge Characteristics

- ❖ Explicit vs. tacit
- ❖ Procedural vs. declarative
- ❖ General vs. specific

Effects of Knowledge Characteristics on KM Processes

Procedural or Declarative

Procedural

Discovery
- **Explicit**: Combination
- **Tacit**: Socialization

Capture
- **Tacit**: Externalization
- **Explicit**: Internalization

Sharing
- **Tacit**: Socialization
- **Explicit**: Exchange

Application
- **Tacit/Explicit**: Direction
- **Tacit/Explicit**: Routines
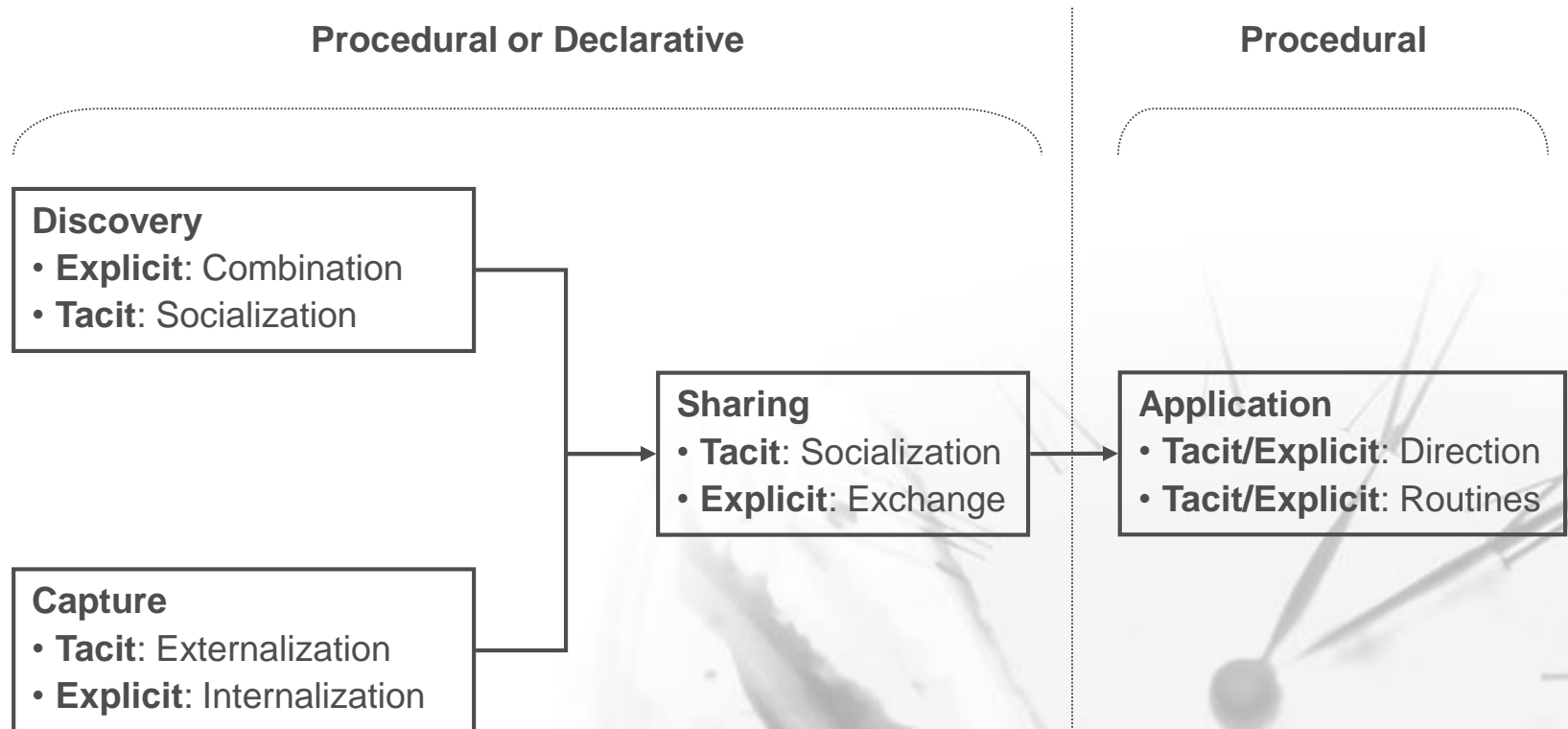
❖ Procedural knowledge focuses on the processes or means that should be used to perform the required tasks, such as how to perform the processes needed to achieve the specific product design

❖ Declarative knowledge focuses on beliefs about relationships among variables

Effect of Environmental and Organizational Characteristics on KM Processes

Characteristic	Level/Type	Recommended KM Processes
Organization Size	Small	Knowledge sharing (socialization) Knowledge application (direction) Knowledge discovery (combination, socialization) Knowledge capture (externalization, internalization)
	Large	Knowledge sharing (exchange) Knowledge application (routines) Knowledge discovery (combination) Knowledge capture (externalization, internalization)
Business Strategy	Low cost	Knowledge application (direction, routines) Knowledge capture (externalization, internalization) Knowledge sharing (socialization, exchange)
	Differentiation	Knowledge discovery (combination, socialization) Knowledge capture (externalization, internalization) Knowledge sharing (socialization, exchange)
Environmental Uncertainty	Low	Knowledge sharing (socialization, exchange) Knowledge capture (externalization, internalization)
	High	Knowledge discovery (combination, socialization) Knowledge application (direction, routines)

Identification of Appropriate KM Solutions

- ❖ Assess the contingency factors.
- ❖ Identify the KM processes based on each contingency factor.
- ❖ Prioritize the needed KM processes.
- ❖ Identify the existing KM processes.
- ❖ Identify the additional needed KM processes.
- ❖ Assess the KM infrastructure.
- ❖ Develop additional needed KM systems, mechanisms, and technologies.

Appropriate Circumstances for Various KM Processes

KM Processes	Contingency Factors						
	Task Uncertainty	Task Interdependence	Explicit (E) or Tacit (T) Knowledge	Procedural (P) or Declarative (D) Knowledge	Organizational Size	Business Strategy*	Environmental Uncertainty
Combination	Low	High	E	P/D	Small/Large	D	High
Socialization for Knowledge Discovery	High	High	T	P/D	Small	D	High
Socialization for Knowledge Sharing	High	High	T	P/D	Small	LC/D	Low
Exchange	Low	High	E	P/D	Large	LC/D	Low
Externalization	Low	Low	T	P/D	Small/Large	LC/D	Low
Internalization	Low	Low	E	P/D	Small/Large	LC/D	Low
Direction	High	High/ Low	T/E	P	Small	LC	High
Routines	Low	High/ Low	T/E	P	Large	LC	High

Low Cost – LC; Differentiation – D

Contingency Factors KM Processes	Task Uncertainty = High	Task Inter-dependence = High	Tacit Knowledge	Procedural Knowledge	Organizat-ional Size = Small	Business Strategy = Low Cost	Environ-mental Uncertainty = High	Number of "Yes"	Number of "OK"	Number of "No"	Cumulative Priority Score[*]
Combination	No	Yes	No	OK	OK	No	Yes	2	2	3	3.0
Socialization for Knowledge Discovery	Yes	Yes	Yes	OK	Yes	No	Yes	5	1	1	5.5
Socialization for Knowledge Sharing	Yes	Yes	Yes	OK	Yes	OK	No	4	2	1	5.0
Exchange	No	Yes	No	OK	No	OK	No	1	2	4	2.0
Externalization	No	No	Yes	OK	OK	OK	No	1	3	3	2.5
Internalization	No	No	No	OK	OK	OK	No	0	3	4	1.5
Direction	Yes	OK	OK	Yes	Yes	Yes	Yes	5	2	0	8.0
Routines	No	OK	OK	Yes	No	Yes	Yes	3	2	2	4.0

[*]: "Yes"=1; "OK" =0.5; "No"=0

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❖ Amrit Tiwana (2002). The Knowledge Management Toolkit: Orchestrating IT, Strategy, and Knowledge Platforms (2nd Edition). Prentice Hall. ISBN: 013009224X