Chapter 5

Factors Influencing Knowledge Management

Chapter Objectives: Key Questions

- Last time, we explored various kinds of impact that KM may have on organizations
  - at various levels: people, processes, products, and overall performance

- But why might KM solutions have *different* impacts on performance, depending on the specific organization's circumstances?
- What, exactly, are the key factors that determine the *suitability* of alternative KM solutions?
- What, exactly, is the nature of their impacts?

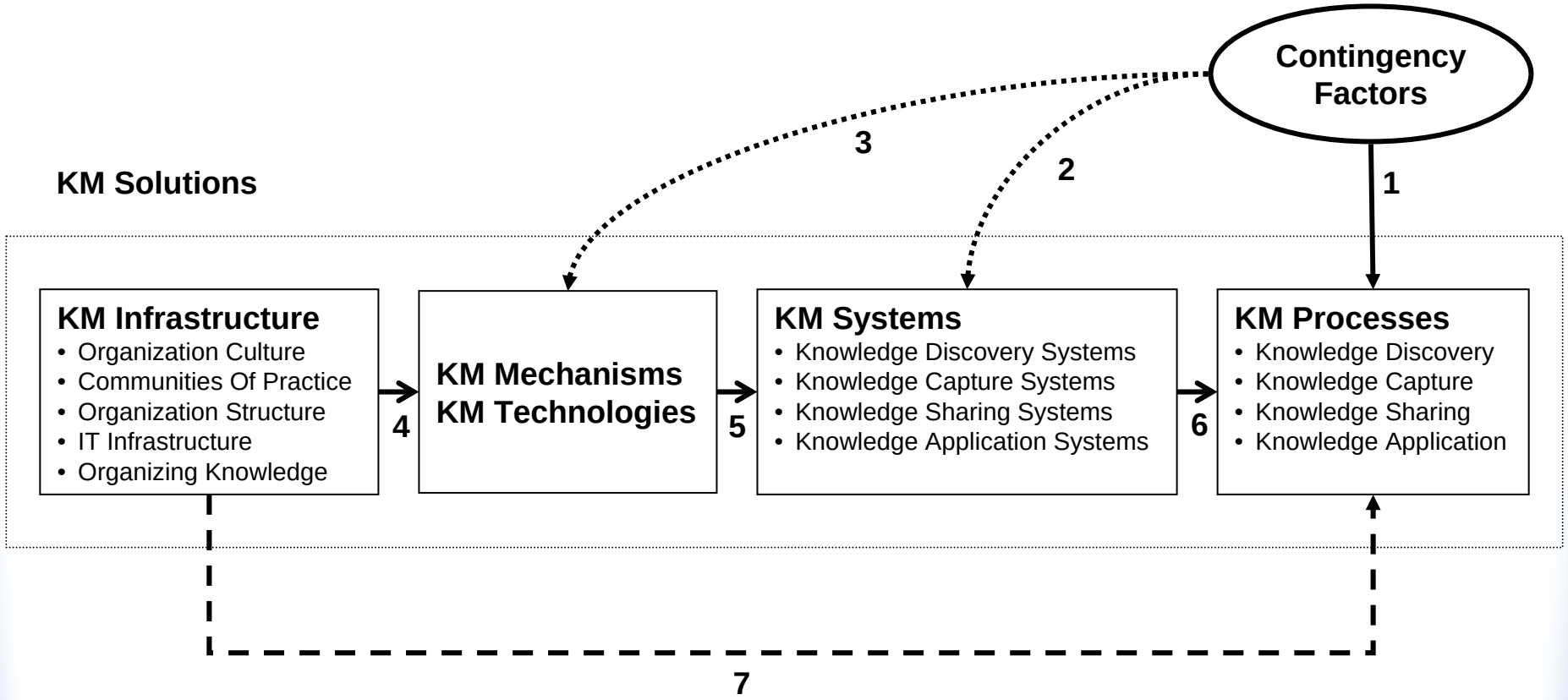
Universalistic View of KM

- Historically, much of the KM literature appears to implicitly assume a *universalistic* view:
  - There is a single best approach of managing knowledge, which should be adopted by all organizations in all circumstances.
- Eg: knowledge sharing is often recommended as useful to all organizations
- Yet: we believe that direction may sometimes represent an equally effective but more efficient alternative!
- In reality, there is no “magic bullet”
  - No single universal KM solution works for all situations.

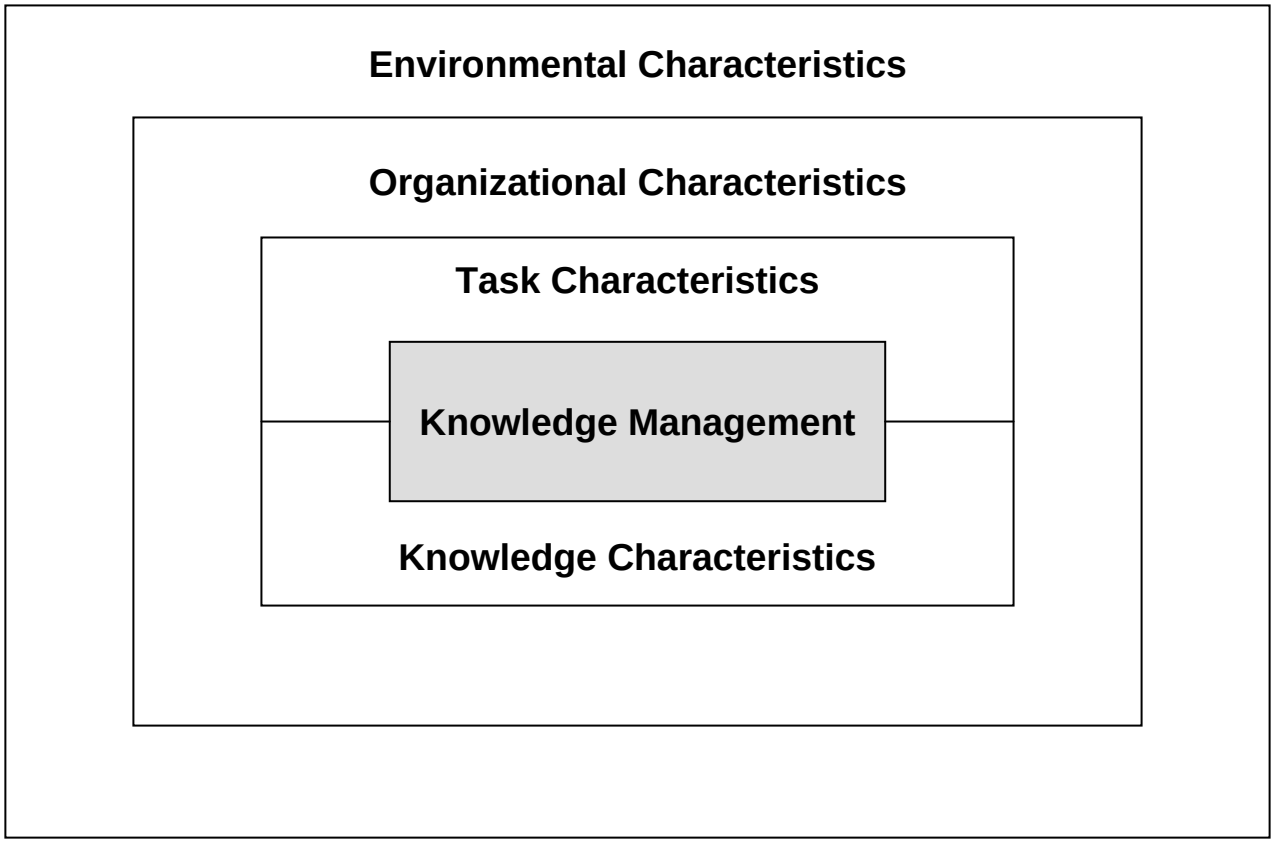
Contingency View of KM

- The *contingency* view suggests that no one approach is best under all circumstances
  - "It depends!"
- Contingency perspective considers the path to success to include multiple alternative paths, with success achieved only when the appropriate path is selected
- eg, in organizational design,
  - an organization design with few rules or procedures is appropriate for small organizations
  - an organization design with extensive rules and procedures is appropriate for large organizations

How should contingency factors determine KM solutions?



What categories of contingency factors need we examine?



Task Characteristics

- KM processes that are appropriate for an organizational subunit depend on the nature of its tasks
- Lawrence & Lorsch [1967]:
  - Found that subunits that perform certain, predictable tasks were more effective when they were formally structured
- Van de Ven & Delbecq [1974]:
  - *Task difficulty*: problems in analyzing the work and stating performance procedures
  - *Task variability*: the variety of problems encountered in the tasks
- Spender [1996]:
  - *Task uncertainty*
  - *Task interdependence*

Task Uncertainty

- *Task uncertainty* reduces the organization's ability to develop routines.
  - 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.
  - Knowledge is more likely to remain tacit, thus inhibiting ability to use combination or exchange.
  - Hence, direction or socialization is recommended.
- Example:
  - Individuals responsible for product design when customer tastes are expected to change frequently would benefit most from socializing with, and receiving directions from, each other.

Task Uncertainty (2)

- When task uncertainty is low, routines can be developed for the knowledge supporting them.
  - Benefits from externalizing or internalizing knowledge related to any particular task tends to accumulate through the greater occurrence of that task.
  - Hence, routines, exchange, combination, internalization, or externalization are recommended.
- Example:
  - Individuals performing tasks in credit and accounts receivables, large benefits are obtained from
    - routines: eg, credit-checking procedures
    - exchange: eg, sharing of standards and policies
    - combination: eg, integration of explicit knowledge that different credit analysts have generated from their individual experiences
    - externalization and internalization: eg, training and learning of existing policies by new credit analysts

Effects of Task Characteristics on KM Processes

Exchange
Combination
Socialization
Direction
Routines
◄------- High

Task Interdependence

Internalization
Externalization
Direction
Routines
◄------- Low

Exchange Combination Routines	Direction Socialization
Internalization Externalization Routines	Direction

Low ⇣ **Task Uncertainty** High ⇣

Routines
Internalization
Externalization
Exchange
Combination

Direction
Socialization

Interdependent Tasks

- *Task interdependence* indicates the extent to which the subunit's achievement of its goals depends on the efforts of other subunits [Jarvenpaa & Staples 2001]
- For *interdependent tasks*, performance relies mainly on dynamic interaction in which individual units of knowledge are combined and transformed through communication and coordination across different functional groups

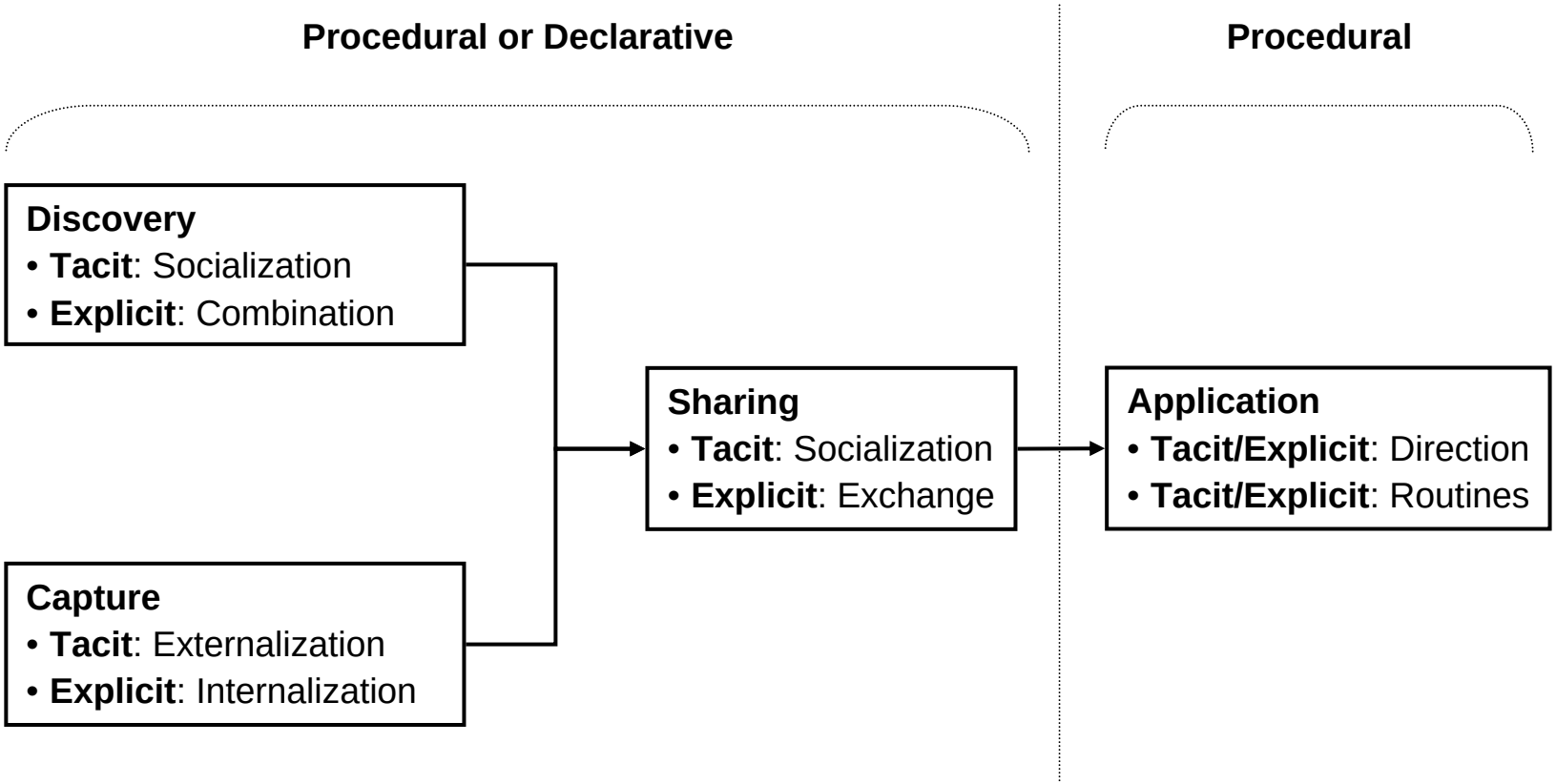
Independent Tasks

- For *independent tasks*, performance primarily requires only knowledge directly available to the individuals within the subunit
- Tasks rely mainly on distinctive units of knowledge, such as “functional knowledge embodied in a specific group of engineers, elemental technologies, information processing devices, databases, and patents” [Kusonaki et al. 1998]
- Tasks often require deep knowledge in a particular area
- Learning processes tend to be personal and individualized

Knowledge Characteristics

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

Effects of Knowledge Characteristics on KM Processes



Procedural and Declarative Knowledge

- For knowledge discovery, capture, and sharing, *different* KM subprocesses are recommended for explicit and tacit knowledge.
  - But the same processes can be used for either declarative or procedural knowledge.
- For knowledge application, no distinction is needed: direction and routines can be used to apply either explicit or tacit knowledge.
  - But these processes should be used mainly for procedural knowledge.
- Recall:
  - Procedural knowledge ("know how") 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 ("know what") 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

Prioritizing KM Processes for Doubtfire Computer Corporation

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	6.0
Routines	No	OK	OK	Yes	No	Yes	Yes	3	2	2	4.0

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

Conclusions

- Distinguished between *universalistic* and *contingency* views
- Taking the contingency view led us to examine why KM solutions might have different impacts on performance, depending on the circumstances
- We examined a variety of contingency factors, and the effects they have on the *suitability* of alternative KM processes

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