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?

KM Solutions

1. Contingency Factors

2. KM Mechanisms

3. KM Technologies

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

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

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

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What categories of contingency factors need we examine?

- Environmental Characteristics
- Organizational Characteristics
- Task Characteristics
- Knowledge Management
- Knowledge Characteristics

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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

Task Interdependence

- High
  - Exchange Combination
  - Socialization
  - Direction
  - Routines

- Low
  - Internalization
  - Externalization
  - Direction
  - Routines

Task Uncertainty

- Low
  - Exchange
  - Combination
  - Routines
  - Internalization
  - Externalization
  - Exchange
  - Combination

- High
  - Direction
  - Socialization

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 or Declarative

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

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

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

Procedural

Application
- **Tacit/Explicit**: Direction
- **Tacit/Explicit**: Routines

Procedural or Declarative

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

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

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

Application
- **Tacit/Explicit**: Direction
- **Tacit/Explicit**: Routines
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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Level/Type</th>
<th>Recommended KM Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization Size</td>
<td>Small</td>
<td>Knowledge sharing (socialization)</td>
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<td>Knowledge application (direction)</td>
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<td>Knowledge capture (externalization, internalization)</td>
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<tr>
<td></td>
<td>Large</td>
<td>Knowledge sharing (exchange)</td>
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<tr>
<td></td>
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<td>Knowledge application (routines)</td>
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<tr>
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<td>Knowledge capture (externalization, internalization)</td>
</tr>
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<td>Business Strategy</td>
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<td>Knowledge application (direction, routines)</td>
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<td>Knowledge application (direction, routines)</td>
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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

<table>
<thead>
<tr>
<th>KM Processes</th>
<th>Contingency Factors</th>
<th>Task Uncertainty</th>
<th>Task Interdependence</th>
<th>Explicit (E) or Tacit (T) Knowledge</th>
<th>Procedural (P) or Declarative (D) Knowledge</th>
<th>Organizational Size</th>
<th>Business Strategy*</th>
<th>Environmental Uncertainty</th>
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Low Cost – LC; Differentiation – D
Prioritizing KM Processes for Doubtfire Computer Corporation

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<th>Task Interdependence = High</th>
<th>Tacit Knowledge</th>
<th>Procedural Knowledge</th>
<th>Organizational Size = Small</th>
<th>Business Strategy = Low Cost</th>
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*: “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
Chapter 5

Factors Influencing Knowledge Management