Virtual Corporations and Knowledge Management

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Sung Joo Park
Graduate School of Management
KAIST

Outline

- Virtual Corporation
  - Characteristics of Virtual Corporations
  - Virtuality & Virtuality Matrix
- Virtual Organizing
  - Dimension & Frameworks
- Knowledge Management in Virtual Corporations
  - Management Issues
  - Technology Issues
  - Cultural Issues
- Virtual Work Support System: An Example
Virtual Corporations

- A temporary network of independent corporations linked by information technology to share skill, costs and access to one another’s markets. The corporations quickly unite to exploit a specific opportunity and will disperse afterwards.

- Characteristics of Virtual Corporations
  - Based on core competencies
  - Network of independent organizations
  - One identity
  - Based on information technology
  - No hierarchy
  - Distinction between a strategic and operational level: to cope with the difficult control problem

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Virtual Corporations: Another View

Extending the intranet to customers, ..., across the internet to engage in e-business
Getting to the Virtual Corporation

Extended Enterprise – Boundary Controlled
- "Medieval Walled Cities"
- People can work from anywhere, at anytime within their corporations
- Virtual Work, Team
- Physical boundaries

Virtual Corporation – Owner Controlled
- "Civil Society"
- People can work from anywhere, at anytime, With anyone as appropriate (Outsourcing)
- Virtual Ext. Team, Org., Society
- Logical boundaries

10 Years Ago Now Future

Virtuality

- Instant Flexibility in Space, Time and Structure
- Economics of virtuality: e.g., transaction cost in EC

<table>
<thead>
<tr>
<th>Airline Ticket</th>
<th>Banking</th>
<th>Bill Payment</th>
<th>Insurance Policy</th>
<th>Software Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional System</td>
<td>8.0</td>
<td>1.08</td>
<td>2.22-3.32</td>
<td>400-700</td>
</tr>
<tr>
<td>Telephone-based</td>
<td>0.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet-based</td>
<td>1.0</td>
<td>0.13</td>
<td>0.65-1.10</td>
<td>200-350</td>
</tr>
<tr>
<td>Savings (%)</td>
<td>87</td>
<td>89</td>
<td>71.67</td>
<td>50</td>
</tr>
</tbody>
</table>

- Real source of benefit in digital economy
  - Physical ➞ Virtual
  - Body ➞ Brain
  - Atom ➞ Bit
### Dimensions of Virtual Organizing

- **Strategy**
  - Objectives and the Core Competencies
- **Process**
  - Life cycle of Co-operations
  - Legal, organizational, management, operational processes
- **Structure**
  - Principles of autonomy, recursion, and viability
- **Knowledge**
  - Capture and share organizational knowledge and learning
- **Culture**
  - Supportive culture and **TRUST**
### Framework for Virtual Organizing
*(Venkatraman & Henderson)*

<table>
<thead>
<tr>
<th>Stages of Virtuality</th>
<th>Vectors</th>
<th>Market Interaction (Virtual Encounter)</th>
<th>Competency Leverage (Virtual Sourcing)</th>
<th>Work Configuration (Virtual Work)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>remote product or service experience</td>
<td>efficient sourcing of standard components</td>
<td>maximizing individual expertise</td>
<td></td>
</tr>
<tr>
<td>Stage 2</td>
<td>product or service customization</td>
<td>effective asset leverage</td>
<td>harnessing organizational expertise</td>
<td></td>
</tr>
<tr>
<td>Stage 3</td>
<td>shaping custom solutions</td>
<td>create new competencies through alliances</td>
<td>leveraging community expertise</td>
<td></td>
</tr>
</tbody>
</table>

### Knowledge Management in Virtual Corporations

- **Creation, access and share of tacit & explicit organizational knowledge by virtual worker or team**
- **Knowledge Management in VC**
  - Knowledge Paradox
    - Tacit knowledge, which is of central importance to innovation, cannot be exchanged by electronic means
    - Innovation cannot occur in virtual organizations?
  - Explicit Knowledge in Virtual Corporations
    - Degree of knowledge standardization and formalization
  - Management of Virtual Corporation Risks
    - Automating Access to Critical Company Information, Knowledge
    - Exchanging Sensitive Information
    - Enabling Remote Access to Business Transactions
Potentials and Restrictions of KM in VC: A Consulting Company Case

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<th>Stages of Virtuality</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Knowledge transfer to clients follows a detailed, highly formalized and structured catalogue of concrete steps processed by case consultants on the spot</td>
<td>Knowledge sourcing is predominantly done using the existing network</td>
<td>High degree of knowledge processing time efficiency is possible using several highly structured and formalized consulting aids</td>
<td></td>
</tr>
<tr>
<td>Stage 2</td>
<td>Knowledge customization happens on the basis of the &quot;program matrix&quot; which represents a bundle of pre-structured and highly modularized consultation knowledge products</td>
<td>Restricted possibilities to design new solutions for clients due to the strategic need for knowledge stability</td>
<td>Access to the knowledge base in terms of project documentations and reports allows to harness organizational knowledge</td>
<td></td>
</tr>
<tr>
<td>Stage 3</td>
<td>Restricted possibilities of clients' knowledge integration due to the high degree of formalized and structured knowledge schemas</td>
<td>Restricted possibilities to create new competences through alliances due to the strategic need for knowledge network stability</td>
<td>Knowledge development outside of the network is possible via seminars given by external experts</td>
<td></td>
</tr>
</tbody>
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Issues in Knowledge Management in Virtual Corporations

- Management Issues
  - Management of Work, Process, People, Teams, Process, Information, Knowledge
- Technology Issues
  - Information Infrastructure
  - IT: Groupware, Workflow, Collaboration Technologies, …
- Cultural Issues
  - Share, Collaborate, Innovate
  - Trust
Information Infrastructure for Virtual Organization

New Model of Business Networking
Groupware for Virtual Corporations

Collaboration through Conversation

- IBIS: Conversational model (Conklin, 1988)

- Language Action Theory
- Collaboration through exchanging Speech/Act- based semi-structured message
- Coordinator
Virtual Work Support System: An Example

- Project management for virtual teams
  - Small group of people, performing knowledge-intensive project
  - Coordination using structured messages
- Knowledge management
  - Linking people with people, and people with information
- ‘Project Memory’ system.
  - Work-centered accumulation of project knowledge
  - Organizing project knowledge for reuse in future
- Integration of ‘Virtual Work (Project) Management’ and ‘Knowledge Management’

Layered Architecture of VWSS

<table>
<thead>
<tr>
<th>View Layer</th>
<th>Calendar View</th>
<th>Gantt View</th>
<th>List View</th>
<th>WIS View</th>
<th>.....</th>
</tr>
</thead>
<tbody>
<tr>
<td>Template Layer</td>
<td>Lab. Project</td>
<td>Thesis Work</td>
<td>SIG Study</td>
<td>Lecture Classroom</td>
<td>User Defined</td>
</tr>
<tr>
<td>WMS Layer</td>
<td>Virtual Workspace Management System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workspace Layer</td>
<td>Virtual Workspace</td>
<td></td>
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</tbody>
</table>

S.J. Park
Functions of VWSS

- Activity Management
  - Activity-centered Knowledge Management: ‘Activity Folder’
- Messaging
  - E-mail & Structured Messages (Speech-Act Theory)
- Document Management
- Group Decision Support
  - Threaded Discussion: Semantic Threading
  - Voting
- Active Calendar
- Workspace Management
- Access Control

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Final Words

- Virtualization is a Reality
  - Economy & Convenience
  - A Way of Life
- Virtual Corporation is the Future
  - Clear Benefits
  - Knowledge Management is a CSF for VC
- No Body Knows the Final Picture
  - Cultural & Physical Barriers
  - Knowledge Paradox
  - Technological, especially IT, Progresses
  - Trust or Trashed