Knowledge Management and Open Innovation for Regional Development

The case ITAIPU

Jaime JARA

SEPNET Seminar – Buenos Aires
26-30.09.2005
Itaipu

- **Bi-national superlative**
  World’s largest power plant
  Public company
  Sales 3.5 Billion USD/Year

- **The industry**
  Mid Tech
  Technology lifecycle

- **Technical knowledge**
  Unique context / constraints led to singular opportunities for knowledge creation
● %50/50 Ownership
International treaty
ANDE – Paraguay
Electrobrás - Brazil → IPO

● Mission statement (2005-…)

Produce cost, quality effective energy, promoting corporate social responsibility, tourism and technology development

● 30 years old
Aging workforce
Technical change
Deregulation → Market innovation
Conclusions

Corporate Process Knowledge Management

Opening up the innovation process

Socioeconomic development

Conclusions
Knowledge Management as a Corporate Process

- **Direct benefits**
  Corporate *lost* knowledge
  Organisational knowledge [value network] and access to knowledge base [internal and external]
  Business processes’ performance
  Intellectual capital management
  Innovation capacity

- **Indirect benefits**
  Efficiency / effectiveness to meet strategic objectives and the mission
  Development of new competencies to sustain corporate social responsibility, tourism, technology development
  Regional competitiveness : socioeconomic development
Action - Research

Training of KM activists

Survey KM practices

CPKM – ITAIPU Strategic Guidelines

Business Diagnose
Awareness and empowerment

- Co-operation with universities
  Theoretical and methodological orientation

- Commitment for change
  Value proposition to Top Management
  Kick-off meeting

- Educate the activists
  Inductive and practitioner oriented
  “Land” concepts to the firm’s context

- Action research
  Accompany empirical methods
  Customise survey instrument
● **Documental analysis**

Strategic Plan 2005-2009

Strategic objectives

Operational plan: results

Financial performance

Organisational Development Programme

Systems’ Master Plan

Managerial Development Plan

● **Structured interviews and “chats”**

Managers

Co-ordinators of programmes and actions
Survey – KM practices

● Framework for the analysis
State of the research on KM – literature analysis

● Instrument
Online self administered questionnaire with 87 items on:
Corporate / functional strategy, resources and capabilities, individual competencies, organisational learning, corporate education, intellectual capital management, business intelligence, ICTs
Items in form of thesis / scenarios → 5 point Likert scale

● Participants
Qualified sample, not probabilistic
At least 2 respondents from each organisational unit (directions, divisions and departments)

● Qualitative – quantitative approach
1. Knowledge Creation and Organisational Learning

D1.1. ITAIPU’s business intelligence processes shall develop both internally and externally, involving the identification of information sources and monitoring of technology, markets and public sector reforms.

D1.2. ITAIPU’s relationship with its external environment shall stimulate the permanent search of new knowledge that creates value to the company, considering its corporate nature.
2. Knowledge retention and systematisation

D2.1. Critical knowledge generated in ITAIPU’s business processes shall be retained, systematised and explicited.

D2.2. HR (people) management shall guarantee knowledge retention in the inter-generational “hand-over” processes.

D2.3. Information generated and collected by ITAIPU shall be organised, maintained and available through corporate info systems.

D2.4. ITAIPU shall stimulate and create mechanisms - organisational units shall contribute systematically to corporate data bases.

D2.5. ITAIPU’s technical knowledge shall be managed as strategic resource, to promote sustainable development.

D2.6. ITAIPU shall manage its IP, protecting critical knowledge, using others’ IP and / or chanelling own’s IP, considering its corporate nature.
3. Knowledge dissemination

3.1. ITAIPU’s managers shall develop an org. culture that favours knowledge creation / dissemination and continuous innovation.

3.2. ITAIPU’s corporate education programmes shall be ICT intensive.

3.3. Knowledge dissemination shall be planned, systemitised and evaluated, involving its value network

4. Competence development

4.1. People management at ITAIPU shall follow the principles of the competence management model

4.2. ITAIPU’s continuous education / lifelong learning model shall guarantee permanent creation, development and updating of individual competencies required
### KM Strategic Guidelines

**DE1.1. ITAIPU’s business intelligence processes shall develop both internally and externally, involving the identification of information sources and monitoring of technology, markets and public sector reforms**

<table>
<thead>
<tr>
<th>Strategic Objectives</th>
<th>OE1, OE3, OE5, OE8, OE9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tactical Guidelines</strong></td>
<td></td>
</tr>
<tr>
<td>(global and specific results)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OE1-R6.1</td>
</tr>
<tr>
<td></td>
<td>OE3-R1.3, OE3-R1.4, OE3-R1.5, OE3-R2.1, OE3-R 2.2, OE3-R3.3, OE3-R5.5</td>
</tr>
<tr>
<td></td>
<td>OE5-R3.1, OE5-R3.2, OE5-R 4.1; OE7-R2.5;OE8-R1.3</td>
</tr>
<tr>
<td></td>
<td>OE9-R1.1, OE9-R2, OE9-R3.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current implications</th>
<th>On-going KM actions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–Current database of economic and technical studies</td>
</tr>
<tr>
<td></td>
<td>–Documentation and registration</td>
</tr>
</tbody>
</table>

| Problems detected    | Systematisation of data mining / information collection |
|                      | Distribution of information                             |

<table>
<thead>
<tr>
<th>Future implications</th>
<th>Dimensions of KM framework</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strategy, Processes and People.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impacted processes</th>
<th>Business strategy, People Management, Operations and Logistics.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>KM practices related</th>
<th>Learning Organisation and Business Intelligence</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Techniques and tools associated</th>
<th>–Information systems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–Planning and Foresight / Scenario building</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practical implications</th>
<th>–Introduction of BI information systems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–Formal structure of BI at ITAIPU.</td>
</tr>
</tbody>
</table>
Immediate Knowledge Retention

Knowledge Transfer Practices

Knowledge Recovery Initiatives

IT Applications to Capture, Store and Share Knowledge

Knowledge Retention Strategy

Human Resources Processes & Practices

The innovation process

Closed Innovation System

Changing environment

- **Growing mobility of highly experienced and skilled people**
  What to do when knowledge is gone?

- **Growing presence of VC**
  Specialised in creating new firms that commercialised external research

- **Time to market**
  Increasingly fast + shorter lifecycles

- **Business model**
  Value proposition – market segment – value chain / network – cost structure and strategic margins – competitive strategy

Principles of Open Innovation

- Not all the smart people work for us.
- External R&D can create significant value; internal R&D is needed to claim some portion of it.
- We don’t have to originate the research to profit from it.
- Building a better business model is better than getting to market first.
- If we make the best use of internal and external ideas, we will win.
- We should profit from others’ use of our IP, and we should buy others’ IP whenever it advances our own business model.

Open Innovation System

De-coupling the locus of the innovation process

- **Outside-in Process**: External Knowledge
  - Locus of Innovation outside the company

- **Inside-out Process**: Locus of Innovation inside the company
  - Exploitation outside the company

- **Coupled Process**: Joined Innovation and Exploitation
  - Boundaries of the company

Foster socioeconomic development, promoting a culture of innovation and competitiveness of firms and knowledge institutions established in / associated to the park.
Stimulate and manage flow of knowledge:
Universities, R&D, large firms and SMEs, markets and society

Innovate business model: new products and services, new markets
Consultancy, training, facility management, venture capital

Foster creation and growth of innovative new businesses through incubators and own spin offs

Human development
Human Development

Human capacity building
- Live longer and healthier life
- Acquire knowledge and be creative
- Participate in the community

Economic growth
- Resources for education, health, communication and employment
- Advances in medicine, communications, agriculture, energy, manufacture

Technical change
- Resources for technology development
- Productivity gains

Knowledge and creativity

Vision being evaluated to become an “energy” company

Store and deliver hydrogen

Scenario planning with major regional players

Roadmapping technology development
Conclusions

Corporate Process Knowledge Management

Opening up the innovation process

Socioeconomic development

Conclusions
Conclusions

● Technology diffusion – balance knowledge spillovers and rewards for innovators

● Systematise processes of knowledge creation, storage and diffusion along the value network

● Promote a culture of innovation and change

● Exploit an appropriate business model to create value

● Resource based approach – competitive advantages and/or “anchor” industries to develop technical capabilities

● Use external knowledge and/or bring knowledge through third parties to advance the business model

● The goal is growth – revenue, impact
Many thanks for your attention

Jaime JARA
jaime@gti.com.py
Knowledge Management and Open Innovation for Regional Development
The case ITAIPU

Jaime JARA
jaime@gti.com.py