EcoDesign of ICT Society
-Low-Carbon Society Scenario Toward 2050-

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EcoDesign for a ICT Society

The ‘EcoDesign’ aims at making the positive effect larger than the negative effect.

Positive or Negative side

-Changes in the industrial form
  (Domestic: Positive, Worldwide: ?)

Positive side

- Improvements in transportation efficiency, and so forth
- Advancement and improvement of environmental measures through ICT

Negative side

- Increases resource, energy consumption, and amount of waste
- Rebound effect
Forms of ‘Emptiness’
i.e. Loneliness, Boredom, Lack of meaning

Search for deep satisfaction

Over consumption

Possible increase CO2 emission

Dissolution of fundamental traditional values
Negative mental/spiritual effect

Loss of authentic human contact

Facile lifestyle

Versatile society

ICT Diffusion

Change in resource consumption patterns

Impact on CO2 emission

Rebound Effect

Model of Rebound Effect
Future impact of ICT in 2020

<table>
<thead>
<tr>
<th>Category</th>
<th>Industry</th>
<th>Freight transport</th>
<th>Passenger transport</th>
<th>Office</th>
<th>Home</th>
<th>Recycling</th>
<th>Impact on CO2 emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffusion of ICT equipment</td>
<td>Resource</td>
<td></td>
<td></td>
<td>Electric</td>
<td>Electric</td>
<td>Waste</td>
<td>Negative II</td>
</tr>
<tr>
<td>Supply chain management (B2B)</td>
<td></td>
<td>Resource consumption</td>
<td>Resource consumption</td>
<td></td>
<td></td>
<td></td>
<td>Positive I</td>
</tr>
<tr>
<td>Internet shopping (B2C)</td>
<td>Resource consumption</td>
<td>Resource consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Negative/Positive</td>
</tr>
<tr>
<td>Teleworking</td>
<td></td>
<td></td>
<td>Number of shops</td>
<td></td>
<td></td>
<td></td>
<td>Positive III</td>
</tr>
<tr>
<td>Advanced traffic utilization system (modal shift in commuting, B2C, etc.)</td>
<td>Transport</td>
<td></td>
<td>Number of offices</td>
<td>Electric power</td>
<td></td>
<td>Positive II</td>
<td></td>
</tr>
<tr>
<td>Dematerialization system (newspaper, magazine, and CD)</td>
<td>Resource consumption</td>
<td>Transport</td>
<td>Number of shops</td>
<td></td>
<td>Waste</td>
<td>Positive III</td>
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<tr>
<td>Energy management (HEMS, BEMS)</td>
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<td>Positive II</td>
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<td>Eco-life guidance system</td>
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<td>Positive I</td>
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<tr>
<td>A product and manufacture management</td>
<td>Resource consumption</td>
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<td>Positive I</td>
</tr>
<tr>
<td>Recycling information system</td>
<td>Resource consumption</td>
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<td>Waste</td>
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<td>Negative/Positive</td>
</tr>
<tr>
<td>E-government</td>
<td></td>
<td>Transport</td>
<td></td>
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<td>Wastes</td>
<td></td>
<td>Positive III</td>
</tr>
</tbody>
</table>

**CO2 reduction of 2 to 3% in 2010**

**CO2 reduction of 10% in 2050**

<table>
<thead>
<tr>
<th>Reduction</th>
<th>Rate to the total 2020 emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>3-5%</td>
</tr>
<tr>
<td>II</td>
<td>1-3%</td>
</tr>
<tr>
<td>III</td>
<td>0-1%</td>
</tr>
</tbody>
</table>
Creation method of 2050 social images

**Material collection**

- Opinion
  - Questionnaire
    - Citizen questionnaire (1000 persons)
    - Network generation group interview
    - A well-informed person and an interview
- Future prediction related literature, a SF film, animation

**Four ICT society Scenarios**

**Brainstorming**

(Based on ‘social model’)

**Desired sustainable low-carbon society**

**Comparison**

IT society (present condition)

2050 IT society (prediction) (Forecasting) -10%

**Trial calculation of CO2 reduction effect**
Design Low Carbon Society Using Advanced ICT

**Society**
- Transform fundamental structure
  - i.e. social, political, lifestyle
- Integrated ICT and traditional values
- Attain deep satisfaction
  - Stabilized consumption

**Technology**
- Advanced ICT Diffusion
- Versatile society
- Change in resource consumption patterns

**Flowchart Notes:***
- Techno-ontological approach
- Dramatic impact on CO2 reduction
- Authentic human contact
- Meaningful lifestyle
Family life style

- Virtual door system
- IT magnifying glass
- Home automation
Considering Paradigm Shift or Not

**Impact of social structure change on CO2 emission**

**CO2 reduction rate by ICT (ratio in the 2000 fiscal year)**

- **This project (05)**: 5%
- **NTT(01): 2.5%**
- **UT/NEC(03): 3.1%**
- **Ministry of Internal Affairs and Communications (05): 2.0%**

**Social change**

**Scenario of a future-desired ICT society**

- **-40%** (household origin)

**-10% (Forecasting)**

**Eco-navigation**: -10 to 22 million ton
**SCM**: -37 million ton
**Modal shift & telework**: -10 million t
**Internet shopping**: -50 million t
1) Adding Environmental consciousness to drastic ‘social change’ brought by ICT revolution
2) Consideration ICT impact on human mental/emotional situations
Causal Approach?

Cure hyperphagia

Prevent a Disease

Moderate

Self-actualize

Thank you!