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ICT Usage by Enterprises in Korea
- 2009 Survey on the Information Society

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Objective and History of the Survey

• Objective
- Providing basic data for the development of the national informatization policies by identifying the level and status of the informatization in Korea

• History
✓ 1999: The Survey on the Information Society was launched
✓ 2001: Survey scope change (household, business and public organization → business and public organization)
✓ 2002: Survey scope change (business and public organization → establishment)
✓ 2004: Approved as official statistics by the National Statistical Office (No. 12008)
✓ 2005: Adopted OECD model in classifying enterprise by industry type & size
✓ 2006: Survey scope change (establishment with 5 employees or more → all establishments)
✓ 2008: Sample size expanded (11,000 → 14,000 establishments)
Methodology

• **Survey vehicle**: Stand-alone ICT use survey
• **Target population**: All establishments nationwide with 1 or more employees
• **Sampling unit**: Establishment (Public Organization/ Private businesses)
• **Sampling frame**: Data from Census on Establishments by NSO of Korea
• **Scope & Coverage**
  - Establishments with 1 or more employees from 16 metropolitan cities and provinces nationwide
• **Sample size**: 14,006 units
• **Stratification**
  ✓ 10 Industry types by KSIC
  ✓ Size (No. of Employees, 5) : 1~4, 5~9, 10~49, 50~249, 250 or more
  ✓ 16 regions : 7 metropolitan cities and 9 provinces nationwide
Methodology (cont’d)

• **Reference year**: 31-Dec-2008 (2009 survey)
• **Sampling error**: 0.89% at 95% confidence level
• **Sample allocation method**: Neyman allocation
• **Data collecting method**: F2F interview
• **Response rate**: 89.5% (Valid Responses: 12,533 establishments)

• **Non response treatment**
  ✓ No-responded unit: re-interviewing → population-based corrective weighting
  ✓ No-responded item: hot-deck imputation
Design of Questionnaire

- Formulating of questionnaires are done with the help of international standards and OECD model
  - OECD Model Survey of ICT use by Businesses (survey methodology, variables)

- Including requested data/indicators from policy authorities and international organizations (OECD, UNCTAD, ITU, Partnership)
  - Enterprise ICT usage data for OECD Science, Technology and Industry Scoreboard
  - Data for OECD Key ICT Indicators
  - Data on ICT usage by enterprises for UNCTAD Information Economy Report
  - Data for ITU World Telecommunication/ICT Indicators Data Base
  - Core Indicators on Use of ICT by Businesses (Partnership on Measuring ICT for Development)
## Survey Items

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informatization infrastructure</td>
<td>Computer penetration</td>
<td>Core indicators by partnership(B1)</td>
</tr>
<tr>
<td></td>
<td>Proportion of persons employed routinely using computers</td>
<td>Core indicators by partnership(B2)</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses with Network established</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses with LAN</td>
<td>Core indicators by partnership(B10)</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses with an intranet &amp; extranet</td>
<td>Core indicators by partnership(B10)</td>
</tr>
<tr>
<td>Information use</td>
<td>Proportion of businesses using the Internet</td>
<td>Core indicators by partnership(B3)</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses using the Internet by type of access</td>
<td>Core indicators by partnership(B9)</td>
</tr>
</tbody>
</table>
## Survey Items (cont’d)

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information use</td>
<td>Proportion of businesses using the Internet by type of activity</td>
<td>Core indicators by partnership(B12)</td>
</tr>
<tr>
<td></td>
<td>Proportion of persons employed routinely using the Internet</td>
<td>Core indicators by partnership(B4)</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses using the e-government service</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses with a web presence</td>
<td>Core indicators by partnership(B5)</td>
</tr>
<tr>
<td></td>
<td>Offering functions of web site</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses receiving orders over the Internet</td>
<td>Core indicators by partnership(B7)</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses placing orders over the Internet</td>
<td>Core indicators by partnership(B8)</td>
</tr>
</tbody>
</table>
## Survey Items (cont’d)

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<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Information use</td>
<td>Proportion of businesses using the RFID services</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses adopting Green IT activities</td>
<td>-</td>
</tr>
<tr>
<td>ICT investment</td>
<td>Proportion of businesses having invested ICT</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses having experienced innovation through ICT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Launching product/ service</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Improving business process</td>
<td></td>
</tr>
<tr>
<td>Information Security</td>
<td>Proportion of businesses having IT security product</td>
<td>OECD STI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scoreboard</td>
</tr>
<tr>
<td></td>
<td>Proportion of businesses encountering IT security problems</td>
<td>OECD STI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scoreboard</td>
</tr>
</tbody>
</table>
Main Findings

- According to the OECD’s classifications, presented these findings for the establishments with 10 or more employees only

✓ Population size : 234,405
✓ Sample size : 7,356
✓ Sampling error : 1.12% at 95% confidence level
Main Findings (cont’d)

- Computer penetration: 97.9% (97.7%, 2007)

Status of Computer Penetration

- Establishments Without Computers: 4,946 (2.1%)
- Establishments With Computers: 229,459 (97.9%)

Reference Date: December 31, 2008
Base: Establishments with 10 or more employees (Census on Establishments, Statistics Korea)
Main Findings (cont’d)

- Computer penetration by industry type
  - Financial Institutions & Insurance (100.0%) > Other activities (99.4%) > Transport, Post and Telecommunications (99.1%)

![Graph showing computer penetration by industry type]

<table>
<thead>
<tr>
<th>Classification</th>
<th>No. of Computers per 100 Employees</th>
<th>Computer Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing, Mining and Quarrying</td>
<td>45</td>
<td>86.9</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>51</td>
<td>97.4</td>
</tr>
<tr>
<td>Construction</td>
<td>41</td>
<td>98.8</td>
</tr>
<tr>
<td>Wholesale</td>
<td>86</td>
<td>98.6</td>
</tr>
<tr>
<td>Retail</td>
<td>38</td>
<td>97.9</td>
</tr>
<tr>
<td>Hotels and Restaurants</td>
<td>21</td>
<td>85.0</td>
</tr>
<tr>
<td>Transport, Post and Telecommunications</td>
<td>58</td>
<td>99.1</td>
</tr>
<tr>
<td>Financial Institutions and Insurance</td>
<td>125</td>
<td>100.0</td>
</tr>
<tr>
<td>Real Estate, Renting and Business Activities</td>
<td>64</td>
<td>99.0</td>
</tr>
<tr>
<td>Other Activities</td>
<td>174</td>
<td>99.4</td>
</tr>
</tbody>
</table>

Reference Date: December 31, 2008
Base: Establishments with 10 or more employees, nationwide
Note: Computer penetration rate refers to the proportion of establishments having computers
Main Findings (cont’d)

• Computer penetration by size

✓ The computer penetration rate and the number of computers per 1 employee were higher in proportion to the number of employees in establishments.

![Graph showing computer penetration by employee size]

<table>
<thead>
<tr>
<th>Classification</th>
<th>10~49 Employees</th>
<th>50~249 Employees</th>
<th>250+ Employees</th>
<th>Total Establishments (10+ Employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Computers per 1 Employees</td>
<td>0.66</td>
<td>0.90</td>
<td>1.33</td>
<td>0.91</td>
</tr>
<tr>
<td>Computer Penetration Rate</td>
<td>97.6</td>
<td>99.7</td>
<td>100.0</td>
<td>97.9</td>
</tr>
</tbody>
</table>

- Reference Date: December 31, 2008
- Base: Establishments with 10 or more employees, nationwide
- Note: Computer penetration rate refers to the proportion of establishments having computers.
Main Findings (cont’d)

- Proportion of persons employed routinely using computers

✓ 70.1% of employees on average were using computers for their routine work (63.5%, 2007)
Main Findings (cont’d)

- Proportion of business using the internet by size

✓ As of December 2008, 250+ (100.0%) > 50~249 (99.4%) > 10~49 (97.1%)

※ EU27: 250+ (99.5%) > 50~249 (98.0%) > 10~49 (91.9%)

Source: OECD Key ICT Indicators
Main Findings (cont'd)

• Proportion of business using the internet by type of activity

✓ The mostly used Internet activity by employees was ‘sending and receiving e-mails’ (93.6%), followed by ‘internet banking’ (77.3%), ‘getting information about goods and services’ (74.6%)

![Graph showing internet usage by activity and country comparison](image)
Main Findings (cont’d)

- Proportion of business using product for Intrusion Detection

  ✓ Firewall (46.5%) > Web firewall (32.8%) > IPS (14.7%) > IDS (13.7%)

![Graph showing the proportion of establishments using different types of security products]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Firewall</th>
<th>Web Firewall</th>
<th>IPS</th>
<th>IDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Establishments</td>
<td>80,123</td>
<td>56,447</td>
<td>25,302</td>
<td>23,625</td>
</tr>
<tr>
<td>Usage Rate</td>
<td>46.5</td>
<td>32.8</td>
<td>14.7</td>
<td>13.7</td>
</tr>
</tbody>
</table>

Reference Date: December 31, 2008
Base: Establishments with 10 or more employees having network
Note: 1) Data are based on multiple responses
2) IDS: Intrusion Detection System
3) IPS: Intrusion Prevention System
Main Findings (cont’d)

- Proportion of business using product for Intrusion Detection by Industry Type

- The usage rate of products for intrusion detection was higher in ‘financial institution & insurance’, with the usage rate of 63.6% for ‘firewall’, 33.9% for ‘IDS’, 32.0% for ‘IPS’, and 48.1% for ‘web firewall’
Data Provision

• Results published in the:

Yearbook of Information Society Statistics

Next issue to be released in October 2010
http://old.nia.or.kr/special_content/eng/

• Offering data as a national official statistics to Int’l Organization:
Challenges Faced

• Not enough sample size to survey for all establishments
  ✓ 2009 survey: population 3,150,000 vs. sample 14,000

• Survey based on establishment (both public & private enterprise included)
  ✓ No distinct analysis between public organization and private business
  ✓ Since the boundaries between public organization and private business have become blurred

• Becoming more and more difficult to survey
  ✓ Increasing non-response rate (long and complex questionnaire/ Similar survey/ not release business information)
Thank you for your attention!

Enquiries to

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