E-Document Regulations and Businesses in South Korea

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Methods of document exchange diversified

Document exchange increased sharply

Advances in technology:
- Paper
- Electricity
- Computer
- Internet
- Mobile devices

Timeline:
- BC 500
- AD 1800
- 1970
- 1980
- 1990
- 2000
- 2010

Types of communication:
- Signal fire
- Mail
- Fax
- E-mail
- Online application and issuance
- Smartphones, Tablets
- Mobile phones (Text messaging)
Although Information Technology developed, paper consumption increases.

- Annual increase 15.4%; 42.5 billion sheets in 2009
Socio-economic costs caused by paper documents: $26 bil / year

### Background

**Issuance**
- Various kinds of documents, including certificates, bills, etc.
- Daily paper consumption at a bank chain (10 mil / day)

**Exchange**
- Mail, logistics, door-to-door delivery, etc.
- Number of bills issued by a telecom service provider (20 mil / month)

**Storage**
- Classification, search, storage, and disposal of paper documents
- Number of documents stored in a bank chain (1.09 bil / year)
I. Background

Carbon footprint caused by paper documents:

- 12.2 mil tons / year

- 4 Thermal power plants
- 4.25 million trees
Why people use paper documents?

**Culture**
- **Convenience**
  - Easy to use for record-keeping
- **Readability**
  - 2000 years history

**Regulations**
- **Authenticity**
- **Verification**
  - Mandatory use of paper documents for legal proceedings
Latest Developments
II. Latest Developments

- Acknowledged the Creation of e-documents using digital signatures (Digital Signature Act)
- Acknowledged the validity of digitized (scanned) paper documents (Framework Act of E-document and E-commerce)
- E-document exchange systems (EDI) for trading
- No reliable scheme for e-document exchange
- Certified e-Document warehouses
- Allowed e-tax documents (ex. Basic Act for National Taxes)
Framework Act of e-document and e-commerce ⇒ introduced # mail exchange scheme (‘12.9)

Ⅱ. Latest Developments

# mail service providers

# mail addresses

# mail exchange scheme

# mail certificates
Electronic addresses ensuring the authenticity of the sender/receiver and the transmission, and the receipt of electronic messages

Key features:

1. User verification before issuing # mail address
2. Storing # mail communication information (sender / receiver / time / hash value)
3. # mail certificates (considered true by courts)

Examples:
- limsmin# mke. g
- limsmin # limsmin. p

Address: + # + User name . unique value
A government agency (NIPA) registers and manages the address.

**Step 1:**
- Registration and management body
  - NIPA

**Step 2:**
- # mail service provider (accredited registrar 1)
- # mail service provider (accredited registrar 2)
- # mail service provider (accredited registrar 3)

**Step 3:**
- # mail server
  - Biz 1
  - Biz 2
- # mail server
  - Biz 1
  - Biz 2
  - Person
- # mail server
  - Dept.1
  - Dept.2
  - Indivi - dual
- # mail server
  - Dept.1
  - Dept.2
  - Indivi - dual
II. Latest Developments (2)

Definition

Offer #mail exchange services under the license of government

Functions

< Case Study: job seeking model >

1. Request e-documents
2. Graduation certificates/grade certificates, copy of family register, medical report, etc.
3. Submit Online
4. View e-docs.
5. Store #mail communication information
II. Latest Developments (2)

Problems

Long time, high cost to deliver family records to foreign countries

Improvements

Issue family records in foreign embassies

Business application (1)
Supreme Court – Family records

TO-BE

1. Request
3. Send / receive records
4. Issue records

2. Ask records

Expatriates

Embassies

Certificate reception and issuance body

Current progress

27 offices in 6 countries (US, China, etc.)
Business application (2)

Exchange of insurance policies via #mail

Problems
Massive volume of paper documents (subscription design forms, subscription forms, and agreements, etc.) to develop insurance contracts

Improvements
Exchange insurance documents through #mail

AS-IS

1. Subscription guidance, insurance subscription (paper document)
2. Subscription (paper document)
3. Send copy of insurance subscription form, etc.

Insurance company
Subscriber

TO-BE

1. Subscription guidance, insurance subscription (e-document)
2. Subscription (e-document)
3. Send copy of insurance subscription form, etc.

Insurance company
Subscriber

Current progress
Implemented since April 2012; simplified work processes (24 steps → 9 steps)
Paper verifications of birth issued by hospitals are submitted to community centers

E-birth verifications sent through # mail

Request for verifications
Print verifications
Submit birth verifications

Requestor

Community center

Request e-verification
Send e-verification
Send e-birth verifications

Requestor

Receiving agency

Introduced in 3 hospitals in 2011
Current progress

Save storage space and reduce costs, culture!

Problems

NIPA and its counterparts meet and sign on contracts

Improvements

NIPA and counterparts exchange e-contracts through # mail

Business application (4)

E-contract between NIPA and its counterparts

1. Visit NIPA and sign on a contract
2. Share the papers

Contractor

AS-IS

TO-BE

1. E-sign on a contract
2. E-sign on a contract
3. # Mail

Contractor

1. E-contract system
2. Store e-contract documents

Certified e-document warehouse

Latest Developments (2)

# mail service provider

Ⅱ. Latest Developments (2)

# mail service provider
1. Latest Developments(3) : # mail Certificate

- **# mail communication information**
  - Information on senders, recipients, sending/receiving dates, hash-values

- **# mail certificate**
  - Assumed as authentic doc, if certificates based on communication information

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**Process**

<table>
<thead>
<tr>
<th>Sender</th>
<th>Recipient</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image of sender process" /></td>
<td><img src="image2" alt="Image of recipient process" /></td>
</tr>
</tbody>
</table>

1. Send # mail
2. Receive/view # mail
3. Store # mail communication information
4. Certificate request and issuance

**NIPA**

- Store # mail communication information
- Issue # mail certificates
## # mail certificates

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number</strong></td>
<td>Serial number</td>
</tr>
<tr>
<td><strong>Sender/Recipient</strong></td>
<td>Information on senders and recipients (#mail address and user information)</td>
</tr>
<tr>
<td><strong>Send/receive dates</strong></td>
<td>Information on sent, received and viewed time</td>
</tr>
<tr>
<td><strong>Send/receive details</strong></td>
<td>Hash-value of the document</td>
</tr>
</tbody>
</table>
Future Plans
III. Future Plans

**Finalization of the certified e-address scheme**

**Registration**

- Technical criteria (Oct. 2012)
- Registration (Nov. 2012)
  - [http://www.npost.kr](http://www.npost.kr)

**Fees**

<table>
<thead>
<tr>
<th></th>
<th>Registration fee</th>
<th>Sending fee</th>
<th>Receiving fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Businesses / Governments</td>
<td>$130</td>
<td>10 cents</td>
<td>free</td>
</tr>
<tr>
<td>Individuals</td>
<td>free</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Future Plans

# Mail Service Provider License

**Requirements**

- **Capital**: Businesses entity - $1.7 mil of capital
  - Non-profit organization - $0.9 mil of capital
- **Human resources**: 5 IT professionals
- **Facility and equipment**: Transmission/reception facilities, visual notification facilities, protective facilities, distribution information creation/verification facilities

**Designation procedure**

- **Application (Sep.)**
- **Evaluation**
- **Request technology screening**
- **Decision-making**
- **License (within 1 month)**
- **Technology screening**
- **Evaluation report**
Estimated Effects
IV. Estimated Effects

Outlook for # mail registration

<table>
<thead>
<tr>
<th>Item</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>67,839</td>
<td>154,157</td>
<td>260,984</td>
<td>368,229</td>
<td>467,636</td>
</tr>
<tr>
<td>Individual</td>
<td>1,728,855</td>
<td>4,692,384</td>
<td>8,624,585</td>
<td>13,360,086</td>
<td>18,220,265</td>
</tr>
<tr>
<td>Total</td>
<td>1,796,694</td>
<td>4,846,541</td>
<td>8,885,569</td>
<td>13,728,315</td>
<td>18,687,901</td>
</tr>
</tbody>
</table>

(Source: # Mail Fee Estimation Report (NIPA, July 2012))
### IV. Estimated Effects

**Outlook for # mail exchange**

<table>
<thead>
<tr>
<th>Item</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of exchanged documents</td>
<td>236</td>
<td>3,548</td>
<td>6,322</td>
<td>8,935</td>
<td>10,854</td>
</tr>
</tbody>
</table>

(Unit: 1 million transactions)

*Source: # Mail Fee Estimation Report (NIPA, July 2012)*
## IV. Estimated Effects

### Economic benefit from # mail services

- **Cost reduction**: $300 Million
- **Market**: $73 Million

(Unit: 1 million USD)

<table>
<thead>
<tr>
<th>Item</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Sub-total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market volume</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution</td>
<td>13.8</td>
<td>33.5</td>
<td>59.2</td>
<td>77.1</td>
<td>754</td>
<td>259.0</td>
</tr>
<tr>
<td>Service</td>
<td>59.1</td>
<td>452.2</td>
<td>888.1</td>
<td>1,298.7</td>
<td>1,636.9</td>
<td>4,335.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72.9</td>
<td>485.7</td>
<td>947.3</td>
<td>1,375.8</td>
<td>1,712.3</td>
<td>4,594.0</td>
</tr>
<tr>
<td><strong>Reduction in costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs for printing documents, etc.</td>
<td>80.0</td>
<td>164.0</td>
<td>256.0</td>
<td>356.0</td>
<td>468.0</td>
<td>1,324.0</td>
</tr>
<tr>
<td>Process innovation</td>
<td>220.0</td>
<td>451.0</td>
<td>704.0</td>
<td>979.0</td>
<td>1,287.0</td>
<td>3,641.0</td>
</tr>
<tr>
<td>Year-by-year sum total</td>
<td>300.0</td>
<td>615.0</td>
<td>960.0</td>
<td>1,335.0</td>
<td>1,755.0</td>
<td>4,965.0</td>
</tr>
</tbody>
</table>

*Source: Medium and long-term e-document industry revitalization strategy (NIPA, July 2012)*
Thank you!

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