Korea e-Gov’t:
Government EA(Enterprise Architecture) & e-Gov’t standard Framework

2011. 05. 20
Contents

1. Korea e-Government
2. Government EA
3. e-Government Framework
## Korea e-Government Level and Status

### UN e-Government Development Index Rankings

<table>
<thead>
<tr>
<th>Country</th>
<th>Ranking by Year</th>
<th>Rank Difference (2001-2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>US</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Canada</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>UK</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Norway</td>
<td>6</td>
<td>3</td>
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<tr>
<td>Denmark</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Australia</td>
<td>8</td>
<td>8</td>
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<tr>
<td>Spain</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>France</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>
# Korea e-Government Strategy

## History of Korea’s e-Government Promotion

<table>
<thead>
<tr>
<th>Phase</th>
<th>Period</th>
<th>Event</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Introduction</td>
<td>1978~1987</td>
<td>Computerization of Administrative system</td>
<td>• 1(^{st}) and 2(^{nd}) phase Administrative System Computerization Projects(1978~1986)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Unit or function-based informatization - Procurement, passport, patent, customs, etc</td>
</tr>
<tr>
<td>Project Initiation</td>
<td>2001~2002</td>
<td>11 Initiatives for e-Government</td>
<td>• 11 initiative tasks for electronic civil application, e-Procurement, etc - Partial and limited connection between unit tasks</td>
</tr>
<tr>
<td>Maturity</td>
<td>2008~</td>
<td>Expansion of Integration and Connection</td>
<td>• e-Government promotion based on utilization and integration - Expansion of target organizations to administrative institutions, public offices, and some private-sector organizations - Unification of frameworks for national informatization and e-Government implementation</td>
</tr>
</tbody>
</table>
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2. Government EA

3. e-Government Framework
What’s an Enterprise Architecture?

• An enterprise architecture vision:
  — To be the premier provider of enterprise architecture best practices to our customers
  — To support their core business as a strategic resource that:
    ➢ aligns business and technology;
    ➢ leverages shared assets;
    ➢ builds internal and external partnerships; and
    ➢ optimizes the value of IT services.

EA Goals
1. Measure alignment among business processes, strategies, plans, and operations
2. Apply information assurance and infrastructure standardization across the enterprise
3. Support IT cost effectiveness, risk management and quality assurance
4. Meet Legislative Architecture Mandates
Elements for EA Implementation

2. Government EA

- EA Metamodel
- Reference Model
- Modeling Tool
- Model Repository
- EA Management System
- Architecture

EA Framework

- Governance - Organization - Process
  - Develop Target Architecture
  - Develop Baseline Architecture
  - Define an Architecture Process and Approach
  - Establish Management Structure and Control
  - Obtain Executives Buy-In and Support
  - Maintain the Architecture
  - Use the Architecture
  - Develop the Sequencing Plan

- Obtain Executives Buy-In and Support
- Establish Management Structure and Control
- Develop Baseline Architecture
- Develop Target Architecture
- Define an Architecture Process and Approach
- Use the Architecture
- Develop the Sequencing Plan
- Maintain the Architecture
- Governance - Organization - Process
## The Government’s EA History

- **Assessment on public sector information resources**
  (The Office for Government Policy Coordination, April 2002)

- **EA program included in the ‘31 e-Government Initiatives’**
  (The Government Innovation Committee, August 2003)


- **EA law legislated: ‘Law for Effective Acquisitions and Operations of Governmental Information Systems’ (December 2005)**

- **EA supporting agency appointed: National Information Society Agency (August 2006)**

- **Public Sector EA Strategic Plan is endorsed and implemented (December 2006)**

- **Agency EA Implementation Plan is endorsed based on the EA Strategic Plan (October 2007)**


- **EA law is merged into the e-Government Act (December 2009)**
2. Government EA

EA Legislation

EA Laws

- EA law enacted (No. 7816); ‘Law for Effective Acquisitions and Operations of Governmental Information Systems’ (December 30th, 2005)
- EA law revised (No. 8852); ‘Law for Effective Acquisitions and Operations of Governmental Information Systems’ (February 29th, 2008)
  - The MOPAS took over EA responsibility from the MIC as it disbanded
- ‘e-Government Act’ revised (No. 10012) (February 4th, 2010)
  - The previous EA law was merged with the revised e-Government Act.
  - (Section 4. Principles) e-Government projects should be based on EA
  - (Section 45 – 47, 49) The previous EA law merged
- ‘National Informatization Act’ revised (No. 9705) (May 22nd, 2009)
  - (Section 11. CIO) Agency’s CIO must develop and use EA
  - (Section 15. Public Sector Informatization) Public sector IT projects must be based on EA
EA Ordinances/Notifications

- EA guideline (ITA Adoption/Management Guideline) revised (Notification No. 2008-17, MOPAS)
  - Merged into the technical guideline (IT Systems Development/Management Technical Guideline)
- Technical guideline (IT Systems Development/Management Technical Guideline) revised (Notification No. 2010-31, MOPAS)
  - Change in the guideline’s purpose, as status of EA law changed
  - Software vulnerability check added
  - Shared service appointment/use added
2. Government EA

Agency’s EA Duties (As defined in laws)

- **Preparation for EA implementation plans**
  - The agencies required to adopt EA must develop and submit their EA implementation plans.

- **EA team organization and training**
  - The agencies required to adopt EA must organize an EA team and train them (MOPAS, NIA, KLID seminars are recommended)

- **EA adoption, management, and enhancement**
  - Implement agency's EA program using the official guidelines (ITA Adoption/Management Guideline, IT Systems Development/Management Technical Guideline)

- **Submission of EA information**
  - Agencies required to adopt EA must submit their EA information when requested by the head of MOPAS

- **Assessment of EA maturity level, status, and outcome**
  - Agencies required to adopt EA must perform self-assessment on their EA maturity using the government’s EA maturity model
  - The MOPAS analyzes agency’s EA status and outcome on a yearly basis.

- **Technical guideline(IT Systems Development and Management Technical Guideline)/ Technical Evaluation for Interoperability**
  - Agencies must manage their IT projects in compliance with the technical guideline
  - IT projects that are subject to audit must undergo the technical evaluation for interoperability
The MOPAS manages the national EA program with endorsement from the NISC (National Informatization Strategic Committee).

**National Informatization Strategic Committee**
- Review and endorse the EA strategic plan

**MOPAS (Ministry of Public Administration and Security)**
- Manage the national EA program
- Develop and distribute EA guidelines
- Develop and manage EA systems
- Create and implement EA strategic plans
- Evaluate and analyze EA status and outcome

**NIA (National Information Society Agency)**
- Support the national EA program
- Support the MOPAS and EA-running agencies with research, training, etc

**Agencies (Target organizations)**
- Develop and manage agency EA

**Target Organizations >>**
- Central Governments
- Local Governments
- Other Public Organizations
# EA Implementation Status

## EA Introduction Rate in the Public Sector

- **100 out of 132 agencies (75.8%) adopted EA**

### (As of December 2010)

<table>
<thead>
<tr>
<th>Type</th>
<th>No. of target agencies</th>
<th>No. of EA adopted</th>
<th>2010</th>
<th>2009</th>
<th>2008</th>
<th>2007</th>
<th>~ 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central government</td>
<td>40</td>
<td>36</td>
<td>-</td>
<td>4</td>
<td>5</td>
<td>10</td>
<td>17</td>
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<tr>
<td>Local government</td>
<td>16</td>
<td>16</td>
<td>-</td>
<td>13</td>
<td>2</td>
<td>-</td>
<td>1</td>
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<td>Public organization</td>
<td>76</td>
<td>48</td>
<td>1</td>
<td>10</td>
<td>15</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>132</td>
<td>100</td>
<td>1</td>
<td>27</td>
<td>22</td>
<td>21</td>
<td>29</td>
</tr>
</tbody>
</table>
EA Outcomes

- $88.8M saved by reviewing the 2010 national IT investments based on EA
  - 21 project duplications detected ($48M saved)
  - 20 similar projects detected ($40.8M saved)
  * ‘IT Investment Redundancy Elimination Plan’ prepared (March 2010)

- EA-based IT management established
  - EA management system in use to prevent redundant IT investments
  - A commanding view on the government’s IT resources (4,214 systems, 10,854 hardware, 5,393 software, etc)
  - 413 data redundancies detected using 1,569 standard data defined in DRM
IT Investment Review Based on EA

Alignment between IT project and IT investment review process

1. Submit (December)
   1. Agency EA Information
   2. Feedback (January, June)

National IT Strategic Plan

2. Submit (January)
   Agency EA Transition Plan

3. Submit (May)
   Mid-term Financial Plan (5 years)
   National IT Projects (1 year)

4. Submit (June)
   Budget Request (1 year)

The Ministry of Strategy and Finance

Government EA

Agency EA
Agency’s IT resources are being optimized. However, to realize a government-level optimization, we need the government EA in place.

- Redundant IT investments occurred due to agency-level IT management
- No process or systems for government-wide IT resource management existed

Weak alignment between agency’s IT projects and the national IT directions

IT Projects must be aligned with the national IT strategy
EA Metamodel Overview

EA Metamodel is a backbone model used to construct an agency’s EA
- Defines required architectural information and their relationships.

What is the Government EA Metamodel?

- A set of standard EA deliverables required for agencies to create and report for the sake of the government-wide EA success.
- An agency can develop its EA by defining agency’s architecture model and metamodel aligned with agency EA’s purpose and goals, however, the information required by the Government EA Metamodel must be included.
EA Metamodel specifies the architectural information and their relationships that must be addressed to attain a government-wide EA success.

### Government EA Purpose

**A**
1. Provide with directions, principles, and guidelines that agencies comply with when developing EA and IT systems
   - Alignment with national IT strategies (National IT initiatives, National IT Strategic Plan)
2. Develop a plan to improve services to attain national IT purposes
   - Identification of the businesses, services, and agencies related with national initiatives
3. Review rationale of IT investments (e.g., alignment with national initiatives)
   - Alignment with national IT strategies (National IT initiatives, National IT Strategic Plan)

**I**
1. Integrate, unify, and optimize government IT resources in order to attain national IT purposes and increase public service quality
   - Present a plan and a guideline for IT resources integration and alignment based on EA
2. Support for eliminating IT resource duplications
   - Identification of redundant organizations, businesses, and systems
3. Promote reuse and sharing of IT resources
   - Identification of redundant, sharable, or comparable IT resources
4. Increase public service quality and efficiency by utilizing shared services (unification, standardization, simplification)
5. Facilitate inter-departmental IT collaborations to increase level of system interoperability
6. Increase connectivity alignment of government business functions
   - Identification of potential collaboration and integration opportunities

**T**
1. Provide the information that can empower effective decision making on government’s IT lifecycle (IT planning, implementation, evaluation, operation)
   - Alignment checked with national strategies, target architecture, and transition plan
2. Maximize effectiveness and efficiency of IT investments
3. Perform a validity check on large IT investments and manage total IT project budget
4. Support for decision making on IT investments
5. Standardize IT systems and increase level of interoperability
6. Manage IT projects in association with other projects referring to a transition plan
7. Reinforce inter-departmental collaboration and increase connectivity of government business functions
8. Innovate government’s administrative system and process

### Topics with EA use consideration

- **Alignment of national IT strategies**
- **Appropriate management targets in a view of national IT strategies**
- **Support for integration/alignment/sharing planning through analyzing IT resources**
- **IT investment optimization and project validity analysis**
- **Increase level of public service quality**
- **Transition planning and change management**
- **Quality control and standard management for IT resources**
- **System failure impact analysis**

### Metamodel Entries

- Agency: EA Transition Plan
- Agency EA Transition Projects
- Shared Services
- Common Technical Services
- Common Components
- National IT Strategic Plan
- National Initiatives
- Agency
- TRM
- DRM
- Target Software
- Target Service Components
- Target Information Systems
- Target Hardware
- Government EA Transition Plan
- PRM
- Software
- Customer
- Business Functions
- Application Functions
- IT Projects
- IT Project Outcome
- Hardware
- Public Services
- Information Systems
Government EA Metamodel comprises 23 sub-models including the National Initiatives, Public Service, etc. => About 700 gov’t agencies are defined their own.
The GEAP (Government EA Portal) provides information and tools to support EA activities, such as reference models, the government’s EA information, and agency’s EA status.
**Administrative Service**

- Administrative service is a unit in which government EA information is managed.

**Definition of Administrative Service**

Administrative service is government’s services grouped in order to provide integrative services in a user’s standpoint.

**Concept**

- A user’s view rather than a service provider’s view
- A group of government’s services that shares common characteristics in a user’s view.

**Applications**

- Use administrative services as units in which the government’s EA is developed.
- Use a administrative service as a unit by which system integration strategy is developed.
## Administrative Service

- **Public Services (10 Areas, 36 Categories, 106 Sub-categories)**

<table>
<thead>
<tr>
<th>Level 1 (10 elements)</th>
<th>Definition</th>
<th>Level 2 (36 elements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>Basic services that citizens need from the government in their usual life</td>
<td>Residents’ Information, Residents’ Rights, Family Support</td>
</tr>
<tr>
<td>Environment</td>
<td>Environmental information, especially those that have direct relations to citizens’ lives.</td>
<td>Residential Environment, Natural Environment, Weather/Climate</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Services, resources, social capitals, or public establishments that the government provides with citizens for their business and life activities, such as roads, rivers, harbors, airports, etc</td>
<td>Water/Sewage, Energy, Traffic, Distribution, Communication, Resources</td>
</tr>
<tr>
<td>Knowledge Activities</td>
<td>Information or services that support the advancement of knowledge and technologies, and citizens’ lifetime education.</td>
<td>Education, R&amp;D, Knowledge/Information</td>
</tr>
<tr>
<td>Social Welfare</td>
<td>Social policies or facilities to improve citizens’ life and social security; It is a comprehensive concept and includes education, culture, medical services, labor, etc.</td>
<td>Social Security, General Welfare</td>
</tr>
<tr>
<td>Public Health</td>
<td>Support for citizens’ health.</td>
<td>Food and Drug Safety, Disease Control, Public Health/Hygiene</td>
</tr>
<tr>
<td>Overseas/North Korea</td>
<td>Support for citizens’ overseas life or activities, or in regard to North Korea.</td>
<td>Immigration, South-North Cooperation, Overseas Cooperation</td>
</tr>
<tr>
<td>Culture/Life</td>
<td>Preservation of cultural assets; support of social/cultural policies and tourism.</td>
<td>Culture/Art, Leisure Activities</td>
</tr>
<tr>
<td>Public Safety</td>
<td>Disaster prevention, rescue efforts, and recovery.</td>
<td>Emergency, Public Order, Trial, Security</td>
</tr>
</tbody>
</table>
## Administrative Service

### Support Services (8 areas, 38 categories)

<table>
<thead>
<tr>
<th>Level 1 (8 elements)</th>
<th>Definition</th>
<th>Level 2 (38 elements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit</td>
<td>Improve operations by inspecting government agencies’ activities, such as accounting, etc.</td>
<td>Public Ethics, National Audit, Government Office Audit, Self-Inspection</td>
</tr>
<tr>
<td>Customer Relations</td>
<td>Provide information on national policies and process citizens’ inquiries</td>
<td>Customer Management, Civil Affairs, Information Disclosure, Policy Promotion</td>
</tr>
<tr>
<td>Legal</td>
<td>Support citizens’ legal activities</td>
<td>Law Management, Administration Judgment, Request Evaluation, Legislation</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Manage government personnel’s information and improve their capabilities</td>
<td>Performance Management, Personnel Management, Education Management, Appointment Management, Organization Management</td>
</tr>
<tr>
<td>Finance</td>
<td>Services or information provided by the government to manage government’s financial accounts</td>
<td>Purchase/Procurement, Asset Management, Finance Management, Local Finance/Tax, National Property Management</td>
</tr>
<tr>
<td>Informatization</td>
<td>Manage business resources in a digitized form</td>
<td>IRM, Administrative Information, Security, Communication</td>
</tr>
<tr>
<td>General Administration</td>
<td>Information or services that the government provides with agencies to support their general tasks such as statistics management, records management, etc.</td>
<td>Library Management, Knowledge Management, Statistics Management, Record Management, Access Management, Facility Management</td>
</tr>
</tbody>
</table>
Administrative service’s efficiency and consumer satisfaction improved by integrating fragmented administrative services
- New administrative service initiatives found (September 2010)

Experts interview, agency IT project and IT budget request review performed
- Discussion with agencies to find new projects (December 2010)
- Planning for a new administrative service initiative (2011 -)

A roadmap for administrative service integration (to be) made
- BPR/ISP to be executed on each integration initiative (2011 -)
Data Integration and Alignment

- IT investment efficiency and customer service reliability improved by identifying and integrating duplicated data (based on 1,569 data suggested in the government’s EA)
  - 189 master data tackled (out of 413 data duplications supposed)
  - Field inspection on actual databases performed (December 2010)

- DB analysis tools will be used to validate data duplications
  - A working group to be organized to research and analyze the data duplications
  - A transition plan for data integration and alignment to be made (2011 ~)

- A plan to be addressed for integration and alignment of systems related with the data duplications
Contents

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2. Government EA
3. e-Government Framework
SW framework became a basic tool for e-Government (71% of e-Government system from 2004 to 2007).

* Samsung(SYSTEMiER), LG (LAF/J), SK (Jgarnet)

Some barriers were identified in e-Government system

- Only framework provider can modify or extend application on the framework
- Redundant development of same functionalities
- Framework is a expensive asset that big vendors can afford to posses it
- Major three IT vendors dominate e-Government development
- Unfair competition environment to SMEs
What is eGovFrame?

**e-Government Standard Framework**
*for developing and operating e-Government system*

- **Basic functions** always needed to develop e-Government system
- **Composition** [eGovFrame + new functions] ➔ e-Government system
- **Fair competition environment** created by sharing same basis
Vision of eGovFrame

**Vision**
Improve quality of e-Government services & efficiency of ICT investment

**Objectives**
- Reuse common functionalities
- Improve Interoperability
- Up-to-date ICT trends
- Remove vendor dependency
- Enhance SMEs competitiveness

**Strategies**

**Standardization**
- Establish SW framework standard for e-Government
- Provide stable technical infrastructure

**Openness**
- Ensure the neutrality of eGovFrame
- Open assets to the public & encourage participation

**Community**
- Share SW tools and technology by education
- Promote the utilization of eGovframe
Open discussion for developing eGovFrame

A lot of opinions and issues from many stakeholders

- Large companies
- SMEs
- Public organizations
- Government
- Developers

- Fear on dominated market collapse
- Concern on stable technical support
- Concern on project promotion centric by large companies
- Concerns on biz. effectiveness
- Reject the newly developed tools
Open innovation of eGovFrame

- **Open Ecosystem** (2010+)
  - Founded open community with large and SMEs
  - Established public-private cooperation center

- **Open Sourcing** (2008-2010)
  - Developed with 11 large and SMEs and shared knowledge
  - Utilized 40 Open Source Software (OSS)

- **Open Outputs** (2009.6)
  - Opened 664 thousand code lines & IPRs
  - Carried out free training courses and 1,236 developers are certified

- **Open Processes** (2008-2010)
  - Collected extensive opinions from over 500 stakeholders
  - Ran over 20 public-private meeting
Open sourcing of eGovFrame

- Define basic functions and architecture
  - Analyze **3 big vendor's frameworks** and **e-Gov. projects** from 2004 to 2007
  - **54** functions and **219** common components

- Define Open Source Selection Policy
  - Open Source Evaluation Process
  - License with no restriction on distribution and usage

- Evaluate candidate open sources (175)
  - Functional/non-functional requirements
  - Constraints for integration and interfaces

- Physically test candidate open sources (85)
  - Basic functions
  - Non-functional requirements (SW Quality)

Final Result

- **40** open sources selected

Major open sources:
- **Biz. transaction**: Spring & 22
- **Data**: ibatis, Hibernate & 1
- **Development tool**: Eclipse & 3
- **Test tool**: Junit & 5
- **Distribution tool**: Maven & 1
- **Configuration Management tool**: Subversion & 1
What happened after releasing in June 2009?

- **Fair competition for SMEs**
  - Applied to 92 projects until Dec. 2010
  - SMEs won 64% among them

- **Diffusion of standard framework**
  - Applied to private market such as banking, e-Biz., etc.
  - Utilized to commercial SW

- **International recognition**
  - Sweep three awards from FutureGov
    - Gov. Organization of the Year
    - Technology Leadership
    - Gov. Transformation of the Year

<table>
<thead>
<tr>
<th>Sector</th>
<th>Projects with eGovFrame</th>
<th>Ogrinization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>National citizen service portal system</td>
<td>Ministry of Public Administration and Security</td>
</tr>
<tr>
<td></td>
<td>Unified authentication system</td>
<td>Ministry of Public Administration and Security</td>
</tr>
<tr>
<td>Transportation</td>
<td>Seoul metropolitan rail transit management system</td>
<td>Seoul Metropolitan Rapid Transit Corp.</td>
</tr>
<tr>
<td></td>
<td>Driving record analysis system</td>
<td>Korea Transportation Safety Authority</td>
</tr>
<tr>
<td>Military</td>
<td>War fighting Symbology dev. &amp; management system</td>
<td>Ministry of National Defense</td>
</tr>
<tr>
<td></td>
<td>Defense Integrated Cost Management Systems</td>
<td>Defense Acquisition Program Administration</td>
</tr>
<tr>
<td>Education</td>
<td>University information management system</td>
<td>Chungnam National University</td>
</tr>
<tr>
<td></td>
<td>University information management system</td>
<td>Korea National Open University</td>
</tr>
</tbody>
</table>
What are the differences before and now?

**Before**

- **Redundant development** of similar functionalities in every projects
- **Vender Dependency** due to framework delivered as black box
- **Disadvantage to SMEs** who cannot afford to possess the framework
- **Difficult to maintain the system** due to lacking on development standard
- **Spent longer time and labor** to link the systems due to different framework

**Now**

- **Reduction of redundant development** by reusing 219 common components
- **Eliminating dependency to the provider** by utilizing open sources framework
- **Enhancement of SMEs competitiveness** through sharing standardised framework
- **Convenient to maintain the system** with help of proven development standard
- **Enhances interoperability** between systems by standardised framework
What kind of benefit you have?

- **SW Development Productivity**: Developer can focus on the business logic since eGovframe provides common modules and standard templates.

- **SW Component Reusability**: Increase reusability of the components by usages with the other projects.

- **Interoperability**: Using the standard interfaces, interoperability can be increased.

- **Application Software Standardization**: Using the standardized development infrastructure, the standardization of the program code can be achieved.

---

*eGovFrame is...*

- Invested over $13 million that the aggregation of *lesson-learned* and past trials of e-Government in Korea
- Open, free and supported by Korean government
Thank you!

Government EA
ea@nia.or.kr
eGovFrame Center
egovframe@nia.or.kr