The Establishment of Kenya National Public Key Infrastructure (PKI)
The Kenya National PKI Project Background

- The Kenya Government has made initiatives to create a secure online transaction environment and set up an online identity & verification system.

- Subsequently, the Ministry of Information and Communications (MOIC) has recognised the need for the use of Public Key Infrastructure (PKI). In this regard, the tender for the same was advertised under Kenya Transparency & Communications Infrastructure Project.

- Following the procurement process, Samsung SDS from Korea was awarded the contract for the establishment of The National PKI and the development of the master plan. Samsung SDS is a company with solid technological knowledge and experience.

The Kenya National PKI Project Synopsis

- October 2012  Contract Award
- January 2013  Project Kick-off
- March 2013  Master Plan Presentation
- Sept. 2013  PKI Training
- October 2013  PKI System Implementation Completion

Organizations: Kenya ICT Board, CCK, E-government, Office of the President
PMC: Samsung SDS, KICA

01 PMC On-site survey
Facilities installation
PKI system implementation
PKI pilot system integration
PKI system operation training

02 Law/regulation/standardization consultation
PKI construction and certificate policy consultation
PKI application and extension consultation

03 Project management and administration
Risk management
Human resource support

04 Maintenance system establishment
3-yr warranty and 1-yr post-warranty

05 On-site training
TFT Workshop
PKI Seminar
Overseas training

06 PKI operation team development
Network, hardware, PKI system administration
On-the-job training

07 Root CA
Government CA

08 Server, network, application
HSM, thermo-hygrostat, UPS
WHAT IS DIGITAL SIGNATURE?

The National Identification Number (NID), signature or seal is essential when identifying yourself or proving secure transaction in the ‘real world.’ Likewise, the digital signature is necessary when making electronic transactions via the Internet.

DIGITAL SIGNATURE?

- To identify transaction parties
- To confirm whether the transaction has been changed or not
- To prove the fact of the transaction
Why PKI?

Electronically signing is the most ensuring method to solve various on-line problems such as Data Integrity and Non-Repudiation (Refusal of denial). A “National PKI” is the national system that provides the digital signature-based certification services.

IDENTIFICATION AND SIGNATURE

For Authentication

Why does Kenya need National PKI (Public Key Infrastructure)?

Mandatory, not optional

• Digital Signature provides strong security. Face-to-face communication has been changed to electronic communication due to the Internet. Accordingly, in this changed way of doing business, it has become necessary to guarantee security and verification of parties involved in electronic transactions.
• Digital Signature and PKI make it possible to create a secure environment for the Internet.
• Electronic commerce is affecting all industries. Therefore, it can enhance the efficiencies of businesses.

It’s the right time

• Implementing PKI system is a top and foremost priority for enabling e-Government.
• PKI creates a safe online environment using electronic signature. National PKI will enable and foster the development of various applications incorporating digital signature. This expansion of PKI technology will lead to a trusted environment over open networks. And the end result will be enhanced national competitive edge.
Steps to establish the national PKI are...

1st Establishment of electronic signature law/regulations and standards
2nd Construction of certification facilities: Root CA, Government CA
3rd Development of various PKI-application services

PKI Application Service in Korean e-Government

1. Electronic Signature Law/ PKI Standards Establishment
   - E-Signature law
   - CPS
   - Standards and technical guidelines

2. PKI System Construction (Root CA, Government CA Construction)
   - Certification services

3. PKI Application Service Development (E-signature pilot site construction)
   - E-signature
   - Pilot services

“Safe and reliable Information society Establishment”
### WHAT IS THE EFFECTIVENESS OF PKI?

**NATIONAL PKI ESTABLISHMENT**

- **WIN** (User)
- **WIN** (Government)
- **WIN** (Corporation)

PKI creates a safe and trustful environment using electronic signature

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<tr>
<th>USER</th>
<th>Government</th>
<th>Corporation</th>
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| • Reduce time and cost  
• Enjoy convenience of applications like Online Civil Service, Internet Banking, etc.  
• Benefit from easy-to-use e-business services | • Increase the confidence, trust and security of e-Government in Kenya  
• Ensure interoperability of PKI infrastructure with other Governments  
• Establishment of National Security Plan | • Convert offline business to online  
• Provide more safe and secure services  
• Increase the trust of company |

#### Effects of the PKI Construction in Kenya

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<tr>
<th>Social Environmental Effects</th>
<th>Technical Effects</th>
<th>Financial Effects</th>
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| • Providing a paperless environment by using PKI-based electronic documents  
• Solving problems in mutual linkages by acquiring technologies adapting PKI-based international standards and protocols  
• Enlarging PKI-related technology as core technology of e-Government and e-Commerce | • Constructing a reliable and secure e-Government environment using PKI  
• Increasing the government trust by providing on-line governmental services for the people  
• Users can reduce time and cost for civil-affair services | • Support to develop e-Commerce in Kenya by providing a reliable and secure environment from PKI  
• Increasing national benefits by providing secure e-transaction  
• Increasing Kenya's competitive power via e-Government |
After implementing the national PKI, the current application services will be ready to be converted to safe cyber-space. This will be followed by forming convenient and secure information-oriented society.

PKI Application Service in Korean e-Government

History of Korean e-Government

- Request feedback for the on-line research system
- On-line transaction (playing fine and tax, using credit card, remittance): 24 hours online services
- Secured on-line bidding
- Download documents for paying taxes and issuing drivers licence and register by mail
- Contact government officials via e-mail, fax and telephone
- Database in the on-line, documented information: still one-way
- Search documents and obtain useful information
- Website, portal and homepage are appearing
- Information is limited, simple, static
To rapidly and innovatively transform Kenya through promotion of ICT for socio-economic enrichment of our society.

Kenya ICT Board was formed in 2007 to facilitate the Government of Kenya achieving its realization of national development goals and objectives for wealth and employment creation through information, communications and technology (ICT)—which is one of the fastest growing sectors in the country.

The Board’s mission is to champion and actively enable Kenya to adopt and exploit ICT; and its initiatives include positioning and promoting Kenya as an ICT destination; providing ICT based advisory services to Government, steering ICT capacity building from infrastructure to skills; and project management i.e., coordinating, directing and implementing anchor ICT projects in development.

World Premier ICT Service Provider

Samsung SDS, established in 1985, has taken a leading role in creating innovative changes since its inception. Samsung SDS has always been committed to doing our best to enhance ICT competitiveness in both the domestic and global arenas, based on our accumulated technology and expertise.

Samsung SDS is leading a new era of smart convergence based on its depth of experience in ICT services. It provides a host of solutions, tailored to each business environment, working to create success for our clients.

To be the No.1 information security specialists

KICA is the first organization to be accredited as a licensed certification authority by the government in Korea. KICA provides identity confirmation, guarantees regarding secure transactions, and a compensation system that is protected by law. KICA takes the leaders role in developing domestic and international secure e-commerce.