Electronic government infrastructure (Korean Case)

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Who Am I?

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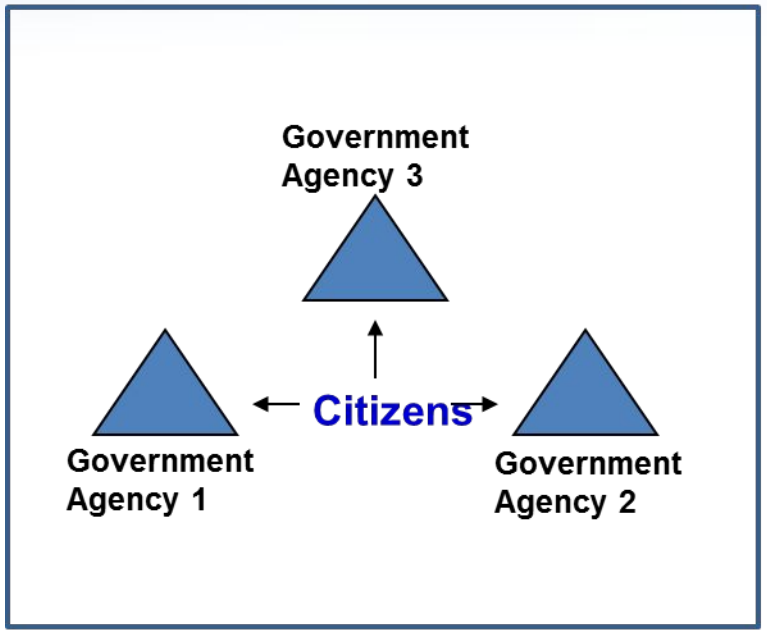
- Head of NIA Global Center and e-Government Academy, NIA
- Executive Director of Information Architecture Division, Smart Network Division(2010~2014)
- Chief of Public Information Support Center(PISC) and e-Government Standard Framework(eGovFrame) Center (2010~2014)
- Director of Green IT/e-Government Technology, NIA, Korea
- Ph.D in IT Policy & Management, Soongsil University(2015) and M.D in KAIST, Korea(1998)

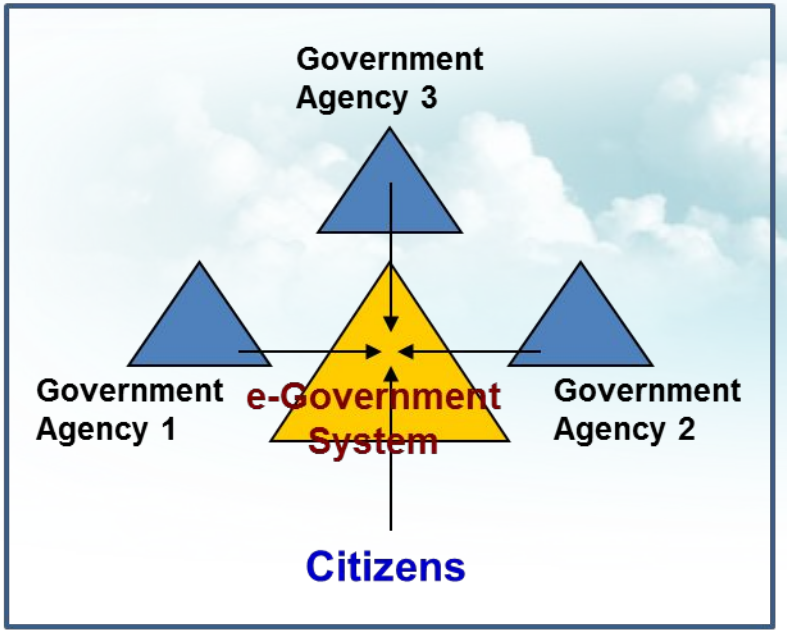
Contents

Role of ICT in public administration

[Conventional Government]



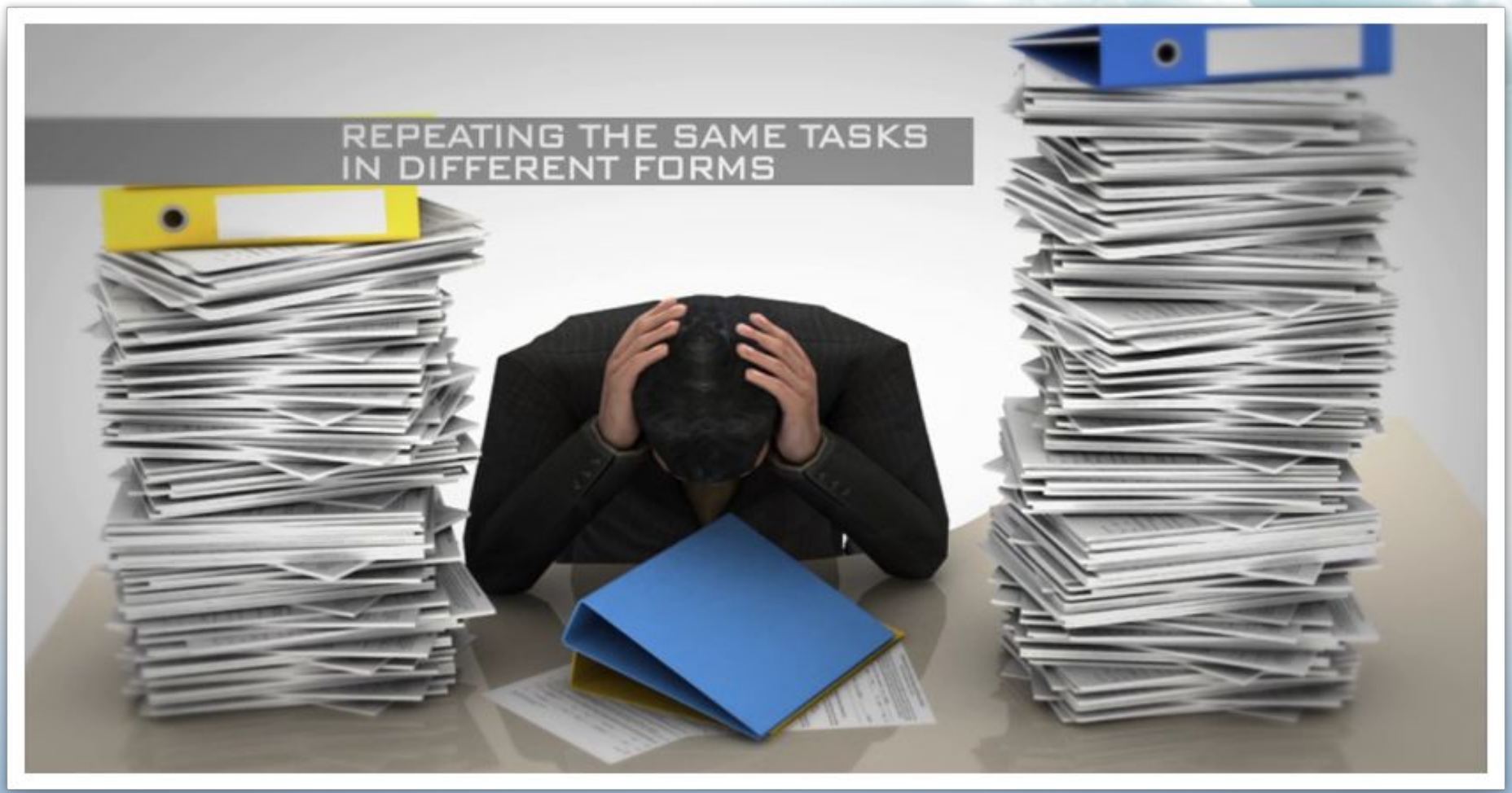
[e-Government]



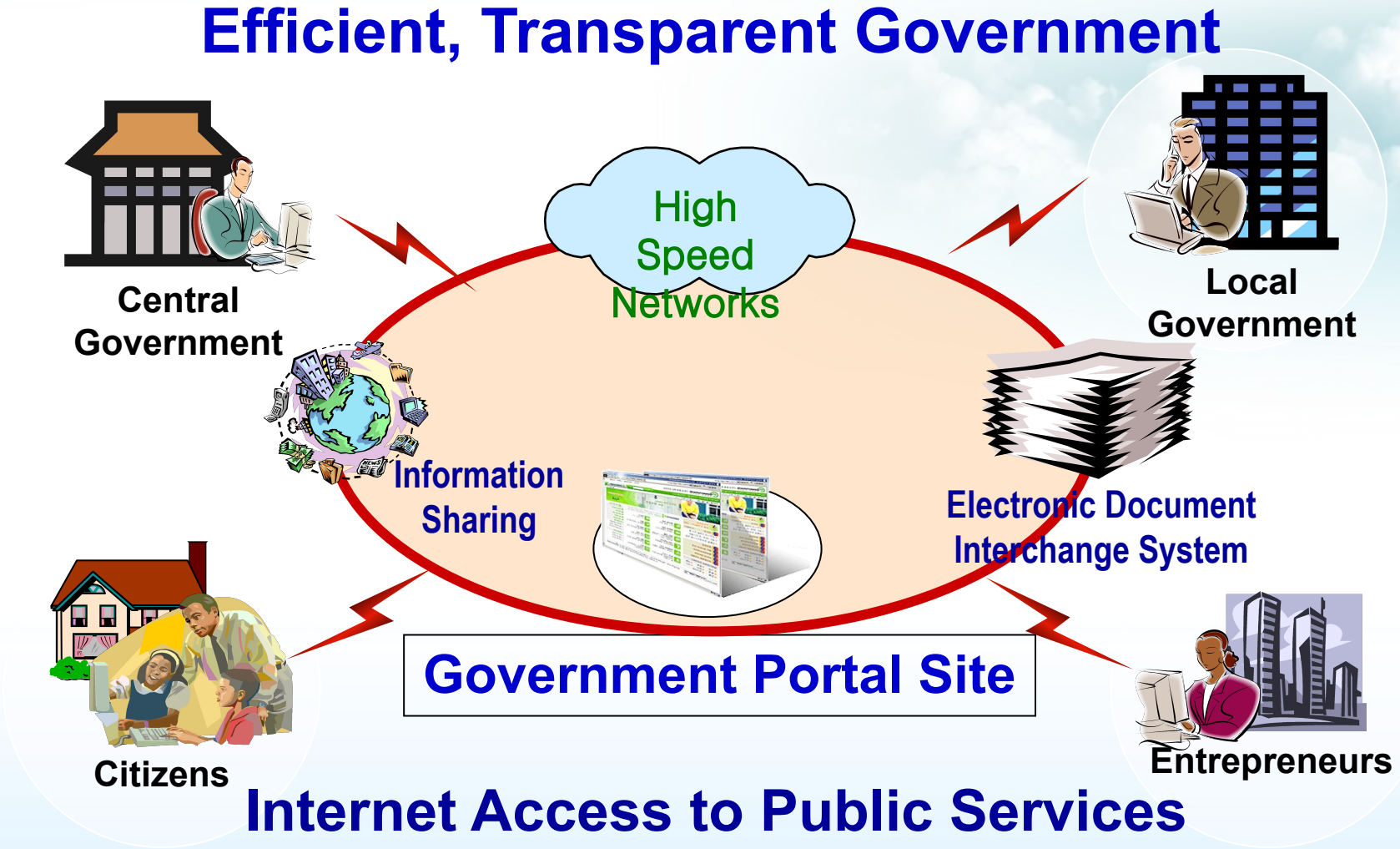
- **Whole of government** with a single window
- Faster and easier work processes
- Works done without face-to-face contacts
- Paperless government
- Seamless government

Public administration before e-Government

Many different forms and repetitive tasks



e-Government in the public services



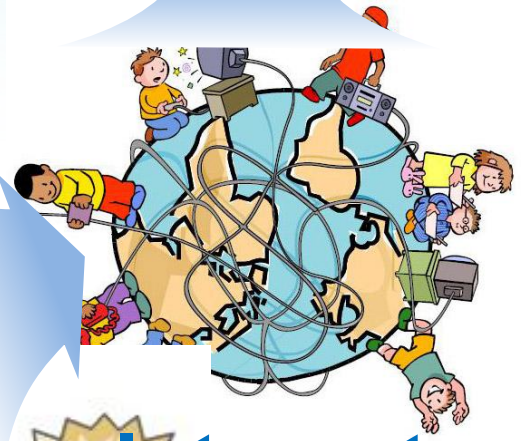
Connected Society for the Happiness

Connect people to communicate
from neighborhood to global community

Road

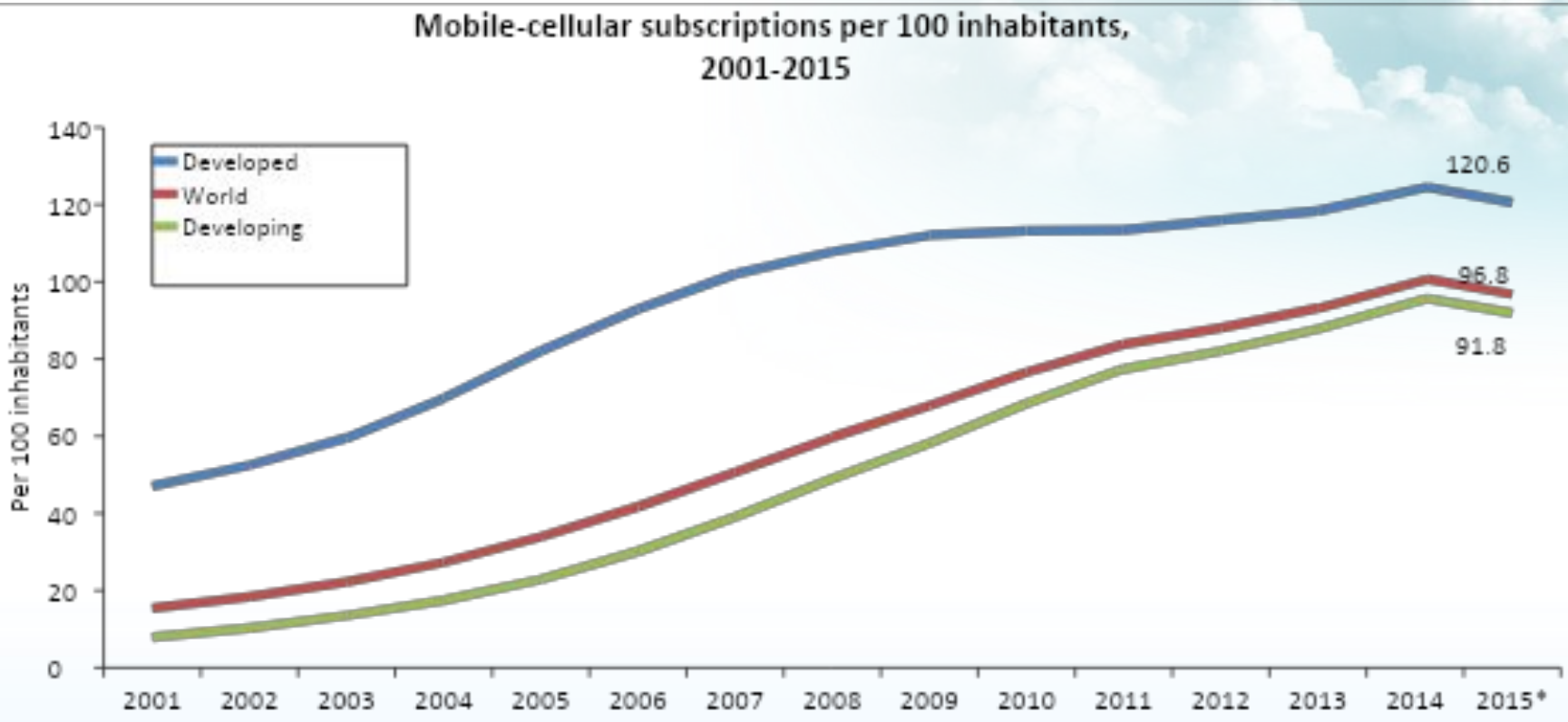
Telephone

SNS



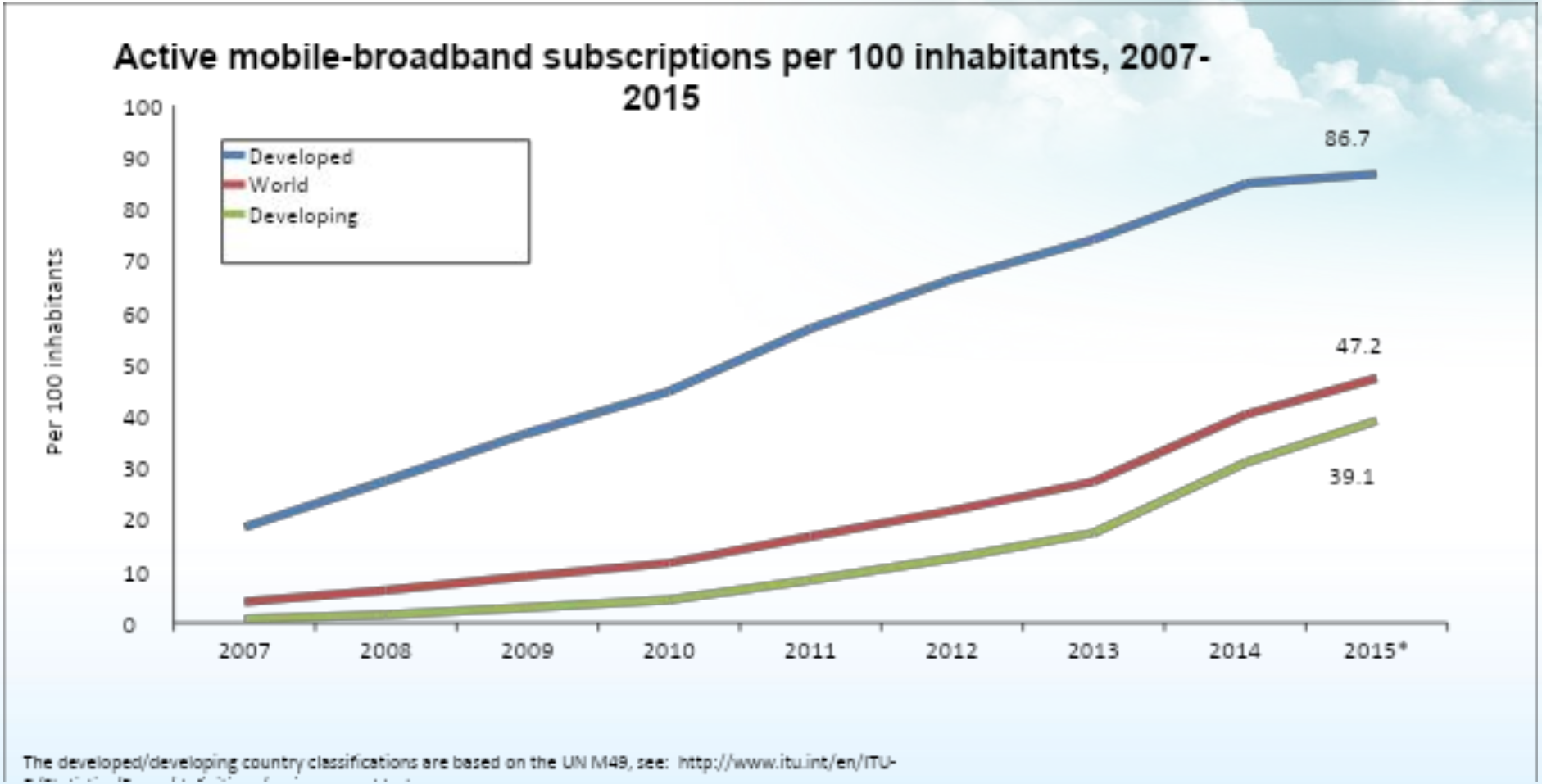
Internet

Mobile Phones in Global



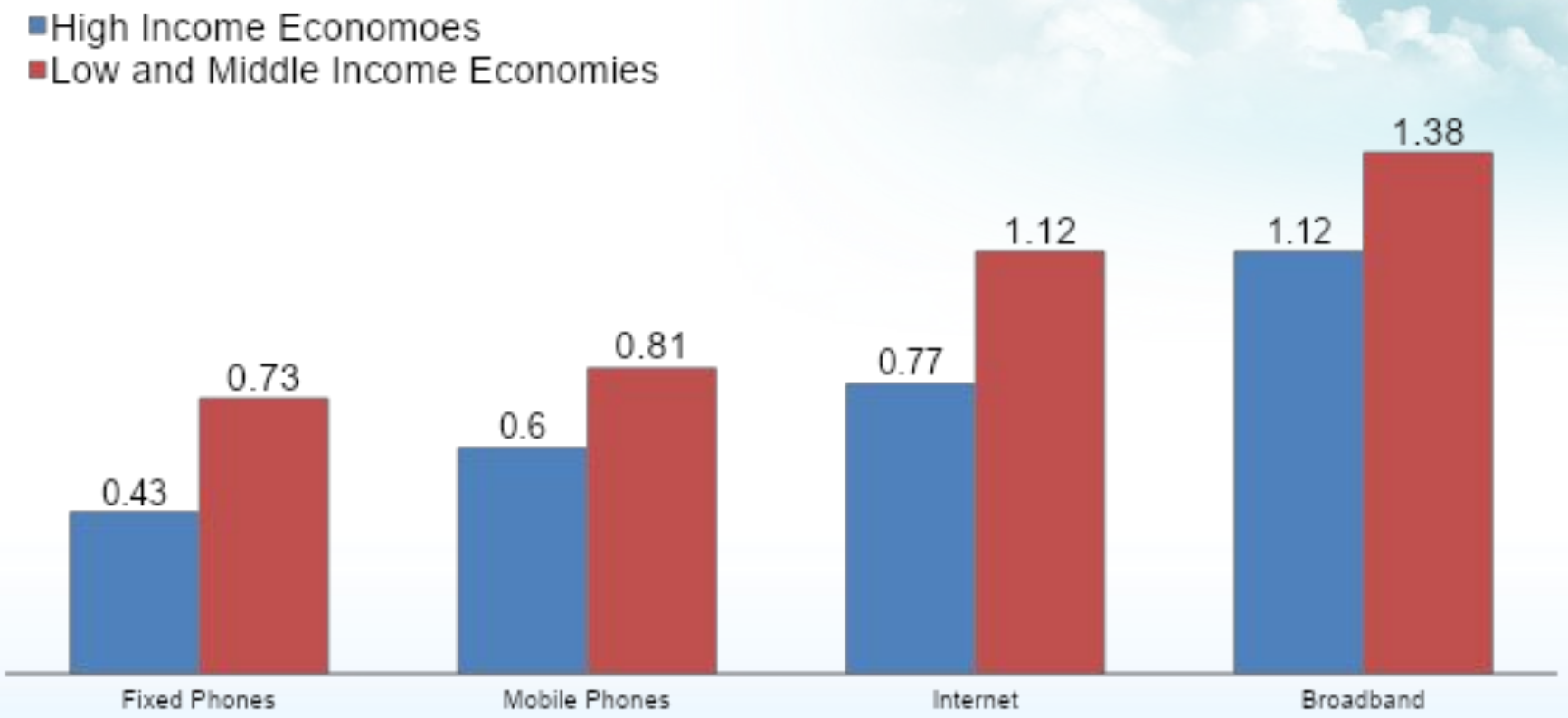
The developed/developing country classifications are based on the UN M49, see: http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx.html
Note: * EstimateSource: ITU World Telecommunication /ICT Indicators database

Mobile-broadband Penetration



The developed/developing country classifications are based on the UN M49, see: http://www.itu.int/en/ITU-

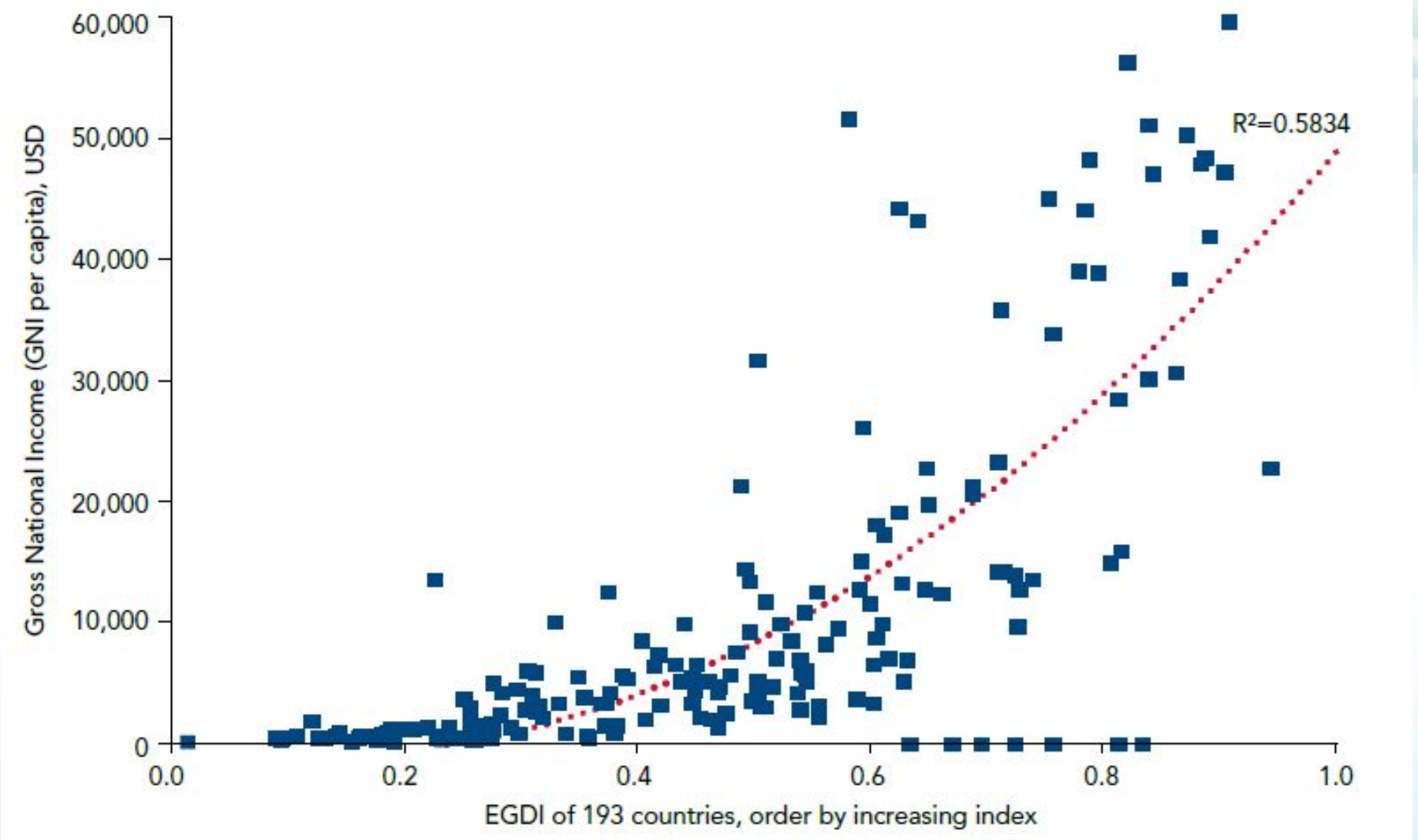
Impact of ICT on Economic Growth by Types of Technology



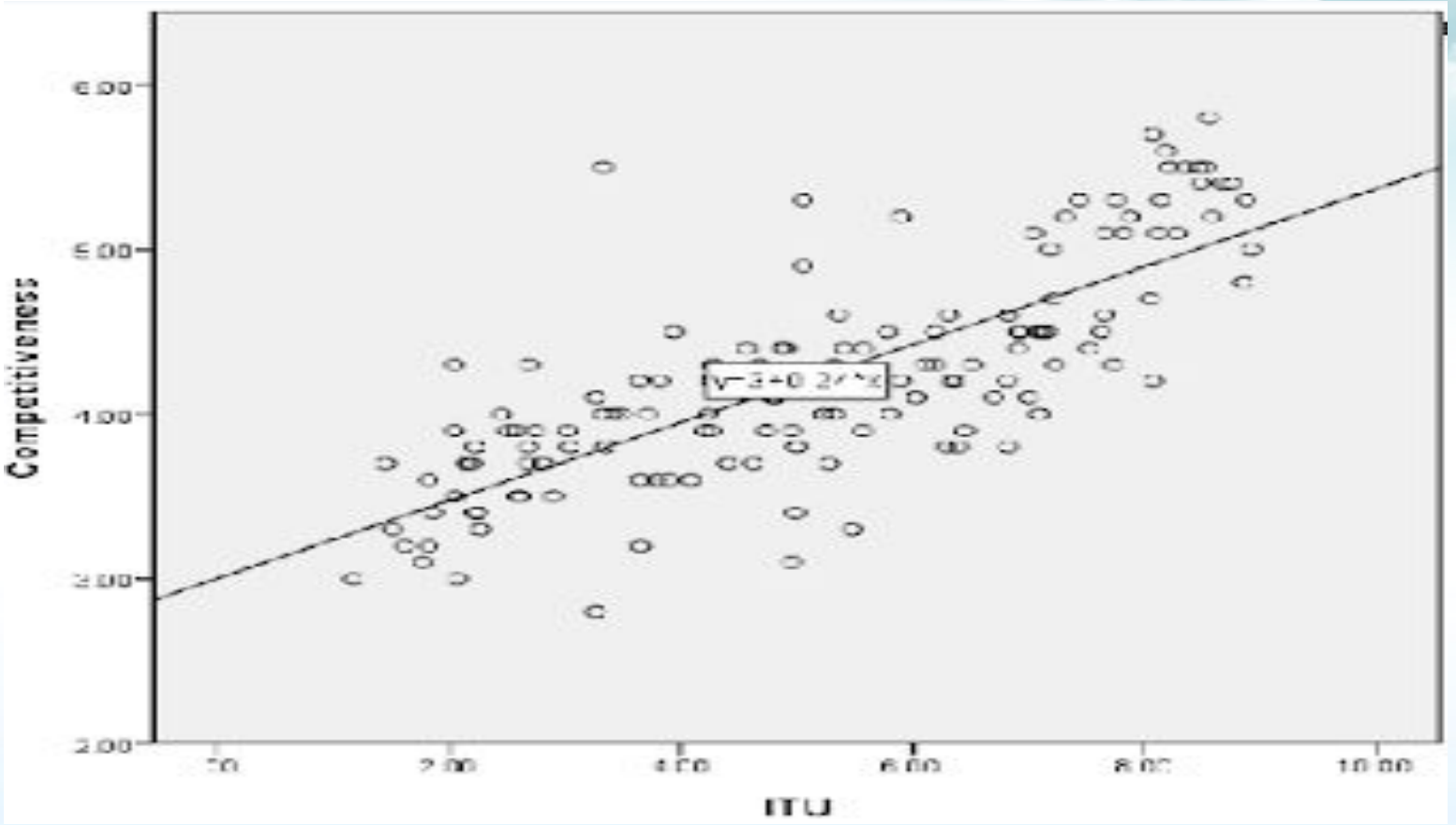
UNDESA, Qiang (2009)

Relation between EGDI and national income (GNI per capita)

***EGDI : E-Government Development Index (UN e-Government Survey 2014)**



National Competitiveness and ICT Capacity



Source: Drawn by the author based on ICT Development Index of ITU (2015) and Global Competitiveness Index of WEF (2015).

Contents

A variety of e-Government Definitions

- “e-Government is defined as utilizing the Internet and world-wide-web for delivering government information and services to citizens.”

  - United Nations

- “The term ‘e-Government’ focuses on the use of new information and communication technologies (ICTs) by governments as applied to the full range of government functions.”

  - OECD

- “e-Government refers to the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses, and other arms of government.”

  - World Bank

- e-Government is to perform more efficiently with digitalizing administrative business of publics agencies for the purpose of enhancing the quality of life, the productivity of public administration, transparency and democracy through the use of information technology

  - Korea, e-Government Act

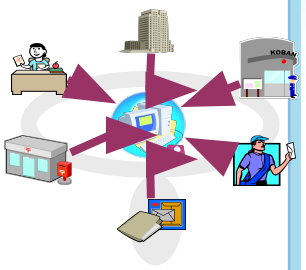
Definition of e-Government

e-Government is generally defined as being "the use of digital technologies to transform government operations in order to improve effectiveness, efficiency, and service delivery"

(Source: Mark A. Forman, "Using it to transform the effectiveness and efficiency of government")

e–Government is:

- *The transformation of public sector in an internal and external relationships*
- *Through network-enable operations, IT and communications*
- *In order to improve:*
  1) *Government service delivery*
  2) *Citizen participation*
  3) *Internal government operations*



*** Source: GARTNER**

Paradigm Shift

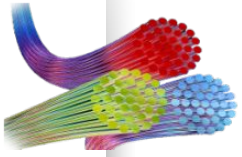
• Government-driven	• Customer-driven
• Get-in, Get-out	• Enduring Relationship
• Distant Customer Contact	• Immediate Customer Service
• Information Center	• Intelligent Reporter
• Process-based	• Competency-based
• Territorial	• Shared Service

*** Source: Deloitte**

ICT Development Journey in Korea

Cyber Korea → u-Korea → Smart-Korea

Paper Document



Building the foundation for nationwide broadband network ('94~)

Mobile service in wide use

Mobile Big Bang

1980 | 1990 | 2000 | 2005 | 2010

Building Administrative Network
'87 ~'96

- National Backbone Network Project
  (administration. finance, education research, national defense, public security)
- Digitization Project
  (resident registration, real estate, automobile, employment, customs, economic statistics)

Basic Plan for Promoting Informatization
'96~'10 (1st~3rd)

- 11 Major tasks for e-Gov. services
  (e-civil service, e-procurement, etc.)
- 31 Major tasks for e-Government services
  (HR, criminal justice, GIDC, etc.)

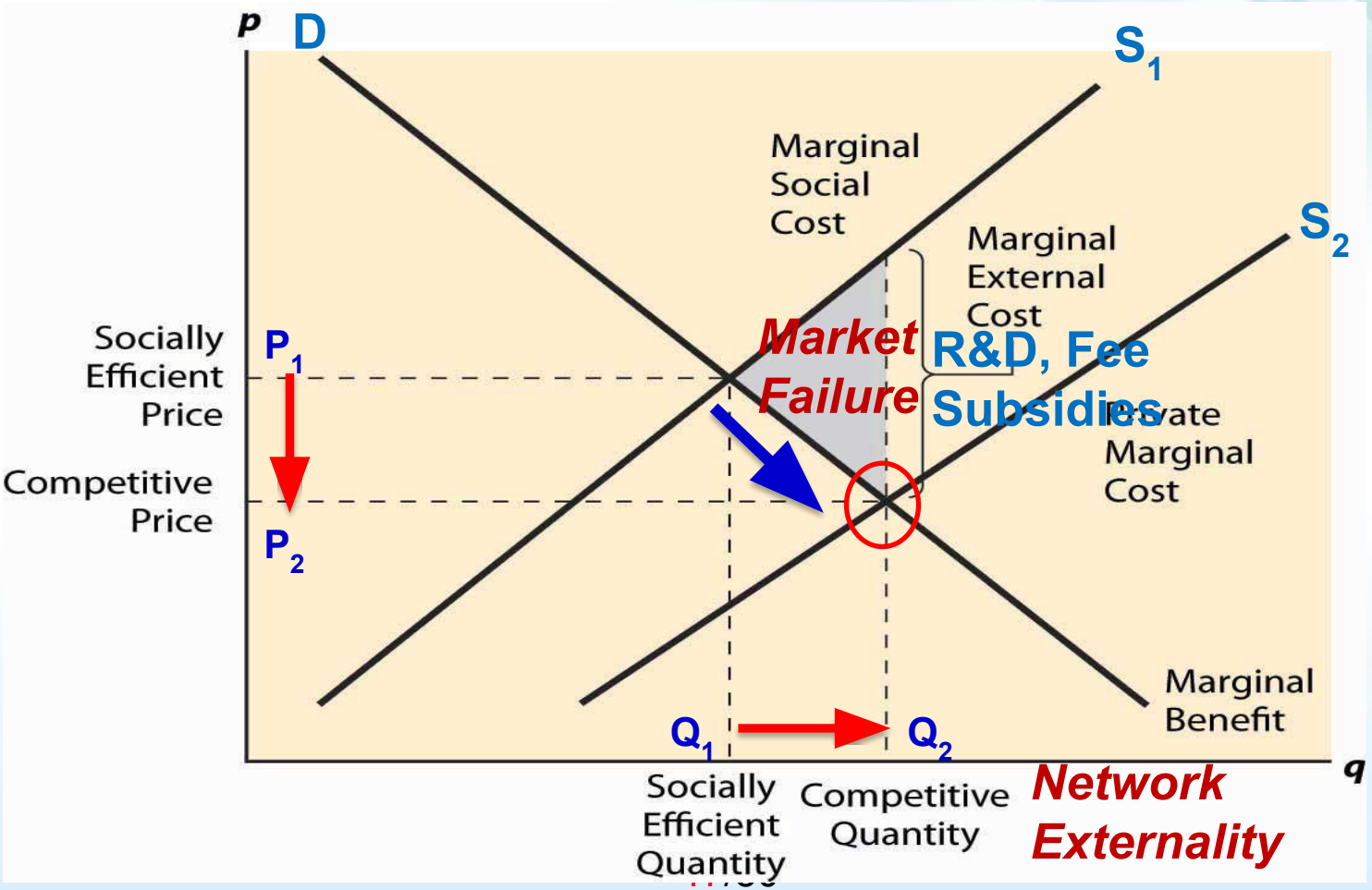
Framework Plan on National Informatization
'08 ~'12

Smart e-Gov. Strategy
'11 ~'15

Establish smart gov't open for participation and communication

Market Failure in ICT Infrastructure(Broadband)

- Network Infrastructure spends a lot of sunk cost and negative network externality
- Market failure is a situation in which the allocation of goods and services that free market is not efficient and do not reaches scale of economy



Market Failure and the Role of Government

❖ Reasons for Market failure

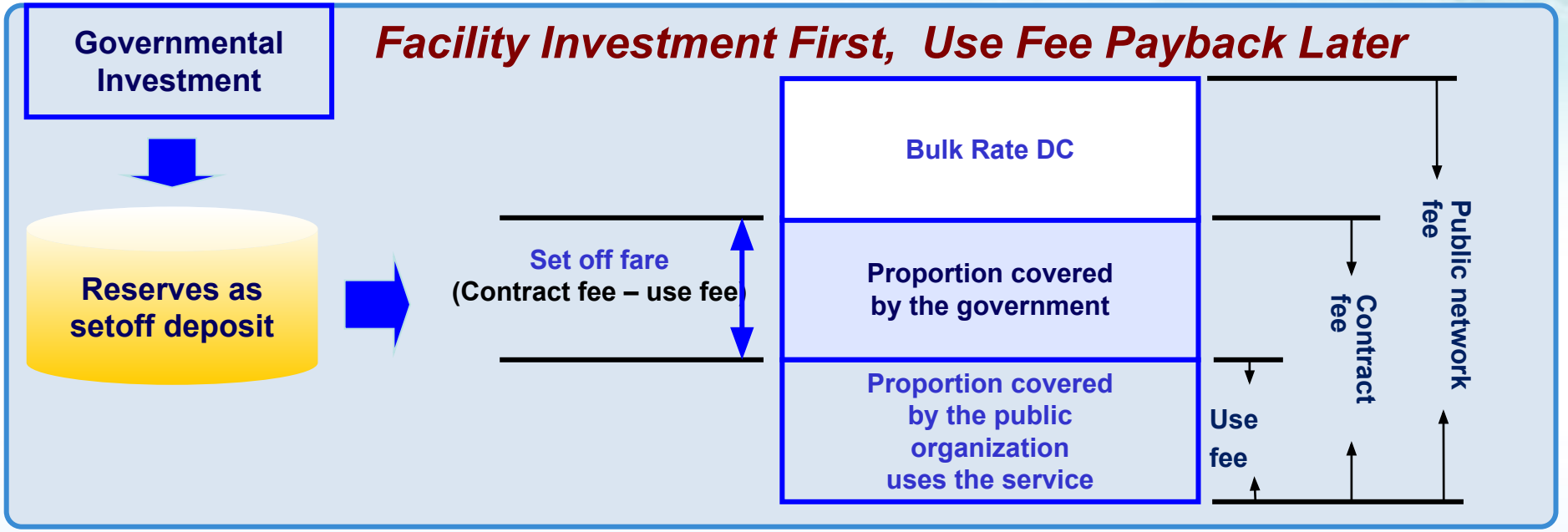
- ✔ Positive and negative externalities
- ✔ Short-term and long-term environmental concerns
- ✔ Lack of public goods
- ✔ Underprovision of demerit goods
- ✔ Overprovision of demerit goods
- ✔ Abuse of monopoly power

❖ Possible government responses

- ✔ Legislation
- ✔ Direct provision of merit and public goods
- ✔ Taxation
- ✔ Subsidies
- ✔ Tradable permits
- ✔ Extension of property rights
- ✔ Advertising to encourage or discourage consumption
- ✔ Internal cooperation among governments

Set-off Scheme of Network Fare

- The government secured the investment needed for infrastructure construction, and gave it to service providers (KT, Dacom) to overcome market failure
  - Service providers could accumulate the government investment as the offset deposit, and can offset it with the actual charge of subscribed agencies when the project of the year is completed. (Once settlement is completed, Network facilities belong to service providers)



※ *Fee structure of the national network*

- *Contract fee: Fee determined by the contract between government and service providers. 40% is discounted on an average compared with regular public network.*
- *Use fee: The amount paid by agencies like the government in return for the use of communication service.*
- *Offset fee: A subsidy from the government to individual use agency, which is offset by the national network investment.*

Broadband Internet: Current Status

Policy Objectives	Projects
Provide high-quality & effective network service to meet the future demand including ever-increasing data traffics	Gigabit Internet Project (GTTH : Gbps To The Home)
Provide a Testbed for R&D of network technologies	KOREN Project (KOrea advanced REsearch Network)
Bridge the digital divide in network infrastructure between rural and urban areas	Rural Broadband Project (Rural village)

Source: Broadband and Giga Network Initiatives, National Information Society Agency, 2014

Rural Broadband Project

Rural Broadband for Digital Divide

- The objective is to build broadband networks in rural areas (small towns) to provide high speed internet service, and provide applications specifically developed for rural residents

  - Towns with less than 50 households : matching fund from central government and local government and telco operators (1:1:2)

  - Towns with more than 50 households : government loans & telco M&A conditions

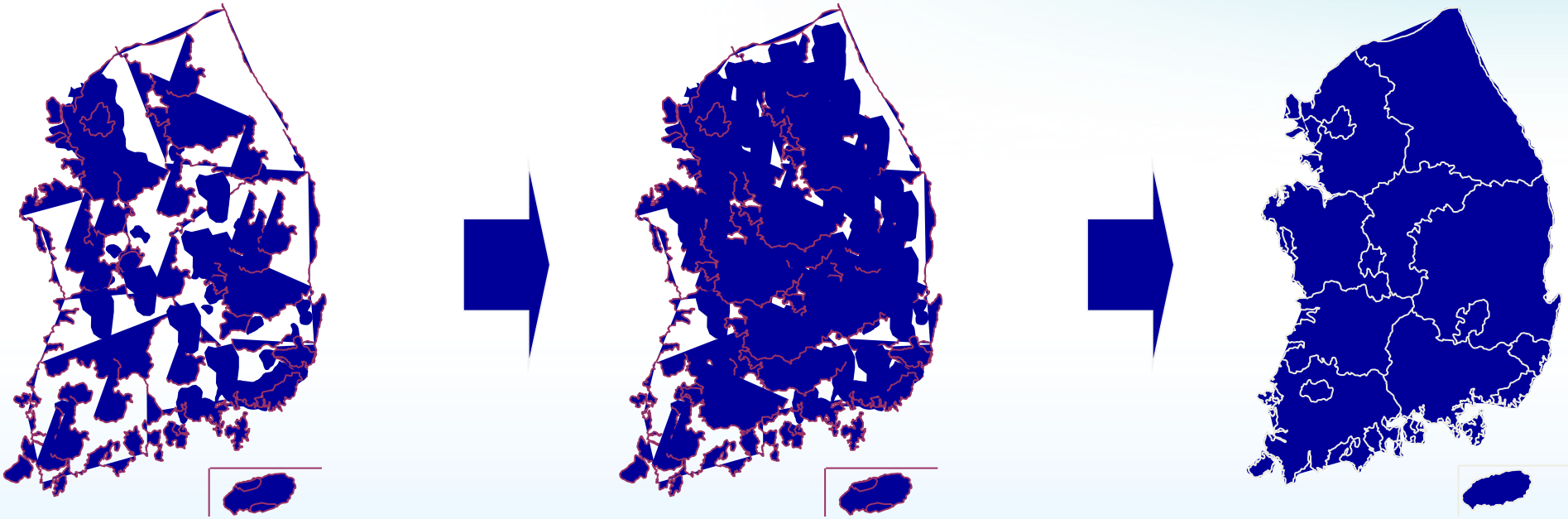
Category	Total In Plan (by 2017)	Achievement				
		Total	2010	2011	2012	2013
Broadband Deployment (No. of Towns)	**13,217 villages**	**2,531**	**658 (85*)**	**925**	**925**	**963**

* Built with Telco operators' funds only

Source: Broadband and Giga Network Initiatives, National Information Society Agency, 2014

Infrastructure Advancement

- Currently, BcN coverage is over 90% nationwide
- For rural area, 1:1:2 matching funds program agreed
  - Participants : Central Government, Local Government and Telco(KT).
  - Program period : 2011 ~ ?



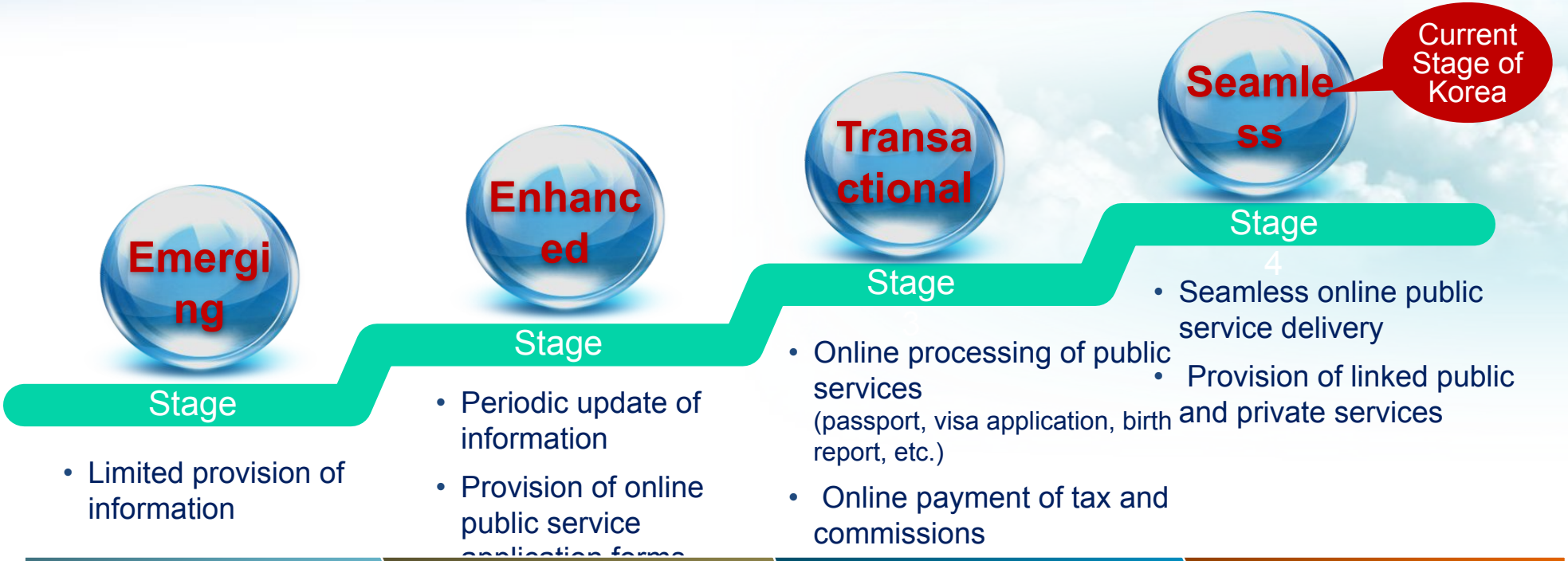
Cyber-Building Certification Program

- ICT Certification Classes : 4 classes ~ Special, 1, 2, 3
- Home Networking Classes : 3 classes ~ AA, A, Semi-A

  (Special and Class 1 certified buildings only eligible)

Grade	Premium Class	1st Class	2nd Class	3rd Class
Cable to the Home	Fiber	Fiber+Cat5e	Cat5e	Cat3
Maximum Speed	1Gbps~	100Mbps~	10~100Mbps	10Mbps
Logo Emblem	 High-speed telecomm Special grade  High-speed telecomm Special grade home-network AA grade	 High-speed telecomm 1st grade  High-speed telecomm 1st grade home-network AA grade	 High-speed telecomm 2nd grade	 High-speed telecomm 3nd grade

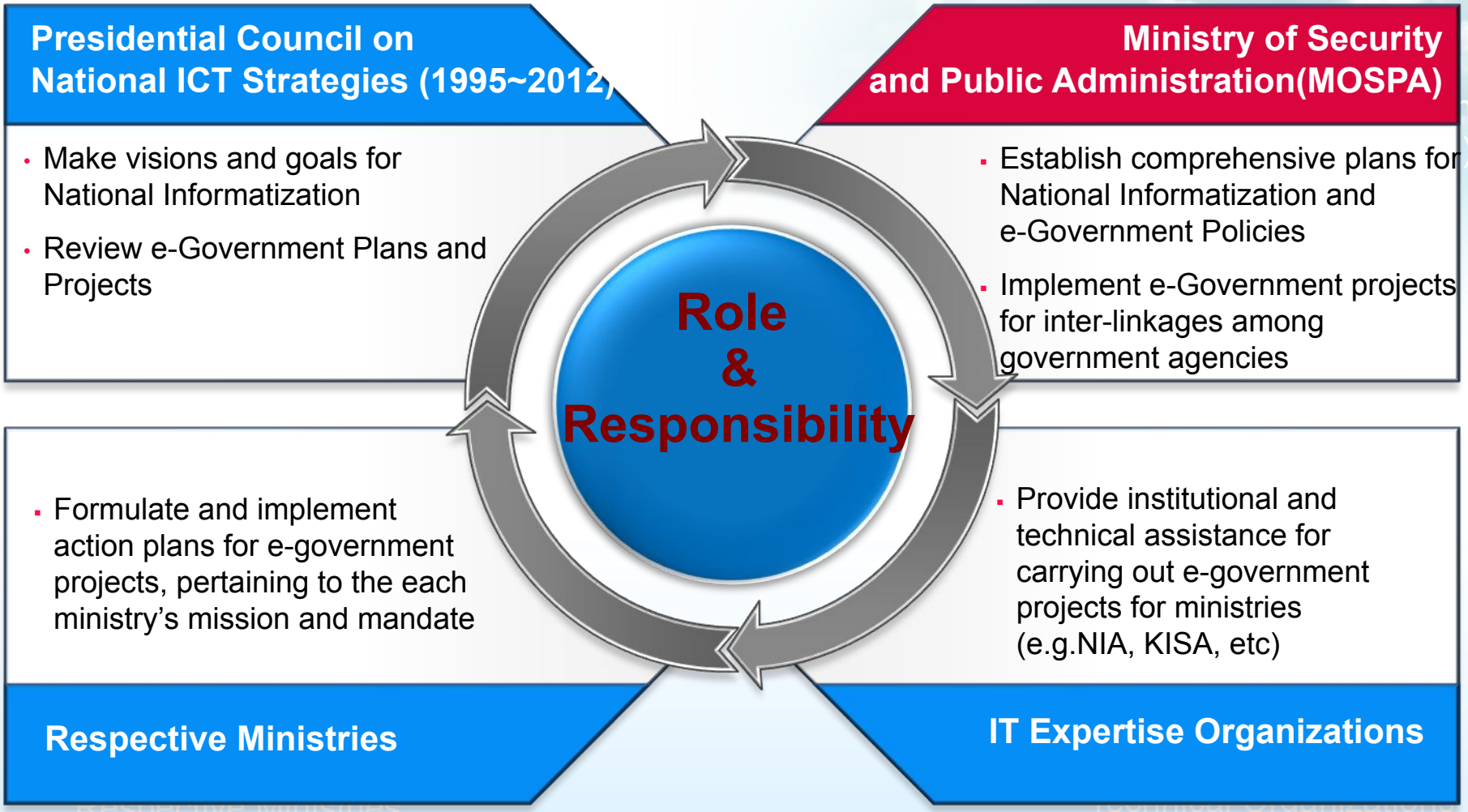
Development stages of e-Government



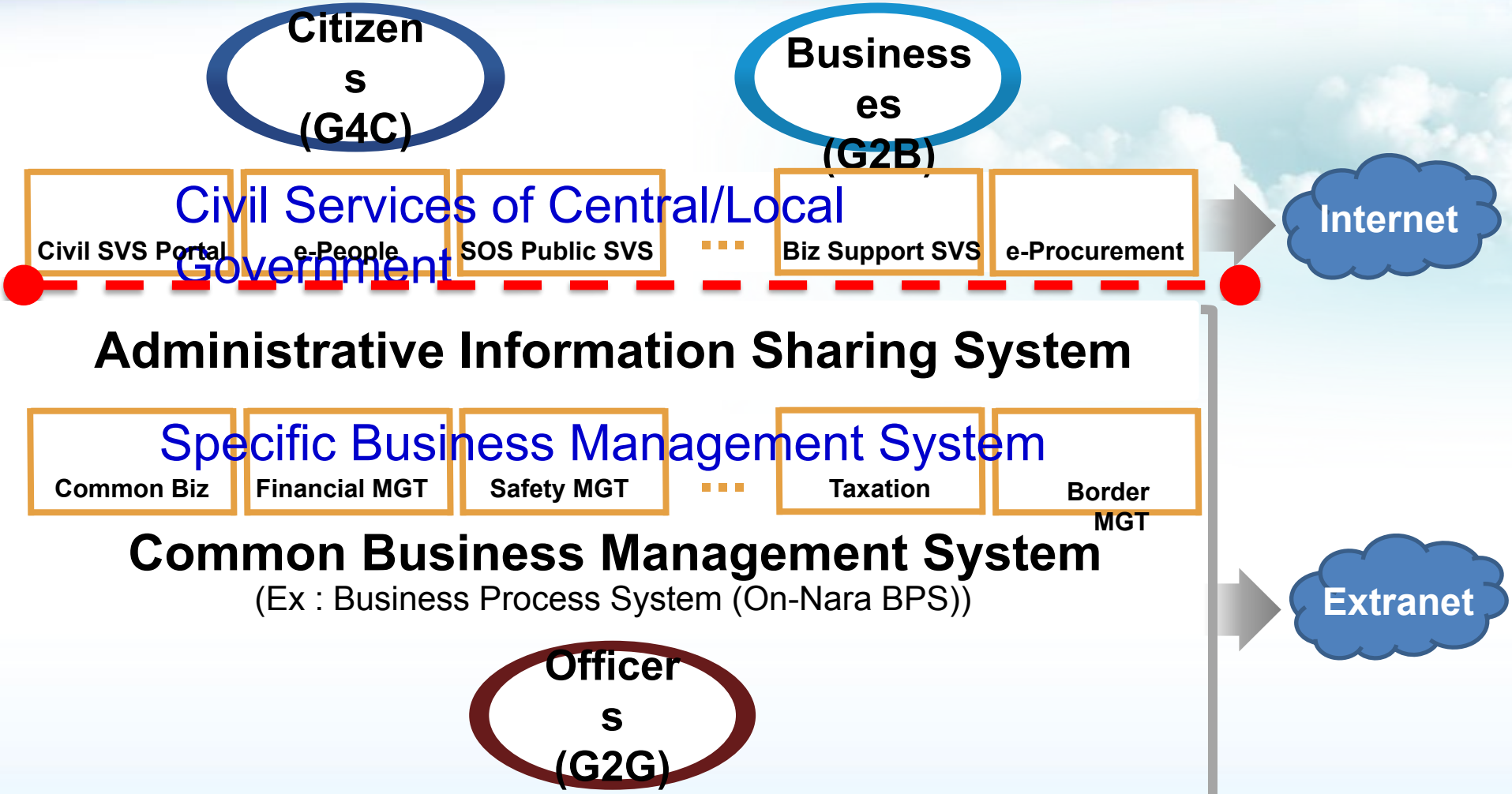
Digitalization ('87~'94)	Informatization ('95~'02)	e-Government ('03~'07)	Integration ('08~Present)
Digitalization of 5 public services such as resident, real estate, vehicle and economy statistics work	Expansion of public informatization in various fields such as public procurement, patent and tax services – Implementation of 11 tasks	Implementation of cross-ministerial projects such as national safety management and pan-government information data center – 31 Tasks	Implementation of integrating/linking/sharing projects such as public information sharing and public mobile services

Governance Structure for e-Government

Key Enabler: Top leader's strong initiative



e-Government Model of Korea



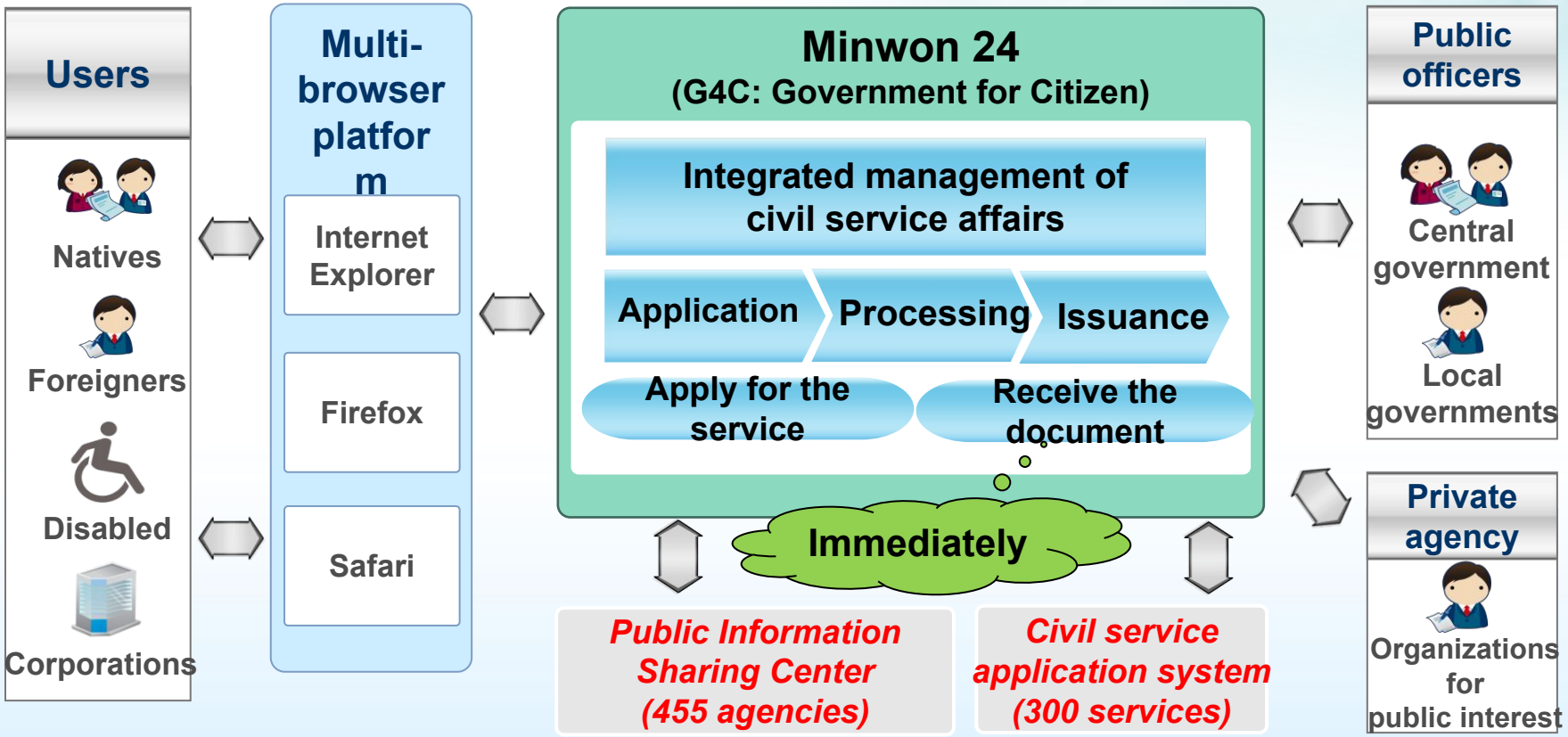
Contents

On-line Civil One-stop Portal (Minwon 24)

Best Practices 1

Citizen can apply for civil services and print out official documents, certificates anytime at home or office through the Internet without visiting administrative agencies.

Civil information provision(5,012), application of civil services(3,020), online issuance(1,200)

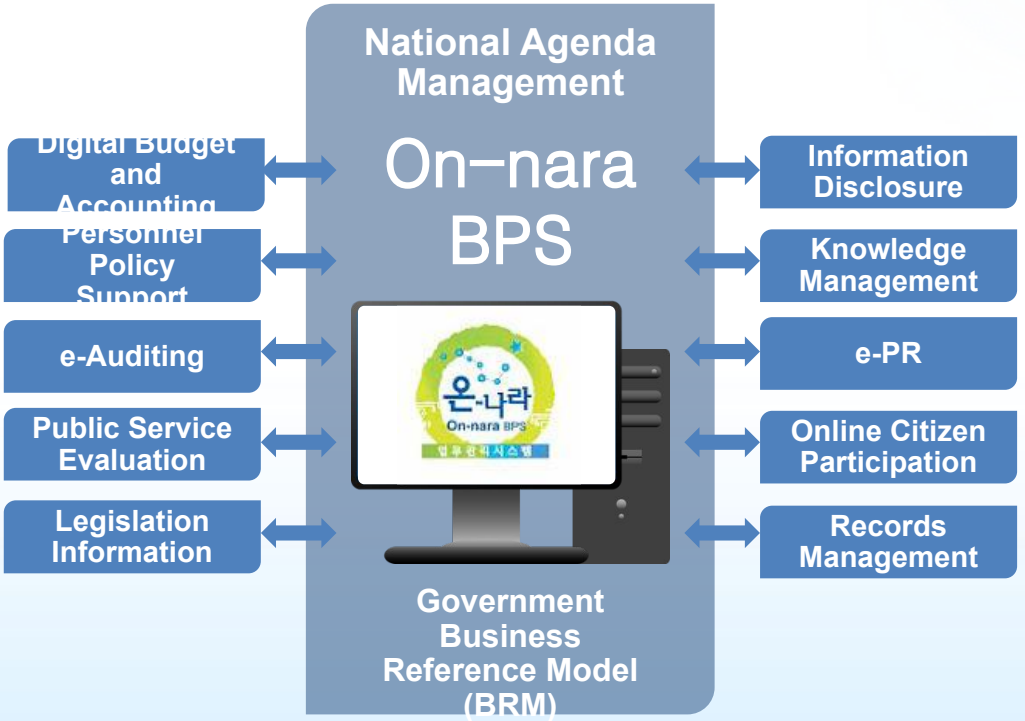


Business Process System(On-Nara)

Best Practices 2

Business Process System(On-Nara BPS) processes, records, and manages government administrative business by online; it also records, accumulates, and shares all the process as well as results.

※ e-Documents, e-Approval, Knowledge management, e-Mail services, etc.



Present status

- Approximately **362,000 government officers in 154 central and local governments** are using the system (2013)

Enhanced Efficiency & Accountability

- Average time for a government worker to handle business : **6 hours 32 minutes → 3 hours 27 minutes**
- Increased administrative transparency through the policy-making process recording

Government Integrated Data Center(GIDC)

Information system resources that had been operated individually by each ministry have been integrated and managed in a professional way by the GIDC.

※ More than 1,200 systems (20,000 equipment) of 52 government agencies.

Seamless & Flawless Operation

- Stable integrated IT management for 24 / 7
- Average system error time per device per month
  : 67 minutes (2004) → 3.7 seconds (2012)

IT Management

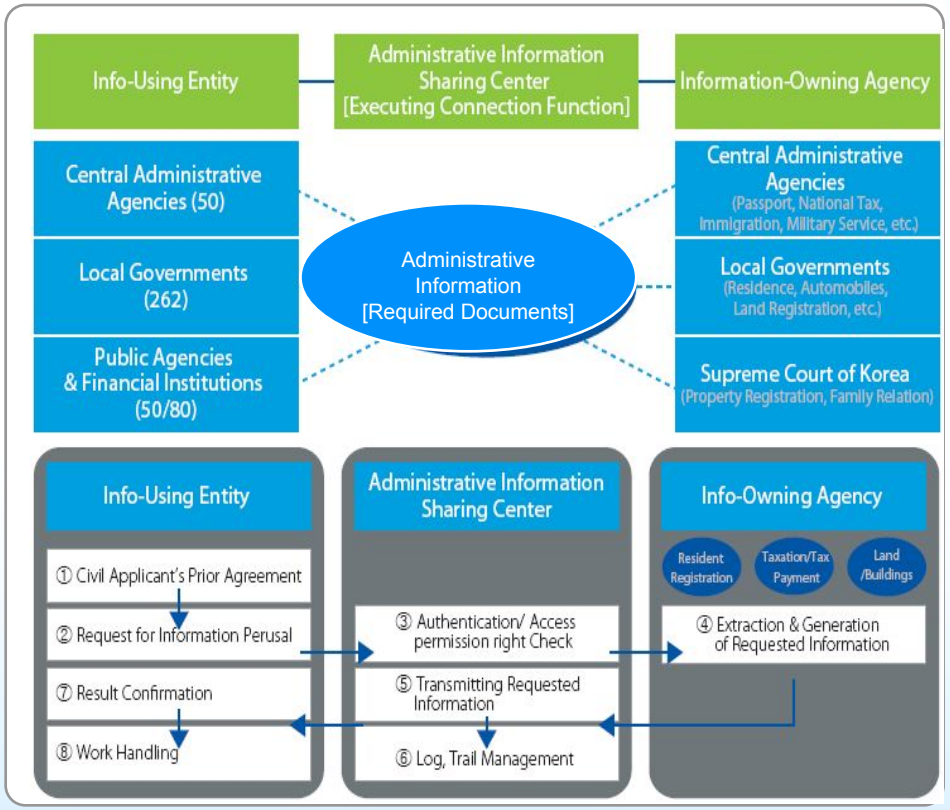
- Savings in Purchase and Operation Costs : 30%
- Number of systems managed per person : 1.8 systems → 13 systems

Fortified Security

- 8-layer protection / 4-step analysis against intrusion
- Cyber attack / intrusion detection system equipped
- Dual system for natural disaster relief

Government Information Sharing

- Civil service officers process civil requests by checking information online through
- the information sharing system, less burdening the applicants to submit required documents
  - Information on resident registration, housing price, passports etc.



Present status

- Developing government information relay system to improve the management of Gov't info. relay service
- 120 types of information are being shared among 455 agencies

  - Types of information inquires: ('06) 34 □ ('12) 120
  - Number of agencies sharing information: ('06) 5 □ ('12) 455

Enhanced convenience & Reduced cost

- Minimized inconvenience of visiting offices and submitting documents, together with fast and accurate information provision.
- Reduction of 1.3billion US Dollars in costs for time, travel, fee and printing.

Smartphone App for Reporting Complaint

- The service which a citizen can inform daily grievances through their smart phone
- An applicant can inform complaints with photos, videos, geo-tagging and so on to local officers and will be notified of the results through smart phone

Smartphone App for Reporting Complaint

Select Complaint On the category | Type detailed Complaints | Attach Photo or Video | Set Location Automatically by GPS | Complaint Accepted | Review Treated Complaint

Key Success Factors

Key Success Factors

1

- Strong Government Leadership

2

- Sustained Budget for e-Government

3

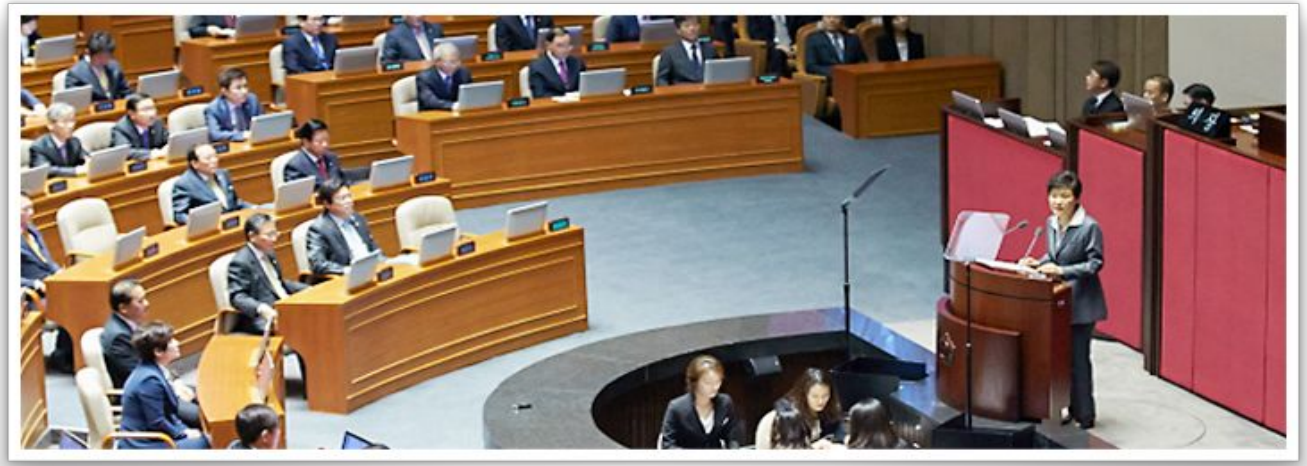
- Change Management of Government Officers

4

- Strong Technical Support

1 Strong Government Leadership

- Established supervisory committees directly under the President or Prime Minister
- Assigned CIO for central & regional e-Government and created dedicated support structures
- Appropriate legislative support for each developmental phase, ensuring a positive enabling environment for e-Government



2 Sustained Budget for e-Government

- Average of 1% (USD 3 billion) of the total national budget was invested in e-Government development budget every year
- Information and Communication Promotion Fund

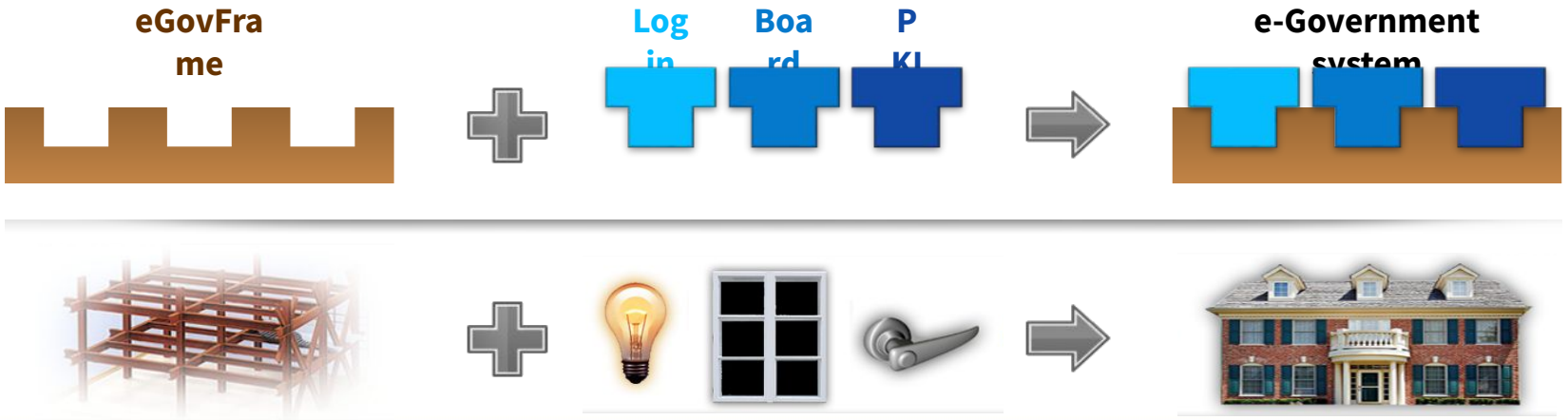
3 Change Management of Government Officers

- Change Management of Government Officers

Sustainable Training program	Capacity building program	Informatization contests	.....

4 Strong Technical Support

- Utilization of specialized e-Government technical support agencies(NIA, KLID, etc.)
- Close collaboration with experienced system integration companies and specialized solution vendors
- Korean Government provide a standardized common software framework(eGovFrame) for e-Government solution developing



Contents

ICT Paradigm Shift

Age	Age of PC	Age of the Internet	Age of the Mobile
Economic Paradigm	Industrial Economy	Digital Economy	
ICT Paradigm	Digitalization, Computerization	Online connection, Informatization	Social and mobile connection
ICT Issues	PC, PC communication, Database	High-speed Internet, www, web servers	Mobile Internet, smart phone
Key Area (Service)	PC, OS	Portal, search engine, Web 2.0	Smart phone, App service, SNS
Key Resources	Physical assets, labor, capital	Knowledge, information	
ICT Vision	1PC per 1 person	Click e-Korea	Handheld PC, communication

What's next

Journey of e-Government in Korea

Inception

1987~1996

National Basic Information Network project (1987~1996)

- Administration, Defense, Security, Finance, Education/Research inf. System.

Built Basic DB (resident registration, real-estate, vehicle, etc.)

Foundation

1996~2000

Mater plan for Informatization Promotion in 1996

Built the Korea Information Infrastructure for high-speed network

Developed many services within each ministry

Diffusion

2001~2007

11 e-Government initiatives

- pursue integration and interconnection,

31 e-Gov. Roadmap projects

- e-Participation, sharing of inf. & resource
- Realized the impact of e-Gov. effort

Maturity

2008~2012

Utilization and Expansion of the existed services

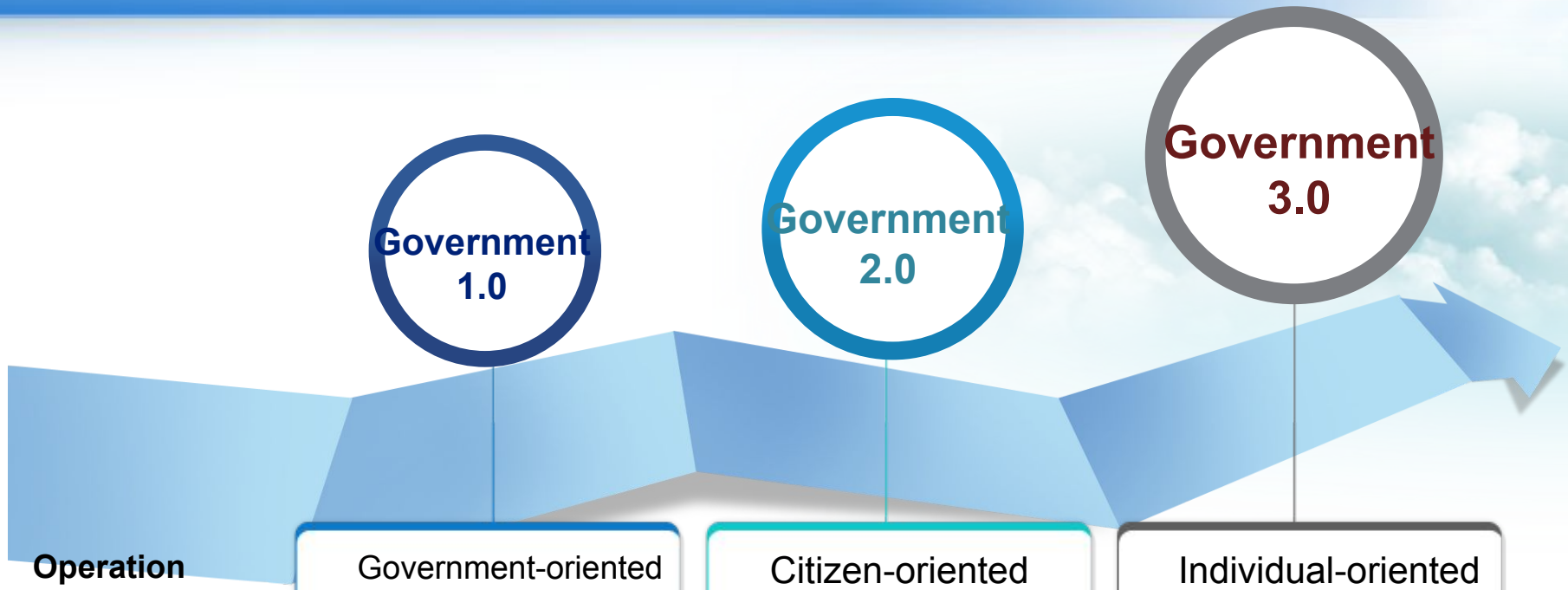
?

2013 ~

e-Government 3.0

- service, smart, open government

Evolution of Government



	Government 1.0	Government 2.0	Government 3.0
Operation	Government-oriented	Citizen-oriented	Individual-oriented
Core Value	**Administration Efficiency**	**Democracy**	**Creative Economy**
Participation	Government initiated	Limited disclosure and participation	Active disclosure, participation
Administrative Service Delivery	One-way	Two-way (Standardized)	Two-way (Customized)
Method(Channel)	Personal Visit	Internet	Mobile Internet / smart phone

Vision and Strategy of Government 3.0

Vision

The Happiness of All the People

Objective

Provision of customized services

Creation of jobs and new growth engines

Strategy

Transparent Government

Competent Government

Service-oriented Government

Value

Openness

Sharing

Communication

Collaboration

Strategy of Government 3.0

Strategy 1

Transparent Government

- Ensuring people's right to know through information disclosure
- Active civil use of public data
- Strengthening of public-private governance

Strategy 2

Competent Government

- Removal of barriers among government ministries
- Improvement of government operation for better collaboration and communication
- Scientific administration with use of big data

Strategy 3

Service-oriented Government

- Integrated provision of personalized services
- Strengthening of one-stop services for businesses
- Improved access to services for the information poor

New paradigm of e-Government Services

Open Government initiative!

Open source Data + Open innovation

- Open Data is commonly defined as ‘information or data which can be freely used, re-used and re-distributed by anyone, subject at most to the requirement to openness’ (Open Definition , Open Knowledge Foundation).
- A worldwide movement to open data(& information) of the government / public administration
- Machine-readable open(non proprietary) formats for re-use (by civil society, economy, media, academia AND politics & public administration itself)

What Kinds of Open Data?

Open Data in Variety of Area (Korean Case)

Comparing ingredients in cosmetics

DB : cosmetic ingredient data
(grand winner of Open data startup competition in 2013)

식품의약품안전처 MINISTRY OF FOOD AND DRUG SAFETY

Nearby parking information

서울특별시

DB : parking lot location, price
(winner of mobile app innovation in 2013)

areas

Health
Life
Industry
Medicine

Parcel tracking

DB : parcel data of Korea-Post & private sector parcel delivery companies
(No 1 app in parcel area in Korea)

미래창조과학부

Customized hospital info

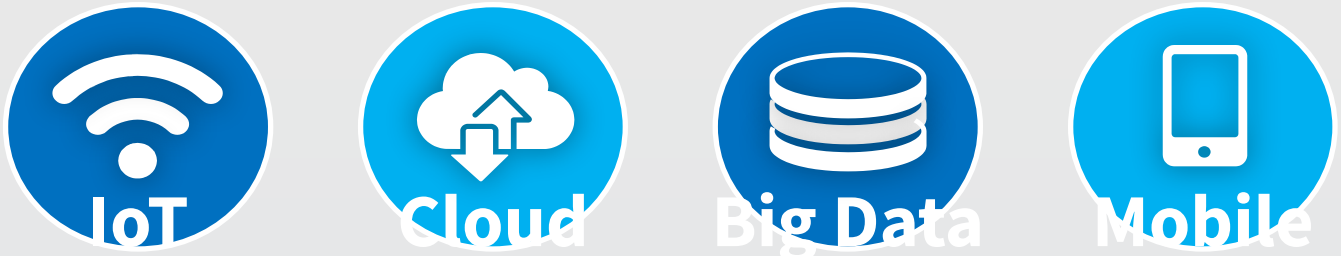
DB : 58K hospital location
(no 1 app in medicine area.
35K users daily)

HIRA 건강보험심사평가원 Health Insurance Review & Assessment Service

Contents

Coming of the Hyper-connected

Hyper-Connected Society is Coming



Coming of the Hyper-connected Society

I

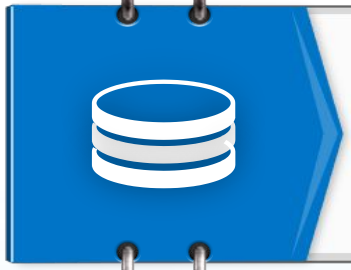
IoT (internet of Things)

- Finding out demand for creative public services that are based on IoT services

C

Cloud

- Establishing a government-wide intelligent collaborative environment based on cloud computing



B

Big Data

- Provision of immersive services for citizens based on scientific big data analysis

M

Mobile

- Connection with new services that are integrated and customized using mobile technology

Wrap up & Future issues

- Expand cloud computing and open platform in public sector
- Develop and spread a variety of mobile services

- Create new business opportunity by opening public data

- Create new business opportunity in a creative economy

- Improve infrastructure toward Hyper-connected Society
- Protect personal information and prevent cyber threats

Thank you

Thank you for your attention.