Informatization Policy and Development: What Does Korean Experience Tell Us?

ict4d

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# Introduction

M. JAE MOON, Ph.D

- Underwood Distinguished Professor, the Department of Public Administration Yonsei University, Korea

- Director of Institute of State Governance, Yonsei University

- International Director of American Society for Public Administration

- Editor-in-Chief of International Review of Public Administration

- Ph.D in Public Administration, Syracuse University (`98)

- Faculty Member, Korea Univ. (`04-`06), University of Colorado(Denver) (`98-`02), Texas A&M University (`04-`06)

- Member of the Presidential Council for Future Strategies ('10-'13)

- Member of Performance Evaluation Committees for Various Public Agencies

Professor M. Jae Moon

POP QUIZ

- What is the Size of World Population?
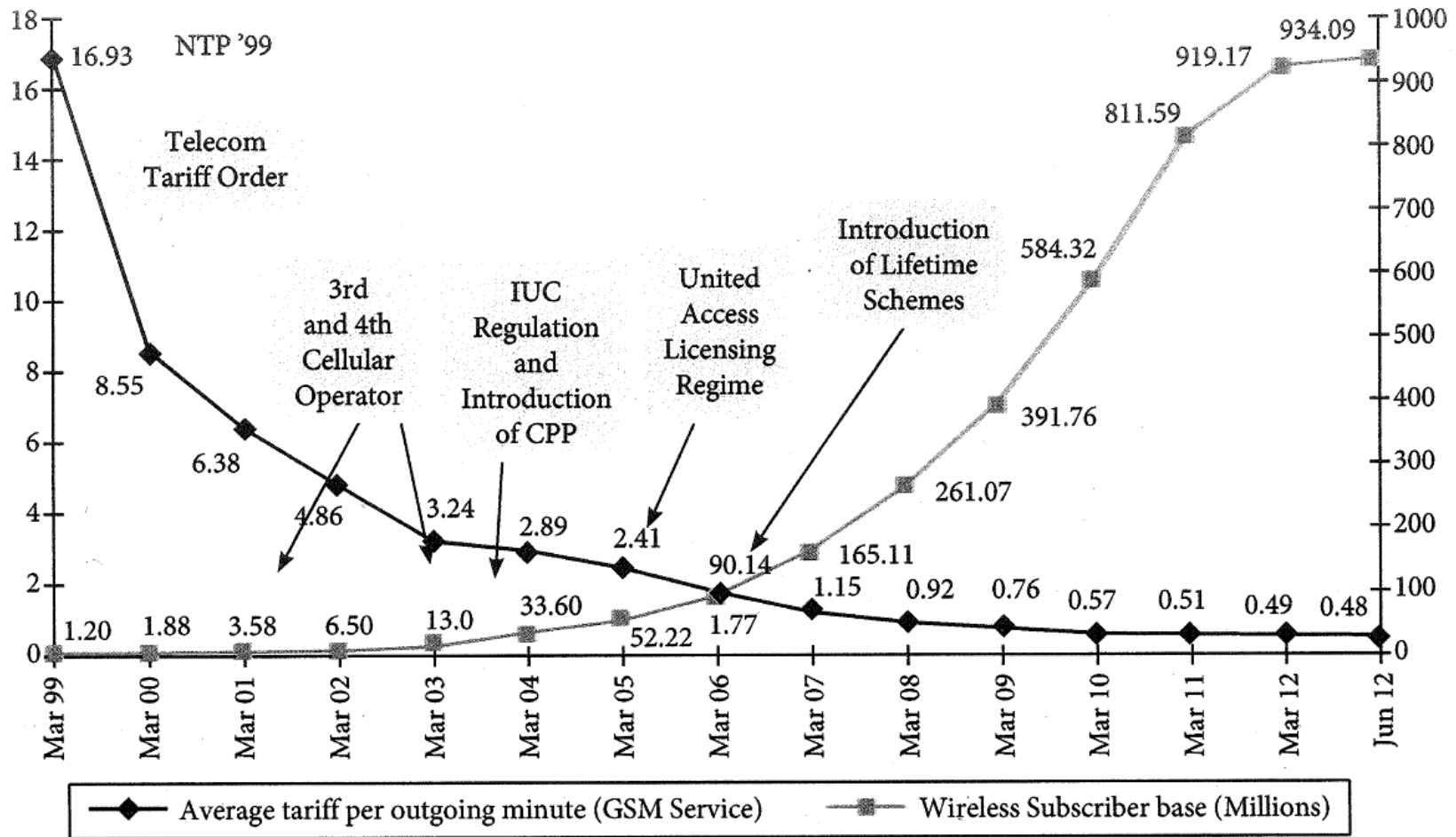- What is the Number of Mobile Phone Subscriptions?

Population and Mobile Phone Su bscription
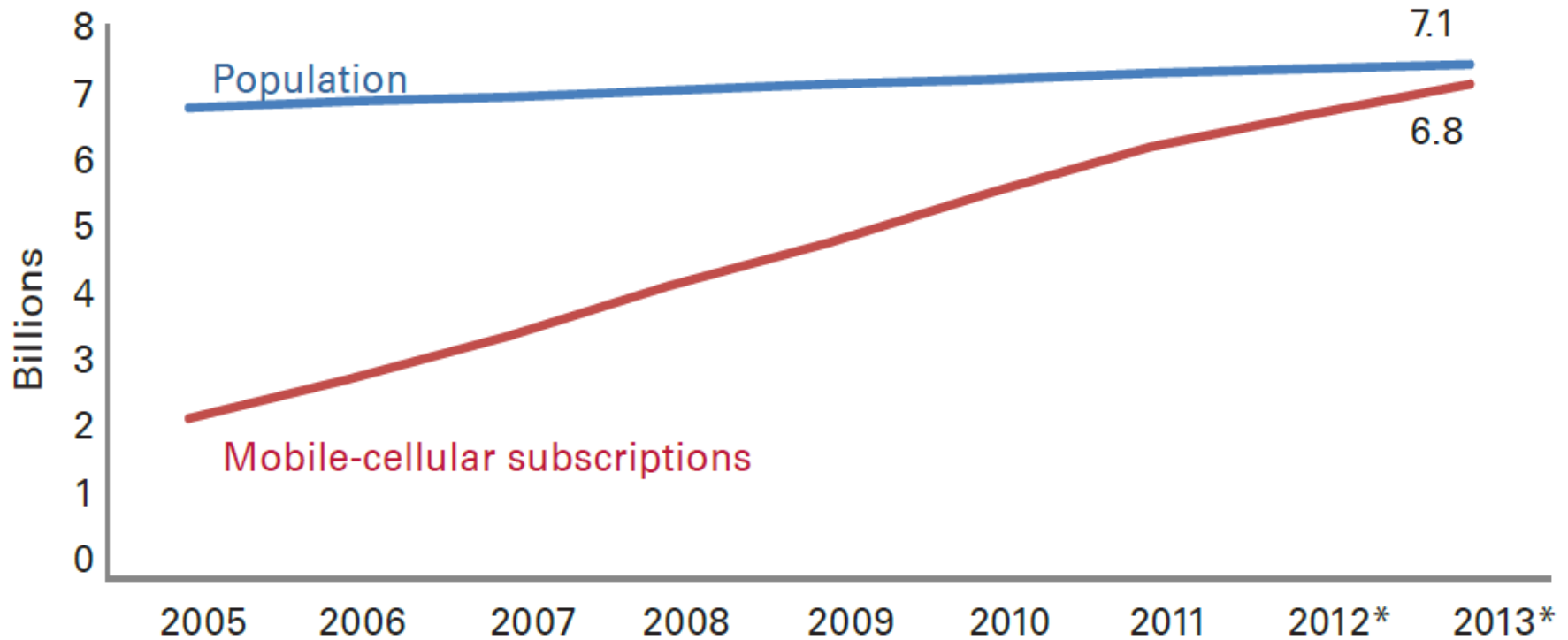
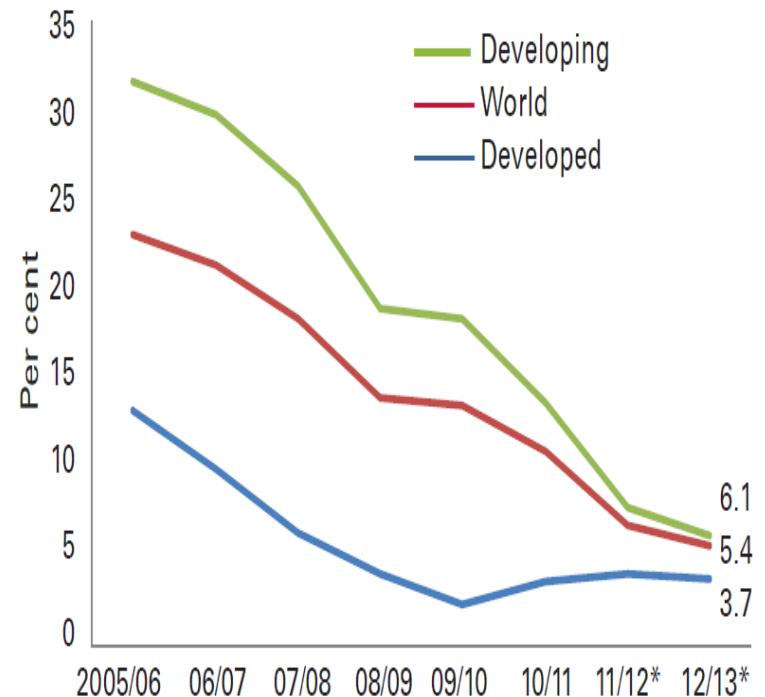

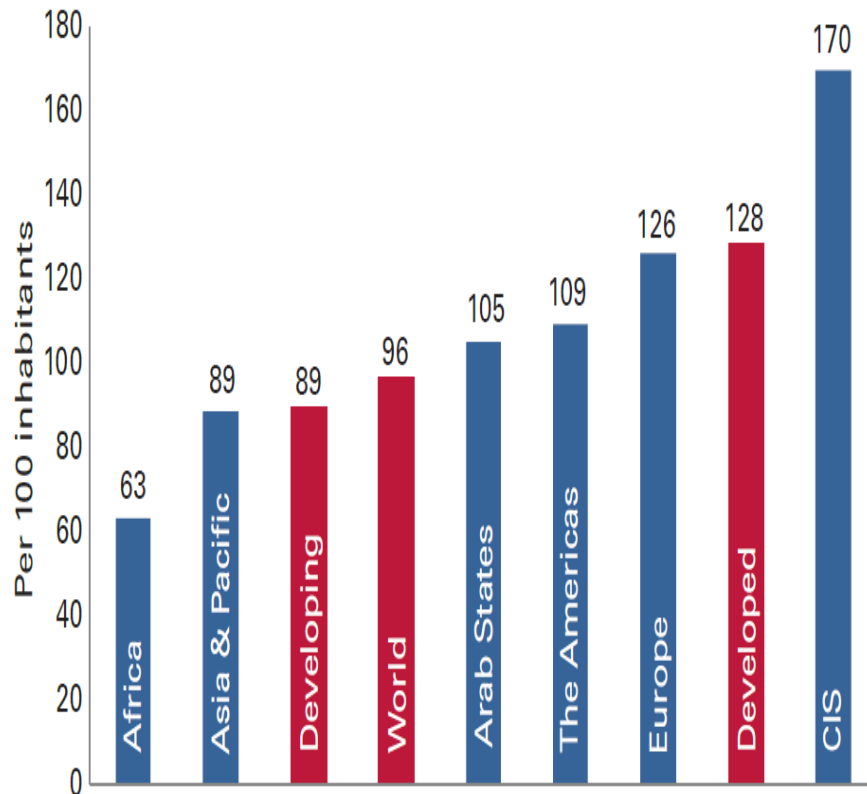Source: ITU World Telecommunication /ICT Indicators database
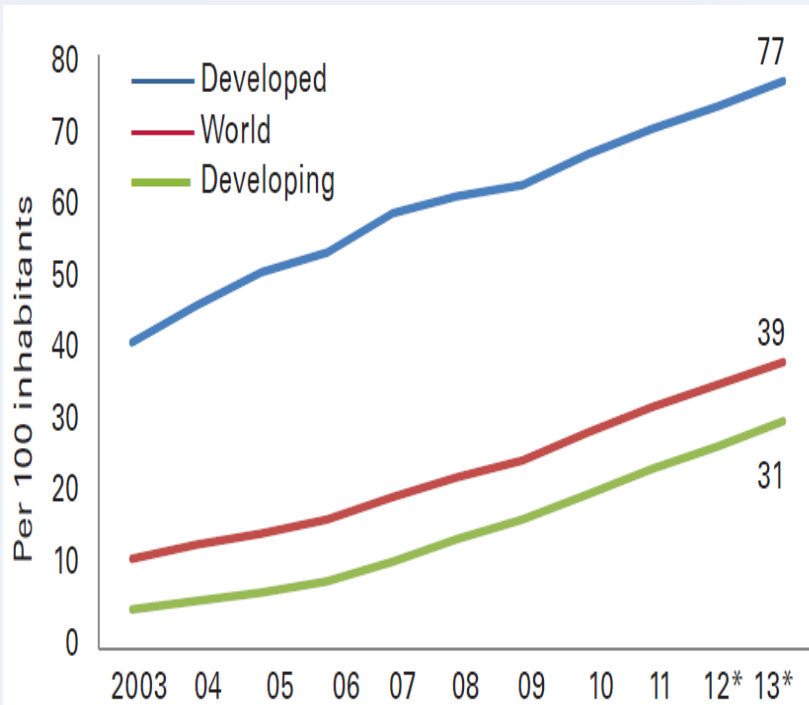Note: * Estimate

Competition, Price, and Penetration

Mobile Phone Penetration by Region and Growth Rates

Source: ITU World Telecommunication /ICT Indicators database

Note: * Estimate

Internet Users

Source: ITU World Telecommunication /ICT Indicators database
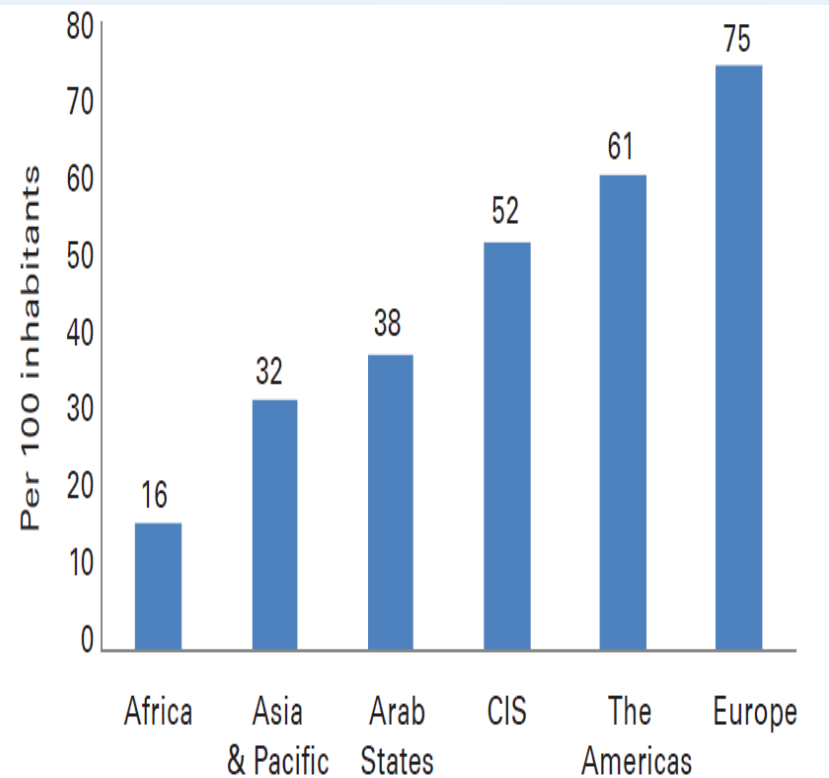
Mobile Broadband Penetration (100 inhabitants)
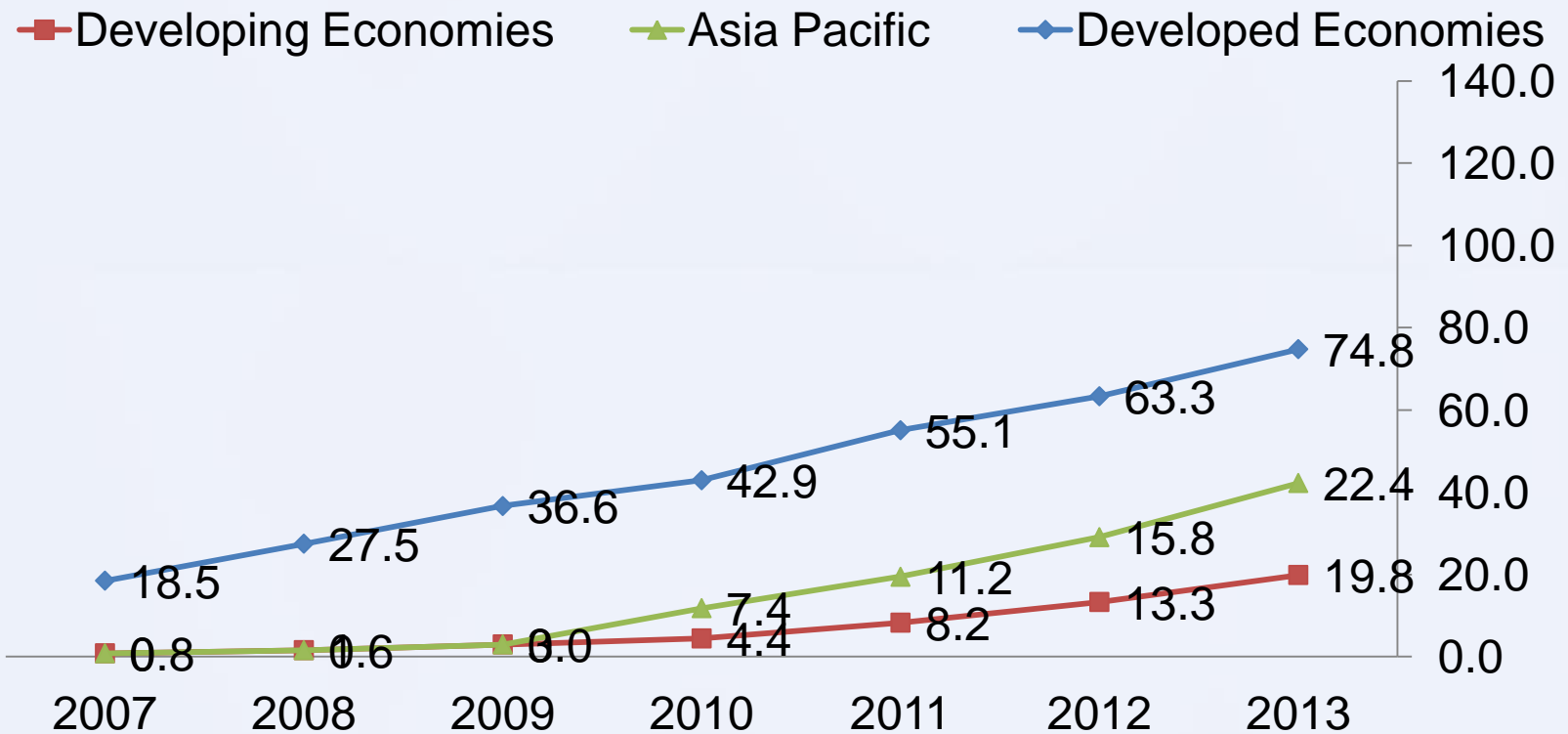
ICT Penetration

Mobile Phone Penetration
(100 inhabitants)
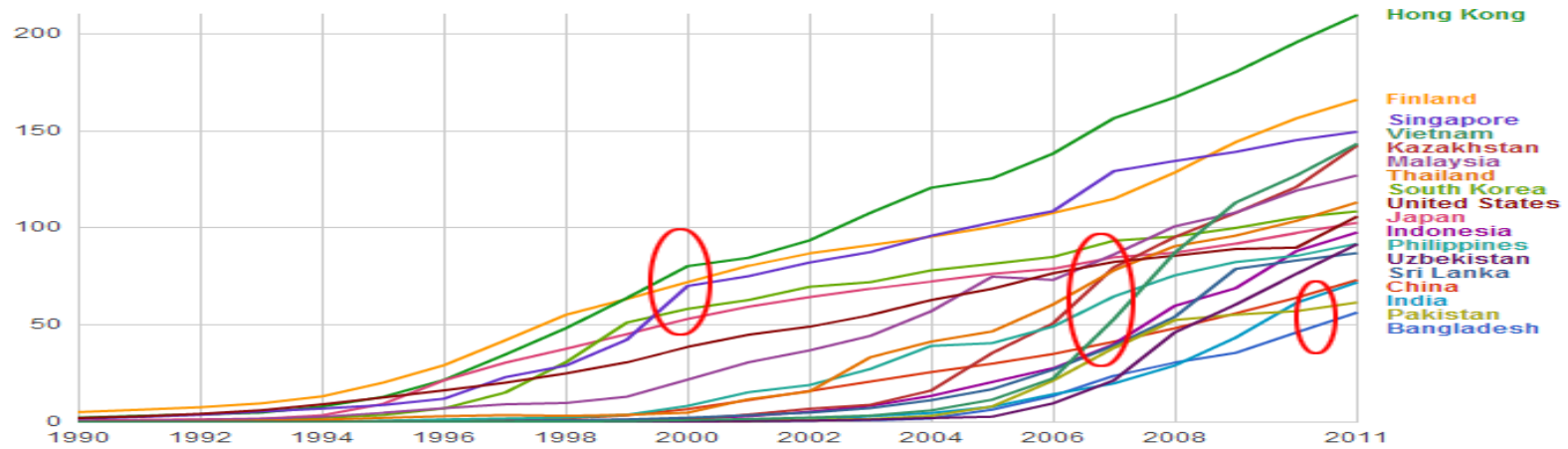
Developed Economies ◆ — Developing Economies ■

Developed Economies: 108.3, 112.5, 115.0, 119.0, 123.6, 128.2
Developing Economies: 49.1, 58.3, 69.0, 78.3, 84.3, 89.4
59.2
38.8

2008 2009 2010 2011 2012 2013

Mobile Broadband Penetration
(100 inhabitants)

Developing Economies ■ — Developed Economies ◆

Developed Economies: 27.5, 36.6, 42.9, 55.1, 63.3, 74.8
Developing Economies: 1.6, 3.0, 4.4, 8.2, 13.3, 19.8
25.9
55.0

2008 2009 2010 2011 2012 2013
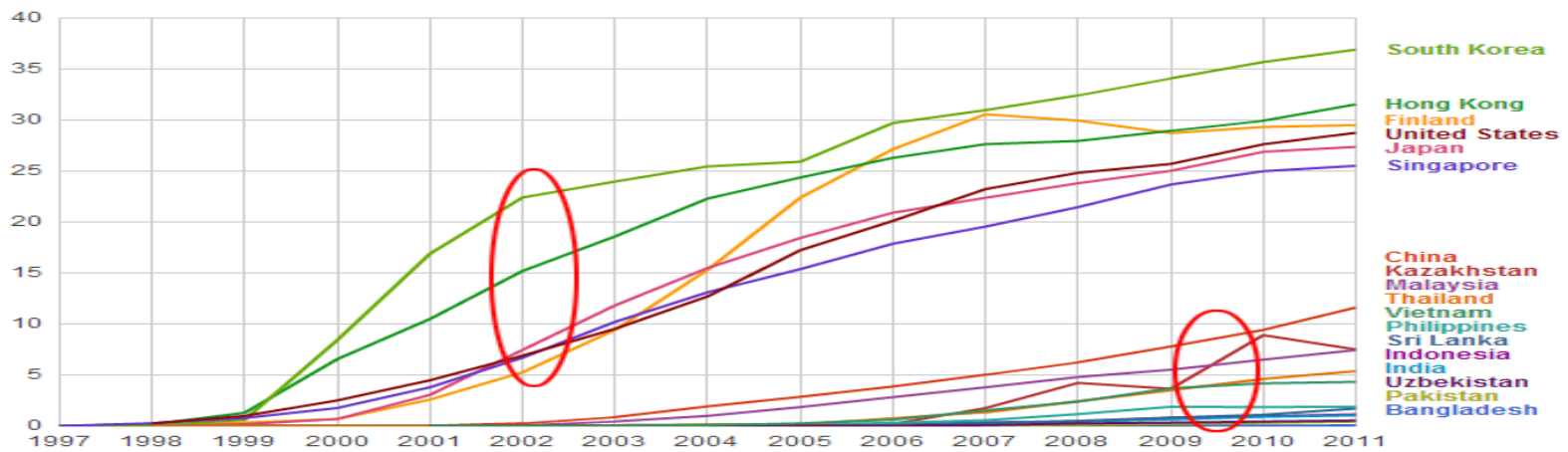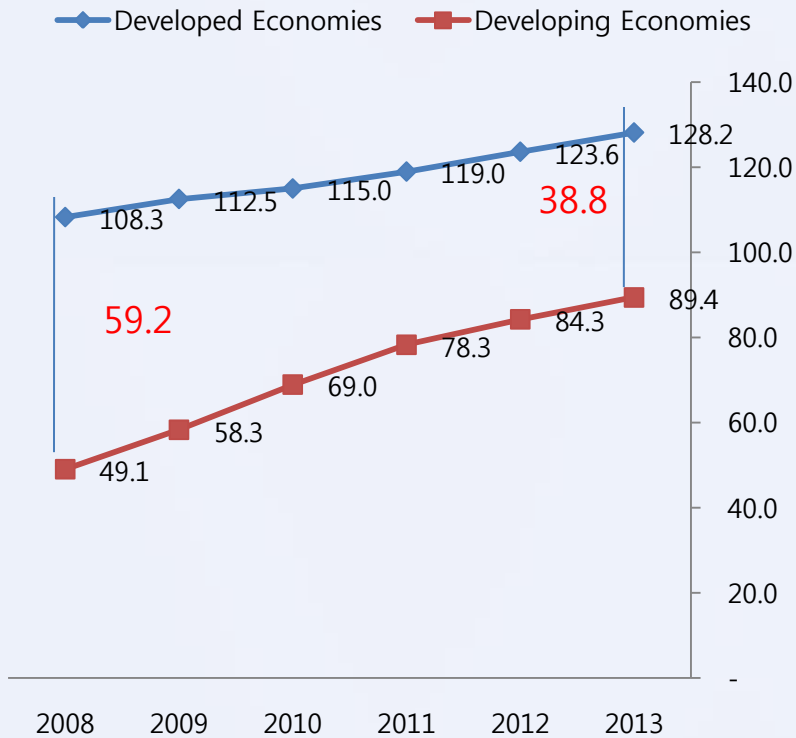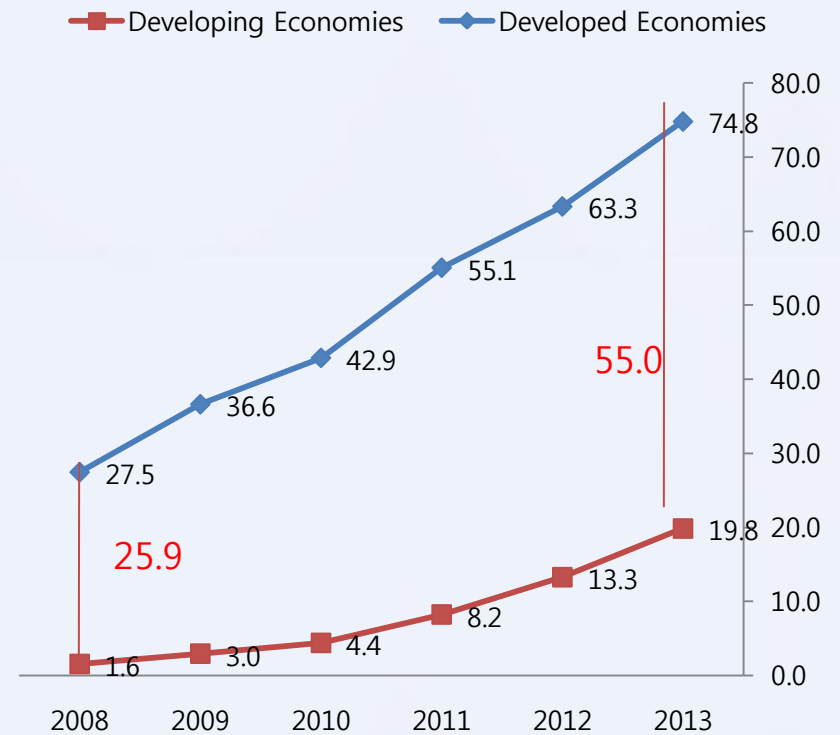
Annual Growth Rate of Mobile Broadband Subscription / Growth Rate in Fixed Broadband Subscriptions
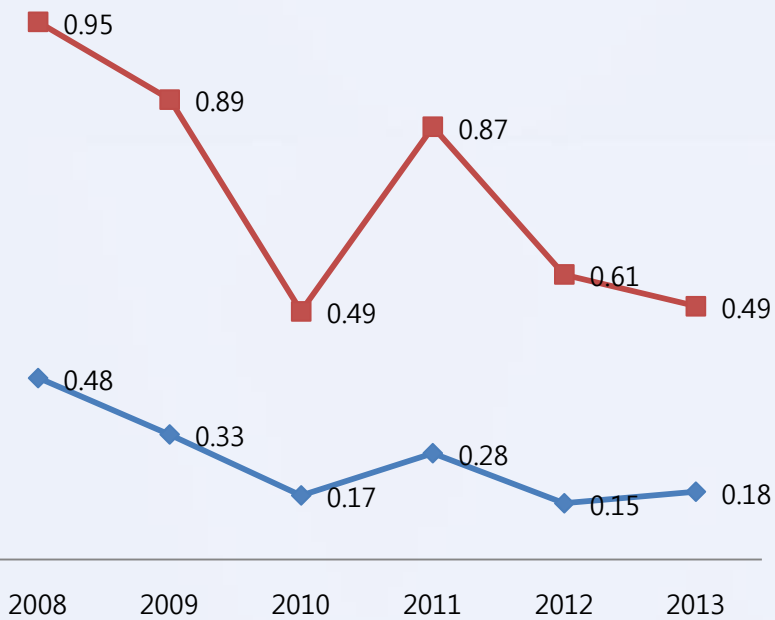
Does ICT Matter to Development?

X ?

=

Economic D.
Public Sector D.
Social D.

ICT and Inclusive Growth

- **e-Choupal**
- **E-Health**
- **E-Learning**
- **M-banking (M-Pesa in Kenya)**

ICT Roles in Development
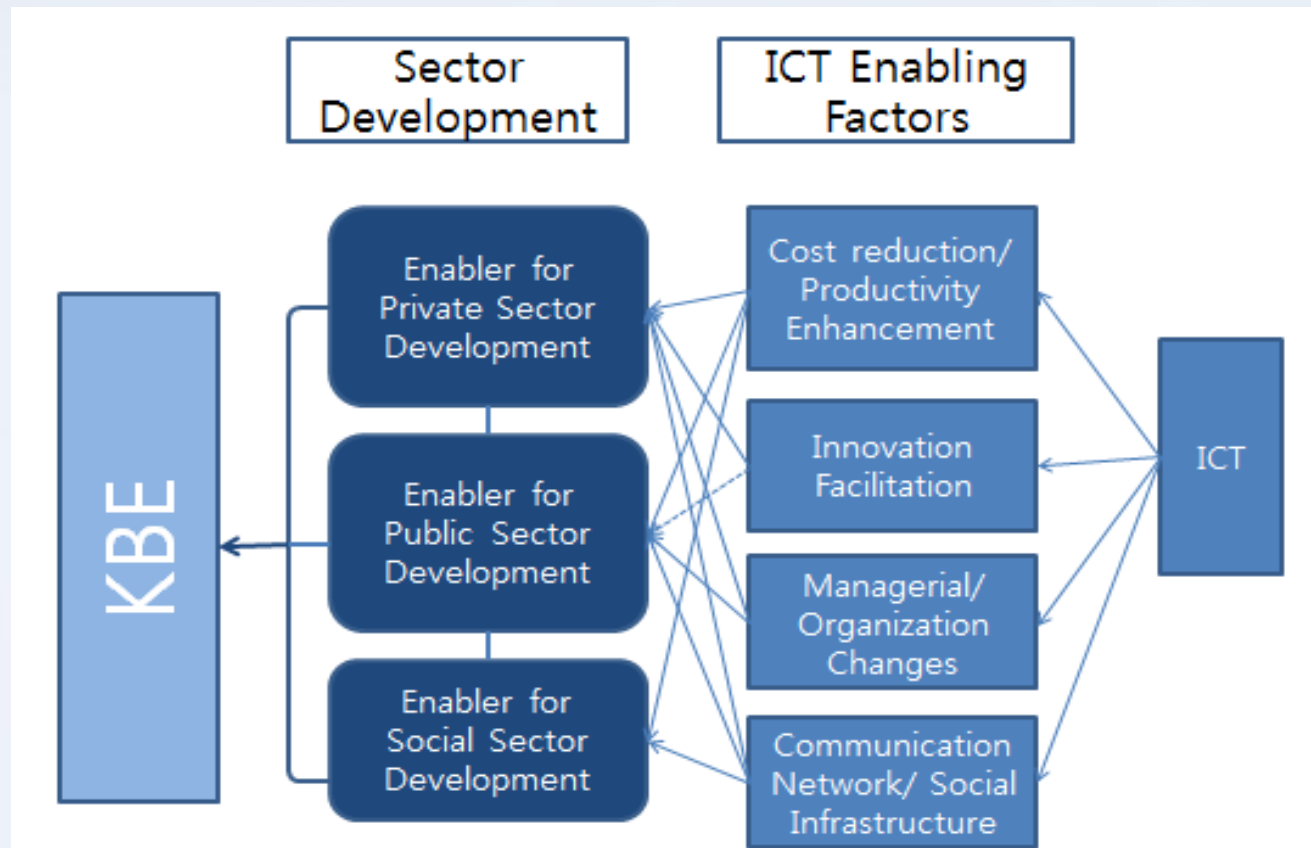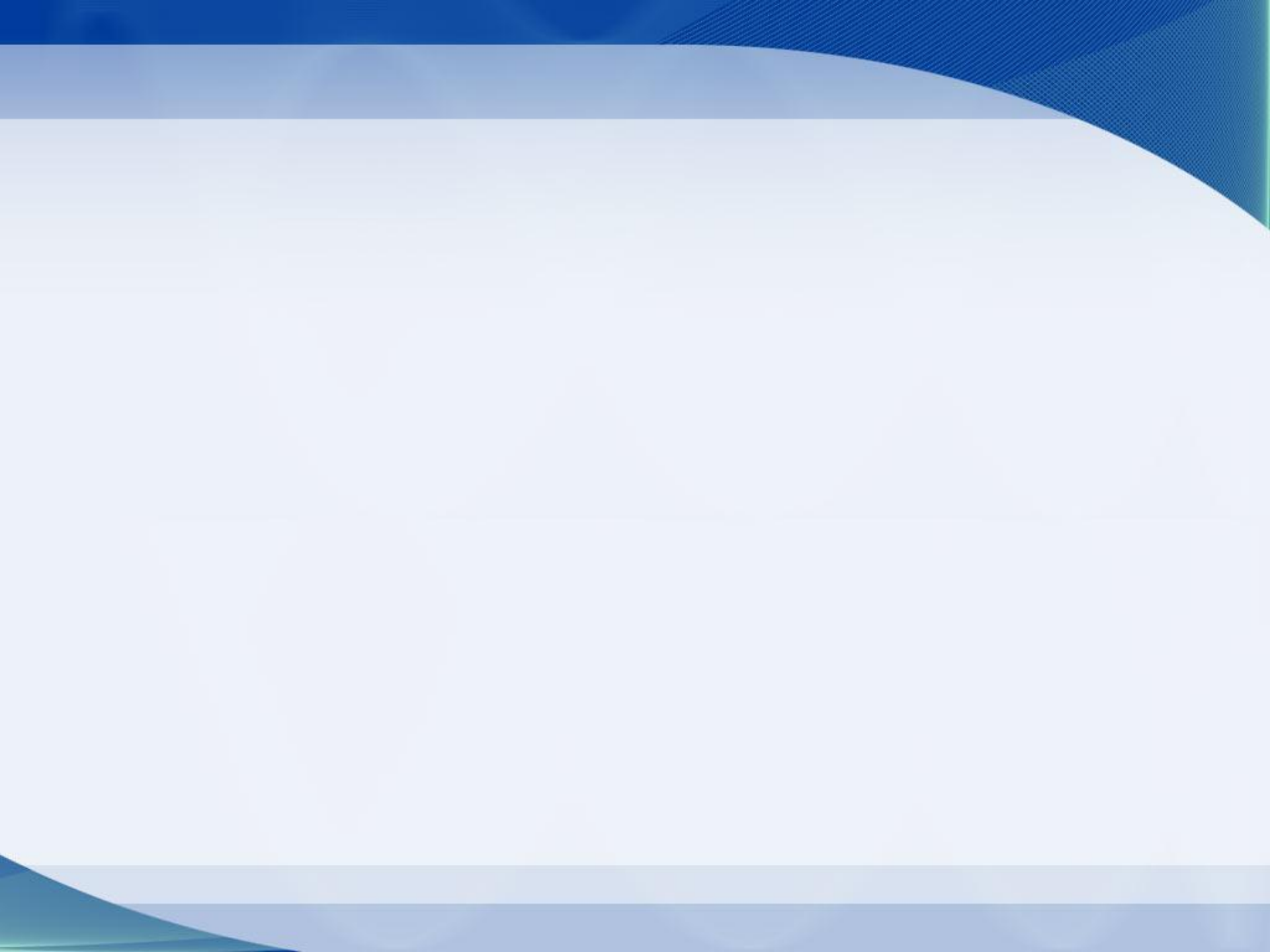
ICT Development and Global Competitiveness of Selected Countries
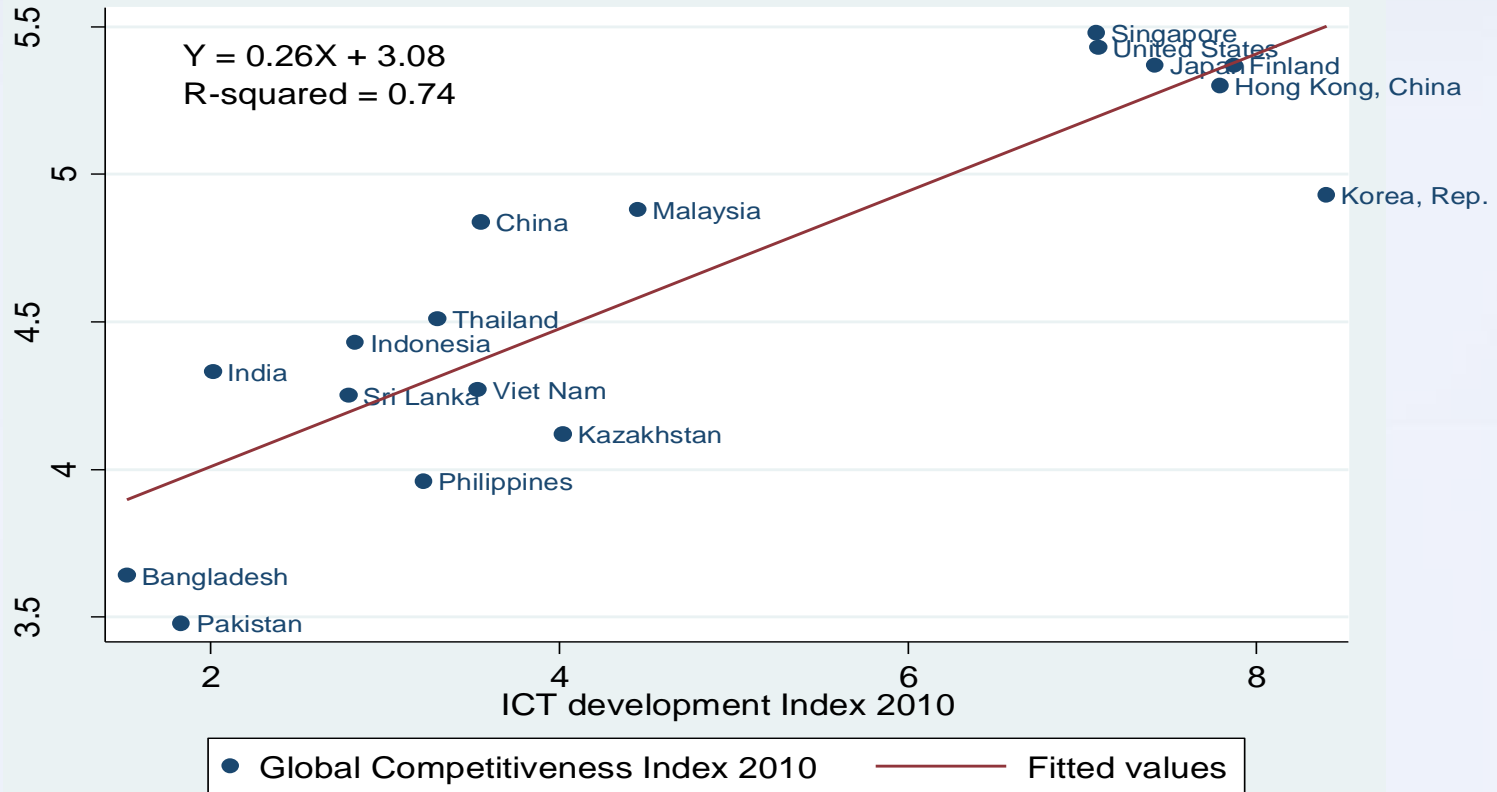
Correlation of GDP/Capita and Network Readiness Index (WEF, 2013)
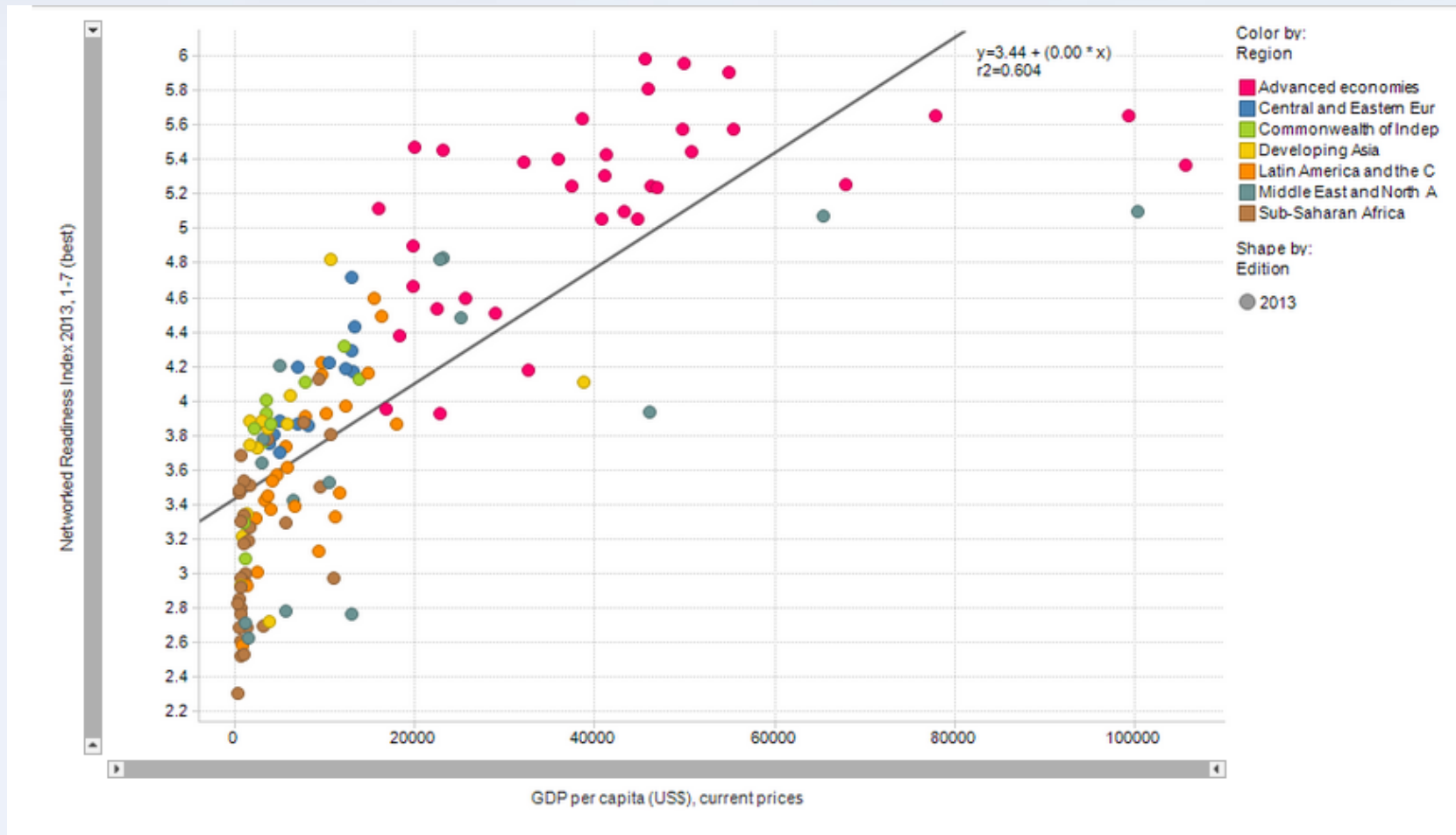
Anything in Common?

Changes in Korea.....

Political Changes and Economic Development in Korea

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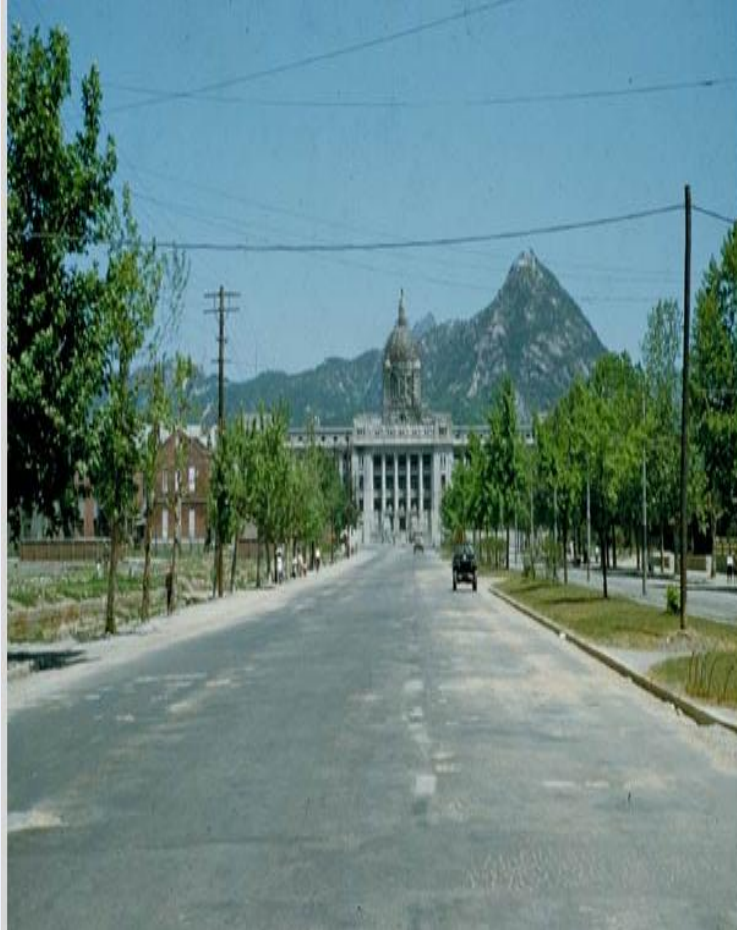
Changes

Export (55 times)	10 billion USD (1977)	550 billion USD (2011)
Population (25%)	41 million (1980)	50 million
GDP per capita (11 times)	2,100 USD (1984) 10,000 USD (1995)	23,000 USD
Automobiles (20 times)	950,000 (1984)	18,000,000

1951.09 부산 피난지의 초등학교 학생

1958.03 봄날 쟁기질하는 모습

1970.07 서울-부산 간 고속도로 완전 개통

GALAXY S3　GALAXY S4

Which Capital Contribute to the Korean Economic Miracle?

- Natural Capitals

- Economic Capitals

- Human Capitals

- Social Capitals

- Leadership Capitals

- Innovation Capitals

- Institutional Capitals (Public Servants and Public Service)

Total Export of the ICT Industry

ICT in the Korea Economy

ICT in the Korean economy

Contribution to economic growth
0.8%
2013.3Q

GDP proportion (real)
9.8%
2013.3Q

Export proportion
30.3%
2013.1~12

Informatization Plans

Timeline of ICT-sector plans and presidential administrations, 1980-present

Many plans reflected a single long term national consensus

ICT infrastructure & informatization supported by diverse governments

U-Korea master plan

E-Korea vision 2002-2006

1996 basic act on informatization promotion

Computerization, National Basic Information Systems

1981 Plan to invigorate the electronics (ICT) sector

Administrations Legend:

Civilian--opposition

Civilian--ruling party

Military--elected

Military

Chun Doo-hwan | Roh Tae-woo | Kim Young-sam | Kim Dae-jung | Roh Moo-hyun | Lee Myung-bak

Do Key Decisions Matter?

Far-reaching 1980-81 decisions anchor Korea's ICT-led development

Key 1980-81 decisions:
1. e-switching, TDX
2. semiconductor, DRAM
3. color TV
4. privatization, KTA

(GNI per capita, Atlas Method, Current US$, World Bank)
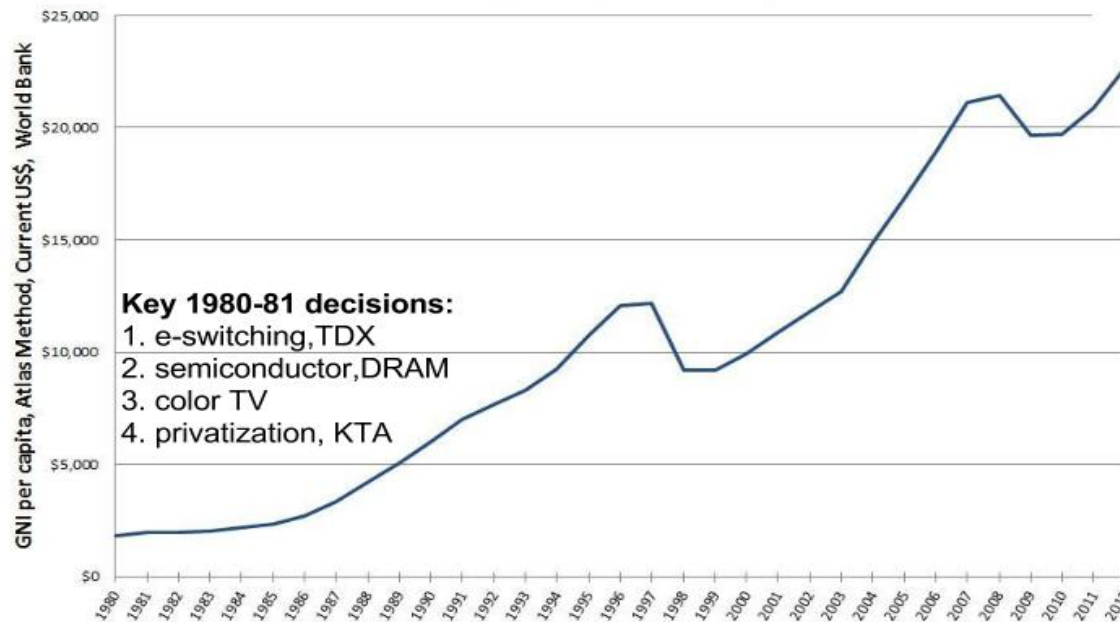
In 1983, Samsung Semi-conductor Company's Leap for 64 D-ram

Four Pillars in Success in Informtiztion
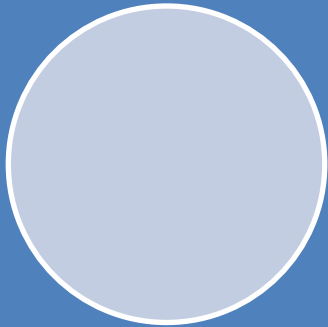
Pillar One:

Policy Will and Institutional Supports
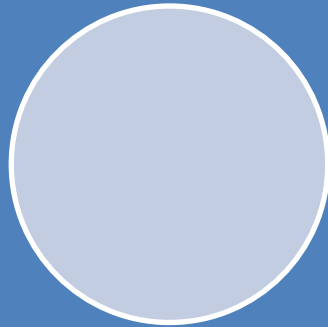
Pillar Two:
Decisions and Strategic Planning for Informatization
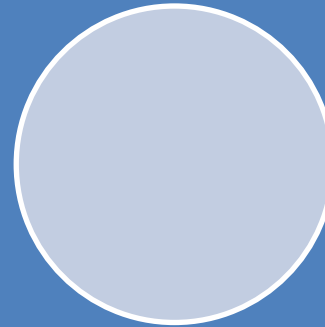
Pillar Three:

Legal and Regulatory Framework
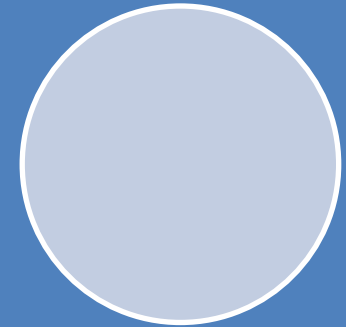
Pillar Four:
Mobilizing Resources and Private Actors

Pillar I : Policy Will and Institutional Capacity

- Act on Promotion of Utilization of Information & Communication Network ('86)
- Electronic Network Management Committee (1987)
- Establishment of Informatization Promotion System
  - Creation of the Ministry of Information and Communication (1994)
  - The Framework Act on Informatization Promotion (1995)
  - Informatization Promotion Committee (1996)
  - Informatization Planning Office in MIC (1996)
  - Special committee on e-Government (2001)

Informatization Promotion Committee

- Established in 1996
- To review and coordinate national informatization efforts in accordance with the Framework Act on Informatization Promotion
- Headed by the Prime Minister
- Participants from all related government ministries and agencies

Org. of Informatization Promotion Committee

Informatization Promotion Committee
- Chairman : Prime Minister
- Members : 24 Ministerial-level Representatives

Informatization Promotion Advisory Committee
(Experts from industry, academia, and research institutions)

Ministry of Information and Communication
(Informatization Planning)

Informatization Executive Committee
- Chairman : Chief Assistant to the Prime Minister
- Members : 25 Vice Ministerial-level Respresentatives

National Informatization Evaluation Committee
(Experts from industry, academia, and research institutions)

National Computerization Agency

Informatization Subcommittee

Related Central Administrative Branches of the Government

Organizational Structure

```
                        ┌─────────────┐
                        │  President  │
                        └─────────────┘
                               │
   ┌──────┐                    │
   │ PCIS │────────────────────┤
   └──────┘                    │
              ┌────────┬───────┼────────┬────────┐
┌─────┐   ┌────────┐ ┌────────┐ ┌────────┐ ┌────────┐ ┌────────┐
│ NIA │◄─►│  MISP  │ │ Dept. 1│ │ Dept. 2│ │ Dept. 3│ │ Dept. 4│
└─────┘   │ MOSPA  │ │ (CIO)  │ │ (CIO)  │ │ (CIO)  │ │ (CIO)  │
          └────────┘ └────────┘ └────────┘ └────────┘ └────────┘
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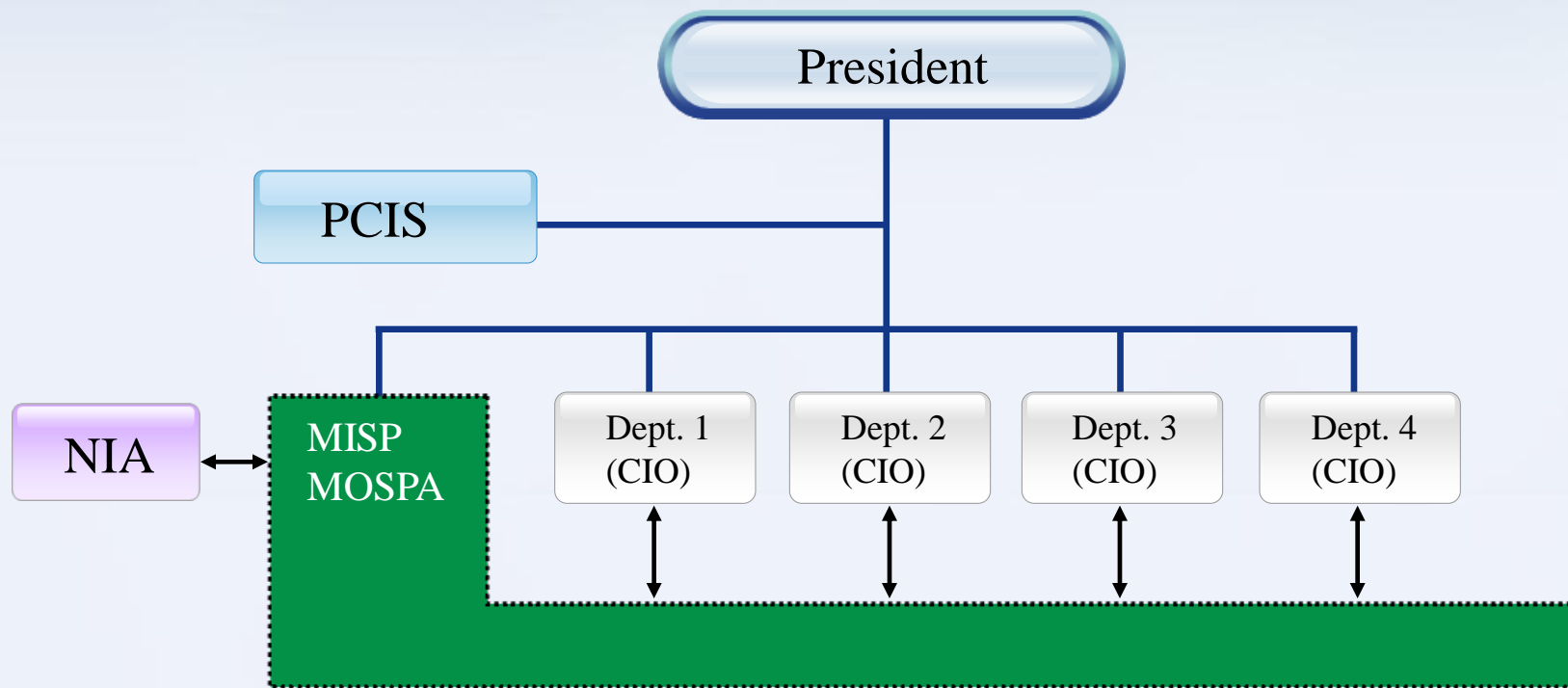
- *MISP: Ministry of Science, ICT, and Future Planning*
- *PCIS   : Presidential Council for Information Society*
- *NIA   : National Information Society Agency*

7

Pillar II: Critical Policy Decisions and Strategic Planning for the Informatization Promotion

- Basic Plan for Informatization Promotion established every 5 years
  - Implementation plans for the area of administration, finance and economy   are in the form of annual rolling plan
- First Informatization Promotion Basic Plan (1996-2000)
- Cyber Korea 21 (1999-2002)
- e-Korea Vision 2006 (2002-2006)
- Broadband IT Korea Vision 2007 (2003-2007)
- U-Korea Basic Plan (2006-2010)
  - Increase the impact of the informatization on all economic agents including the public, businesses and the government
- Smart Government, Creative Economy, Government 3.0

Seoul-Pusan Highway Project

wds cheer for President Park Chung-hee ahead of the former head of state's speech at t
ening ceremony of the Gyeongbu Expressway on July 7, 1970. / Korea Times I

376 × 415 - couchonwheels.com

Best Guess Game?

- 2---9
- __ X 9 = XX
- __ + __ = X
- 9 - __ = X
- Matching Alphabet
- ....

Pillar III : Legal and Regulatory Frameworks

◈ A total of 187 acts have been enacted or revised based on the results of 7 rounds of research and analysis from 1995

◆ 86 laws, including the Framework Act on Informatization Promotion, have been enacted or revised for informatization promotion in the public sector

◆ 101 laws, including Digital Signatures Act and Online Digital Contents, Industry Promotion Act, have been enacted or revised for the development of the IT industry and informatization of the private sector

Pillar IV : Mobilizing Resources: Informatization Promotion Fund

- Promotion of informatization requires large scale investments, calls for cooperation of various organizations, and lasts for several years
  - Difficult to carry out with the general budget
- Informatization Promotion Fund was established as a special vehicle to overcome the budgetary restrictions
  - The Fund is originally managed by MIC
- Sources of Fund: Government budget and private sector contribution
  - Reallocation of profits from ICT fields into ICT sector

E-Government

- G2C
- G2B
- G2G

"IT'S REALLY NOT SCARY, UNLESS YOU FIND SLEAZY, SANCTIMONIOUS, SELF-SERVING PIGS SCARY."

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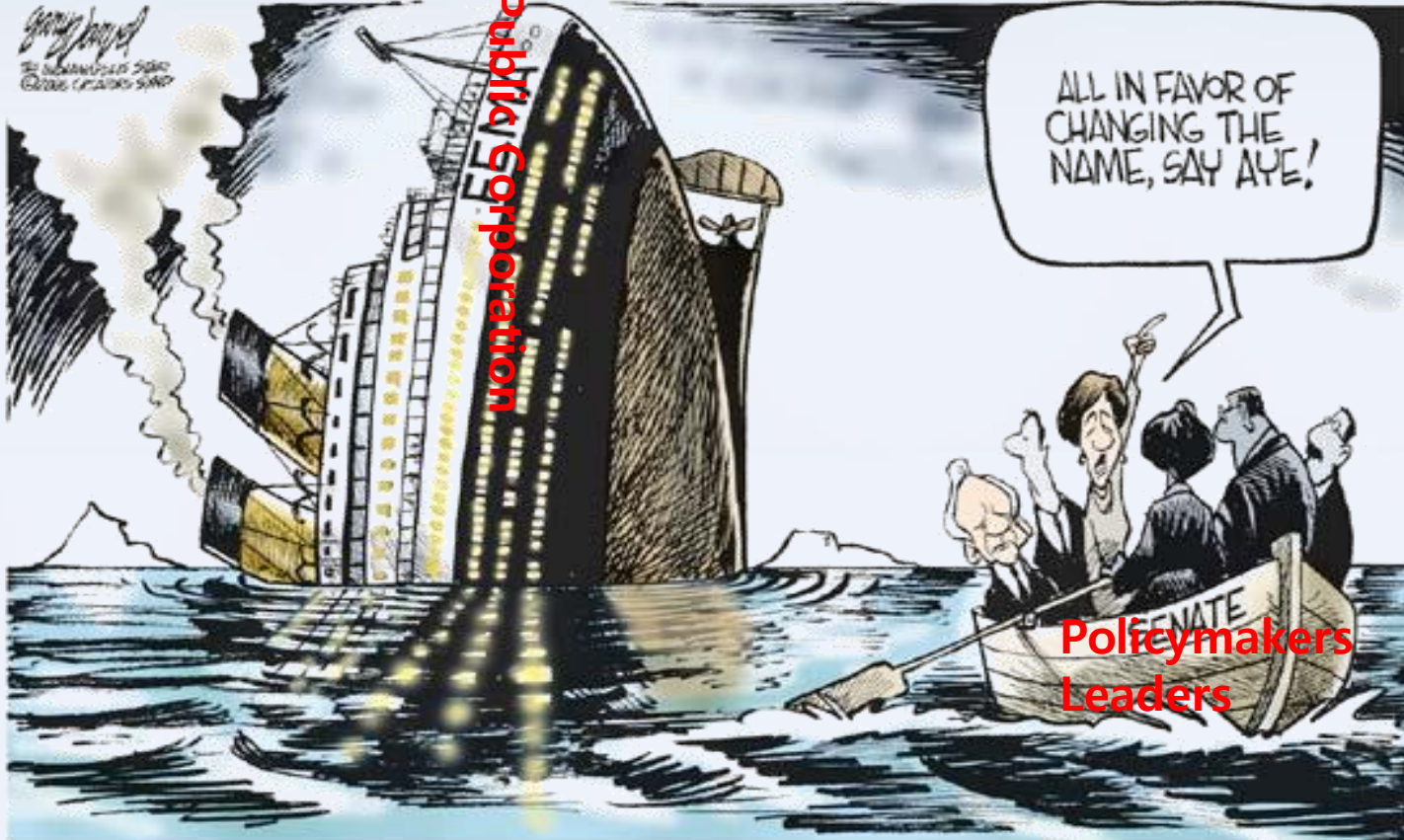
NATO

Why Should Government Change?

No Action Talk Only

The day the government stepped in to ensure our water was safe.

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Government Change

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Does ICT help Administrative Capacity?

coef = .01737176, (robust) se = .00914113, t = 1.9
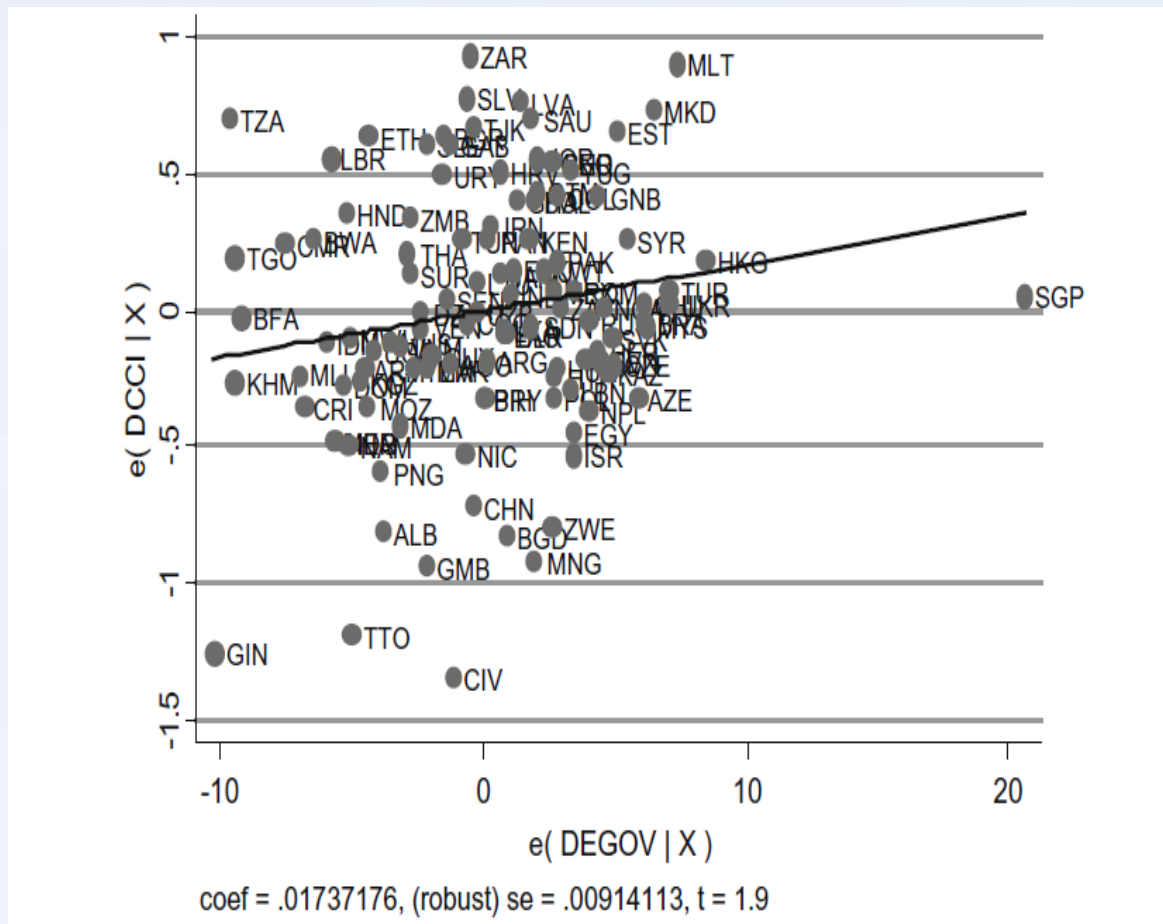
Korean E-government

E–Government Development Index - Top 20 Countries	
Country	Index
Republic of Korea	0.9283
Netherlands	0.9125
UK and Northern Ireland	0.8960
Denmark	0.8889
United States	0.8687
France	0.8635
Sweden	0.8599
Norway	0.8593
Finland	0.8505
Singapore	0.8474
Canada	0.8430
Australia	0.8390
New Zealand	0.8381
Liechtenstein	0.8264
Switzerland	0.8134
Israel	0.8100
Germany	0.8079
Japan	0.8019
Luxembourg	0.8014
Estonia	0.7987

E–Participation Index Top 20 Countries	
Country	Index
Netherlands	1.0000
Republic of Korea	1.0000
Kazakhstan	0.9474
Singapore	0.9474
UK and Northern Ireland	0.9211
United States	0.9211
Israel	0.8947
Australia	0.7632
Estonia	0.7632
Germany	0.7632
Colombia	0.7368
Finland	0.7368
Japan	0.7368
United Arab Emirates	0.7368
Egypt	0.6842
Canada	0.6842
Norway	0.6842
Sweden	0.6842
Chile	0.6579
Russian Federation	0.6579

Korea's Journey to e-Government

E-Government Infrastructure Development (1987 ~ 2002)

Full-Fledged Implementation of E-Government (2003 ~ 2007)

Further Advancement of e-Government (2008 ~ 2012)

- Goal
  - Digitalization of government business processes, establishment of IT infra.

- Key actions
  - Digitalization of government business processes (patent, customs, tax, etc.)
  - Establishment of e-Government infrastructure (high-speed internet network)
  - 11 key initiatives (G4C, e-Procurement, etc.)

- Goal
  - Expansion of e-Government services through digitalization of overall government business processes

- Key Actions
  - Expansion and improvement of services for citizens and businesses
  - Enhanced administrative efficiency and transparency through reform of government work method
  - Linkage and connection among information systems

- Goal
  - Integration of e-Government systems for seamless delivery of public services

- Key Actions
  - Customer-centric citizen services and enhanced public participation
  - Intelligent administrative services through digital government network
  - Real-time public safety information network
  - Strengthened e-Government infra. through enhanced privacy and security

International Recognition of Korean e-Government

International Awards

- **KISS**
  : UN Public Service Award ('07)

- **Invil**
  : World e-Gov Forum Award ('06)

- **KONEPS**
  : WCIT Global Excellence Award ('06)

Model Case Selection

- **HTS**
  : OECD e-Tax Best Practice ('06)

- **OPPP**
  : 'Online Politics Trophy Top10' ('06)

- **uTradeHub**
  : 'World Advanced' in APEC Report ('06)

International Certifications

- **KIPOnet**
  : WIPO IT Standard ('06)

- **UNIPASS**
  : ISO 9001, 20000 ('06)

- **KONEPS**
  : UN/CEFACT Int'l Standard ('05)

Critical Success Factors to Korean e-Government

Strong Government Leadership

IT Governance

Technology Support

Critical Success Factors

Customer-oriented e-Government Services

Performance Based Program Management

Checklist for Successful E-government (I)

◈ **Vision/Political Will**

   ◆ **Leadership and commitment**

     ◆ Do you have the necessary leadership and commitment at the political level in order to develop an e-government vision and guide change over the long term?

     ◆ Is there leadership and commitment at the administrative level to implement change?

   ◆ **Integration**

     ◆ Has there been a review of barriers to e-government implementation?

     ◆ Is e-government integrated into broader policy and service delivery goals and processes?

     ◆ Is e-government integrated into public management reform goals and processes?

     ◆ Is e-government integrated into broader information society activity?

Checklist for Successful E-government (II)

- **Common frameworks/cooperation**
  - **Inter-agency collaboration**
    - **Are agencies working together in customer-focused groupings of agencies?**
    - **Are agency managers operating within common frameworks to ensure interoperability, maximize implementation efficiency and avoid duplication?**
    - **Are there incentives to help encourage collaboration and seamless service delivery?**
  - **Financing**
    - **Can ICT spending, where appropriate , be treated as an investment with consideration of projected streams of returns?**
    - **Is there a degree of certainty of future funding in order to provide sustainability to projects (and thus gain maximum benefit from given funding levels and avoid wasting resources)?**
    - **Are there programs to help foster innovation and allow for key demonstration projects?**

Checklist for Successful E-government (III)

- ◈ **Customer Focus**
  - ◆ **Access**
    - ◆ **Is the government pursuing policies to improve access to online services?**
    - ◆ **Do customers have choice in the method of interacting with government?**
    - ◆ **Is there a no wrong door principle for accessing the administration?**
    - ◆ **Are services driven by an understanding of customer needs?**
  - ◆ **Citizen engagement**
    - ◆ Does e-government engage citizens in the policy process?
    - ◆ Are there information quality policies and feedback mechanisms in place to help maximize the usefulness of information provision and strengthen citizen participation?

Checklist for Successful E-government (IV)

- **Privacy**
  - Are there mechanisms in place to protect individual privacy with regard to e-government?
  - Do broad standards for privacy protection allow for information sharing between agencies while preventing abuse?
- **Responsibility**
  - **Accountability**
    - Do accountability arrangements ensure that it is clear who is responsible for shared projects and initiatives?
    - Does the use of private sector partnerships maintain levels of accountability?
  - **Monitoring and evaluation**
    - Is there a framework in place to identify the demand costs, benefits, and impact of e-government?
    - Are e-government implementers able to articulate and demonstrate the benefits of e-government in order to raise support for their projects?

ICT Policy Options

Infrastructure	Affordability, Skills, and Content
- **Market Competition and Investment in ICT Infrastructure** - **Spectrum Allocation** - **Reducing Infrastructure Deployment Cost** - **Core Network Expansion** - **Increasing Broadband Availability (Universal Services)**	- Market Competition/ Affordability of Devices and Applications - ICT Skill Development - Development of Online and Local Content, Applications, Services - Consumer Protection and Empowerment

Modified from WEF (2013).The Global Information Technology Report 2013.p. 46.

Short-term and Long-term Actions and Policies

ICTs	Short-term Actions	Long-term Actions
	• Improving regulatory and governance regime for ICT • Initial Public Investment for prioritized sectors including government, finance, and education sectors. • Using e-Government initiative proactively to enhance the quality of government, basic e-government services and developing high capacity ICT infrastructure • Promoting development of basic ICT application services for inclusive growth particularly for mobile application for agricultural and rural development (m-ARD)	• Using dual forces of market and government strategically as complementary mechanisms • Encouraging effective use of ICT technologies by firms and the population in general • Promote integrated e-government services and citizen participation • Effectively leveraging the potential of ICT for economic and social development • Expand broadband for upgraded contents and more ICT application services in rural areas for inclusive growth

Type I and Type II Error: Risk in Digital Government

Actual Management

	Active Management	Passive Management
High Risk	**Correct Decision** **Highly Reliable System** Preventive Preemptive High Risk but Avoided	**Type II Error** **(False Negative)** **Problem/Risk** **Security/Privacy** **Over-passive** **Too Conservative**
Low Risk	Type I Error (False Positive) Wasted Resources Under Utilized System **Over-active** **Too Entrepreneurial**	Reliable System under Low Risk/Stable Environment Low Risk Exposed

Risk

Frosbury Flop…

He jumped higher than anyone before by thinking the opposite from everyone else…

The Width of Railway?

Horse Wagon?

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Roman Chariot?

Rocket Engine?

Rocket Engine and Horse Wagon?

© Gary Brossett, 2003

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Public Servants as Leaders

- A leader of lion with a troop of mice is stronger than a leader of mouse with a troop of lions?

- Those who Can see Three Things… Sights
  - Insight
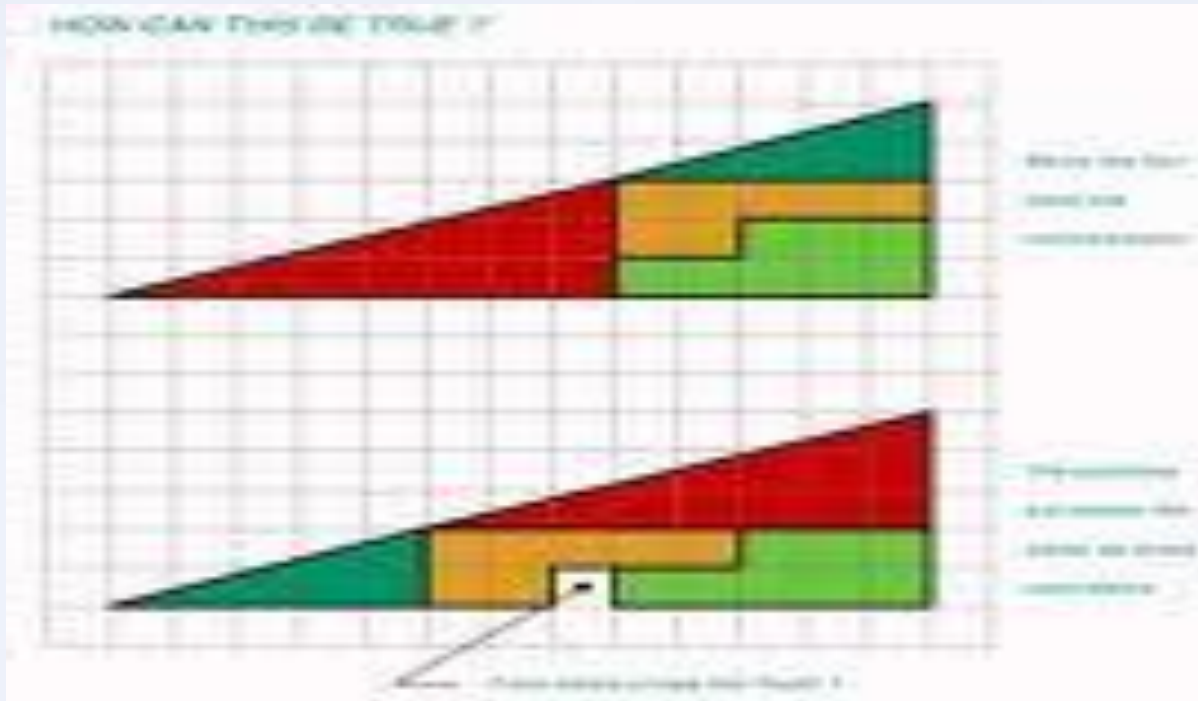 - Outsight
  - Foresight

- 4 Es….

What Can Be Done?

Things To Be Avoided…
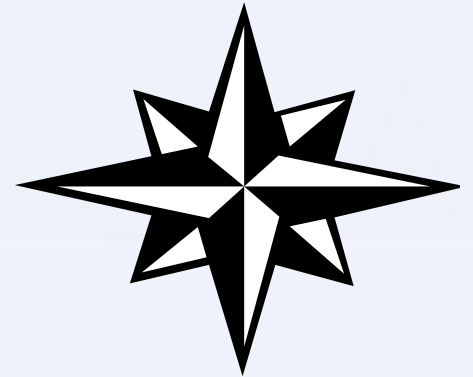
Right Match in National Resources for Development

From Good to Great!

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Thank You!!!

Questions?

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Innovations and Pitfall...

Kissimmee River

103 miles from Lake to Lake Okeechobee
In 1948—Congress Action: from 103 miles to 56 miles/ 300 feet wide and 30 feet deep

The Central and South Florida Project (1960-1971)

C-38 Canal was constructed

Kissimmee River Restoration

In 1992 , the Water Resources Development Act was authorized

In 2014, the project is to be completed

Network Build-out(1) : Modernize Fixed Line

◈ Up to early '80s, fixed line facilities were lagging behind in terms of quality and quantity (penetration rate was 7.2% in '80)

◈ Major Policies

◆ - Financing through installation fee, telephone bond, tariff, etc.

◆ 10th producer in the world of fully digitized switching system, TDX-1 ('86)

◆ - '1 phone per family' ('87); digitization of wide area telephone switching; no waiting list for telephone line installation

◈ High quality telephone networks provide the physical basis for the roll-out of xDSL, Broadband Internet

Network Build-out(2) : Fast 2G/3G Roll-out

- Up to mid-1980s, wireless services were limited
- Major Policies
  - Korea Mobile Telecom was spun off from Korea Telecom ('84)
  - Successful deployment of CDMA with USD 84.44mn investments ('89~'96)
  - Introduced the competition: Licensed 1 cellular ('94) and 3 PCS operators ('96)
  - Licensed 3G operators (2 W-CDMA, 1 cdma2000) in Mar and Dec 2002
- Number of mobile service subscribers surpassed fixed-line in Sept '99.
  - Number of subscriber is 32.34mn at year-end 02, ranking 8th in the world
- 3G service (CDMA 2000-1X) launched in Oct 2000 on existing spectrum
  - Number of subscribers had reached 17.2 million at 2002
  - 3G service(W-CDMA) is now offered

Network Build-out(3) : Leading Broadband Network

- Comprehensive Plan for KII (Korea Information Infrastructure) launched in '94 for the construction of a nationwide optical network
    - USD 9 billion was invested in total
    - Government funded USD 1 billion for KII-G (Government) and KII-T (Test-bed)

	KII-Testbed	KII-Government	KII-Public
Main User	Research Institute	Government	Home and Business
Investor	Gov't+Private	Government	Private
Main Target	Testbed	Backbone Network	Access Network

- 144 call zones were connected through high speed (155Mbps- 5Gbps) optical cables (2000)
- KII-P (Public) accessible thru CATV, telephone line, satellite, optical cables (ADSL was especially endorsed)

E-Government

- National Basic Information System was classified into 5 areas: administration, finance, education and research, defense and national security
  - National DBs for the essential information was constructed
  - USD 250mn was invested from 1987 to 1996
- National Basic Information System, enhanced efficiency of the public sector and improved administrative service
  - Computerizing basic administrative information and connecting organizations
- E-Government Special Committee was organized to complete e-government by 2002, and initiated 11 key projects
  - Single Window e-Govenrment (G4C), National e-Procurement (G2B), National Finance Information System (G2G)
  - USD 190mn was invested from 2001 to 2002.