# *Building The Policy of ICT Development*

*Dr. Zsehong Tsai, Deputy Executive Secretary*

*National Information & Communications Initiative Committee & Science and Technology Advisory Group(STAG)*
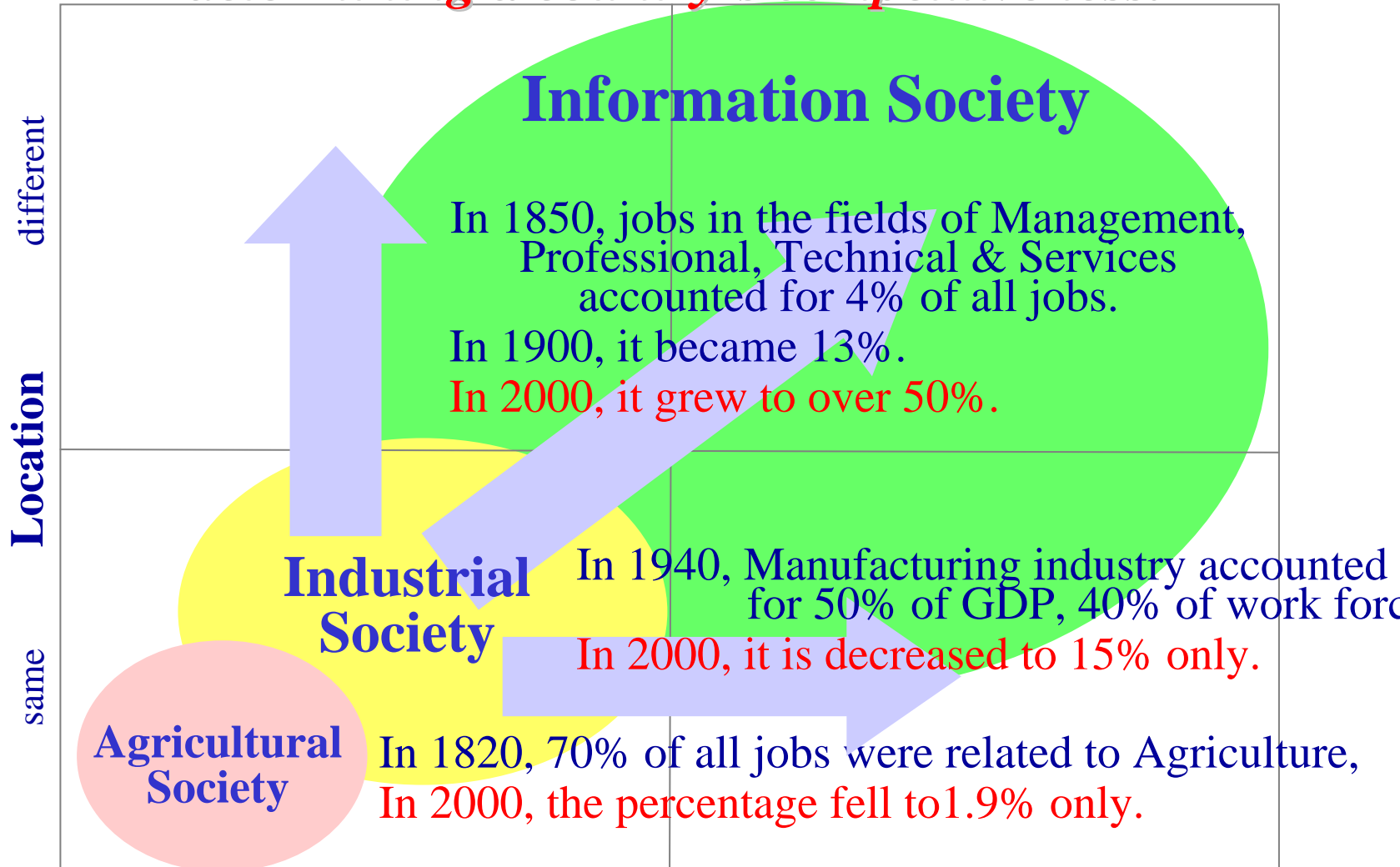
*Jan. 24, 2005*

- ✓ *The  e-Taiwan Program*

- ✓ *The  M-Taiwan Program*

- ✓ *The New Broadband  Service-Convergence Network*

- ✓ *Conclusion*

# Background Information
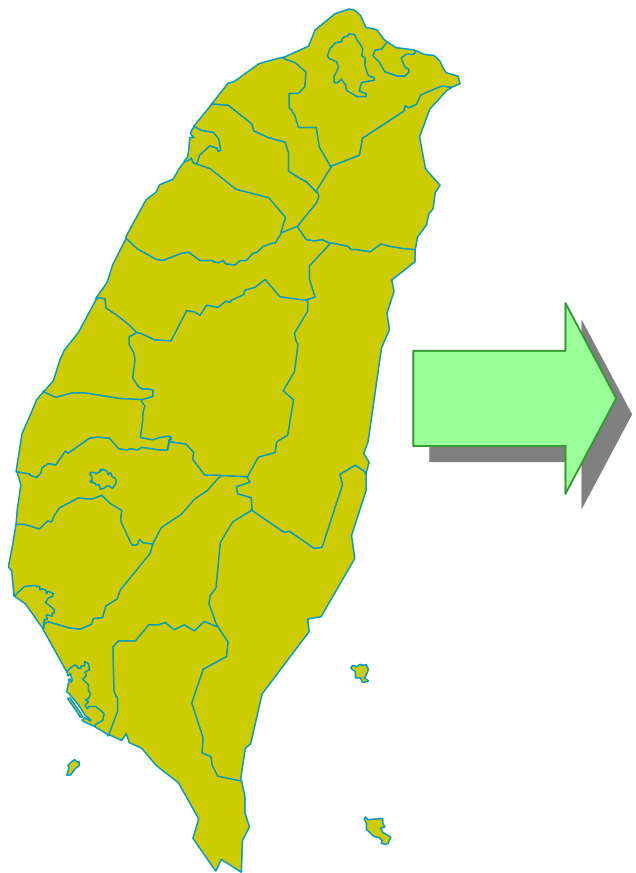
## ICT strength has become an essential factor in determining a country's competitiveness.

**Information Society**

In 1850, jobs in the fields of Management, Professional, Technical & Services accounted for 4% of all jobs.

In 1900, it became 13%.

In 2000, it grew to over 50%.

**Industrial Society**

In 1940, Manufacturing industry accounted for 50% of GDP, 40% of work force

In 2000, it is decreased to 15% only.

**Agricultural Society**

In 1820, 70% of all jobs were related to Agriculture,

In 2000, the percentage fell to 1.9% only.

different

same

Location

- ❖ World's 4th largest IT hardware produc... (Ranked 3rd as including production in China)

- ❖ Ranked first in worldwide market share for more than 10 ICT products

- ❖ A major procurement center for global companies

- ❖ Dominates IT production in China

- ❖ 2nd largest LCD industry and 4th largest semiconductor industry in the world

- ❖ 111% mobile phone penetration rate

# Infrastructure in Major Countries

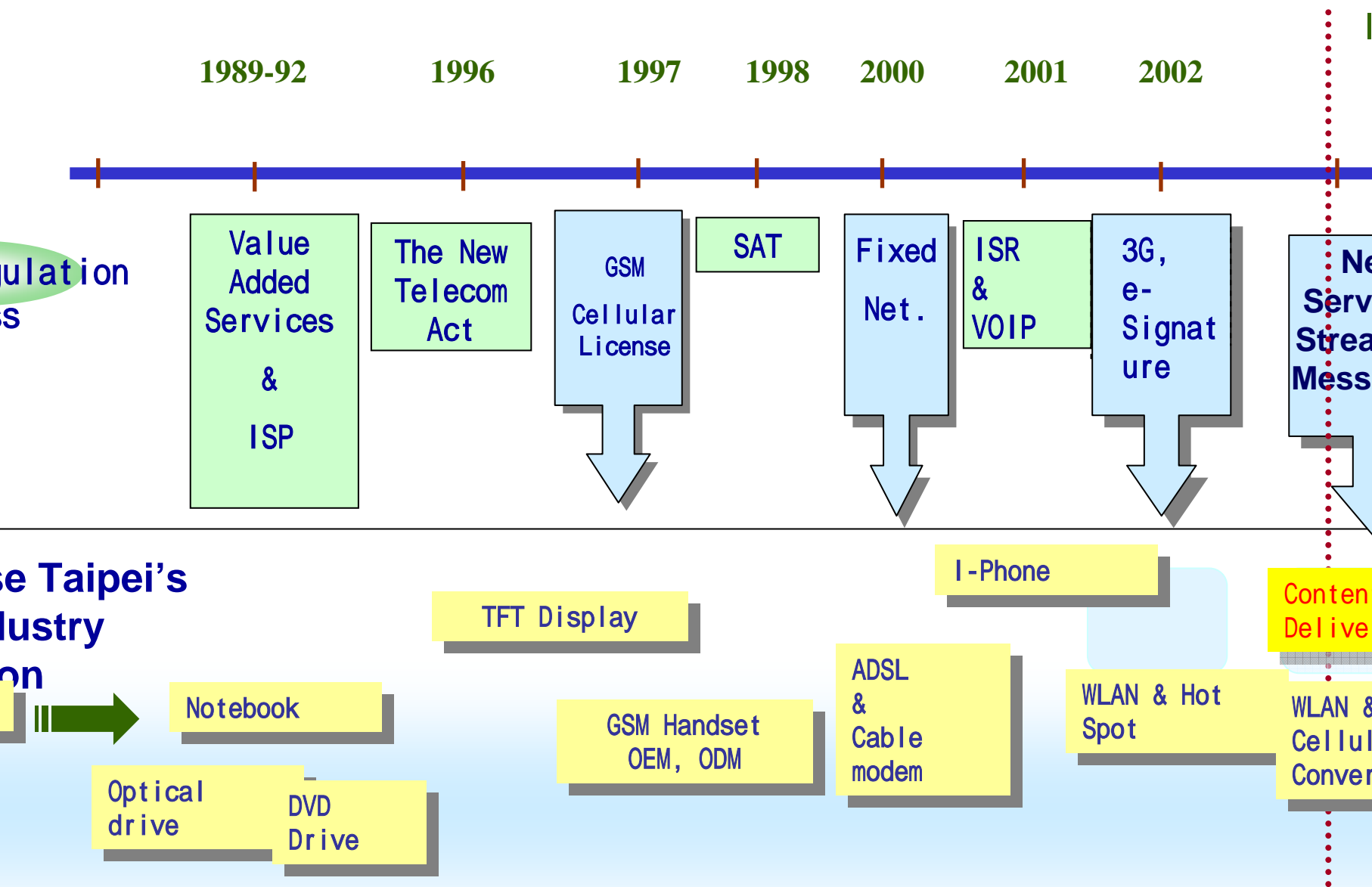| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| | | | | 96 Singapore One | 97 IT in Education | 98 Electronic Transactions Act | | **Infoco** |
| | 93 NII | | 95 EC Working Group | | 97 Global EC Framework | 98 1st Report | 99 2nd Report eGovernmente Society | |
| | | | | 96 Information Society | Building the Knowledge Driven Economy | 98 e-commerce@its.best.uk **UK** / Modern Government | 99 eGov Services for | |
| | | | 95 The S&T Basic Law | | | | 99 Millennium Project | |
| | 93 KII | 94 MIC | 95 BAPI | | | | 99 **Cyber Korea 21** | |
| | | | | 96 3Year 3 Million Internet Users | 97 NII | 98 e-Government | 99 e-Industry | |

**1992  Major IT Countries engaged various ICT projects (NII)**
**1999  Japan, Korea, Singapore launched major e-projects**

- **1993    Initiated NII (National Information infrastructure**
  **Guidelines**

- **1996 :  Initiated 3-Million Internet users in 3 years**

- **1998    Initiated *e*-Government Program**

- **1999    Initiated *e*-Business Program**

- **2001    Consolidated various agencies,**
  **Initiated NICI Guidelines**

- **2002    Initiated *e*-Taiwan Program**

- **2004 :  Initiated m-Taiwan Program**

| 1989-92 | 1996 | 1997 | 1998 | 2000 | 2001 | 2002 | |
|---------|------|------|------|------|------|------|---|

gulation es

Value Added Services & ISP

The New Telecom Act

GSM Cellular License

SAT

Fixed Net.

ISR & VoIP

3G, e-Signature

Ne Serv Strea Mess

se Taipei's lustry on

Notebook

TFT Display

I-Phone

Content Deliver

ADSL & Cable modem

WLAN & Hot Spot

WLAN & Cellul Conver

GSM Handset OEM, ODM

Optical drive

DVD Drive

# ICT Vision & Milestone

**National Information & Communications Initiative Committee**

**1982/02** — Information Development Office

**1994/08** — NII Task Force

**1999/07** — iAeB Task Force

**2001/04** — 2728th Cabinet meeting

- To promote information industry and computerized inter-governm process

- Responding to Major IT Countri engaged various ICT projects establish NII to be In charge of infrastructure of the information and communication

- Due to Fast booming of e-comme iAeB task force is to promote industry automation and keep business competitive

- Integrate NII and iAeB to becom National Information and Communication Initiative Committee (NICI) and NICI in charge of national ICT issues

# NICI

**(National Information and Communications Initiative Committee)**

# *ICT Vision & Milestone*

**2001/12** — **The Cabinet Approved NICI Guidelines**

**STAG / CEPD / RDEC Proposed**
*e*-**Government Flagship Project**

**2002/03** — **Challenge 2008**

*6-Year National Development Pl*
**To foster the creativity and tale**
**that Chinese Taipei needs to**
**transform itself into a "green si**
**island"**

**2002/07** — *e*-**Taiwan Program Draft**

**2002/09** — *e*-**Taiwan Program Submission**

*e*-**Government, *e*-Indu**
*e*-**Opportunity, *e*-Socie**
**and Infrastructure**

# e-Taiwan & Challenge 2008

National Information & Communications Initiative Committee
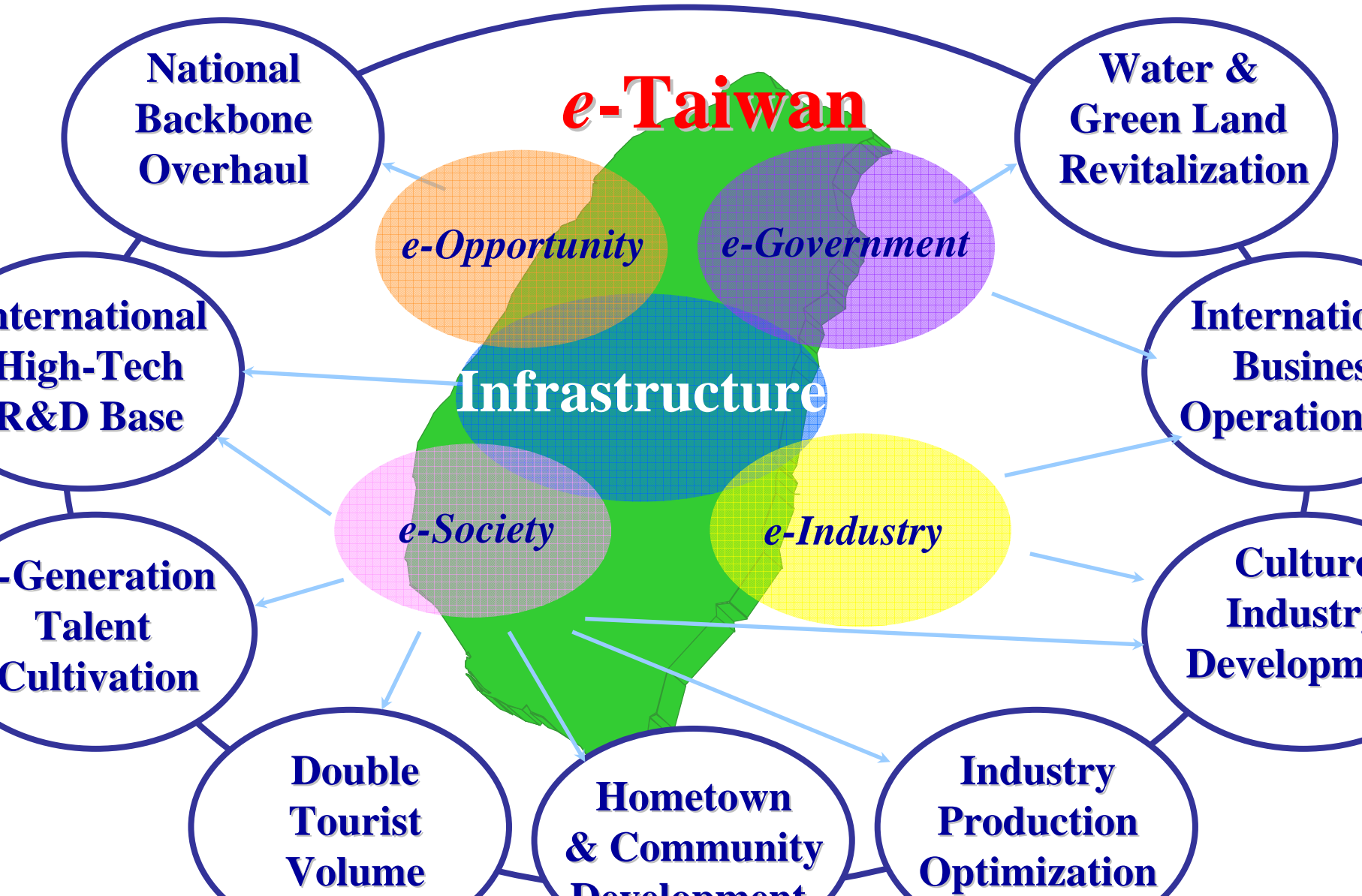
**e-Taiwan**

- National Backbone Overhaul
- Water & Green Land Revitalization
- International High-Tech R&D Base
- International Business Operation
- e-Opportunity
- e-Government
- Infrastructure
- Next-Generation Talent Cultivation
- e-Society
- e-Industry
- Culture Industry Development
- Double Tourist Volume
- Hometown & Community Development
- Industry Production Optimization

# *e-Taiwan Mission*

| Manufacturing | Venture Capital | R & D | Knowledge Based Economy |
|---|---|---|---|

**Information Society**

## Current Economy Challenges

- Knowledge Based Economy
- Slowing Economy Growth
- Changing Industry Structure

*e*-Infrastructure

*e* -Society

*e*-Taiwan Project

*e*-Government

**Industrial Society**
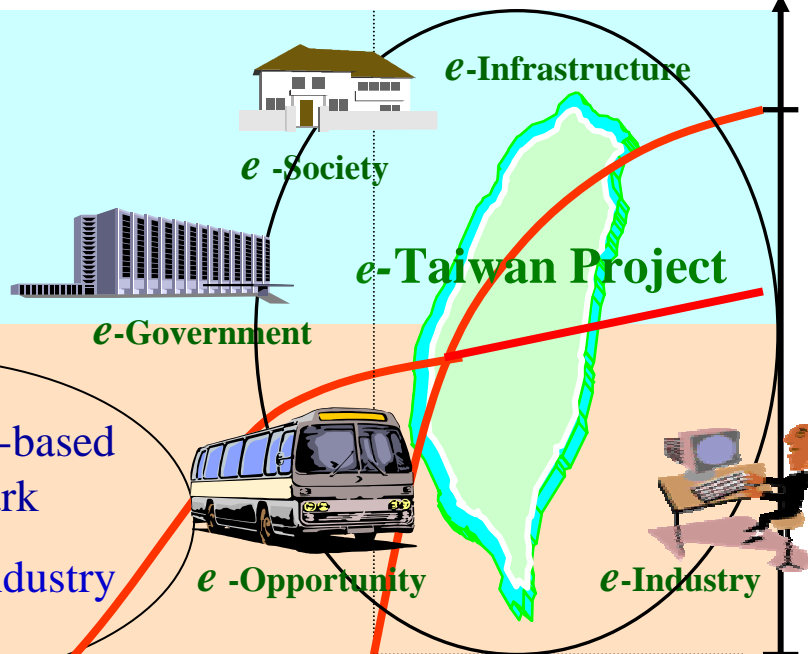
Hsinchu Science-based Industrial Park

Ten Emerging Industry

*e* -Opportunity

*e*-Industry

Export Industrial Park
Ten Infrastructure Projects

stom Protection

mport Control

**NII Projects**

| 1960 | 1970 | 1980 | 1990 | 1996 | 2000 | 2002 | 2007 |

**Import Substitution**     **Export Expansion/ Heavy**

# *e-Taiwan Vision*

**Knowledge Based Economy**

**Green Silicon Island**

**High-Tech Service Island**

## *e*-Taiwan

*with*
*US$ 11 Billion Investment*

| Competitive Industry | Effective Government | Bridging Digital Divide | Information-r Society |
|---|---|---|---|
| st supports to industry to y competitive | One-stop services to its citizen | Equal & Optimum opportunity to its citizen | Best informat available to its citizen |
| *e*-Industry | *e*-Government | *e*-Opportunity | *e*-Society |

GII  NII

NII  GII

**Advanced Telecomm technology**

**Broadband to every family**

# *e*-Taiwan Scope

## *e*-Taiwan

**Reach 6 million broadband users in 6 years.
Become the *e*-Leader in Asia.**

### Government initiates, everybody participates.

| *e*Society | *e*-Industry | *e*-Government | *e*-Opportunit |
|---|---|---|---|
| tal learning | • Collaborating *e*-design | • one-shop service | • Bridging rural divid |
| tal archive | • agriculture knowledge management | • G2B2C document exchange | • Bridging SME divid |
| tal entertainment | • Small to medium enterprise knowledge management | • video conference network | • Bridging internation divide |
| culture development | • International *e*-commerce cooperation program | • IP information system | |
| ote public services | | • household registration | |
| arning for small-to- dium enterprise | | • hazards mitigation infomation center | |
| arning for farmers | | • hazards mitigation communication system | |
| estate info center | | | |

## Infrastructure

| million broadband users | • IPv6 Upgrade | • broadband for small and |

# Broadband to Every Family

## Install Next-G Broadband network demonstration system & applications

**Next Gen. Network**

**Wireless**

**Wire line**

**PSTN**
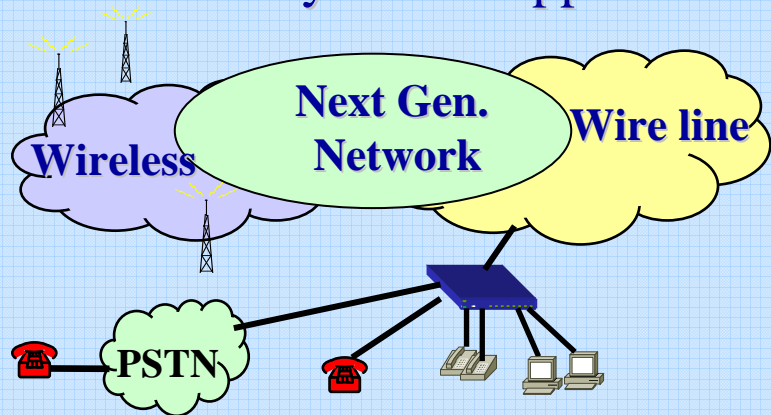
## Enhance security system

**Network Security** (Hacker detection, ,IPSec, SSL,Virus prevention, Firewall

**Security Operation Center**

**System security** Access management, Project management, Process management

**Data securit** Encryption/Decry Watermark,Stor Redundancy
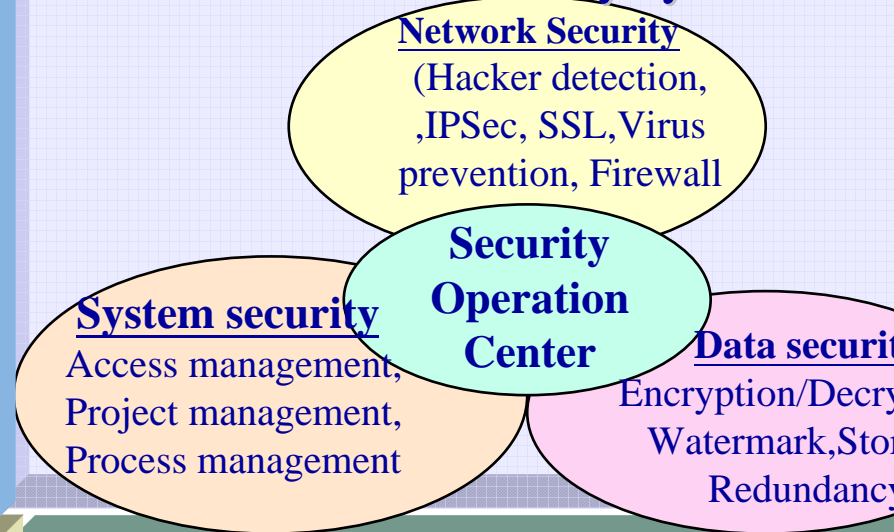
## Facilitate government support

Support mechanism

Tele-comm Deregulation

**Internet**

Legislation
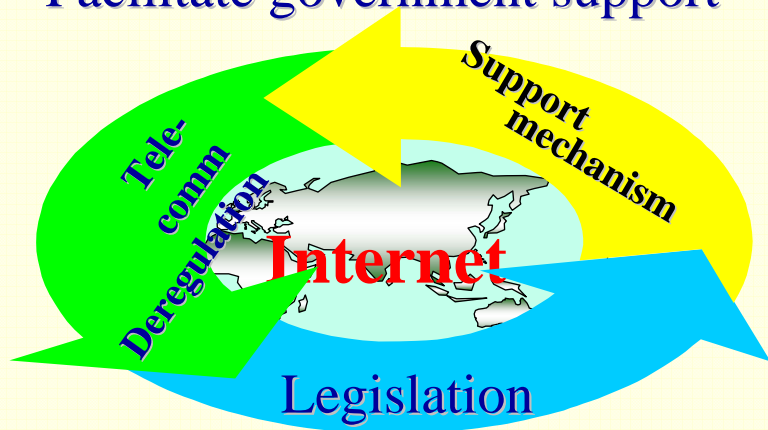
## Advance ICT application capabilit

**Internet**
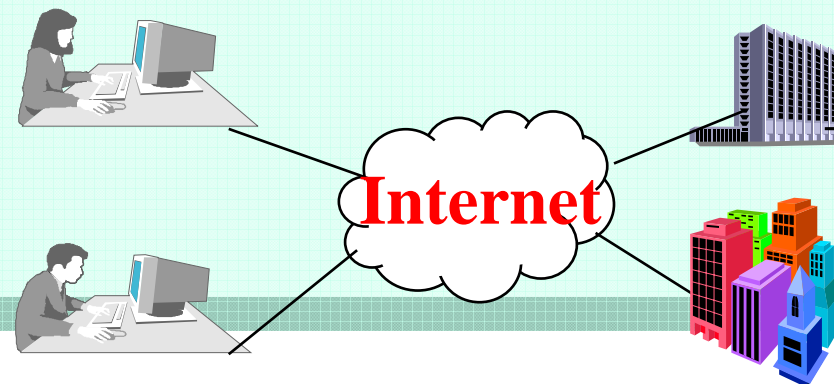
# (Establish secured ICT environment Project)
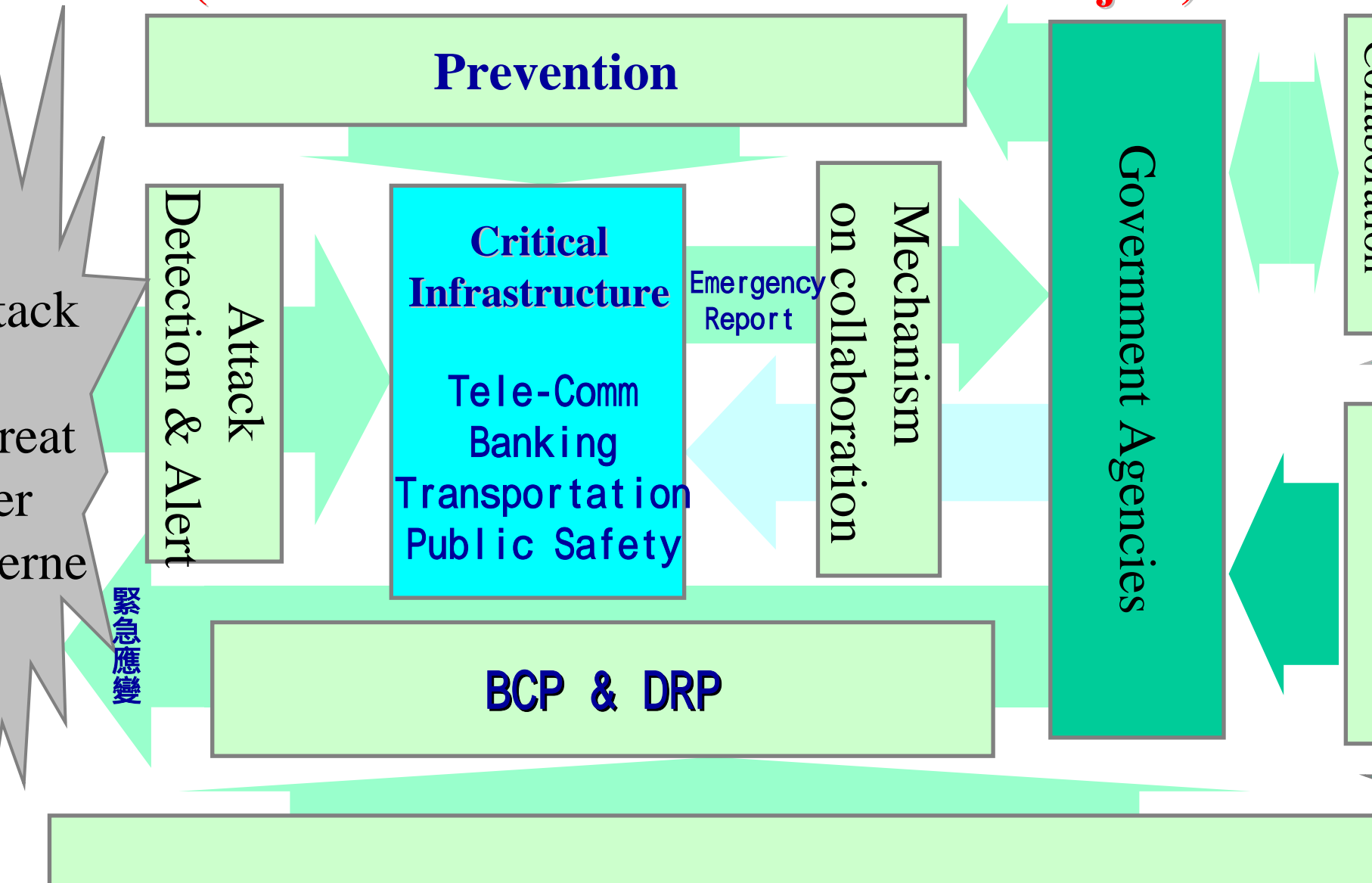
**Prevention**

Detection & Alert

**Attack**

**Critical Infrastructure**

Tele-Comm
Banking
Transportation
Public Safety

Emergency Report

Mechanism on collaboration

Government Agencies

tack

reat
er
erne

BCP & DRP

Infrastructure of Secured ICT Network

❑ **Utilize Regulations to provide Faster Cheaper　More Secured Network environment**

  ➢ Deregulate Tele-communication and cable TV barriers
  ➢ Negotiate last mile issue,
  ➢ Establish NCC to monitor 'Information & communication related regulations.

❑ Build solid environment to promote killer application  and better digital content

  ➢ Application on Digital Entertainment and Digital Learning
  ➢ Promote Government one-stop services and e-business

# e-Government

**G**overnment

Government Portal

**G to C**

Citizen Portal

**C**itizens

- Electronic Document
- Video Conference
- Information Sharing
- Knowledge Management
- ISMS

*in G*

Information published

Information Inquery

Electronic voting

On-line Service

Cross Agencies service

Enterprise Portal

**G to B**

**B**usiness

**GSN**

**INTERNET**

**PKI**

*G to G*
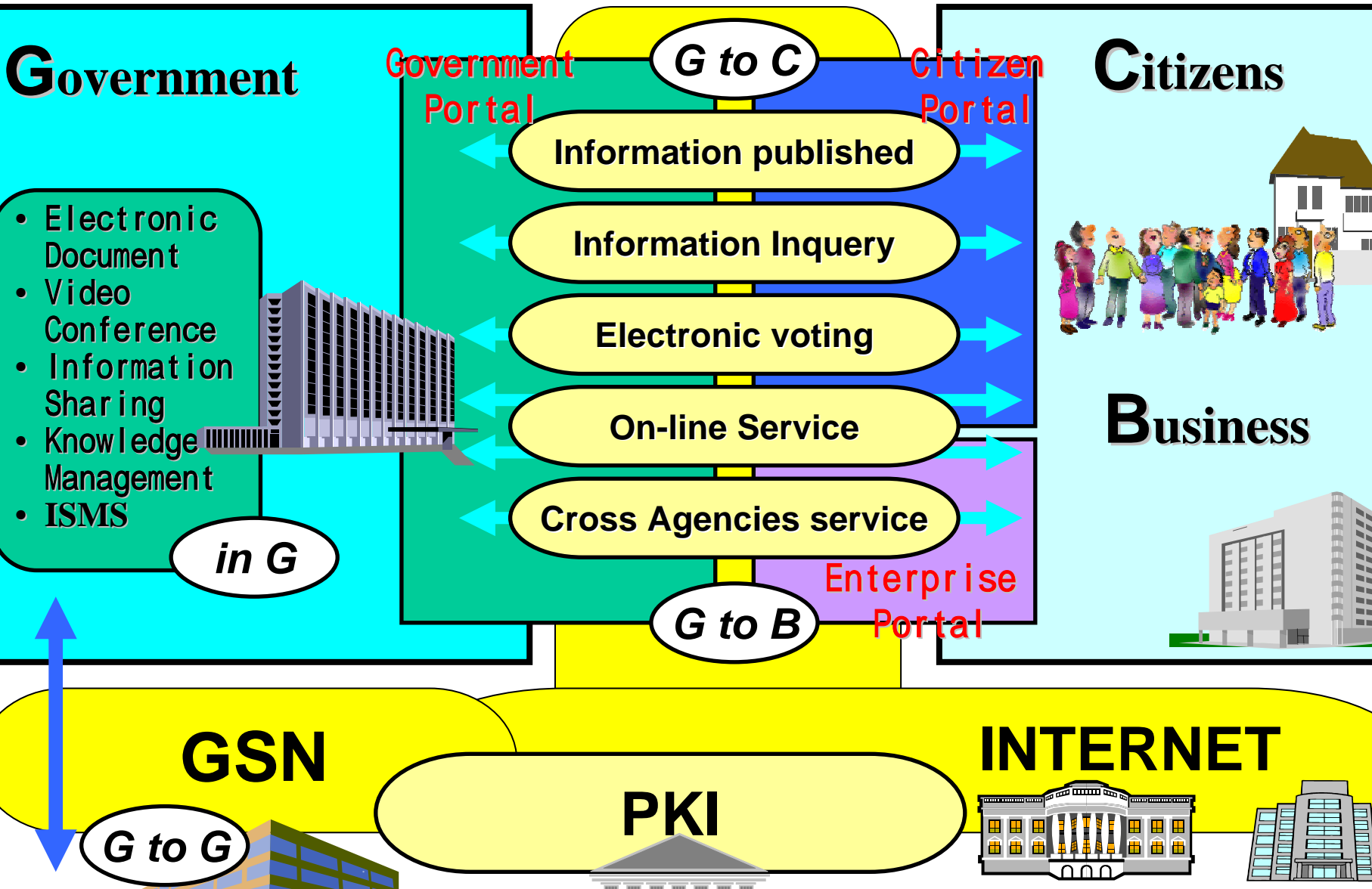
# *Issue to promote e-Government*

➢ **Broadband to 6 million Family**
➢ **IT Literacy**

## Enterprise

## Citizen

➢ **Mutual Understanding**

➢ **e-Enterprise**
➢ **Broadband to**

➢ **Vision & Policy**
➢ **Commitment**
➢ **Training**

## Government

➢ **Promotion Mechanism**
➢ **Outsourcing**
➢ **ISMS Implementation**

## Faster   Cheaper   More Secured Network
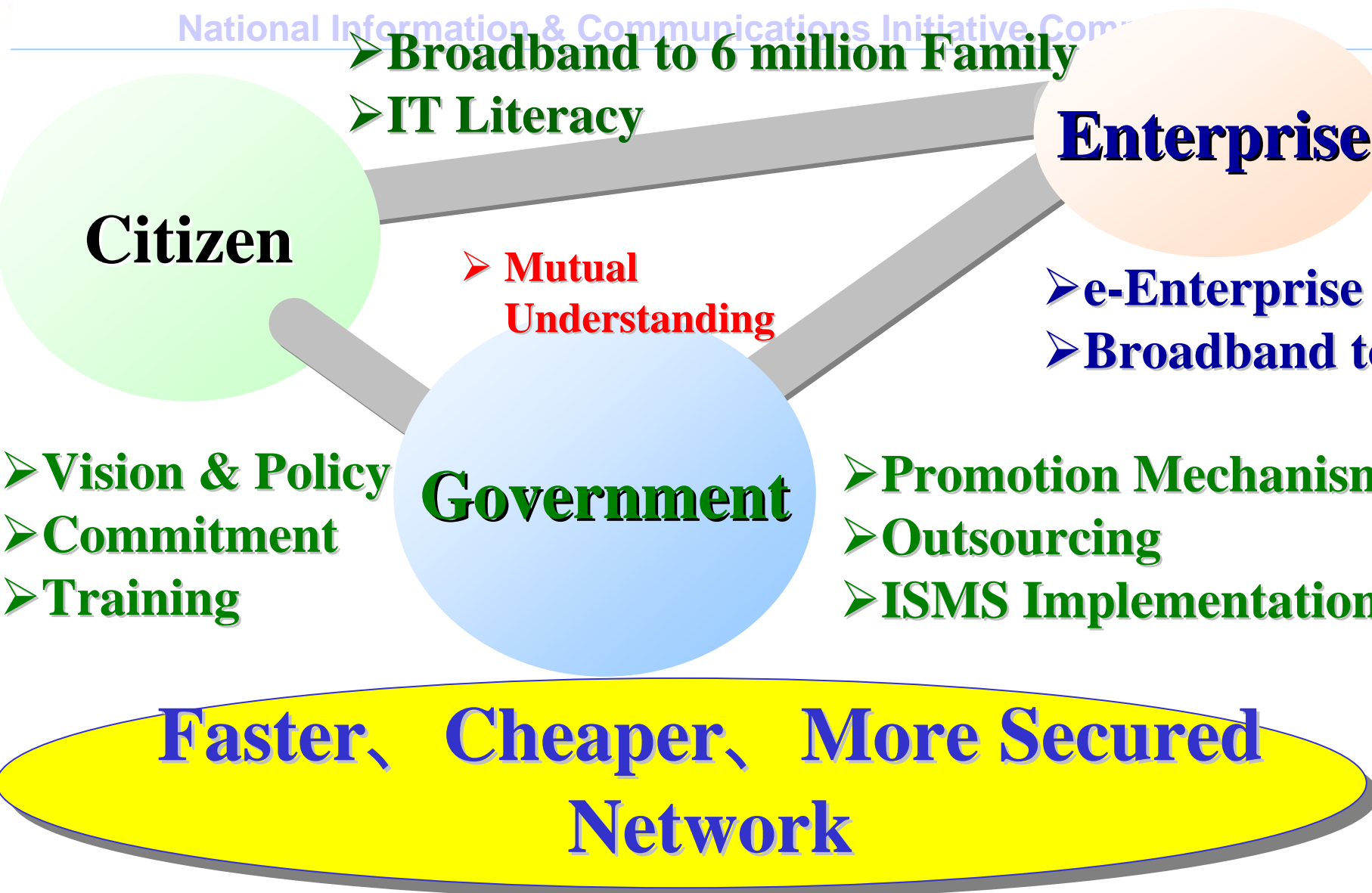
**Broadband to 6 million Family**

➢ **Establish National Network Secur**

# e-Government Projects

**Service On-line**

provide *e*-service
improve service quality
assist IT industry

enterprise

public

Government Service On-line

are
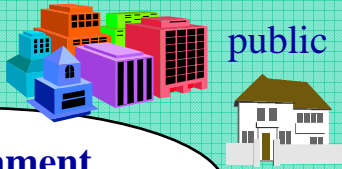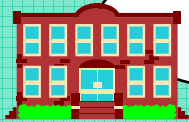
fic   Enterprise   Commerce

hold   Land   Tax

**One-stop Service**

- 24-hour service
- common platform
- eliminate redundency

Government Office

Single Entry

Service

Govern
Office

rd mitigation network
 protection
ork security system

**Information publicized**

Government Information
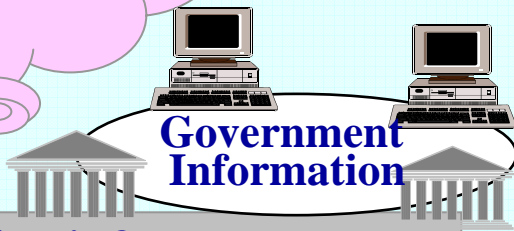
onal archive info system

ard mitigation info system
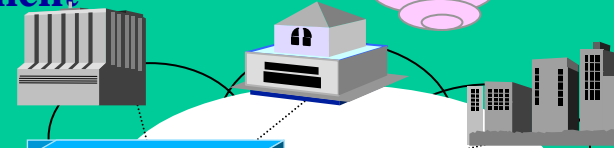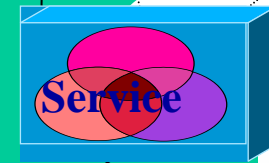
**Electric document/ video conference**

- inter-office data sharin
- document flow automa
- improve meeting effici

# *e-Industry*
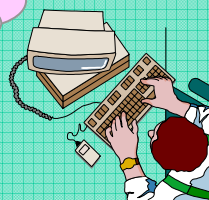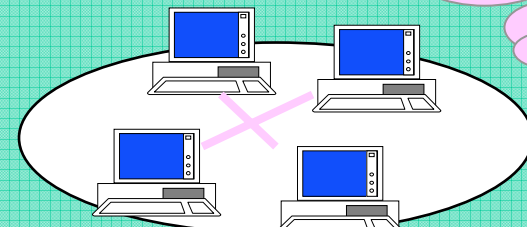
## Supply Chain Management

- implement quick response system
- consolidate international supplier information
- build supplier chain system

## International Cooperation

- centralize *e*-Market portal
- develop various *e*-Standard
- join international supplier chain

**Make Chinese Taipei the center of value-added manufacturing and service**

Industry online(**26** ➡ **60%**)
*e*-Commerce (**1.5** ➡ **15%**) of GDP
*e*-Service(total revenue **US$2** ➡ **10 billion**)

## R & D

- cultivate R&D groups
- coordinate design effort
- develop IP Mall

## Support & Services

- effect monetary system
- strengthen customer support
- assist service industry

# *Goal and Strategy*

## *e-Industry Goal*

➢ **Create an environment for industrial automation and electronic business**

➢ **Build an efficient supply chain management network to optimize the supply and demand mechanism**

➢ **Assist industries to set up global logistics system to boost competitiveness**

## *e-Industry Strategy*

➢ **Develop standards and technology to build a sound e-business environment**

➢ **Set up a model system to reinforce industrial demand and supply coordination**

➢ **Provide incentives to build an IT talents cultivation mechanism**

**Building Chinese Taipei as Hi-Tech Service Island**

| Building a Full-scope EC Environment | Assist Enterprises to Apply e-Technologies | Enhance the Competitiveness of Enterprises |
|---|---|---|

| lding ghly t Supply anagement work | Developing Logistic and Marketing Channel System | Developing Operation Model for Industry Knowledge Service | Promote Enterprises e-Application Ability | Strengthening e-Application Infrastructure | Prom Informa Services I |

# *e-Opportunity*

| Social Justice | Industrial Development | International Charity |
|---|---|---|

**Bridging Digital Divide**

**Creating e-Opportunity**

very citizen have same opportunity to reach information & knowledge.

nprove native group Internet connectivity up to 65%.

nprove rural area computer penetration rate up to 70%.

nprove SME broadband connectivity & EC-ready up to 70%.

tablish 300 Digital Opportunity Center within Chinese Taipei & 6 APEC

onomies.

**Governmental Funding**
**US$200 Million Within 4 Years till 2008**

| Bridging Rural Divide | Bridging SME Divide | Bridging Int'l Divide |
|---|---|---|

# *Strategies*

Small and Medium Enterprises

Low informatization

**Bridging SME Divide**

aged people            children

aborigine

woman

**Bridging Rural Divide**

Asia-Pacific
Economic Cooperation

Least developed countries

Information poor

**Bridging International Divide**

# *Action Plans*

1.   **Provide Digital TV Signals & reception device to Rural Areas.**

2.   **Provide PCs to Student Families in Rural Areas.**

3.   **Connect Broadband Network to All Villages.**

4.   **Establish Digital Opportunity Center in All Coun**

5.   **Support SME Develop EC.**

6.   **Promote High Value Agriculture Products With E**

7.   **Support DOC in 6 APEC Economies.**

8.   **Train Int'l Trainers & Professionals.**

# e-Society
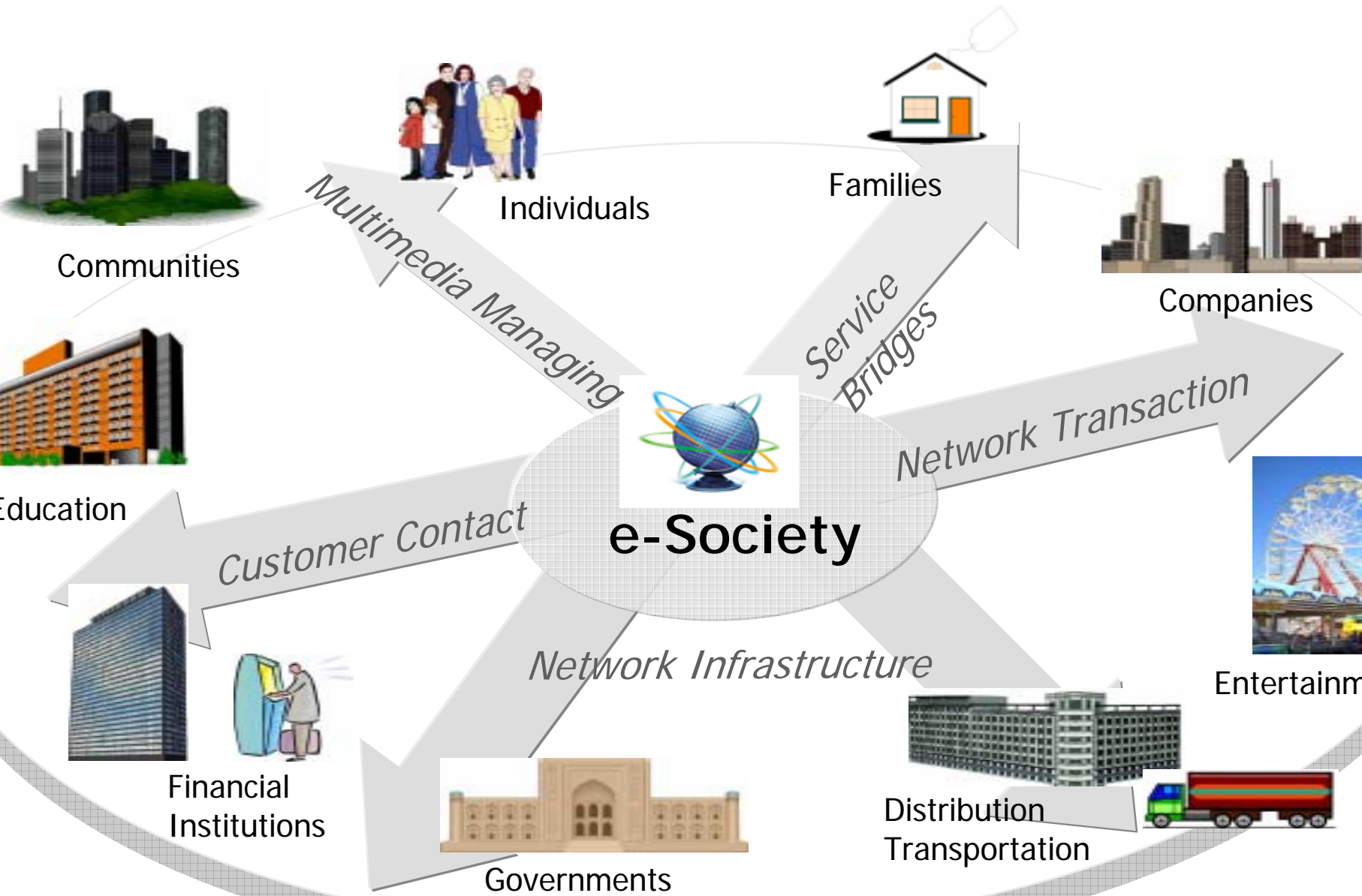
Individuals

Families

Communities

Companies

Multimedia Managing

Service Bridges

Network Transaction

Education

Customer Contact

e-Society

Network Infrastructure

Entertainm

Financial Institutions

Governments

Distribution Transportation

# *e-Society Projects*

## Culture online

➤ establish national archive system
➤ capitalize social, cultural, industrial & economic development.

## *e*-Learning

➤ accomplish personalized Chinese learning network
➤ use *e*-learning to realize information-rich society

**To realize a society - rich in knowledge, culture, entertainment and learning opportunity to ALL**

## *e*-Transportation

➤ intelligent traffic control
➤ ITS platform & system
➤ traffic safety system
➤ smart bus & IC card
➤ transportation service network

## *e*-Entertainment

➤ build *e*-Entertainment environment
➤ advance digital entertainment quality

# Moving Forward and Beyond

## High Tech Service Island
### (Broadband to 6million family in 6 years, and the most e-Nation in Asia)

## *e*-Taiwan & m-Taiwan

Second Phase　From the "user" point of view, expand the degree of application (2005)

- 2003/10　Challenge 2008　National Development plan　Yearly report comments from Prime minister
- 2004/12　Challenge 2008　National Development plan　Routine meeting meeting conclusions

## *e*-Taiwan (2002/5)

First Phase　Build ICT Infrastructure and provide Government service on-line

# *Predicted Benefits*

## *Economy*

- ➤ create **20,000** jobs
- ➤ total *e*-Service revenue **US$10 Billion**
- ➤ industry online **60%**
- ➤ *e*-Commerce is **15%** of GDP

## *Public Services*

- ➤bring **600** services online
- ➤G2B2C document exchang
  up by **55%** in 5 years
- ➤satisfaction level reaches 75

## *IT Application*

5 e-Government (WEF/NRI)
5 *e*-Society (WEF/NRI)
10 *e*-Industry (WEF/NRI)

## *Infrastructure*

- ➤Internet users reach **50%** of population
- ➤broadband users reach **35%** of population
- ➤overall country bandwidth reach **1,150Gbps**

❑ *Strong governance to form a broad national vision.*

❑ *The success of e-Taiwan Program relies on a reliable solid broadband Infrastructure*

❑ *e-Government as a pilot to lead the information society.*

# *M-Taiwan and*
## *the FTTH Broadband initiative*

# M-Taiwan Vision

M-life

M-service

WLAN

Cellular

e-Traffic

e-Logistics

e-Zoo

e-gov

Wireless access +
M applications

ITS

•FTTH

•xDSL

our Guide

Library

Medicine

M-learning

Museum

School

Art

sion :

y where, any time, any one to enjoy  Broadband/Wireless services

| Project | Action Items | |
|---|---|---|
| **Construction of Broadband Pipeline** | ❑Deploy Telecomm. Pipeline by the Government providing leasing services to Fix Network, CATV and Cellular operators<br><br>❑Broadband access operators can deploy fiber based on user demiand | |
| **Promotion and Development of Mobile-Taiwan Applications** | 1.Mobile service | ❑Mobile service in demo hot spot |
| | 2.Mobile Life | ❑Potential killer applications<br>❑Common service platform |
| | 3.M-Learning | ❑Integration of training program, provide talent for application development<br>❑Life-long learning<br>❑Promotion to potential users |
| | 4.WLAN-Cellular Dual Network Integration | ❑Business Model  ❑Handset and Application<br>❑Regulation  ❑Service Trial |

# *M-Taiwan  Broadband Wireless Environment*

30 Billion NT$ ⟶ | ⟵ 7 Billion NT$

**Broadband Pipeline**

**Mobile Applications and WLAN-Cellular Dual Netw**
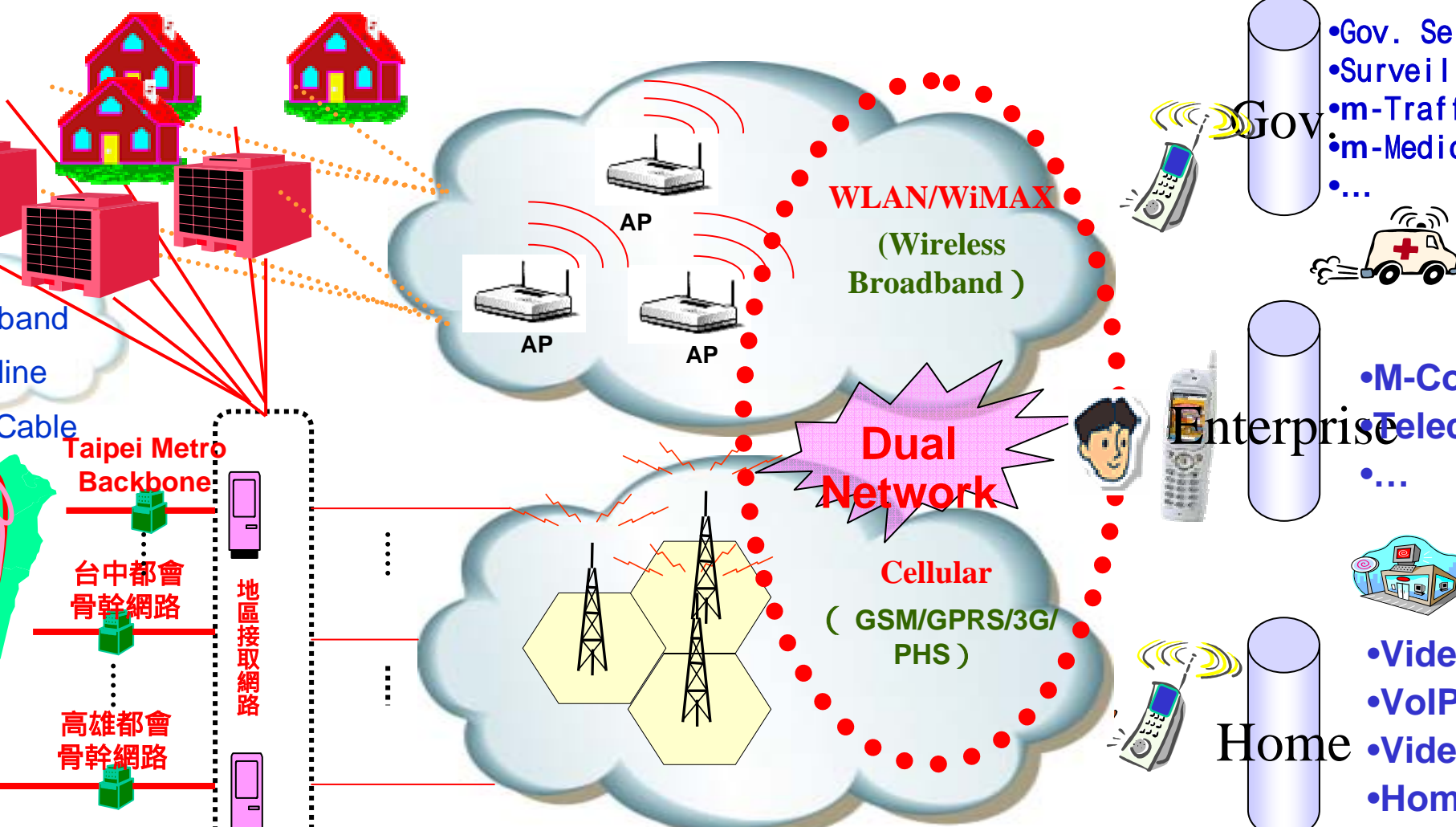
band

line

Cable

**Taipei Metro Backbone**

**AP**

**AP**

**AP**

**WLAN/WiMAX**
**(Wireless Broadband**

**Dual Network**

**Cellular**

**GSM/GPRS/3G/ PHS**

Gov.

•Gov. Ser
•Survei l l
•**m**-Traff
•**m**-Medi c
•**…**

Enterprise

•**M-Co**
•**Telec**
•**…**

Home

•**Vide**
•**VoIP**
•**Vide**
•**Hom**

| Stages | Stages 2004-2005 | | Stages 2006-2007 | | Stages 2008-2010 | |
|---|---|---|---|---|---|---|
| Network | High Quality | | **FTTH – main stream** | | **FTTH- univer** | |
| eed bps | Fixed 50M | WLAN 4M | FTTH 50M - 100M | WLAN +Cellular/WLAN 4M~50M | FTTH 50M - 100M | W +Cellul 10M |
| ribers reached | 300k House Hold | 250k Subscribers | 2.06Million House Hold | 1.7Million Subscriber | 4.2Million House Hold | 4.7 Sub |
| er Application | Video/TV Cellular/WLAN integrated services | | High Quality Video services, home-care, etc. | | Broadband multim | |

Chinese Taipei: 7 Million House Hold and 22.6 Million of Population

T's FTTx Target: 0.3M subscribers by 2005, 1,0M by 2007, 2.4M by 2

**Cellular Side**

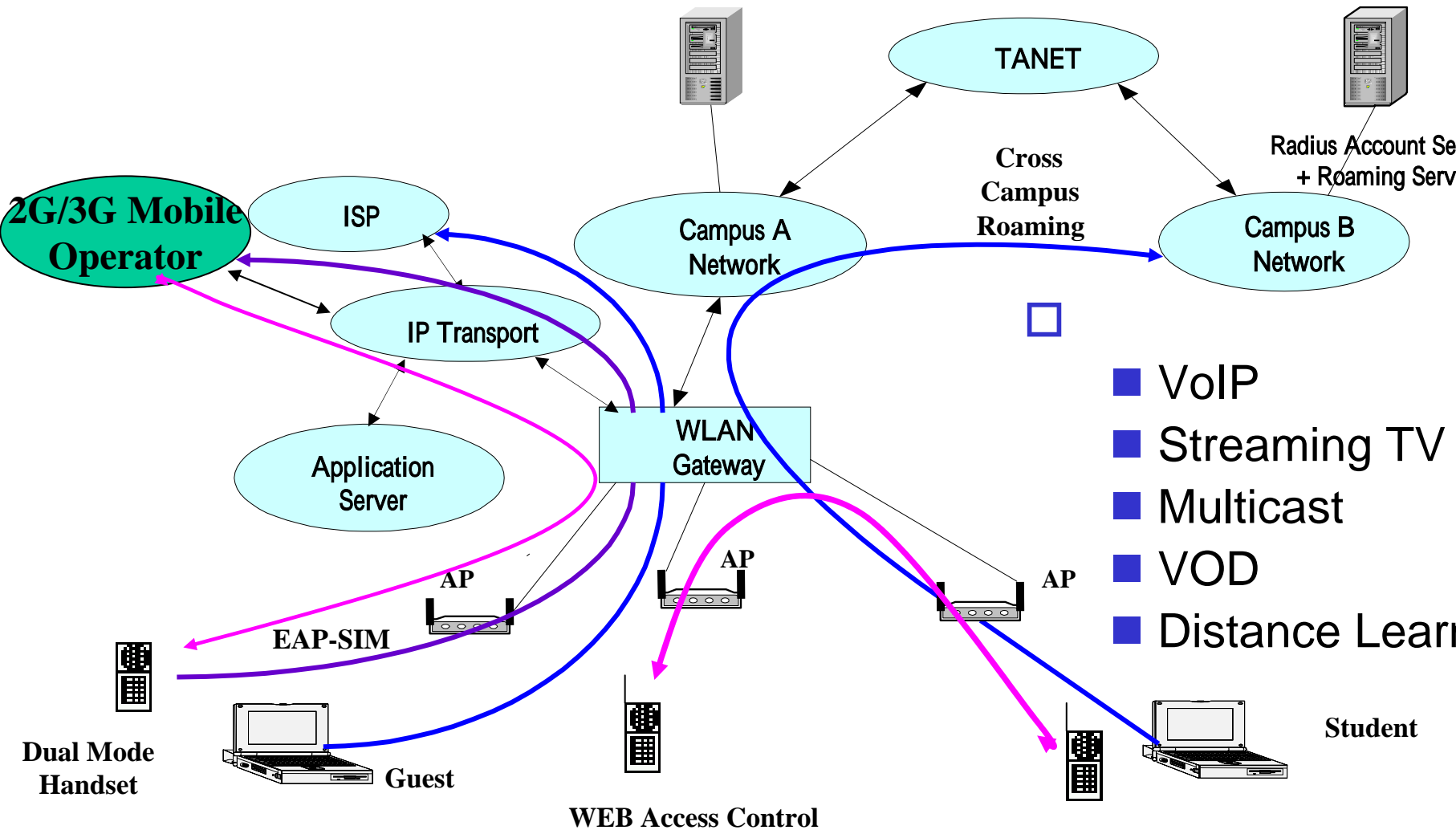**Request/Order Service**

Internet

ADSL/Cable

**WLAN Hotspot**

**Operator A**

**Operator B**

**Cellular Operators**

**Roaming**

**Internet**

- Cellular operator
- Fixed Network operator
- ISP / WISP
- Independent clearing house

Home/Office

- **GSM/GPRS/3G/PHS**

- **WLAN based on FTTH/DS**
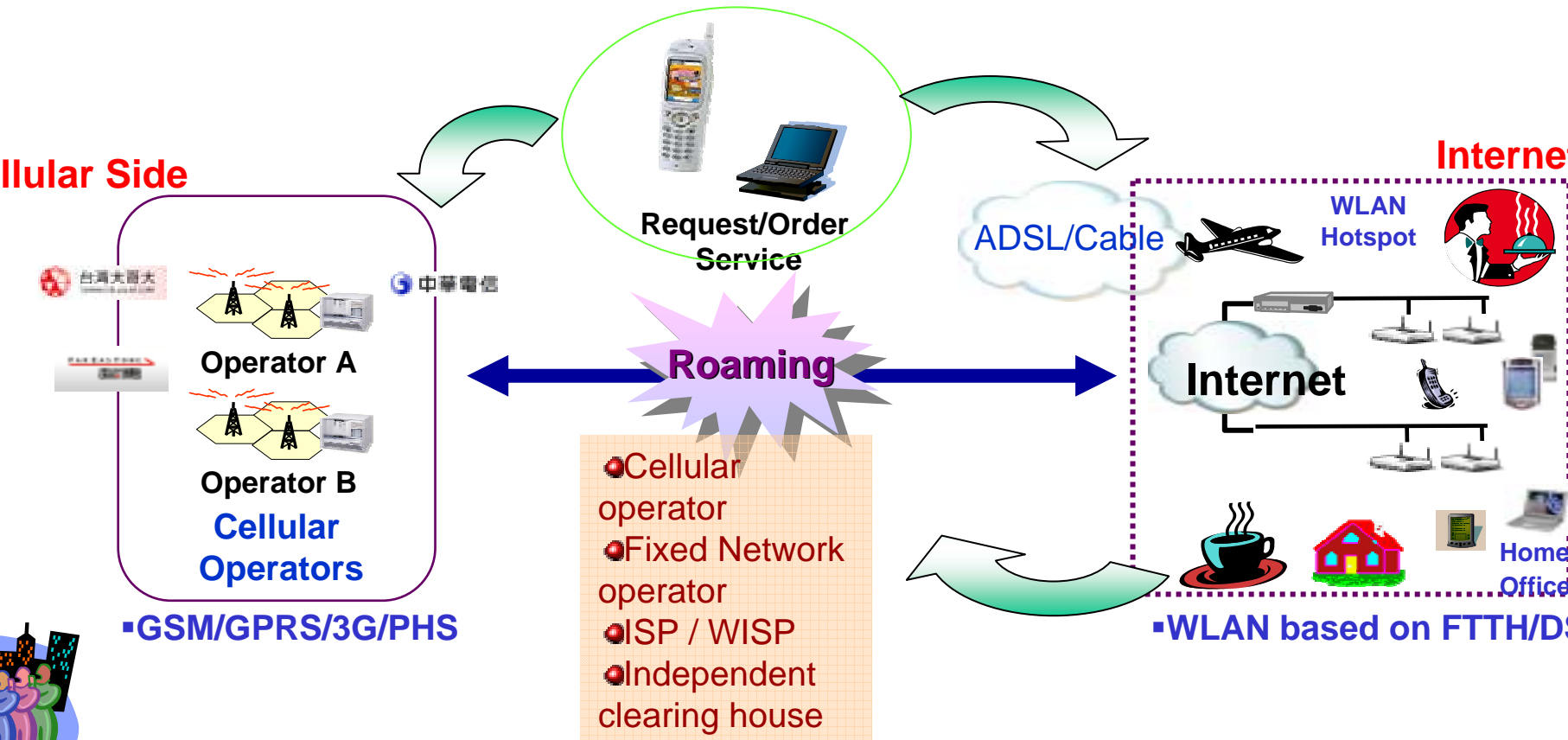
Killer Applications: VoIP, Content-on-deman
WLAN TV, on-line game, etc.

# WLAN Roaming in Campus

TANET

Radius Account Se
+ Roaming Serv

Cross
Campus
Roaming

2G/3G Mobile
Operator

ISP

Campus A
Network

Campus B
Network

IP Transport

WLAN
Gateway

Application
Server

□

- VoIP
- Streaming TV
- Multicast
- VOD
- Distance Learn

AP

AP

AP

EAP-SIM

Student

Dual Mode
Handset

Guest

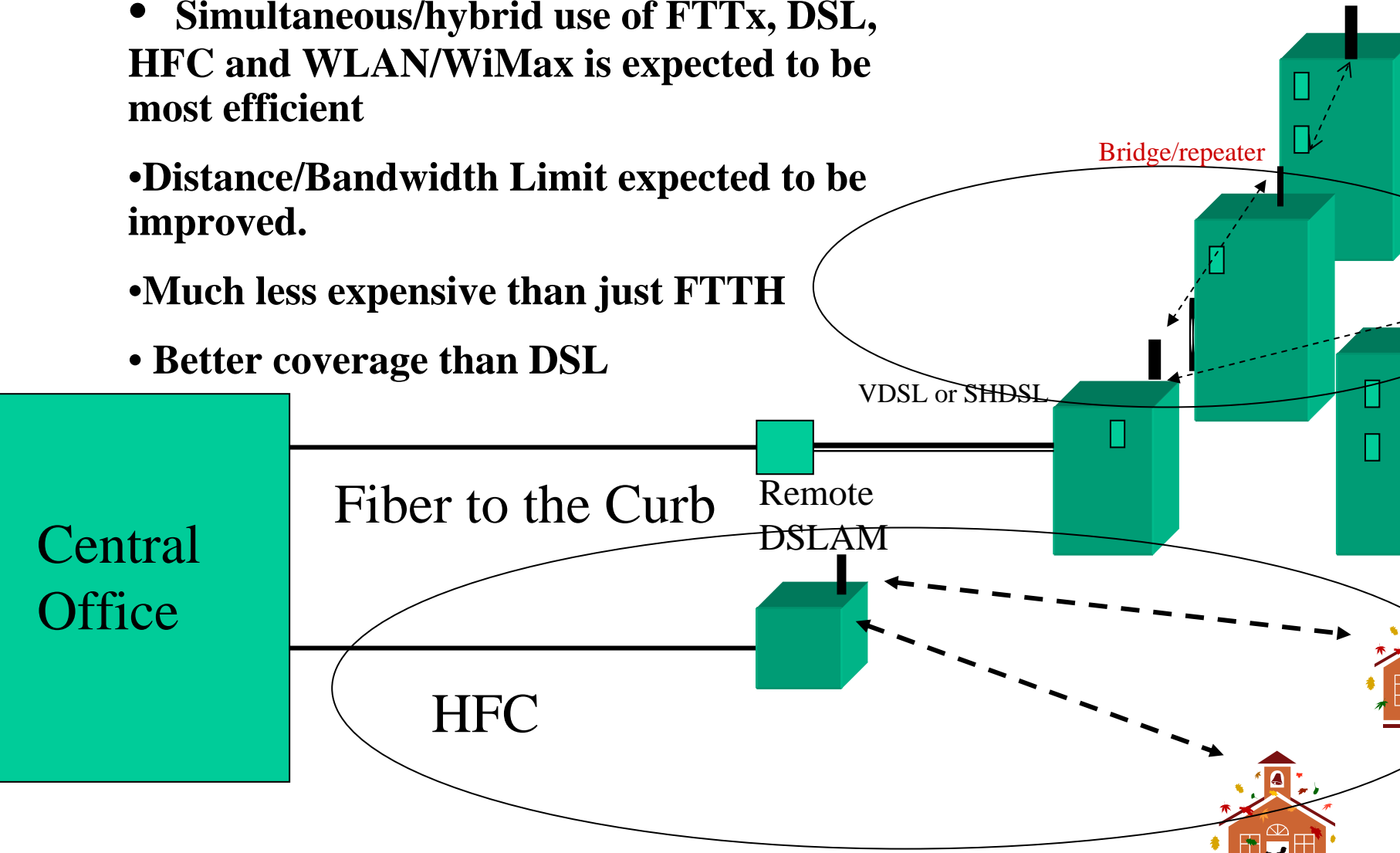WEB Access Control

# *New Policy for Broadband Service*

- ❑ Relax the tech. guideline and requirement for the fixed network operators
- ❑ Provide encouragement for CATV and power line owners to invest in broadband in future Fixed Network licensing process.
- ❑ Revise the National Numbering Plan to allow number allocation for fixed/wireless VoIP services.
- ❑ Develop a fair competition environment (in regulation) for telecomm business, including number portability, fair interconnection, co-location, and tariff.

Note: The formal policy statements on Nov. 1, 2004 from the Cabinet are in Chinese the above translation/interpretations are not official.

- **Simultaneous/hybrid use of FTTx, DSL, HFC and WLAN/WiMax is expected to be most efficient**

- **Distance/Bandwidth Limit expected to be improved.**

- **Much less expensive than just FTTH**

- **Better coverage than DSL**

Bridge/repeater

VDSL or SHDSL

Fiber to the Curb

Remote DSLAM

Central Office

HFC

**Network Video**

**Interactive Audio/Video/Messaging + VoIP**

PRS Terminals

WLAN Gateway

Gateway

Core
ork

et

Delivery
work

**Gigabit Ethernet
over Fiber**

IP Transport
Network

WLAN Gate

**ADSL/CableModem**

WLAN Gate
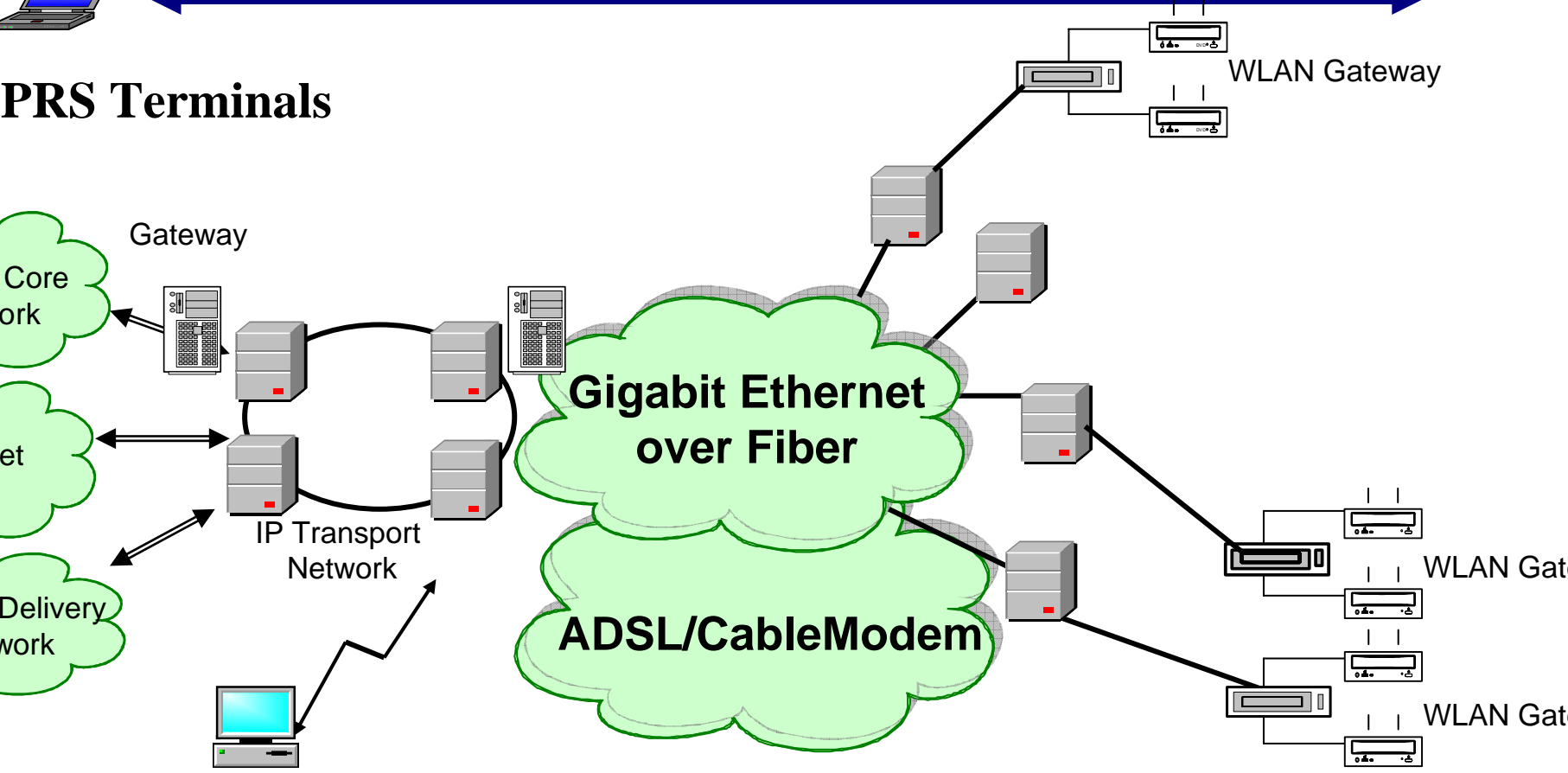
**Wireless LAN Roaming Center**

# *Summary Remark on m-Taiwan*

❑ **Chinese Taipei's Program on NICI:**

**Starting from e-Taiwan, moving toward M-Taiwan**

❑ **WLAN, WiMax, WLAN/Cellular Dual Mode Services/handset, are the key technologies chosen for e-Taiwan's infrastructure**

❑ **Voice/Video/TV/Multimedia Content over IP will become more and more important;**

❑ **Fixed/Mobile converged services will become popular**

❑ **All the operators and the telecomm. vendors are expected to enjoy significant growth**

❑ **Wireless City like Taichung will benefit from the deployment**

| Item Description | 2002 | 2003 | 2004 | 2005 | 2006 | 20 |
|---|---|---|---|---|---|---|
| dband Subscription | 2.10M | 3.04M | 3.80M | 4.60M | 5.30M | 6 |
| ustry (WEF/NRI) | # 18 | #21 | # 14 | # 12 | # 11 | # |
| vernment (WEF/NRI) | #4 | #6 | # 6 | # 6 | # 6 | # |
| iety (WEF/NRI) | #9 | #17 | # 9 | # 8 | # 6 | # |
| vernment Satisfaction | 37% | 43% | 60% | 65% | 70% | 75 |

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# *Thank You for Your Attention*



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