ICT Research and Development by MIC

March 4, 2008

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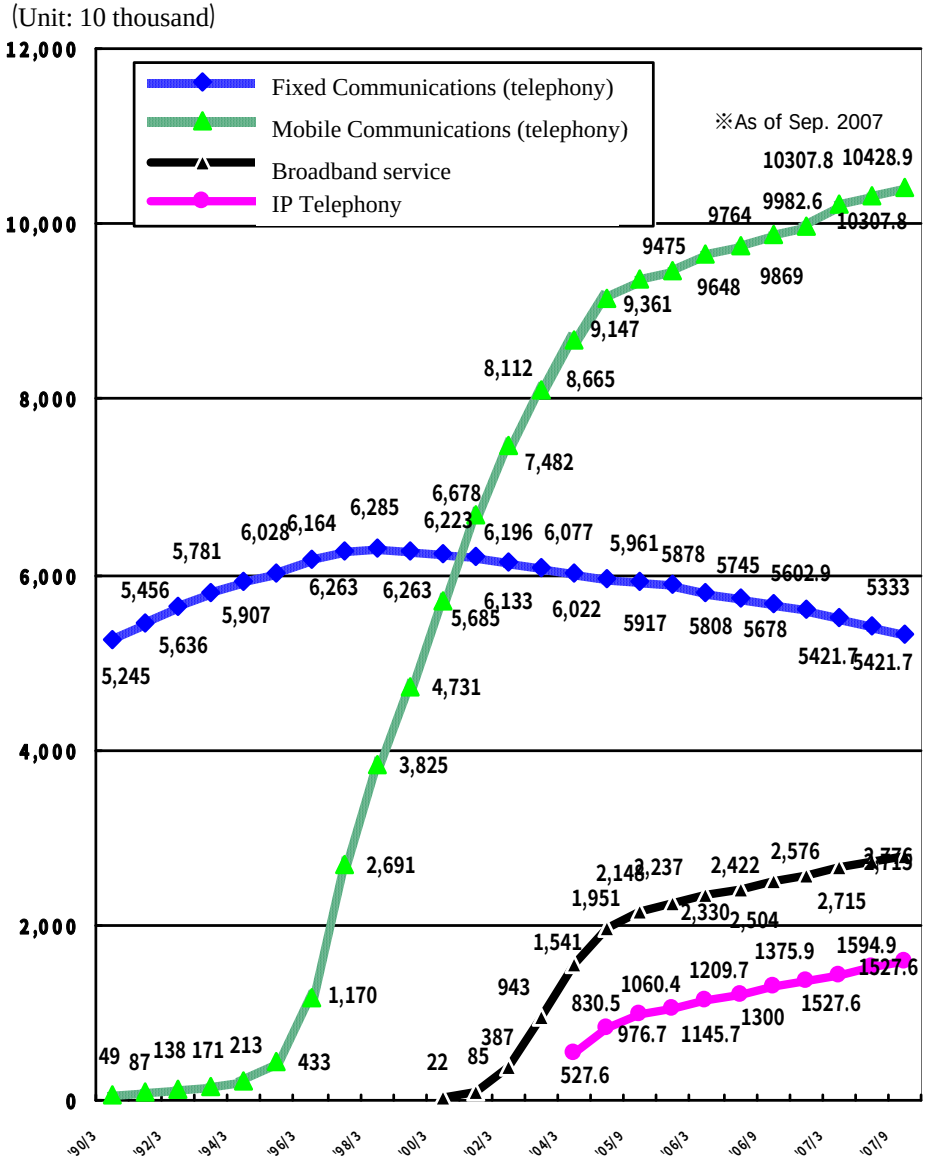
Vice Minister for Policy Coordination

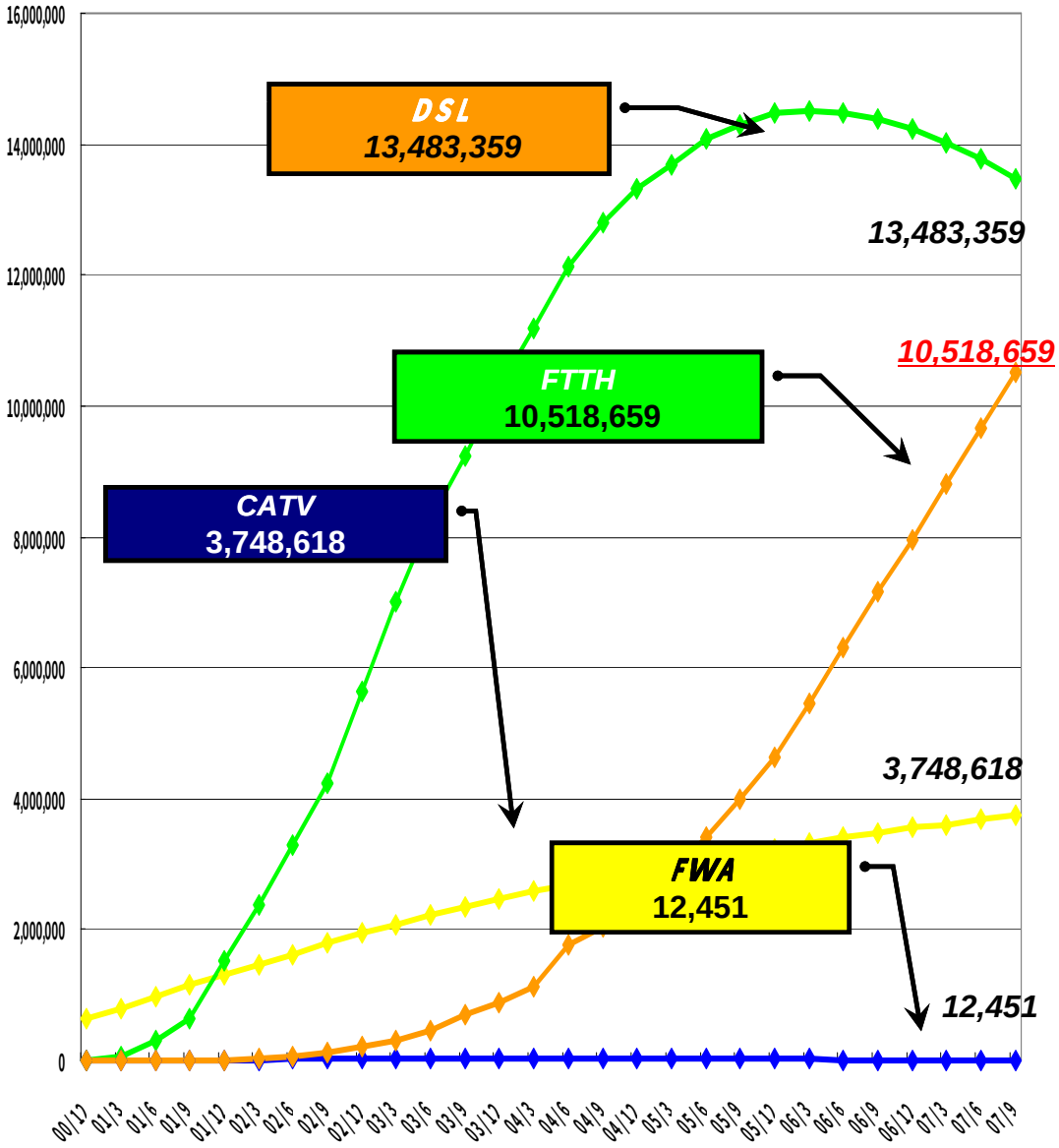
Ministry of Internal Affairs and Communications (MIC)

Transition in the Number of Japan's Broadband Subscribers

【Number of Telecommunication Service Users】

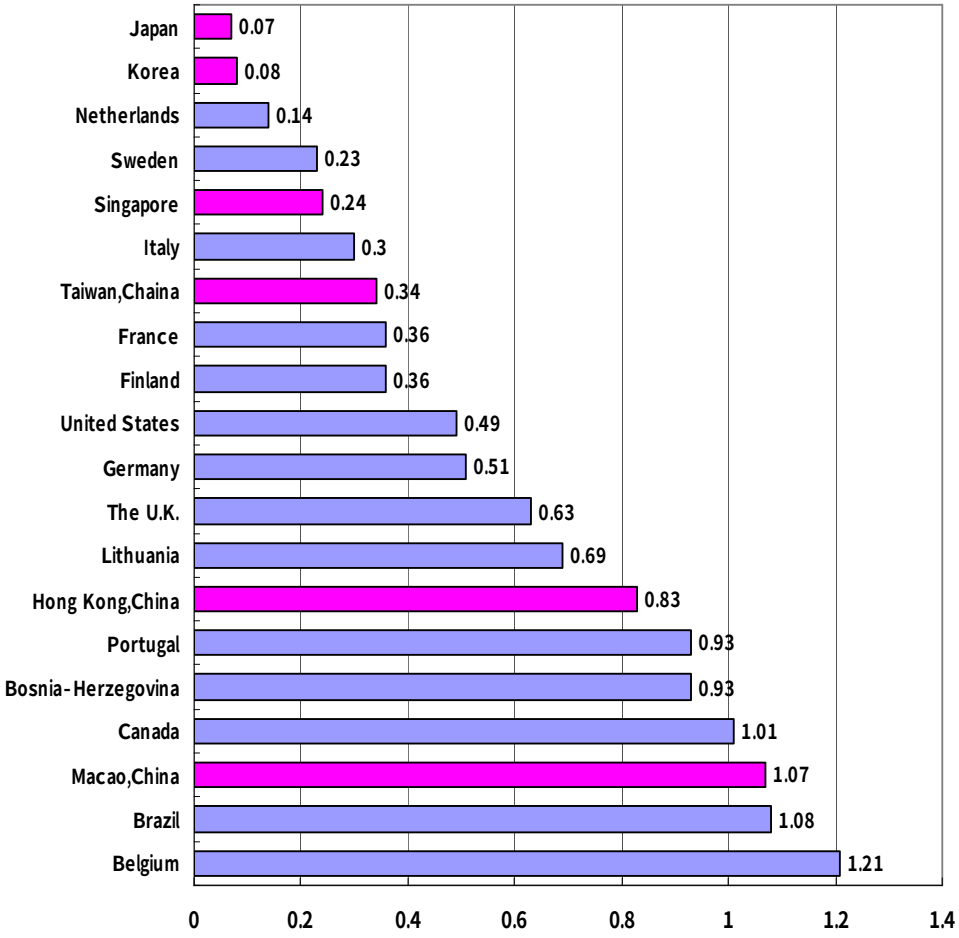


【Number of Broadband Service Users】

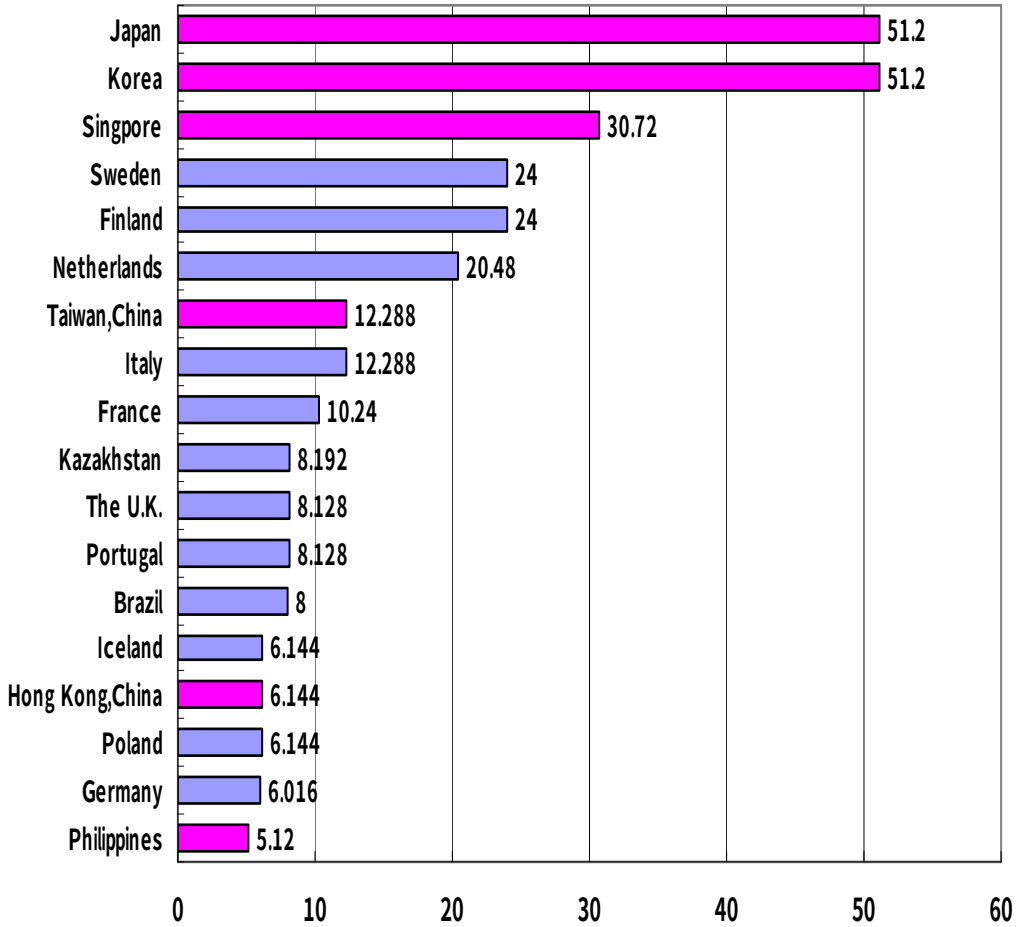


Japanese Broadband Service in Global Comparison

Broadband prices (100kbit/s)
(US dollar)



Speed of DSL
(Mbit/s)



Source：ITU Internet Reports 2006 "digital.life" (December 2006)

National target : Steps taken in Japan on ICT Strategies

e-Japan Strategy (January 2001)

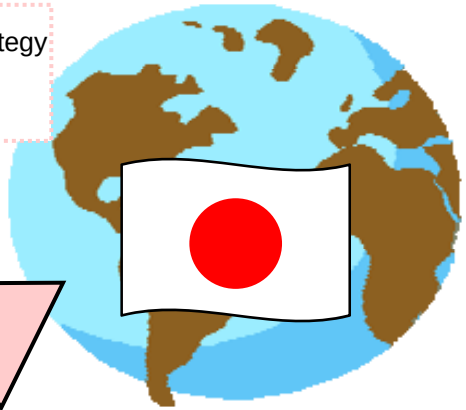
e-Japan Strategy II (July 2003)

e-Japan Strategy II Acceleration Package (February 2004)

IT Policy package (February 2005)

New IT Reform Strategy (January 2006)

New IT Reform Strategy Policy package (April 2007)



◆IT Basic Law
◆Establishment of IT Strategy Headquarters (Director General: Prime Minister)

Realization of a self-sustaining ICT Society

e-Japan Priority Policy Program - 2002 (June 2002)

e-Japan Priority Policy Program - 2003 (August 2003)

e-Japan Priority Policy Program - 2004 (June 2004)

Priority Policy Program - 2006 (July 2006)

Priority Policy Program - 2007 (July 2007)

Realizing a Ubiquitous Network Society

e-Japan Priority Policy Program (March 2001)

u-Japan Promotion Program 2006 (September 2006)

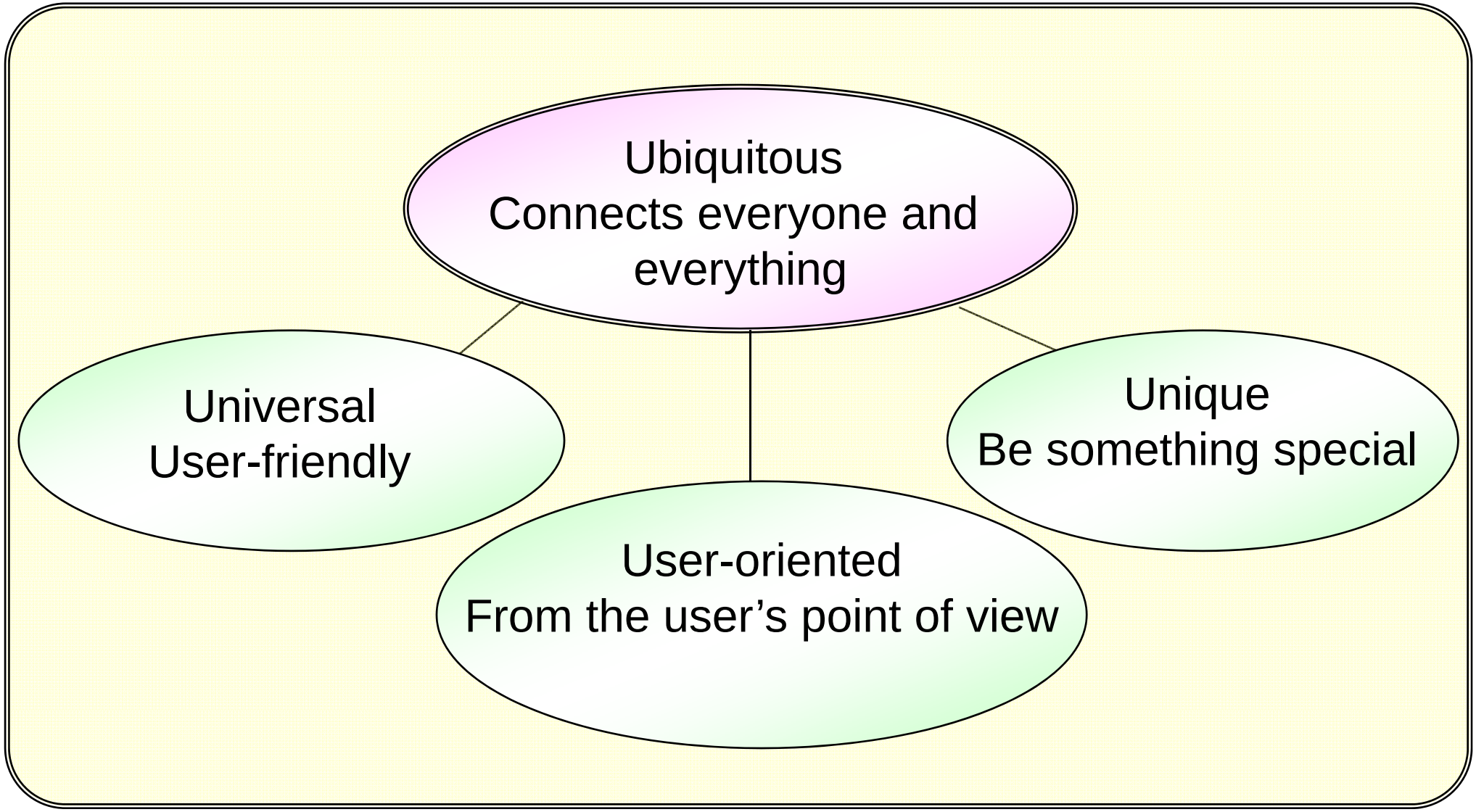
e-Japan Strategy

u-Japan policy of MIC

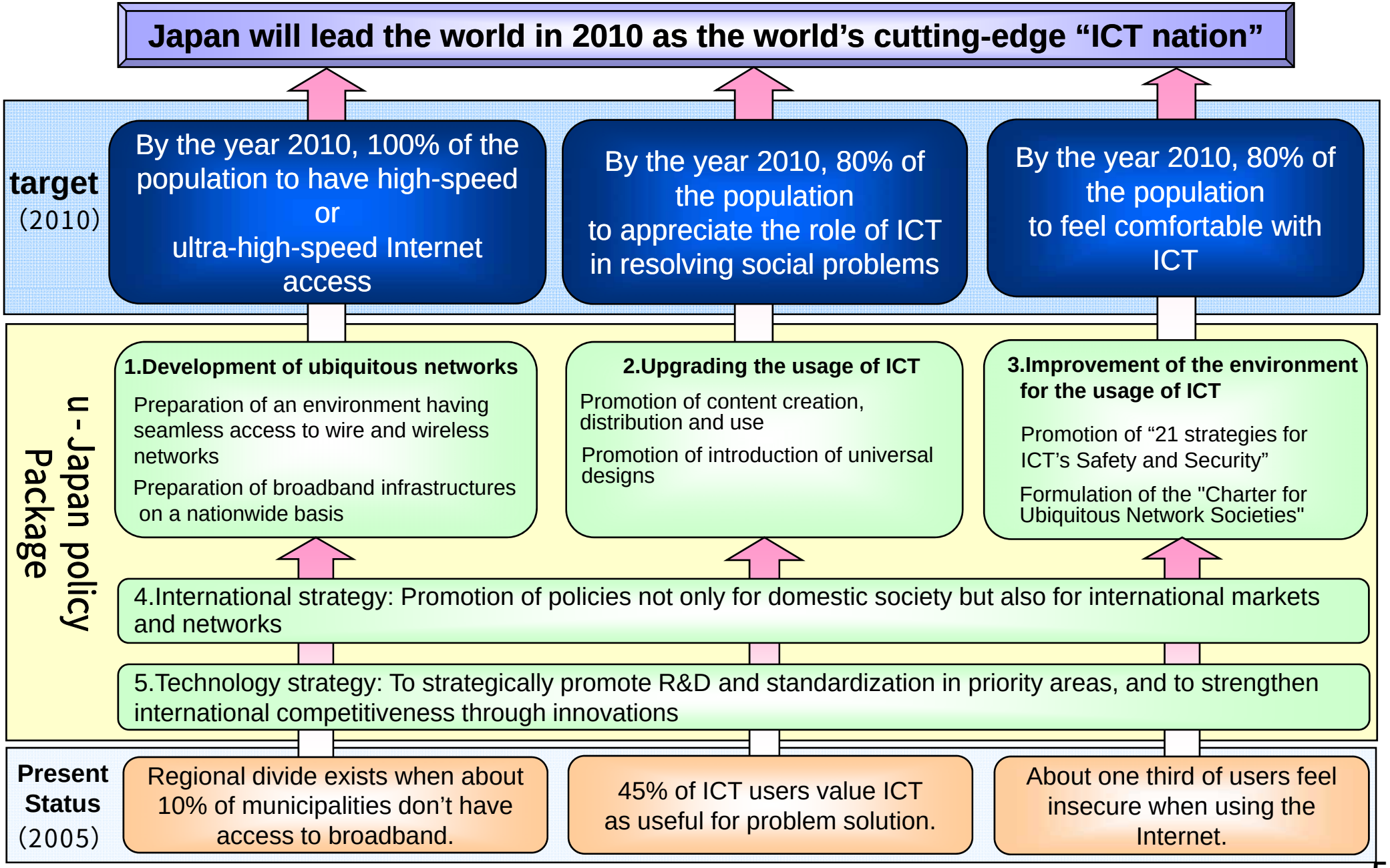
2001 2003 2004 2005 2006 2007 2010

Concept of u-Japan Policy

u-Japan is a next generation ICT society which is equipped with properties as follows



Summary of u-Japan Policy



Relevant governmental policies with u-Japan

u-Japan Policy
(Dec. 2004, MIC)

・Realize ubiquitous society where “anyone or anything, anyone can connect with the network. anywhere at anytime”.
・Overcome social problems including low birth rate and aging society through ICT = Problem solving type of utilization and application of ICT

“**IT New Reform Strategy**” (Jan. 2006, by IT Strategic HQ)	Council for Science and Technology Policy **“Science and Technology Basic Plan”** (Mar. 2006, the Cabinet Council)	Long-term Strategic Roadmap **“Innovation 25”** (June 2007,the Cabinet Council)
Realization of society with access to the benefits of IT, by anyone, anywhere and at anytime.	Realization of ubiquitous society that provides an attractive example for the world.	Realization of better quality of life and hope in the future for Japan.

Overview of ICT R&D Activities of MIC

R&D strategy for realizing u-Japan society

(Report by Telecommunication Council, July 2005)

Ubiquitous Network Society Strategic Program

Universal communications technology (U)	New-generation network technology (N)	ICT Security and Safety Technology (S)

Ministry of Internal Affairs and Communications (MIC)

Funding

Funding

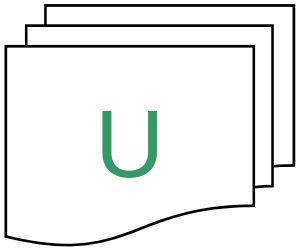
Private sector, academia, etc.

cooperation

National Institute of Information and Communications Technology (NICT)

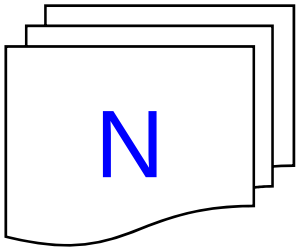
NiCT

Priority Areas in ICT Research and Development



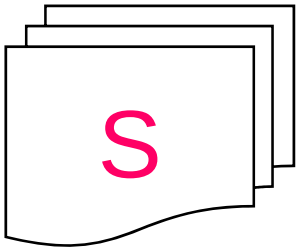
Universal Communications Technologies

- Content creation technologies that can promote the intellectual creativity of individuals
- Communication technologies that can transcend the barriers of language, culture, and physical capabilities



New Generation Networks Technologies

- Network technologies that enable Japan to maintain / strengthen international competitiveness in core technologies, including photonic network, mobile, and device technologies
- The most advanced basic technologies that enable Japan to play a leading role in global ICT development



ICT Security and Safety Technologies

- Technologies that ensure the security / safety of ICT networks that are the foundation of social and economic activities
- Technologies that ensure security in a broad sense to realize a safe / secure social environment through ICT

UNS Strategic Program

Ultra-Realistic Communications

Create the first ever realistic 3-D video communication systems

New generation networks architecture

Create the networks based on innovative new concepts, using photonic network technology to extend into post-IP areas.

Ubiquitous mobility

Create a super-broadband environment with mobile on the core, providing seamless coverage from space to every point on the globe.

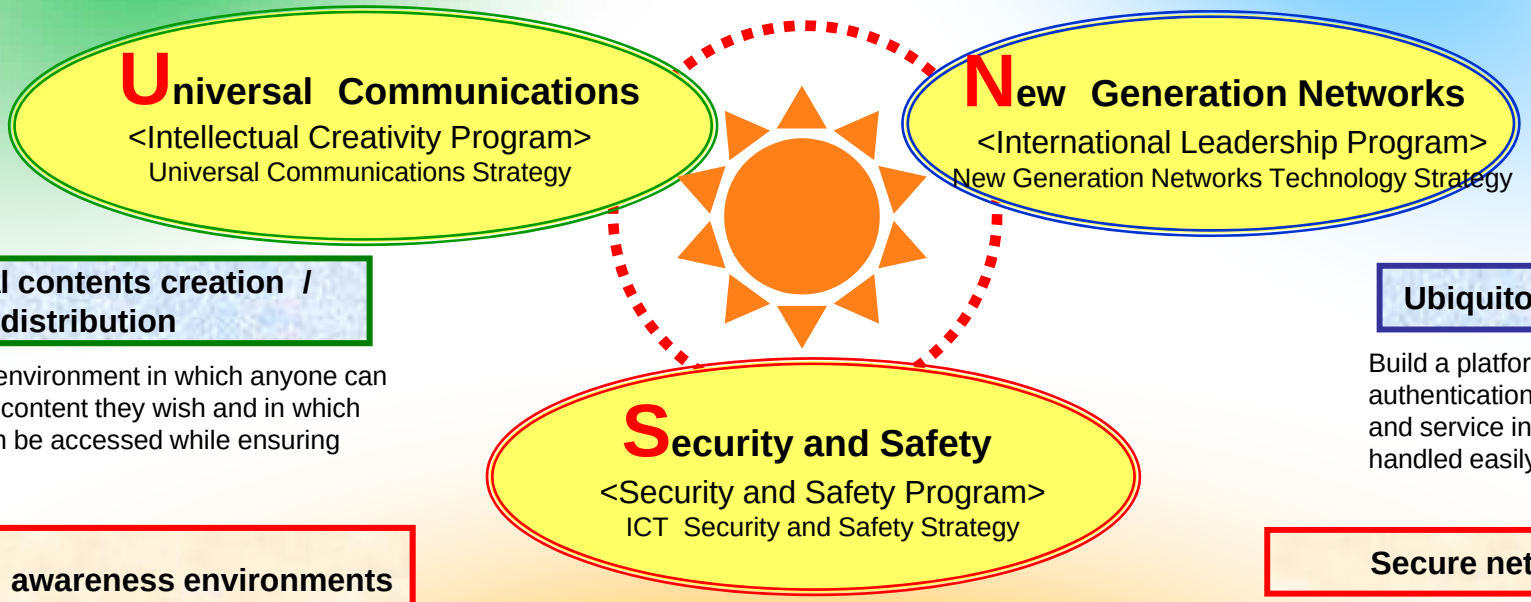
Super-communications

Create super-communications systems designed to eliminate the barrier of language, knowledge and culture.

Ubiquitous Network Society Strategic Program

New ICT paradigm

Sow the seeds of ICT—the benefits of which Japan would reap in 20 years—such as basic technology for photonic / quantum communications and nano-ICT.



Universal contents creation / distribution

Create an environment in which anyone can create any content they wish and in which content can be accessed while ensuring reliability.

Ubiquitous platforms

Build a platform with which authentication, billing, distribution, and service integration can be handled easily online.

Context awareness environments

Create user-friendly ubiquitous networking environments particularly for the benefit of eldery and disabled persons by the sensor network, RFID and robot technology.

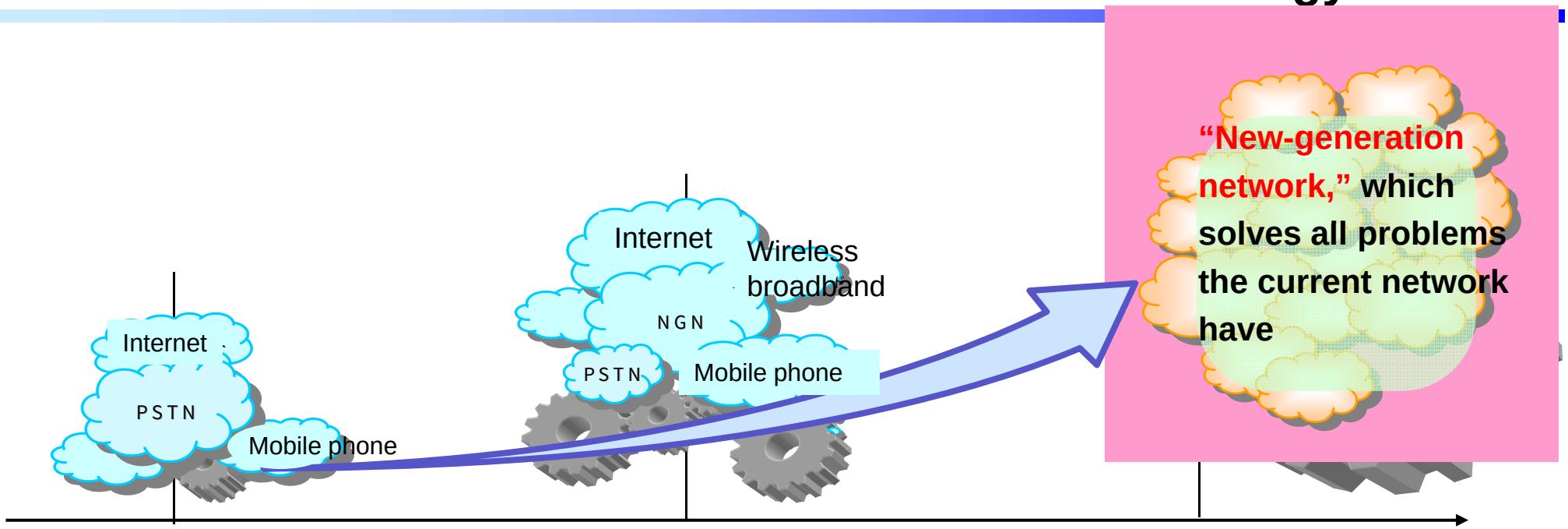
Secure networks

Build the world's most durable network lifelines designed to withstand all forms of external threats and internal failure.

Sensing / Ubiquitous time-space infrastructure

Create advanced measurement, sophisticated time-space infrastrcture and positioning systems for use in environmental initiatives and disaster management

New-Generation Network Architecture Technology



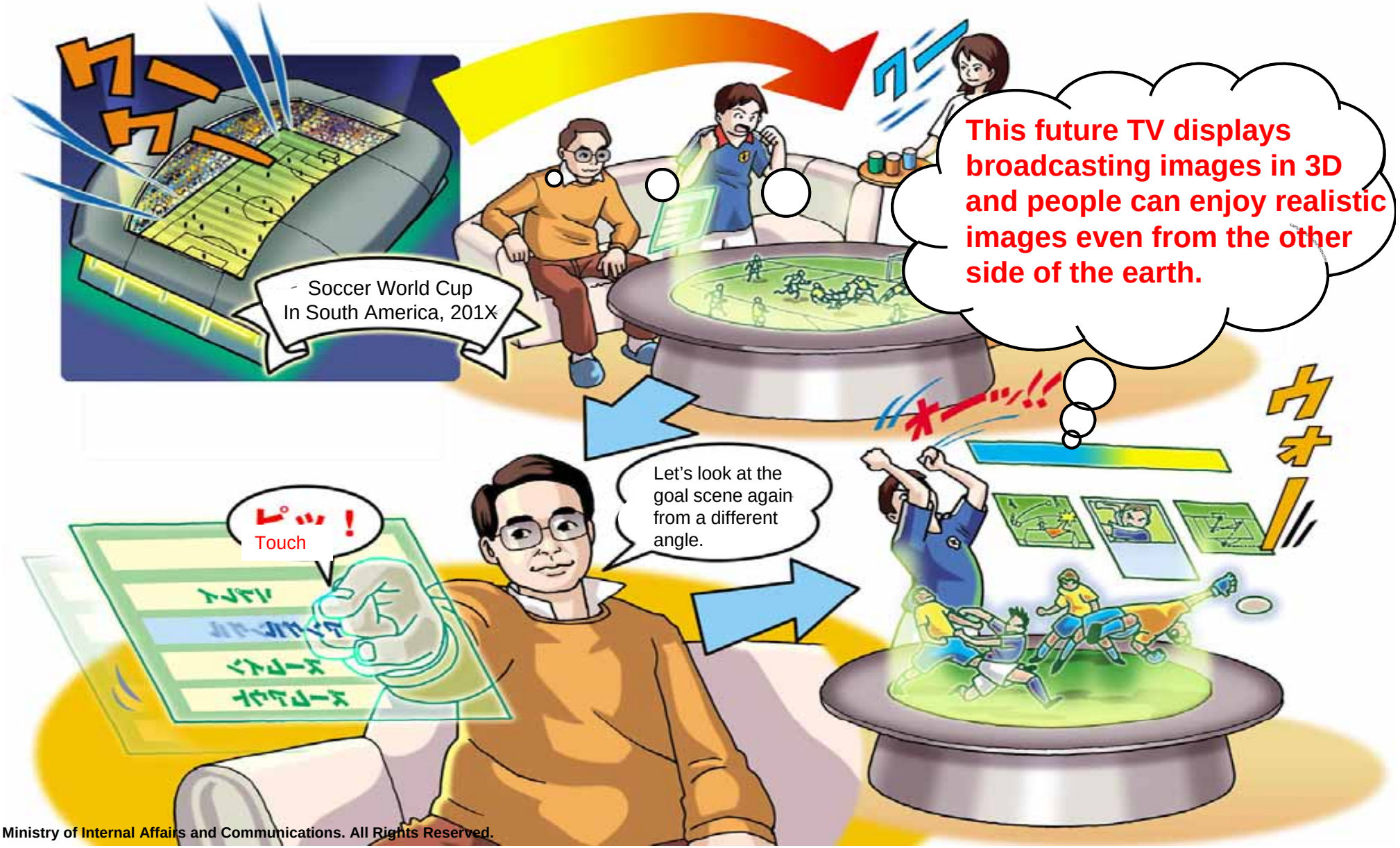
Year 2005
(Various networks)

Year 2010 (next generation)
Next-generation network
(integrated into IP)

Year 2015 (new generation)
New-generation network
(flexible)

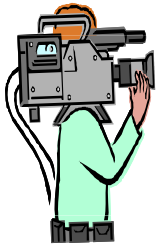
2007	2010	2020
Current Network	Next-Generation Network (NGN)	New Generation Network Realize "New architecture" *develop by 2015
Phone + IP	IP-based (This network requires significant efforts to ensure safety as a social infrastructure.)	(This network aims to make a network beyond the telephone and IP network)

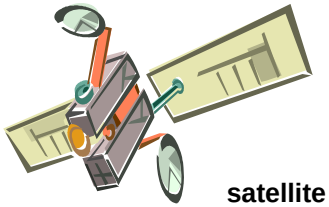
Ultra-Realistic Communication Technology



Ultra-high Definition Image Technology

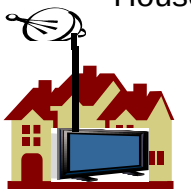
Image pickup device technology for recording ultra-high definition image



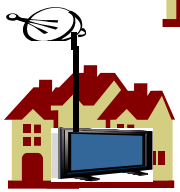


satellite

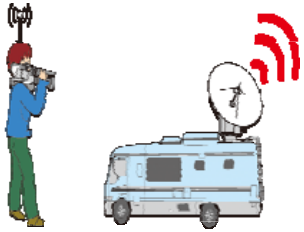
Houses



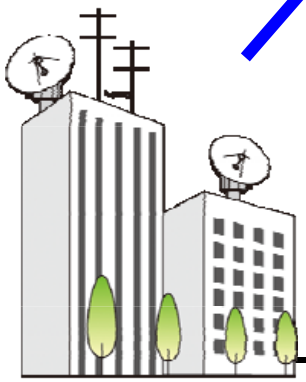
Effective transmission technology for large-sized image



(4×HDTV)

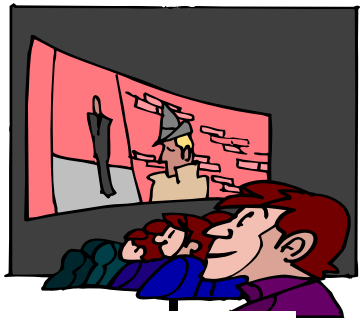


Reporter's location



Broadcasting station

Theater



(16×HDTV)

High definition TV(HDTV)

(4×HDTV)

Production system

Optical fiber network

router

Coding technology to transmit and display images adaptable to the conditions of receivers.

Device technology to display ultra-high definition image.

Effect on the reduction of CO2 emissions through ubiquitous network society

Conclusion

The ubiquitous network society (2010) **contributes to reducing**
26.5 million tons (2.0%) of CO_2 in Japan.
(%: of the total CO_2 emissions in 2000 (1,337 million tons)

26.5 million ton-CO_2 is equivalent to annual CO2 emissions of 10.6 thermal power plants.

Energy Consumption Forecast in Japan

Factor of increase

Increased electric consumption in the ubiquitous field

Increase of 6 million ton- CO_2

	2000	2010 (forecast)
Networks (incl. servers)	187.4	282.2 (up 50.6%)
Terminals (e.g. PCs, telephones)	108.1	172.1 (up 59.2%)
Total	295.5	454.3 (up 53.7%)
CO_2 emissions	11.2 mil t- CO_2	17.2 mil t- CO_2(*)

(100 million kWh)

* Estimated considering user increase, air-conditioning facilities increase, and energy conservation efforts

Factors of reduction

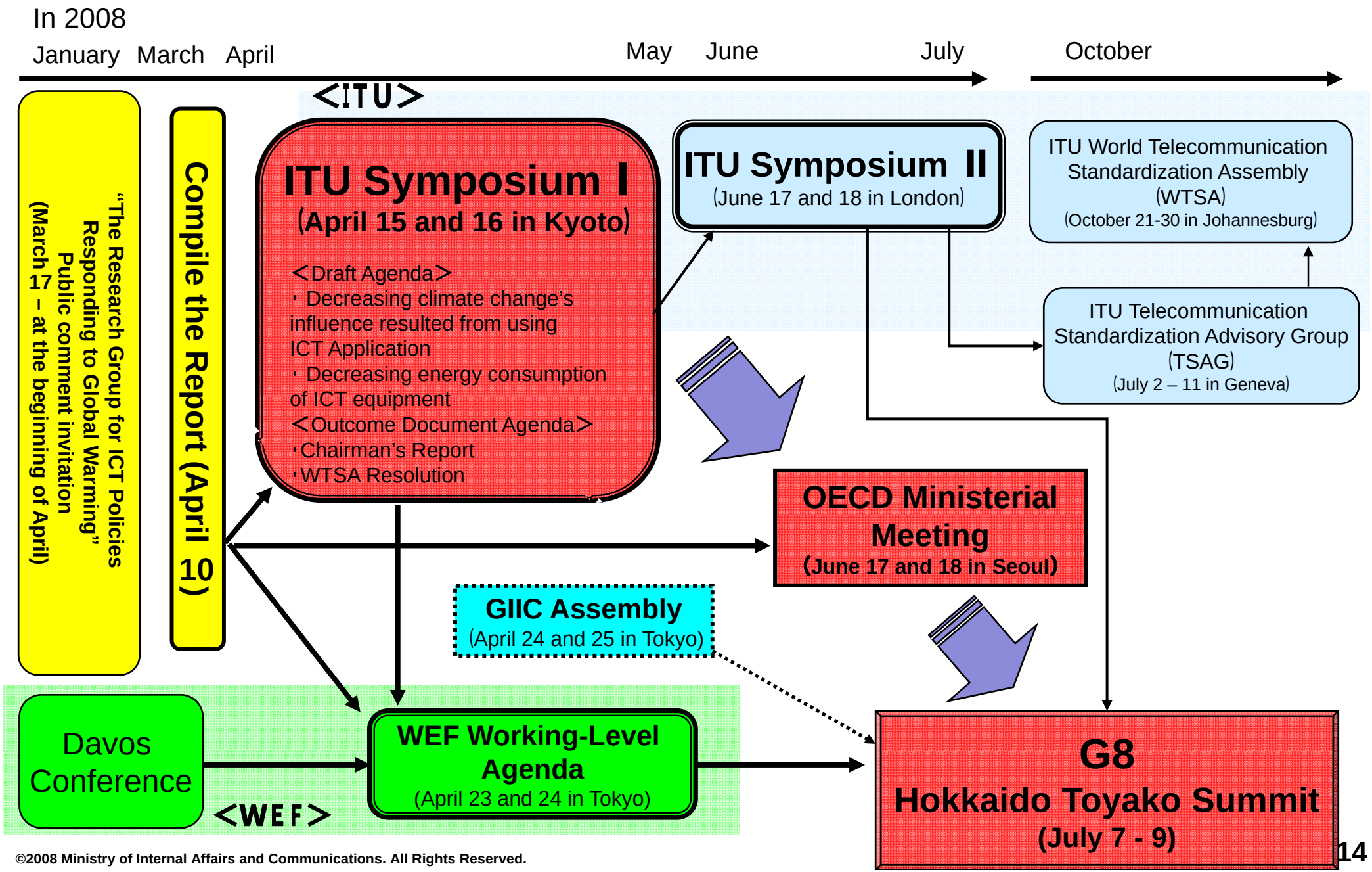
Reduced environmental burden with ubiquitous systems

Decrease of 32.5 million ton- CO_2

- Reduced traffic jam in commuting with **telework** and **ITS**
  - ➡ Decrease 4.1 million ton- CO_2 (0.3%)
- Streamlined production/distribution/consumption **(e-Commerce, RFID**, etc.)
  - ➡ Decrease 10.7 million ton- CO_2 (0.8%)
- Transition of industrial structure from heavy industry
  - ➡ Decrease 17.7 million ton- CO_2 (1.3%)

※ MIC is now holding a study group on ICT policy for addressing global warming. The report including the study on the effect on the reduction of CO2 emissions by using ICT in 2012 will come out by around April 2008.

A Series of International Conferences on ICT and Climate Change



Thank You !

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