

# **E - Japan Strategy for National Economy and Lesson for International ICT Cooperation**

**Toshio Obi**

**Institute of e-Government,  
Waseda University, Tokyo**

obi.waseda@waseda.jp

**Naoko Iwasaki**

**Institute of e-Government,  
Waseda University, Tokyo**

## **Abstract**

This paper is to analyze “e-Japan Strategy” and its implications to the Japanese national economy by ICT as well as International ICT cooperation against global Digital Divide issues. E-Japan Strategy originated in 2000 has made a remarkable progress for the 5-year socio-economic program which has led broadband access in Japan became No.1 in the World in terms of price and speed.

The paper consists of 10 chapters such hot issues as broadband development, Ubiquitous Society and CIO as well as crosscutting issues, trends and ICT cooperation. “e-Japan strategy” has made positive impact by ICT on national economy in the period. Cooperative measurement among government, industry and university based upon interdependence, convergence and collaboration.

As Japanese lessons hinted, we will have various opportunity in each nation on solution for reducing digital divide in Asia and Pacific region. This paper will demonstrate some of our activities on the issue for reference.

**Key Words: e-Japan Strategy, CIO, e-University, ICT Effect, APEC, Broadband**

## **Contents**

- 1. Introduction**
- 2. Social Economic Development by ICT**
- 3. 「 e-Japan Strategy 」**
- 4. Crosscutting Issues**
- 5. Effect of ICT investment by Japanese Government**
- 6. Broad band Development**
- 7. e-Japan vs. Broad band Strategy**
- 8. Ubiquitous society**
- 9. National Trends**
- 10. CIO**
- 11. International ICT Cooperation**
- 12. Conclusion**

[收稿]2004/04/30; [接受刊登]2004/05/16

## 1. Introduction

This Presentation will focus on e-Japan Strategy, which is national priority program for solution on Digital Divide. Also, Effect of ICT investment by government and crosscutting issues for national economy are examined. Furthermore, two important topics of, both Broadband and Ubiquitous network Societies in Japan are introduced for references. At the chapter 10, CIO (Chief Information Officer) issues as IT strategy planner will be discussed as well as International ICT cooperation at chapter 11. Finally, this paper will make readers benefit from ICT developments and offer a valuable and unique benchmarking to determine national ICT strengths for social economic development.

## 2. Social Economic Development by ICT

In the context of International ICT cooperation we conclude that migration of innovative technologies on ICT and technological convergence of Telecom and Broadcast are founded for promising social and economic development. Migration of Technology and social change for quality of life by ICT has played very important factors for development.

On this regard, these factors are listed as below; such as Telecom, Broadcast and Convergence as well as Industrial Society, Multimedia Network Society and a new business model.

### **Migration of Technology is indicated as follows\***

- Telecom            Fixed Telephone-Mobile (2G=>2.5G=>3G & WiFi )
- Broadcast        Analog => Digital TV(CATV)

- Convergence Telecom + Broadband + Computer = multimedia

### **Social Change- for Quality of Life by ICT is shown as follows:**

- Industrial (mass Production / Consumption) Society  
=> Information Society
- Multimedia Network society => Ubiquitous Society
- Invention on New Business Model  
=> High performance on Productivity and Income  
=> Digital Divide vs Digital Opportunities

### **3. “e-Japan Strategy ”**

「e - Japan Strategy」 was announced in Jan 2001 to solve the Digital Divide issues in Japan, after Japanese Government formulated a basic policy framework for IT strategies in November, 2000. With this line, the IT Strategy Council adopted the goal of making Japan the world's most advanced IT nations within five years by;

- Building an ultra high-speed Internet network and providing constant Internet access at the earliest date possible,
- Establishing rules on e-commerce,
- Implementing an e-government,
- Nurturing high-quality human resources for the new era.

To follow up on the new law as the e- Japan Strategy formulated in Jan.2001, Priority Policy Areas of e - Japan Strategy was launched, which is being currently implemented, outlined concrete goals and responsible agencies and institutions for each policy initiatives, identifying such areas as:

- Establishment of the ultra high- speed network infrastructure and

competition policies

- Promote the establishment of one of the world's *most advanced internet networks within five years*, and enable all the people who need it to have ultra high-speed access network (30-100Mbps as a standard) at affordable rates.
- Aim to provide high-speed constant access networks to at least 30 million households and ultra high-speed constant access to 10 million households. Based on the Provisional Measures Law for Telecommunications infrastructure, toward nationwide deployment of subscriber.
- And fiber optic networks will be nationally made by FY2005. Support measures, such as ultra low-interest loans, tax incentives and loan guarantees, will be introduced to private Telecommunications carriers. IT literacy education to reduce gap on Digital Divide among citizen, areas and profession is promoted.

#### **4. Crosscutting Issues**

e-Japan Priority Policy Program announced in March, 2001 introduced various cross cutting issues. The government shall promote the development of IT infrastructure and enriching of public services utilizing IT under - populated areas and remote islands, etc. This is aimed at bridging the Digital divide in the people's accessibility, regardless of their geographic constraints, as formulating Digital divide into Digital opportunities.

There are 4 crosscutting issues in e-Japan Priority Policy Program such issues as Promotion of R & D, Closing the Digital Divide, Dealing

with new issues and International harmonization and contribution are pointed out in this paper.

**(1)Promotion of R&D**

- Cooperate with the Council for Science and Technology Policy
- Reinforce cooperation among industry, academia and government
- Further promote R&D in areas, which require public initiative

**(2)Closing the Digital Divide**

- Actively improve Digital Divide due to geographic, age and physical constraints

**(3)Dealing with new issues**

- Accurately and actively cope with such problems as a mismatch in employment, an overflow of harmful information, etc.

**(4)International harmonization and contribution**

- Actively cope with international standardization of rules and specifications, and dissolution of Digital Divide across nations

## **5. Effect of ICT Investment by Japanese Government -Synergy Effect on National Economy**

Japanese government, especially Ministry of Public Management, Home Affairs and Telecommunication (MPHT) has been tackling this issue and published the report in March, 2003. According to the report titled [Effect of ICT Investment by Japanese Government on National Economy], government ICT activities will raise GDP economic growth by 0.5 point with new employment of 1.31 million to 1.85 million in 2004 (Table 1).

***Table 1***  
***(Estimate)***

	Item	Year 2004	Year 2005
Potential Economic Growth	Effect to Economic Growth	0.5	0.5
Production Trigger	Production Trigger Coefficient	1.86	1.86
	Amount	\$ 230 billion	\$ 330billion
New Employment	New jobs by Increase of Demand	1.31 million	1.85 million

(MPHT)

As for Impact of ICT industries in Japan, the following data clearly indicates active role of ICT industries for social economic development. The following two tables (Table 2 and Table 3) are very significant to understand the active impact of the ICT industries.

**Table 2. Impact of ICT industries in Japan**

Item	2002-03	2003-04	2004-05	2005-10
<i>Growth rate of real outputs in ICT industries</i>	1.289	2.683	1.502	1.121
<i>Growth rate of real outputs in Non-ICT industries</i>	0.411	0.558	0.267	0.205
<i>Growth of real GDP</i>	0.854	0.751	0.509	0.408
<i>Real Output share of ICT industries to Total output</i>	11.766	11.988	12.119	12.615
<i>Contribution of ICT industries to growth</i>	0.130	0.242	0.093	0.058
<i>Contribution of Non-ICT industries to growth</i>	0.724	0.509	0.416	0.350
<i>Rate of Contribution of ICT industries to growth</i>	15.17	32.16	18.20	14.14
<i>Change of employment in ICT industries</i>	0.148	1.529	0.467	0.303
<i>Change of employment in Non-ICT industries</i>	-0.089	0.401	0.111	0.105
<i>Employment share of ICT industries to Total employment</i>	9.04	9.14	9.12	9.20

**Sources:** The table was built using the simulation results of Baseline of JIDEA5 model without any exogenous shocks.

**Table 3 Simulation Summary Baseline by JIDEA5***JIDEA Simulation Summary**GDP Components by Expenditure Category (Trillion of Yen)*

	Value		Average growth rate					
	2003	2005	2010	85-90	90-95	95-00	00-05	05-10
<i>GDP (nominal)</i>	516.48	521.90	550.40	6.00	2.50	1.77	-0.34	1.06
<i>GDP (1995 price)</i>	548.87	558.60	589.15	4.61	1.54	1.38	0.57	1.07
<i>GDP deflator</i>	0.94	0.93	0.93	1.39	0.96	0.39	-0.91	0.00
<i>Private consumption</i>	328.66	337.20	361.15	4.66	2.82	1.46	1.47	1.37
<i>Dwelling construction</i>	19.37	17.85	16.19	8.44	-1.94	-0.91	-5.45	-1.95
<i>Private investment</i>	82.91	85.22	91.38	9.35	-2.39	2.62	-0.07	1.40
<i>Exports</i>	63.79	68.57	79.62	1.03	0.81	5.67	2.23	2.99
<i>Imports</i>	59.55	64.21	82.50	9.97	3.77	3.84	3.85	5.01
<i>Unemployment rate (%)</i>	6.42	5.48	2.18	-4.27	8.42	11.19	-0.44	-18.44
<i>Trade balance (Billion in US\$)</i>	-42.99	-57.30	-149.65	-29.56	16.00	-8.22	0.00	19.20
<i>ICT industry output total</i>	117.95	123.04	133.89	8.66	3.83	5.57	1.42	1.69
<i>Non-ICT industry output total</i>	883.47	895.34	933.23	4.49	0.87	0.96	0.29	0.83
<i>ICT industry employment total</i>	0.65	0.66	0.69	4.71	1.67	1.37	0.34	0.88
<i>Non-ICT industry employment total</i>	6.45	6.50	6.70	0.71	0.65	1.40	-0.02	0.62

(METI)

The Research Team headed by Professor T. Hasegawa (\* 1) at Ministry of Economy, Trade and Industry has published [Japanese ICT industry for Macro Dynamic Input-Output in JIDEA mode]. ICT industries in Japan were defined as the sum of the 10 industries in 100 sectors of JIDEA Model. Such industries as Office Machine, computer, comm. Equipment, IC, Electronics parts, Communication, Broadcasting and Information Service are classified in ICT industries. The ratio of ICT industries to GDP in Japan was indicated as 12 %, higher than figure in USA by 3-4%.

According to the report, the growth rate of ICT industries is 1.5-2.68% . Comparing that the rate of growth of non-ICT industries in 2003-2004 is 0.58%, which indicates that ICT industries are five times



higher than non-ICT industries.

ICT industries consist of 10 sectors in 100 industries of JIDEA model is continuing the driving force in the national economy. Under inter- industry analysis based on macro dynamics, ICT industries are leading in output, employment, export for the forth- coming years.

## **6. Broadband Development**

- I) International Comparison of Broadband Rates (rates per 100kbps) (2003)
- II) International Comparison of the Number of Broadband Subscribers (2003)

Key issues are how to formulate selective policies for further deployment of Broadband on e-Government in short term. Because our study (\*2) indicates that e-government is of vital importance in accelerating and mobilizing the tremendous resources of public sector. Policies for development of Broadband and on E-Government will play an important role of ICT outsourcing to private sector. Smooth integration between Central (GWAN) and local governments (LGWAN) should be made for promoting nation-wide e-government network. It is quite important to integrate both

## **7. e-Japan vs. Broadband Strategy**

The concept of e-Japan is to provide super high-speed Internet access at 30-100Mbps to 10 million households and also provides constant and high-speed Internet access to 30 million households.

The historical trends of formulating the national plan are described as follows:

Basic IT Strategy(2000.11.27)=>e-Japan Strategy(2001.1.22)  
=>e-Japan Priority Policy Program=>e-Japan 2002 Program which shows the following 5 Priority Issues;

- (1) Ensuring of security and reliability on advanced information & telecom networks
- (2) Digitalization of administration and application of IT in public sector areas
- (3) Facilitation of e-commerce
- (4) Promotion of education and development of human resources
- (5) Formation of the world's most advanced information & telecom networks

Beyond Broadband Strategy the discussion for projecting the migration of Information Society has been made and characterized as follows:

E-commerce Boom- Buoyant Stock Markets -the New Economy-Decline of the New Economy Paradigm- End of the first Internet boom- A New ICT Paradigm- Broadband-Ubiquitous Society.

- Is the most advanced Broadband Nation the most advanced IT nation?
- Would it not be better to focus on an ICT paradigm which has wider scope than just broadband?

## **8. Ubiquitous Society**

Both the proposed Ubiquitous Network and e-Japan Strategy, which was announced in July, 2003 have co-relationship on the concept such as:

- (1) Shift of emphasis from the development of ICT Infrastructure to the Promotion of ICT Utilization was introduced.
- (2) The Ubiquitous Network will be the goal of the next ICT environment

Priority on development of ICT Infrastructure will be shifted to promotion of ICT utilization. On this regard, e-Japan Strategy Phase II will be emphasized by application and utilization rather than Network / Information. Based on Structural Reforms, pioneering ICT Utilization of Application / Content / Service will become more popular in both industry and users.

## 9. National Trends

National trends and issues on ICT and Socio Economic Development in Japan are characterized. There I×XI items indicate a list of both trends and issues.

- I. E-Government is a core of Government structural / financial reform
- II. Promotion of ICT industry is essential to enhance international Competitiveness
- III. Application of business management model to Public sector is a key for success
- IV. Digital Government brings about synergy effect on regional economic development
- V. Technology Innovation contributes to technology-oriented community development
- VI. ICT Outsourcing to China / India causes the trend of Japanese international competitiveness decline in domestic industries

VII. Information security issue is an emerging agenda

VIII. ICT Manpower development is important at Digital opportunity

IX. Strengthening International Competitiveness by increasing ICT investment

X. E-democracy could be achieved by the participation of E-people

XI. Leadership is needed on establishing national e-government framework Development of ICT has strong effect on implementation in facilitation of e-Commerce (EC). The below lists hint of the Characteristic of EC.

- Even expensive goods can be traded securely online.
- IT driven new businesses can be promptly developed.
- With the protection of intellectual properties, attractive digital content can be widely distributed through the Internet. Every consumer can transact EC without concern about personal information outflow or misuse of IT equipment.

### *The result of activities in Year 2003*

- In 2003: Approx. half of SMEs can participate in EC. Expand the market size of EC to far more than \$600 billion in B to B and \$2.5 billion in B to C in 2003.

## **10.HRD for ICT**

Emerging concern with CIO (Chief Information Officer) in Public and Private Sectors in Japan has been made recently.

### **(1)CIO in Private Sector has become popular since the beginning of 1990's.**

It is essential for companies to create ICT Strategy on cost, security and management system. However, there is lack of understanding for

role and responsibility of CIO

## (2) CIO in Public Sector

The government established the Federal CIO Council for coordination of the inter-agency activities.

## (3) Methodology for HRD and Support System on Private Sector

- Establishment of professional graduate schools on CIO.(\*3)
- Redefinition on role and function of CIO.

## @ Case Study of CIO University in US

There are 7 CIO Universities in US. To be CIO, there are requirement for 72 core-competences and 549 items.

**Table 6**

Univ.	George Mason Univ. /Arlington Campus /	George Washington Univ. /Virginia Campus
Students	2/3 Private, and 1/3 Public Sector	2/3 Private, and 1/3 Public Sector
Lecture Style	Schooling (only Saturday)	Schooling (evening class & summer school)
Period	18 months	1-2 years (extensible 3years)
Sponsor	Private Firms	Private Firms
Feature	Emphasis on Management (on Technology)	Emphasis on Science Information System Technology
Program	• Leadership and Management, • Tech, • System Architecture etc • •	• System Management , • Project -Management, • Information- Network, • Database System, • Decision Making and Case Study, • Security • KM etc • •

### *New Courses on CIO*

Waseda University has a plan to establish New Courses on CIO as collaboration with government, business sectors and international organizations.

**Table 7**

<b>Basic Course</b>	<b>Role and Activities, HRD for CIO</b>
Methodology of Management	Program and project management
Leadership Development	Training of professionals Global Competition Policy
Risk Management	Security, Emergency Simulation in collaboration with Industry-Government-Academia
Decision Making	Solution of Problem, Communication-Development
E-Government	e-Japan, G to B, G to C, e-Procurement
Corporate Culture	International Comparison
ICT administration / Accounting	administration, Knowledge management
Process Performance	Performance Management, CMMI
E-Commerce	Management Strategy
Management of Technology	New Model, IT investment
Information Resources Strategy	IT Strategy, New Business Model
ICT Procurement	Strategy Framework
Corporate Strategy	Case Studies
ICT management	Staff management, Corporate Management, Strategy - Management Model
Information Security	Technology, System, Policy, Anti-terrorism

## **1 Proposal on New Educational Collaboration between Japan and Taiwan in HRD for CIO**

To establish CIO training program at Graduate School Level at both Waseda Univ. and university in Taiwan, the common curriculum on these competence such as HRD for CIO as Chief e-Government Officer, IT Strategist, e-procurement specialist, Security specialist, Budget management, IT solution are needed.

The concept of New Graduate School is unique. There are three major characteristics.

- On-line Course (Distance learning)
- 1 year Master degree course for working people
- Internship program to Private and Public Sectors

These are needed for establishing the World Class CIO & Network of CIO

## **2 Asia Broadband Initiative Program (\*4) 2010 as the Target Year for this program Relevant Measures for Introducing and Diffusing Broadband Platforms are as follows.**

- Preparation of Common Key Infrastructures, Assurance of network security, Preparation of rules on intellectual property rights and appropriate application thereof, Support and cooperation for diffusion of IPv6/ Promotion of Use of Broadband Platforms (e-government, e-learning etc.)/ Promotion of Digital Content Distribution Development of multiple-language translation technologies/Promotion of digital archives/Support for Developing National Strategies/ Policies and Schemes/ Support for Developing Economies

## 11. International ICT Cooperation in APECTEL

Next example of International ICT Cooperation related to activities of Waseda University in APEC is the project on [e-University in HRD for e-government] which we are responsible for management as co-overseers.

➤ Project start date 2004/01/01 Project end date: 2006/12/31

Participating Members:

Thailand, Philippines, Vietnam, Indonesia, Japan

Project Purpose (\*5)

- I. To establish APEC “e-University networks” as a centre of excellence in HRD for e-government through e-learning vocational courses/system by using new networking technology. To promote strong partnership and interactive collaboration among academic institution, government and industry in supporting HRD requirements in the new economy. To implement ICT training and research programs for fulfilling the need of the new environment of digital society Networking collaboration among APEC, ITU, governments of Thailand, Japan, Philippines, Indonesia and Vietnam.

### Timetable & Work plan in 2004

	<b>Activities</b>	<b>Reporting</b>
<i>January-March</i>	Recruitment of both international consultants and local researchers	
<i>February</i>	Production of teaching materials and modules	
<i>March</i>	Creation of content and infrastructure	Reporting to APEC TEL 29
<i>April</i>	Test trials for online program	
<i>May</i>		



<i>June</i>		
<i>July</i>	Training program in Philippines	
<i>August</i>	Training program in Vietnam	
<i>September</i>	Training program in Thailand	
<i>October</i>	Training program in Indonesia	Reporting to APEC TEL 29
<i>November</i>	International seminar in Tokyo	
<i>December</i>	Evaluation/Finalization of report	

## 12. Conclusion

As the case study on Japanese Information society described in this paper, 「e-Japan Strategy」 is working effectively on solution for Digital Divide and creating Digital Opportunities. Also, our experiences for solving international digital divide by our programs have hinted effective regional IT educational cooperation. And on this regard, we will report the following conclusion in the context of socio economic development by ICT toward Broadband/ Ubiquitous society.

- Urgent need is identified to build a global standard system for international key infrastructure of broadband and ubiquitous networks.
- Solution is necessary on internal Digital Divide among central government ⇔ local governments & private sector, which might be applicable to other economies.
- It is common understanding in Japan that the significant ripple effect is made on national economy by promoting ICT industries.
- APEC is one of the best tools for implementing International ICT cooperation through e-APEC in the region.
- Merit and demerit for outsourcing is the key issue in international competitiveness of ICT industries.

- Pioneering research among university, industry and government on projecting the future ICT industries between Japan and Taiwan in respect with interdependence and collaboration as well as concerted policy agendas is recommendable.

## Reference

Hasegawa, T. (2003) *Japanese IT Industry in a micro and macro economic contexts*

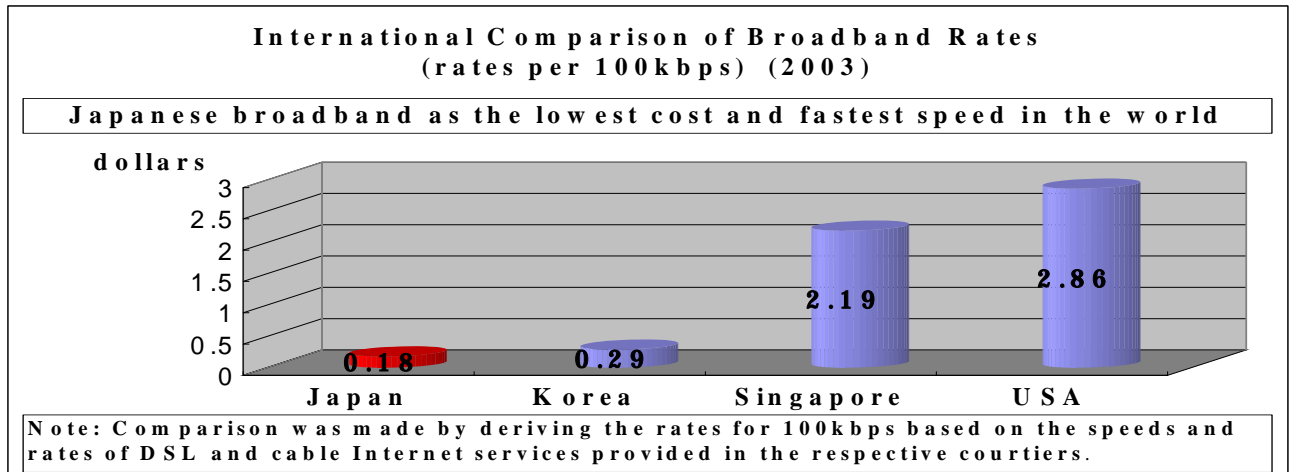
Obi, Toshio (2003) *e-government as an engine for economic development*, Japan Association of International Economics

Obi, Toshio (2003) *CIO in HRD for promoting e-government*, World Summit on e-government

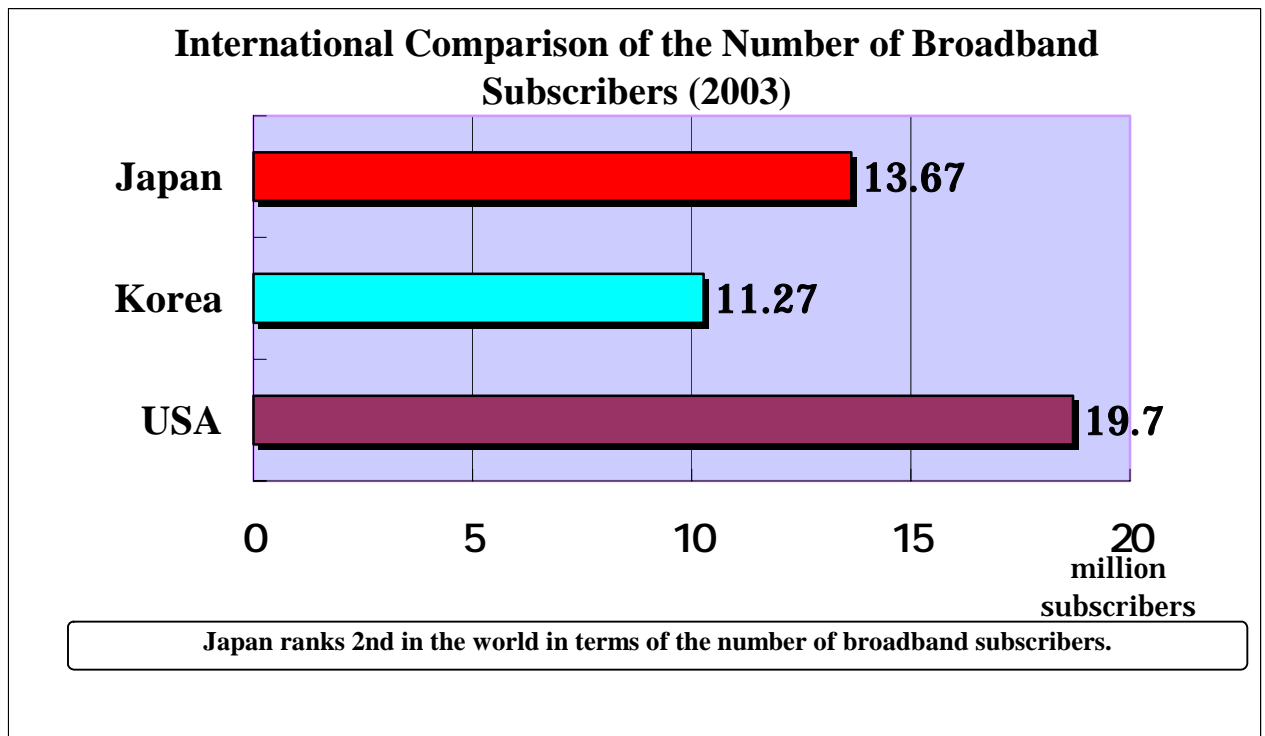
Ministry of PHT research advisory committee (2002) *Asian Broadband Initiative Program*

Obi, Toshio (2003) *e-university in HRD for e-university*, APECTEL

**Table 4**



**Table 5**



# E-日本的國家經濟策略和國際資訊傳播 科技合作的課題

**Toshio Obi Naoko Iwasaki**  
E 化政府研究所 東京早稻田大學

## 摘 要

本文試圖分析「E-日本策略」和其透過資訊傳播科技（ICT）和國際 ICT 合作對抗全球數位落差而對日本國家經濟所具有的意涵。肇始於 2000 年的 E-日本策略為五年社會經濟計畫帶來卓越的進展，就價格和速度而言，它使得日本的寬頻接取成為世界第一。

本文包含十章，熱門話題如寬頻發展、遍佈社會、CIO 以及一些跨領域議題、趨勢和 ICT 合作。這段期間，在「E-日本策略」下，ICT 對日本的國家經濟帶來了正面的衝擊。政府、企業和大學之間的合作性測量乃是立基於互賴關係、集中力量和團隊協作的條件。

從此一日本經驗可推知，我們將有各種不同的機會以尋求解決方案來縮減個別亞太區域或國家的數位落差。本文將呈現我們對此一議題所採行的活動以供參考。

**關鍵字：**E-日本策略、CIO、E-大學、ICT 效應、亞太經合會、寬頻