

2015 White Paper on Information and Communications in Japan

Table of Contents

Part 1 Looking Back at ICT's Progress

Chapter 1

Telecommunications Liberalization and Growth of the ICT Industry	2
Section 1 30 Years Since Telecommunications Liberalization: System, Service, and Market Transitions	2
1. Period 1: The age of the telephone	2
2. Period 2: The age of the Internet and the mobile phone	3
3. Period 3: The age of broadband and the smartphone	5
Section 2 30 Years Since Telecommunications Liberalization: Overview from a Data Perspective	6
1. Expansion of the ICT market and its contribution to economic growth	6
2. Changes in communications charges	7
Section 3 Structural Changes in the ICT Industry	8
1. Structural changes in the ICT industry	8
2. Responses by Japanese enterprises to structural changes in the ICT industry	8

Chapter 2

Development of ICT Use and Application	10
Section 1 Proliferation of ICT Use and Application into Every Aspect of Life	10
1. Advancement of ICT use and application in the daily lives of individuals	10
2. Advancement of ICT use and application among public organizations	11
Section 2 Growth of ICT Use and Application across Generational Lines	12
1. State of ICT device usage	13
2. Means of communication	13
Section 3 Spread of ICT Use and Application on a Global Scale	14
1. Worldwide proliferation of mobile phones	14
2. Rapid proliferation of the Internet	14

Part 2 Future Society Spearheaded by ICT

Chapter 3

ICT and the Future of Regions	16
Section 1 ICT and Regional Enterprises	16
1. Current state of regional economies and the potential of ICT	16
2. State of ICT use and application by regional enterprises	16
Section 2 ICT and Regional Employment	18
1. Employment impacts of ICT adoption	18
2. ICT's regional job creation potential	18
Section 3 ICT and Regional Issues	20
1. Current state of ICT use and application in regional areas	20

Chapter 4

ICT and Future Lifestyles	21
Section 1 New Forms of ICT Devices: After the Smartphone	21
1. Wearable devices	21

2. Connected vehicles and autonomous vehicles	22
3. Partner robots	22
Section 2 Transformations Resulting from Social Media Growth	24
1. The sharing economy: a new economy driven by social media	24
2. Viral posts and flaming on social media	25
Section 3 New Work Styles Made Possible by ICT: Telework's Potential	26
1. Telework awareness levels among companies and employed people	26
2. Employed people's intention to use telework	27
Section 4 ICT and the Olympic and Paralympic Games	27
1. Looking ahead to the 2020 Tokyo Games	27

Chapter 5

ICT and the Future of Industry	29
Section 1 ICT and Future Issues for Japan's Economy	29
1. Future issues for Japan's economy	29
2. The role of ICT in economic growth	30
3. Objective verifications	31
Section 2 Global Trends in the ICT Industry	32
1. Overall trends	32
2. Application layer: Trends in Japan's ICT industry	32
3. ICT service layer: Trends in Japan's ICT industry	33
4. Communications layer: Trends in Japan's ICT industry	34
5. Communications equipment layer: Trends in Japan's ICT industry	34
6. Device layer: Trends in Japan's ICT industry	35
7. Infrastructure exports	37
Section 3 Perceptions and Predictions by ICT Enterprise Executives in Six Countries	39
1. Perceptions of the competitiveness of own country's ICT industry	39
2. Most important overseas expansion issue	40
3. Promising fields as seen by enterprises in different countries	40
Section 4 Structural Changes in the Economy Caused by ICT Advancement	41
1. IoT's impact on industry	41
2. Advancement of big data application	43

Chapter 6

Future Vision of 2030: Overcoming Population Decline and Revitalizing Local Economies with ICT	45
Section 1 Further Evolution of ICT	45
1. ICT evolution and issues	45
2. Examinations of "new information and communications technology strategies"	45
Section 2 Overcoming Population Decline and Revitalizing Local Economies with ICT	46

Part 3

Basic Data and Policy Directions

Chapter 7

Basic Data on the ICT Field	48
Section 1 ICT Industry Trends	48
1. Economic size of the ICT industry	48
2. Research and development in the ICT field	49
3. State of ICT enterprise operations	51
4. Telecommunications market trends	52
5. Broadcasting market trends	53
6. Content market trends	54
Section 2 ICT Service Usage Trends	58
1. Internet usage trends	58

2. State of telecommunications service provision and usage.....	63
3. State of broadcasting service provision and usage.....	64
4. Promoting ICT applications in government services.....	65
Section 3 Radio Spectrum Usage Trends.....	66
1. State of radio spectrum usage and number of radio stations.....	66
2. Radio surveillance to eliminate interference with key radio communications.....	67
Chapter 8	
ICT Policy Directions.....	68
Section 1 Comprehensive Strategy Promotions.....	68
Section 2 Developments in Telecommunications Business Policy.....	68
1. Developments in telecommunications business policy.....	68
2. Consumer affairs administration in relation to telecommunication services.....	70
Section 3 Developments in Radio Policy.....	71
1. Promoting effective radio spectrum use.....	71
2. Radio usage advancement and diversification initiatives.....	71
3. Establishing radio usage environments.....	72
Section 4 Developments in Broadcasting Policy.....	73
1. Encouraging distribution of broadcast content.....	73
2. Advancements in broadcast services.....	73
3. Strengthening the disaster resilience of broadcast networks.....	73
4. Developing new broadcast media in empty frequency bands.....	74
5. Ensuring the safety and reliability of broadcast infrastructure.....	74
6. Various issues concerning broadcasting policy.....	74
Section 5 Handling Disputes between Businesses in the Information and Communications Field.....	74
Section 6 Promoting ICT Use and Application.....	75
1. Promoting ICT applications in education, medicine, and other fields.....	75
2. Regional development using information and communications infrastructure.....	75
3. Promoting the use of open data.....	75
4. Promoting cyber security policy.....	76
5. Establishing barrier-free information environments.....	76
6. ICT contributions to resolving global environmental problems.....	76
7. Developing ICT personnel.....	77
8. Developing cloud services.....	77
Section 7 Promoting ICT Research and Development.....	77
1. Promoting research and development strategies.....	77
2. Enhancing and enriching research and development that will drive the next generation.....	77
3. Contributing to green innovation and life innovation.....	78
4. Research and development programs promoting international collaborations in the ICT field.....	78
5. Contributing to more resilient public infrastructure.....	79
6. Other research and development programs.....	79
Section 8 Promoting International Strategies for ICT.....	79
1. Priority promotion themes for international policy.....	79
2. Initiatives in international frameworks.....	80
Section 9 Promoting ICT Applications in Government Services, Firefighting, and Disaster Preparedness.....	80
1. Promoting e-government.....	80
2. Promoting e-local government.....	80
3. Promoting online national census.....	81
4. Promoting ICT applications in the fire, safety, and disaster preparedness field.....	81
Section 10 Developments in Postal Service Administration.....	82
1. Promoting postal service administration.....	82
2. Promoting postal service administration in the international field.....	82
3. Promoting the correspondence delivery business.....	82

<“White Paper on Information and Communications in Japan” as open data>

The 2015 “White Paper on Information and Communications in Japan” (printed and PDF versions) has been made available as open data in principle. Anyone is allowed to freely make secondary use of this report including copying and commercial utilization by indicating the source of this report.

The following figures are exceptions to free secondary use, as third parties other than the Ministry of Internal Affairs and Communications could hold copyrights or any other rights to them. Take care to refrain from infringing third parties’ rights when using these figures.

List of figures for exceptional treatment in the 2015 “White Paper on Information and Communications in Japan”

Figure number, etc.	Title
Key Points	
Chapter 1	Transitions in communication charges
	Advancement of commoditization
	Transitions in operating profit ratios by layer
Chapter 2	Increase in using the Internet to gather information
Chapter 3	Efforts to increase the nonresident population from abroad (“Hokkaido Hour” and “I Love Hokkaido” by Hokkaido Television Broadcasting)
	Efforts to increase the resident population domestically (Satellite Office Project in Kamiyama, Tokushima)
Chapter 5	Scale and growth potential of main markets in each layer
	Transitions and predictions in the number of devices connected to the Internet (IoT)
Figure 1-1-1-1	Dramatically lower prices (Prices for a three-minutes afternoon call between Tokyo and Osaka)
Figure 1-1-2-4	Transitions in subscribers by mobile phone system
Figure 1-1-3-2	Broadband prices per megabit per second
Figure 1-2-2-1	Transitions in communications charges
Figure 2-1-1-1	Transitions in most frequently used media channels (By purpose)
Figure 2-1-1-2	Changes in information sources used for job searches by new hires
Figure 2-1-2-1	Transitions in the percentage of public schools (Elementary, middle, and high) with ultra-high-speed Internet connections
Figure 2-1-2-2	Transitions in the percentage of normal classrooms at public schools (Elementary, middle, and high) with in-school LAN installations
Figure 5-2-2-1	LINE’s trajectory since launch
Figure 5-2-5-1	Transitions in export value of Japanese communications equipment
Figure 5-2-5-2	Metropolitan area network (WDN) market shares (2013)
Figure 5-2-6-1	State of overseas expansion efforts by Japanese manufacturers
Figure 5-4-1-1	Number of things connected to the Internet (IoT devices)
Figure 5-4-1-2	IoT devices by sector/application and their growth rates