2023 White Paper on Information and Communications in Japan

Table of Contents

Part 1 Special Topic Toward Realizing the Resilient and Sound Data Flow Society for the New Era

Chapter 1	
Progress in data flows	2
Section 1 Advances in telecommunications infrastructure to support data flows	2
1. Fixed communications	
2. Mobile communications	2
Section 2 Progress in data flows and digital services	5
1. One-way data transmission (Web 1.0 era: 1990s to early 2000s)	5
2. Two-way data sharing (Web 2.0 era: late 2000s onward)	
Chapter 2	
The Current Status and Issues of Data Distribution and Utilization	6
Section 1 The Continuing Acceleration of Data Distribution and Data Utilization	6
1. The explosive increase in data distribution	6
2. The awareness of companies and consumers regarding the provision and utilization of data	
3. Initiatives by country for promoting data utilization (national strategies, etc.)	
4. Advanced Initiatives for Data Utilization	
Section 2 Concentrating Data with Platform Providers	
1. Data Acquisition and Storage by Platform Providers	13
2. Issue (1): Impediments to a Fair Competitive Environment due to Platform Providers Having	
an Oligopoly on Data ·····	14
3. Issue (2): Concerns about transparency and appropriateness of data acquisition and utilization	
by platform providers ·····	
Section 3 Spreading Disinformation and Misinformation on the Internet	23
1. The current status	23
2. Consumer awareness of the characteristics of social media and other platform services	
3. Digital literacy ·····	
4. The promotion of fact checking ·····	
5. Promotion of R&D ·····	
6. Institutional responses in each country	
7. The promotion of international cooperation	34
Chapter 3	
Realizing a Robust and Sound Data Distribution Society That Is Required for the New Age $$	35
Section 1 New Trends in Data Distribution and Utilization	35
1. Web3	
2. Metaverses and digital twins	37
3. Generative AI	43

	Section 2 Toward Realizing an Abundant Data Distribution Society	
	1. Safe and robust communications networks supporting data distribution	46
	2. Development of advanced ICT infrastructure that supports ultra-high-speed, high-capacity	
	data distribution	
	3. Formation of international rules, including standardization	
	4. Creation of abundant and sound information spaces	
	[Column] Maintaining and promoting a free and open Internet	53
	Part 2	
LU	rrent Status and Issues in the Information and Communications	Field
	Chapter 4	
	nds in the ICT Market	F.C.
rer	nds in the ICT Market	56
	Section 1 Trends in the ICT industry	56
	1. Size of the ICT market ·····	56
	2. Gross domestic product (GDP) of the ICT industry	57
	3. IT investments ·····	
	4. Exports and imports in the ICT field	
	5. Trend of R&D in the ICT field	61
	Section 2 Trends in the telecommunications field	65
	1. Trends in the domestic and overseas communications markets	65
	2. Current status of the telecommunications field in Japan	
	3. New trends in the communications field	74
	Section 3 Trends in the broadcasting and content fields	76
	1. Broadcasting ·····	
	2. Content market	83
	Section 4 Trends of radio wave usage in Japan	88
	1. Principal use by frequency band ·····	
	2. Changes in the number of radio stations	
	3. Satellites ·····	
	4. Radio wave monitoring to eliminate obstruction of important radio communications, etc	91
	Section 5 Trends related to ICT equipment and devices in Japan and overseas	93
	1. Trends in the ICT equipment market in Japan and overseas	
	2. Trends in the ICT device market in Japan and overseas	
	3. Trends in the import and export of ICT equipment and devices by country	
	4. Trends in the semiconductor market	100
	Section 6 Trends with platforms	101
	1. Market trends ·····	101
	2. Trends with major platform providers	103
	Section 7 Trends in the ICT services and contents & application services markets	104
	1. Social media ····	
	2. EC	104
	3. Search services ·····	105
	4. Video streaming, music streaming and e-books	105
	5. New trends in ICT services and content and application services markets	106
	Section 8 Trends in the data center market and cloud services market	109
	1. Data centers ·····	
	2. Cloud services	110
	3. Edge computing and edge infrastructure	111

Section 9 Trends in Al	113
1. Market overview	113
2. Trends in AI in various countries	113
Section 10 Cybersecurity Trends	115
1. Market overview	115
2. State of cybersecurity	116
Section 11 Digital Usage Trends	119
1. Digital usage trends in the daily life of the public	119
2. Trends in utilization in corporate activities	
3. Trends in regard to digital usage in administration	134
Section 12 Trends in Postal Service and Correspondence Delivery Business	139
1. Postal service	
2. Correspondence delivery service	143
Chapter 5	
icy Initiatives in the Ministry of Internal Affairs and Communications	144
Section 1 Promotion of comprehensive ICT policies	
1. Current status and issues	
Initiatives to promote comprehensive ICT policies	
[Policy Focus] Overview of the final report on "Information and Communications Policy with a	
View to 2030"	146
Section 2 Trends in telecommunications business policies	149
1. Summary ·····	
2. Creation of a fair competitive environment	
3. Development and maintenance of digital infrastructures ······	
4. Ensuring the safety and reliability of telecommunications infrastructures	
5. Development of a safe and secure usage environments for telecommunications services	
6. Mediation and arbitration by the Telecommunications Dispute Settlement Commission	160
ection 3 Radio policy trends	161
1. Summary ····	161
2. Promotion of effective use of radio waves in the era of digital transformation	161
3. Spread and development of 5G and B5G ······	163
4. Promotion of advanced radio use systems	
5. Promotion of overseas development of radio systems	
6. Development of radio wave usage environments	
Section 4 Trends in Broadcasting Policy ·····	171
1. Summary	171
2. Consideration of how the broadcasting system should function in the digital age	
3. Future vision of public broadcasting ·····	
4. Strengthening of the foundation of broadcasting businesses	
5. Promotion of the production and distribution of broadcast content	
6. Promotion of broadcasts for the visually challenged and those with hearing impairments	
7. Improvement to the resilience of broadcast networks and enhancement of disaster resistance \cdots	
Section 5 Trends in Cybersecurity Policy	
1. Summary ·····	
2. Efforts to ensure safety and reliability of information and communications networks	
3. Improvement of ability to handle cyberattacks autonomously	
4. Promotion of international cooperation	
5. Promotion of awareness raising	
Section 6 Promotion of ICT Usage	186

4. AI technologies	
5. Remote sensing technologies ·····	
6. Space ICT	
[Policy Focus] Achieving Beyond 5G (6G)	
Section 8 Promotion of International Strategies for ICT	
1. Summary ····	
2. Overseas implementation of digital infrastructures	
3. Contribution to establishment of international rules on the digital economy	• 208
4. Economic security in the digital field ······	
5. International cooperation in multilateral frameworks	
6. International cooperation in bilateral relationships	
[Policy Focus] G7 Digital and Tech Ministers' Meeting in Takasaki, Gunma	
Section 9 Promotion of Postal Administration	
1. Summary ·····	
2. Promotion of postal administration	- 220
3. Promotion of postal administration in the international field	• 223
4. Trends in correspondence delivery	·· 224
Appendix	
Additional notes	226
References	• 231