

DIGITAL DIVIDE OR DIGITAL JUMP: BEYOND 'IT' REVOLUTION

Edited by
Mitsuhiro Kagami
Masatsugu Tsuji

Institute of Developing Economies
Japan External Trade Organization

DIGITAL DIVIDE OR DIGITAL JUMP: BEYOND 'IT' REVOLUTION

Edited by

**Mitsuhiko Kagami
Masatsugu Tsuji**

**Institute of Developing Economies
Japan External Trade Organization**

Published by:

Institute of Developing Economies (IDE), JETRO
3-2-2 Wakaba, Mihamachi, Chiba-shi
Chiba 261-8545, Japan
Fax: +81-43-299-9763

©2002 Institute of Developing Economies (IDE), JETRO

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the Institute of Developing Economies (IDE), JETRO.

IDE International Joint Research Project Series No.6

ISBN 4-258-56006-5 C3033

The opinions expressed in this publication are the responsibility of the authors and not of their organizations.

Printed in Japan by Aiko Printing Co., Ltd.



ISBN 4-258-56006-5 C3033

IDE-JETRO

CONTENTS

Preface	iii
List of Authors	v
INTRODUCTION	xii
PART I JAPAN TEAM	
1 Summary of the Japan Team	1
Masatsugu Tsuji	
1. Beyond the IT Revolution: The Japanese Broadband Strategy.....	1
2. Tipping, Standardization and Convergence: Catch-Up and Failure in the Japan's Standards Strategy.....	5
3. Is the Japanese Press a Dinosaur in the 21st Century?: The IT Revolution and Newspapers in Japan.....	10
4. PKI Solutions for Trusted E-Commerce: Survey upon the De Facto Standard Competition in PKI Industry	13
5. Jumping Up to the Internet-Based Society: Lessons from Korea...	17
6. Information Technology: Some Implications for Thailand	22
7. The Interconnection and Pricing of the Internet.....	26
2 Beyond the IT Revolution: The Japanese Broadband Strategy.....	32
Masatsugu Tsuji	
1. Introduction	32
2. Lessons Learned from the Net Bubble	33
3. Broadband Network Infrastructure.....	36
4. Possible Applications of Broadband: Case Studies.....	46
5. Conclusion.....	53
Notes	54
References	55
3 Tipping, Standardization and Convergence: Catch-Up and Failure in Japan's Standards Strategy	57
Mitsuhiko Kagami	
1. Introduction	57
2. Tipping and De Facto Standards	59
3. De Jure Standards	60

4. Japanese Defeat in the Standards War	64
5. Technology and Satisfaction	66
6. Convergence of Technology	69
7. Concluding Remarks	74
Notes	75
References	76
4 Is the Japanese Press a Dinosaur in the 21st Century?: The IT Revolution and Newspapers in Japan	78
Kojiro Shiraishi	
1. Introduction	78
2. Newspapers in Japan	80
3. Newspapers and Television	83
4. Outlook of New Businesses	84
5. Conclusions	89
Notes	91
References	92
5 PKI Solutions for Trusted E-Commerce: Survey upon the De Facto Standard Competition in PKI Industries.....	93
Atsuho Maeda	
1. Introduction	93
2. Analysis of Major PKI Vendors	97
3. Strategy for Asian Market	104
4. Future Prospects	110
5. Closing Remarks	115
Notes	116
References	116
6 Jumping Up to the Internet-Based Society: Lessons from Korea ...	117
Yasushi Ueki	
1. Introduction	117
2. Rapid Diffusion of New Technologies	118
3. Accelerators of Rapid Penetration of New Technologies	121
4. Contrastive Effects of Accelerators on E-Commerce	126
5. Social Issues Caused by Diffusion of the Internet	133
6. Concluding Remarks	136
Notes	138
References	139

7	Information Technology: Some Implications for Thailand	140
	Chanin Mephokee	
1.	Introduction	140
2.	Current IT Status	142
3.	Impact on Firms and Employment in Thailand.....	157
4.	Some Policy Issues.....	161
5.	Conclusions	166
	References	167
8	The Interconnection and Pricing of the Internet	168
	Takanori Ida and Masashi Ueda	
1.	Introduction	168
2.	What is the Internet?	169
3.	Pricing the Internet and its Problems	172
4.	Industrial Structure of the Internet and its Interconnection Problem	174
5.	The Model Analysis of the Internet.....	177
6.	Development of the One-Way and Two-Way Model	182
7.	Further Discussion.....	186
	Notes	186
	References	188
PART II UK TEAM		
9	Summary of the UK Team	191
	Emanuele Giovannetti, Paul Kattuman and Tanga McDaniel	
1.	Internet Upstream Connectivity and Competition Policy: Western Europe and Southern Africa	191
2.	Information Policy and Information Technology in Eastern Europe with Emphasis on Estonia.....	200
3.	Software in India: Development Implications of Globalization and the International Division of Labor	207
10	Internet Upstream Connectivity and Competition Policy: Western Europe and Southern Africa	218
	Emanuele Giovannetti	
1.	Introduction	218
2.	The Supply Side	220
3.	Internet Pricing	222
4.	The European Internet Backbones	223

5.	The Price of Internet Connectivity	228
6.	Antitrust Analysis for the Backbone Market.....	231
7.	Exploring the Backbone Through Cyber-Geography.....	234
8.	South Africa	237
	Notes	243
	References	244
	Appendix	247
11	Information Policy and Information Technology in Eastern Europe with Emphasis on Estonia	248
	Tanya McDaniel	
1.	Introduction	248
2.	CEE in Context	249
3.	Online Activity: Transactions, Services and Rural Initiatives	257
4.	Case Study: IT Adoption, Expansion and Policy in Estonia	260
5.	Conclusions	269
	Notes	271
	References	271
	Annex	274
12	Software in India: Development Implications of Globalization and the International Division of Labor	275
	Paul Kattuman and Arnab Bhattacharjee	
1.	Introduction	275
2.	Globalization: International Competition and Firm Level Responses.....	278
3.	The Indian Software Industry.....	281
4.	Conclusions	295
	Notes	296
	References	298
PART III US TEAM		
13	Summary of the US Team	301
	Andrew B. Whinston and Soon-Yong Choi	
1.	IT Policies and Issues: Us and the Americas	301
2.	Internet and Telecommunications Outlook in Latin America	310
3.	Policies for Internet Access: Cases of Mexico and Argentina	315

14 IT Policies and Issues: US and the Americas	323
Andrew B. Whinston	
1. Introduction	323
2. Internet Infrastructure and Internet Access: A Snap Shot	325
3. Telecommunications Reforms and Internet Usage	331
4. Competition in Local Loop and Broadband Service	337
5. Costs of Access	341
6. The Digital Divide in the US.....	344
7. Us and the Americas: Telecommunications Connection.....	350
8. Conclusions	352
References	352
15 Internet and Telecommunications Outlook in Latin America	355
Andrew B. Whinston and Soon-Yong Choi	
1. Introduction	355
2. Current Status Of Internet Development	357
3. E-Commerce in Latin America	362
4. Telecommunications Deregulation and Policy Issues	364
5. Expanding Internet Access in Latin America	368
6. Outlook for Future Internet Growth	374
References	375
16 Policies for Internet Access: Cases of Mexico and Argentina	377
Soon-Yong Choi	
1. Introduction	377
2. Telecommunications in Mexico	378
3. Mexican Telecommunications Reforms	383
4. Internet and E-Commerce in Mexico	387
5. Telecommunications in Argentina.....	389
6. Initiatives for Internet Growth: Argentina.....	392
7. Lessons Learned	396
References	398
CONCLUSION	400
INDEX	405