## **Contents**

1	Intro	duction	1
	1.1	Introduction	1
	1.2	Magnitude and Rapidity of Technological Change	2
	1.3	Book's Objectives	4
	1.4	Units of Analysis, Data, Statistical Research Methods	7
	1.5	GIS and Spatial Analysis	9
	1.6	Spatial Aspects of Digital Divides	17
		1.6.1 Spatial Studies of the U.S. Digital Divide	20
		1.6.2 Spatial Studies of Digital Divide in China	
		and Japan	22
	1.7	Case Examples of National Evolution of Information	
		Technologies: Mexico and Singapore	24
		1.7.1 Singapore	24
		1.7.2 Mexico	25
	Refe	rences	27
2	Histo	orical Background	31
	2.1	Introduction	31
	2.2	Historical Milestones and Growth in Technologies	
		1990–2015	32
	2.3	Stages of Maturation of Technology Use	38
	2.4	Case Study: Azerbaijan	47
	2.5	Case Study: South Korea	51
	2.6	Conclusion	55
	Refe	rences	55
3	The	oretical Model	57
	3.1	Introduction	57
	3.2	Prior Theories of the Digital Divide	58
		3.2.1 Adoption Diffusion Theory	58
		3.2.2 Van Dijk's Theory	62

DEUTSCHE NATIONAL BIBLIOTHEK xvi Contents

	dex
	Modeling Theory 68
3.3 Estonia: a Case Study to Illust	
	k
References	
4 The Global Digital Divide	
4.1 Introduction	
4.2 Current Worldwide Unevennes	ss in Access to and Use
of Technologies	83
	evels in the Developed
and Developing World	d
4.3 Model for Understanding the	World and World
Regional Digital Divides	
4.3.1 The Present World Sa	imple and Differences
in the Developed and	Developing Regions 90
	of Global Technology Use 92
	Jse
	109
References	
5 China's Digital Divide	113
5.1 Introduction	113
5.2 Historical Background	
5.3 Current Dimensions of Access	and Use of Technologies
in China	
5.3.1 China's East and Sou	theast: Global Factory 116
5.4 Spatial Arrangement of Techn	
5.5 Clusters of Similar Provinces	
5.6 Conceptual Model of Technology	
1	126
	Differences
5.7.1 The Roles of Book Pr	
	logy Determinants

Contents xvii

	5.8	Case Study: Alibaba	144
	5.9	Policy Implications for China	147
		5.9.1 Cluster Analysis and Its Policy Implications	148
	5.10	Conclusion	151
	Refe	rences	152
5	India	a's Digital Divide	155
,	6.1	Introduction	155
	6.2	Historical Background	157
	6.3	State-Wide Patterns of ICT Utilization.	158
	0.3	6.3.1 ICT Clusters in India.	156
	6.4	Conceptual Model of ICT Utilization in Indian States	169
	6.5	Data Collection and Methodology	173
	6.6	Determinants of ICT Utilization in Indian States	173
	0.0		170
		6.6.1 Findings for Changes in Technology	181
		Levels 2008–2010	
	(7	6.6.2 Discussion of ICT Determinants	182 185
	6.7	Case Studies of ICT Utilization in Indian States	
		6.7.1 DakNet and Bhoomi	185
		6.7.2 Warana Village Project	187
	6.8	Policy Implications	188
	6.9	Conclusions	191
	Refe	rences	192
7	Japa	an's Digital Divide	197
	7.1	Introduction	197
	7.2	Historical Background	198
	7.3	Current Dimensions of ICT Use for Japan	201
	7.4	Conceptual Model of ICT Utilization in Japanese	
		Prefectures	208
		7.4.1 Data Used for This Study	212
	7.5	Spatial Arrangements of ICT Use in Japanese Prefectures	212
		7.5.1 Spatial Autocorrelation of ICTs	212
		7.5.2 Clustering of ICTs	214
	7.6	Determinants of ICT Use in Japan	220
		7.6.1 Discussion	223
	7.7	Case Studies of ICT Use in Japan	228
	7.8	Policy Implications	230
	7.9	Conclusions	232
		erences	233
0	¥ 1 24	tod States Digital Divide	235
8	8.1	ted States Digital Divide	235
	8.1	Historical Background	236
	0.4	HISTORICAL DACKEROUNG	∠30

xviii Contents

	8.3	Current Dimensions of Access and Use of ICTs	
		in US States	238
	8.4	Conceptual Model of ICT Utilization in US States	244
	8.5	Data Used for This Study	247
	8.6	Spatial Arrangement of Technologies	
		Within United States, 2010	250
		8.6.1 Cluster Analysis Findings	252
	8.7	Determinants of ICT Utilization in US States	255
		8.7.1 Discussion on Findings of Regression Analysis	258
	8.8	Case Studies of ICT Utilization in US States	264
		8.8.1 Georgia Enterprise Technology Services (GETS)	264
		8.8.2 ICT Adoption Challenges Encountered	
		by Micro-Enterprises in Nebraska	267
	8.9	Policy Implications	268
	8.10	Conclusions	271
	Refer	ences	272
9	Digita	al Divide in Africa	275
	9.1	Introduction	275
	9.2	Historical Background for Africa	277
	9.3	Current Dimensions of Access and Use	
		of Technologies for Africa	278
	9.4	Conceptual Model of ICT Utilization in African Nations	281
	9.5	Data Use for This Study	285
	9.6	Spatial Arrangement of Technologies Within Africa	288
	9.7	Determinants of ICT Utilization for African Nations	294
		9.7.1 Background on OLS Regressions	294
		9.7.2 Results of Regression Analysis	295
		9.7.3 Discussion: Implications of Findings	300
	9.8	Cases Studies of ICT Utilization in Africa	301
	7.0	9.8.1 Internet Diffusion in South Africa:	501
		The Role of Government	302
		9.8.2 Mobile Telephony for Nigerian Micro-enterprise	302
		Development	303
	9.9	Policy Implications for Africa and African Nations	305
	9.10	Conclusion	303
			307
	Kelei	ences	308
10	C		211
10		parisons of Countries	311
	10.1	Introduction	311
	10.2	Review of Prior Comparative Studies of the Digital Divide	313
	10.3	Comparison of Correlates of ICT for China, India,	
		Japan and the United States	315
	10.4	Comparison of Spatial Patterns for Four Nations	324

Contents xix

	10.5 10.6	Limitations and Future Research	328
		Forum	329
	10.7	Case Study: Lenovo	331
	10.8	Conclusion	333
	Refer	ences	333
11	The I	Roles and Policies of Governments	337
	11.1	Introduction	337
	11.2	National Government Policies	339
		11.2.1 Sweden's Policies in ICT	339
		11.2.2 Japan's Policies in ICT	340
		11.2.3 United States	341
	11.3	Exceptional Initiatives of Cities and States/Provinces	347
	11.4	Proposed Global ICT Policies, Based on Book's Findings	348
	11.5	Limitations of Government's Role	351
	11.6	Case Study: Rwanda	352
	11.7	Conclusion	354
		rences	355
12	The l	Future of the Digital Divide	357
12	11ne 1	Future of the Digital Divide	357
	12.1		358
	12.2	12.1.1 Summary of Book Findings	360
		Hyperconnectivity and Big Data	366
	12.3	Future Technology, Nations, and States	300
	12.4	Future Paths in Information Technology	260
	10.5	for the Developing World	368
	12.5	Digital Divides: Problems and Prospects	370
	12.6	Leadership Case Study: Poland	371
	12.7	Conclusion: Challenges of Leadership	373
	Reter	rences	373
Ind	lex		375