Table of Contents

Foreword		xi
Preface		xiii
Acknowledg	gments	χv
Abbreviatio	ons and Acronyms	xvii
PART I		
Chapter 1	Overview	3
<u>.</u>	Pierre Guislain, Christine Zhen-Wei Qiang, Bruno Lanvin,	
	Michael Minges, and Eric Swanson	
Chapter 2	Foreign Direct Investment in Telecommunications in	
	Developing Countries	15
	Pierre Guislain and Christine Zhen-Wei Qiang	
4 - 1 1 - 1		
Chapter 3	Extending Communication and Information Services:	
	Principles and Practical Solutions	41
	Björn Wellenius	
Chapter 4	The Role of ICT in Doing Business	57
	Christine Zhen-Wei Qiang, George R. Clarke, and Naomi Halewood	
Chapter 5	Trends in National E-Strategies: A Review of 40 Countries	87
	Aref Adamali, John Oliver Coffey, and Zaid Safdar	
Chapter 6	Tracking ICTs: World Summit on the Information Society Targets Michael Minges	125

$D\Delta$	DT	н
-	T I	-

User's Guide to ICT At-a-Glance Country Tables	149
At-a-Glance Country Tables	151
Key ICT Indicators for Other Economies	295
Definitions and Data Sources	293
Contributors	301
ANNEXES	
Annex 2A: Data Sources of FDI in Telecommunications	36
Annex 2B: The 30 Largest Telecommunications Multinational Corporations	1.47
in the World, 2002	37
Annex 4A: Measures of Firm Performance	72
Annex 4B: ICT-Related Investment Climate Survey Data by Country	76
Annex 4C: Regression Results	79
Annex 5A: Resources and Links for ICT Policies and E-Strategies	105
Annex 5B: Countries Covered in E-Strategy Review	105
Annex 5C: E-Strategy Analysis I Scorecards	107
Annex 5D: E-Strategy Analysis II Scorecards	108
Annex 6A: A Benchmarking Example of the WSIS Targets—Estonia	141
BOXES	
1.1 Information and Communication Technology—Essential to Productivity	
Growth and Private Sector Development	4
1.2 Regulatory Measures That Help Markets Work Better	9
2.1 PPI Investment Data Definitions and Limitations	17
2.2 Mobile FDI in Nigeria	22
2.3 Expansion of Mexican Operators in Latin America	27
2.4 Celtel	28
2.5 Foreign Ownership Restrictions	31
2.6 Ending the Exclusivity of Cable and Wireless in the Caribbean	33
2.7 Selected FDI Disputes in Telecommunications	34
3.1 Regulatory Measures Help the Market Work Better	45
4.1 Impact of Telecommunications Infrastructure on ICT Use	63
4.2 Perception of ICT Affordability	67
4.3 Internet: No More than a Bulletin Board?	68
4.4 A Fruit and Vegetable Trader's Experience in the E-Marketplace	69
4.5 Pro-competitive Regulatory Framework to Ease Telecommunications Bottlenec	
5.1 Jordan's E-Strategy and Its Challenges	
5.2 Embedding M&E into Implementation Structures in Rwanda	93 96
5.3 E-Education in Poland	99
6.1 WSIS Targets	126
6.2 Differences between Access, Subscription, and Use	138

FIGURES

1.1	Telephone and Internet Access by Region, 2000 and 2004	6
1.2	Telecommunications FDI in Developing Countries, 1990–2003	8
1.3	Household Access to Telephones in Europe and Central Asia, by Country and Year	10
1.4	The Most Significant Costs That Obstruct E-Business	11
1.5	Thematic Areas of Focus for E-Strategies, by Number of Countries	12
1.6	Strengths and Weaknesses of E-Strategies	12
1.7	Internet Access in Thai Schools and Computers in Chilean Schools	13
2.1	Total and Telecommunications FDI, 1990–2003	16
2.2	Telecommunications FDI in Developing Countries, 1990–2003	18
2.3	Private Telecommunications Projects by Source of Funding, 1990–2003	18
2.4	Telecommunications FDI by Region, 1990–2003	18
2.5	Telecommunications FDI by Income, 1990–2003	19
2.6	Telecommunications FDI by Type of Project, 1990–2003	20
2.7	Telecommunications FDI in Developing Countries by Region and	
	Type of Project, 1990–2003	21
2.8	Telecommunications FDI by Segment, 1990–2003	22
2.9	Average Annual FDI in Telecommunications, 1990–2003	23
2.10	Fixed, Mobile, and Internet Subscribers in All Countries, 1990–2003	24
2.11	Telecommunications FDI, North-South versus South-South, 1990–2003	26
2.12	Telecommunications Sector Liberalization in Developing Countries,	
	1998 Compared with 2004	30
4.1	E-Mail, Web Site, and Computer Use by Sector	59
4.2	Web Site and E-Mail Use by Subsector	59
4.3	E-Mail and Web Site Use by Size, Export Orientation, and Ownership	60
4.4	E-Mail and Web Site Use by Country	61
4.5	Monthly Broadband Charges by Income Group and Region, 2003	63
4.6	Quality of Telephone Service by Region	64
4.7	Bribe Value as a Percentage of Telephone Connection Charge	64
4.8	The Most Significant Costs That Obstruct E-Business	67
4.9	Main Constraints on ICT-Skilled Workforce	69
5.1	E-Strategy Review Sample: Country Composition by Region and Income Level	88
5.2	A Typical E-Strategy Life Cycle	88
5.3	Framework for E-Strategy Analysis I	89
5.4	Framework for E-Strategy Analysis II	90
5.5	Analysis I Review, Average Scores	91
5.6	Development Linkages by Income Group, Average Scores	92
5.7	Categories for Use of Indicators by Income Group, Average Scores	92
5.8	Use of Indicators by Income Group, Average Scores	92
5.9	Categories of Implementation Mechanisms, Average Scores	94
5.10	M&E by Region, Average Scores	95
5.11	Thematic Areas of Focus for E-Strategies, by Number of Countries	95
5.12	E-Government Objectives by Percentage of Countries in Income Group	97
5.13	E-Government Interventions by Percentage of Countries in Income Group	⁹ 97

5.14	Infrastructure Objectives by Percentage of Countries in Income Group	98
5.15	E-Education Objectives by Percentage of Countries in Income Group	100
5.16	Regulatory Objectives by Percentage of Countries in Income Group	100
5.17	Regulatory Interventions by Percentage of Countries	100
5.18	E-Business Interventions by Number of Countries	102
5D	Analysis II Summary by Region, Top Four Focus Areas	108
6.1	ICT Targets in Uganda and Lebanon	127
6.2	Importance of WSIS Targets	127
6.3	Number of Public Internet Access Points, 2003	129
6.4	Post Offices and ICT, 2003	132
6.5	The State of E-Government, 2004	134
6.6	ICTs in the Secondary School Curriculum in Europe	135
6.7	Broadcast Access, 2002	136
6.8	Measuring Content	137
6.9	Mobile Population Coverage	139
TAB	LES	
1.1	Effect of ICT Use on Enterprise Performance in Developing Countries	5
1.2	Population, GDP, and Telephone and Internet Access in Developing	
	Countries, 1980–2005	5
1.3	Measures of Electronic Government, Education, and Commerce in Developing and	
	Developed Countries, 2004	9
2.1	Top 10 Recipient Countries by Total Telecommunications FDI, 1990–2003	19
2.2	Top 10 Recipient Countries by Telecommunications FDI per Capita, 1990–2003	20
2.3	Telecommunications Multinational Corporations Ranked by Presence in	
	Host Countries, 2002	25
2.4	Top 10 Telecommunications Foreign Direct Investors, 1990–2003	25
2.5	Intraregional South-South Telecommunications FDI, 1990–2003	27
2.6	Mobile Operators in Sub-Saharan Africa, 2004	28
2A	Data Sources of FDI in Telecommunications	36
2B	The 30 Largest Telecommunications Multinational Corporations in the World, 2002	37
3.1	World Population, GDP, and Telephones	42
4.1	Countries in the ICS Sample	58
4.2	Enterprise Performance Measures	61
4.3	Effect of ICT Use on Enterprise Performance in Developing Countries	62
4.4	Effect on IT Use of Moving from Poor to Good Telecommunications Service	65
4.5	Barriers to ICT Adoption in Selected Countries	66
4A.1	Productivity Measures	73
4A.2	Countries with Enough Data to Compute Productivity Measures	73
4B. 1	Telecommunications Results	76
4B.2	ICT Results	78
4C.1	Effect of Computer Use on Different Measures of Enterprise Performance	80
4C.2	Effect of E-Mail Use on Different Measures of Enterprise Performance	81
4C.3	Effect of Web Use on Different Measures of Enterprise Performance	

4C.4	Effect of Telecommunications Service on IT Use	82
5.1	Economy Distribution by ICT Industry Segment	101
5A	Resources and Links for ICT Policies and E-Strategies	105
5B	Countries Covered in E-Strategy Review	105
5C.1	E-Strategy Analysis I Summary by Region	107
5C.2	E-Strategy Analysis I Summary by Income Level	107
5D.1	E-Strategy Focus Area: E-Government	110
5D.2	E-Strategy Focus Area: Infrastructure	111
5D.3	E-Strategy Focus Area: E-Education/E-Literacy	112
5D.4	E-Strategy Focus Area: Legal/Regulation	114
5D.5	E-Strategy Focus Area: ICT Industry	116
5D.6	E-Strategy Focus Area: IT Human Resources Development	118
5D.7	E-Strategy Focus Area: E-Business	120
5D.8	E-Strategy Focus Area: E-Health	122
6.1	Village Connectivity: Top 10 Developing Countries by Rural Population	128
6.2	Selected Research and Education Networks, 2005	131
6.3	National Archives Online in Southeast Asia	133
6.4	The 20 Most Desirable Online Public Services	134
6.5	Indicators for Monitoring the WSIS Targets	139
6 A 1	Renchmarking Fetonia	142