

# Global Mobile Roaming: Operator Strategies and Market Trends

3rd Edition

©2008 Informa UK Ltd.

All rights reserved.

The contents of this publication are protected by international copyright laws, database rights and other intellectual property rights. The owner of these rights is Informa UK Ltd, our affiliates or other third party licensors. All product and company names and logos contained within or appearing on this publication are the trade marks, service marks or trading names of their respective owners, including Informa UK Ltd. This publication may not be:-

- (a) copied or reproduced; or
- (b) lent, resold, hired out or otherwise circulated in any way or form without the prior permission of Informa UK Ltd.

Whilst reasonable efforts have been made to ensure that the information and content of this publication was correct as at the date of first publication, neither Informa UK Ltd nor any person engaged or employed by Informa UK Ltd accepts any liability for any errors, omissions or other inaccuracies. Readers should independently verify any facts and figures as no liability can be accepted in this regard - readers assume full responsibility and risk accordingly for their use of such information and content.

Any views and/or opinions expressed in this publication by individual authors or contributors are their personal views and/or opinions and do not necessarily reflect the views and/or opinions of Informa UK Ltd.

#### AUTHOR

Angela Stainthorpe

#### REPORT STAFF

Kris Szaniawski, *Reports Manager*

Olivia Gibney, *Reports Managing Editor*

Maria Mithchell, *Reports Production Manager*

Shalia Mughal, *Reports Production Editor*

#### HEAD OFFICE

Mortimer House

37-41 Mortimer Street

London W1T 3JH

Web site: [www.informamedia.com](http://www.informamedia.com)

#### SALES & CUSTOMER SERVICE

##### **UK/Europe**

Phone: (44) 20 7017 5533

Fax: (44) 20 7017 4783

Email: [telecoms.enquiries@informa.com](mailto:telecoms.enquiries@informa.com)

##### **North America**

Phone: (1) 978 258 2500

Fax: (1) 20 978 258 2500

Email: [colleen.barron@informa.com](mailto:colleen.barron@informa.com)

*Published in August 2008*

ISBN: 978 1843 117 704

#### ABOUT THE AUTHOR

**Angela Stainthorpe** is a research analyst with Informa Telecoms & Media. She was the lead author of the last two editions of Informa's *Mobile Distribution and Retail* strategic report, and has contributed research and analysis to a number of other successful reports and database products. Her experience at Informa also includes tracking the Asia Pacific mobile market for the *World Cellular Information Service* and analysing UMTS900 strategies in the Asia Pacific region.

Prior to her role as research analyst, Angela produced market-leading events covering diverse topics in mobile content and applications. Angela holds a first-class Bachelor's degree and Master's with distinction in Religion and Politics from the University of Manchester.

# Contents

<b>CHAPTER 1</b>	
<b>EXECUTIVE SUMMARY</b> .....	1
Roaming market value chain .....	1
<i>Figure 1.1: Mobile roaming market value chain</i> .....	1
Operators .....	2
Clearing houses .....	2
Signalling and transit .....	2
Solutions vendors .....	3
Sizing the mobile roaming market .....	3
<i>Figure 1.2: Global mobile outbound roamers, by region, 2008-2013</i> .....	3
EU roaming regulations .....	4
<i>Figure 1.3: EU price caps ('Eurotariff') on roaming calls, 2007-2010</i> .....	4
Effects of EU voice roaming regulations .....	4
Potential EU data roaming regulations .....	5
<i>Figure 1.4: Potential regulatory changes to SMS and data market in the EU during 2008</i> .....	5
Retail pricing .....	6
Wholesale roaming and IOTs .....	7
<i>Figure 1.5: Survey response: maximum IOT discounts applied, 2008</i> .....	7
Open connectivity .....	8
Roaming hubbing .....	8
NRTRDE .....	8
Alliances .....	9
<i>Figure 1.6: Benefits and risks of roaming alliances</i> .....	10
<b>CHAPTER 2</b>	
<b>MARKET OVERVIEW</b> .....	11
<b>Introducing mobile roaming</b> .....	11
Defining international mobile roaming .....	11
Mobile roaming market value chain .....	13
<i>Figure 2.1: Mobile roaming market value chain</i> .....	13
Mobile operators .....	13
<i>Figure 2.2: Examples of mobile operator roaming affiliations</i> .....	14
Clearing houses .....	14
<i>Figure 2.3: Role of the data clearing house in the TAP billing flow</i> .....	15
<i>Figure 2.4: Data clearing house market shares, 2008</i> .....	17
Signalling and transit providers .....	17
<i>Figure 2.5: Signalling and international carrier examples</i> .....	17
Solutions vendors .....	18
<i>Figure 2.6: Mobile roaming solution examples</i> .....	18
<i>Figure 2.7: Mobile roaming solutions vendor examples</i> .....	19
<b>Sizing the mobile roaming market</b> .....	19
Global mobile roaming base, 2008-2013 .....	19
<i>Figure 2.8: Global mobile subscribers, by region, 2008-2013</i> .....	20
<i>Figure 2.9: Global mobile subscribers: prepaid versus postpaid, 2008-2013</i> .....	21
<i>Figure 2.10: Global mobile prepaid subscribers as a percentage of total subscribers, by region, 2008-2013</i> .....	21

Figure 2.11: Global mobile outbound roamers, by region, 2008-2013 . . . . .	22
Figure 2.12: Global mobile roamers as a percentage of total subscribers, by region, 2008-2013. . . . .	23
Figure 2.13: Global mobile outbound roamers, by user segment, 2008-2013. . . . .	23
Global roaming footprint . . . . .	24
Figure 2.14: Top 10 global mobile investors and operators, by proportionate equity subscribers, December 2007. . . . .	24
Figure 2.15: Survey response: number of prepaid roaming partners, by region, 2008 . . . . .	25
Figure 2.16: Survey response: number of prepaid roaming countries, by region, 2008. . . . .	25
Figure 2.17: Survey response: number of data roaming partners, by region, 2008 . . . . .	26
Figure 2.18: Survey response: number of data roaming countries, by region, 2008 . . . . .	26
Figure 2.19: Global average 3G roaming footprint: selected operators, by region, April 2008 . . . . .	27
Contribution of roaming to overall revenues . . . . .	27
Figure 2.20: Survey response: contribution of roaming to overall mobile revenue: 2007 versus 2013 . . . . .	28
Figure 2.21: Survey response: total roaming revenue as a percentage of total mobile revenues, by region, 2007 . . . . .	28
Figure 2.22: Survey response: total roaming revenue as a percentage of total mobile revenue, by region, 2013 . . . . .	29
Figure 2.23: Survey response: IOTs and retail roaming revenue as a percentage of total mobile revenue, 2007. . . . .	30
Figure 2.24: Survey response: IOTs and retail roaming revenue as a percentage of total mobile revenue, 2013. . . . .	30

<b>CHAPTER 3</b>	
<b>REGULATION . . . . .</b>	<b>33</b>
<b>Introduction . . . . .</b>	<b>33</b>
<b>EU roaming regulations . . . . .</b>	<b>33</b>
Overview of EU regulations . . . . .	33
Figure 3.1: EU price caps ('Eurotariff') on roaming calls, 2007-2010. . . . .	34
History of EU regulations . . . . .	34
Aim of EU regulations . . . . .	36
Reactions to regulations . . . . .	38
Implementation. . . . .	38
Figure 3.2: Europe: mobile operators' compliance with Eurotariff, 2008 . . . . .	38
GMSA's reactions to roaming regulation. . . . .	39
<b>Competitive impact of EU roaming regulations on the EU Member States' operators . . . . .</b>	<b>40</b>
Figure 3.3: Impact assessment of roaming regulation: operators . . . . .	40
Strengths and opportunities. . . . .	40
Weaknesses and threats . . . . .	43
Figure 3.4: Europe: Impact of roaming regulations on revenues and EBITDA for selected operators, FY2007 . . . . .	43
Figure 3.5: Survey response: Changes in EU roaming traffic following introduction of regulations, July 2007 – April 2008 . . . . .	44
Figure 3.6: Europe: example charges using different charging increments for calls under 2 minutes at EUR0.49 per minute. . . . .	47
Figure 3.7: Europe: Effect of currency fluctuations on wholesale and retail revenues in UK and Euro countries, June 2007 and May 2008 . . . . .	48
Figure 3.8: Europe: summary retail price changes: EU subscribers roaming outside EU, 2006 and 2008: voice. . . . .	49
<b>Retail price summary for EU roamers 2006 and 2008. . . . .</b>	<b>49</b>
Key findings . . . . .	50

Voice .....	50
<i>Figure 3.9: Europe: summary retail price changes:     EU subscribers roaming within the EU, 2006 and 2008: voice.</i> .....	51
<i>Figure 3.10: Europe: summary retail price changes:     EU subscribers roaming outside the EU, 2006 and 2008: voice</i> .....	52
SMS .....	52
<i>Figure 3.11: Europe: summary retail price changes:     EU subscribers roaming inside and outside the EU, 2006 and 2008: SMS</i> .....	53
Non-messaging data .....	53
<i>Figure 3.12: Europe: summary retail price changes:     EU subscribers roaming inside and outside the EU, 2006 and 2008: Data</i> .....	54
<b>Impact of roaming regulations on retail voice tariffs: data analysis: EU to EU</b> .....	55
Making a call to the home market from within the EU for EU subscribers .....	55
<i>Figure 3.13: Europe: average price to make a call to the home     market within the EU for EU subscribers, 2006 and 2008.</i> .....	55
<i>Figure 3.14: Europe: average price to call home within the EU     for EU subscribers, by home country, 2006 and 2008.</i> .....	56
<i>Figure 3.15: Europe: average price to call home within the EU     for EU subscribers, by visited country, 2006 and 2008.</i> .....	57
<i>Figure 3.16: Europe: average change in price to make a call to the     home market within the EU for EU subscribers, 2006 and 2008</i> .....	57
<i>Figure 3.17: Europe: average change in price to call home within     the EU for EU subscribers, by home country, 2006 and 2008.</i> .....	58
<i>Figure 3.18: Europe: average change in price to call home within     the EU for EU subscribers, by visited country, 2006 and 2008.</i> .....	58
Making an outbound local call within the EU for EU subscribers .....	59
<i>Figure 3.19: Europe: average price for an outbound local call     within the EU for EU subscribers, 2006 and 2008</i> .....	59
<i>Figure 3.20: Europe: average price to call locally within the     EU for EU subscribers, by home country, 2006 and 2008</i> .....	60
<i>Figure 3.21: Europe: average price to call locally within the     EU for EU subscribers, by visited country, 2006 and 2008.</i> .....	61
<i>Figure 3.22: Europe: average change in price to make an outbound     local call within the EU for EU subscribers, 2006 and 2008</i> .....	61
<i>Figure 3.23: Europe: average change in price to call locally within     the EU for EU subscribers, by home country, 2006 and 2008.</i> .....	62
<i>Figure 3.24: Europe: average change in price to call locally within     the EU for EU subscribers, by visited country, 2006 and 2008.</i> .....	62
Receiving a call within the EU for EU subscribers .....	63
<i>Figure 3.25: Europe: average price to receive a call within the     EU for EU subscribers, 2006 and 2008.</i> .....	63
<i>Figure 3.26: Europe: average price to receive a call within the     EU for EU subscribers, by home country, 2006 and 2008</i> .....	64
<i>Figure 3.27: Europe: average price to receive a call within the     EU for EU subscribers, by visited country, 2006 and 2008.</i> .....	64
<i>Figure 3.28: Europe: average change in price to receive a call within     the EU for EU subscribers, 2006 and 2008.</i> .....	65
<i>Figure 3.29: Europe: average change in price to receive a call within     the EU for EU subscribers, by home country, 2006 and 2008.</i> .....	65
<i>Figure 3.30: Europe: average change in price to receive a call within     the EU for EU subscribers, by visited country, 2006 and 2008.</i> .....	66
<b>Impact of roaming regulations on retail voice tariffs: data analysis: EU to non-EU</b> .....	66

Making a call to the home market from within the EU for EU subscribers . . . . .	66
<i>Figure 3.31: Global: average price to make an outbound call to the home market from outside the EU for EU subscribers, 2006 and 2008 . . . . .</i>	67
<i>Figure 3.32: Global: average price to call home from outside the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	68
<i>Figure 3.33: Global: average price to call home from outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	68
<i>Figure 3.34: Global: average change in price to call to the home market from outside the EU for EU subscribers, 2006 and 2008 . . . . .</i>	69
<i>Figure 3.35: Global: average change in price to call home from outside the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	70
<i>Figure 3.36: Global: average change in price to call home from outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	70
Making a local call outside the EU for EU subscribers . . . . .	71
<i>Figure 3.37: Global: average price to call locally outside the EU for EU subscribers, 2006 and 2008. . . . .</i>	71
<i>Figure 3.38: Global: average price to call locally outside the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	72
<i>Figure 3.39: Global: average price to call locally outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	73
<i>Figure 3.40: Global: average change in price to call locally outside the EU for EU subscribers, 2006 and 2008 . . . . .</i>	73
<i>Figure 3.41: Global: average change in price to call locally from outside the EU for EU subscribers, by home country, 2006 and 2008 . . . . .</i>	74
<i>Figure 3.42: Global: average change in price to call locally from outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	75
Receiving a local call outside the EU for EU subscribers . . . . .	75
<i>Figure 3.43: Global: average price to receive a call outside the EU for EU subscribers, 2006 and 2008 . . . . .</i>	75
<i>Figure 3.44: Global: average price to receive a call outside the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	76
<i>Figure 3.45: Global: average price to receive a call outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	77
<i>Figure 3.46: Global: average change in price to receive a call outside the EU for EU subscribers, 2006 and 2008. . . . .</i>	77
<i>Figure 3.47: Global: average change in price to receive a call from outside the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	78
<i>Figure 3.48: Global: average change in price to receive a call from outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	79
<b>SMS pricing trends, 2006 to 2008 . . . . .</b>	79
Sending an SMS within the EU for EU subscribers. . . . .	79
<i>Figure 3.49: Europe: average price to send an SMS within the EU for EU subscribers, 2006 and 2008 . . . . .</i>	79
<i>Figure 3.50: Europe: average price to send an SMS within the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	80
<i>Figure 3.51: Europe: average price to send an SMS within the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	81
<i>Figure 3.52: Europe: average change in price to send an SMS within the EU for EU subscribers, 2006 and 2008 . . . . .</i>	81
<i>Figure 3.53: Europe: average change in price to send an SMS within the EU for EU subscribers, by home country, 2006 and 2008 . . . . .</i>	82
<i>Figure 3.54: Europe: average change in price to send an SMS within the EU for EU subscribers, by visited country, 2006 and 2008 . . . . .</i>	83

Sending an SMS from outside the EU for EU subscribers . . . . .	83
<i>Figure 3.55: Global: average price to send an SMS from outside the EU for EU subscribers, 2006 and 2008 . . . . .</i>	83
<i>Figure 3.56: Global: average price to send an SMS from outside the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	84
<i>Figure 3.57: Global: average price to send an SMS from outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	85
<i>Figure 3.58: Global: average change in price to send an SMS from outside the EU for EU subscribers, 2006 and 2008 . . . . .</i>	85
<i>Figure 3.59: Global: average change in price to send an SMS from outside the EU for EU subscribers, by home country, 2006 and 2008 . . . . .</i>	86
<i>Figure 3.60: Global: average change in price to send an SMS from outside the EU for EU subscribers, by visited country, 2006 and 2008 . . . . .</i>	87
<b>Data price changes, 2006 and 2008 . . . . .</b>	87
Using data services within the EU for EU subscribers . . . . .	87
<i>Figure 3.61: Europe: average price per MB within the EU for EU subscribers, 2006 and 2008. . . . .</i>	87
<i>Figure 3.62: Europe: average price per MB within the EU for EU subscribers, by home country, 2006 and 2008 . . . . .</i>	88
<i>Figure 3.63: Europe: average price per MB within the EU for EU subscribers, by visited country, 2006 and 2008 . . . . .</i>	89
<i>Figure 3.64: Europe: average change in price per MB within the EU for EU subscribers, 2006 and 2008. . . . .</i>	89
<i>Figure 3.65: Europe: average change in price per MB within the EU for EU subscribers, by home country, 2006 and 2008 . . . . .</i>	90
<i>Figure 3.66: Europe: average change in price per MB within the EU for EU subscribers, by visited country, 2006 and 2008 . . . . .</i>	90
Using data services outside the EU for EU subscribers . . . . .	91
<i>Figure 3.67: Global: average price per MB outside the EU for EU subscribers, 2006 and 2008. . . . .</i>	91
<i>Figure 3.68: Global: average price per MB outside the EU for EU subscribers, by home country, 2006 and 2008 . . . . .</i>	92
<i>Figure 3.69: Global: average price per MB outside the EU for EU subscribers, by visited country, 2006 and 2008 . . . . .</i>	92
<i>Figure 3.70: Global: average change in price per MB outside the EU for EU subscribers, 2006 and 2008. . . . .</i>	93
<i>Figure 3.71: Global: average change in price per MB outside the EU for EU subscribers, by home country, 2006 and 2008. . . . .</i>	94
<i>Figure 3.72: Global: average change in price per MB outside the EU for EU subscribers, by visited country, 2006 and 2008. . . . .</i>	94
<b>Potential EU regulation for data and SMS . . . . .</b>	95
Background to potential EU SMS and data regulation . . . . .	95
<i>Figure 3.73: Potential regulatory changes to SMS and data market in the EU. . . . .</i>	95
Potential challenges for SMS and data regulations . . . . .	96
Operator movements towards EU data roaming benchmarks . . . . .	98
Vodafone Group . . . . .	98
<i>Figure 3.74: Europe: example Vodafone consumer data roaming costs and packages, May 2008. . . . .</i>	99
Mobilkom Austria . . . . .	99
<i>Figure 3.75: Europe: Mobilkom Austria: A1 Europedata tariff and standard data tariff roaming rates, May 2008. . . . .</i>	99
<i>Figure 3.76: Europe: Mobilkom Austria: comparison of rata costs for roaming on a non-preferred network: A1 Europedata tariff versus standard data tariff, May 2008 . . . . .</i>	100
<i>Figure 3.77: Europe: Mobilkom Austria A1 Breitband data roaming tariff, May 2008. . . . .</i>	101
Telefonica O2 . . . . .	101

Figure 3.78: Europe: Telefonica O2 operators' data roaming costs and packages, May 2008. . . . .	101
Orange . . . . .	102
Figure 3.79: Europe: Orange data roaming plans, as at May 2008, and Travel Data Daily plan, due from 3Q08 . . . . .	102
Others . . . . .	103
<b>Regulations outside the EU . . . . .</b>	<b>103</b>
Middle East and North Africa . . . . .	103
Background . . . . .	103
Figure 3.80: Middle East and North Africa: members of AREGNET, May 2008 . . . . .	104
Current status . . . . .	105
Figure 3.81: Middle East and North Africa: outline of AREGNET regulatory proposals for international roaming, June 2008 . . . . .	106
Potential impact . . . . .	106
Latin America . . . . .	107
Background . . . . .	107
Current status . . . . .	108
Potential impact . . . . .	110
 <b>CHAPTER 4</b>	
<b>PRICING . . . . .</b>	<b>113</b>
<b>Retail pricing . . . . .</b>	<b>113</b>
Figure 4.1: Survey response: retail roaming price change for voice, SMS and non-messaging data, 2007 compared with 2006 . . . . .	113
Figure 4.2: Survey response: retail roaming price change for voice, SMS and data, 2008 compared with 2007 . . . . .	114
Figure 4.3: Survey response: contribution of retail roaming revenues to total mobile revenues, 2007 and 2013. . . . .	115
Why retail roaming seems expensive . . . . .	115
Roaming as a premium service . . . . .	115
Roaming as an enterprise service . . . . .	116
Price elasticity . . . . .	116
Falling domestic prices . . . . .	116
Wholesale price levels . . . . .	117
<b>Retail pricing evolution and pricing models for roaming . . . . .</b>	<b>117</b>
Zoning . . . . .	119
Figure 4.4: Comparison of number of pricing zones for different operators within the UK, Germany, Italy and Spain, as at May 2008. . . . .	120
Operator examples of zoned pricing . . . . .	120
Figure 4.5: Mobinil Egypt: operator example of zoned pricing for roaming, as at May 2008 . . . . .	120
Figure 4.6: O2 UK: operator example of zoned pricing for roaming, as at May 2008 . . . . .	120
Figure 4.7: TIM Italy: operator example of zoned pricing for roaming, as at May 2008 . . . . .	121
Per country . . . . .	121
Operator example of per country pricing . . . . .	121
Figure 4.8: SingTel: operator example of per country pricing for roaming, as at May 2008 . . . . .	121
Preferred network . . . . .	121
Operator examples of preferred network pricing . . . . .	122
Figure 4.9: Vodafone Germany: operator example of preferred network pricing for roaming, as at May 2008 . . . . .	122
Figure 4.10: A1 Austria: operator example of preferred network pricing for roaming, as at May 2008 . . . . .	122

Per operator .....	122
Operator examples of per operator pricing .....	123
<i>Figure 4.11: AIS Thailand: operator example of per operator pricing for roaming, as at May 2008</i> .....	123
<i>Figure 4.12: Etisalat UAE: operator example of per operator pricing for roaming, as at May 2008</i> .....	123
<i>Figure 4.13: Globul Bulgaria: operator example of per operator pricing for roaming, as at May 2008</i> ..	123
Paid-for discounts .....	124
Operator examples of paid-for discounts .....	124
<i>Figure 4.14: O2 UK: operator example of paid-for discount pricing for roaming, as at May 2008</i> .....	124
<i>Figure 4.15: AT&amp;T USA: operator example of paid-for discount pricing for roaming, as at May 2008</i> ..	124
Domestic tariffs while roaming .....	124
Operator examples of domestic tariff while roaming pricing .....	125
<i>Figure 4.16: Vodafone Passport: operator example of domestic tariff while roaming pricing, as at May 2008</i> .....	125
<i>Figure 4.17: 3 Like Home: operator example of domestic tariff while roaming, as at May 2008</i> .....	125
<i>Figure 4.18: Zain One Network: operator example of domestic tariff while roaming pricing, as at May 2008</i> .....	126
Data bundles and per-day rates .....	126
Operator examples of data bundles and per-day pricing .....	126
<i>Figure 4.19: Vodafone Europe: operator example of data bundles and per-day pricing for roaming, as at May 2008</i> .....	126
<i>Figure 4.20: Orange Europe: operator example of data bundles and per-day pricing for roaming, as at May 2008</i> .....	127
<i>Figure 4.21: Bridge Mobile Alliance members, May 2008</i> .....	127
<i>Figure 4.22: Bridge Mobile Alliance's DataRoam: example of data bundles and per-day pricing for roaming, as at May 2008</i> .....	127
Data charging by application .....	127
Operator example of data charging by application .....	127
<i>Figure 4.23: Wind Italy: operator example of data charging by application for roaming, as at May 2008</i> .....	127
<b>Wholesale pricing and IOTs</b> .....	128
Introduction to the wholesale roaming market .....	128
History of the Inter-Operator Tariff (IOT) .....	129
The different price elements of IOTs .....	130
SMS routing and cost elements .....	131
IOT trends .....	131
<i>Figure 4.24: Survey response: contribution of IOTs to total mobile revenues, 2007 and 2013</i> .....	132
<i>Figure 4.25: Survey response: changes in IOT levels, 2007 and 2008</i> .....	132
<i>Figure 4.26: Survey response: top three factors affecting IOT levels (4.6)</i> .....	133
<b>IOT discounting</b> .....	133
Evolution of discounting relationships .....	134
<i>Figure 4.27: Evolution of IOT discount partnerships for roaming</i> .....	135
<i>Figure 4.28: Potential traffic distribution strategies with full discount coverage</i> .....	136
Discount models .....	136
<i>Figure 4.29: Example IOT discounting strategies</i> .....	137
Trends in IOT discounting and steering .....	137
<i>Figure 4.30: Survey response: maximum IOT discounts applied</i> .....	138
<i>Figure 4.31: Survey response: percentage of roaming base spending 50% or more of their time on a preferred network</i> .....	138
<b>Global Mobile Roaming Retail Price Study</b> .....	139
Survey methodology .....	139

<b>Summary results from the Global Mobile Roaming Pricing Study</b> .....	140
Calling home. ....	140
<i>Figure 4.32: Comparative average costs for making a one minute call to the home country, by region, 2Q08</i> .....	140
<i>Figure 4.33: Comparative pricing levels for calling home between regions, 2Q08.</i> .....	141
SMS .....	141
<i>Figure 4.34: Comparative average costs for sending an SMS while roaming, by region, 2Q08</i> .....	141
Non-messaging data .....	142
<i>Figure 4.35: Comparative average costs for using 1MB of data while roaming, by region, 2Q08</i> .....	142
<i>Figure 4.36: Comparative pricing levels for using 1MB of data between regions, 2Q08</i> .....	143
<b>Global Mobile Roaming Retail Price Study: Americas</b> .....	143
Calling home. ....	143
<i>Figure 4.37: Americas: average per minute to call home: by home country, by visited region (intra or inter), 2Q08</i> .....	144
Intra-regional .....	144
Inter-regional .....	145
SMS .....	145
<i>Figure 4.38: Americas: average price per SMS: by home country, by visited region (intra or inter), 2Q08</i> .....	146
Intra-regional .....	146
Inter-regional .....	146
Non-messaging data .....	147
<i>Figure 4.39: Americas: average price per MB: by home country, by visited region (intra or inter), 2Q08</i> .....	147
Intra-regional .....	147
Inter-regional .....	148
<b>Global Mobile Roaming Retail Price Study: Asia Pacific</b> .....	148
Calling home. ....	148
<i>Figure 4.40: Asia Pacific: average per minute to call home: by home country, by visited region (intra or inter), 2Q08</i> .....	149
Intra-regional .....	149
Inter-regional .....	149
SMS .....	150
<i>Figure 4.41: Asia Pacific: average price per SMS: by home country, by visited region (intra or inter), 2Q08</i> .....	150
Intra-regional .....	151
Inter-regional .....	151
Non-messaging data .....	152
<i>Figure 4.42: Asia Pacific: average price per MB: by home country, by visited region (intra or inter), 2Q08</i> .....	152
Intra-regional .....	153
Inter-regional .....	153
<b>Global Mobile Roaming Retail Price Study: Europe</b> .....	153
Calling home. ....	153
<i>Figure 4.43: Europe: average per minute to call home: by home country, by visited region (intra or inter), 2Q08</i> .....	154
Intra-regional .....	154
Inter-regional .....	155
SMS .....	155
<i>Figure 4.44: Europe: average price per SMS: by home country, by visited region (intra or inter), 2Q08</i> .....	156

Intra-regional	156
Inter-regional	157
Non-messaging data	157
<i>Figure 4.45: Europe: average price per MB: by home country, by visited region (intra or inter), 2Q08</i>	158
Intra-regional	158
Inter-regional	159
<b>Global Mobile Roaming Retail Price Study: Africa and Middle East (MEA)</b>	159
Calling home	159
<i>Figure 4.46: Africa and Middle East: average per minute to call home: by home country, by visited region (intra or inter), 2Q08</i>	160
Intra-regional	160
Inter-regional	161
SMS	161
<i>Figure 4.47: Africa and Middle East: average price per SMS: by home country, by visited region (intra or inter), 2Q08</i>	161
Intra-regional	162
Inter-regional	162
Non-messaging data	162
<i>Figure 4.48: Africa and Middle East: average price per MB: by home country, by visited region (intra or inter), 2Q08</i>	163
Intra-regional	163
Inter-regional	164

## CHAPTER 5

<b>ROAMING INDUSTRY INITIATIVES</b>	165
<b>Open connectivity and roaming hubs</b>	165
What is open connectivity?	165
<i>Figure 5.1: Open connectivity (OC) project efficiency targets</i>	166
<i>Figure 5.2: Open connectivity (OC) project high-level requirements</i>	166
<i>Figure 5.3: Open connectivity (OC) project: roaming-specific high-level requirements</i>	167
What are roaming hubs?	167
<i>Figure 5.4: Bilateral roaming relationships</i>	167
<i>Figure 5.5: Roaming hub relationships</i>	168
Background to roaming hubs	168
Roaming hubs trial	169
<i>Figure 5.6: Open connectivity (OC) steering group: scope of second roaming hub trial</i>	170
Business case for roaming hubs	170
Operators	170
Hub providers	172
<i>Figure 5.7: Potential value-added services for roaming hub providers</i>	172
Future of roaming hubs	173
<i>Figure 5.8: Survey response: do you envisage migrating your bilateral agreements to multilateral agreements via a voice roaming hub in the next three years?</i>	174
<b>NRTRDE</b>	174
What is NRTRDE?	174
Background to NRTRDE	175
Business case for NRTRDE	177
Implementing NRTRDE	178
<i>Figure 5.9: Projected timetable for NRTRDE implementation</i>	178
NRTRDE implementation levels	178

<i>Figure 5.10: GSMA operator survey: what are your network's plans regarding NRTRDE implementation?</i> . . . . .	179
NRTRDE file distribution . . . . .	179
<i>Figure 5.11: NRTRDE liability scenarios</i> . . . . .	180
NRTRDE solution providers . . . . .	180
<i>Figure 5.12: Sending and receiving NRTRDE records</i> . . . . .	181
Selected NRTRDE vendor and product overviews . . . . .	181
The future of NRTRDE . . . . .	182

## CHAPTER 6

<b>ROAMING ALLIANCES AND OPERATOR GROUPS</b> . . . . .	183
<b>Establishing a roaming alliance</b> . . . . .	183
Reasons to establish an alliance . . . . .	183
<i>Figure 6.1: Features of proactive and reactive roaming alliances</i> . . . . .	183
Practical reasons to establish an alliance . . . . .	184
<i>Figure 6.2: Survey response: reasons to join an alliance</i> . . . . .	184
<i>Figure 6.3: Survey response: reasons to join an alliance (amalgamated response)</i> . . . . .	185
<i>Figure 6.4: Survey response: factors affecting roaming strategy, alliance members only</i> . . . . .	185
<i>Figure 6.5: Survey response: factors affecting roaming strategy, alliance members only (amalgamated response)</i> . . . . .	186
Roaming alliance membership . . . . .	186
Worldwide alliance and group membership . . . . .	187
<i>Figure 6.6: Number of countries and networks belonging to a roaming alliance, by region, May 2008</i> . . . . .	187
Joining an alliance . . . . .	188
<i>Figure 6.7: Survey response: To which mobile alliance does your network belong?</i> . . . . .	188
<i>Figure 6.8: Survey response: is your network considering joining a mobile alliance?</i> . . . . .	188
Alliance structures . . . . .	188
<b>Future of roaming alliances</b> . . . . .	190
<i>Figure 6.9: Positive and negative effects of roaming alliances</i> . . . . .	191
Positive factors supporting the success of roaming alliances . . . . .	191
Scale to attract a greater share of roaming revenues . . . . .	191
Scale to attract corporate clients . . . . .	191
Stimulate regional investment . . . . .	191
Knowledge sharing . . . . .	191
Negative influences undermining the success of alliances . . . . .	192
De-stabilizing influence of merger and acquisition activity . . . . .	192
Different cultural and commercial approaches . . . . .	192
Fragmented technologies . . . . .	192
Changing priorities for individual operators . . . . .	192
Roaming alliance trends and future movements . . . . .	193
Key trends by alliance or operator group . . . . .	193
<b>Asia Mobility Initiative</b> . . . . .	196
Background . . . . .	196
Current membership and structure . . . . .	196
<i>Figure 6.10: Asia Mobility Initiative footprint, May 2008</i> . . . . .	196
Brand and service offering . . . . .	197
Performance and strategy . . . . .	197
<b>Bridge Mobile Alliance</b> . . . . .	197
Background . . . . .	197

<i>Figure 6.11: Bridge Mobile Alliance founding members</i> . . . . .	198
Current membership and structure . . . . .	198
<i>Figure 6.12: Bridge Mobile Alliance members, May 2008</i> . . . . .	198
Brand and service offering . . . . .	199
<i>Figure 6.13: Bridge DataRoam prices and details, May 2008</i> . . . . .	200
Performance and strategy . . . . .	200
<b>Conexus Mobile Alliance</b> . . . . .	201
Background . . . . .	201
Current membership and structure . . . . .	201
<i>Figure 6.14: Conexus Mobile Alliance Members, May 2008</i> . . . . .	202
Brand and service offering . . . . .	202
<i>Figure 6.15: Conexus Mobile Pay-Per-Day Flat-Rate Data Roaming Tariff details, May 2008</i> . . . . .	202
Performance and strategy . . . . .	203
<b>FreeMove</b> . . . . .	203
Background . . . . .	203
Current membership and structure . . . . .	204
<i>Figure 6.16: FreeMove Alliance footprint and member operations, May 2008</i> . . . . .	205
Brand and service offering . . . . .	206
<i>Figure 6.17: FreeMove's main services and products</i> . . . . .	206
Performance and strategy . . . . .	207
<b>Vodafone Group</b> . . . . .	207
Background . . . . .	207
Current membership and structure . . . . .	208
<i>Figure 6.18: Vodafone partner networks, May 2008</i> . . . . .	209
Brand and service offering . . . . .	210
<i>Figure 6.19: Vodafone Passport example prices and structure amongst subsidiary partner networks, May 2008</i> . . . . .	211
Performance and strategy . . . . .	212
<b>Zain One Network</b> . . . . .	212
Background . . . . .	212
Current membership and structure . . . . .	213
<i>Figure 6.20: Zain One Network operators, May 2008</i> . . . . .	213
Brand and service offering . . . . .	213
Performance and strategy . . . . .	214
<b>Other groups and roaming alliances</b> . . . . .	215
Telefonica . . . . .	215
<i>Figure 6.21: Telefonica's global footprint, as at May 2008</i> . . . . .	215
Starmap . . . . .	216
Roaming Alianza . . . . .	216
Middle East Telecom Alliance . . . . .	217
<b>CHAPTER 7</b>	
<b>FORECASTS</b> . . . . .	219
<b>Forecasting methodology and assumptions</b> . . . . .	219
Methodology . . . . .	219
<i>Figure 7.1: Global mobile roaming simplified forecasting model</i> . . . . .	220
<i>Figure 7.2: Global mobile roaming simplified forecasting model: country by country analysis</i> . . . . .	220
<i>Figure 7.3: Global mobile roaming simplified forecasting model: regional analysis</i> . . . . .	221
Input data . . . . .	221

Roamers (users) .....	221
Traffic (usage) .....	222
Prices .....	222
<b>Global mobile roaming forecasts, 2008-2013</b> .....	222
Global mobile roamers .....	222
<i>Figure 7.4: Global mobile outbound roamers, by region, 2008-2013</i> .....	223
<i>Figure 7.5: Global mobile outbound roamers, by user segment and by region, 2008-2013</i> .....	224
Global mobile roaming traffic .....	225
<i>Figure 7.6: Global mobile outbound roaming voice traffic, by region, 2008-2013</i> .....	225
<i>Figure 7.7: Global mobile outbound roaming SMS traffic, by region, 2008-2013</i> .....	226
<i>Figure 7.8: Global mobile outbound roaming non-messaging data traffic, by region, 2008-2013</i> .....	227
Global mobile roaming revenues .....	227
<i>Figure 7.9: Global mobile outbound roaming total revenues, by region, 2008-2013</i> .....	228
<i>Figure 7.10: Global mobile outbound roaming voice revenues, by region, 2008-2013</i> .....	229
<i>Figure 7.11: Global mobile outbound roaming SMS revenues, by region, 2008-2013</i> .....	230
<i>Figure 7.12: Global mobile outbound roaming non-messaging data revenues, by region, 2008-2013</i> .....	231
<b>North America mobile roaming forecasts, 2008-2013</b> .....	231
<i>Figure 7.13: North America mobile outbound roamers, by user segment, 2008-2013</i> .....	232
<i>Figure 7.14: North America mobile outbound roaming traffic: intra- and inter-regional, 2008-2013</i> ..	233
<i>Figure 7.15: North America mobile outbound roaming SMS and non-messaging data traffic, 2008-2013</i> .....	233
<i>Figure 7.16: North America mobile outbound roaming revenues: voice and non-voice, 2008-2013</i> .....	234
<i>Figure 7.17: North America mobile outbound roaming voice revenues: intra- and inter-regional, 2008-2013</i> .....	235
<i>Figure 7.18: North America mobile outbound roaming SMS and non-messaging data revenues, 2008-2013</i> .....	235
<b>Latin America mobile roaming forecasts, 2008-2013</b> .....	236
<i>Figure 7.19: Latin America mobile outbound roamers, by user segment, 2008-2013</i> .....	236
<i>Figure 7.20: Latin America mobile outbound roaming traffic: intra- and inter-regional, 2008-2013</i> .....	237
<i>Figure 7.21: Latin America mobile outbound roaming SMS and non-messaging data traffic, 2008-2013</i> .....	237
<i>Figure 7.22: Latin America mobile outbound roaming revenues: voice and non-voice, 2008-2013</i> .....	238
<i>Figure 7.23: Latin America mobile outbound roaming voice revenues: intra- and inter-regional, 2008-2013</i> .....	238
<i>Figure 7.24: Latin America mobile outbound roaming SMS and non-messaging data revenues, 2008-2013</i> .....	239
<b>Asia Pacific mobile roaming forecasts, 2008-2013</b> .....	239
<i>Figure 7.25: Asia Pacific mobile outbound roamers, by Developed and Developing sub-regions and by user segment, 2008-2013</i> .....	240
<i>Figure 7.26: Asia Pacific mobile outbound roaming traffic, by Developed and Developing sub-regions: intra- and inter-regional, 2008-2013</i> .....	241
<i>Figure 7.27: Asia Pacific mobile outbound roaming SMS and non-messaging data traffic, by Developed and Developing sub-regions, 2008-2013</i> .....	242
<i>Figure 7.28: Asia Pacific mobile outbound roaming revenues, by Developed and Developing sub-regions: voice and non-voice, 2008-2013</i> .....	243
<i>Figure 7.29: Asia Pacific mobile outbound roaming voice revenues, by Developed and Developing sub-regions: intra- and inter-regional, 2008-2013</i> .....	244
<i>Figure 7.30: Asia Pacific mobile outbound roaming SMS and non-messaging data revenues, by Developed and Developing sub-regions, 2008-2013</i> .....	245

<b>Europe mobile roaming forecasts, 2008-2013</b> .....	245
<i>Figure 7.31: Europe mobile outbound roamers, by West and East sub-regions and by user segment, 2008-2013.</i> .....	246
<i>Figure 7.32: Europe mobile outbound roaming traffic, by West and East sub-regions: intra- and inter-regional, 2008-2013.</i> .....	247
<i>Figure 7.33: Europe mobile outbound roaming SMS and non-messaging data traffic, by West and East sub-regions, 2008-2013.</i> .....	248
<i>Figure 7.34: Europe mobile outbound roaming revenues, by West and East sub-regions: voice and non-voice, 2008-2013</i> .....	249
<i>Figure 7.35: Europe mobile outbound roaming voice revenues, by West and East sub-regions: intra- and inter-regional, 2008-2013.</i> .....	250
<i>Figure 7.36: Europe mobile outbound roaming SMS and non-messaging data revenues, by West and East sub-regions, 2008-2013.</i> .....	251
<b>Africa and Middle East mobile roaming forecasts, 2008-2013</b> .....	251
<i>Figure 7.37: Africa and Middle East mobile outbound roamers, by Africa and Middle East sub-regions and by user segment, 2008-2013.</i> .....	252
<i>Figure 7.38: Africa and Middle East mobile outbound roaming traffic, by Africa and Middle East sub-regions: intra- and inter-regional, 2008-2013.</i> .....	253
<i>Figure 7.39: Africa and Middle East mobile outbound roaming SMS and non-messaging data traffic, by Africa and Middle East sub-regions, 2008-2013</i> .....	254
<i>Figure 7.40: Africa and Middle East mobile outbound roaming revenues, by Africa and Middle East sub-regions: voice and non-voice, 2008-2013</i> .....	255
<i>Figure 7.41: Africa and Middle East mobile outbound roaming voice revenues, by Africa and Middle East sub-regions: intra- and inter-regional, 2008-2013.</i> .....	256
<i>Figure 7.42: Africa and Middle East mobile outbound roaming SMS and non-messaging data revenues, by Africa and Middle East sub-regions, 2008-2013</i> .....	257
 <b>APPENDIX</b>	
<b>GLOBAL MOBILE ROAMING INDUSTRY SURVEY 2008</b> .....	259
<b>Introduction</b> .....	259
Methodology .....	259
Survey structure .....	259
<b>Global Mobile Roaming Survey 2008 Results</b> .....	260
Respondent profile .....	260
Roaming partner agreements .....	260
Alliances .....	261
Revenue and traffic contribution .....	262
Retail roaming .....	263
IOT .....	264
Prepaid roaming .....	264
Roaming usage and traffic patterns .....	266
Roaming regulations .....	266
The roaming future .....	268

