## Index

Titles of publications are shown in *italics*.

| Access arbitration, Australia | 71 |
| Access holidays | 77–9 |
| Gas pipeline infrastructure, Australia | 78–9 |
| Access pricing | 67–70, 120, 121–4 |
| And timing of investment | 32 |
| Access regulation and infrastructure investment | 63–81 |
| Australia | 71–5 |
| Access service division, BT (Openreach) | 237–47 |
| Accessibility of services | 113 |
| ADSL (asymmetric digital subscriber line) | 288 |
| Alabau-Munoz, A. | 36 |
| Analog switch-off, digital dividend | 307–8 |
| Anticipatory individual exemptions | 72–3 |
| Anticompetitive conduct | 258 |
| British Telecom | 236 |
| Ex post regulation | 57–8 |
| Prevention | 259–61 |
| Apple iPhone | 9–10, 151 |
| ARCEP | 197 |
| Architectural innovation | 319 |
| Aristotle | 141 |
| ARPU (average revenue per user), mobile services | 323–5, 330 |
| Asymmetric regulation | 1, 5, 21–2, 31 |
| Cable DSL | 35 |
| See also local loop unbundling asymmetric risks and decision-making | 65 |
| Australia | 71–5, 80–81 |

| Consumer behavior, mobile telecoms markets | 96–7 |
| Australian Competition and Consumer Commission (ACCC) | 71, 72–3 |
| Australian Productivity Commission | 72 |
| Average revenue per user (ARPU), mobile services | 323–5, 330 |
| Avoidable cost | 123 |
| Ayres, I. | 144 |
| Bakos, Y. | 258 |
| Baldwin, R. | 143 |
| Barriers to switching service providers | 6–7, 88–9, 90 |
| UK | 90, 92–4, 99 |
| US | 98 |
| Behavioral economics and telecommunications policy | 83–104 |
| Bertrand industrial equilibrium | 116–17 |
| Bitstream access | 30, 177, 192 |
| Germany | 196 |
| Blackberry | 328 |
| Bottleneck facility | 14–15, 22, 25, 29, 259–61 |
| Boyle, G. | 28, 36 |
| Braithwaite, J. | 141, 144 |
| Breyer, S. | 133 |
| British Telecom (BT) | 13–14, 237–47 |
| Broadband | 21–39 |
| Diffusion, international comparison | 214–16 |
| Effect of regulation | 1–2 |
| Innovation risk | 287–8 |
| International regulatory approaches | 34–8 |
penetration and competition, Japan 219–23
prices, effects of functional separation 245–6
regulation and investment 26–34
structural separation 212–30
Japan 217–23
technological platforms 24–6, 63–4
and unbundling 35–6, 37
vertical separation 211–30
EU 225–7, 228–9
Japan 212, 217–23, 228
US 223–5, 228
BSkyB 243
BT (British Telecom) 13–14, 237–47
bundling strategies 25
Cable & Wireless 243
cable broadband 24–5
Japan 221–2
cable telephony, US 48
cable-DSL regulation 35
Canada, Telecommunications Act 129
Canadian Radio-television and Telecommunications Commission 129–30, 137, 138, 144
capacity building and network neutrality 262–7
capacity of services 113
Capron, W.M. 295, 296
Carphone Warehouse 243–4
Carrier Ethernet 290–91
catastrophic harms 132
Cava-Ferreruela, I. 36
Cave, M. 227, 234, 235
Character of Harms, The 129
choice overload and consumer behavior 86
Clark, K.B. 277, 319
CLECs (competitive local exchange carriers) and dependent competition 50–52
and intermodal competition 52–4
Commerce Act, New Zealand 169, 171–3
Commerce Commission, New Zealand 176
local loop unbundling review 176–7
mobile termination inquiry 177–81
Communications Act, UK, warning letters 144–5
competition 7–8, 109–25
and increasing efficiency 167–8
and investment 22–3, 27–8
in local access markets 114–18
pro-competition regulatory framework 118–25
New Zealand 167–85
next generation mobile networks 309–10
Competition Act, Canada 136
competition law 168
New Zealand 169–75
competitive local exchange carriers (CLEC) 4, 43–5
dependent competition 50–52
and intermodal competition 52–4
and wholesale competition 45–6, 55–7
congestion and network neutrality 256–7
connectivity 113
conscious opponents 132
consumer behavior 83–104
biases 85–7
fixed line markets 89–91
and information imperfections 87–9
Internet markets 98–100
mobile telecoms markets 91–8
policy implications 100–103, 104
switching deterrents 88–9
convergence of technologies 47–8
co-opetition 16, 277–9
copper loop 63
replacement with fiber 188–205
see also wireline access
cost allocation 123–4
cost-based incentive pricing 67–70
see also access pricing
costs and fiber-based networks 195
of regulation 47
Crandall, R. 70
CRTC 129–30, 137, 138, 144
Cunningham, L. 139
Dasgupta, K. 40
Davis, F.D. 321
de-biasing of information 102
decision-making
impact of risk 65
see also consumer behavior
decomposed theory of planned behavior (DTPB) 322
defaults and consumer behavior 86, 102
demand side analysis 84–7
mobile users 304, 322–6, 330–34
policy implication 100–103
switching behavior see consumer behavior
Dembo, R.S. 135–6
Denni, M. 36
dependability of services 113
dependent CLECs 45
dependent competition 50–52
deregulation
fiber-based access, US 199
retail markets 54–5
diffusion
of innovation 321
of mobile data 322–6
diffusion theory 318
digital dividend 307–8
digital technology, innovation risk 287
Distaso, W. 36, 37
diversification of telecoms industry
mergers and acquisition 157–8, 159–61
organic diversification 158–9, 161
Doan, C.T. 149, 153, 154
Dobbs, I.M. 31
Dounoukos, S. 234, 247
dynamic efficiency
and investment 26–9
ladder investment theory 29–31
and mobile termination inquiry, New Zealand 178
as regulatory system objective 174–5
economic aspects of network neutrality 254–5
economic efficiency principles for regulatory framework 110
economics of infrastructure investment 64–5
Economides, N. 258
ecosystem analysis and mobile Internet 318, 326–34
efficiency
and network neutrality 257–8
as regulatory system objective 174–81
role of telecoms regulator 120–21
spectrum management 306
Ehrlich, I. 140
emergency services, Canada 128, 129
endowment and consumer behavior 86
enforcement pyramid 144–5
entrants
and broadband investment 24–39
and competition law, New Zealand 171–2
see also CLECs (competitive local exchange carriers)
equality, BT wholesale customers
equilibrium 237
equilibrium
broadband market 33–4
harms in equilibrium 132
Ethernet 289–92
European Regulators Group (ERG) 292–3
European Union
broadband diffusion 214–16
definitions of separation 213
Framework Directive 199–200, 292
mobile data services 322–6
mobile Internet activity 331–2
regulation of broadband deployment 22–3
regulation and investment 36–7
regulatory agencies and innovation 292–3
technology-neutral regulation 283–5
vertical separation, broadband sector 225–7, 228–9
Evans, L. 169
event study, mergers and acquisition 153–6
data 156–9
method 153–6
results 159–61
ex ante regulation 8–9, 46–7, 137–8
and prevention of harm 129–30, 137–45
principles-based 9, 130, 139–41
and risk management 130
rules-based 9, 130, 139–41
wholesale market 50–57
ex post regulation 8–9, 46, 137–8
and prevention of harm 129–30, 137–45
principles-based 9, 130, 139–41, 143–4
rules-based 9, 130, 139–41, 142–3
wholesale markets 56, 57–8
facilities-based CLECs 45
facilities-based competition 29–30, 31–2
broadband, Japan 218–19, 220–23
Farrell, J. 257
FCC (US Federal Communications Commission) 66
Triennial Review 199
fiber to the building (FTTB) 188
fiber to the curb/cabinet (FTTC) 188
fiber to the home (FTTH) 188
fiber to the node network, Australia 73–5
fiber-based access 188–205
deployment issues 194–5
France 197, 202
FTTB/FTTH 192–3
FTTC/VDSL 189–92
Germany 196, 201–2
Japan 197–8, 202
Netherlands 195–6, 202
US 199, 202–3
financing capacity expansions 262–7
first-mover advantage 33
fixed line market, consumer behavior 89–91
fixed telecommunications markets, functional separation 233–47
flexibility of services 113
Ford, C. 130
Forge, S. 308
FOXTEL 72–3
Framework Directive, EU 199–200, 292
framing biases and consumer behavior 87
France, fiber-based deployment 197, 202
France Telecom 197
Fransman, M. 150, 278
Free/Iliad 197
Freeman, A. 135–6
FTTB/FTTH 188
deployment issues 194–5
France 197, 202
Germany 201–2
Japan 197–8, 202
regulatory challenges 192–3
US 199, 202–3
FTTC/VDSL 188
deployment issues 194–5
Germany 196, 201–2
regulatory challenges 189–92
US 199, 202–3
FTTx network, Australia 73–5
Japan 219–20
functional separation 200, 214, 233–5
broadband services, EU 225–7
UK (British Telecom) 13–14, 235–47
see also structural separation; vertical separation
Funk, J.L. 319, 320, 335
G9 consortium 74
Gans, J. 77–8
gas pipeline infrastructure, Australia, access holiday 78–9
Gayle, P. 66–7
Germany, fiber-based deployment 196, 201–2
Goebel, J. 141
government role in regulation, New Zealand 182–3
greenfield investment 70, 79–80
Gruber, H. 36–7
Gunasekaran, V. 279
harm
ranking severity 133–5
types of 131–3
harm prevention as principle of regulation 129–30, 131–5
Harmantzis, F.C. 279
Henderson, A. 234, 247
Henderson, R.M. 277, 319
Hermalin, B.E. 262
Index

Anastassios Gentzoglakis and Anders Henten - 9781849805247
Downloaded from Elgar Online at 12/26/2018 10:49:53AM
via free access

Hernandez, J.M.C. 322
heuristics and consumer behavior 87
high-speed Internet service, US 49–50
Holden, W. 311
hyperbolic discounting 86

ILECs see incumbent local exchange carriers
incentive regulation 67–70
incentives for infrastructure investment 75–80
incremental cost 123
incumbent bottleneck facility 14–15, 22, 25, 29, 259–61
and broadband investment 24–39
bundling strategies 25
incumbent local exchange carriers (ILEC) 4–5, 43–4, 46
and dependent competition 50–52
and intermodal competition 47–50, 52–4
and wholesale regulation 45–6, 54–8
information and consumer behavior
information imperfections 87–9
regulation of information disclosure 100–103
infrastructure investment 63–81
Australia 71–5
determinants 63–5
economics 64–5
impact of regulation 65–70
incentives 75–80
innovation broadband, and regulation 21–34
and competition 199–200
diffusion 321
next generation mobile networks 310–11
optimal timing 31–4
risk, network industries 285–9
systems of innovation and mobile Internet 318, 335, 337
innovation interdependence 275–94
network technologies 285–92
and risk 279–80, 285–9
and standardization 280–82
and technology neutrality 283–5
Intelligent Network 288
interconnection, contracting framework 258
interdependent innovation see innovation interdependence
intermodal carriers 45
competition to wireline access 4, 43–4, 47–50, 52–4
internalization of complementary efficiencies (ICE) 14–15, 257–8
Internet broadband access 63–4
see also broadband congestion 256–7
innovation risk 287
Internet Freedoms 253
Internet markets, consumer behavior 98–100
investment broadband infrastructure 21–39
fixed line infrastructure, UK 243–4
impact of regulation 65–70
next generation mobile networks 309–10
invisible harms 131–2
IP-based fiber networks 188–205
iPhone 9–10, 151

J.P.Morgan study, fiber-based access 191, 193
Janssen, M. 28

Japan broadband competition and structural separation 12–13, 217–23, 228
broadband diffusion 214–15, 219–23
fiber-based deployment 197–8, 202
financing capacity expansion 262–5
liberalization and competition policy 217–18
mobile Internet 319, 322–4
vertical separation 223, 228
Johnson, J. 153
Katagiri, Y. 198
Katsamakas, E. 258
Katz, M.L. 262
Kim, H. 322
Kim, H.S. 36
King, S. 77–8
Kiwi Share 170, 175
Kruse, J. 262

ladder of investment (LoI) 3–4, 25–6, 29–34
last mile see local loop infrastructure law and network neutrality 256
liberalization and competition policy, Japan 217–18
light-handed regulation, New Zealand 169–71
local loop infrastructure 24, 63–4
competition 114–18
Japan 198
deregulation, US 199
market characteristics 111–14
regulation 118–25, 200
see also CLECs; fiber-based access; ILECs
local loop unbundling (LLU) 14–15, 25, 26, 30
and broadband deployment 35–6, 37
EU 225
and FTTC/VDSL 190–92
and investment 66–7
Japan 218
and network neutrality 256
New Zealand 176–7
UK 236, 242–4, 246–7
local network regulation, US 45
long term issues of network neutrality 255, 262–7
LoopCo 234
loss aversion and consumer behavior 87

Mackie-Mason, J.K. 258, 262
MacKinley, A.C. 154, 156
mandated disclosure of information 100
Mandy, D. 68
marginal cost 123
market aspects of network neutrality 255–6
market determination 111–14
market efficiency and network neutrality 257–8
market equilibrium 33–4
Mazzon, J.A. 322

McWilliams, A. 153
Mendys-Kamphorts, E. 28
mergers of pricing structures 112
menus of pricing structures study 152–63
mobile data services 17–18, 317–38
content 330–32
rate of adoption 332–4
revenue 330
mobile ecosystems 326–34
data services adoption rate 332–4
network infrastructures 329
services and content 330–32
terminals 327–8
mobile Internet 317–38
mobile technology
innovation risk 287
mobile data diffusion 322–6
next generation mobile networks 301–13
regulation and investment 36–7
mobile telecommunications markets, consumer behavior 91–8
mobile terminals 327–8
mobile termination inquiry, New Zealand 177–81
mobile wireless services, US 48–9
modular innovations 319
negotiate-arbitrate model, Australia 71–2
net present value (NPV) 64–5
investment in FTTB/FTTH 193
and public–private partnership 76–7
and TELRIC pricing 68
NetCo 234
Netherlands, fiber-based access 195–6, 202
network infrastructures, mobile data 329
network neutrality 253–68
network topology and fiber-based access 194
New Zealand
competition law 171–83
industry-specific regulation 175–83
light-handed regulation 169–71
next generation mobile networks (NGMNs) 1–2, 16–17, 301–13
Index

and regulation 304–11
reliance on broadband 1–2
and spectrum management 16–17
next generation networks (NGN) 11–12, 188–205
Australia 71–5, 80–81
incentives for investment 75–80
infrastructure investment 64–5
911 services, Canada 128, 129
Nokia 327–8
Noll, R.G. 295, 296
NPV see net present value
NTT (Nippon Telegraph and Telephone Public Corporation) 198
structural separation 217–18

Ofcom
research study of consumer behavior 89–91, 91–5, 98–100
strategic review of telecommunication, UK 14, 235–7
Openreach 237–47
optical transmission 288
optimal timing of innovation 31–4
organic diversification 152–3, 158–9

path-dependence 278, 284
mobile Internet development 320
peering, contracting framework 258
Peha, J.M. 255
performance-enhancing risks 132–3
Pesendorfer, W. 84
Pindyck, R. 68
policy implications of consumer behavior 100–104
policy recommendations 104
broadband investment and regulation 38–9
greenfield investment 79–80
improving consumer participation 104
network neutrality 259–67
Portugal
consumer behavior in fixed line market 91
consumer behavior in mobile telecoms markets 95–6
Posner, R. 136, 140, 146
post-entry prices, wireline services market 122
PPP (public–private partnership) 76–7
pre-emption game equilibrium 34
pre-entry prices, wireline services market 122
prevention of harm as principle of regulation 129–30, 131–5
pricing
access pricing see access pricing and consumer switching behavior 88, 89
cost-based incentive pricing 67–70
and functional separation 245–6
and harm 135
predatory pricing 123, 124
pricing structures, consumers 112
wholesale price regulation 50–58
principles-based model 9, 130–31, 139–41, 142–3
pro-competitive regulation 118–25, 199–203
process approach to competition 115–16
public–private partnership 76–7

quality as collectively produced commons 258

random agenda selection 133
real equality of access, BT 237
Reding, V. 226, 242, 301
reframing information for consumers 102
regulation
and broadband investment 21–39
international approaches 34–8
and competition 118–25
and consumer interests 84, 85, 100–104
and fiber-based access 189–205
and harm prevention 128–46
and infrastructure investment 63–81
and innovation 275–94
New Zealand 169–85
next generation networks 304–13
wholesale services 43–59
regulator roles for efficiency promotion 120–21, 125
regulatory agencies
Australia 71–3
and broadband deployment 22–3
Canada 129–30, 137, 138, 144
Europe 292–3
New Zealand 169–85
UK see Ofcom
resetting defaults, consumer choices
102
retail markets
competition and wholesale
regulation 54–7
regulation 45, 47
Rieck, O. 149, 153, 154
RIM, Blackberry 328
Riordan, M. 224
risk
impact on investment decision-making 65
and innovation in network
technologies 285–92
risk management, regulation of
competitive markets 135–7
risk mitigation, innovators 279–80
risk perceptions, and harm prevention
133–5
risk-averseness, consumer switching
behavior 102–3
Robertson, G. 130
Rodini, M. 114
Rogers, E.M. 321
rules-based models 9, 130–31, 139–41, 142–4
safety of services 113
Sandbach, J. 234
second-mover advantages 33
secondary spectrum trading 307
Seeing Tomorrow 135
separation measures,
telecommunications industry 234
see also functional separation;
structural separation; vertical separation
service-based competition 29–30, 31–2
Japan 218–19, 220–21
Shapley-Shubik (SS) cost allocation
rule 123–4
Sharkey, W. 68
short-term issues, network neutrality
255, 259–62
Sidak, G. 66, 70
Siegel, D. 153
significant market power 15, 260
and Ethernet 291
single-sided markets and network
neutrality 255–6
SMS 320, 326, 331–2, 336, 337
social regulation
in regulation of competitive markets
135–7
and rules-based ex post system
143–4
South Korea, mobile data services
323
Sparrow, M. 129, 131–3, 133–4, 140, 142, 144
spectrum auctions 307
spectrum management, NGMNs
305–9, 311–12
standardization
and mobile data services 335
and risk mitigation 280–82
static efficiency 26–7, 174–5
structural separation 211–30, 234
and broadband market 212–23
definitions 213
Japan 217–23
sub-loop unbundling and FTTC/
VDSL 190–92
Subramani, M. 153
substitutability, wireline and wireless
telephony 113–15
Sunstein, C. 141
Sutherland, E. 37
switching costs 88, 89
switching service providers, barriers to
6–7, 88–9, 90, 92–4
Sylvan, L. 84
symmetric risks and decision-making
65
systems of innovation, and mobile
Internet 318
Taniwaki, Y. 198
technology assessment model (TAM)
321–2
technology-neutral regulation
283–5
Telecom Corporation of New Zealand
Limited 170
actions against 171–3
Telecommunications Act
Canada 129
New Zealand 169, 175–6, 179, 182–3
Telecommunications Policy Review
(TPR), Canada 139
Telecommunications Service
Obligation, New Zealand 170, 175
telecommunications value chain 150–53
television analog switch-off, digital
dividend 307–8
TELRIC (total element long-run
incremental cost) 5, 67–70, 80
Telstra 73–5
termination market 177–81
3G mobile technology 323, 329
time-variant preferences 86–7
total element long-run incremental
cost (TELRIC) 5, 67–70, 80
total service long-run incremental cost
(TSLRIC), Australia 71–2
Trade Practices Act, Australia, Part
XIC 71–3, 75
transit, contracting framework 258
Tremblay, A. 136
TSLRIC (total service long-run
incremental cost), Australia 71–2
2G mobile technology 322, 329
two-sided markets and network
neutrality 255–6

Uhlenbruck, K. 153
UK see United Kingdom
 unbundling see local loop unbundling
United Kingdom
 Communications Act, and warning
letters 144–5
consumer behavior in fixed line
market 89–91
consumer behavior in Internet
markets 98–100
consumer behavior in mobile
telecoms markets 91–5
functional separation, BT 13–14,
233–47
United States
broadband deployment regulation 23
broadband diffusion 214–15
consumer behavior in mobile
telecoms markets 98
Federal Communications
Commission (FCC) 66
fiber-based deployment 202–3
mobile Internet 320–21, 331–2, 336
vertical separation, broadband
sector 223–5, 228
wholesale regulation policy 45
user-friendliness of services 113
value chain, telecommunications
industry 150–53
vertical integration study 152–63
Varian, H.R. 258, 262
VDSL see FTTC/VDSL
vertical integration 211
of telecoms value chain 9–10, 152–63
vertical separation, broadband market
211–30
EU 225–7, 228–9
Japan 212, 217–23, 228
US 223–5, 228
see also functional separation,
structural separation
very high speed DSL (VDSL) see
FTTC/VDSL
VoIP 49–50
vulnerable consumers and information
provision 103
vulnerable groups and ex ante
regulation 139, 140
WACC (weighted average cost of
capital) 64–5
waiting game equilibrium 34
Walden, E. 153
Wallsten, S. 36
warning letters 144–5
Waverman, L. 40
weighted average cost of capital
(WACC) 64–5
British Telecom 195
Weiser, P.J. 257
Weisman, D. 66–7
wholesale regulation 45–7, 50–59
Wilcox, H. 153
wireline access 63
access price 122–5
Bertrand competition 118
bottleneck 22
competition 13–25
and intermodal competition 47–50
replacement with fiber 188–205
substitutability 113–15
see also local loop infrastructure;
local loop unbundling
Xavier, P. 234
Yoo, C.S. 255
Ypsilanti, D. 234