

INDEX

- 3GPP. *See* Third Generation Partnership Project
- 802.11. *See* Wireless Local Area Network standards
- Advanced Mobile Phone System, 32
- air interface. *See* mobile wireless standards
- Alice v. CLS Bank International* case, 112–13
- Allnut v. Inglis* case, 159
- AMPS. *See* Advanced Mobile Phone System
- Apple, 9, 131–3, 202, 203, 206–8, 336
- Apple v. Microsoft* case, 81, 131–3
- Apple v. Motorola* case, 9, 206–9, 210, 211, 283, 336, 338
- Areeda, Phillip, 170–1, 173, 179, 284
- ARPANET, 31
- Associated Press* case, 164–5
- Baran, Paul, 30
- BellSouth v. Donnelley* case, 6, 81, 136–7, 334
- Berne Convention for the Protection of Literary and Artistic Works, 55, 57, 65, 66, 67, 316, 325–7, 329
- Betamax, 27–8
- Bluetooth Alliance, 43, 46
- Blu-Ray Disc Association, 43
- Bolt v. Stennett* case, 159
- Broadcom v. Qualcomm* case, 218–19
- Bronner* case, 192, 338
- Calabresi and Melamed framework, 258–9, 278, 340–1
- Calabresi, Guido, 13, 233, 234–7, 240, 244, 245, 259, 278, 340, 341
- Canada – Pharmaceuticals* case, 66–7, 318, 319–20
- CDMA. *See* Code Division Multiple Access
- Cerf, Vinton, 30
- Chicago school, 193, 195–6, 253–4, 284, 285
- Coase theorem, 233–4
- Code Division Multiple Access, 33
- collective action problem, 10, 281–2
- collective rights organizations, 85, 93, 155, 223, 239–40, 252, 275, 299, 354
- Commercial Solvents* case, 152, 153, 178–9, 277
- compatibility, 22, 23
- compulsory licensing, 100, 106, 150–4, 241, 283
- European law, 152–4
- liability rules, 276–7
- other countries' laws, 154
- TRIPS Agreement, 69, 315, 324–5, 329
- United States law, 151–2
- Computer Associates v. Altai* case, 81, 123–4, 126, 128, 130, 131, 133, 135
- computer programmes, copyrightability, 57
- computer programmes, patentability, 56
- Consultative Committee for International Telephony and Telegraphy, 31
- copyright
- compilations of data, 135–40
- compulsory licensing, 329
- computer programmes, 57, 121–35
- fair use, 124–5, 130, 339

- copyright (cont.)
 idea/expression dichotomy, 6, 61,
 121, 123, 126, 127–8, 129,
 132–3, 310, 339, 349
 merger doctrine, 123, 137, 310,
 339, 349
 originality, 6, 61, 120, 133, 134, 135,
 136–7
 remedies, 140–7
 reverse engineering, 124–5
 right of reproduction, 325–7
 scènes à faire, 123, 339
 standards essential, 118–21, 349
 three step test, 66–8, 327–9
 Cotter, Thomas, 243–4, 253
 Cournot complements, 91, 95, 236, 243,
 257, 261, 263, 311, 318, 319, 333,
 342, 344, 347, 352
 CRO. *See* collective rights organization
 DARPA. *See* Defence Advanced
 Research Projects Agency
 David, Paul A., 19, 21, 25, 26–7
de facto standards, 19
De Portibus Maris, 158–9
 Declaration on a Balanced
 Interpretation of the Three-Step
 Test, 68
 Defence Advanced Research Projects
 Agency, 30
 defences, patent infringement
 fair use, 100
 prior use, 97–8
 scientific research and
 experiment, 98–9
 dominant market position, abuse of, 5,
 65, 95, 173, 174, 177–90,
 203–12, 213–14, 219–20,
 284, 338
 double essentiality, 94–6, 311, 313,
 352
 DRAM. *See* Dynamic Random Access
 Memory
 Dynamic Random Access Memory, 43,
 217, 219–20
eBay v. MercExchange case, 9, 96, 101–4,
 141, 283, 311, 338–9, 340
EC Rambus case, 219–20
 ECPR. *See* efficient component pricing
 rule
 efficient component pricing rule, 266
 essential facilities doctrine, 336–8
 arguments for revival American law,
 172–3
 Chinese law, 190–1
 criticisms, 337
 criticisms in American law, 169–71
 demise in American law, 171–2
 development in American law,
 159–69
 development in European law,
 178–82
 European law, intellectual property
 and interoperability standards,
 182–90
 interoperability standards and
 intellectual property, 191–3
 origins in English law, 158–9
 origins in European law, 174–8
 essential facilities doctrine, law and
 economics, 193–201
 court supervision of supply,
 197–8
 dynamic efficiency, 198–201
 efficient investment in new facilities,
 196–7
 incentives to supply, 195–6
 limitations on right to refuse supply,
 194–5
 monopoly and consumer
 welfare, 194
 SEIP as an essential facility, 193–4
 ETSI. *See* European
 Telecommunications Standards
 Institute
 EU Database Directive, 137–8
 EU Enforcement Directive, 104–5, 109,
 141, 146, 205
 EU *Microsoft* case, 5–6, 53, 149–50, 153,
 156, 178, 182–3, 185–90, 198,
 199–201, 222, 277, 283, 334,
 337, 338
 EU Software Directive, 125–6, 134, 146
 European Coal and Steel Community,
 174, 176

- European Economic Community,
 176, 178
- European Telecommunications
 Standards Institute, 32, 33, 35,
 42, 85, 87, 91, 102, 204, 206, 209,
 271, 272, 290
- excessive pricing, 212–15
 Chinese law, 214–15
 European law, 213–14
- exclusive property rules and liability
 rules. *See* liability rules
- expert manual, 10, 299–301, 345–6
 expertise, 306
 proposed contents, 309–13
 purpose and structure, 308–9
 representative group, 306
 robust and transparent process,
 306–8
- expert manual, draft
 calculation of compensation, 353–4
 competition law, 354–5
 injunctions, 351–2
 interpretation, 348
 standard setting organizations,
 349–51
 standards essential copyright, 349
 standards essential patents, 348–9
- fair, reasonable and non-
 discriminatory. *See* FRAND
 undertaking
- Federal Trade Commission Act,
 202, 216
- Feist v. Rural Telephone Service*
 case, 135
- FRAND. *See* FRAND undertaking
- FRAND undertaking, 9, 65, 93, 95–6,
 101, 155, 192, 202, 229, 282, 284,
 310, 311, 320, 321, 335, 339
 and competition law, 203–12,
 213–14, 338
 and contract law, 88–9
 and fraud or misconduct, 223
 and injunctions, 101–4, 106,
 339
 and liability rules, 251–2, 262–3
 and reasonable royalties, 110–11,
 265–76
- legal nature, 87–8
- Frischmann, Brett, 172–3
- Gerardin, Damien, 255
- Global System for Mobile
 Communications, 32
- Google, 44, 128–31, 134, 143–5, 280
- Granger cases, 160–1
- GSM. *See* Global System for Mobile
 Communications
- Hale, Lord Matthew, 158–9
- Havana Charter, 76, 285
- hold-up, 9, 90, 122, 142, 156, 243,
 248–50, 252, 258, 274, 275, 310,
 311, 321, 325, 336, 352
- horizontal conduct, 223–8
 Chinese law, 225
 European law, 225–7
 United States law, 223–4
- Huawei, 106, 204–6, 213–14, 271–2
- Huawei v. Unwired Planet* case, 213–14,
 271, 280
- Huawei v. ZTE* case, 153, 182, 192,
 203–6, 210, 211, 277, 283, 343
- ICN. *See* International Competition
 Network
- idea/expression dichotomy
 TRIPS Agreement, 61
- IEC. *See* International Electronic
 Commission
- IEEE. *See* Institute for Electrical and
 Electronics Engineers
- IEEE Standards Association, 307
- IETF. *See* Internet Engineering Task
 Force
- IMS Health* case, 7, 81, 138–40, 153,
 182, 184–5, 189, 192, 199–201,
 260, 277, 283, 328, 334, 338
- IMT-2000. *See* International Mobile
 Telecommunications for
 the Year 2000
- information infrastructure, 16
- injunction
 Chinese law, 105–7, 141–2
 competition law, 201–12
 copyright, 140–2

- injunction (cont.)
 - draft expert manual, 351–2
 - European law, 9, 104–5, 141
 - expert manual, 310–12
 - German law, 9, 105, 138, 206–7
 - law and economics, 261–3
 - patent, 101–7
 - TRIPS Agreement, 201–12, 325–32
 - United States law, 8–9, 101–4, 140–1
- Innovatio* case, 269–70
- Institute of Electrical and Electronics Engineers, 29, 31, 35, 36–7, 41, 45, 49, 224, 267, 269, 290, 307
- intellectual property
 - law and economics, 4, 81–3
- intellectual property, standards
 - essential
 - circuit layouts, 148
 - compulsory licensing, 150–4
 - concept, 81
 - copyright, 118–47
 - patents, 84–118
 - trade secrets, 148–50
- interface, 20, 22, 23, 119–20
 - application programming, 186
 - copyright protection, 140, 142, 147, 251, 327–8, 334
 - mobile air, 32
- interface, mobile air, 32
- interfaces
 - copyright protection, 175–96
- international competition law, 75–7, 345
- International Competition Network, 77, 293–5, 305
- International Electrotechnical Commission, 17, 29, 35, 40
- International Mobile Telecommunications for the Year 2000, 33
- International Organization for Standardization, 17, 18, 29, 35, 39–40, 45, 46–7, 119, 289–90, 302, 303–4
- International Packet Network Working Group, 30
- international soft law, 286–8, 313
- International Telecommunication Union, 31, 33, 35, 36, 37–9, 40, 45, 290–1
- Internet Corporation for Assigned Names and Numbers, 297–8, 305, 346
- Internet Engineering Task Force, 35, 41–2, 46, 290, 307–8, *See* IETF
- Internet of Things, 17, 35–6, 333
- interoperability, 23
- interoperability standard
 - definition, 21–5
 - importance, 16–17
 - language as, 25–6
- interoperability standards
 - economic characteristics, 4, 48–53
 - importance, 3
 - methods of creation, 44–8
 - typologies, 19–21
- INWG. *See* International Packet Network Working Group
- ISO. *See* International Organization for Standardization
- ISO/IEC Guide 59/1994, Code of Good Practice for Standardization, 39–40, 290, 302, 350
- ITU. *See* International Telecommunication Union
- Japan *Samsung v. Apple* case, 272–3
- JEDEC. *See* Joint Electron Device Engineering Council
- JEDEC Solid State Technology Association, 43
- Joint Electron Device Engineering Council, 217
- Joint Technical Committee 1, 40
- JTC 1. *See* Joint Technical Committee 1
- Kahn, Robert, 30
- keyboard configuration, QWERTY, 27
- law and economics, 9–10, 157–8, 289, 309, 341, 344
- Coase theorem, 233–4

- essential facilities doctrine, 169–71, 193–201, 228–9
- excessive pricing, 212
- intellectual property, 81–3
- liability rules, 234–44
 - compulsory licensing, 258–61
 - essential facilities doctrine, 278
 - injunctions, 261–3
 - reasonable royalty, 265–76
 - refusal to supply, 258–61
 - standards essential intellectual property, 244–58
 - tying, 222–3
- layout circuit designs, 148
- Lemley, 90
- Lemley, Mark, 91, 93–4, 118, 240, 241–3, 253, 256, 258, 259, 265
- liability rules, 3, 9, 13, 142, 148
 - Calabresi and Melamed framework, 234–9
 - competition law, 278
 - damages, 263–5
 - injunctions, 261–3
 - reasonable royalties, 265–76
 - refusal to supply, 258–61
 - standards essential intellectual property, 239–58, 341–4
- Long-Term Evolution, 33
- Lotus v. Borland Software* case, 131, 133–4
- LTE. *See* Long-Term Evolution
- Magill* case, 6, 153, 182, 183–4, 186, 188, 189, 192, 199–201, 260, 277, 283, 328, 338
- markets, two-sided, 52–3
- MCI Communications* case, 167–9
- Melamed, A. Douglas, 13, 233, 234–7, 240, 244, 245, 259, 278, 340, 341
- Mentor Graphics v. EVE-USA* case, 108–9
- Merges, Robert, 239–40, 277
- methodology, 10–14, 59
- methodology, topical, 10–14, 104, 110, 143, 147, 257, 261, 338, 344
- Microsoft, 5–6, 23, 44, 52, 53, 81, 110, 115, 131–3, 149–50, 151–2, 153, 154, 156, 178, 182–3, 185–90, 198, 201, 221–2, 260, 267–9, 334, 341
- Microsoft v. Motorola* case, 110, 267–9
- Mobile Payment Forum, 43
- mobile payment standards, 34–5
- mobile wireless standards, 32–3, 49, 85, 87, 91–2, 94–5, 204, 206–8, 272–3
- modularity, 24, 240
- Motorola, 94–5, 102, 110, 202, 203, 206–8, 209, 267–9, 280, 336
- multistakeholderism, 296–8, 299, 302, 303, 305, 346
- Munn v. Illinois* case, 159–60
- National Institute of Standards and Technology, 31
- Neale, A.D., 167
- near field communications, 33
- Neo-Chicago school, 190
- network effects, 20–1, 25, 28, 32, 44, 50–2, 72, 94, 132, 134, 135, 140, 145, 155, 186, 201, 222, 247–8, 256, 264, 333, 335, 336
 - direct, 50–1
 - indirect, 50–1
- NFC. *See* near field communications
- NIST. *See* National Institute of Standards and Technology
- Noerr-Pennington* doctrine, 202–3, 210
- OECD. *See* Organization for Economic Co-operation and Development
- Open Systems Interconnection, 32, 303–4
- Oracle, 134, 143–5
- Oracle v. Google* case, 123, 128–31, 143–5, 147, 263, 334, 340, 342
- ordoliberalism, 175–8, 193, 285
- Organization for Economic Co-operation and Development, 77, 295–6
- Oscar Bronner* case, 180–2
- OSI. *See* Open Systems Interconnection
- Otter Tail* case, 166–7

- Paris Convention for the Protection of Industrial Property, 55, 56, 69, 330
 Article 10*bis*, 59–61
 patent assertion entities, 96–7, 253–4
 patent holdup, 333, 336, 342
 patents
 compulsory licensing, 69
 disclosure requirements, 58
 patents, standards essential and computer programmes, 111–18
 and standard setting organizations, 86–9
 concept, 84–6
 defences to infringement, 97–100
 disclosure requirements, 125, double essentiality, 94–6
 hold up, 90
 patent assertion entities, 96–7
 patent pools, 92–3
 remedies, 100–11
 royalty stacking, 91–2
 undertakings to license, 87–9
 voluntary price commitments, 93
 path dependence, 27, 32, 140
 platform, 24–5, 51–3, 129, 145, 221
 platform, Java, 128–9, 145
 positive feedback, 4, 44, 247
 Post-Chicago school, 195–6, 253–4, 284
 price commitments, voluntary, 93
 private transnational rulemaking, 298–301, 304, 305
 protocol, 22, 23, 149, 150, 152, 155, 156, 260, 298–301, 334
 Transmission Control Protocol/Internet Protocol, 29–32
 Wireless Local Area Network, 28
 Qualcomm, 191, 214–15, 218–19, 220, 222, 270
Qualcomm case, 191, 214–15, 222
 QWERTY. *See* keyboard configuration, QWERTY
 Rambus, 216–18, 219–20
Rambus v. FTC case, 216–18
 RAND. *See* FRAND undertaking
 reasonable and non-discriminatory. *See* FRAND undertaking
 remedies, copyright infringement
 account of profits, 143–5, 146
 injunction, 140–2
 lost profits, 143, 146, 147
 remedies, patent infringement
 account of profits, 109
 injunction, 101–7
 lost profits, 107–9
 reasonable royalties, 109–11
 request for injunction in competition law, 201–12
 Chinese law, 209
 European law, 203–9
 law and economics, 209–12
 United States law, 202–3
 Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, 55
 rough consensus, 448–49,
 royalty stacking, 333, 336, 342
SAS Institute v. World Programming Limited case, 126–8
Sea Containers v. Stena Sealink case, 179–80
Sega v. Accolade case, 81, 124–5, 128, 129, 130, 131, 260, 334, 335
 SEIP. *See* intellectual property, standards essential
 SEIP, liability rules
 calculation of damages, 263–5
 collective rights organizations, 252
 component patents, 250–1
 compulsory licensing, 276–7
 conclusions, 257–8
 Cournot complements, 246–8
 cross-licensing, 253–4
 dynamic efficiency, 254–5
 existing scholarship, 239–44
 holdup, 248–50
 incentives to license, 253–4
 injunctions, 261–3
 patent assertion entities, 253–4
 reasonable royalties, 265–76

- transaction and assessment costs, 255–7
- undertakings to license, 251–2
- unilateral disciplines, 278
- SEIP, liability rules, 244–5
- SEP. *See* patents, standard essential
- Shapiro, Carl, 90, 91, 93–4, 241–2, 253, 256, 265–6
- Shapley value, 267, 268, 274, 276
- Sherman Act, 165, 166, 167, 168, 202, 217, 221, 223, 224
- single monopoly profit theorem, 170, 192, 196, 284, 337
- SSO. *See* standard setting organization
- standalone forum, 296–301, 303–5
- standard
 - definition, 17–19
- standards essential copyright
 - calculation of damages, 142–7
 - compilations of data, 135–40
 - computer user interfaces, 131–5
 - concept, 118–21
 - injunctions, 140–2
 - software-software interfaces, 122–31
- standards, de facto, 44, 119–20, 143, 309
- standards, formal, 19, 119, 263
- standards, misconduct in the creation of, 215–21
 - American law, 216–19
 - European law, 219–20
- standards, quality, 19–20
- standards, reference, 19–20
- standards, variety reduction, 19–20
- Tallinn Manual on the International Law Applicable to Cyber Operations, 300–1, 307
- Tariff Act 1930, 103, 339
- TBT Agreement. *See* Agreement on Trade-Related Aspects of Intellectual Property Rights
- TBT Code of Good Practice, 47, 69, 70–1, 290, 302, 350
- TBT Committee. *See* WTO Technical Barriers to Trade Committee
- TCP/IP. *See* Transmission Control Protocol/Internet Protocol
- TDMA. *See* Time Division Multiple Access
- Terminal Railroad* case, 161–4
- Third Generation Partnership Project, 33
- three-step test, 65–8, 318–24, 327–9
 - certain special cases, 327–8
 - limited exceptions, 318–19
 - no conflict with normal exploitation, 328–9
 - no unreasonable prejudice to legitimate interests, 329
 - unreasonable conflict with normal exploitation, 319–22
 - unreasonable prejudice to legitimate interests, 322–4
- Time Division Multiple Access, 32
- tipping, 4, 32, 44, 247
- topoi*, 11, 12, 14
- trade secrets, 148–50
- transaction costs, 233–4, 235, 236, 237–8, 239–40, 241, 245, 252, 255, 256, 287
- Transmission Control Protocol/Internet Protocol, 32, 42
- Trinko* case, 338
- TRIPS. *See* Agreement on Trade-Related Aspects of Intellectual Property Rights
- TRIPS Agreement. *See* Agreement on Trade-Related Aspects of Intellectual Property Rights
- tying, 221–3
- UMTS. *See* Universal Mobile Telecommunications System
- unfair competition, protection against, 59–61, 136, 154, 330
- United States – Section 110 of the Copyright Act* case, 67, 323–4, 327
- United States International Trade Commission, 103, 272
- Universal Mobile Telecommunications System, 33, 272

- US *Microsoft* case, 149, 151–2, 221–2
 USITC. *See* United States International Trade Commission
- VHS, 27–8
 Viehweg, Theodor, 10
- Waller, Spencer Webber, 172–3
 Washington Treaty on Intellectual Property in Respect of Integrated Circuits, 55, 329–30
 W-CDMA. *See* Wideband Code Division Multiple Access
 Wideband Code Division Multiple Access, 33, 85
 Wi-Fi. *See* Wireless Local Area Network standards
 Wi-Fi Alliance, 28
 WIPO. *See* World Intellectual Property Organization
 WIPO Copyright Treaty, 57, 329
 Wireless Local Area Network standards, 85, 110, 134–5, 267–71, 335
 WLAN. *See* Wireless Local Area Network standards
 World Intellectual Property Organization, 57, 120, 285, 291–2, 302, 305, 346
 World Trade Organization, 47, 76–7, 292–3, 302, 305, 346
 WTO. *See* World Trade Organization
- WTO Agreement on Technical Barriers to Trade, 18, 69–72, 290, 292, 350
 WTO Agreement on Trade-Related Aspects of Intellectual Property Rights, 54–69, 313–32
 compulsory licensing, 69, 329
 copyrights, 325–9
 enforcement, 331
 flexibilities, 62–9
 layout circuits, 329–30
 maximum standards, 57–61
 minimum standards, 54–7
 objectives and principles, 62–4
 three step tests, 65–8, 318–24, 327–9
 trade secrets, 330
 WTO Committee of Participants on the Expansion of Trade in Information Technology Products, 292–3
 WTO Doha Ministerial Declaration of 20 November 2001, 76
 WTO Information Technology Agreement, 74–5, 293
 WTO Technical Barriers to Trade Committee, 47–8
 WTO Telecommunications Agreement, 72–4
 GATS Annex on Telecommunications, 73
 Telecommunications Reference Paper, 73–4