

# Index

- Aaronson, Susan A., 110, 241  
Accenture, 136  
accountability frameworks, 198  
adaptive governance, 18  
Administrative Measures on Internet Information Services, 256–258  
Administrative Rules on International Networking  
    Entry and Exit Gateways for Computer Information Networks, 254  
AEOs. *See* authorized economic operators  
Africa, 91–92  
Agency for the Protection of Data of Inhabitants (PRODHAB) (Costa Rica), 297–298  
Agreement on Rules of Origin (WTO), 139–140  
Agreement on Technical Barriers to Trade (TBT), 85, 107–108, 139  
Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), 85, 140, 160, 166–168, 176–178, 187–188, 349  
Article 10.2, 170  
    release of goods and, 191  
    three-step test, 173–176  
AI. *See* Artificial Intelligence  
algorithms, 38–39, 108–109, 117, 131–132, 191–192, 308  
    data-processing, 198  
    decision-making, 233–234  
    DL and, 163  
    law enforcement and, 192  
    proprietary, 212–213  
Alibaba, 246–247, 266, 341–342  
Amazon, 1–2, 168, 268, 345–346  
anonymization, 13–14, 206  
ANTAI. *See* National Authority of Transparency and Access to Information  
anti-counterfeiting technologies, 186–187  
APEC. *See* Asia-Pacific Economic Cooperation  
APL Ltd., 136  
Apple, 1–2, 69–70  
applications, 24  
Argentina, 140–141  
Argentina–Chile FTA, 273, 285, 289–290, 299–300  
Artificial Intelligence (AI), 2–4, 12–13, 99, 340  
    accumulation of large data sets to train, 215  
    applications of, 212–213, 246–247  
    Committee on Regional Trade Agreements and, 164–165  
    concentration of control over, 214  
    cross-border data flows and, 224–225  
    cross-border digital trade and, 215–224  
    cross-border provision of, 227–228  
    cross-border trade in, 240–241  
    customers of, 352–353  
    decision-making based on, 118  
    defining, 160–164  
    designed for different environments, 118–119  
    ethics of, 355–356  
    functional applications, 182, 192  
    governance, 231–232, 241–242  
    impact of, 160  
    increased use of, 89  
    industry, 74–75  
    insurance coverage and, 125–127  
    IP enforcement and, 178–181  
    Kangaroo Problem of, 117–119  
    limits in governing, 230  
    medical diagnosis and, 122–125  
    negotiations on issues related to, 214–215  
    patents and, 163  
    personal and non-personal data in context of, 225–227  
    regulation of, 116–117, 127

- Artificial Intelligence (AI) (cont.)  
 rise of, 145–146  
 supply chain, 346  
 Text and Data Mining (TDM) and, 161  
 trade law and, 119–122  
 value of, 227  
 WTO and, 119–121
- ASEAN. *See* Association of Southeast Asian Nations
- Asia-Pacific Economic Cooperation (APEC), 87, 283–284, 299, 309  
 Cross-Border Privacy Rules, 284  
 Privacy Framework, 37–38  
 Privacy Principles of, 356
- Ask.com, 69–70
- Association of Southeast Asian Nations (ASEAN), 352  
 augmented reality, 197
- Austin, Lisa, 347
- Australia, 26–27, 33, 52–53, 220. *See also specific agreements*  
 consumer protection and, 56–58  
 Australia–Chile FTA, 287  
 Australian Productivity Commission, 348  
 Australia–Peru FTA, 273  
 authority, 178–179  
 authorized economic operators (AEOs), 138  
 automated decision-making, 207–208, 327–328  
 automation, 133–134, 178–181  
   of border enforcement, 191–192  
   concerns arising from, 190–191  
   estimation of potential losses and damages, 184  
   of procedures, 191  
   semi-automated border controls, 181–182
- B2C e-commerce, 213–214
- Bahrain, 33
- Baidu, 1–2, 258–259
- Barlow, John Perry, 235–236
- Bauer, M., 71
- Berne Convention, 167–168, 173–174
- Bext360, 139
- BGI Group, 259–260
- big data, 345–346  
 age of, 200–201, 242  
 analytics, 222–223  
 applications of, 246–247  
 Committee on Regional Trade Agreements and, 164–165  
 copyright protection and, 169–170  
 corpora of, 162, 166–170, 176  
 customs control and, 183–185  
 data colonialism and, 228–229  
 defining, 160–164
- IP and, 166–170  
 market of, 212–213  
 outputs of processing corpora, 162  
 patents and, 163  
 personally identifiable information and, 200  
 potential threats of, 320–321  
 privacy and, 205  
 WTO and, 164–166
- Bignami, Francesca, 236
- Binding Corporate Rule, 86–87
- bindingness, 56
- biometric screening, 181–182
- Bipartisan Trade Promotion Authority Act, 268–269
- Bitcoin, 128
- blockchain, 128, 132, 134–136, 185  
 applications of, 144–145  
 cross-border data flows and, 156  
 cybersecurity and, 145–146  
 data localization and, 146  
 data protection and, 148–151  
 data sovereignty and, 147  
 enforcement issues with, 144–145  
 GDPR and, 148–151  
 international trade and, 129, 134, 137, 151, 156, 158  
 IP and, 140  
 key features of, 128–131, 133–134, 141  
 legal recognition of transactions, 142–144, 152  
 legal status of, 144  
 nature of, 134  
 paperless trade and, 136–137  
 personal data and, 149  
 polycentric governance and, 155–156  
 privacy and, 147  
 regulatory considerations around, 141, 152–154  
 traceability and transparency features of, 139  
 transnational nature of, 154, 158  
 types of platforms, 130–132  
 United States and, 143–144  
 WTO and, 128, 137–141, 156, 158
- Blockchain Center, 157
- Blockchain Interoperability Alliance, 155–156
- Blockchain Knowledge Center, 157
- Blockchain Observatory Forum, 153
- Blockchain Research Institute, 155–156
- Blockpharma, 140–141
- Blockverify, 140–141
- Bolero, 137
- border enforcement, 191–192
- Boston Consulting Group, 135–136
- Brandeis, Louis, 195–196

- Brazil, 70–71, 140–141, 165–166. *See also specific agreements*
- Brazil–Chile FTA, 273, 290
- Breznitz, Dan, 348
- Buenos Aires Ministerial Conference, 142
- business trust
- enabling, 107–109
- Buterin, Vitalik, 133
- Buxbaum, Hannah, 237
- Bygrave, Lee, 236
- CAC. *See* Cyberspace Administration of China
- Cadena, 138
- California Consumer Privacy Act (CCPA), 196–197, 237
- Cambridge Analytica scandal, 197–198
- Canada, 51–53, 279, 305–307, 314–315. *See also specific agreements*
- data regulation and, 312
  - PIPEDA and, 307
- Canada–Costa Rica Free Trade Agreement, 29–30, 272, 275, 282–283, 285–286
- Canada–Honduras FTA, 26
- Canada–Korea FTA, 26
- Canada–Peru FTA, 26, 276–277
- Castells, Manuel, 233–234
- Catalini, Christian, 135
- CCP. *See* Chinese Communist Party
- CCPA. *See* California Consumer Privacy Act
- CEFTA. *See* Central European Free Trade Agreement
- censorship, 12–13, 262–263, 357–358
  - central actors, 51–55
- Central America–Mexico FTA, 26
- Central European Free Trade Agreement (CEFTA), 48–51
- Central Product Classification (CPC), 122–124
- centralization, 178–179, 181
- CEPA. *See* Closer Economic Partnership Agreement
- CERNET. *See* China Education and Research Network
- CETA. *See* Comprehensive Economic and Trade Agreement
- Charnovitz, Steve, 121–122
- Charter of Fundamental Rights (EU), 222
- Chile, 21–23, 33, 271–272, 291–293, 299. *See also specific agreements*
- Chile–EU Association Agreement, 272
- Chile–Uruguay FTA, 28, 273, 290
- Chile–US FTA, 272
- China, 1–2, 12–13, 66, 256, 264, 312–313, 352. *See also specific agreements*
- censorship and, 262–263
- cross-border data flows and, 264–265
- Cybersecurity Law, 246, 251–252, 257–261
- data regulation in, 256–263
  - growth of Internet in, 247–248, 266–267
  - guarded position of, 265
  - Internet regulation in, 246–247, 252–254, 260–261
- National Security Law, 251
- privacy and, 87
  - regulatory landscape in, 247–252
  - WTO and, 254–255
- Zimbabwe and, 353–354
- China – Audiovisual Products, 19, 120–121
- China Education and Research Network (CERNET), 246–247, 254
- China – Electronic Payments, 124
- China Golden Bridge Network (CHINAGBNET), 254
- China Mobile, 254
- China Public Computer Network (CHINANET), 254
- China – Publications and Audiovisual, 265
- China Science and Technology Network (CSTNET), 254
- CHINAGBNET. *See* China Golden Bridge Network
- China–Korea Free Trade Agreement, 164–165
- CHINANET. *See* China Public Computer Network
- Chinese Communist Party (CCP), 248–250
- Politburo of, 250–251
- Chinese Penal Code, 257–258
- Christensen, Lauritz, 70
- Citron, Danielle K., 191–192
- Ciuriak, Dan, 302–303
- civil law, 317
- civil society, 155–158, 219–220, 294, 350, 356
- CJEU. *See* Court of Justice of European Union
- Clarifying Lawful Overseas Use of Data (CLOUD) Act, 90–91
- Closer Economic Partnership Agreement (CEPA), 21
- CLOUD. *See* Clarifying Lawful Overseas Use of Data Act
- cloud computing services, 84
- CloudWalk, 353–354
- CNIL. *See* French National Commission on Informatics and Liberty
- Cohen, Julie, 234–235
- Colombia, 33, 48–49, 271–272, 296–297. *See also specific agreements*
- Colombia–Costa Rica FTA, 26
- Colombia–EU–Peru FTA, 32–33, 285

- Committee on Regional Trade Agreements, 164–165  
 communication technology, 201–202  
 Communications Decency Act, US, 38–39  
 competition law, 334–335  
 Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), 20, 24–25, 28, 34–37, 40, 55–56, 112, 216–217, 238–239, 273  
 Canada and, 302, 305–307, 312, 314–315  
 chapter 14 of, 314  
 data flows and, 304–307  
 data localization and, 307–308  
 e-commerce and, 303–304  
 privacy and, 351  
 source code and, 308  
 United States and, 351  
 USMCA difference with, 309–312  
 Comprehensive Economic and Trade Agreement (CETA), 55–56  
 compulsory licenses, 335–336  
 computational processing power, 178–179  
 computer vision, 182  
 conducive regulatory environment, 151–152, 157–158  
 confidentiality, 147  
 consent, 326–328  
 constitutional rights, 347–348  
 Consumer Privacy Bill of Rights Act, 196–197, 202  
 consumer protection, 36–37, 47, 61  
   Australia and, 56–58  
   deficiency of binding international frameworks on, 110  
   digital trade and, 96  
   Latin America and, 285–287  
   PTAs and, 107, 285–287  
   Singapore and, 56–58  
   WTO and, 107  
 consumer rights, 89–90, 345  
 consumer trust enhancing measures, 106–107  
 containerized cargo, 188–189  
 content, 24  
 content regulation, 256–260  
 control rights, 327–328  
 Convention on the Use of Electronic Communications in International Contracts (2005), 157–158  
 coordination costs, 135–136  
 Copyright Act (US), 171–172  
 copyright protection, 169–170  
 Costa Rica, 48–49, 279, 297–298  
 Couldry, Nick, 228–229  
 Council for Trade in Goods, 349–350  
 Council for Trade in Services, 124–125, 349–350  
 Court of Appeals for the Second Circuit (US), 175  
 Court of Justice of European Union (CJEU), 36, 168–170, 188–189, 218–219  
 CPC. *See* Central Product Classification  
 CPTPP. *See* Comprehensive and Progressive Agreement for Trans-Pacific Partnership  
 Creative Passport, 140–141  
 critical infrastructure, 35–36, 305  
 Cross-Border Privacy Rules System (APEC), 284  
 cryptocurrency, 128  
 cryptographic techniques, 130  
 CSTNET. *See* China Science and Technology Network  
 Cultural Revolution, 251  
 customs control, 181–183  
   big data and, 183–185  
   IoT and, 186  
 customs duties, 109, 275, 277–278, 304  
 cybercrimes, 106  
 cybersecurity, 20–21, 36–37, 83–84, 86, 122, 223–224, 251–252, 356–357  
   blockchain and, 145–146  
   cross-border data flows and, 87–88  
   data regulation and, 109–110  
   deficiency of binding international frameworks on, 110  
   GATS and, 94–96  
   international cooperation on, 103–104  
   regulatory coordination on, 98  
   standards, 103–104  
 Cybersecurity Law (China), 246, 251–252, 257–261  
 Cyberspace Administration of China (CAC), 248–252, 259–261, 265–266  
 cyberstalking, 106  
 cyber warfare, 245–246  
 data, free movement of, 24–25, 46–47  
   with trust, 234  
 data, new uses for, 345–348  
 data, trade and, 344–345  
 data access rights, 329–338  
   for businesses, 332–333  
   compulsory licenses and, 335–336  
 data collection, 3–4, 12, 341  
 data colonialism, 197–198, 228–229  
 data controllers, 149–150  
 data flows, 15, 18–19, 24–25, 53, 231, 288–289, 316–317  
   CPTPP and, 304–307  
   cross-border, 63, 84, 92, 145–146, 241  
    access to, 344  
    AI and, 224–225  
    blockchain and, 156  
    China and, 264–265  
    cybersecurity and, 87–88

- data localization and, 101–103  
data regulation and, 302–303  
distortion of, 356–359  
    data localization, 101–103  
    hindering, 83–84  
    limitations of, 226–227  
    restriction of, 86, 88, 223–224  
EU and, 220  
governance of, 214–216, 230, 232–233  
liberalization of, 232, 238–239, 241–242  
non-trade dimensions of, 359  
political gains from, 214  
privacy and, 86–87  
regulating barriers to, 351–352  
rules regarding, 343, 349–354  
    sub-index on, 79–80  
embedded liberalism and, 45–46  
ensuring free, 141  
evolution of, 49  
GDPR and, 320, 337–339  
Latin America PTAs and, 270–273  
network of PTAs regulating, 54  
of personal data, 318–319, 325–326  
policies on, 78  
provisions in Latin American PTAs, 287–288  
provisions on, 288–289, 299  
PTAs and, 24–25, 43–44, 58–60, 102, 288–289,  
    298  
regulation of, 48–49, 265, 356–357  
regulatory coordination on, 98  
regulatory issues pertaining to, 84  
regulatory models on, 52–53  
rules on, 24, 26–27  
trade-related aspects of, 93  
US–South Korea FTA and, 34–35  
WTO and, 98, 110–112  
data governance, 3–5, 92  
    future-oriented models for, 6  
data innovation, 28–29  
data localization, 28, 34–35, 37, 145–146, 223–224,  
    263, 265–266  
    blockchain and, 146  
    CPTPP and, 307–308  
    cross-border data flows and, 101–103  
    e-commerce and, 357–358  
    provisions on, 311  
    PTAs and, 28, 290  
    requirements for, 287–288, 305  
data ownership, 320–325, 338  
data policies, 65–66, 71  
    cross-border, 65–66, 72  
    domestic, 65–66, 72  
    informed dialogue on, 77–78  
    for trade, 76–77  
data pollution, 203  
data portability, 327–328, 331, 338–339  
data privacy. *See* privacy  
Data Privacy Impact Assessment (DPIA), 65  
data processing, 12, 70, 196–197  
    restrictions on, 327–328  
data protection, 28–33, 105, 198, 234  
    blockchain and, 148–151  
    EU and, 230  
    GDPR and, 299–300  
    laws, 201–202  
    mechanisms, 40  
    national, 314  
    officials, 356  
    PTAs and, 30–31  
Data Protection Authority (DPA), 291–293  
Data Protection Officer (DPO), 65  
data protectionism, 3–4, 358–359  
    cost of, 12–13, 65–69  
    WTO and, 76–78  
data realms, 349–354  
data regulation, 100–102, 109–112  
    Canada, 312  
    China, 256–261, 263  
    constraints on, 302  
    cross-border data flows and, 302–303  
    main players in, 265  
    standards in, 107  
data restrictive measures, 69, 76, 89–90, 92–93  
Data Restrictiveness Index, 65–68, 75  
data retention, 80–81  
data sovereignty, 147, 200  
data subject's rights, 327–328  
data territoriality, 84  
data transfer, 112  
data trusts, 229  
Database Directive (EU), 168–170  
data-driven  
    economy, 85, 341–342, 353–354, 356–357  
    growth, 111  
    innovation, 3  
    services, 214–215, 254  
data-industrial complex, 199–200  
data-intense sectors, 73  
data-sharing agreements, 205  
decentralization, 133, 152–153  
'Declaration of the Independence of Cyberspace'  
    (Barlow), 235–236  
Declaration on Global Electronic Commerce, 42,  
    261  
deep learning (DL), 161–162  
    algorithms, 163  
    high value outputs of, 162  
de-identification, 208–209

- DEPA. *See* Digital Economy Partnership Agreement
- Department of Agriculture, 138–139
- depth indicator for trade agreement provisions, 49–51, 59
- descriptive risk rating, 183–184
- developing countries, 87, 91–92, 109–111, 353
- DGCE. *See* General Directorate of Electronic Commerce (Panama)
- Digital Economy Partnership Agreement (DEPA), 5–6, 8, 21–23, 40–41, 209
- digital flows, 35–36
- digital goods and services, 326–327
- digital identity, 40–41
- digital industrial policy, 91–92, 97
- digital innovation, 98, 107–109
- digital intelligence, 212–213
- Digital Millennium Privacy Act, 203
- digital natives, 12
- digital platforms, 40, 213–214, 234–236, 238
- digital protectionism, 165, 215–216
- digital services, 84, 89–90, 108
- digital single market, 316–317, 323–324, 336–337
- Digital Single Market Strategy (EU), 316, 318–320, 325, 337–339
- digital sovereignty, 230
- digital technologies, 128, 141, 199, 201, 215, 231–234, 268
- concentration of, 228
- impact of, 5–6
- limited availability of, 222–223
- rise of, 145–146
- security issues related to, 100
- trade regulation and, 6
- digital tracking, 199
- digital trade, 15, 61, 74–76, 215–216
- chapter in USMCA, 312–313
- consumer protection and, 96
- costs for, 78–79
- cross-border, 215–224
- desirable baseline for, 232
- development-related concerns in, 109–110
- e-commerce and, 342
- EU and, 214–224, 350–352
- governance and, 33–34, 48
- negotiations on, 213–214
- personal data/personal information and, 212
- personal information and, 105
- provisions in PTAs, 20–23, 28–29, 43–44, 46, 48–49, 51–53, 61, 102–104, 109–110, 215–216, 270–273, 277–278, 285–288, 299–300, 302
- United States and, 34, 39–40, 74, 215–216, 238–239, 263, 312–313, 358–359
- WTO and, 33–34, 36, 43–44, 85, 100, 111–112, 215–217, 239–240, 275, 301–302, 307–308, 315, 349
- Digital Trade Agenda (US), 268–269
- Digital Trade Estimates (DTE), 65–66, 78
- Digital Trade Restrictiveness Index (DTRI), 58–61
- digital trade rules
- evolution of, 40–41
  - PTAs as preferred venue for, 40
- digital trust, 98, 101
- digitalization, 181–183, 192
- digitalization of services, 86–87
- digitization, 3, 11
- disinformation, 355–356, 359
- dispute settlement, 17, 160, 174, 239–240, 286–287, 312
- distributed denial of service attacks, 106
- distributed ledger technology (DLT), 131–132
- law enforcement and, 192
  - letters of credit and, 135–136
  - localization of traded goods and, 185–187
- distributed ledgers, 129–132
- DL. *See* deep learning
- DLT. *See* distributed ledger technology
- domestic security, 356–357
- domestic use of data, 76, 80–82
- DPA. *See* Data Protection Authority
- DPIA. *See* Data Privacy Impact Assessment
- DPO. *See* Data Protection Officer
- DTA. *See* US–Japan Digital Trade Agreement
- DTE. *See* Digital Trade Estimates
- DTRI. *See* Digital Trade Restrictiveness Index
- EAEU. *See* Eurasian Economic Union
- ECIPE. *See* European Center for International Political Economy
- e-commerce, 20–21, 26–27, 48, 53, 55–56, 105–106, 239–240, 274–275
- B2C, 213–214
- CPTPP and, 303–304
- cross-border transactions, 89
- data localization and, 357–358
- data-driven services and, 215
- digital trade and, 342
- IoT and, 268
- Latin American countries' legal frameworks on, 298
- Latin American PTAs and, 273–274
- legal framework of, 291
- network of PTAs regulating, 54
- PTAs and, 40, 55, 105, 298
- regulation of, 48–49, 268–269
- regulatory convergence in, 270–273
- regulatory models on, 52–53

- users of, 283  
USMCA and, 273, 303–304  
WTO and, 43, 146, 216–217  
WTO Plurilateral Negotiations on Trade-Related Aspects of Electronic Commerce, 312–314  
economic globalization, 42  
economic growth, 215, 344  
  data as driver of, 1–2  
Economic Partnership Agreement with Japan (Japan–EU EPA), 219–220  
*The Economist* (magazine), 130, 345–346  
eCustoms Decision (EU), 182–183  
e-documents, 141–144, 152, 156  
EDPS. *See* European Data Protection Supervisor  
EEA *See* European Economic Area  
EFTA *See* European Free Trade Association  
electronic authentication, 278–281  
Electronic Commerce Law (Colombia), 296  
electronic signatures, 46–47, 141–144, 152, 156, 263  
electronic transmissions, 109  
embedded liberalism, 45–46  
e-Privacy Directive, 89–90  
erasure/right to erasure, 149, 327–328, 338  
EssDocs, 137, 139–140  
Ethereum, 133  
eTradeConnect, 135–136  
EU. *See* European Union  
EU–Japan EPA, 26–27  
EU–Japan Free Trade Agreement, 351  
EU–Mexico Global Agreement, 26–27, 288–289  
Eurasian Economic Union (EAU), 53–55  
European Blockchain Partnership, 154  
European Center for International Political Economy (ECIPE), 58–61, 65–66, 78  
European Commission, 128, 214, 222–223, 226–227, 318–319, 332–333, 351–352  
European Copyright Society, 172–173  
European Data Protection Supervisor (EDPS), 227–228  
European Economic Area (EEA), 218–220  
European Free Trade Association (EFTA), 48–49  
European Strategy for Data 2020, 222–223  
European Union (EU), 14, 20–21, 26–27, 38, 52–53, 212–213, 222–223, 312–313. *See also specific agreements*  
Blockchain Observatory Forum, 153  
Charter of Fundamental Rights, 222  
cross-border data flows and, 220  
data protection and, 105, 230  
Database Directive, 168–170  
Digital Single Market Strategy, 34, 316, 318–320, 325, 337–339  
digital trade and, 218–219  
digital trade war, 358–359  
eCustoms Decision, 182–183  
EU–US Privacy Shield, 104–105, 149–150  
EU–US Safe Harbor Agreement, 36  
Free Trade Agreements (FTAs) and, 24–25, 105, 219–220, 224, 312–313, 351–352  
Osaka Declaration on the Digital Economy and, 301–302  
personal data in, 148  
policymakers in, 355–356  
Public Sector Information Directive, 333–334  
sui generis right in databases in, 169–170  
Trade Secrets Directive, 335–336  
EU–US Transatlantic Trade and Investment Partnership (TTIP), 238–239  
extraterritorial digital data, 90, 97–98  
Facebook, 1–2, 117, 147, 168, 268, 345–346  
facial recognition, 181–182, 197  
fair, reasonable, and non-discriminatory terms (FRAND), 335–336  
FCA. *See* Financial Conduct Authority  
Federal Trade Commission, 209–210  
Ferracane, Martina F., 65–66, 71–72, 75–76, 302–303  
Financial Conduct Authority (FCA), 153–154  
financial institutions, 125  
financial intermediation, 135  
financial services, 25, 31–32, 125  
5G, 1–2  
flexibility indicator for trade agreement provisions, 47, 51–52, 143–144  
*Football Dataco*, 168  
Fourth Industrial Revolution, 3, 165  
France, 66, 170–171  
FRAND. *See* fair, reasonable, and non-discriminatory terms  
Free Trade Agreements (FTAs), 21, 183, 216–217, 261, 307–308. *See also specific FTAs*  
freedom of expression, 63–64  
freedom of speech, 248  
French National Commission on Informatics and Liberty (CNIL), 149–151  
Freund, C., 74  
FTAs. *See* Free Trade Agreements  
fundamental rights, 4–5, 13–14, 40, 214, 218–219, 222–224, 230, 241, 316–317, 320–322  
G7, 234  
G20, 212–213, 234, 301–302  
GAFA. *See* Google, Apple, Facebook, and Amazon  
Gans, J. S., 135  
Gasser, Urs, 8

- GATS. *See* General Agreement on Trade in Services
- GATT 1994. *See* General Agreement on Tariffs and Trade 1994
- GDP. *See* Gross Domestic Product
- GDPR. *See* General Data Protection Regulation
- Geiger, Christophe, 170
- Geist, Michael, 307
- General Agreement on Tariffs and Trade 1994 (GATT 1994), 85
- General Agreement on Trade in Services (GATS), 16–17, 20–21, 85, 92, 307–308, 349
- Article VI, 110
  - Article VII, 106
  - Article XIV, 126
  - Article XIV(c)(ii), 217, 220
  - Article XVIII, 110
  - Article XX, 176
  - characteristics of, 119–121
  - commitments, 17–18, 92–93, 110–111, 122, 239–240
  - cybersecurity and, 94–96
  - digital industrial policy and, 97
  - existing architecture of, 111
  - general exception under, 16–17, 92–93, 111, 217, 220, 222, 239–240, 265, 307–312, 356–357
- IMF and, 100–101
- privacy and, 16–17, 93–94, 105–106, 220–222
  - public interest regulation and, 239–240
- General Data Protection Regulation (GDPR), 14, 26–27, 61, 70, 86–87, 125, 147, 196–197, 237, 299–300
- access granted by, 338–339
  - application of, 337
  - blockchain and, 148–151
  - data flows and, 26–27, 86–87, 219–220, 224–225, 239–240, 320, 337–339
  - data subjects' rights and, 327–328
  - enactment of, 200
  - European Commission and, 319, 351
  - ownership as control and, 325, 338
  - personal data and, 149–150, 219–220, 317, 329–332
  - privacy and, 246
  - scope of, 218–219
- General Directorate of Electronic Commerce (DGCE) (Panama), 294–295
- General Directorate of Transparency, Access to Public Information and Protection of Personal Data (NDPA) (Peru), 294
- German Copyright Act, 170–171
- German Ethics Commission, 229
- German Ministry of Economic Affairs, 229
- Germany, 66, 126
- Global Financial Innovation Network (GFIN), 153–154
- global public goods, 8
- global regulation, 45
- Global Trade Analysis Project (GTAP), 73
- Global Trade and Blockchain Forum (WTO), 157
- globalization, 42, 137, 158, 231, 233–234, 348
- Goldfarb, A., 74–75
- Google, 1–2, 116, 168, 263–264, 268, 341–342, 345–346
- Google, Apple, Facebook, and Amazon (GAFA), 117
- Google Books, 172, 175
- governance toolkits, 2–3
- Gross Domestic Product (GDP), 69
- long-run growth of, 71–72
  - total increased world, 73
- Grotius, Hugo, 235–236
- GTAP. *See* Global Trade Analysis Project
- Guide on the Determination of Critical Information Infrastructure, 259–260
- Guidelines for the Protection of Personal Information and Transborder Data Flows, 353
- GVC. *See* value chains
- Habeas Data Law (Colombia), 296
- hacking, 87–88, 106, 162, 330
  - hardware regulation, 252–255
- Harvard University Privacy Tools Project, 208
- hate speech, 117
  - Heap, Imogen, 140–141
  - Hedera Hashgraph, 132
  - Heraclitus, 231
  - Hikvision, 116
  - Hong Kong Monetary Authority, 154
  - Hong Kong–New Zealand FTA, 26
  - Hugenholtz, Bernt, 169–170
  - human rights, 45–46, 77, 97–98, 231–235, 237, 239–241, 357–358
    - digital, 242
    - domestic, 238
    - international economic law, 232
    - respect for, 241  - Hyperledger Fabric, 132–133
  - Hyperledger Project, 132–133
  - Hyperledger Sawtooth, 131–132
- IBM, 132–133, 135
- ICANN. *See* Internet Corporation for Assigned Names and Numbers
- ICC. *See* International Chamber of Commerce
- ICO. *See* Initial Coin Offerings
- ICT. *See* information and communication technology

- identity theft, 106  
IETF. *See* Internet Engineering Task Force  
ILO. *See* International Labour Organization  
IMF. *See* International Monetary Fund  
Implementation of the Internet Power Strategy, 266–267  
Implementation Rules for the Provisional Regulations (Implementation Rules), 252–256  
*Import Licensing Agreement*, 138–139  
INATBA. *See* International Association for Trusted Blockchain Applications  
India, 90–92, 268–269  
individual rights frameworks, 45–47, 214–215, 224–230, 325–326, 331, 338  
Indonesia, 26–27, 92, 220  
information and communication technology (ICT), 42, 46, 201–202  
information privacy. *See* privacy  
information processing. *See* data processing  
information technology (IT), 69, 130–131, 140–141, 201–202, 223–224  
Information Technology Agreement (ITA), 15–16, 349  
informational autonomy, 325–326, 338–339  
infrastructure, 222–224, 227, 233–234, 251, 347  
  cloud-based, 226–227  
  complementary policies and, 343  
  critical, 35–36, 259–260, 281, 305, 314–315  
  cybersecurity and, 87–88  
  data as form of, 348  
  data economy and, 212–213  
  development of, 164  
  regulation of, 24  
Initial Coin Offerings (ICO), 153  
Instagram, 116, 147  
Institute for Computer Science of China's State Commission of Machine Industry, 246–247  
insurance, 39–40, 74–76, 116–118, 120–121  
  coverage, 125–127  
  obligations, 294  
intellectual property (IP)/intellectual property rights (IPRs), 15, 20–21, 75, 91–92, 166, 177–178, 184–185, 234, 273  
AI and enforcement of, 178–181  
big data and, 166–170  
blockchain and, 140  
compulsory licenses and, 335–336  
customs surveillance of, 177–178  
enforcement, 178–179, 190–191  
goods protected by, 186–188  
infringement of, 140–141, 188–189  
offices, 190  
protection of, 161–162, 176, 178–179, 189–190  
territoriality of IP protection, 187–188  
Inter-American Development Bank, 138  
Inter-American Juridical Committee, 299  
Interim Regulations on Electronic Publications, 257  
International Association for Trusted Blockchain Applications (INATBA), 155–156  
International Chamber of Commerce (ICC), 138, 145, 157  
International Conference of Data Protection and Privacy Commissioners, 106  
International Consumer Protection Enforcement Network, 106  
International Institute for the Unification of Private Law (UNIDROIT), 99  
International Labour Organization (ILO), 348  
International Monetary Fund (IMF), 100–101  
International Organization for Standardization (ISO), 107–108, 143  
international regulatory cooperation, 111–112  
international relations, 44  
international rule-making, 8  
International Telecommunication Union (ITU), 143  
international trade, 128  
  blockchain and, 129, 134, 137, 151, 156, 158  
Internet  
  China, growth of, 247–248, 260–261, 266–267  
  China, regulation of, 246–247, 252–254  
  fragmentation of, 77  
  governance, 5–6, 47, 77, 100, 155, 232, 235–236, 238–239, 241, 248–250, 260–261, 354  
  history of, 152  
  regulation of, 265–266  
  regulatory fragmentation, 144, 146, 152–153  
  stakeholders and, 180  
  of value, 137  
Internet Corporation for Assigned Names and Numbers (ICANN), 155  
Internet Engineering Task Force (IETF), 107–108  
Internet Explorer, 268  
Internet of Things (IoT), 12–13, 87–88, 99, 165, 197, 341  
  customs control and, 186  
  e-commerce and, 268  
Internet service providers (ISPs), 253–254  
interoperability, 33–34, 89, 99–100, 106, 154, 203–206, 208–209, 291, 304, 354  
IoT. *See* Internet of Things  
Ireland, 131–132  
ISO. *See* International Organization for Standardization  
ISPs. *See* Internet service providers

- IT. *See* information technology  
 ITA. *See* Information Technology Agreement  
 ITU. *See* International Telecommunication Union
- Japan, 48–49, 165, 171, 183, 234. *See also specific agreements*  
 Japan–EU EPA. *See* Economic Partnership Agreement with Japan  
 Japan–Mongolia FTA, 26, 28  
 Japan–Thailand PTA, 49–51  
 Joint Statement Initiative on Electronic Commerce (WTO), 19–20, 26, 77, 142, 156, 158, 266, 268–269, 301–302  
 Joint Statement on Global Electronic Commerce, 29–30, 272  
 Jordan, 21  
 Jordan–US FTA Joint Statement on Electronic Commerce, 29–30  
 Jordan–US PTA, 43–44
- Kelsey, Jane, 239–240  
 Korea–Peru FTA, 26  
 Korea–US PTA, 43–44  
 Kuehne + Nagel, 136
- labour, 350  
 capital and, 302–303, 347  
 data, 346  
 invisible, 346  
 market, 318  
 productivity, 348
- Latin America/Latin American countries (LACs), 53, 269–270, 273, 298–299  
 consumer protection and, 285–287  
 customs duties and, 277–278  
 data flows and, 288–289  
 data localization and, 290  
 e-commerce and, 273–274  
 electronic authentication and, 278–281  
 personal data and, 281–282  
 privacy and, 282–285, 291  
 PTAs and, 270–274, 287–288  
 source code and, 281
- law enforcement, 63, 90–91, 127, 145–146, 179–180, 192, 356–357
- layered structure of the Internet, 24
- LDCs. *See* least-developed countries
- Leading Group for Information Technology Advancement, 252–253
- League of Nations, 348
- least-developed countries (LDCs), 109–112
- Leblond, Patrick, 110, 358–359
- Lee, Kai-Fu, 353
- legal harmonization, 180–181, 332–333  
 legal pluralism, 100  
 legal transplants, 118–119  
 Leistner, Matthias, 169–170  
 Leong, Lily, 115–116  
 letters of credit, 135–136, 145  
 Leviathan Security Group, 70–71  
 Li Keqiang, 250–251  
 liberalization, 232, 238–239, 241–242  
 libertarianism, 234–235  
 lie detection, 181–182  
 LinkedIn, 1–2  
 Linux Foundation, 132–133  
 local companies, 69–73, 76  
 Lupton, Deborah, 233–234
- machine learning (ML), 161, 222–223, 233–234  
 applications of, 246–247  
 high value outputs of, 162
- Macron, Emmanuel, 117
- Maersk, 134–135
- Malmström, Cecilia, 64–65
- Malta, 143–144
- manufacturing sector, 101–102
- Manyika, James, 73
- ‘Mare Liberum’ (Grotius), 235–236
- market access commitments, 125–126, 305
- market capitalization, 212–214
- market failure, 321–322
- Marrakesh Agreement, 268
- mass communication, 195–196
- mass-market software, 305
- Mattoo, Aaditya, 75, 104–105
- McKinsey Global Institute, 233–234, 341–342
- McLean, Malcolm, 134
- Measures for Security Protection Administration of the International Networking of Computer Information Networks, 255–258
- medical diagnosis, 122–125
- MEI. *See* Ministry of Electronic Industry
- Mejias, U. A., 228–229
- Meltzer, Joshua P., 75, 104–105
- Mexico, 52–53
- Mexico–Panama FTA, 289, 298–299
- MFN *See* most-favoured nation
- Microsoft, 1–2, 69–71
- MII *See* Ministry of Information Industry
- MIIT *See* Ministry of Industry and Information Technology
- Ministry of Electronic Industry (MEI) (China), 248–249, 254
- Ministry of Industry and Information Technology (MIIT) (China), 248–249, 256, 260–261

- Ministry of Information Industry (MII) (China), 248–249  
Ministry of Posts and Telecommunications (MPT) (China), 248–249, 254  
Ministry of Public Security (MPS) (China), 248–249, 260–261  
Ministry of Science and Technology (China), 259–260  
Mishra, Neha, 307–308  
Mitchell, Andrew, 307–308  
ML. *See* machine learning  
MLATs. *See* Mutual Legal Assistance Treaties  
Model Law on Electronic Commerce (UNCITRAL), 107, 157–158  
Model Law on Electronic Transferable Records (UNCITRAL), 142–143, 157–158  
monetization of data, 355  
Mongolia, 49–52  
Morocco, 33  
most-favoured nation (MFN), 15–16, 33–34, 47, 275–277  
MPS. *See* Ministry of Public Security  
MPT. *See* Ministry of Posts and Telecommunications  
Multi-annual Strategic Plan (EU), 182–183  
multilateral institutions, 100–101, 106–107  
multinational companies, 11, 96  
Mutual Legal Assistance Treaties (MLATs), 90–91, 97–98  
mutual recognition, 93–94, 138  
    Article VII GATS and, 99, 106  
    authentication technologies and, 278–281  
    mechanisms, 104–106  
Myanmar, 118–119
- NAFTA. *See* North American Free Trade Agreement; United States–Mexico–Canada Agreement  
Naik, Ravi, 347–348  
NASSCOM-DSCI, 75  
National Authority of Transparency and Access to Information (ANTAI) (Panama), 295  
National Informatization Leading Group, 248–249  
National Infrastructure Commission (UK), 347  
National Institute of Standards (NIST) (US), 341  
national interests, 11, 87–88  
National Network Security Inspection Operation Manual, 259–260  
National People's Congress (NPC) (China), 248  
National Register of Data Bases (NRDB) (Colombia), 296–297  
National Security Law (China), 251  
national treatment (NT), 15–16, 92–93, 97, 122–125, 275–277  
natural language processing, 182–184  
NDPA. *See* General Directorate of Transparency, Access to Public Information and Protection of Personal Data  
Netflix, 263–264  
Netscape Navigator, 268  
network neutrality, 36–37  
New Zealand, 21–23, 26–27, 220  
Nigeria, 92  
NIST. *See* National Institute of Standards  
non-discrimination, 15–16, 37, 47, 56–58, 275–276, 315  
non-personal data, 13–14, 225–227, 319, 325, 330, 332  
Nordic-Baltic Region, 212–213  
North American Free Trade Agreement (NAFTA), 34, 302, 351  
NPC. *See* National People's Congress  
NRDB. *See* National Register of Data Bases  
NT. *See* national treatment  
Nvidia AI, 116
- OAS. *See* Organization of American States  
OECD. *See* Organisation for Economic Co-operation and Development  
Office of the Privacy Commissioner of Canada (OPC), 307  
oil and gas companies, 212  
Okazaki, Y., 188–189  
Oman, 33  
OPC. *See* Office of the Privacy Commissioner of Canada  
Open Government Partnership, 355–356  
Opinions on Strengthening and Improving Internet Administration, 248–249  
Organisation for Economic Co-operation and Development (OECD), 11, 104–105, 157, 234, 309, 332–333, 353–354  
Guidelines on Transborder Flows of Personal Data, 31  
Privacy Guidelines, 29–30, 196–197  
Privacy Principles of, 356  
Recommendation of the Council Concerning Guidelines Governing the Protection of Privacy and Transborder Flows of Personal Data, 37–38, 283–284  
Organization of American States (OAS), 299  
Osaka Declaration on the Digital Economy, 234, 301–302  
ownership as control, 325–326, 328–329, 338  
Pacific Alliance Additional Protocol (PAAP), 27–28, 273, 275–276, 286–287, 289

- PAFTA *See* Peru-Australia Free Trade Agreement  
 Pakistan, 263–264  
 Panama, 48–49, 271–272, 289, 294–295, 298–299  
 Panama-US PTA, 48–49  
 paperless trade, 46–47, 136–137  
 patents, 163–164  
 path dependency, 300  
 payment service providers, 90  
 PDLP. *See* Personal Data Protection Law  
 personal data, 13–14, 31–33, 148  
     access to, 329–330  
     AI and, 225–227  
     blockchain and, 149  
     collection and use of, 196–197  
     constitutional rights and, 347–348  
     cross-border transfers of, 225  
     digital trade and, 105, 212  
     flow of, 318–319, 325–326  
     GDPR and, 149–150, 219–220, 317, 329–332  
     lack of control over, 319  
     ownership as control over, 328–329  
     privacy of, 245–246  
     processing of, 328, 338  
     property rights in, 323–325  
     protection of, 263  
     safeguards, 322  
     WTO and, 104–105  
 Personal Data Protection Law (PDLP) (Peru), 294  
 personal information. *See* personal data  
 Personal Information Protection and Electronic Documents Act (PIPEDA) (Canada), 307  
 Peru, 33, 271–272, 293–294. *See also specific agreements*  
 Peru–Australia Free Trade Agreement (PAFTA), 102, 105–106  
 Petersmann, Ernst-Ulrich, 234–235  
 PETs. *See* Privacy-Enhancing Technologies  
 Philippines, 138–139  
 phishing attacks, 106  
 Ping An Technologies, 116  
 Pinterest, 1–2  
 PIPEDA. *See* Personal Information Protection and Electronic Documents Act  
 pirated goods, 187–190  
 PoET. *See* Proof of Elapsed Time  
 political economy, 1–2, 44, 61, 199–200  
 polycentric governance, 100, 154–156  
 Porter, Michael, 152  
 PoS. *See* proof-of-stake  
 PoW. *See* proof-of-work  
 PMPs. *See* process and production methods  
 predictive analytics, 181–184, 205, 240–241  
 preferential trade agreements (PTAs), 5–6, 15, 19–20, 53, 268–269. *See also specific agreements*  
 conclusion of, 299  
 consumer protection and, 107, 285–287  
 customs duties and, 277–278  
 data flows and, 24–25, 43–44, 58–60, 102, 288–289, 298  
 data flows provisions in Latin American PTAs, 287–288  
 data localization and, 28, 290  
 data protection and, 30–31, 282–285  
 data-related rules in, 24–26  
 design features of, 44, 46  
 digital trade provisions in, 20–23  
 disagreement among members of, 56–58  
 electronic authentication and, 278–281  
 Electronic Commerce Chapters in, 111–112  
 Electronic Commerce/Digital Trade Chapters in, 110  
 heterogeneity among, 48  
 Latin America and, 270–274  
 negotiators of, 43–44, 58, 61  
 network of, 54  
 obligations, 83–84  
 personal data and, 281–282  
 preferred venue for digital trade rules, 40  
 privacy and, 30–31, 282–285  
 regulatory convergence in, 269–270  
 source code and, 281  
 variation in design of, 58  
 violation of, 299–300  
 prescriptive risk management, 183–184  
 President's Council of Advisors on Science and Technology (US), 209–210  
 privacy, 3–4, 63–64, 77–79, 195–196, 282–285, 345  
     administrative requirements on, 78–82  
     big data and, 205  
     binary notations of, 206  
     blockchain and, 147  
     China and, 87  
     CPTPP and, 351  
     cross-border data flows and, 86–87  
     data regulation and, 109–110  
     deficiency of binding international frameworks on, 110  
     differential, 207–209  
     EU and, 105  
     GATS and, 93–94  
     GDPR and, 246  
     Harvard University Privacy Tools Project, 208  
     institutional innovations and, 106

- limits to, 200–201  
mathematical guarantees of, 207–208  
of personal data, 245–246  
political economy of, 199–200  
protection, 14, 38  
regimes, 203, 304–307, 309  
regulatory coordination on, 98  
safeguards for, 197  
subject rights on, 81  
technology-induced concerns about, 201  
Privacy Framework, 11, 105–106  
APEC, 31, 37–38, 87, 283–284, 309  
developing countries and, 353  
Future oriented, 210–211  
variations in, 93–94  
privacy protection, 14, 20–21, 28–33, 38, 221–225,  
281–282, 291, 304, 355  
Privacy-Enhancing Technologies (PETs),  
203–204, 208  
private platform governance, 236  
privatization, 180  
process and production methods (PPMs), 121–122  
PRODHAB. *See* Agency for the Protection of Data  
of Inhabitants  
productivity, 70–73, 76  
Proof of Elapsed Time (PoET), 131–132  
proof-of-stake (PoS), 131–132  
proof-of-work (PoW), 131–132  
property rights, 317, 320–325, 328–329, 338  
Protection in the Handling of the Personal Data of  
Individuals (Costa Rica), 297–298  
Provenance, 139–141  
Provisional Regulations of the People's Republic  
of China on the Management of  
International Networking of Computer  
Information Networks (Provisional  
Regulations), 252–253  
PTAs. *See* preferential trade agreements  
public goods, 321–322, 332–333  
public interest regulation, 239–240  
public interests, 13–14  
public safety, 245–246  
public sector, 318  
Public Sector Information Directive (EU), 333–334  
public trust, 354  
  
Qian Tianbai, 246–247  
  
Radio Frequency Identification (RFID), 186–187  
RCEP. *See* Regional Comprehensive Economic  
Partnership  
R&D. *See* research and development  
reactive jurisdictional claims, 237–238  
reCAPTCHA, 346  
rectification, 327–328  
regime complexity, 45  
Regional Comprehensive Economic Partnership  
(RCEP), 352  
Regulation to the Law of Promotion of  
Competition and Effective Defence of  
the Consumer (Costa Rica), 297–298  
regulatory convergence, 154, 269–273  
regulatory cooperation, 41, 47–48, 56–58  
regulatory environments, 58, 66, 152–153  
regulatory fragmentation, 144, 146, 152–153  
regulatory harmonisation, 270  
regulatory sandboxes, 153–154  
Reidenberg, Joel, 237  
research and development (R&D), 74–76  
Resta, Giorgio, 236  
revenue collection, 137–138  
RFID. *See* Radio Frequency Identification  
right to information, 327–328, 353–354  
*The Right to Privacy* (Brandeis and Warren),  
195–196  
Ripple, 132  
risk analysis, 183–185  
risk management, 103–104, 183–184  
Ross, Wilbur, 358–359  
rule-makers, 51–60, 300  
rule-making, 269–270, 359  
rule-takers, 300, 359  
Russia, 66  
Rwanda, 165–166  
  
SAFTA *See* Singapore-Australia Free Trade  
Agreement  
sanctions for non-compliance, 82  
Sanitary and Phytosanitary Measures (SPS), 139  
Scassa, Teresa, 308, 347  
Scholz, Lauren, 345–346  
*Schrems*, 36  
Schwartz, Paul M., 225  
scope indicator of trade agreement provisions, 46  
Seal, 140–141  
sector-specific regulations, 333–334, 336–337  
security standards, 108–109  
Segura-Serrano, Antonio, 100  
Selby, John, 90  
semi-automated border controls, 181–182  
Services Sectoral Classification List, 254–255  
Shackelford, Scott, 100  
SIC. *See* Superintendence of Industry and  
Commerce  
Singapore, 20–23, 28, 33  
    consumer protection and, 56–58  
Singapore–Australia Free Trade Agreement  
(SAFTA), 21–23, 28

- small- and medium-sized enterprises (SMEs), 70, 135, 269–270, 274–275, 298, 332–333  
 small services-oriented economies, 66  
 smart city, 117  
 smart contracts, 133–134, 138–139  
 SMEs. *See* small- and medium-sized enterprises  
 Snapchat, 147  
 Snowden, Edward, 199–200  
 social media, 345  
 socialism, 256–257  
 software regulation, 255–256  
 Solove, Daniel J., 225  
 source code, 108–109, 224, 281, 305, 308  
     transparency of, 99  
 South Africa, 268–269  
 South Korea, 33, 138  
 South Korea–United States FTA, 24–27  
 Sovrin, 147  
 spam control, 36–37  
 Spotify, 140–141  
 SPS. *See* Sanitary and Phytosanitary Measures  
 stakeholders, 5–6, 8, 63–64, 77, 106, 138–139, 145, 152, 157–158, 180, 186–187, 212–213, 229, 245–246, 317, 354  
 Standard Contractual Clauses, 86–87  
 Stitch Fix, 340–343, 345–346, 349  
 Stone, S., 79  
 Strava, 340–343, 345–346, 349  
 supercomputers, 1–2  
 Superintendence of Industry and Commerce (SIC), 296–297  
 Supreme People's Court (China), 257–258  
 Supreme People's Procuratorate (China), 257–258  
 surveillance capitalism, 197–198, 228–229  
 Swedish National Board of Trade, 64–65  
 Switzerland, 189–190  
 Szabo, Nick, 133–134  
 Taiwan–Nicaragua FTA, 288–289  
 takedown requests, 180–181  
 TAPED *See* Trade Agreements Provisions on Electronic Commerce and Data (dataset)  
 tariff losses, 109  
 tariffs, 176  
 TBT. *See* Agreement on Technical Barriers to Trade  
 TDM. *See* Text and Data Mining  
 technological advances, 187–188, 195–196, 205  
 technological protection measure (TPM), 162, 173  
 Telecommunication Act (US), 246  
 Telecommunication Regulation (China), 254–256  
 Telecommunications Reference Paper, 110  
 Tencent, 258–259  
 terrorism, 245–246  
 Tesla, 119  
 Text and Data Mining (TDM), 161, 169–176  
 text-as-data analysis, 53–55  
 TFA. *See* Trade Facilitation Agreement  
 TFP. *See* total factor productivity  
 TikTok, 115–116  
 TiSA. *See* Trade in Services Agreement  
 Total factor productivity (TFP), 71  
 TPM. *See* technological protection measure  
 TPP. *See* Transpacific Partnership Agreement  
 trade agreements, 214–215, 245. *See also* Free Trade Agreements; preferential trade agreements  
 Trade Agreements Provisions on Electronic Commerce and Data (dataset) (TAPED), 20–21, 58–61, 270–271, 275–276  
 trade conflicts, 17  
 trade distortions, 69  
 Trade Facilitation Agreement (TFA), 15–16, 137–138  
 trade finance, 134, 152–154, 156  
     coordination costs, 135–136  
 Trade in Services Agreement (TiSA), 219–220, 238–239, 261, 349  
 trade rules, 3, 15, 24, 85, 111–112, 116–117, 176, 238–241, 345  
     digital, 20, 36, 40, 238–240, 268–269  
     international, 122, 239–240, 242  
     traditional, 268  
 Trade Secrets Directive (EU), 335–336  
 trade wars, 358–359  
 trade-inhibiting effects, 64–65  
 Tradelens, 135  
 transaction costs, 269–270, 323–325  
 Transpacific Partnership Agreement (TPP), 27–28, 55–56, 273, 289, 351  
 transparency, 31–32, 38, 90–100, 107–108, 119, 129–130, 156, 191–192  
     active, 291–293  
     of blockchain, 139  
     cooperation on, 47–48  
     ensuring, 210–211  
     facilitation of, 348  
     GATS and, 92–93  
     importance of, 140–141  
     industry developments in, 272  
     lack of, 269–270  
     principles of, 337  
     requirements of, 14  
     of source code, 266  
     treaty design, 58–60

- TRIPS. *See* Agreement on Trade-Related Aspects of Intellectual Property Rights
- Trump, Donald, 238–239
- TTIP. *See* EU-US Transatlantic Trade and Investment Partnership
- Tucker, Catherine, 74–75
- Tunisia, 26–27, 220
- Turkey, 66
- Twitter, 1–2, 342
- Uber, 345–346
- UDHR. *See* Universal Declaration of Human Rights
- Ukraine, 51
- UN Human Rights Council, 234–235
- UN/CEFACT. *See* United Nations Centre for Trade Facilitation and Electronic Business
- UNCITRAL. *See* United Nations Commission on International Trade Law
- UNCTAD. *See* United Nations Conference on Trade and Development
- Undisclosed Information Law (Costa Rica), 297–298
- UNIDROIT. *See* International Institute for the Unification of Private Law
- Uniform Customs and Practice for Documentary Credits, 145
- United Kingdom, 347
- United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), 157
- United Nations Commission on International Trade Law (UNCITRAL), 99
- Model Law on Electronic Commerce, 107, 157–158
- Model Law on Electronic Transferable Records, 142–143, 157–158
- United Nations Conference on Trade and Development (UNCTAD), 91–92, 165–166, 223–224, 228
- Digital Economy Report, 213–214
- United States (US), 14, 21, 118–119, 196–197, 215, 312–313. *See also specific agreements*
- blockchain and, 143–144
- Census, 205, 207–208
- Communications Decency Act, 38–39
- Copyright Act, 171–172
- Court of Appeals for the Second Circuit, 175
- CPTPP and, 351
- Digital Agenda of, 33
- Digital Trade Agenda, 268–269
- digital trade and, 34
- EU-US Privacy Shield, 104–105, 149–150
- Telecommunication Act, 246
- trade war, 358–359
- United States–Mexico–Canada Agreement (USMCA), 20–25, 28, 31–32, 37–40, 112, 216–217, 238–239
- APEC Cross-Border Privacy Rules and, 284
- Article 19.16(2) of, 108–109
- Canada and, 302, 312, 314–315
- CPTPP difference with, 309–312
- digital trade chapter in, 312–313
- e-commerce and, 273, 303–304
- Financial Services Chapter of, 102
- NAFTA 2.0 and, 351
- Universal Declaration of Human Rights (UDHR), 234–235
- Universal Trade Network, 155–156
- urbanization, 195–196
- Uruguay Round, 15–16
- US – *Gambling* case, 17
- US International Trade Commission (USITC), 74
- US–Japan Digital Trade Agreement (DTA), 21–23, 33–34, 39–40, 224
- USMCA. *See* United States–Mexico–Canada Agreement
- US–South Korea FTA, 34–35
- utopism, 234–235
- value chains, 181–182
- global value chains (GVC), 238–239
- value-added telecommunications services, 18–19
- van der Marel, Erik, 75–76, 302–303
- VCargoCloud, 139–140
- VeChain, 140–141
- Verified Organic, 139
- Vietnam, 183
- Virtual Private Network (VPN), 252–253, 256
- virtual reality, 197
- vital digital assets, 108
- Voltron, 135–136
- Volvo, 119
- VPN. *See* Virtual Private Network
- Warren, Samuel, 195–196
- WCO. *See* World Customs Organization
- WCopyfind, 53–55
- WEF. *See* World Economic Forum
- Weibo, 258–259
- Weinhold, D., 74
- West, Darrell, 357–358
- We.trade, 135–136
- WIPO. *See* World Intellectual Property Organization
- Work Programme on Electronic Commerce, 19–20, 239–240, 261–262, 264

- World Bank, 356  
 World Customs Organization (WCO), 157  
 World Economic Forum (WEF), 43, 234, 301–302,  
     341–342, 345–346  
 World Intellectual Property Organization (WIPO),  
     140, 173  
 World Trade Organization (WTO), 3, 42, 238–239,  
     301–302, 349  
     adaptive governance, 18  
     Agreement on Rules of Origin, 139–140  
     Agreements, 15–16, 116–117  
     AI and, 119–121  
     applicability of WTO rules to trade agreements,  
         275  
     big data and, 164–166  
     blockchain and, 128, 137–141, 156, 158  
     case law, 217  
     China and, 254–255  
     consumer protection and, 107  
     Council for Trade in Services, 124–125  
     customs duties and, 275  
     data flows and, 98, 110–112  
     data protectionism and, 76–78  
     data regulation, framework for, 101  
     data restrictive measures and, 92–93  
     data transfer and, 112  
     data-related issues, 97–98, 265–266  
     digital trade and, 315  
     Dispute Settlement Body, 174  
     e-commerce and, 43, 146, 216–217  
     exploring new regulatory approaches in, 100–101  
     fostering transparency of member's trade  
         regimes, 156  
     General Council, 140–141, 261–262  
     Global Trade and Blockchain Forum, 157  
     interoperable and transparent standards in data  
         regulation, 107  
     Joint Statement Initiative on Electronic  
         Commerce, 19–20, 26, 77, 112, 142, 156,  
         158, 266, 268–269, 301–302  
     lack of progress under umbrella of, 40  
     members, 84–85, 99–100, 103–104,  
         350  
     Ministerial Conferences, 110, 261, 263–264,  
         268–269, 349–350  
     normative reach of, 176  
     norms, 35–36  
     obligations, 83–84, 122–123  
     Panel Report, 175–176  
     personal information and, 104–105  
     Plurilateral Negotiations on Trade-Related  
         Aspects of Electronic Commerce,  
         312–314  
     as pre-Internet law, 15–20  
     secretariat, 352–353
- Xi Jinping, 250–251, 260–261, 266–267  
 Xiaoice, 115–116
- Yahoo!, 12–13, 69–70
- Zero-Knowledge Proof (ZKP), 148–149  
 Zhao Lianhai, 257–258  
 Zhu Rongji, 248–249  
 Zimbabwe, 353–354  
 ZKP. *See* Zero-Knowledge Proof  
 Zuboff, Shoshana, 228–229  
 Zuckerberg, Mark, 117