absolute cross-border knowledge flows, 8
acquisitions, 364–367
administrative challenge panels (ACP), 127
Agreement on a Unified Patent Court Article 35(1), 723
Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). See TRIPS Agreement
All Patents Great and Small: A Big Data Network Approach to Valuation study, 221
allocation of rights
machine-generated data, 743–747
American Music Rights Association (AMRA), 545
anonymized data, 758
app stores, 51, 55
Apple Licensed Application End User License Agreement, 54
applicant–applicant patents, 267
article-level Eigenfactor (ALEF), 227
artificial intelligence (AI), 91, 160
human capital formation barrier to international knowledge flows, 423
international knowledge flows, 418
machine learning, 419
manufacturing, decline of, 420
learning gains from, 423–424
assignment datasets, 312–315, 322
Australia–Japan Economic Partnership Agreement
digital products, definition, 60
Balance of Payments Manual, 5th ed. (BPM5), 177
reporting, 2010, 177–178
Balance of Payments Manual, 6th ed. (BPM6), 172, 175
reporting, 2015, 182
balance-of-payments (BoP) statistics, 8
trade in services, growth, 92
trade in services statistics, 198
base erosion, 204, 209
basic lease, 30
Beijing Treaty on Audiovisual Performances 2012, 121
Article 10, 67
Berne Convention, 110–112
big data, 160, 595–597
bits, not atoms, 47, 50
blockchain, 532
collective management organizations (CMOs), and, 544
creative digital economy, and new revenue streams, 543
developing countries (DCs) bypassing intermediaries, 547
possible issues, 548
developing economies, and, 547
providers, examples, 547
blockchain (cont.)
digital creative economy, and, 543
inclusive of emerging
technologies, 544
transparent and efficient solution, 543
value of, 543
genre gap, and, 548
use by streaming services or digital
retailers, 546
blueprint transfers, 177
Brazil
making available provisions, 146–148
Brussels Regulation
Article 249, 719
burden of knowledge, 413
Bureau of Economic Analysis (BEA)
 intra-firm payments, 200
caller tunes, 53
case law
European Union, 583–587
charges for use of intellectual property
(CUIP)
cross-border, 204
cross-border profit-shifting, 209
European Union and United States, 2016, 176
global flows, 2015, 200
global mismeasurement, 210
individual countries, 211
lagged R&D, 205
regression analysis, 2005–2016, 205
small share of international trade, 210
tax-induced mis-measurement, 9
understating, 210
world international transactions, 2005–2017, 175
Charter of Fundamental Rights of the
European Union
Article 7–10, 579
Article 8, 583–584
Article 11, 583–584
Article 14, 579
Article 16, 584
Article 17(2), 761
China – Electronic Payment Services
case, 98
China – Publications and Audiovisual
Products case, 97
China–Australia Free Trade Agreement
(ChAFTA)
Article 12.3, 664
ClearCorrect case, 64–65, 158
climate change-mitigation knowledge
flow
trajectory, 10
climate-mitigation technology
international knowledge flows, 258
cloud services, 91
co-applied patents, 267, 269
Europe and developing countries, 270
United States and Canada, 272
collective management organizations
(CMOs), 541
blockchain, and, 544
developing countries (DCs), 548
recognition of, 549
future role, 544
future scenarios, 545
Comprehensive and Economic Trade
Agreement (CETA)
Article 16.2.2, 664
Article 16.4, 666
Article 25.5, 658
digital delivery, definition, 61
Comprehensive and Progressive
Agreement for Trans-Pacific
Partnership (CPTPP)
Article 14.10, 612
Article 14.13(2), 613
Article 14.16, 612
Article 14.17, 610
Article 14.8(2), 611
INDEX

Copyright Harmonization Directive
Article 3, 585
Article 3(1), 585
copyright industries, 499, See also piracy
copyright law
problems dealing with streaming, 556
Copyright Royalty Board (CRB), 557

Copyright, Designs and Patents Act
1988
sec 29A(1), 752
countries of residence
priority filings, 289–291
country code top level domains (ccTLDs), 129
country-by-country reports (CbCR), 207
COVID-19 pandemic, 805

Creative Content UK, 520
creative industry. See digital creative economy
crop protection industry, 384
crop protection patents, 385
cross-border data flows, 625
broad range of commercial exchanges and processes, 627–628
broadening firms engaged in trade, 626
data localization
economic implications, 630
reasons for, 629
digital fragmentation, 629
regulatory challenges, 800–802
cross-border financial transactions, 296–301
cross-border IP receipts
high relative outbound foreign direct investment (FDI), 205
tax rates, 204
intangible, 205
low ratios, 204
regression results, 206
transfer mispricing, 205
INDEX

cross-border knowledge flows
absolute, 8

diversification of production
capacity, 3

improving measurement
academics, potential actions, 214
national tax administrations,
potential actions, 213
policymakers and analysts,
potential actions, 213
statisticians, potential actions, 212

international trade rules, affecting, 651
classification, 651
creation knowledge incentives, 654
e-commerce, 663–665
intellectual property rights (IPRs),
limits to protection, 658–660
intellectual property rights (IPRs),
protection, 656–657
knowledge-embedded services,
661–663
performance requirements, 660–661
R&D activities, 654–656
restrictive exceptions, 665–667
scientific cooperation, 657–658
technology transfer, 660–661
technology-enabling goods and
services, 652–654

novel patent analytics, and, 387–395
provisions, WTO agreements and free
trade agreements (FTAs), 668

R&D foreign direct investment (FDI),
low- and middle-income
countries, 352, 354–356
acquisitions, 364–367
greenfield investments, 358–364
heterogeneity, acknowledging,
368–369
impact, 356–357
impact channels, 367–368

multinational enterprises (MNEs),
353

public policies, approaches to,
369–371

relative, 8

studies using IPR data, 294
assignment datasets, 312–315,
322
cross-border financial
transactions, 296–301
cross-border trade, defining, 294
intellectual property strength
indexes, 309
intensity metrics, 309
licensing and royalty payments,
306–308
patent counts, 302–306
patent families, 308
patent inventor location, 311–312

technological proximity, 310
trade in knowledge, 295
tax distortions in national statistics,
207

ORBIS database gaps, 207
profit-shifting estimates,
208–212
tax planning, distorting
measurement, 9

World Trade Organization (WTO),
new rules, 667
facilitating provisions, 677

free versus protected data,
679–681
knowledge creation incentives,
675–677
technology transfer, 678
technology-enabling goods and
services, 675

cross-border licensing
European Union, 574–577
cross-border trade

intangible assets
causes and consequences, 195
disembodied know-how, 196
market-based transactions, 196
measuring
incomplete reporting, 200–202
low-tax-rate affiliates, 203
non-valuation issues, 202
patent boxes, 202, 204
quantity mismeasurement, 204
tax rates, 202
transfer mispricing, 203
multinational enterprises (MNEs),
facilitating, 195
tracing, 198
authorized use payments, 198
balance-of-payment (BoP), 198
corporate tax returns, 200
intra-firm payments, 200
OECD Technology Balance of Payments, 200
royalties licences and fees (RLF), 199
specific country data, 198
crowding-out of local firms, 357
customs statistics, 173
cybertheft of trade secrets. See trade secrets
data
cross-border knowledge flows, 679–681
data availability
improvements in, 177–184
data localization
CPTPP measures, 609
economic implications, 630
reasons for, 629
USMCA measures, 613
data mining, 160
data packets, 72–75
demand-side interventions, piracy, 518–520
design, development and testing (DDT)
foreign direct investment (FDI), 359
geographical and sectoral distribution, 360
greenfield investments, 358
low- and middle-income countries, 362–363
developed and developing countries allocation to regions
grouping of countries, 286
problems of, 286
templates for, 286
developing countries (DCs)
blockchain
possible issues, 548
collective management organizations
(CMOs), 548
digital music providers, 550
global music sector
CMOs, recognizing, 549
distribution on key platforms, 548
expanding institutional and human resource use, 549
targeted marketing strategies, 549
list, 440
TRIPS compliance, 436
digital, 37
digital content market
e-books
competitive landscape, 341–345
global market, 345
revenue, 2017, 342
intellectual property rights (IPRs).
See intellectual property rights (IPRs)
international statistics
limited availability, 324
total revenue, 2017, 325
music industry
competitive landscape, 336–340
global markets, 340
revenue, 2017, 337
video games, 326
competitive landscape, 326–329
global markets, 329–330
revenue, 2017, 326–327
video on demand
competitive landscape, 330–335
global markets, 335–336
revenue, 2017, 330
digital creative economy
blockchain, and, 543
inclusive of emerging
technologies, 544
new revenue streams, 543
transparent and efficient solution, 543
value of, 543
copyright, 536
data capture issues, 537
high levels of infringement, 537
importance, 536
fair value for authors and
rightholders, 536
growth
contribution by region, 533
dimensions of trade, 533
revenue, 533
social media drivers, 533
digital disruption, 6
digital fragmentation, 644
Digital Millennium Copyright Act 1998 (DMCA), 139–141, 143
safe harbours, 567–573
digital service providers (DSPs), 532
digital video services
local content requirements, 642
digitization
big data, 595–597
convergence, 594–595
definition, 592
existing regulatory framework, 600
Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), 609–612, 614
free trade agreements (FTAs), 606–609, 614
United States–Mexico–Canada Agreement (USMCA), 612
World Trade Organization (WTO), 600–606
interim conclusion, 598
Internet of Things (IoT), 597
directional knowledge flows
between developed and developing countries, 251
Directive 2004/48
Article 3, 583
Directive 2009/24
Article 4(2), 70, 157
See E-Commerce Directive
Directive on Copyright in the Digital Single Market (DSMD), 144
directives
European Union, 577–583
discrete technology clusters, 260
disembodied know-how, 196
disembodied knowledge, 194, 659
disembodied knowledge spillovers, 295
disembodied technology flows, 201
disembodied technology trade, 198
Doha Declaration on the TRIPS Agreement and Public Health 2001, 40
Domain Name Dispute Policy, 126
Domain Name System (DNS), 125
privatization of, 128
domain names, 125–129
Uniform Domain-Name Dispute-Resolution Policy (UDRP), 129
mandatory policy, 129
response to digital IP challenge, 130
set of standard terms, 130
success of, 131
domestic patent filings, 303
Dow/DuPont merger, 383–387
DSM Directive
  Article 13, 579
  Article 14, 579
  Article 14(1), 581
  Article 15, 579
  Article 17, 581–583
duration of protection
  machine-generated data, 747–748
dynamic knowledge networks, 21
e-books
  competitive landscape, 341–345
  global market, 345
  revenue, 2017, 342
e-commerce
  cross-border knowledge flows,
  663–665
  machine-generated data, 756–759
E-Commerce Directive
  Article 2(6), 580
  Articles 12–15, 577
  Article 14, 580, 583–586
  Article 15, 583
  Article 15(1), 584–585, 587
embodied technology flows, 201
endogenous growth theory, 78–79, 412
creative industries, 80
policy development, role in, 80
use of, 79
equitable servitude on chattels, 38
e-sports, 328
ETSI Declarations, 710
irreversible licences, 713
EU
  Audiovisual Media Services Directive
    2007, 643
EU Database Directive
  Article 7(1), 755
  Article 10(3), 747
EU Directive on Copyright in the Digital Single Market, 536
EU–Japan Free Trade Agreement
  Article 8.11, 656
  Article 8.73, 660
  Article 8.81, 664
European Commission
  Dow/DuPont merger, 383–387
  mergers and acquisitions
  criticisms of approach, 386
European Court of Justice (ECJ)
  exhaustion of rights, 68
  computer programs, 70
  ReDigi case, 71
  Tom Kabinet case, 68–69
  UsedSoft case, 70
European E-Commerce Directive 2000, 141, 143
European Free Trade Association (EFTA), 615
European Parliament
  Committee on the Internal Market and Consumer Protection (IMCO), 578
European Patent Convention (EPC), 228
European Patent Office (EPO), 269
PATSTAT database, 221, 224, 231, 482
exclusive licence, 703, 705
exhaustion principle
  arguments against relaxation, 159
  ClearCorrect case, 158
Copyright Treaty
  Article 6, 156
  Article 6(1), 157
  Article 7, 156
  Article 8, 157
court constraints, 159
definition, 155
domestic law, applying, 156
Impression Products case, 42–45
Kirtsaeng case, 40–42
exhaustion principle (cont.)
ReDigi case, 158
Tom Kabinet case, 157
TRIPS Agreement, 155
UsedSoft case, 157

FAANGS tech stocks, 534
fair, reasonable and non-discriminatory (FRAND) licensing, 689, 706, 802
arbitration, use of, 720–727
central element, 709
choice of court clause, 717–720
commercial law reform, 732
irrevocable, 713–717
principles to be addressed, 731–732
public policy reform excluded, 733
standardization, need for, 727–729
terms covered by, 712
third party beneficiaries, and, 709–710
film industry. See streaming
first sale doctrine, 40, 71
first unbundling, 3
foreign direct investment (FDI)
cross-border IP receipts, 205
global and regional supply chains, 410–412
international technology diffusion, and, 408
foreign knowledge
accessibility of, 456
drawing upon, 456
foreign non-codified knowledge, 14
innovation, boosting, 14
foreign patent filings, 302
formalized technology transactions, 197
free trade agreements (FTAs)
digitization, and, 606–609
free-riding, 434
frontier innovation, 416
frontier technological knowledge acquisition of, 406
GATS (General Agreement on Trade in Services)
Article XIV, 610
Article XVIII, 616
Article XX, 610, 617
means of supply not distinguished, 96
modes of supply, 87
phone and fax services, 87
relevant commitments, 97–99
technological neutrality, 662
Telecom Annex, 98, 100–101, 105
GATT 1994
Article IX.6, 33–34
Article XX, 32, 57, 617
inventory of non-tariff barriers 1968, 33
Tokyo Round negotiations, 33
trade in counterfeit goods, 33
trade in counterfeit goods, 1970s, 33
Uruguay Round negotiations, 34
General Agreement on Tariffs and Trade (GATT). See GATT 1994
generic top level domains (gTLDs), 125, 129
genre gap
blockchain, and, 548
statistics, 542
German Patent Office (DPMA), 269
Ginarte Park index, 309
global and regional supply chains, 410–412
global knowledge diffusion
intellectual property (IP), and, 780–782
global knowledge flows
technological gap. See technological gap
global music sector
developing countries (DCs)
distribution on key platforms, 548
CMOs, recognizing, 549
expanding institutional and human resource use, 549
targeted marketing strategies, 549
genre gap, 542
revenues, 2004–2019, 537–538
rights holders remunerations, 542
global patent flows
destinations of, 12, 397
global value chain revolution. See second unbundling
global value chains (GVCs). See also international supply chains
dispersed, 29, 79
intangible capital, and, 476
measure of interest, 479
measurement challenges, 186
  defining location of ownership, 187
multinational enterprises (MNEs), 186
non-multinational enterprises, 186
patents, measuring relationship, 473
data limitations, 473
databases used, 473
patents and exports, 474
performance measures, 475
NStages, 479
upstreamness, 481–482
value-added trade (VAX), 478–479
production value, generation of, 85
vast literature on, 474
goods, definition, 63
governments
  piracy responses, 508–509
Granger causality, 484
Great Firewall, 665
great unbundling, 472, 474
greenfield investments, 358–364
grey market
  copyright, and, 41
gTLD-MoU governance model, 127

Guide on Measuring Global Production, 188
Guide to Measuring Global Production of the Conference of European Statisticians, 172
HADOPI law, 518
Harmonized Commodity Description and Coding Systems (HS)
media, distinguishing, 35
Hatch–Goodlatte Music Modernization Act 2018, 563–564
heterogeneity, low- and middle-income countries, 368–369
high-income countries (HICs) list, 440
high-intellectual property (IP) products TRIPS compliance, effect of empirical study, 437
TRIPS compliance, empirical study, 437–447
HS. See Harmonized Commodity Description and Coding Systems
human capital
  absorbing and improving knowledge, 407
  in-situ brain drain, and, 356
specialized investment, 422
human capital accumulation
  China & India, 414
  impact on innovative activity, 415
human capital formation
  barrier to international knowledge flows, 423
human technological knowledge, 412
impact channels, 367–368
Impression Products case, 42–45
imputed payments, 186
income gaps, 405
incomplete recording
cross-border trade, 200–201
India
safe harbours, 144–146
industry descriptions, 467
informal technology transactions, 197
information and communication technology (ICT)
GATS modes of supply, 87
phone and fax services, 87
infrastructure as vehicles of enabled trade, 89
Internet. See Internet
networked technologies, 91
customers also suppliers, 92
remote supply enhanced, 92
physical proximity of suppliers and consumers, 86
research and development (R&D), facilitating, 417
services trade, 420
barriers impeding, 422
developing gains, 422
exports, growth in, 421
global benefits, 421
protectionism, 422
technical knowledge, and, 85
value-added networks services, 87
information assets, 686
balance sheets, not highlighted on, 692
commercial agreements, 686
fair, reasonable and non-discriminatory (FRAND) licensing, 706, 802
arbitration, use of, 720–727
central element, 709
choice of court clause, 717–720
corporal commercial law reform, 732
irrevocable, 713–717
principles to be addressed, 731
public policy reform excluded, 733
standardization, need for, 727–729
terms covered by, 712
third party beneficiaries, and, 709–710
global trade, importance of, 691
information law merchant model, 696, 802
current law inadequacies, 702–706
deficiencies of, 702
examples, 697–700
scope, 700–702
licensing, 687
process, 694
tangible assets model, and, 694
no general law framework, 693
information goods
economic characteristics, 499
piracy, and, 499
reasons for, 500
unique and growing threat, 499
information law merchant model, 688, 696, 802
current law inadequacies, 702–706
deficiencies of, 702
takeover of, 702–703
limited number of participants, 19, 730
scope, 700–702
information patent documents. See patents
Information Technology Agreement (ITA), 99
innovation
burden of knowledge, 413
current global landscape, 353
endogenous growth theory, 412
department, 416
mergers and acquisitions, 381–382
patent counts, measuring, 302
permissionless, 593
private and excludable inputs, and, 455
public stock of knowledge, and, 455
reverse, 355
semi-endogenous growth theories, 412
INDEX

in-situ brain drain, 356
institutional reforms
knowledge flows, and, 796–798
intangible assets
cross-border trade
causes and consequences, 196
disembodied know-how, 196
market-based transactions, 196
intangible products, 5
exchanges, 177
intellectual property
international trade, and
data availability, 177–184
intellectual property (IP)
Balance of Payments Manual, 5th ed. (BPM5), 177
reporting, 2010, 177–178
Balance of Payments Manual, 6th ed. (BPM6), 172, 178
reporting, 2015, 182
balance of payments statistics,
treatment of, 180
chattel versus medium, 66
content, measuring trade in, 787–789
cross-border receipts. See cross-border IP receipts
cross-border trade. See cross-border trade
formalized technology transactions, 197
informal technology transactions, 197
definition, 171, 176
digital trade
behind the border issue, 631
relationship between, 631
endogenous growth theory, 78–79
creative industries, 80
policy development, role in, 80
use of, 79
equality and competition in trade, 55
app stores, and, 55
barriers to, 56
developing countries, and, 56
exhaustion of rights
Beijing Treaty on Audiovisual Performances 2012, 67
European Court of Justice (ECJ), 67
ReDigi case, 71
Tom Kabinet case, 68–69
UsedSoft case, 69–70
on-demand digital delivery, 67
Performances and Phonogram Treaty (WPPT), 67
GATT 1994
Article IX.6, 33–34
Article XX, 32
global knowledge diffusion, and,
780–782
goods serving as proxies for access to intangible content, 34–35
Guide to Measuring Global Production of the Conference of European Statisticians, 172
internal regulation
WIPO Internet Treaties. See World Intellectual Property Organization (WIPO)
international regulation, 108
Berne Convention, 110–112
Paris Convention, 110–112
tech lag phenomenon, 109
TRIPS Agreement. See TRIPS Agreement
international trade, and
charges for use of, 174
e-commerce delivery, 185
exports of high-tech goods, 173
quantitative indicators, 173
statistical measurement, 173
transactions for use of, 174
licence fees, increases in, 8
licences, 177
intellectual property (IP) (cont.)

Manual on Statistics of International Trade in Services 2010 (MSITS2010), 172, 178, 183
reporting, 2015, 182
methods of international transmission, 172
new digital markets
app stores, 51, 55
caller tunes, 53
purchase and access, 53
revenue, increases, 51
rights for privileges, 54
transformational effect of trade, 52
positive-sum approach to policy, 778–780
quantum theory approach, 75
observing behaviour, 77
wave-particle duality, 76
regional trade agreements (RTAs)
enforcement provisions, 136
increased IP content, 132
internationalization of approaches, 134
Joint Recommendation on marks and signs on the Internet, 136
most-favoured nation (MFN) principle, 132–133
negotiated across a number of trade-related areas, 138
reaffirming multilateral treaties, 137
specifc provisions, 134
technological protection measures (TPMs), 135
single international market, 65
trade in digital products
application of WTO rules, 58
bilateral and regional trade agreements, 60
content more important than platform, 59
no definitive solution to challenges, 59
trade in goods
ClearCorrect case, 64–65
Trade in Services by Modes of Supply (TISMOS), 184
trade, link with, 432
dynamic benefits, 434
free riding, and, 434
non-rival policy, 433
tool of industrial policy, 432
trade-related aspects, 28, 57
challenges, 58
cross-border commercial exchanges, 29
implications for territoriality and segmentation, 29
Old Town Road, success of, 29–32
physical career media superseded, 28
shift in framing, 29
valuable content, 28
unfair competition/geographical indication (GI) nexus, 33
intellectual property (IP)
ternational regulation
domain names, 125–129
ISP liability. See ISP liability
ntellectual property products (IPPs) forms, 176
Guide on Measuring Global Production, 188
merchanting of services, 189
special purpose entities, measuring transactions, 188
trade in, 172
transfers, recording issues, 187
ntellectual property rights (IPRs)
chattel irrelevant, 46
copyright, internet intermediary liability, 347
cross-border knowledge flows, 656–660
exhaustion, 39
exhaustion principle
definition, 39
Impression Products case, 42–45
Kirtsaeng case, 40–42
legal and policy questions, 45
nationally or internationally, 39
tangible goods, 40
international technology diffusion
developed world, response of, 410
emerging and middle-income economies, 408
multinational enterprises (MNEs), effect on, 409
qualified benefits, 409
scope of, 408
machine-generated data, 754–756
traded as discrete items, 50
intellectual property strength indexes, 309
intellectual property traders
characteristics, 189
foreign direct investments (FDI), 191
multinational enterprises (MNEs), 191
services trade by enterprise characteristics (STEC), 190
special purpose entities (SPEs), 191
trade by enterprise characteristics (TEC), 190
intensity metrics, 309
interjurisdictional citation rates fluctuating, 254
interjurisdictional patent citations, 231
international co-invention, 416
International Confederation of
Societies of Authors and Composers (CISAC), 539
International Copyright Enterprise (ICE), 542

international knowledge flows
academic literature, 266
artificial intelligence (AI), 423
machine learning, 419
manufacturing, decline of, 420
balancing out, 255
between more and less developed countries
fluctuating interjurisdictional
citation rates, 254
climate-mitigation technology, 258
developed and developing countries
research and development (R&D) collaboration, measuring,
267–268, 270–273
technology sourcing, measuring,
268, 273–278
technology transfer, measuring,
268–270, 278–280
developed and developing countries
sources, 265
estimating from importance,
234–238
human capital formation, barrier to,
423
pharmaceutical industry
pharmaceutical, defining, 260–262
radial diagram, 251–254
wind power technology, 259
International Patent Classification (IPC), 291
international patent inflows, 482
international production-sharing, 456
international supply chains. See also global value chains (GVCs)
connected country-pair-industries, 468
diffusion driving growth and income
distribution, 454
knowledge spillovers
distance decay, 470
distance, relationship with, 462
empirical methodology, 456
international supply chains (cont.)
local not global, 461
main innovators, regression results, 469
quantifying, 459–461
regression results, 469
technology transfer, role in, 453
international technology diffusion
determinant of global technical change, 408
foreign direct investment (FDI), and, 408
global and regional supply chains, 410–412
imported capital goods, and, 408
intellectual property rights (IPRs)
developed world, response of, 410
emerging and middle-income economies, 408
multinational enterprises (MNEs),
effect on, 409
qualified benefits, 409
scope of, 408
technical intermediate inputs, and, 408
International Trade Court (ITC)
jurisdiction of, 158
Rwanda, creative industries report, 56, 79
Trade Map, 36
international trade rules
jurisdictional issues, 95
network effects, and, 96
premise of, 95
International Trademark Association (INTA)
White Paper 1997, 127
International Transactions Reporting System, 184
Internet
broadband and mobile, 90
commercial transactions, redefining, 50
commercialization and growth of, 88
broadband, and, 88
web browsers, and, 88
global trade, increasing, 498
high-capacity, 89
inclusiveness of, 593
invention, 22
key role in global trade, 641
pathway for IP-protected content, 48
regulatory trade barriers behind-the-borders, 641
examples, 642
traditional rules, use of, 643
similar to open international trade regime, 49
TCP/IP protocol, 48–49, 73
transformative impact, 47
worldwide use of, 46–47
Internet Corporation for Assigned Names and Numbers (ICANN), 7
Internet neutrality, CPTPP, 612
Internet of Things (IoT), 91, 597
Internet Service Providers (ISPs)
piracy responses, 512
intra-firm transactions
influences on, 186
Ireland, and, 200
relevant statistics, 173
intrajurisdictional patent citations, 231
inventor–inventor patents, 268
investment
machine-generated data, 759–761
IPRED, 518
islands of excellence, 369
ISP liability, 139
regional trade agreements (RTAs), 148–155
regulatory approaches
Digital Millennium Copyright Act 1998 (DMCA), 140–141, 143
<table>
<thead>
<tr>
<th>Index</th>
<th>821</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directive on Copyright in the Digital Single Market (DSMD), 144</td>
<td></td>
</tr>
<tr>
<td>European E-Commerce Directive 2000, 141, 143</td>
<td></td>
</tr>
<tr>
<td>exemption conditions, 142</td>
<td></td>
</tr>
<tr>
<td>WIPO Internet treaties non-signatories, 144, 146–148</td>
<td></td>
</tr>
<tr>
<td>Joint Recommendation Concerning Provisions on the Protection of Well-Known Marks (JR 1999), 123</td>
<td></td>
</tr>
<tr>
<td>Kirtsaeng case, 40–42</td>
<td></td>
</tr>
<tr>
<td>knowledge sharing and remuneration paradox, 774</td>
<td></td>
</tr>
<tr>
<td>knowledge creation incentives cross-border knowledge flows, 675–677</td>
<td></td>
</tr>
<tr>
<td>knowledge flows analysis, importance of, 234–238</td>
<td></td>
</tr>
<tr>
<td>empirical study issues, 787</td>
<td></td>
</tr>
<tr>
<td>measuring trade in IP content, 787–789</td>
<td></td>
</tr>
<tr>
<td>intangible quality, 16</td>
<td></td>
</tr>
<tr>
<td>mergers and acquisitions, 377</td>
<td></td>
</tr>
<tr>
<td>Dow/DuPont merger, 383–387</td>
<td></td>
</tr>
<tr>
<td>innovation, importance of, 381–382</td>
<td></td>
</tr>
<tr>
<td>pharmaceutical technology aggregate citations, 232</td>
<td></td>
</tr>
<tr>
<td>aggregate importance of patents, 247</td>
<td></td>
</tr>
<tr>
<td>interjurisdictional patent citation rate, 245</td>
<td></td>
</tr>
<tr>
<td>mean importance of patents, 249</td>
<td></td>
</tr>
<tr>
<td>patent growth, 253</td>
<td></td>
</tr>
<tr>
<td>policymaking insights, 793</td>
<td></td>
</tr>
<tr>
<td>global production chains, and, 795</td>
<td></td>
</tr>
<tr>
<td>institutional reforms, 796–798</td>
<td></td>
</tr>
<tr>
<td>leveraging technology and information, 793</td>
<td></td>
</tr>
<tr>
<td>patent data as policy guidance, 789–793</td>
<td></td>
</tr>
<tr>
<td>patent flows, and, 795</td>
<td></td>
</tr>
<tr>
<td>R&amp;D development, 794</td>
<td></td>
</tr>
<tr>
<td>TRIPS Agreement, implementation of, 794</td>
<td></td>
</tr>
<tr>
<td>product classifications, and, 795</td>
<td></td>
</tr>
<tr>
<td>regulating digital content trade, 798–800</td>
<td></td>
</tr>
<tr>
<td>sources between developed and developing nations, 10</td>
<td></td>
</tr>
<tr>
<td>trade, relationship between, 649</td>
<td></td>
</tr>
<tr>
<td>understanding better data use, 783</td>
<td></td>
</tr>
<tr>
<td>conceptual clarity, 783</td>
<td></td>
</tr>
<tr>
<td>implications for governance, 784</td>
<td></td>
</tr>
<tr>
<td>insights for policymakers, 784</td>
<td></td>
</tr>
<tr>
<td>wind power technology aggregate citations of patents, 240</td>
<td></td>
</tr>
<tr>
<td>aggregate importance of patents, 231, 241</td>
<td></td>
</tr>
<tr>
<td>interjurisdictional patent citation rate, 239</td>
<td></td>
</tr>
<tr>
<td>mean importance of patents, 243</td>
<td></td>
</tr>
<tr>
<td>patent growth, 239</td>
<td></td>
</tr>
<tr>
<td>knowledge services, 85</td>
<td></td>
</tr>
<tr>
<td>manufacturing, 85</td>
<td></td>
</tr>
<tr>
<td>knowledge spillovers, 266</td>
<td></td>
</tr>
<tr>
<td>determinants of, 454</td>
<td></td>
</tr>
<tr>
<td>empirical methodology, 456</td>
<td></td>
</tr>
<tr>
<td>intermediate inputs, generating, 454</td>
<td></td>
</tr>
<tr>
<td>international supply chains. See international supply chains</td>
<td></td>
</tr>
<tr>
<td>production linkages, important driver, 14</td>
<td></td>
</tr>
<tr>
<td>quantifying, 459–461</td>
<td></td>
</tr>
<tr>
<td>knowledge trap, 416, 426</td>
<td></td>
</tr>
</tbody>
</table>
knowledge-based intangible assets. See information assets
knowledge-embedded services
cross-border knowledge flows, 661–663
Kyoto Protocol 2017, 10
   Article 10, 222
larger-scale data analytics, 91
leased circuit services, 100
least developed countries (LDCs) list, 440
   TRIPS compliance, 436
licensing and payments, 306–308
limitations and exceptions
   machine-generated data, 751–753
   low- and middle-income countries heterogeneity, acknowledging, 368–369
machine-generated data, 739
national policy development
   allocation of rights, 743–747
   limitations and exceptions, 751–753
   protection, duration of, 747–748
   protection, modality of, 741–743
   protection, scope of, 700–702
   varying national approaches, 740
protection, international norm setting, 801, 803
e-commerce route, 756–759
intellectual property (IP) route, 754–756
investment route, 759–761
lack of consensus between parties, 753
push for greater protection
   EU sui generis proposal, 739
   standards, need for, 740
Madrid Agreement for the Repression of False or Deceptive
   Indications of Source on Goods of 1891, 34
Manual on Statistics of International
   Trade in Services 2010 (MSITS2010), 172, 178, 181
   reporting, 2015, 182
mechanical royalties, 561–563
merchanting of services, 189
mergers and acquisitions
   chemical industry, concentration of, 386
   European Commission, criticism of, 386
   knowledge flows
   mergers and acquisitions
   Dow/DuPont merger, 383–387
knowledge flows and, 377
innovation, importance of, 381–382
MERIT-CATI databases, 307
mobility of knowledge, 21
modality of protection
   machine generated data, 741–743
most-favoured nation (MFN) principle, 132–133
mountain of knowledge, 413
multinational corporations
   inventors, assisting with patients, 416
   research and development (R&D)
   frontier innovation, 416
   research and development (R&D)
   role of, 416
multinational enterprises (MNEs)
   centres, factors influencing location, 354–356
   country-by-country reports (CbCR), 207
cross-border trade, facilitating, 195
crowding-out of local firms, 357
in-situ brain drain, 356
IPR reforms, effect on, 409
measurement challenges, 186
research and development (R&D)
   bridging function, 418
   Chinese and Indian inventors, assisting, 417
| convergence in quality, 417 | OECD–WTO Trade in Value Added (TiVA) initiative extending, 788 |
| policy environment required, 418 | offshoring, 3 |
| music industry | basic model, 493 |
| competitive landscape, 336–340 | research and development (R&D), 268 |
| global markets, 340 | Old Town Road, success of, 29–32 |
| global revenue, 2017, 51 | on demand digital delivery, 66–67 |
| revenue, 2017, 337 | ORBIS company database, 207 |
| NetNames report Sizing the Piracy Universe report, 633 | Organisation for Economic Co-operation and Development (OECD) |
| network analysis | G20 Base Erosion and Profit-shifting (BEPS) project, 204 |
| patent citation networks, 224–225 | physical counterfeiting report 2013, 499 |
| Network Solutions Inc. (NSI) | Technology Balance of Payments (TBP), 200 |
| Domain Name Dispute Policy, 126 | trade secret protection report, 640 |
| next wave of disruptors, 596 | orphan works, 8, 803 |
| non-binding instruments, 162 | over-the-top (OTT) service providers, 594, 641 |
| non-codified knowledge, 456 | packets of data, 32 |
| foreign, 14 | elements of, 73 |
| spillovers, 795 | transmission of, 74 |
| transfer, 453 | Paris Agreement 2015, 10 |
| non-exclusive licence, 703 | Article 10, 223 |
| noninteractive streaming services, 557 | Article 11, 223 |
| non-patent intensive industries, 310 | Paris Convention, 110–112 |
| non-produced assets, 176 | patent analytics limitations of, 378 |
| North–South general equilibrium product-cycle model, 413 | industry based, 458 |
| human capital accumulation China & India, 414 | Patent Asset Index, 379 |
| impact on innovative activity, 415 | Competitive Advantage average amount, 388–390 |
| imitation, 414 | Competitive Impact average amount, 388 |
| innovation concentrated in North, 414 | Market Relevance, 380 |
| internal changes, 413 | Technology Relevance, 379 |
| novel patent analytics | cross-border knowledge flows, and, 387–395 |
| NStages, 479 | NStages, 479 |
Patent Asset Index (cont.)
crop protection patents, 385
Dyson Ltd example, 380–381
German patents, spread of, 391
Japanese patents, spread of, 392
technological dependence changes, 2000–2015, 394
United States patents, spread of, 393
patent boxes, 202, 204
patent citation networks, 219
All Patents Great and Small: A Big Data Network Approach to Valuation study, 221
article-level Eigenfactor (ALEF), 227
building, 219
Chinese example, 229
citations, value of, 225–226
classification
climate change-mitigation technology, 228
developed and developing countries, 228
pharmaceutical technology, 228
international climate agreements, 222–224
knowledge flow, analysis
importance, 228, 234–238
raw citations, 227, 233
natural technology clusters, 219
network analysis, 224–225
PATSTAT database, 221, 224
recent data, and, 228
technical knowledge flows, 219
three specific hypotheses, 220
patent citations, 9
developing country patents citing developed country patents, 256
interjurisdictional trends, 231
sudden increase, 2005, 256
patent counts, 302–306
patent data
as guidance for policymakers, 789–793

patent exhaustion
principle, 44
uniform and automatic, 43
patent families, 308
patent filings
allocation of technology fields, 291
patent flows
measuring, 482
value-added trade (VAX), measuring
estimation approach, 483–485
results, 485–490
patent holdup, 707
patent importance
Chinese and United States citation patterns, 256
patent intensive industries, 310
patent inventor location, 311–312
patents
definition, 218
imports, stimulating, 472
multiple countries, taking out China, 415
multinational corporations, role of, 416
non-productive motives, 476
objective information sources, as, 378
PATSTAT database, 231
registration, 187
trade
relationship not fully understood, 472
trends in numbers, 230
Pennsylvanian case, 37–39
performance requirements
cross-border knowledge flows, 660–661
permissionless innovation, 593
pervasive digitization, 159
pharmaceutical industry
international knowledge flows
pharmaceutical, defining, 260–262
knowledge flows
aggregate citations, 232
aggregate importance of patents, 247
interjurisdictional patent citation rate, 245
mean importance of patents, 249
patent growth, 253
trajectory of, 9
piracy. See also copyright industries,
See also copyright
cannibalizing paid sales, 500
creative output, and
literature and studies, 504-508
other factors influencing, 504
shrinking of, 504
failure to enforce treaties, 634
harming legal trade, 501
impact on sales
contaminated observational data, 502
counterfactual sales, 502
difficult to observe, 501
degenerate, and, 502
negative, 501, 503
none, 501, 503
peer-reviewed studies, 531
positive, 501
willingness to pay for content, 503
information goods, and, 499
reasons for, 500
unique and growing threat, 499
policy responses
governments, 508–509
Internet Service Providers (ISPs), 512
platforms, 511–512
rights holders, 509–511
supply-side and demand-side, 514
programs against
demand-side, 518–520
supply-side, 514–518
social welfare, and, 503
website blocking, 634
Carnegie Mellon University report 2016, 635
child pornography, 636
free and open Internet, and, 636
government actions, 637
illegal digital goods, 636
key policy, 634
misperceptions about, 635
platforms
piracy responses, 511–512
predictive causality, 484
premature deindustrialization, 420
priority filings
countries of residence, 289–291
produced assets, 176, 178
product cycle, 413
production linkages
knowledge spillovers, and, 14, 795
strongest, 460
public performance royalties, 560–561
Punta del Este Declaration 1986, 34
purchasing physical media
nature of transaction, 36
identifying, 37
Pennsylvanian case, 37–39
R&D. See research and development (R&D)
ReDigi case, 71, 158
regional trade agreements (RTAs), 803
broadening of Reference Paper obligations, 100
commitments, 99
e-commerce chapters, 101
cross-border information flows, 101
data centre locations, 102
enforcement provisions, 136
fair and transparent pricing provisions, 100
increased IP content, 132
regional trade agreements (RTAs)
(cont.)
internationalization of approaches, 134
ISP liability, 148–155
most-favoured nation (MFN) principle, 132–133
negotiated across a number of trade-related areas, 138
reaffirming multilateral treaties, 137
Recommendation on marks and signs on the Internet, 136
specific provisions, 134
stand-alone telecommunications chapters, 100
technological protection measures (TPMs), 135
regulatory challenges
cross-border data flows, 800–802
relative cross-border knowledge flows, 8
Republic of Korea–United States Free Trade Agreement (KORUS)
Article 12.8, 666
Article 15.8, 664, 666
digital products, definition, 60
e-commerce provisions, 608
free data flows, 609
intellectual property rights (IPRs), 657
research and development (R&D) acquisitions, 364–367
collaboration, 10
measuring, 267–268, 270–273
cross-border knowledge flows, 654–656
diminishing returns, 412
endogenous growth theory, 412
foreign, impact on domestic productivity, 472
global expenditure concentration of, 459
industry based, 458
greenfield investments, 358–364
impact channels, 367–368
information and communication technology (ICT), role of, 417
low- and middle-income countries, impact of, 356–357
multinational corporations, role of, 416
frontier innovation, 416
multinational enterprises (MNEs) bridging function, 418
Chinese and Indian inventors, assisting, 417
convergence in quality, 417
policy environment required, 418
offshoring, 268
public policies, approaches to, 369–371
reduction of effort model, 412
related acquisitions in low- and middle-income countries, 366
restrictive exceptions
cross-border knowledge flows, 665–667
reverse innovation, 355
rights holders
piracy responses, 509–511
robotics, 91, 94
Royalties Licences and Fees (RLF) receipts and payments, 199
royalty collections, 540
royalty payments, 306–308
safe harbours
Digital Millennium Copyright Act 1998 (DMCA), 567–573
India, 145–146
Sankey diagrams, 292
scientific cooperation
cross-border knowledge flows, 657–658
scope of protection
machine-generated data, 700–702
second unbundling, 3, 410, 626
semantic information, 750
protecting, 750
| syntactic information, distinguishing, 749 |
| semi-endogenous growth theories, 412 |
| services exports, 421 |
| Services Trade by Enterprise Characteristics (STEC), 190 |
| services, definition, 63 |
| servitification, 85 |
| settled licence, 713 |
| geographic scope, 717 |
| non-exclusive choice of court clause, 720 |
| termination clause, 714 |
| validation of, 714 |
| smile curve, 475, 481 |
| special agreements, 113 |
| special purpose entities (SPEs) |
| IPP transactions, compiling, 188 |
| standardization, 706 |
| Standing Committee on Trademarks, Industrial Designs and Geographical Indications (SCT), 122 |
| Joint Recommendation Concerning Provisions on the Protection of Marks, and Other Industrial Property Rights in Signs on the Internet (JR 2001), 123 |
| stream ripping, 340 |
| streaming, 556 |
| European Union legislative framework, 573 |
| case law, 583–587 |
| cross-border licensing issues, 574–577 |
| directives, 577–583 |
| Music Works Modernization Act 2018 (MWMA), 563 |
| noninteractive services, 557 |
| United States legislative framework, audiovisual works |
| civil litigation, 566 |
| full copyright protection, 565 |
| liability and safe harbours, 567–573 |
| no statutory licensing and royalty schemes, 566 |
| public performance, determining, 565 |
| United States legislative framework, music, 556 |
| Digital Millennium Copyright Act 1998 (DMCA), 558 |
| Hatch–Goodlatte Music Modernization Act 2018, 563–564 |
| mechanical royalties, 561–563 |
| Music Works Modernization Act 2018 (MWMA), 563 |
| public performance royalties, 560–561 |
| Sound Recording Act 1971, 557 |
| summary, 564 |
| supply-side interventions, piracy, 514–518 |
| syntactic information, 750 |
| protecting, 750 |
| semantic information, distinguishing, 749 |
| tacit and non-pecuniary IP flows, 201 |
| tangible assets licensing |
| process, 695 |
| tangible products exchanges, 176 |
| TCP/IP protocol, 48–49, 73 |
| tech lag phenomenon, 109 |
| technical knowledge flow |
| technical protection measures (TPMs), 135 |
technological change
endogenous to growth
enabling exponential growth, 776
informing policy, 777
North–South dichotomy, and, 777
Solow residual, 775
technological dependence changes,
2000–2015, 394
technological disruption, 37
technological gap
narrowing and closing, 412
technological neutrality
GATS, 662
technological proximity metrics, 310
technology sourcing, 10, 266
measuring, 268, 273–278
three main motives, 269
technology transfer, 9
measuring, 269–270, 278–280
technology transfer rules
cross-border knowledge flows, 678
technology-enabling goods and
services, 652–654
technotainment, 698
text and data mining (TDM), 751
to theory of harm, 382
Thompson Financials SDC Platinum
databases, 307
three-dimensional (3D) printing, 94
Tom Kabinet case, 68–69, 157
total factor productivity (TFP), 454
trade
knowledge flows, relationship
between, 650
rethinking concepts of, 785
bits and atoms, 785
trade in services, and, 786
unbundling knowledge, 785
trade by enterprise characteristics
(TEC), 190
Trade Facilitation Agreement (TFA),
99
trade in counterfeit goods, 1970s, 33
trade in digital products
data packets, 72–75
trade in goods
ClearCorrect case, 64–65
trade in knowledge, 295
literature summary, 297
trade in musical and literary works, 35
trade in services
composition, 93
growth
balance-of-payments (BoP) basis, 92
IP exports, 93
other business services, 93
other commercial services, 94
telecommunications, computer
and information sector, 93
Trade in Services by Modes of Supply
(TISMOS), 184
trade secrets
definition, 637
role, 637
stealing
European Union measures
against, 639
extinction-level events, 638
growing policy gulf, 640
growth of, 639
R&D, less expensive than, 638
United States measures against,
639
trade, definition, 62–63
transfer mispricing, 203, 205
Trans-Pacific Partnership (TPP)
Article 2.17, 654
Article 14.8, 666
Article 14.10, 654
Article 14.11.2, 664, 741, 757
Article 14.12, 654
Article 14.13, 660
Article 14.13.1, 758
Article 14.16, 667
Article 14.17, 660
Article 18.15, 659
Article 18.66, 659
intellectual property rights (IPRs), 657
Treaty on Intellectual Property in Respect of Databases
Article 8(1), 747
TRIPS Agreement
analogue-era treaty, 632
Article 4, 676
Article 7, 79, 774, 779
Article 9.2, 659
Article 10.1, 114
Article 10.2, 115, 754
Article 16, 122
Article 66.2, 660
Article 71, 797
compliance
classification criteria, 451
information and communication technologies (ICT), 446
least-developed countries, dates, 436
compliance dates
least-developed countries, 436
pharmaceutical patents, 436
compliance with Paris and Berne Conventions, 435
copyright protection, 435
digitization, and, 114
effect of, 432
exhaustion principle, 155
high standards of IP protection, 57
high-intellectual property (IP)
compliance, empirical study, 437–447
income transfers, 432
IP and trade, relationship, 57
literary works, 114
minimum standards for IP rights protection, 656
most-favoured nation principle, 132

national legislative compliance, 435
non-addressing of technology issues, 116
on-demand digital delivery, 67
Part III, 659
pharmaceutical industry, 260
knowledge flows, increasing, 261
patent eligible subject matter, 261
post-TRIPS effect on high-IP trade, 446
promoting international technology transfer, 660
rationale for, 28
single most comprehensive IP treaty, 114
trade impacts, 408
trade in IP-intensive goods, 794
universal sovereign treaty model, 115
Uruguay Round, and, 113
WIPO treatymaking, model for, 114
Working Group on Transfer of Technology, 660

UN Convention on Contracts for the International Sale of Goods 1980 (CISG), 690, 693
UN Framework Convention on Climate Change (UNFCCC), 222–224
unfair competition/geographical indication (GI) nexus, 33
Uniform Domain-Name Dispute-Resolution Policy (UDRP), 7, 129
mandatory policy, 130
procedure, 129
response to digital IP challenge, 130
set of standard terms, 130
success of, 131
uniformity of protection, 112
United Nations
Central Product Classification (CPC), 661
United Nations (cont.)
Commodity Trade Statistics database (UN Comtrade), 440
United Nations Economics Commission for Europe (UNECE)
Guide to Measuring Global Production, 189, 192
United States–Mexico–Canada Agreement (USMCA)
Article 19.4, 613
Article 19.8, 613, 666
Article 19.11, 613
Article 19.12, 613, 660
Article 19.15, 667
Article 19.16, 660
data localization, 613
intellectual property rights (IPRs), 657
Universal Exhibitions, 110
universal sovereign treaty model, 115
upstreamness, 473, 481–482
US Patent and Trademark Office (USPTO), 293
citations, 304
UsedSoft case, 69, 157
value-added networks services, 88
value-added trade (VAX), 478–479
patent flows, measuring, 483
estimation approach, 483–485
results, 485–490
upgrading, 475
video games
competitive landscape, 326–329
global markets, 329–330
revenue, 2017, 326–327
video on demand
competitive landscape, 330–335
global markets, 335–336
revenue, 2017, 330
website blocking, 634
Carnegie Mellon University report 2016, 635
child pornography, 636
contentious nature of, 634
free and open Internet, and, 636
government actions, 636
illegal digital goods, 636
key policy, 634
misperceptions about, 635
wind power technology
international knowledge flows, 259
knowledge flows
aggregate citations of patents, 240
aggregate importance of patents, 231, 241
interjurisdictional patent citation rate, 239
mean importance of patents, 243
patent growth, 239
WIPO Programme a Committee of Experts on Well-Known Marks. See Standing Committee on Trademarks, Industrial Designs and Geographical Indications (SCT)
World Development Indicators (WDI) database, 198
World Economic Outlook Database developed and developing countries, allocation, 286
World Economic Situation and Prospects report 2018 developed and developing countries, allocation, 286
World Health Organization (WHO), 261
World Input-Output Database (WIOD), 473, 477, 481–482
World Intellectual Property Organization (WIPO) administrative challenge panels (ACP), 127
copyright industries report 2015, 499
Copyright Treaty
Article 5, 754
Article 6, 117, 156, 159
Article 6(1), 157
Article 7, 156
Article 8, 67, 117, 119–120, 157
Article 10, 118
Article 18, 119

Internet treaties, 116
agreed statements, 118–119
Beijing Treaty on Audiovisual Performances 2012, 121
exclusive rights, 117
gеopolitical situation, and, 120
no debate about updating, 633
non-signatories, 144–148
reproduction rights, 116
umbrella solution, 117, 119

Joint Recommendation Concerning Provisions on the Protection of Well-Known Marks (JR 1999), 123

Joint Recommendation on marks and signs on the Internet (JR 2001), 124, 136

Joint Recommendations, 121–125
Paris Convention, 34

Performances and Phonogram Treaty (WPPT)
Article 8, 117
Article 10, 67, 117
Article 12, 117
Article 14, 67, 117

World Trade Organization (WTO) agreements, digitization and,
600–606

Declaration on Global Electronic Commerce, 663
dispute settlement, 97

E-Commerce Work Programme 1998, 615, 678
free versus protected data rules, 679–681

Geneva Ministerial Declaration 1995, 49

knowledge creation incentives, 675–677

Secretariat
supporting policy developments,
2

Trade in Services by Modes of Supply (TISMOS), 184
technology transfer rules, 678

World Wide Web. See Internet