Index

Advance Notification System 41–2
Advanced Imaging Technology (AIT) machines 216–18
AECOM 108, 119
airline hijackings 5, 215–16, 247, 250
see also terrorism/terrorists
airports and air transport
  in Brazil
    air traffic control (ATC) system 285
    infrastructure 165–6, 287
    passenger transport 278–80
    regulatory bodies 284
    technology integration 288
    unbalanced transportation mix 286
in China
  and air cargo 155–7
  freight security issues 150
  infrastructure 147–8
  transport security rules and regulations 151, 157
insurance 74–5
in Italy 91, 93, 98–9, 102
in Netherlands 227–31, 238–41, 243
security
  in Israel 250–251, 255–6
  in Kenya 136–7, 140
in United States
  safeguarding 215–20
  state of intermodalism 212
Alt, R. 3, 291
ambulances, use of 255
Asbjørnslett, B.E. 50–52, 60
Asia Pacific Economic Cooperation (APEC) 8, 42–4
Asia to Europe supply chain simulation model 55–9
Australian policy 204–5
Authorised Economic Operator (AEO) 32, 38–9, 41–2
Automated Commercial Environment (ACE) 84–8
Bak, M. 177, 183
Baltic States see Estonia; Latvia; Lithuania; Rail Baltica
barges 26–8
best practices transferability 183–5, 191
biological attacks 6, 214
Blümel, E. 102, 104
Bode, C. 50, 60
border security 285, 287
Brazil
  emphasis on road transport 292
  freight movement and security, factors affecting
    cargo crimes 168–70
    security issues 170–171
    geography and population 160–161, 277–8
  government policy and initiatives 167–8
  infrastructure overview
    air transport 165–6
    highways 161–2
    pipeline transport 166–7
    rail transport 164–5
    water transport 162–4
  largest country in South America 160
  public transport 281–3
  regulatory and policy framework 283–4
  security challenges
    border and interior security 285
    crime 285–6, 294
    of forthcoming events 276–7
    infrastructure 286–7
    summary 287–8
    transportation, and outlook 171–2
  security structure 284–5
seventh largest economy in world 160
transportation system 278–81
Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway 67, 72
bundle cargo 22–4, 28
Burnewicz, J. 187
bus transport
in Brazil 282, 285
EC regulation covering 189
in India
bus attacks 264, 268
land use around 269, 273
preventive measures 265, 271–2
risk of death 268–9
security measures for women 267–8, 270
IRU guidelines 198–9
in Israel
decentralized 247
scheduled 252–3
terrorist attacks on 248–9
as transportation hub 255
in Japan 182, 190
state of intermodalism 212
Business Alliance for Secure Commerce (BASC) 45–6
business interruption damage insurance 78
Button, K. 178, 188
cargo crimes
in Brazil 168–70
in Poland 117
theft from 30, 32, 102–3, 117–18, 140, 150, 157, 168–71
cargo insurance 70–71, 74, 76
Carrington, D. 278, 287
Casco insurance 66, 69–70, 72
Census of India 262–3
Central Statistical Bureau of Latvia 113–14
charterers liability 75
checkpoints
screening technologies 217
strategy to track containers 38
supply chains, securing, in Kenya 132
chemical attacks 6, 214
Chhetri, P. 126, 132
China
fastest growing economy 143
freight security issues
air transport 150
railways 149–50
roads 148–9
seaports 150
freight transport, current status 143–4
passenger intermodality
policy of supporting 190
practices and technology 182
petty theft and pilferage 294
practices and technology
airports and air cargo 155–7
port and ocean shipping 154–5
railways 153–4
study conclusions 157–8
transport security rules and regulations
air transport 151
meaning 150–151
port and ocean shipping 151–2
railways 152
roads 152–3
transportation infrastructure
airports 147–8
railways 145–6
roads 144–5
seaports 146–7
strong expansion 144
CIA Factbook 160–161, 163, 165–7, 276–9
Civil Aviation Administration of China (CAAC) 147–8, 151
Commission of the European Communities 31, 187–8
COMPASS project 183–4
Container Security Initiative (CSI) 24, 37, 39–40, 83, 152, 238
containers
in Brazil 163, 171
in China 146–7, 150, 153, 155
as driver of international trade 35
economic relevance of security measures
documents, data and intelligence 38–9
environment 37–8
Index

physical integrity 37
scanning and inspection 36–7
tracking and tracing 38
expediting transfer of 33–4
exponential growth in use of 7
in intermodal transport
continental 28–30
maritime 24–7
meeting standards for 22
in Italy 92–3, 96, 102–4
in Kenya 126–7, 138–9
processing, in ports 10
regulation for 31
representing bulk of shipped traffic
293
scanned by customs authorities 33
in simulation model 55–9
theft of 32, 150
continental intermodal transport 22–3
definition 28
development in Europe 29–30
Land Transport Expert Group 32
loading units 29
operation of flows, actors in 28–9
security risks 32
trends and innovation 33–4
Contract of International Carriage of Goods by Rail (CIM) 67, 74
Convention Concerning the International Carriage by Rail (COTIF) 67, 74
Convention on International Multimodal Transport of Goods 76, 192
Convention on Safety of Life at Sea (SOLAS) 134, 151
Convention on the Contract for the International Carriage of Goods by Road 67, 74
Convention on the Suppression of Unlawful Acts (SUA) 134–5
CPCS Transcom Limited 125, 129, 137
cranes 24, 28, 29, 34
crime
in Baltic States and Poland 117–20
in Brazil 161, 168–70, 284–7, 294
in China 150, 152–3, 157
in India 269–70, 272–3
in Italy 93–4, 103
in Kenya 130

CSI see Container Security Initiative (CSI)
Customs and Border Patrol (CBP) 83, 88
Customs Security Programme (CSP) 32, 41
Customs-Trade Partnership Against Terrorism (C-TPAT) 38–40, 83, 171, 238
cyber attacks and cyber security 7, 139–40, 213–14, 230, 233
de Bod, A. 124, 126
Delhi Metro Rail Corporation 265–7
demand-responsive transport (DRT) 182
DEMASST project 203
‘dirty bombs’ 6, 214
Dutch multimodal transport see Netherlands
East African Community (EAC) region 127, 129, 132, 134
ECI see Export Credit Insurance (ECI) companies
economic issues
in multimodal freight transport
security
containers, relevance 36–9
economic agents 35–6
private programs, impact of
43–6
public initiatives for improvement 39–43
study conclusions 46
in multimodal passenger transport
security 197–8
Electronic Cargo Tracking System (ECTS) 139
Enei, R. 179–80
ERTMS see European Rail Traffic Management System (ERTMS)
Estonia
crime situation 117
feasible place for intermodal centre 118
first country to join Euro 110
net oil effect and trade account performance 115–16
passenger transport
car use after financial crisis 111
expectations about 108
railways
limitations 119
predictions about 107
reluctance to implement ERTMS 116
use of 112
road transport
fatalities and injuries 113–14
freight share 111
truck transport 118
Europe to Asia supply chain
simulation model 55–9
Europe to Far East logistics chain
actors 25–6
European Commission (EC)
cost benefit analyses from Rail Baltica 108
Directives
2005/65 31, 98
2008/68 101
2008/114/EC 230, 232, 236, 243, 295
2010/40 100, 180, 192
on efficient freight transportation 94
on financial burden of compliance
to CSI 37
and GSM-R digitalized mobile
network 116
initiation of security policy 30–31
policy for passenger transport
security 202–3
proposal of Customs Security
Programme 41
Regulations
300/2008 238–9
725/2004 31, 98
1875/2006 32
2320/2002 98
for passenger rights 189
setting framework for transport
security 98–100
study highlighting expected increase
in European freight transport
91
and TEN-T development 188
European Conference of Ministers of
Transport (ECMT) 35–6, 192
European Rail Traffic Management
System (ERTMS) 13, 116–17
European Union (EU)
legal and policy frameworks
multimodal freight transport
98–100
multimodal passenger transport
187–9, 192
main multimodal security initiatives
41–2
policy for multimodal passenger
transport security 202–4, 206
Eurostat 110–112, 117–18
Export Credit Insurance (ECI)
companies
mechanism security controls 234–5
security plans 232–4
Failure Mode and Effect Analysis
(FMEA) 53
Far East and Europe logistics chain
25–6
Finland
advantages of Rail Baltica 108
crime situation 117–18
net oil effect and trade account
performance 115–16
road transportation fatalities and
injuries 112, 119
fixed sum insurance 65
Food and Drug Administration (FDA)
Bioterorism Act 39–40
Frankel, R. 48–9
freight insurance 71
freight transport see multimodal
freight transport
Freightwatch International 150, 170
Gekara, V.O. 126, 132
globalization
as challenging transportation
security 8
creating need for intermodalism 3–5,
293
impact on container transport 25,
28
GOK 130, 136–7
Government of India 261–3
Gregoire, J. 276, 280, 282, 286
Gutierrez, X. 45–6
Hague-Visby rules 67
Harland, C. 48, 50
Henttu, V. 108, 119
Herbert-Burns, R. 131, 135
Highly Enriched Uranium (HEU) 6, 214
Hilderbrand, Van P. 280, 287
Hilmola, O.-P. 107, 109, 111, 115, 119
Hindu, The 267–8, 271
hitchhikers 254–5
hubs
design of public intermodal 38
development around, in India 267
high crime rates, in Brazil 285–6
logistic, in Italy 93, 97, 101, 103
multimodal transportation
 in Israel 247, 255–6
 passenger 185–6, 190–191, 196
 security protocols 202
 weak policy and regulation 295–6
Netherlands
 major 227–8, 243–4
 security 237–9
 new passenger transport 9
Huckepack transport 23, 28
hull/vessel insurance 69–70
ICT technologies
 as critical infrastructure in
 Netherlands 231
 facilitating passenger intermodality
 181–4, 191
 in Italy 100, 104–5
 in Kenya 139–40
 see also technology
Importer Security Filing (ISF) 39–40, 84
indemnity insurance 64–5, 71–2
India
Central Industrial Security Force (CISF) 262, 264, 265–7, 271
Delhi Metro
certification 264
commuter survey 265–7
frisking booths for female passengers 267
modern monitoring systems 262–4
passengers’ lack of regard for rules 271
security measures for women
 265–6
slow evacuation procedure 261–2
introduction 261–2
limited resources for investing in technologies 295
National Urban Transport Policy (NUTP) 261
passenger security
 concerns in large cities 262–5
 current practices 265–8
 issues in 268–71
study conclusions 271–4
information exchange 33, 156, 292
inland waterways transport
 in Brazil
 infrastructure 162–4
 interior security 285
 regulatory bodies 283–4
 size 281
insurance 67, 72
 in Italy 93–4
Institute Cargo Clauses 67, 80
insurance
definition 64
 groups of 64–5
 logic of, and matters covered 65–6
 minimum vs. maximum information 65
 need for 80
see also transport insurance
intelligent transport systems (ITS) 181, 188, 191, 271
interchanges 178–81, 191–2, 271–2
intercontinental intermodal transport
 22, 31–2
intermodal security 4–8
of freight systems 10
OSPIE’s strategy 215
of passenger systems 9
 training and exercise program 222–3
Intermodal Surface Transportation Efficiency Act (ISTEA) 2, 189, 211–12
intermodal terminals see terminals
intermodal transport
continental 22–3, 28–30
definitions 21–2
demand and supply side actors 23
freight transport 10
intercontinental 22, 31–2
major elements of 22
maritime 24–7
nodes, United States
airports 215–20
surface transportation terminals
220–24
passenger systems 9
security in 30–32
structure as causing security risks
24
terminal operators 23–4
trends and innovation 33–4
intermodalism
complicating security procedures 5
creating targets for terrorists 212–13
definition 2–3, 211, 291–2
effect of technology 1
for freight transport 293
globalization creating need for 3–5, 293
vs. multimodal (terminology) 2–3, 177–9, 211
new policies and practices for 2
origins 1
passenger
definition 179
policy and legal framework
facilitating cooperation
186–91
technology facilitating 181–3
qualities 211
state of, in US 212
transformation of passenger traffic 2
International Civil Aviation Organization (ICAO) 7–8, 136, 140, 157, 296
International Maritime Organization (IMO) 7–8, 134–5, 157, 237, 296
International Organization for Standardization (ISO) 22, 24, 29, 242, 244
International Road Transport Union (IRU) 117, 198–200
Irandu, E.M. 129, 136
IRU see International Road Transport Union (IRU)

Israel
Israel Defense Forces (IDF) 246, 254–5
Ministry of Foreign Affairs 256–7
Opheret Yezuka war 257–8
security by attacks and strikes 256–8
as target of terrorist organizations 246
transportation security
ambulances 255
attacks on Israeli ground transportation 248–9
authorities regulating 247–8
aviation security issues 250–251
hitchhikers 254–5
main transportation hubs 247
multi-leveled approach to 295
multimodal transportation hubs 255–6
rail security 251–2
road blockages 253–4
scheduled bus system 252–3
shootings from cars 254
ISTIMES project 203–4
Italy
central and southern area 97
competitiveness gap 91
effectiveness of national logistic system 92
ICT technologies 100, 104–5
intermodal nodes 95
multimodal freight transport
evolution of 92–4
infrastructures for 94–7
legal framework 97–101
security-related episodes 101–4
multimodal terminals 97
port system 96–7
predominance of road transport 94–6
rationalization of logistics companies 94
security threats 93–4, 102–4
study conclusions 104–5
thief from parking areas 103, 105
vulnerability to attack 91–2
Itzhaki, D. 130–131
Japan
biochemical attacks 214
effort to improve integration in passenger transport 182
intermodal passenger transport network 190
policy in India 264, 268
Jeff, G. 3, 291
JICA 126, 128–9
Jüttner, U. 48–51

Kenya
containerization 126–7
multimodal freight security
cyber security 139–40
evolution of policy 131
legal frameworks for policy 133–8
role of ICT 139
securing supply chain 131–3
sources of insecurity 130–131
vision 130
multimodal transport challenges of 129
introduction 124–5
status of 125–8
organisations and bodies
Kenya Airports Authority (KAA) 137, 139
Kenya Civil Aviation Authority (KCAA) 136–7
Kenya Police 137, 139
Kenya Ports Authority (KPA) 126–7, 139
Kenya Private Sector Association (KPSA) 139
Kenya Railways Corporation (KRC) 138
Kenya Railways Corporation (PRC) 139
Kenya Revenue Authority (KRA) 127, 139–40
Kenya Shippers Council 124, 138
Kenya Shipping Line (KSL) 138
study conclusions 140
transport corridors 127–8
Keshkamat, S. 107–8
Khamis, T. 130–131
Komornicki, T. 107–8, 110
Kovacs, G. 107–8
Kumar, P. 261
Laisi, M. 108, 119
Land Transport Expert Group 32
landlocked countries (LLCs) 124, 127
LAPSSET Corridor 128
Latvia
crime situation 117
feasible place for intermodal centre 118
membership of European currency system 110
net oil effect and trade account performance 115–16
passenger transport
car use after financial crisis 111
expectations about 108
railwayspredictions about 107
reluctance to implement ERTMS 116
use of 112
road transportfatalities and injuries 113–14, 119
freight share 111
market share 110
state of road infrastructure 108
Li, N. 149, 153
Limão, N. 41, 127
Lithuania
crime situation 119
investments required 108
membership of Euro area 110
net oil effect and trade account performance 115–16
passenger transport
car use after financial crisis 111
increased importance 108
railway 111–12
railwaysloading and unloading locations 118
long-term plans to implement ERTMS 116
predictions about 107
road transportfatalities and injuries 113–14, 119
freight share 111
private cars 110
traffic 107–8
truck transport 118
Liu, X. 149, 153, 190
Lockwood, S. 189–90
logistics chains
cargo security in, as concern 132
Far East and Europe, actors in 25–6
intermodal transport as concept for
organizing 22
logistics service provision 48
London underground attack 6, 197
Longer and Heavier Vehicles (LHV) 33
Madrid train station attack 6, 196
marine insurance see transport
insurance
Marine Insurance Policy of Antwerp 67
maritime freight security
in China 151–2, 157
in European legal framework 98–9
lack of, in Horn of Africa 131
policy in Kenya 134–6
in Port of Rotterdam 237–8
in United States 83–5
maritime intermodal transport 24–7, 33
McNamara, M 64–5
Megaports Initiative 39–40
Mennen, M.G. 233, 242
MercoPress 165, 283
Ministry of Urban Development 261, 263
MinV&J 230–32
Miszczuk, A. 107–8, 110
modal thinking 5, 8, 213
Mombasa Port
container terminal expansion 126
delays caused by road blocks 129
inadequate capacity 129
Kenyan transport system developed from 124
main arterial cargo highway running from 126
multimodal transport 138
Northern Corridor providing gateway 127–8
pipeline transport 137
railway 137
reduced traffic congestion 126–7
search and rescue coordination centre 135
security enhancement 131–3
ship dwell time 128
threat of terrorist attacks 130
Montreal Convention 67, 75
Moraes, T. 283–4
Müller, G. 21, 179, 187, 189
multimodal freight transport challenges for
continental intermodal transport 28–30
definitions 21–4
information exchange 33
in Kenya 129
maritime intermodal transport 24–7
security in intermodal transport 10, 30–32
trends and innovation 33–4
vulnerability to attack 5–6
concept 21
security
in Brazil 160–172
in China 143–58
economic issues in 35–46
in Italy 91–105
in Kenya 130–140
in United States 83–90
status of, in Kenya 125–8
see also multimodal transport
multimodal passenger transport
as attractive target for terrorism 196–7
concepts, terms and definitions 177–9
needs
best practices transferability 183–5
physical infrastructure 179–81
technology facilitating intermodality 181–3
policy and legal frameworks facilitating intermodal cooperation 186–91
regional accessibility potential improvement 185–6
security 9
in Brazil 276–88
economic and policy issues 196–8, 202–6
guidelines 198–200
in India 261–74
in Israel 246–58
public transportation inspections 200–201
in United States 211–25
summary of challenges for 191–2
see also multimodal transport; passenger intermodality
multimodal supply chains see supply chains
multimodal transport
definition 125
insurance see transport insurance vs. intermodalism (terminology) 2–3, 177–9, 211
security risk analysis see Netherlands see also multimodal freight transport; multimodal passenger transport
NCTV 229–31, 234–5, 237–41, 243–4
Neshat, N. 48, 60
Netherlands, the multimodal hubs security arrangements
Port of Rotterdam 237–8
Schiphol Airport security 238–9
National Risk Assessment (NRA) caveats of secrecy 241–3
cornerstone of Dutch national security policy 295
as extensive risk analysis method 233
mystery over functioning 244
Nuclear Security Summit 240–241
objective 232
reporting 233–4
use by NCTV 234
study conclusions 243–4
transport overview
continental intermodal transport 29–30
Dutch transport sector 228–9
transport sector 227–8
transport security as blueprint for countries 294–5
critical infrastructures 230–231
ECI security controls: ATb 234–5, 242
ECI security plans 232–4
holistic approach to 243
NCTV 229–30
summary 236–7
VRKI (Improved Security Risk Classification) 235–6
Northern Corridor 127–8
close to urban centres 124
condition of roads along 129
high cost of freight along 124
impact of crime 130
North Corridor Transit Agreement (NCTA) 127–8
railway transport critical for 129, 137
road blocks 132
security concerns 131
transit monitoring system 138
weighbridge delays and robbery 129
Nuclear Security Summit 240–241
nuclear weapons 6, 40, 67, 83, 214, 231, 240–241
ocean and sea transport insurance 69–72
ocean shipping in Brazil 162–4
in China practices and technology 154–5, 158
transport security rules and regulations 151–2, 157
oil dependency 114–16
Oliveira, N. 165, 281, 283, 286
Operation Safe Commerce 39–40
Papa, P. 38, 40
passenger intermodality Chinese policy supporting 190
definition 179
in Europe activities of significance 188
funding 189
legal acts supporting 189
invisible in many fields 187
technology facilitating 181–3
US policy supporting 189
see also multimodal passenger transport
Peck, H. 49–50, 60
Peterman, D.R. 226, 247
physical infrastructure 179–81, 191
piggyback transport 23, 28
pipeline transport
infrastructure in Brazil 166–7
security in Kenya 137
piracy 24, 30, 32, 94, 131, 135, 140
Pires, C. 161–4, 281, 283
Poland
crime situation 117–20
membership of WTO, NATO and EU 109–10
net oil effect and trade account performance 115–16
railways
lack of passenger connections 108
lagging implementation of ERTMS 116, 119
loading and unloading locations 118
passenger transport 111
use of 112
road transport
fatalities and injuries 112–14, 119
freight transportation growth 110–111
market share 110
private car use 111
state of infrastructure 108
truck traffic 108
truck transport 118
transport infrastructure investments 107
policy and regulatory environments
Australia 204–5
Brazil 167–8, 283–4
European Commission 30–31, 202–3
European Union (EU) 98–100, 187–9, 192, 202–4, 206
facilitating intermodal cooperation 186–91
frozen in world of single modalities 295–6
Kenya 131, 133–8
United States (US) 189–90
Polzin, S.E. 30, 197
Port of Rotterdam 27, 227–31, 237–8, 243
ports, sea
in Baltic States and Poland 115, 119
in Brazil 163–4, 282–3
in China
freight security issues 150
infrastructure 146–7
practices and technology 154–5
transport security rules and regulations 151–2, 157
as critical element in supply chain 10
in Italy 96–8, 100, 102, 104
in Kenya 126–7, 129, 133, 134–6
see also Mombasa Port
in Netherlands see Port of Rotterdam
in United States
maritime freight security 83–90
state of intermodalism 212
project cargo insurance 76
protection and indemnity (P&I) insurance 71–2
public transportation passenger security inspections 200–201
Purtell, D. 45, 160, 171
radio-frequency identification (RFID) systems 38, 105, 139, 155, 158, 199
radiological dispersal device (RDD) 6, 214
Rail Baltica
benefits of targeted investment 294
crime and costs of business 117–19
hinterland transportation characteristics and change 110–112
introduction 107–10
oil dependency at national accounts 114–16
railway security and control 116–17
road transportation fatalities and injuries 112–14
study conclusions 119–20
rail transport
in Baltic States and Poland
crime 117–19
intermodality 119
lack of growth in passenger transport 111–12
and oil 116
vs. road transport 107
security and control 116–17
state of 108–9
in Brazil
infrastructure 164–5
investment in 168
passenger transport 281–2, 284, 286–7
in China
freight security issues 149–50
infrastructure 145–6
practices and technology 153–4
transport security rules and regulations 152, 157–8
increasing scale of 33
in India
greater safety than road transport 271
risks of security lapses 268
train attacks 264–5, 268
see also India: Delhi Metro
insurance 74
intermodal operators 23
in Israel
security 247, 249, 251–2
terrorist attacks 249
in Italy 92–4, 96, 104–5
in Kenya 137–8
freight transport 128
poor infrastructure 129
in Netherlands 228–9, 231, 241
in United States
safeguarding 220–224
state of intermodalism 212
Raso, E. 167–8
regional accessibility improvement 185–6, 191
Rejda, G.E. 64–5
Reniers, G.L.L. 36, 98
Renno, M. 166–7
Rhoades, D.L. 136
Rice, J.B., Jr. 160, 171
risk analysis
all ports obliged to present 31
contrasted with vulnerability analysis 50–51
for correctly insuring transports 78
Dutch security 227–44
supply chain 51
river transport
in Brazil 161, 167, 277–8, 282–3
insurance 72
in Italy 93
road blocks/blockages
in Brazil 171
in Israel 253–4
in Kenya 129, 132
road transport
in Baltic States and Poland
characteristics 110–111
crime 117
fatalities and injuries 112–14, 119–20
and oil 115, 119
state of 107–8
truck driving times 118
in Brazil
infrastructure 161–2
investment in 168
traffic congestion 280–281
unpaved 278, 280
in China
freight security issues 148–9
infrastructure 144–5
transport security rules and regulations 152–3, 157–8
in India 261, 269–71
insurance 72–4
in Israel
attacks on 248
security issues 253–5
in Italy 92–6, 98, 101–2, 104
in Kenya
challenges for 129
inadequate infrastructure 125, 129
of Northern Corridor 127–8
policy framework 134
road blocks 129, 132
in Netherlands 228–9, 231, 241
Roll on Roll off 23, 28, 163
Rollende Landstrasse 23, 28–9
Rotter, P. 198–9
Rotterdam see Port of Rotterdam
Russia
crime situation 117
multimodal passenger transport improvements 182–3
need for intermodal integration 190–191
Rail Baltica 108
road transportation fatalities and injuries 112
Schiphol Airport 227–31, 238–41, 243
Schwab, K. 108, 117–18
sea and ocean transport insurance 69–72
sea-side security enhancement 133
SECUR-ED project 203–4
Secure Operator Proposal 41–2
secure operators 31, 98–101
security
European standards 32
improvement potential of Rail Baltica investment 107–20
intermodal 4–8
freight transport 10
OSPIE’s strategy 215
passenger systems 9
training and exercise program 222–3
transport 30–32
multimodal freight transport
in Brazil 160–172
in China 143–58
economic issues 35–46
in India 261–74
in Italy 91–105
in Kenya 130–140
in United States 83–90
multimodal passenger transport
in Brazil 276–88
economic and policy issues 196–206
in India 261–74
in Israel 246–58
in United States 211–25
risk analysis for Dutch transport 227–44
of supply in supply chains 49, 53
security risks
analysis of see Netherlands
China, with relatively low 157
computation 197
continental intermodal transport 32
ensuring proper management of 53
multimodal transport structure 24
on sea and hinterlands 32
security plans aim to eliminate 200–201
Shippers Council of Eastern Africa 132–3
shootings from cars 254
Singapore
Authorised Economic Operator
applied by 38
effectiveness of national logistic system 92
rail connections 146
in simulation model 55–9
smart ticketing 182
smart vehicles 182
Somalia 130–131, 135, 140
Spens, K.M. 107–8
standardized loading units 22
STAR initiative 8, 42–4
STAR–TRANS project 203–4
Statistical Office in Szczecin 113–14
Statistics Estonia 112–14
Statistics Lithuania 113–14
stock and transit insurance 75
Stuenkel, O. 276, 285
supply chains, assessing vulnerability in
analytical method selection 53–5
definitions 49–51
illustration
results of model 59
simulation model parameters 57–9
simulation model structure 55–7
introduction 48–9
summary of study 59–61
theory
security of supply 53
supply chain, vulnerability and risk 49–51
vulnerability analysis 51–2
supply chains, securing, in Kenya 131
checkpoints 132
integrated security system 133
sea-side security enhancement 133
tracking and tracing 132–3
surface transportation terminals 220–224
SUTRANET research project 178
swap bodies 11, 23, 28–9, 34
Szyliowicz, J.S. 7, 225
TAPA initiative see Transported Asset Protection Association (TAPA)
Tarr, R.W. 9, 198

technology
facilitating passenger intermodality 181–3
freight supplier minimum security requirements 45
global, as countermeasures 297
high costs due to insurance 170
level made available for solutions 184–5
limitations 218
passenger screening 216–19, 222–3
passenger security inspections 200–201
project abandonment 216–17
role in multimodal transport 198
surveillance 272, 274, 287–8, 294
technological progress 1, 4–5, 98
use in China 153–8
use in stealing 150, 157
see also cyber attacks and cyber security; ICT technologies; radio-frequency identification (RFID)
ten plus two (10+2) rule 13, 39–40, 84
TEN-T 107, 108, 188

terminals
container 26, 33–4, 105, 126
freight 120
improved access to and from 180–181
inland 27–8
intermodal
attractive targets for terrorism 5, 224–5
ease of access vs. security 9
of Rail Baltica 118
significance in transport network 178–9
symbolic value 213
in Italy 97, 104
new, in Brazil 282–3
operators 23–4, 26, 29, 35, 68, 77
passenger 118
in Port of Rotterdam 237
relocation 212
surface transportation 220–224
switching, to foil terrorists 256
terrorism/terrorists 9/11 attacks

assaults on surface transport since 220
implementations following 24, 36–7, 39–41, 204, 214, 220–221
improving security following 224–5, 297
probability of attack prior to 197
aim to inflict as many casualties as possible 6
airports as attractive targets for 5, 220
ATb system 234–5
and aviation security 136–7, 218, 219–20
consequences of attack on global freight system 5–6
containers providing opportunities for 10
EU countries at various risk from 202
failed attempts 216
in intermodal transport 30, 212–13
Israel as target of 246–58
NCTV 229–31
nuclear 240–241
passenger transport systems as target for 196
past, in Kenya 130
security in India 265, 268, 273–4
surface transportation terminals 220–224
technologies subject to possible attacks 198
threats in Italy 103
transport insurance 67
transportation security as counter-terrorism tool 6
wide array of weapons 15, 213
see also biological attacks; cyber attacks and cyber security
theft
BASC initiative 46
in Brazil 168–71, 284
from cargo 30, 32, 102–3, 117–18, 140, 150, 157, 168–71
in China 148–50, 153–4, 157–8, 294
of containers 32, 150
in Italy 103, 105
and TAPA 43–4
Multimodal transport security

from trucks 148–50, 157, 169–71
use of technology 150
vehicle 118–19
tracking and tracing 33, 38, 40–41, 116, 132–3
traditional modal approaches 1–2
trailers 28–9, 34, 134, 171
train stations
attacks on 6, 249
in Israel 255–6
monitoring 252
transit and stock insurance 75
Transit Cooperative Research Program (TRCP) 200–201
Transport and Infrastructure Senior Officials’ Committee 196, 204
transport corridors 127–8, 178, 269
transport insurance
by air 74–5
charterers liability 75
context 66–7
multimodal
business interruption damage insurance 78
characteristics 77
modes and means 77
procedures for correctly insuring 78–9
stakeholders 76–7
tailored insurance policy for 77–8
participants and consequences 68
project cargo 76
by railroad 74
by road 72–4
stock and transit 75
study conclusions 80
by water
ocean and sea 69–72
rivers 72
transport links 180
transportation systems
attempts to enhance security 8
Brazilian 160–161, 276–9, 292
difficulties in safeguarding 7–8
and intermodal systems 291–2
management 181
vulnerability to attack 5–7
Transported Asset Protection Association (TAPA) 43, 45, 103
traveller information systems 182
truck transport 26–9
in-bond transportation 85–6
in Brazil 162, 164–5, 167, 169–71
checkpoints 132
delays at weighbridge stations 128
delays due to police escorts 138
driving regulations 118
insuring 71–2, 79
in Lithuania 107–8
minimum security requirements 45
robberies of 148–50, 157, 169–71
security-related episodes 102
security threats in Italy 103, 104
in simulation model 55, 58
tracking devices and seals 139
Tucker, J. 251, 256
twenty-foot equivalent units (TEU) 24–5, 27, 33, 126
United States (US)
bodies and organizations
Department of Transportation (DOT) 214–15, 221
Federal Transit Administration (FTA) 221
Government Accountability Office (GAO) 88, 214, 217, 220, 223
Office of Security Policy and Industry Engagement (OSPIE) 214–15
Rail Liaison Agent (RLA) program 224
Transportation Security Administration (TSA) 214–25, 251
US Department of State 285–6
Visible Intermodal Prevention and Response (VIPR) teams 219, 223
freight transport security
approximations of movements in 84–5
in-bond transportation 85
cargo data elements 84
cargo entering port limits 86
carriers and warehouses with multi-area licenses 87
clerical data processing concerns 87–8
concerns about data quality 85
cross-training personnel 89
Customs’ dominant role in 89–90
documentation and security protocols 86
as driving force in 294
initiatives to improve 83–4
manpower restrictions 88
measures for freight in violation of security 86
multimodal freight transport 88
physical vulnerabilities of freight 89
reasons for degrading of secure movement 83
regulatory environment 86–7
‘rogue freight’ 87
secure movement to inland destinations 85
tracking in-bond freight 88–9
trucking industry 85–6
main multimodal security initiatives 39–41
multimodal passenger transport
ICT developments 182
legal and policy frameworks 189–90
multimodal passenger transport security
administration 214–24
introduction 211–12
security issues and policies 212–14
state of intermodalism 212
study conclusion 224–5
Venables, A. 41, 127
vessel/hull insurance 69–70
Vilko, J. 48, 51, 54
Vlek, C. 241–2, 244
vulnerability analysis
analytical method selection 53–5
contrasted with risk analysis 50–51
illustration, in multimodal supply chains 55–9
requirements of 60–61
steps necessary for 51–2
Wagner, S. 48, 50, 60
Warsaw Convention 67, 75
Waters, D. 48–50, 60–61
Williams, N.E. 276, 278, 282
Wiseman, Y. 246, 250
World Bank 92, 126–7, 133
Zamparini, L. 36, 98, 197