

Index

- actors' degree of influence 79
 - ad hoc transport assignments 152–3
 - administrative costs ratio 219
 - advanced biofuels 183–4
 - aggregation methods 35
 - agreed-upon subjectivity 35
 - agricultural feedstock 207
 - agro-food industry 184, 185
 - AHP *see* analytic hierarchy process (AHP)
 - alternative performance assessment 89–91
 - Amsterdam University of Applied Sciences (AUAS) 164, 167
 - practical-oriented research in 165
 - analytic hierarchy process (AHP) 33, 48–52, 79, 128, 130, 154
 - applications 128–9
 - details of 49
 - friendliness and understandability 10
 - process 52
 - annual performance report 215, 218
 - appraisal 100, 108, 112, 114
 - approaches 101
 - dimensions 110
 - themes 110
 - transport 102–3
 - Appraisal Summary Table (AST) 103
 - AST *see* Appraisal Summary Table (AST)
 - AUAS *see* Amsterdam University of Applied Sciences (AUAS)
 - automated pick-up locker boxes 161

 - BAU *see* business as usual (BAU)
 - BCR *see* benefit-cost ratio (BCR)
 - benefit-cost ratio (BCR) 31, 102, 107
 - betterment tax/benefit assessment 124–5
 - biofuel options in France 93, 183–4
 - car industry 203
 - end-users' criteria 201–2
 - feedstock producers 194–6
 - fuel distributors 198–201
 - government 203
 - identification of 185–7
 - criteria and weight elicitation 188–9
 - stakeholder groups 185–8
 - NGOs 203–207
 - performance assessment
 - EBDLs and data collection 190–92
 - multi-criteria method 190
 - producers 196–7
 - refining industry 198
 - results 190–94
 - stakeholder analysis 184–5
- biofuels
 - advanced 183–4
 - competitiveness criterion 191–2
 - conventional 183
 - development in France 184
 - drop-in 203
 - first generation 184
 - incorporation cost 201
 - markets 196
 - mitigation accounting of 198
 - scores, aggregation of 190, 193
 - set of alternatives 187
 - biomass-based industry 185
 - business as usual (BAU) 60, 66–70, 155, 159, 162, 171
 - scenario 155, 157
 - car industry 203
 - outputs 204
 - car manufacturers, biofuel policy for 203
 - car manufacturers group 185–6
 - cash and cash equivalents 220
 - CBA *see* cost-benefit analysis (CBA)

- CEA *see* cost-effectiveness analysis (CEA)
- cellulosic biofuels 207
- charitable organizations 214
- charities, ranking 211–13, 220
- case study 214–21
- characteristics of 215
- methodology 213–14
- results 221–6
- circular economy 165
- city logistics 149–50
- concept of 150
- discussion of results 157–60
- evaluation of scenarios 155–6
- implementation of pilot 160–61
- literature 150–51
- and MAMCA 152, 166–7
- perceptions in scenario evaluations 161
- policy measures 152–3
- selection of policy measures to 152–3
- selection of relevant stakeholder groups 153–4
- stakeholders' assessment criteria and weights 154–5
- City Logistics research group 167
- COMCA *see* Competence-based Multi Criteria Analysis (COMCA)
- Common Agricultural Policy (CAP) subsidies 89
- Competence-based Multi Criteria Analysis (COMCA) 77
- applications of 77, 83–4
- definition of 77–9
- multi-level decision making with 81
- steps in 79–80
- working process 79–80
- alleviating political transaction costs 80
- internalising externalities 80–83
- competence domains 79
- comprehensive questionnaire survey 130
- consensus process 15
- construction logistics, MAMCA
- application case description 168
- elicitation of alternatives 168–9
- evaluation of alternatives 171–3
- stakeholder groups and criteria 169–71
- conventional biofuels 183–4
- corporate entity 211
- corporate finance 213
- corporate social responsibility 131
- cost-benefit analysis (CBA)
- application of 101
- approaches 101
- components of 105
- of options 105–7
- process 100–101
- for project options 107
- use and application of 102
- cost-effectiveness analysis (CEA) 29–30, 150–51
- strengths and weaknesses of 38
- cost-saving measures 219
- cost-sharing agreements 125
- criteria
- definition of 9–12, 63–4, 127–32
- identification of 188–9
- weights analysis of 131–3
- cycle path 59
- data collection 190–91
- data computation 68–72
- debt level ratio 220
- debt-to-income ratio for businesses 220
- decision alternatives, desirable *vs.* feasible 82
- decision making 2
- deliberative process for 108
- problems 49
- process 86–7, 122–3, 214
- tools, classification of 29
- decision making methods 78, 82
- cost-effectiveness analysis (CEA) 29–30
- eclectic MCA 35–6
- multi criteria analysis (MCA) 33–5
- social cost-benefit analysis (SCBA) 30–33
- decision support xii
- decision tree 129
- based on characteristics 41–3
- based on evaluation objectives 37–40
- desirable *vs.* feasible decision alternatives 82
- development indicators 108

- development mechanisms 137
- distributors 201
- double counting 34
- EBDLs *see* expert-based distribution laws (EBDLs)
- eclectic MCA 35–6
 - ‘ordered complexity’ of 35–6
 - strengths and weaknesses of 39
- economic-centric tools 100
- ECR *see* effectiveness-cost ratio (ECR)
- education 164–7, 180
- educational purposes and practical-oriented research
 - context 164–6
 - limits of approach 179–80
- MAMCA
 - city logistics and 166–7
 - workshop city logistics in dense neighbourhood 173–9
 - workshop construction logistics 168–73
- education, research and practice 165–6
- effectiveness-cost ratio (ECR) 29–30
- EIA *see* environmental impact assessment (EIA)
- electric vehicles (EV) 169
- elicitation of alternatives 174
- end-users 62
 - criteria 201–2
 - outputs 202
 - preferred options for 201
- energy alternatives, development of 183
- entities, types of 219
- environmental impact assessment (EIA) 35
- ethanol 198
- European biofuel implementation 184
- European Commission 207
- European Directive requirements 183–4
- European fuel markets 198
- evaluation line/bar chart 136, 138–42
- evaluation of alternatives 171–3
 - multi-actor 172
- evaluation tab 67
- ex ante assessment of the suitability 124
- ex ante evaluation framework 123
- expert-based distribution laws (EBDLs) 190–91
 - and data collection 190–92
 - designing 91–3
 - examples of 94
- exploratory scenario approach 86, 88
- EXPROM IIv 226
 - method 213–14, 225
- externalities, internalising 80–83
- extrapolatory approaches 88
- feedstock 198
 - life cycle 207
 - producers 194–6
- financial stability ratio 219–20
- financing policies 122
- first financial ratio (FF1) 219
- fiscal deficit 220
- food crop-based biodiesels 194–5
- foreign lands, acquisition of 207
- France
 - biofuel development in 184
 - biofuel industry 201
 - fuel consumption 198
 - objectives for transport sector 185
- freight
 - concession 174, 178
 - transport infrastructure, alternatives of 21
 - transport, problems and solutions 150
 - vehicles 166–7
- French tax system 201
- fuel distributors 198–201
 - group 185
 - outputs 200
 - preferences 198
- functional measurement (FM) method 10
- fundamental desirability 29
- Germany
 - NGOs in 211
- governance/government
 - multi-level 82
 - outputs 205
- greenhouse gas (GHG) emissions 183
 - mitigation 198, 203

- group decision making 2, 5, 77–8, 82, 130
- group preferences 80
- Hicks-Kaldor (H-K) compensation criterion 32
- Highway Agency road schemes 103
- homogeneity 9
- human judgement uncertainty 87
- ILUC *see* indirect land-use changes (ILUC)
- implementation cost 31
- indicators 132–3
- indirect land-use changes (ILUC) 198
- individual preferences
 - aggregation of 78
 - rankings 78
- information and reputation ratings 220–21
- information ratings 221
- innovation 131
- innovative financing tools,
 - implementation of 125–6
- innovative professional practice 181
- intelligent transportation systems (ITS) 150
- inter-institutional cooperation 77, 80
- inter-institutional projects 80
- international politics 80
- investment incentives 130
- ITS *see* intelligent transportation systems (ITS)
- joint development 125, 134
- juxtaposed preference rankings 82
- knowledge uncertainty 87
- labour costs 219
- land grabbing 207
- land-use issues 203
- land-use planners 126
- land value capture 121
- language ambiguity 87
- language vagueness 87
- large-scale transportation projects 121
- linguistic vagueness 127
- loading zones 153
- local pick-up point 174
- local retailers 152–4
- logistics service providers (LSPs) 152–5, 157, 159, 169
 - attributes 169–70
 - operational costs for 161
 - revenues for 161
- logistics supply chain 180
- LSPs *see* logistics service providers (LSPs)
- magical recipes 121
- MAMCA *see* Multi Actor Multi Criteria Analysis (MAMCA)
- “marketing” strategy 130
- MCA *see* multi criteria analysis (MCA)
- MCDA *see* Multi Criteria Decision Aid (MCDA)
- MCDM *see* Multi Criteria Decision-making (MCDM)
- measurement methods 132–3
- microalgae biodiesels 86, 194–5, 203
- minimality 9
- modal shift criterion 66
- Monte Carlo simulation 86, 88, 93–6, 190
- multi actor alternative analysis 69
- multi-actor and overall performance 113
- multi actor charts 68
- multi-actor evaluation of alternatives 178–9
- multi-actor line chart 134–5, 222–3
- Multi Actor Multi Criteria Analysis (MAMCA) 2, 28, 101, 123
 - alternative performance assessment 89–91
 - analysis 159
 - applications of 12, 21–4, 127, 162
 - approaches 101, 149–50
 - with EXPROM IIv 226
 - with PROMETHEE II 221–2
 - with PROMETHEE IIv 223–5
 - city logistics and 166–7, 173–9
 - in dense neighbourhood 173–9
 - classification of decision-making tools 28–9
 - cost-benefit analysis and 100–101
 - Blackpool and South Fylde line 104–7

- transport appraisal in the UK 102–4
- criteria and weights, defining 9–12
- decision-context under uncertainty 87–8
- decision-makers in making sustainable decisions 4–7
- decision-making methods *see* decision-making methods
- decision tree *see* decision tree
- defining problem and alternatives 7–8
- definition of 86–7
- educative case study 16–21
- evaluations 28, 155, 160
- framework 4, 101, 149
- implementation and recommendations 15
- indicators and measurement methods 12
- methodology 7, 213
- output 14–15
- overall analysis 12–13
- problem setting 107–10
- range-based MAMCA 90–91, 95, 187–8
- ranking charities using *see* charities, ranking
- results and discussion 110–12
- results and sensitivity analysis 13–15
- stakeholder analysis 8–9
- concept 4
- workshop 151
- strengths and weaknesses of 39
- sustainability concept 3
- workshop 154, 160–61, 167, 173, 179–80
- construction logistics 168–73
- Multi Actor Multi Criteria Analysis (MAMCA) software 58, 154
- decision-method, choice for 48–9
- extracted from 71
- and guide future 48
- illustrative case study 58–9
- alternatives 60
- criteria definition 63–4
- data computation and result analysis 68–72
- decision-problem and alternatives 59–60
- option performance 65–8
- preference matrices 59
- recommendations 72
- stakeholder analysis 60–63
- weights 64–5
- qualitative scale 67
- multi criteria analysis (MCA) 33–5, 110, 150–51
- advantages and disadvantages 34
- approaches 100–101
- framework 12–13, 110, 114
- methods 13, 100
- model 115
- participatory 114
- processes 115
- strengths and weaknesses of 38–9
- weighting procedure in 35
- Multi Criteria Decision Aid (MCDA) frameworks 5
- methods 49, 123, 129
- origins in 77
- procedure 5
- processes 5
- steps and actors' involvement 6
- techniques 213–14
- Multi Criteria Decision-making (MCDM) 87
- multi-criteria methods 28–9, 190
- multi-disciplinary work environment 180–81
- multi-level governance 82
- multi-stakeholder view 157–8
- multi-stakeholder work environment 180–81
- municipality 63
- weight chart 66
- NATA *see* New Approach to Appraisal (NATA)
- National Court Register 212
- negative benefits 31
- negotiation costs 80
- net present value (NPV) 31, 102
- network of lockers 153
- neutral party 152
- New Approach to Appraisal (NATA) 103
- appraisal summary table 104

- NGOs *see* nongovernmental organizations (NGOs)
- night deliveries 168
- non-corporate entity 211
- nongovernmental organizations (NGOs) 4, 187, 203, 206–7, 211
- non-profit organizations (NPOs) 211
- non-redundancy 9
- normative scenario approaches 88
- NPOs *see* non-profit organizations (NPOs)
- NPV *see* net present value (NPV)
- oil-based reference 203
- oil price 89
- oil refining process 198
- open-brand lockers 160
- operationality 10
- overall analysis 133–4
- paid work 219
- pairwise comparison matrix (PCM) 49–50
 - consistency of 52
- pairwise comparison method 176
- Pareto optimal ranking 190
- participatory decision-making 72, 86–96
- participatory process 79
- PBO *see* Public Benefit Organization (PBO)
- PCM *see* pairwise comparison matrix (PCM)
- performance assessment
 - EBDLs and data collection 190–91
 - Multi-criteria method 190
- performance evaluation criteria 221
- personal income tax (PIT) 212
- petroleum-based fuels 183
- pilot, implementation of 160–61
- PIT *see* personal income tax (PIT)
- Poland
 - charities in 211
 - public benefit organizations in 211
 - small and medium-sized enterprises (SMEs) in 212
- policy assessment framework 154
- policy measures, implementation of 150
- political transaction costs 80
- PPPs *see* public private partnerships (PPPs)
- practical-oriented knowledge 166
- preference ranking 78, 83
 - by competence domain 79
 - juxtaposition of 78
- preferences, synthesis of 134
- preliminary objectives 108–9
- private revenue concentration ratio 219
- procedural uncertainty 89
- Professional Associations group 132
- programme services 220
- project appraisal 100, 116
- project management tab 49
- project proposal, environmental
 - consequences of 102–3
- PROMETHEE 10, 48–9, 52–8, 134, 171, 176, 213–14
 - details of 49
 - GDSS PROMETHEE 133, 143
 - global positive, negative and net flows 55
 - global preference degrees 54–5
 - method 65
 - parameters 67
 - preference functions 54, 57
 - problem setting 56
 - qualitative scale of 155
 - ranking 55–8
 - unicriterion preference degrees 52–4, 58
- PROMETHEE II 221–3
- PROMETHEE IIv 223–5
- Public Benefit Organization (PBO) 211
 - alternatives 215
 - assessment of 213
 - considered for support 216
 - efficiency and financial stability 215
 - expenses, categories of 219
 - financial ratings 217
 - information and reputation ratings 218
 - performance reports and financial statements 215, 217–18
 - procedure for evaluating 214–15
 - registered 212
 - status 220
- public financing 219
- public policy 2

- public private partnerships (PPPs) 125, 150
- public resources 120
- public services 154
- public transport 59
- quality of life 171
- radar charts 70
- range-based MAMCA 90–91, 95
- ranking 133–4
- RED *see* Renewable Energy Directive (RED)
- refiners group 185
- refiners outputs 198–9
- regional economic impact study (REIS) 35
- REIS *see* regional economic impact study (REIS)
- renewable energy 183
- Renewable Energy Directive (RED) 183
- reputation rating 220
- research programmes 164
- residents 62, 154
- resource costs 102
- result analysis 68–72
- retailers' shared transport options 152
- revealed preference 32
- road infrastructure 59
- Saaty scale 49–50
 - description of 50
- SCBA *see* social cost-benefit analysis (SCBA)
- scenario building 88
- scenario evaluations, perceptions in 161
- “Sensitivity Analysis” command 70
- simple multi-attribute rating technique (SMART) 10
- small and medium-sized enterprises (SMEs) *see* Poland, small and medium-sized enterprises (SMEs)
- SMART *see* simple multi-attribute rating technique (SMART)
- smart energy systems 165
- smart parking 174
- social cost-benefit analysis (SCBA) 30–33, 150–51
 - evaluates projects 30–31
 - partial form of 31
 - strength of 31–2, 38
 - weaknesses of 38
- social equity 130
- social groups 124
- social-political feasibility 80
- societal actors 131, 137
- socio-economic evaluation methods 28, 38–9
 - strengths and weaknesses of 37–9
- socio-economic impacts 196
- South Fylde Line investment options 105–6
- stakeholder analysis 8–9, 60–63, 125–6, 184–5
 - actor invitation 60
 - group parameters 60
 - user profile and access 60
- stakeholder groups 9, 62–3, 108, 157, 169–71, 179
 - to appraisal themes 112
 - and criteria 175–6
 - identification of 185–8
 - objectives adopted by 111
 - selection of 153–4
 - with weighted criteria 177–8
- stakeholders 78–9, 110, 128, 132
 - concept 4
 - criteria and weight derived from the workshop 156–7
 - engagement in planning 122
 - evaluation of alternatives 160
 - objectives 87–8, 125–7
- stated preference methods 32
- subjectivity made objective 35
- sustainability
 - concept 3
 - criteria for 3, 153
- sustainable mobility 130–31
- synergies 131
- tax increment financing (TIF) 125
 - mechanism 134
 - policy 137
- theoretical validity 10
- Thessaloniki metro project 124
- TIF *see* tax increment financing (TIF)
- transaction costs 80
- transit-oriented development (TOD)
 - principles 125

- transport projects 28, 83–4, 100, 102–3, 107, 114, 116
 - benefits of 102
- transport/transportation
 - appraisal 103
 - practice 101
 - in UK 102–4
 - infrastructure 120, 122
 - investments 122–3
 - planners 110
 - policies 122, 127
 - problems 126
 - systems 121
- UCC *see* urban consolidation centre (UCC)
- UCO *see* used cooking oil (UCO)
- uncertainty 88
 - of decision-context 89
 - decision-context under 87–8
 - knowledge 87
 - types of 86–7
- uncertainty factors 92
 - illustration of 93
- uni-criterion methods 28–9
- unpaid work 219
- urban consolidation centers 153, 159–61
 - potential of 161
- urban consolidation centre (UCC) 169, 178
- urban design 165
- urban freight transport 149, 150, 152, 154
 - policy, evaluation of 150–51
- urban mobility system 120
- urban public transportation 121, 124
- Urban Technology 165
- urban transportation infrastructure 120–22
 - literature review 121–3
 - MAMCA, applications of 123–4
 - betterment tax/benefit assessment 124–5
 - definition of criteria and weight elicitation 127–32
 - indicators and measurement methods 132–3
 - joint development 125
 - overall analysis and ranking 133–4
 - problem and identification of the alternatives 124
 - results 134–43
 - stakeholder analysis 125–6
 - tax increment financing (TIF) 125
 - VCF mechanisms for 129
- used cooking oil (UCO) 89
- user-friendly software 49
- U.S., non-governmental sector in 211
- Value Capture Finance (VCF) 120, 126
 - financing mechanism 130–31
 - implementation of 122
 - mechanisms 121–2, 129, 131
 - policies 126–7, 132, 137
 - research 122
 - tools 126
- VCF *see* Value Capture Finance (VCF)
- verbal decision analysis 79
- waste-based biodiesel 198, 207
- waste hierarchy 207
- waterway transport 169
- Web-based Transport Analysis Guidance (WebTAG) 103
- web platform 152–3
- WebTAG *see* Web-based Transport Analysis Guidance (WebTAG)
- weight elicitation 188–9
 - definition of 127–32
- weights 64–5
 - definition of 9–12
 - of respective criteria 169–70
- willingness-to-accept (WTA) 33
- willingness-to-pay (WTP) method 32
- workshop setting 178
- WTA *see* willingness-to-accept (WTA)
- WTP method *see* willingness-to-pay (WTP) method