Index

8 Step Change Management 259

Aachen region
Association of Innovation and Technology Transfer AGIT 106
Chamber of Commerce and Industry 106, 107
cluster initiatives in 105–8
industry associations 105–6
institutional heterogeneity 106–7
inter-cluster learning 106
inter-sectoral learning in 97
RWTH Aachen University 105
AbbVie 268
absorptive capacity 20–21, 207, 291
-development capacity framework 279–80

Abu Dhabi
2030 Economic vision 277, 285
ATIC semi-conductors cluster 285
Al-Nokhba scholarship 287
anchoring international partners 287–9
branding 289–90
funding programmes 288
international investment 285–7
-Semiconductor Research Corporation 288
Summer of Semiconductors partnership 288
Tech Quest 287–8
Clean Tech Fund 282
cluster growth in 277
Masdar Institute 278, 284
Masdar PV 282–3
Masdar renewables cluster 277, 280–81
-anchoring international partners 283–5
branding 281
international investment 282–3

Mubadala 276, 277–8, 286, 291–2
new learning model, as 290–91
Sustainability Week 281
ACDC capacity see absorptive capacity
Advanced Micro Devices 285
agglomeration 226, 256
-advantages 102
-factors 248
-pure models 37
-regional 136, 209
Ášesund Knowledge Park see Møre og Romsdal maritime cluster
Amgen 268
Amstrad 270
Apple 268
-assortativity 65–6, 66, 67, 69–70
dis- 65, 67, 72
Austria 96
-Energy Efficiency Law (2014) 214
Upper Austria 210–11, 217–18
Clusterland Oberösterreich 103–5, 211
-cluster policy role 211–14
cross-cluster networks 104, 213
eco-energy cluster 213
-environmental technology cluster 210–11, 213
Fronius 211
-inter-cluster learning 104–5
-inter-sectoral learning in 97
-interlocking clusters 104
Lenzing 211
Scheuch 211
Softwarepark Hagenberg 213
Strategic Programme 211
Technologie- und Marketinggesellschaft 211

Vienna
-cluster policy role 215–17
Departure 215, 218
-lack of finance 214–15, 216
new media cluster 214–15
Wien Win project 216

Baden-Württemberg
cluster policy 182–3, 184
Clusterportal Baden-Württemberg 103
ERDF Operational Programme 182
growth strategy 182, 183
Innovation Advisory Board 182
Innovation Council 182
Innovation Forum 182
innovation policy 181–2
innovation strategy 183
Region WIN two-step contest 183–4
RIS3 184
smart specialization 183–4
Basque cluster programme 45–6
evaluation of 47, 260

Bavaria
Bavaria FIT 187
Cluster Campaign 188
Cluster-Offensive 187
cluster policy 188–9
High-Tech Offensive 187
Offensive Future Bavaria 187
smart specialization 189
RIS3 190
RTI policy 187–8
benchmarking 1

Benneworth and Charles cluster policy
cycle model 108–9
best-practice initiatives 1, 39, 95
Bourbon 76
Business Process Engineering 259

California biotech cluster 268
California Dream 56
capacity 65
absorptive 20–21, 207, 291
-development capacity framework 279–80
-building 186, 190
exploitation 31
exploration 31, 70
for renewal 20, 88
innovation 17
R&D 17, 24
relational 64, 120
Cetus 268
change agents 42, 49
Chartered Semiconductor 285–6
civic entrepreneurs 47
cluster development 5, 7, 39–41, 47
following particular paths 208
management 116–17
network failures in 66–7
structural properties 68
two-phase model 42
cluster dynamics 2, 3, 15–16, 41–2, 57, 97, 206
evolutionary 155, 162, 166
intra-regional collaborative learning, and 95
long-run 57, 66
micro-level 159
OECD definition 154
policy learning, and 95
self-reinforcing 106
see also policy learning
cluster entrepreneurs 47, 259–60
cruster evolution 15–16, 41, 77, 206–8
decoupling and fragmentation 245
congestion 246
material ties 246
spatial disintegration 246–7
timeline 247
Møre og Romsdal maritime cluster, in 77
multi-scalarity of 42
role of institutions in 77–8
Ruhr area, in 243–5
see also cluster life-cycle theory;
Møre og Romsdal maritime cluster; Ruhr Area
cluster facilitators 47, 48–9, 155, 222
cluster life-cycle theory 2–3, 16, 41–2, 155, 205, 206–7
adaptation 155, 279, 290
consolidation 228
decline 41, 57, 207
development see cluster development
dissolution 228
emergence 166, 207, 228, 266–8, 279–80
pre- 228
expansion 228
growth 207
implications of approaches 42–4
knowledge networks, and 64–6
maturity 228  
Norwegian cases 125  
policy implications 42–4, 108–9  
/policy relationship 2  
reassertion by transmutation 268–9  
renewal 8, 76  
combinatorial knowledge dynamics in 78–9, 80, 90  
factors 90–91  
innovation in see innovation institutional variety, and 76, 78  
reorganization to GPT 269–70  
reshuffle 228  
sustainment 207, 280  
transmutation into new cluster 269  
view of cluster policy 205  
cluster practice 178, 262  
cluster project management 116–21, 124  
analytical framework 121–3  
cognitive 120, 129–30  
declining clusters 128–9, 130  
emerging clusters 124–6  
growing clusters 126–7  
mature clusters 128, 130, 131  
political 120–21, 130  
relational 119–20, 129–30  
renewal 128–9, 130  
research 123–4  
social capital, and 118–19, 121  
structural 119  
cluster sustainability 3, 60, 207, 238, 280  
regional 65, 89  
clusters  
advantages 15  
characteristics 226  
controversial 49  
definitions 15, 36–8, 135, 205, 224  
difficulties evaluating intervention results 47–8  
disadvantages 38  
disassortative 65, 72  
hierarchical 72  
organic–project distinction 116–17  
problems identifying 45  
relational density 60–62, 69  
–smart specialization coexistence 178–9  
specialization, and 174–6  
surrogate model of creation see surrogate model  
clusterscapes 5, 96, 98, 99, 100–101  
Aachen Region 105–8  
Clusterland Oberösterreich 103–5, 110, 211  
coexistence  
cluster policy/smart specialization 6, 178–9  
collaboration 60, 110 see also inter-sectoral learning  
co-location 37, 56, 59–60  
inter-sectoral learning and 97–102 see also policy learning  
combinatorial knowledge dynamics 78–9, 87, 90  
competition 17, 30, 132, 162, 167  
cluster policy/smart specialization 6  
co-operative 106, 260–61  
inter-CI 99  
competitive advantage theory 16–17  
disadvantage 66  
competitiveness  
high-road strategy 17  
innovation and 17, 59  
The Competitiveness Institute see TCI  
concept resilience 262, 263–4  
Constructing Regional Advantage 14  
definition 16  
public–private partnerships in 17  
strategy for path development, as 16–20 see also path development; public–private partnerships; regional economic paths  
contingency 162, 168  
cooperation  
co-opetition 260–61  
horizontal 1, 182  
vertical 1  
CRA see Constructing Regional Advantage  
cross-cluster  
initiative interaction 97, 101  
internal networking 98, 100  
networks 104, 213  
synergies 103, 106–7, 110, 288  
design 15, 20–21, 59, 71, 116–17, 135, 176
The life cycle of clusters

actor-oriented 70−71

European Regional Development Fund 158

in Europe 2020 173

Horizon 2020 173

Innovation Union 158

Regional Innovation Scoreboard 77

Regional innovation policy 158

Regions of Knowledge 168

evolutionary dynamics 6, 152, 161−2, 165

cluster life-cycles, of 155

current policies, and 154, 165, 167

regional 162, 167−8

RIS3 development, and 164−5, 166

evolutionary economic geography 36, 207−8

relational turn 59

evolutionary regional policy see regional policy

Facebook 268

Finland

innovation policy intervention in 45

framework conditions 6, 42−3, 81, 177, 203, 292

cluster policies, for 138−42

macroeconomic 144

structural 144

France

cluster policy 70

Local Productive Systems policy 38

Pôles de compétitivité 45−6, 264

funding

cluster management, of 136−7, 143−4, 145

follow-on 47, 128−9

private 26

programmes 23−4, 28, 234−5, 288

public 29, 31, 60, 123, 213, 231

crowding out 56−7

R&D 46, 288

structural 173, 178, 186

venture capital 28

Germany 96

Aachen region see Aachen region

Baden-Württemberg see Baden-Württemberg

actor-oriented 70−71

dangers of top-down thinking 160−61

development factors 6

entrepreneurial discovery processes informing 167

integrated 135

lack of co-determination in 218

market and network failures in 58−60

one-off 154

RIS3 see RIS3

smart specialization see smart specialization

ties-oriented 69−70

doing, using, interacting innovation see innovation, DUI

dynamic cluster model 36

economic effects of clusters 37–8

economics

centre-periphery model 174, 175

cultural 19

equilibrium, innovation and product model 175

innovation 175

new theory of growth 175

North−South trade model 175

Elia Consulting 89

embeddedness 3, 9, 16, 87, 229, 237

institutional layers, in 80−81, 86, 88−9

institutional layers, of 86

social relations, of 106, 117

emerging industries 138−9

Emilia-Romagna 1

entrepreneurial discovery 14, 20, 157, 159, 162

design, and 167

micro-level 167

relational phenomenon, as 165

Schumpeterian 156

environmental technology 6, 204, 210−14, 217−18

Espace Mittelland 99

European Cluster Observatory 39, 95, 222

register 223

European Union

Europe 2020 158
Index

Bavaria see Bavaria
Bayern innovativ 103
biotech cluster 232
clusterpolitik 261–2
Electro Mobility South-West 232
Forum Organic Electronics 232
Hamburg Aviation 232
Landescluster 191
Medical Valley 232
MicroTEC Südwest 231, 232
North Rhine-Westphalia see North Rhine-Westphalia
NRW Clustersekretariat 103
RIS3 193–5
Ruhr Area see Ruhr Area
Saxony see Saxony
software cluster 232
Spitzencluster see Spitzencluster
Thuringia RIS3 160
Giddens, A. 265–6
Gilead 268
Global Centre of Expertise (GCE) status 76, 85
global financial crisis 135
Global Foundries Fab 1 285, 286
Fab 8 286
Global Navigation Satellite Systems 65
Google 268
government failure 72
Gulf Corporation Council region 277
Harvard Institute for Competitiveness and Strategy 239
hierarchy 65, 66–7, 68, 69–71
flat 64, 67
insufficient 70
sloping 64–5
Hoffman LaRoche (Roche) 268
horizontal cooperation see cooperation
hotbed policy 163–4
identifying new clusters 7, 45
implications of cluster life-cycle approaches 42–4, 108–9
industrial complex model 37
industrial transformation 138, 139
industry life cycles 16, 41, 206
information asymmetry 205
initiatives 224–9
bottom-up 45, 97, 105, 110, 126, 159–60, 168, 179, 256
facilitating 184, 193
characteristics of 226, 229
definition 225
development model 226–9
life-cycles 227–8
policy 116–17
research on 224–5
Spitzencluster see Spitzencluster
top-down 45, 96, 103, 108, 110, 184, 193, 206, 253, 256
dangers of 160
see also policy; support
innovation 115–16
capacity 17
competitiveness, and 17
definition 17
drivers 17
DUI 17, 20–21, 79, 87, 267, 271
high-road strategy 17
interactive learning processes, as 115
STI 17, 20–21, 87, 79, 271
support see support policies
innovation economics 175
innovation system approach 17, 79–80
insider-outsider problem 160–61
institutional layers 80–81, 88–9
connectedness, and 82–3
embeddedness of 86
embeddedness in 80–81, 86, 88–9
industry specific 82
local
connectedness of 87–8
family-owned–corporately-owned distinction 86–7
single cluster 81
institutional variety 82
cluster renewal and 76, 78, 91
integration 83, 89–90,
policy promoting 91
institutionalization 39, 103, 118
institutions
coevolution with dominant industry 77–8
institutional thickness 79–80, 82
–organizational thickness
differentiation 80
The life cycle of clusters

integration
horizontal 1, 84
vertical 1, 84
interdependence
cluster policy.smart specialization 6
pre-existing, cluster evolution and
interdependence
cluster policy/smart specialization 6
pre-existing, cluster evolution and
International Renewable Energy
Agency 281
International Renewable Energy
Conference 281
International Water Summit 281
interoperability 63, 70
inter-sectoral learning 96, 97, 101–2
Austria, in 97
Benneworth and Charles cluster
policy cycle model 108–9
colocation, and 97–102
Germany, in 97
implications 100–102
process fields of 97–100
regional cluster cycle dynamics, and
108–10
see also collaboration; policy
learning interventions
evaluation of 47–8, 272
little understanding of 35
policy 3, 30, 38, 42–5, 69–71, 213
revolving cluster 155
targeted 57, 163, 167
see also policy
IRENA see International Renewable
Energy Agency

key policy characteristics 142, 144–5
integrated cluster programmes 143
macroeconomic framework 144
structural framework 144
thematic programmes 143–4
knowledge
bases 14, 19–20
analytical 18, 21, 79
symbolic 19, 21, 79
synthetic 18–19, 21, 79
economy
cluster policy performance in 272
globalizing 17, 18
institutional complementarities
in 17
flows 57, 59
matrix 72
processes 18
networks see networks
production 59
promotion 62
recombination 69
trade-off 71
accessibility appropriation 60–61,
62–3
knowledge spillovers 37, 60–63, 174
ambivalent role of 59
learning process fields 97–100, 101, 103
combine agency towards outside 98,
99–100
combine cluster support measures
98, 99
copy cluster support 97, 98–9
cross-cluster internal networking 98,
100
learning work organizations 87
local buzz and global pipeline 97, 106,
278–9, 281, 289, 290
localization
advantages 174, 175
economies 15, 38
local pipeline and global buzz 290
lock-in 8, 41, 105, 205,
cognitive 43, 77, 208, 254
functional 77, 208
institutional responsibility for 78
long-term 38
negative 13, 66–7
policy 38, 252
political 77
positive 18
regional 110
risks 109, 154, 155
strategies 249
technological 43
London Array offshore windfarm 282
Malmö media cluster 21–5, 30–31
business incubator 24
development 23–5
funding 23–4
history 22–3
importance of Malmö University
22–3
Index

MEDEA 24
Media Evolution City 24
Media Meeting Place Malmö 23
Moving Media Southern Sweden 24
M-Town 23
restructuring ICT cluster 22
management 115
cluster development 116–17
cluster project see cluster project management
excellence 136
see also cluster development; cluster projects
market failures 56, 58, 69
knowledge spillovers, and 59
non-see network failures; system failures
Marshallian industrial districts 266–7
Matthew effect 272, 273
Mitie Norge AS 89
modes of change 251–2
decoupling and fragmentation 245–7, 255
path development 248–52
Monitor Group 259, 260
demise of 7, 261, 265
Møre og Romsdal maritime cluster 76–7, 83–5, 262
Arena clusters 85
Blue Maritime GCE 85
connectedness 88
institutional analysis of 85–90
institutional layers 88–9
local 86–7
institutional variety 88
Møreforsking 89
R&D expenditure 84
university–industry collaboration 84–5
Ålesund Knowledge Park 85, 89
Molde University College 84
Møreforsking 84
Norsk Maritimt Kompetansesenter 89
SINTEF 84–5, 89
vision for regional development 89
Motorola 270
multi-causality 162, 168
evolutionary developments, of 166
national champions 39, 138, 139, 143, 156
network cluster model 37, 43
network failures 56–7, 58, 60, 69–70, 71–2
cluster decline, and 57
non-market failures, as 59
see also networks; system failures
network governance theory 118
networks 64–6
assortativity 65–6, 66, 67, 69–70
cluster development, in 66–8, 69
hierarchy 65, 66, 67
insufficient 70
small worlds property of 64
traits of 117–18
see also network failures
network steering strategies see cluster project management
new theory of growth 175 see also economics
North Carolina Research Triangle biotechnology cluster 40
North Rhine-Westphalia cluster policy 191
Clustersekretariat 103
Exzellenz.NRW 191–2
innovation policy 190–91
RIS3 192–3
smart specialization 191–2
Norway Agder project 124
Arena 49, 85
ARENA DIGIN 124
Leisure Boats 124
USUS 124
Centre for Research-Driven Innovation grants 90
centres of excellence 46
cluster policy 262–3
cluster support programmes 49, 85, 123
Global Centre of Expertise 85, 123
NODE 124
Subsea 124
Hordaland subsea project 124, 262
Innovation Clusters programme 117
Innovation Norway 76, 115
innovation policy 116
Ministry of Local Government and Regional Development 123
Ministry of Trade and Industry 123
Møre og Romsdal maritime cluster see Møre og Romsdal maritime cluster
Norwegian Centres of Expertise 85, 123, 262
EYDE 124
Maritime Cleantech West 124
Media 124
Tourism–Fjord Norway 124

one-size-fits-all cluster model 40
Open Innovation 259
organic cluster model 36, 117, 132
organizational ecology 41
organizational thickness 77, 83
institutional thickness differentiation 80
see also institutions
Oslo cancer medicine cluster 21, 25–30, 31–2
academic entrepreneurship 26–7
Cancer Register 26
Centre for Cancer Biomedicine 26
funding 28
history 25–6
Hydro Pharma initiative 28–9
Norwegian Centre of Expertise, as part of 29–30
Oslo Cancer Cluster 25
policy tools 27–9
Radium Hospital 25–6
Research Foundation 28
research and commercialization system, as 28
ossification process 64, 67, 70, 72

path creation see regional economic paths
path dependence 13, 168
cluster emergence, of 153
technological 17–18
path development 16–20, 244–5,
agglomeration factors 249
Constructing Regional Advantage as policy strategy for 16–20
failure 251
global demand 251
inward investment 249–50
market diversification 249
mode of change, as 248–52
new see regional economic paths
regional knowledge bases 250–51
renewing core sectors 248–9
see also Constructing Regional Advantage
path renewal see regional economic paths
PayPal 268
Peaks in the Delta model 45
Plastics Valley 261
policy 49–50, 69, 136–8, 145, 175, 205–6
academic papers on 58
cluster development, and 39–41, 203–4, 208–10
customization 204
dynamics 204–5
relationships 205
current focus 2, 8
cycles see policy cycles
decentralization 39
design see design
dynamic nature 36
effectiveness 47
efficiency gains 13
emergence of 261–6
evaluation 46, 47–9, 50, 108, 254, 272
evolutionary economic geography, in 207–8
evolutionary targeting approach 42–3
expansion 35
future 8–9, 140–42
systemic 141
horizontal 155, 156, 159, 168
implementation 44–7
importance 4
initiatives see initiatives
interventions see interventions
key policy characteristics see key policy characteristics
key determinants 139
laissez-faire 69
/life cycle relationship 2
narrow view of 41, 203, 206
problems 1–2, 264–5
questioning economic rationale for 38
revolving see revolving cluster policy
shortage of analysis 35
stage-specific 2
standardization 108
systemic challenges 206
target 136
under-efficiency of network-based 71
variation 44–7, 58–9, 118, 121, 229
wide view of 41, 203, 206
see also cluster development;
support
policy cycles 97, 108–10, 168
Benneworth and Charles model 108–9
policy instruments 46, 48–9, 60
direct 69
increasingly systemic nature of 208–10
indirect 60
policy learning
best-practice initiatives 1, 95–6
cluster dynamics and 95
inter-sectoral see inter-sectoral learning
see also learning process fields
policy models 36
policy phases 137
policy platforms 7, 14
policy tourism 39
Porter, M. 7, 17, 39–40, 259–60, 273
‘cookie cutter’ policy formula 40
diamond model 38, 39, 56, 205, 261
Monitor see Monitor Group
strategy theory 265
post-cluster platforms, evolution of 271–4
production organizations 87
product life-cycle theory 16
–territory life-cycle parallel 67
public–private partnerships 14, 17, 30–31, 165–6 see also Constructing Regional Advantage
R&D 60
capacity 17, 24
 collaboration 56, 57, 100
driving path creation 20
expenditure 84
funding 46, 60, 69, 129, 264, 288
institutions 26
intensity 17
mobilizing 192, 194
reciprocal knowledge accessibility 59
recombination 43, 78
innovation as 271
knowledge 69, 211, 270, 272
regional branching 153
regional economic paths
creation 20
development 4, 13, 20–21, 243
exhaustion 20
extension 14, 20
renewal 14, 20–21
strengthening regional strongholds 13
see also Constructing Regional Advantage
regional economic structures
analysing 161–2, 165
clusters being 225
monitoring 155
targeted interventions in 167
transformation 6, 7
Regional Innovation Strategies for Smart Specialization see RIS3, strategies
regionalization 39
regional policy 56, 89
clusters as standard approach 13
design see design
EU 158
evolutionary 164, 166, 168–9
building 167
moving towards 163–7
RIS3 163
smart specialization as 151, 158–63, 173
innovation see innovation
key challenge for 139
new rationale 56–7
see also initiatives; policy; RIS3;
smart specialization
regional resilience 18, 43, 64, 65, 102, 169, 269
regional specialization 6, 159–60
regulatory change 27–8
relational thickness 61, 62
research and development see R&D
Research and Innovation Strategies for
Smart Specialization see RIS3
resilience
collection 262, 263–4
regional 18, 43, 64, 65, 102, 169, 269
reversing cluster policy
strenthening 154
shock 264, 266
stress 142
resilience theory
conservation 267
exploitation 267
release 268
reorganization 268
revealed related variety 14, 208
reversing cluster policy 6, 155, 163
smart specialization, and 155
strenthening regional resilience 154
RIS3 156, 158, 159, 160, 162–3, 180, 181
Baden-Württemberg, in 184
Bavaria, in 190
constant readjustment 165
designing 159–61
development 164–5
effects 180
evolutionary dynamics, in 164–5, 166
influence on cluster emergence 166
North Rhine-Westphalia, in 192–3
requirement for EU funding, as 158, 173
Saxony, in 185, 186–7
strategies 173
Thuringia, in 160
Rolls Royce Marine 76, 87
Ruhr Area 242–3, 251–2, 254–7
cluster life-cycle 252
evolution in 243–5
concentration 246
decline 245
decoupling and fragmentation 245–7, 255
concentration 246
material ties 246
spatial disintegration 246–7
timeline 24
Dortmund Technology Park 250
Dortmund University Faculty of
computer Science 250
growth 243–4
initiatives 252–4, 255–6
bottom-up I 253
bottom-up II 253
experimentation 253
top-down I 253
top-down II 253
maturity 244
path development 244–5, 248
agglomeration factors 249
failure 251
global demand 251
inward investment 249–50
market diversification 249
regional knowledge bases 250–51
renewing core sectors 248–9
political fragmentation 247
renewal/restructuring 245, 254–5
sectoral differentiation 245
S3 see smart specialization
Saxony
Biosaxony 186
cluster policy 185–6
innovation policy 184–5
innovation strategy 185
RIS3 185, 186–7
Silicon Saxony 186
Schumperterian entrepreneurial
discovery 156
science parks I
IDEON 31
science, technology, innovation see
innovation, STI
sectoral specialization see specialization
Segel 89
self-organization 42, 188, 193, 226, 256, 262
Siemens 283–4
Silicon Valley 35, 37, 60, 203, 264
biotech ecosystem 268–9
transmutation of 268, 269
Six Sigma 259
SMEs 1, 21, 25, 64, 70, 175, 185, 188, 244, 254, 256
small-medium enterprises see SMEs
smart specialization 1, 5–6, 151–2, 156–7, 161, 167, 176–8
–cluster coexistence 178–9
–cluster differentiation 157, 177
cluster emergence 151, 152–4
path-dependent process 153
sequence of 154
cluster policy adjustments 173–4, 179
cyclical nature of 166
evolutionary regional policy, as 158–63
ex ante conditionality 178
focus 157–8, 177
German case studies see Germany
not a policy instrument 179
revolving cluster policy and 155
RIS3 156, 181
—sectoral specialization
differentiation 14, 156
—smart experimentation combination
163–4, 166
see also regional policy; RIS3
social capital 101, 106, 118, 123, 128, 131
cognitive 119, 120
relational 119–20
structural 119
spatial concentration 15, 174
specialization
advantages 174
clusters and 174–6
sectoral 174–5
—smart specialization
differentiation 14
smart see smart specialization
technological 174
spin-offs 18, 20, 25, 27, 70, 267, 290
Spitzencluster 6–7, 222–3, 229, 236–8
characteristics 230–31
competition to become 230, 232, 234
development patterns 231–236
FOE 231
funding 234–5
-Wettbewerb 6, 234, 235
establishment 229–30
see also Germany; initiatives
static cluster model 36, 41
start-ups 9, 24, 25, 29, 70, 207, 216, 290
promotion 43
stress resilience 142
support 7–8, 42
combine cluster 98, 99
copy cluster 97, 98–9
initiatives 5
innovation support policies see support policies
policy rationale, as 39–40
regional 1
subsidies 108, 185, 209, 213, 216, 229–30
crowding-out effects 56, 63, 69, 71
direct 56, 58, 60, 69
targeting 70, 71
see also initiatives
support policies 60
diffusion-oriented 1
high-tech–low-tech distinction
irrelevance 17
Norwegian 49, 85, 123
regional 185
surrogate model 276, 290–91
economic development tool, clusters as 276–7
economic diversification agenda, clusters in 277–8
spill-back approach 290
Sweden
Malmö media cluster see Malmö
media cluster
Scania new media cluster 21–5, 30–31
Vinnväxt clusters 49
synergies
cross-cluster 106–7, 110, 288
inter-cluster 107, 110
inter-sectoral 97, 99–100, 103
leverage 40, 43
supporting 102
system failures 17, 59 see also network failures
Taiwan Semiconductor Manufacturing
Corporation 286
TCI 39, 95, 259, 261, 264
technological compositeness 62, 63
technological specialization see specialization
technological transversality 63, 69
Tesla electric vehicles 268
Texas Instruments 270
Torresol Energy 282
Triple Helix 259
The life cycle of clusters

universities as entrepreneurial value chains 164
university–industry collaboration 84–5, 90
Upper Austria see Austria
urbanization advantages 174
urbanization economies 15

vertical cooperation see cooperation

VINNOVA constructing regional advantage 20
V.Ships 76

Washington DC ICT clusters 42
World Future Energy Summit 281

Zacco Norway 89
Zayed Future Energy Prize 281