Index

absorptive capacity 128–9, 147, 153
academic engagement with industry 7, 127–32, 147–8, 153
global, effectiveness of 177
acquisitions of foreign firms 25
administrative agencies 204
agency 106, 109, 112, 113, 115, 117, 120
role of 104, 111
and structuration 114
Aji-ginjo-style sake 216
Algan, Y. 119
Al-hagla, K.S. 57, 58, 61, 62, 76, 77
Amano, Toshiro 216
Apple Computer Co. Ltd 198
array of variables 85
articulating broader visions 145–6
Arvemo, T. 5
Avnimelech, G. 12, 13, 16, 17
balance of power 112–13, 116–18, 120
of neo-corporatism 118
Barrehag, L. 159, 162
Bartlett, D. 7
Battiston, S. 116
BEA see Bureau of Economic Analysis (BEA)
Berg, K. 7
Bernhard, I. 6
biotechnology 11
five target areas 29–30
legislation 27–9
numbers and types of firms 20–27
policies and policy instruments 28–33
technological trajectory 14–15
theoretical perspectives 13–18
Biotechnology Act of 1994 (Norway) 27
biotechnology firms 15, 16, 28
methodology 18–19
on policies and policy instruments 19–20
periphery versus center 16
BIOTEK2021 program 32
BIOT2000 program 31
bottom-up perspectives 70–72, 77
boundary spanners 129, 132, 148, 153
Bovibank 25
Brewing Society of Japan 217, 218, 220, 227
budgetary rule 28–9
Bureau of Economic Analysis (BEA) 86
Burns, T. 232–3
business development organizations 161–4
future research on 180–81
vs. startups 180
businessization 8, 187–8, 205
of internet 200
progress of 203
business model 162
capitalist economies 117
Carlsson, B. 15, 16
causality 115, 116
center 16
Charry, G. 159
Chesbrough, H. 164
citizen/non-profit sector (NPO; NGO; volunteer) 8, 186
businessization 187–8
creation of new industries 189
economic and industrial policy 188–9
IT business, Hanshin-Awaji Earthquake 189–90
“first year of the volunteer” 190–91
information volunteer organizations 193–5
information volunteers 191–3
IT business creation 199–201
IT business development 201–2
private non-profit organizations 195–9
unused internet 191–2
as regional innovation cluster 202–4
seedbed function 201
seriousness of regional problems 187–8
citizen public benefit organization 188
city center regeneration 62
city population size 84–5, 87, 88, 92
Civic action clearinghouse see Shiminkatsudou Information Center
Clavis Pharma 25
climate-based variables 88
‘closed systems’ approaches 115
clusters 4–5
analysis 235
coevolution 13, 15, 17–18, 33–5, 37, 38
Cohen, S. 162
Cohen, W.M. 128–9, 153
collaboration
in companies and citizen/non-profit sectors 203
and cooperation among organizations 200
with NPOs/NGOs for companies 198
collaborative design 255
collaborative place innovation 6, 57
collaborative research 126, 151
influence on firm innovation 129–32, 149
collective innovation 105
commercialization 127, 130, 132
commodity-dependent economy
Norway see Norway, commodity-dependent economy
communication 72–3
communication space 67–8, 76, 77
community business 188, 189
community capacity 46, 55
comparative advantage 108
competition 111
composite indicators 45, 46
conflicts 66–7
construct indices 48–9, 51
textual variables 87–8
co-occurrence network 251–2, 254
coordination 72–3
Corporate Innovation Centers 175–6, 178–80
correlations 51, 54
Council on Marine Value Creation (RMV) 30
critical contingency 115
Cronbach’s alpha 49, 52
cultural heritage 58, 61–3, 66, 68, 69, 76
“CU – SeeMe” 197
Danish Carlsberg case 227
data analysis of interviews 134
data collection 64, 133–4
DDI see design-driven innovation (DDI)
De Bromhead, A. 119
decision-making process 112
decline phases 16, 35, 36
demographic shift 117
Denmark 33
number of employees in firms 23
design-driven innovation (DDI) 9, 230,
231, 235, 236, 248, 254–7
future research agenda 257
in innovation research 234
Deutschmann, C. 116
Diagenic 25
diagnostics firms 19, 21, 22, 25
“diagnostics, partial” firms 21, 22
dialogue 247
Digital Garage 169, 171
digitalization support project 196
digitalization 117
diversity 1–2, 6
Doi Brewery 216, 218, 219
Dosi, G. 11, 12, 14, 34, 36
Drucker, D. F.
concept of innovation 232
Dutt, N. 159
earthquake disaster support 197–8
e-commerce 117
economic development 5–6, 44–5
defining 45–6
dimensions of capacities 46, 55
education and 47
measure for Swedish municipalities 47–54
possible indicators for 6, 48–51, 55
role of clusters for 4
role of geography in 55
theoretical framework 45–7
economic entity 8, 203, 205
economic growth 44, 47, 55, 118
financialization and 116
technology and 110
economic policy 188–9
economic problems 203
economic productivity 93, 94, 96, 97
economic size 93, 95–8
economies of scale 4
ecosystems 165, 177, 178
Edokko No. 1 Project 238–9
education 47
EIT Digital 174–5
electronic bulletin board (Net News) 192, 196
electronic maps 196
electronic network, development and practice 192–3
emergent phase 15, 16
employees per firm 22, 23
employment 21, 55, 84, 98, 126, 135
variables 88, 100
engineering 132–3, 135, 136, 144, 148, 152–3
entrepreneurial capacity 46
entrepreneurial opportunities 4
entrepreneurship 1, 73, 87, 105
challenges 178
global 158–9
horizontal policies on 29
indicators for 55
for innovation 233
equity per firm 22, 23
Ericsson 175–6
Ericsson Garage 175–6
ethical-prescriptive paradigms 121
European bridge organizations 178
Evangelista, R. 110, 111
Evans, R. 60, 76
external organizations 146
FA see factor analysis (FA)
factor analysis (FA) 48–9, 51–2, 235
factor loadings 85, 88, 93
Federal Emergency Management Agency (FEMA) 197–8
Feldman, M. 2, 15–17, 44, 46, 47, 55, 83
FEMA see Federal Emergency Management Agency (FEMA)
financial crisis
1920s and 1930s 118, 119
2008 118, 119
financialization of economy 116
firm capacity 55
firm innovation 7
collaborative research influence on 129–32
industrial PhD students affecting the 129–32, 139–47
“first year of the volunteer” 190–91
Florida, R. 81
Fordism 104, 117, 118
48-hour commercialization design marathon project 239–41
4IR see fourth industrial revolution (4IR)
fourth industrial revolution (4IR) 102, 111
Freeman, C. 103, 109–11
frequent words, results of analysis 249, 251
FUGE program see Functional Genomic Research (FUGE) program
Functional Genomic Research (FUGE) program 32
Funke, M. 119
Gammon, S. 61
Garage Sumida 243–4
“geeks” 196
Gene Technology Act of 1993 (Norway) 27
Genome 165
Genova 25
Getz, D. 58, 60, 77
Gibbons, M. 125, 207
Gini coefficient 55
$g\text{injo}~sake$ 213–18, 222, 225, 226
process 220–23
$g\text{injo}~y\text{easts}$ 218, 219, 222
Glaeser, E. 81, 99
global entrepreneurship 158–9
global innovation 202
globalization, startups 7–8, 177–80
San Francisco Bay Area 177
accelerator/incubator 178–80
accelerators 178–80
Corporate Innovation Centers 178–80
incubators 177–80
International Bridge Organizations 178–80
global startups see startups, global
Glocalink Co. Ltd 244
GMP 52–5
Gospodini, A. 61
Grand Challenges 111
Gråsjö, U. 5
Great East Japan Earthquake 201
Great Hanshin-Awaji Earthquake 186, 189
Great Kanto Earthquake 236
Griliches, Z. 83
Grønning, T. 5
growth phase 16, 35, 36
Gustavsson, L. 131, 132, 149–51
Haider, D. 45
Haley, A. 58, 62
Hallen, B. 160
Hamano Manufacturing Co. Ltd 241
Hamano Products Co. Ltd 241, 243, 244
Hanshin-Awaji Earthquake, IT business by citizen/non-profit sector 189–90
“first year of the volunteer” 190–91
information volunteer organizations 193–5
information volunteers 191–3
IT business creation 199–201
IT business development 201–2
private non-profit organizations 195–9
unused internet 191–2
Hanssen, G.S. 112
Hasegawa Liquor Store 226
Hase, Shokichi 219
HAX Accelerator 172–3
HD-1 sake 216–21
healthcare firms 19, 20, 24, 25
HelseOmsorg21 initiative 32
Herfindahl–Hirschman index 90–91
Hokuriku $g\text{injo}~sake$ 226
horizontal legislations 28
horizontal policy 17, 28–30, 33, 34, 36
see also targeted policy
human capital 93, 94, 96–8
Human Development Index 55
IAUD see International Association for Universal Design (IAUD)
Imase, M. 8
Immuno-Oncology Consortium 26
Impact Hub 166, 169
impute data, for economic development 48, 49, 51
inclusive innovation 59
inclusive place innovation 76–8
income distribution 47
income inequality 118
incremental innovation 130
incubators 161–3, 166, 169, 171, 177–80
indices
calculation 49, 52–4
correlation between 54
internal reliability of 49, 52
Indie Bio 173
indistinct place identity 68–70, 76
individual characteristics 128
industrial biotechnology firms 19, 21, 24
industrial cluster theory 207
industrial PhD students 7, 125–6
academic perspective to firms 151
activities 131, 139–50
affecting the firm innovation 129–32
analysis 147–52
articulating broader visions 145–6
defining 127–9, 134–9
empirical findings 147–51
firm-level coordination of 142–3
future research 152–3
global perspective to firms 151
impact on firm innovation 129–32, 139–52
limitations of research 153
networking 146–7
papers and publications in research 143
patent filings 140, 150
problem solving 143–5
qualitative research design 132–3
data analysis of interviews 134
data collection 133–4
research presentations 142
research projects 142, 144
science and technology discussion
141–3
working on products and processes
139–40
industrial policy 188–9
industrial specialization 93–5, 97
industry capacity 55
Industry Promotion Master Plan
(1987) 238
inequality 111, 116
information communication means
191
informationization 200
“informationization support” project
196–9
information technology (IT) 190–22
Information VG see Information
Volunteer Group (Information VG)
Information Volunteer Group
(Information VG) 194
information volunteer organizations
193–5
information volunteers 190, 191, 196,
197
activities 196, 201–2
electronic networks use 192–3
innovation 1–4, 83, 118, 165
beneficiaries of 111
collaborative research influence on
129–32, 149, 152
defined 231–3
economic growth and 110
financialization effect on 116
firm see firm innovation
non-profit sector 203
outcomes 131, 149, 150, 152
policies 104, 105
next generation 111–12
research
design-driven innovation in 234
future challenges of 233–4
genealogy of 231–3
technological 117
type 130
innovation management research 233
Innovation Norway 20, 26, 30, 32, 175
innovation organization research 232
innovative infrastructure 46
institution 19, 29
institutional change 114
institutional context 128
institutional development 114
institutional equilibria 114
institutional void 159
internal reliability of indices 49, 52
International Association for
Universal Design (IAUD) 240, 241
International Bridge Organizations
functions 163–4
internationalization 160
“International Universal Design
Declaration in Japan 2002” (UD)
240
internet 191
businessization of 200
earthquake assistance for 196
expansion of use 201
information support 193
unused 191–2
utility and usefulness 199–200
see also IT business
internet engineers 195–6
Inter V Net 194, 195
Inter Volunteer Network (IVN) 194,
195
inventions 83
ISDN services 198
IT see information technology (IT)
IT business 8
creation 199–201
by citizen/non-profit sector see
Hanshin-Awaji Earthquake
development 201–2
Diversity, innovation and clusters

IVN see Inter Volunteer Network (IVN)

Jacobs, J. 1–2, 81
Jaffe, A. 83
Jarratt, D. 61
Jonsson, I. 7

Kawamura, Denbei 8, 219–24
leadership 228
strategy of 215–16, 227
volunteer breweries 225

“Kawamura Manual” 222
Keynesian anti-cyclical policies 118
Khanna, T. 159
KH Coder 249
KIC Silicon Valley 169
Kishida, N. 8
Knight, Kenneth E. 232
knowledge 2, 3, 5
 transfer and learning 131, 150, 152
knowledge-based theory of spatial clustering 235, 237
knowledge creation 8
koji 216–18
 making of 210, 219, 221
Kondratievs 109
Kregel, J. 117, 118
Kuhlmann, S. 111–12
Kurabitos 211, 212, 221, 224, 226, 228
Kuramotos 211, 224, 226, 227
kyokai-kobo yeast 216–19, 227

labor force participation rate 87
lack of information 67–8, 76, 77
Lakatos, I., stagnation of research program 103
 latency phase 15, 16, 35, 36
latent demand 203
legislation 27–9
legitimization crisis 119–20
Levinthal, D.A. 128–9, 153
Life Science Cluster, The 26
Lindberg, M. 57, 59, 60, 62, 76, 77
linear regression 6, 84, 85
LingVitae 25
Liquor Tax Act of Japan 210
Ljungberg, D. 126, 129–32, 148, 149
local community regeneration 6, 57, 58, 61, 64, 70, 73, 74, 76
local conditions 88
location 88, 93–5, 97, 98
Los Angeles earthquake 198
Louca, F. 109
Lundh Snis, U. 6
Malmberg, A. 235
Maneo, T. 8
March, J.G. 232
Marine Biobank 30
marine (“blue”) biotech 30
market mechanisms 8, 203, 205
Marshall, A. 207, 208, 227
Maskell, P. 235
maturation phase 15, 16, 35, 36
Mazzucato, M. 102, 103, 106
McKelvey, M. 7, 126, 129–32, 148, 149
meshnet 199
metropolitan workforces 87
modern biotechnology see biotechnology
Mole Genetics 25
Mommaas, H. 57, 61, 77
Moore, W.L. 233
Moretti, E. 81
Mósesdóttir, L. 7
Mroczkowski, T. 7
Mulligan, G.F. 6
multi-level coordinator 112
multivariate analysis 92, 235
patent densities 96, 98
descriptive statistics 91–2
patent volume see patent volume
population size 92, 96
six independent factors 93–8
Murmann, J.P. 18

National Biotechnology Strategy (2011–2020) 30
National Brewing Testing Institute see National Research Institute of Brewing (NRIB)
National New Sake Awards (NNSA) 214–16, 222, 223, 227
National Research Institute of Brewing (NRIB) 209, 214, 217
NEC Corporation 198–9
neo-corporatism 118
Index

neo-Schumpeterian research program (RP) 103–4, 120
neo-Schumpeterians 109–11
network development 131–2, 151, 152
networking activities 146–7, 150, 181
new businesses 204
new industry 189
creation of 187–8, 202, 204
development of IT business 201–2
seedbed function of 202, 204
New-5 sake 220
Nifty Serve 194
Nishimura, Y. 215
NNSA see National New Sake Awards (NNSA)
Norway, commodity-dependent economy
budgetary rule 28–9
firms, numbers and types 20–27
legislation 27–9
policies and policy instruments 29–33
policy periods for biotechnology 26–7, 33, 34
public R&D funding, expenditures of 30–31
theory 13–18
Norwegian Bioindustry Forum 26
NO-2 yeast 219, 220
NPO Committee 188
NPOs/NGOs see private non-profit organizations (NPOs/NGOs)
NRIB see National Research Institute of Brewing (NRIB)
NTT 198
Ó hUallacháin, B. 82, 85, 92
studies of metropolitan patenting 84–5
Okuyama, M. 8
Old Town
development of 73–4
stakeholder challenges 63–5, 76
conflicts 66–7
coordination and communication 72–3
indistinct place identity 68–9
lack of communication and information 67
place innovation initiatives 74–5
stakeholders inclusion 70–71
tourism 69, 75
see also Seaside Resort, stakeholder challenges
Olsson, A.K. 6
Open Austria 173
open innovation 60, 164, 226, 228
‘open systems’ approaches 115
organizational context 128
Ornstö, D. 111
orthogonal factors 96
Osaka University 195
social contribution activities 199
Osaka YMCA 195
Pagano, U. 110
Palepu, K. 159
patent data 83, 86
patent densities 86, 91, 96, 98
descriptive statistics 91–2
patenting rates 90
patents 6, 82–3
concentration 88–92
filings 140, 150
measures 86
patent volume 6, 86, 90–92, 96
analysis of 89
regression estimates for 97
path dependency 113, 114
Pauwels, C. 159, 162
Pearson correlation 48
coefficient 95, 96
per capita productivity 87
percentage population growth 87
percentage wage growth 87
Perez, C. 103, 109–11
performance scores 6, 96
periphery 13, 16
Perkmann, M. 127, 128, 134
personal per capita income 47, 55
‘the phase of consensus building’ 119
‘the phase of realism’ 119
place identity 62
indistinct 68–70
place innovation 6, 57–8, 64, 73, 74
inclusive 76–8
initiatives 74–5
theoretical concepts 60–62
Places Rated Almanac (Savageau) 88
Diversity, innovation and clusters

place uniqueness 62
pluralistic policy 34
policies 19–20, 29–34
defined 17
horizontal 17, 28–30, 33, 34, 36
targeted 17, 28, 30, 33, 34
policy instruments 19–20, 29–34
political decision-making processes 115
political decisions 112
political polarization 117, 119
population size 84–5, 87, 88, 92, 96, 99
Porter, M. 4, 5, 81, 207, 208, 227
possible indicators, for economic development 48–51
post-festum analyses 115
post-Fordism 104, 105, 117, 118
Poulantzias, N. 112
power 112–13, 115
relations 112, 115, 121
resources 114, 117
power-political paradigms 121
prime working age 87, 93, 94, 96, 97
private non-profit organizations (NPOs/NGOs) 188, 190, 194–8, 203
businessization of internet 200
cooperation of companies with 198–9
utility of internet 199–200
problem solving 143–5, 150
process of structuration 111, 113, 114, 116, 117
product development 140, 150
methods 234
products and services 202, 205
progressive problemshift 7, 103–4, 120
property owners 70–71
PROSBIO program 31–2
“Public Access Point Concept” 198
public benefit agent 205
public benefit organizations 190
public interest entity 8, 188, 203
public policy 129
qualitative data 235
qualitative methods 64
qualitative research design, industrial PhD students 132–3
data analysis of interviews 134
data collection 133–4
quality of life 46, 47, 62, 69, 106
question items 251
Quinn, J.B. 233
radical innovation 130
real critical contingency 115
real critical junctures 7, 103, 104, 113–17
main features of 119–20
phases 119–21
The Refiners 173–4
regime change 114
regional economies 1–2
regional industrial cluster
competition between companies 227
development of related industries 225
investments 225
labor and workers 224–5
open innovation 226, 228
presence of customers 226–7
Shizuoka yeast 225–6
six factors 208, 225–8
supporting industries 225
transfer of technologies and knowledge 225–6
regional innovation 202
creation, factors 203
regional innovation cluster 202–4
input resources of 202
regional knowledge production functions (RKPFs) 83–4
regional problems 187–8, 203, 204
regional resources 202
regression coefficients 96, 97
regression estimates 98
for patent volume 97
reinvigoration phase 16, 35
reliability analysis 49
reproduction-social paradigms 121
Research Council of Norway 20, 30, 31
Rip, A. 111–12
RKPFs see regional knowledge production functions (RKPFs)
Rogers, E.M. 232
Roosevelt, F.D. 118
Rosenbloom, R.S. 226
Rossi, M.A. 110
rotated factor loadings 53
Index

Sakakura, K. 8
sake 208, 209, 217
classifications 213
defined 210
ginjo 213–16
gold awards 215, 222, 223
quality of 216, 222, 223
specific-designation 213–15
sake breweries 210, 222, 224
sake brewing clusters 8, 208, 209, 211–13, 226
sake brewing 208, 211
using HD-1 sake 219–20
industry 209, 224
microorganisms used in 217
process 210–11, 224
yeast 225, 226
Sake Brewing Quality Labeling Standards 213
sake production industry, history 209–10
sake yeast 216–19, 225
San Francisco Bay Area, startups 165
models, globalization 177
accelerator/incubator 178–80
accelerators 178–80
Corporate Innovation Centers 178–80
incubators 177–80
International Bridge Organizations 178–80
preliminary findings 166–76
accelerators 167–73
accelerators/incubators 173–4
Corporate Innovation Centers 175–6
incubators 166, 169, 171
International Bridge Organizations 174–5
research design 165–6
San Francisco earthquake 197
Schulze-Cleven, T. 111
Schumpeterian perspective 81
Schumpeter, J.A. 81, 83
concept of innovation 231–2
Schwab, K. 102, 103, 109, 111, 117
science and technology 141–3
science and technology policy (STP) 104–5
‘the search phase’ 119
Seaside Resort, stakeholder challenges 63–5, 76
bottom-up perspectives 71
coordination and communication 72–3
indistinct place identity 69–70
internal and external relationships, shared vision 74
lack of communication and information 68
local attitudes 67
place innovation initiatives 74–5
stakeholders inclusion 70–71
seasonal variation 71
seedbed function 8, 186, 201, 202, 204, 205
self-organization phase 15, 35, 36
self-organizing map 252–4
semi-targeted legislations 28
Sen, A. 46
shared visions 73–4
Shibaura Institute of Technology 241
Shida Toji see Toji
Shiminkatsudou Information Center (SIC) 194–6, 199
Shitamachi canoe 241–3
Shizuoka 208, 212, 222, 224, 226
Shizuoka Brewers’ Association 216, 217, 225
Shizuoka ginjo process 220–23
Shizuoka Prefectural Industrial Testing Center 215, 216, 225
Shizuoka sake see sake
Shizuoka yeast 8, 212, 213, 220–23, 225–8
discovery and development 217–20
target qualities for 216
Shoemaker, F.F. 232
SIC see Shiminkatsudou Information Center (SIC)
signalling effects 132, 150–52
Simon, H.A. 232
Skydeck 176
small and medium enterprises (SMEs) 9, 230, 231, 240, 243–5
Edokko No. 1 Project for 238–9
establishment of basic principles for 237
Small World Group 173
Diversity, innovation and clusters

SMEs see small and medium enterprises (SMEs)
Snaith, T. 58, 62
snowball sampling 64
social experimental activities 203
social experimental projects 204, 205
social polarization 117
social problems 203
societal paradigms 106, 113
socio-economic inequality 7
spatial 1, 5
spatial clustering 236
specific-designation sake 213–15
Specific Non-profit Activity Promotion Law 188
Spencer, W.J. 226
stakeholder analysis 60
in urban regeneration 76–7
stakeholder challenges 6
Old Town see Old Town, stakeholder challenges
Seaside Resort see Seaside Resort, stakeholder challenges
stakeholder collaboration 59, 74, 76, 77, 105
research approach
Old Town 63–5
Seaside Resort 63–5
stakeholder involvement 59–60, 65
theoretical concepts 59–60
stakeholders
categories 60
perceptions on challenges in collaboration 66–70
visions and ideas 70–75
Stalker, G.M. 232–3
startups, global, 7–8
accelerators 159–60
entrepreneurship 158–9
future research on 180–81
globalization 177–80
business development
organizations role in 180
conceptual model of 179
elaboration and refinement 181
incubators 159–60
San Francisco Bay Area 165
preliminary findings 166–77
research design 165–6
vs. business development organizations 180
STI see systems of transformative innovation (STI)
Stiglitz, J. 46
Storper, M. 44, 47, 55
STP see science and technology policy (STP)
structuration 113, 114, 116, 117
Sumida Ward 8–9, 234, 235
collaboration between stakeholders
SMEs of 237–48
design-driven innovation 234–6, 248, 254–6
future research agenda 257
earthquake 237
Edokko No. 1 Project 238–9
forecast of trends in manufacturing factories 236–7
48-hour commercialization design marathon project 239–41
Garage Sumida 243–4
industry promotion 237–8
outline of 236–48
outline of survey 248–54
considerations 254–6
results 254
regional characteristics of 236
Shitamachi canoe 241–3
small and medium enterprises see small and medium enterprises (SMEs)
structure of DDI 256
Sumifa 245–8
see also design-driven innovation (DDI)
Sumida Ward Industry Promotion Master Plan (2013) 238, 255
Sumifa 245–8
Sumitomo Electric Systems Co. Ltd 196
supply-demand relationship 202, 205
support policy 204
“Swatch” 234
Sweden 33
number of employees in firms 23
Swedish municipalities, economic development measure 47–54
symbiotic collaboration 75
Index

systems of transformative innovation (STI) 104–5
biocentrism/sustainabilism 107–8
features 106–9
shifts 109–13
target attributes 248, 250
targeted policy 17, 28, 30, 33, 34
Tax Find (SkatteFUNN) arrangement 28
technical change 103, 109, 111
technical meetings 141–2
techno-economic paradigms 121
technological competencies 150
technological development 146, 148
technological innovations 117
technological trajectories 5, 11, 12, 14–16, 25, 34, 36–7
defined 13–14
phases 15–16
technology-based firm 128
technology diffusion 111
“Technology Revolution Together” phase 169
technology service firms 19, 21, 22, 24, 25
technology transfer offices (TTOs) 28, 30
techno-socio-economic changes 103
TechStars 160, 163
Teubal, M. 12, 13, 16, 17
text mining 235, 249
therapeutics firms 19, 20, 22, 24, 25, 27
“therapeutics, partial” firms 21, 22
Thune, T. 125, 127, 131, 134, 150
TISs see traditional producer-orientated innovation systems (TISs)
Toji 8, 211–14, 216, 218–22, 224–5, 228
Tokyo Higashi Shinkin Bank 241, 243
tourism 61–3, 75
“Toward the Realization of the New Public Interest” 188
Toyo University 241
traditional producer-orientated innovation systems (TISs) 104–6
traditional sake production 212
transformative change 7
transformative innovation 102, 104–5
and agency 113–20
system of
features 106–9
shifts 109–13
Trippl, M. 12, 13, 15, 16
TTOs see technology transfer offices (TTOs)
Tushman, M.L. 233
unemployment 118–19
University Act of 2002 (Norway) 28
university–industry interaction 7, 127, 128, 131, 147
unused internet 191–2
urban collaboration 59
urban economics 1
urban regeneration 61, 62
stakeholder analysis in 76–7
urban regions
clusters in 4–5
diversity 2–5
innovation 2–4
US Bureau of Economic Analysis 87
US Census Bureau 87
US metropolitan patenting 6
contextual variables 87–8
economies 81–2, 87, 88, 91, 94, 98
multivariate analysis see multivariate analysis
new issues and perspectives 85–6
patent concentration 88–92
patent data 83, 86
patent densities 86, 91–2, 96, 98
patent measures 86
population size 84–5
regional knowledge production 83–4
US Patent and Trademark Office 83, 86
utility patents 82, 83, 98
VAG see Volunteer Assist Group (VAG)
Van Weele, M. 160
Vence, X. 16, 33
Verganti, R. 234, 246
voluntarist contingency 115
Volunteer Assist Group (VAG) 194, 195
volunteer breweries 225
volunteers 188, 190–91
Diversity, innovation and clusters

information see information
volunteers
promotion of activities 195–6
wages 47
and salaries 87, 94
White Paper, Norway 27
on higher education 29–30
Windows 95 release 201
WNN see World NGO Network (WNN)
workforces 87

World NGO Network (WNN) 193, 195, 196, 198
Yamazaki Liquor Store 223
Yang, R.J. 57, 60, 76, 77
Yasui, T. 8
Y Combinators 160, 163
yeast bacteria 217
Yoshikawa, T. 208
Zymtech Production 25