

Index

- 211 Programme 31
863 Programme 30
985 Programme 31
- A*STAR 71, 74–6, 80
Abbott, Andrew 109
Abe, Shinzo 66
Academia Sinica 23
accountability 5, 7–8, 73, 147–8, 152
activism 10, 12, 54, 114
Africa 175
Agency for Science, Technology and Research
 see A*STAR
agriculture 24
 in China 23, 39
 in the EU 116, 118–19, 136–7, 162
 in India 45, 48, 50–51, 54, 58, 63
 in the US 87, 89, 106
All India Institute of Medical Science 49
American Medical Association 88
Anderson, Perry 108, 121
Applied Science and Technology Research Institute 77
Arab Spring 138
Arnold, Erik 130
Ashoka University 62
Asian economic crisis 79
astronomy 148
AT&T 85
atomic energy 47–9, 57, 117–20, 125, 136
Atomic Energy Commission 86–9, 93, 118, 136
austerity 143, 149
Australia 54
authoritarianism 68–9, 170, 177
aviation 84
- Baark, Erik 78
Bangladesh 50
Barroso, José Manuel 129–30
basic research 5–6, 23, 27, 29, 32, 36–7, 59, 92, 111, 161
Bayh-Dole Act 96
Belgium 33
Bell, Daniel 7, 12, 18
Bell Labs 92, 95
benchmarking 38
Bhabha, Homi J. 48–9
Bhagwati, Jagdish 51
Bharatiya Janata Party 50, 52–4
Biden, Joe 103
Big Science 6, 65–6, 86–7, 93, 97–8
biology 13, 34
biomedicine 13, 34, 74, 81, 98–9, 101–7, 144
biotechnology 13, 24, 51, 57–9, 164, 166, 172
Blair, Tony 143
Bologna Process 124, 128
Bose Institute 47
brain drain 175
Brain Research through Advancing Innovative Neurotechnologies 103
Brazil 175
Brexit 126, 139, 144, 150
Brown, Gordon 143
Brown, Roger 152
Browne report 146
Bundesbank 121
Bush, George H.W. 96–7, 99, 107
Bush, George W. 100–104, 106–8, 163
Bush, Vannevar 85–6, 92
Bush report 85, 90, 146
business schools 61, 133, 151

- Cable, Vince 143
 California Institute of Technology 87
 campus capitalism 113
 Campus for Research Excellence and Technological Enterprise 74
 Canada 88
 cancer 87, 103
 capacity-building 39, 70, 75, 154
 capitalism 2, 18, 68, 120
 carbon-capping 103
 Carney, Richard W. 82
 Cavendish Laboratory 48
 Cecchini report 121
 Celera 100
 chemistry 32, 34
 Chiang Kai-shek 23
 China 2–4, 15–16, 22–45, 54, 59, 65, 68, 70, 76–81, 83, 110, 133–4, 144, 159, 161–4, 170, 173–5, 177
 agriculture 23, 39
 defence 24, 29
 economic growth 24, 32, 34, 39–41, 43, 162
 education 28, 30
 elite actors 25, 83
 funding 28–32, 35–7, 42
 governance 22–8, 30–32, 35–7, 39, 41–3
 growth models 39, 41
 health care 43
 innovation 22, 25, 27–30, 33, 36–43
 knowledge policies 22–7, 29, 32–42, 44, 78, 162
 knowledge systems 25, 27, 29–31, 36
 metagovernance 22, 41–3
 mobility 24, 27–8, 42
 modernization 22–4, 28, 30, 42–3
 networks 25, 27, 35–7, 39, 43
 power 35, 38, 41–2, 46
 R&D expenditure 22–3, 29–32, 34, 42
 recruitment 25, 27–8, 34, 37, 42
 research institutes 24, 26, 30, 33–4, 37–8, 42–3
 state formation 33, 41–2
 technology 22–4, 29–31, 34, 43
 universities/higher education 22–4, 26–32, 34, 36–8, 42, 44, 81
 Chinese Academy of Sciences 23–4, 26–31, 33, 35–8, 42–3
 Chou, Meng-Hsuan 121
 class 2, 8, 19
 Cleveland Clinics 71
 climate change 1, 79, 103–5, 107, 163, 172
 Clinton, Bill 98–100, 108
 Clinton, Hillary 109
 Cold War 70, 82, 90, 94, 97, 108
 collaboration 9, 37, 47, 81, 95, 117, 119, 125, 129, 131–3, 171
 Collins, Francis 106
 colonialism 46, 51, 63, 67–9, 79, 81–3, 175–6
 Columbia University 93
 Committee for Medical Research 87–8
 Common Agricultural Policy 137
 Communist Party 23, 28–9, 37, 41, 44
 competition state 3–4, 161, 163, 170
 competitiveness 3, 11, 18, 161, 163, 165, 170, 173–6
 in the EU 120–24, 130, 133–4, 137, 139
 in Germany 162
 in Hong Kong 80
 in the UK 144, 148
 in the US 97, 99–101, 114
 Confucian model 67
 corruption 35, 55, 64
 Council for Mutual Economic Assistance 50
 Council of Scientific and Industrial Research 46, 48
 Cultural Revolution 22–5, 27, 42–3
 culture 13–14, 16–17, 20, 37, 69, 75, 79, 83, 96, 156, 165
 customer–contractor model 142, 147, 163
 Davignon, Étienne 120–21
 defence 3, 5, 161, 164, 167, 172
 in China 24, 29
 in the EU 118–19

- in India 46–7, 54
- in Singapore 70
- in the UK 142, 145
- in the US 86, 90, 94, 96–9, 105, 112–13, 145
- Defence Research and Development Organisation 46
- Deng Xiaoping 24–5, 27, 31, 42
- Denmark 137
- Department of Defense 86, 88, 93, 97, 105, 145
- Department of Energy 97, 100
- Digital India 53–4
- digitalization 1, 54, 64, 104
- division of labour 13, 57
- Draghi, Mario 127
- Duke University 74
- DuPont 85
- Economic and Monetary Union 121–2, 126–7, 137–8
- Economic Development Board 70–73, 76
- economic growth 3–4, 6, 9, 16–18, 21, 158, 163–4, 166, 169, 176
 - see also* growth models
 - in China 24, 32, 34, 39–41, 43, 162
 - in the EU 121–2, 127, 137–8
 - in France 155
 - in Germany 157
 - in India 59–60
 - in Japan 65
 - in the UK 143, 147
 - in the US 94, 97, 102, 111–12
- Edgerton, David 144–5
- education 1, 163, 175–6
 - see also* higher education
 - in China 28, 30
 - in the EU 117, 121–3, 125, 129
 - in France 155
 - in Germany 156
 - in Hong Kong 77, 81
 - in India 46–7, 49–52, 55–7, 60, 62
 - in Japan 65
 - in Singapore 68, 71, 73
 - in the UK 141–3, 146, 149, 153
 - in the US 84–5, 88–90, 93, 102–3, 106–7, 110–14
- elite actors 6, 20, 82, 166, 171, 176
 - in China 25, 83
 - in the EU 116, 128, 131
 - in France 155–6, 162
 - in Germany 156
 - in Hong Kong 67, 76–7, 79, 81, 83
 - in India 47–8, 50, 52–4, 57, 64
 - in Japan 65
 - in Singapore 67–9, 72, 75
 - in the UK 144, 146
 - in the US 86, 93, 102, 109, 112–14
- end of politics 10–11
- energy 3, 5, 17–18, 47–9, 57, 79, 84, 90, 105–6, 117–20, 125, 130, 136, 155, 161, 164
 - see also* atomic energy; renewable energy
- engineering 32, 74–5, 78, 103, 148
- entrepreneurship 6, 24–5, 41, 45, 69–70, 75–6, 96, 128, 157, 164, 176
- environmental issues 17, 40, 79, 111, 126–7, 151, 162, 164, 172
 - see also* climate change
- Environmental Protection Agency 106
- Erasmus programme 123
- etatism 30
- ethics 9, 35
- Euratom 118, 123, 136
- euro 123, 126–7, 137, 172
- Europe 2020 127–8
- European Central Bank 121, 127, 154
- European Coal and Steel Community 117–18
- European Commission 117, 121, 126, 128–9, 173
- European Defence Community 118
- European Economic Community 117
- European Institute of Innovation and Technology 129–30, 134
- European Research Area 124–6, 129, 137–8
- European Research Council 128–32, 134, 138, 144, 169–70, 173
- European Science Foundation 119

- European Union 16, 110, 116–40, 144, 154, 158, 162, 164, 170, 173–4
see also Brexit
 agriculture 116, 118–19, 136–7, 162
 competitiveness 120–24, 130, 133–4, 137, 139
 defence 118–19
 economic growth 121–2, 127, 137–8
 education 117, 121–3, 125, 129
 elite actors 116, 128, 131
 funding 125, 129–31, 134
 governance 117–18, 123, 134–5
 growth models 121–2, 127, 139
 health care 125–6, 130
 higher education 125
 innovation 116, 121, 125–6, 128–30, 132, 134–7
 knowledge policies 116–17, 119–24, 126–8, 130–34, 136–7, 139–40
 metagovernance 121–3, 126–7, 131, 138–40, 173
 mobility 123, 125, 128–9, 134, 172
 networks 119–21, 123, 131
 power 122–3, 134
 R&D expenditure 122, 124–5, 127
 recruitment 131
 research institutes 137
 state formation 116–17, 123, 126, 136–7, 139, 173
 technology 120, 123, 128, 134
 universities/higher education 118–19, 123–4, 128–32, 136–9, 173
 European University 118–19, 136, 138
 Europeanization 117, 172
- fake news 1
 Federal Reserve 96, 109
 Feller, Irwin 92
 feminism 10, 166
 financial crisis 2008 40, 102–3, 126–7, 131, 138, 143–4, 148
 Flagships 132–3
- food security 141
 foreign defence 17
 foreign direct investment 59, 159
 foreign policy 108–9, 126–7
 Fourcade, Marion 109
 Framework Programmes 125–6, 130, 135–7, 173
 France 117–19, 121–2, 128, 136, 141–2, 155–7, 162, 174
 funding 6, 9, 14–15, 18, 158, 160, 164, 169, 175–6
 in China 28–32, 35–7, 42
 in the EU 125, 129–31, 134
 in Hong Kong 67, 77, 79–80
 in India 46, 57–8, 60–61, 64
 in Singapore 67, 72, 74, 76
 in the UK 142, 144, 148–9
 in the US 84, 86–9, 91–3, 96–102, 106–7, 110–11, 113–14
 Future and Emerging Technologies programme 129–30, 132–4
- Galbraith, John Kenneth 92
 Gandhi, Indira 50–52
 Geiger, Roger L. 85
 gender 2, 8, 13, 89, 154
 General Motors 92
 genetic engineering 8
 genetically modified organisms 96
 genomic sequencing 98
 geopolitics 4, 17, 45, 59
 Germany 38, 49, 84, 117–18, 121–2, 127, 136, 141, 154–7, 162, 174
 Geuna, Aldo 152
 Gingrich, Newt 99
 global governance 4, 43, 108, 171
 globalization 4, 13, 17, 107, 159, 167, 171–3
 Goldin, C. 89
 Google 133
 governance 2–9, 13, 17–20, 158, 160, 163–4, 166, 169, 171–7
see also metagovernance
 in China 22–8, 30–32, 35–7, 39, 41–3
 in the EU 117–18, 123, 134–5
 in France 156, 162

- in Germany 154, 156–7
- in Hong Kong 67, 80–81, 83
- in India 54, 56–7, 61, 63
- in Singapore 67, 69–70, 72, 76, 82
- in the UK 141, 146, 148–53
- in the US 85–6, 89–92, 94–5, 101, 110–11, 114–15, 144
- grade inflation 150
- gravitational waves 38
- Great Depression 85
- Greece 137
- green growth 143
- green revolution 50–51
- Greenberg, Daniel S. 5–6, 12, 85, 93, 99
- growth models 3–4, 68, 158
 - in China 39, 41
 - in the EU 121–2, 127, 139
 - in Hong Kong 78
 - in India 45, 51, 59
 - in Japan 65
 - in Singapore 70, 75, 144
 - in the UK 144, 147, 153
 - in the US 94–7, 102, 104, 111
- Haldane principle 146, 163
- Harvard University 49, 93
- health care 5, 40, 161
 - in China 43
 - in the EU 125–6, 130
 - in Hong Kong 79
 - in Singapore 71
 - in the UK 151
 - in the US 87–8, 91, 98, 100, 103, 106
- health insurance 88, 91
- higher education 3, 9, 17, 168
 - see also* universities
 - in China 28, 36, 44
 - in the EU 119, 123–5, 129, 137–8
 - in Germany 156
 - in Hong Kong 80–81
 - in India 45–6, 48, 51, 53–4, 57, 59–61, 63
 - in Japan 67
 - in Singapore 70–71, 73–4
 - in the UK 142, 145–6, 149–50, 153
 - in the US 89–92, 94, 106–7, 110, 112–13
- Higher Education Funding Council for England 149
- high-yield crops 50
- Hong Kong 16, 68, 76–83, 162, 173
 - competitiveness 80
 - education 77, 81
 - elite actors 67, 76–7, 79, 81, 83
 - funding 67, 77, 79–80
 - governance 67, 80–81, 83
 - growth models 78
 - health care 79
 - innovation 76–8, 80, 83
 - knowledge policies 67–8, 76, 78–9, 83
 - knowledge systems 68, 80
 - power 81
 - R&D expenditure 76
 - recruitment 80, 83
 - technology 83
 - universities/higher education 67, 78–81, 83
- Hong Kong University of Science and Technology 80
- Horizon 2020 116, 130, 132–3, 135
- housing 40, 105, 167
- Human Brain Project 133
- Human Genome Project 99–100
- Humboldt model 124
- hydrogen bomb 24
- Imperial College London 74
- incubators 25, 43, 176
- India 15–16, 45–65, 68, 161–2, 164, 173
 - agriculture 45, 48, 50–51, 58, 63
 - defence 46–7, 54
 - economic growth 59–60
 - education 46–7, 49–52, 55–7, 60, 62
 - elite actors 47–8, 50, 52–4, 57, 64
 - funding 46, 57–8, 60–61, 64
 - governance 54, 56–7, 61, 63
 - growth models 45, 51, 59
 - innovation 47, 58
 - knowledge policies 45–64

- knowledge systems 57–8
- metagovernance 64
- mobility 46, 48, 162
- modernization 45, 48, 51, 56, 63
- networks 55
- power 46–50, 52
- R&D expenditure 45, 59
- recruitment 55, 57, 60–62
- research institutes 46
- state formation 47–53, 55–6, 64
- technology 45, 48, 50, 52–3
- universities/higher education 45–8, 51, 53–4, 57–63
- Indian Agricultural Research Institute 48
- Indian Association for the Advancement of Science 47
- Indian Institute of Science 47, 62
- Indian Institutes for Science Education and Research 61
- Indian Institutes of Management 49, 60
- Indian Institutes of Technology 47–9, 52, 60
- Indian National Congress Party 52, 60–61, 63
- indigenous innovation 27, 39
- individualism 25
- Indonesia 66
- industrialization 23, 29, 42–3, 48, 50–51, 54, 69, 72, 78, 85
- infectious diseases 34
- inflation 40, 50, 70, 96, 119
- information technology 45–6, 59, 104–5, 107, 110, 125, 133
- innovation 4, 7, 11, 14, 17–18, 160, 164, 167–8, 171–3, 175
 - in China 22, 25, 27–30, 33, 36–43
 - in the EU 116, 121, 125–6, 128–30, 132, 134–7
 - in France 155
 - in Germany 154
 - in Hong Kong 76–8, 80, 83
 - in India 47, 58
 - in Japan 65–6
 - in Singapore 72, 74–6
 - in the UK 143–4, 149
 - in the US 84–5, 92, 96, 101, 105–11, 114
- Innovation and Technology Board 77
- institutionalization 1, 6, 10, 18, 48, 50, 55–6, 64, 85–6, 109, 118, 122, 130, 164, 171–5
- intellectual property 4, 32, 39, 42
- internationalization 17, 22, 69, 154
- Internet Highway programme 99
- Iran 67
- IRDO 59
- irrigation systems 50
- Israel 70
- Italy 118, 121
- Janata Party 50
- Japan 54, 65–7, 98, 110, 125, 173
 - economic growth 65
 - education 65
 - elite actors 65
 - growth models 65
 - innovation 65–6
 - knowledge policies 66
 - knowledge systems 66–7
 - modernization 65
 - networks 65–6
 - recruitment 65
 - research institutes 65
 - technology 65–6
 - universities/higher education 65–7
- Jawaharlal Nehru University 54
- Jessop, Bob 17
- Juncker, Jean-Claude 128
- Katz, L.F. 89
- Key Technologies programme 29–30
- Knowledge and Innovation Communities 129
- knowledge democracy 164–5
- Knowledge Innovation Project 28–9, 36
- knowledge networks 11, 65, 131, 141, 173, 176
- knowledge policies 18–19, 66, 158, 162–5, 171–4, 176–7
 - in China 22–7, 29, 32–42, 44, 78, 162

- definition of 11–13
 in the EU 116–17, 119–24, 126–8,
 130–34, 136–7, 139–40
 in Germany 156–7
 in Hong Kong 67–8, 76, 78, 79, 83
 in India 45–64
 in Japan 66
 in Singapore 66–7, 74, 82
 in the UK 141–53
 in the US 26, 84–9, 91–2, 94,
 100–105, 107–12, 114
 knowledge production 6, 8–9, 11, 16,
 28, 64, 79, 92, 103, 152, 161,
 166, 168, 174
 knowledge systems 1, 4, 15, 67–8,
 162, 171–2, 174–5
 in China 25, 27, 29–31, 36
 in Germany 157
 in Hong Kong 68, 80
 in India 57–8
 in Japan 66–7
 in Singapore 68
 in the UK 147, 153
 in the US 91, 111, 114
 Kuwait 176

 laboratories 11, 14, 85–8, 92–5, 107,
 114, 131
 language 5, 16, 71
 Lasker, Albert and Mary 88
 Lawrence Radiation Laboratory 86–7
 Lee Kuan Yew 69, 71
 life sciences 32, 34, 58, 101
 linguistic turn 21
 Lisbon Strategy 124–7, 129, 134,
 137–8
 Lisbon Treaty 123

 Maastricht Treaty 121, 137
 Macauley, T.B. 46
 Macron, Emmanuel 128, 155
 macrosociology 13–14, 19
 Made in India 53–4, 59
 Major, John 143, 147, 153
 Malaysia 66, 68–9
 Manhattan Project 85

 manufacturing 39, 43, 59, 64–5, 69,
 77–8, 82, 100
 Mao Zedong 24, 36, 42–3
 marketization 8, 13, 18, 33, 39–40,
 110, 113, 146, 161, 164–6
 see also economic growth
 Martin, B.R. 11, 152
 Marxism 10, 166
 Massachusetts Institute of Technology
 49, 75, 85, 94
 materials science 34, 164, 166
 Max Planck Institutes 156–7
 May, Theresa 153
 Mayo Clinics 71
 Medicaid 91, 106
 medical schools 88, 91, 98, 103, 106,
 113
 Medicare 91
 medicine 34, 87–9, 91, 98
 meritocracy 69
 Merton, Robert K. 7, 114
 metagovernance 11, 16–18, 21,
 163–5, 173
 in China 22, 41–3
 in the EU 121–3, 126–7, 131,
 138–40, 173
 in India 64
 in the US 112
 Middlemas, Keith 142
 migration 1, 9, 138, 162, 175
 military 24, 70, 85, 94, 97, 136, 165
 see also defence
 MINT 67
 Mitterrand, François 155
 mixed economy model 166
 mobility 4, 11, 13, 15, 159, 162, 170
 in China 24, 27–8, 42
 in the EU 123, 125, 128–9, 134,
 172
 in India 46, 48, 162
 in Singapore 73
 in the UK 145, 152
 in the US 92, 111–12
 modernization 166–7, 177
 in China 22–4, 28, 30, 42–3
 in France 155
 in Germany 154

- in India 45, 48, 51, 56, 63
- in Japan 65
- in Singapore 68, 82
- in the UK 145, 147, 153
- in the US 90, 104
- Modi, Narendra 52–7, 59–64
- molecular biology 13
- Monnet, Jean 139
- Myrdal, Jan 63

- Nalanda University 54
- Nanyang University 68, 73–4
- National Aeronautics and Space Administration 87–8
- National Bureau for Economic Research 109
- National Institutes of Health 87–8, 91, 96, 98–100, 105–6
- National Institution for the Transformation of India 52–3
- National Institutional Ranking Framework 53, 61
- National Key Laboratories 34, 38
- National Nanotechnology Initiative 99
- National Natural Science Foundation of China 30–31, 35–6, 38, 170
- National Research Board 108
- National Research Council 108
- National Research Foundation 74, 76, 79, 81
- National Science Foundation 38, 86–8, 93, 95–6, 99–101, 105, 108, 119, 132, 138
- national security 1, 3, 12, 18, 88, 90, 103, 111–12, 114, 126, 130, 161, 163, 170
- National University of Singapore 73–4
- nationalism 48–9, 52, 63, 107
- nation-building *see* state formation
- Nehru, Jawaharlal 47, 49–50, 52–3
- networks 4, 9, 11–12, 15, 17, 20–21, 159, 165–6, 170–71, 173, 175–6
 - in China 25, 27, 35–7, 39, 43
 - in the EU 119–21, 123, 131
 - in India 55
 - in Japan 65–6
 - knowledge networks 11, 65, 131, 141, 173, 176
 - in the UK 141–2
 - in the US 89, 95, 108–10, 112
- neuroscience 103, 133
- neutrinos 38
- Nigeria 67
- Nowotny, Helga 131
- Nurse, Paul 148–9

- Obama, Barack 102–8, 111, 155
- Obamacare 103–4
- Office for Science and Technology Policy 105, 107
- Office of Technology Assessment 108
- one child policy 24
- Organisation for Economic Co-operation and Development 38, 40–41, 166
- Osborne, George 143

- Pakistan 50
- Paris Agreement 106
- patents 95–6, 151
- path dependency 82
- Pathways to Impact 148
- People's Action Party 69
- pharmaceuticals 45–6, 71, 139, 141, 155
- physics 13, 32, 34, 47, 97, 133, 148
- plagiarism 37
- plant science 81
- populism 1, 53, 102, 112, 126, 134, 170
- Porter, Michael E. 70
- Portugal 137
- poverty 1, 48, 50, 55
- power 1, 7–10, 13–15, 18, 21, 119, 160, 167–8, 171, 173
 - in China 35, 38, 41–2, 46
 - in the EU 122–3, 134
 - in Hong Kong 81
 - in India 46–50, 52
 - in Singapore 69
 - in the US 84, 86, 109
- President's Council of Advisors on Science and Technology 107

- Price, Don K. 92–3
 Princeton University 109
 private sector 41, 61, 96
 privatization 33, 142, 164
 professionalization 10
 protein technology 34
 public–private partnerships 57, 59,
 159
 pure science 5–6
- quantum technologies 133
- R&D expenditure 7, 16, 175
 in China 22–3, 29–32, 34, 42
 in the EU 122, 124–5, 127
 in Germany 157
 in Hong Kong 76
 in India 45, 59
 in Singapore 70–71
 in the UK 142
 in the US 95–7, 100, 104
- race 89
- Raman, C.V. 47
- Reagan, Ronald 96–8
- Reaganomics 96
- recruitment
 in China 25, 27–8, 34, 37, 42
 in the EU 131
 in France 156
 in Germany 157
 in Hong Kong 80, 83
 in India 55, 57, 60–62
 in Japan 65
 in Singapore 69–70, 72, 74
 in the UK 144, 151
 in the US 88–9, 93
- Redding, Gordon 41
- reflexivity 18, 138, 164
- regulation 2–3, 6, 9, 13, 15, 159–60,
 164
- remuneration 25–7, 32, 34, 62
see also reward systems
- renewable energy 104, 106, 110
- research, global politics of 1–21,
 169–71, 177
- Research, Innovation and Enterprise
 Council 74
- research and development *see* R&D
 expenditure
- Research Assessment Exercise 150–52
- Research Excellence Framework
 151–2
- Research Grants Council 77, 80–81
- research institutes 2, 164
 in China 24, 26, 30, 33–4, 37–8,
 42–3
 in the EU 137
 in Germany 156–7
 in India 46
 in Japan 65
 in Singapore 72
 in the US 110
- research policy 3, 14, 16–19, 21, 76,
 84, 86, 118, 142, 155–6, 158–61,
 163–4, 169–70, 172
see also knowledge policies
 history of 5–9
- Research UK 148–9
- reward systems 12, 14, 26, 151
- Robbins report 145–6
- Rockefeller Institute 87
- Rome Treaty 123
- Roosevelt, Franklin D. 85, 87
- Rothschild principle *see*
 customer–contractor model
- Russia 176–7
see also Soviet Union
- salaries *see* remuneration
- Saudi Arabia 176
- Schuman Plan 117
- Science Advisory Board 85
- Science and Engineering Research
 Council 148
- Science and Technology Commission
 24, 42
- Science and Technology Studies 9–10,
 12, 167–8
- science parks 31, 39, 64, 77
- science wars 8
- Scientific Social Responsibility 56
- Scott, Peter 145–6
- Seaborg, Glenn 86

- security *see* food security; national security
- self-regulation 7
- self-sufficiency 22–3, 27, 51, 53, 106, 161, 177
- SEMATECH consortium 95
- Sen, Amartya 54
- September 11 100, 103
- Shanmugaratnam, Tharman 73
- Sharif, Naubahar 78
- Shastri, Lal Bahadur 49
- Shils, E. 93
- Silicon Valley 110
- Simon, Herbert 91
- Singapore 16, 54, 68–83, 144, 162, 164, 173
 - defence 70
 - education 68, 71, 73
 - elite actors 67–9, 72, 75
 - funding 67, 72, 74, 76
 - governance 67, 69–70, 72, 82
 - growth models 70, 75, 144
 - health care 71
 - higher education 70
 - innovation 72, 74–6
 - knowledge policies 66–7, 74, 82
 - knowledge systems 68
 - mobility 73
 - modernization 68
 - power 69
 - R&D expenditure 70–71
 - recruitment 69–70, 72, 74
 - research institutes 72
 - state formation 71, 82
 - technology 69
 - universities/higher education 67–8, 71–6
- Singapore Management University 74–5
- Singapore University 68
- Singapore University of Technology and Design 74–5
- Single European Act 121, 137
- Slaughter, Anne-Marie 108–9
- smart specialization 129, 162
- social media 104
- social reproduction 3, 155, 163
- social sciences 12, 24–5, 38, 146–7, 151
- socialism 54, 63, 84
- societal embeddedness 4, 15, 43, 58, 136, 160
- Socrates programme 123
- Sombart, Werner 84
- South Africa 175
- South America 175
- South Korea 66–7
- Soviet Union 4, 23, 49–50
- space programmes 29, 45–8, 50, 54, 56–7, 59, 63
- Spain 137
- Spark Programme 30
- SPRING 75–6
- start-ups 25, 57, 75, 79, 98, 176
- state formation 11, 16–18, 21, 65, 161–3, 165, 173
 - in China 33, 41–2
 - in the EU 116–17, 123, 126, 136–7, 139, 173
 - in France 156
 - in Germany 156–7
 - in India 47–53, 55–6, 64
 - in Singapore 71, 82
 - in the US 112
- State Key Laboratories 81
- state-owned enterprises 40–41
- stem cells 8, 34, 101, 103, 106, 111
- Stephan, Paula 88
- Strategic Defense Initiative 95
- structural-functionalist theory 7
- Superconducting Super Collider 97–8
- Sweden 33
- Syria 138
- TACTICS 67
- Taiwan 67, 79
- Tan, Tony 73
- Tata Institute of Fundamental Research 47–8, 52
- taxation 78, 96, 99, 105
 - in the US 107
- technology 1, 8–10, 14, 17, 166
 - in China 22–4, 29–31, 34, 43
 - in the EU 120, 123, 128, 134

- in France 155, 162
- in Hong Kong 83
- in India 45, 48, 50, 52–3
- in Japan 65–6
- in Singapore 69
- in the UK 147–8
- in the US 84, 93–4, 96, 99–100, 103–4, 108, 110–11, 114, 164
- Thailand 66
- Thatcher, Margaret 147–8, 150, 153
- Thatcherism 144, 153
- think tanks 29, 38–9, 64, 109, 143
- Third Way 100, 143
- tiger economies 67–8, 175
 - see also individual countries*
- Torch Programme 30–31, 39
- trade unions 7, 84, 120, 142
- transparency 6, 12, 35, 150, 165
- Truman, Harry S. 86
- Trump, Donald 104–7, 111, 114, 163
- Trumpcare 106
- tuition fees 146
- Turkey 67

- UK Research and Innovation 149, 153
- Ukraine 138
- United Kingdom 16, 46–9, 51, 68, 122, 126, 137, 139, 141–53, 156, 163–4, 171, 174
 - see also* Brexit
 - competitiveness 144, 148
 - defence 142, 145
 - economic growth 143, 147
 - education 141–3, 146, 149, 153
 - elite actors 144, 146
 - funding 142, 144, 148–50
 - governance 141, 144, 146, 148–53
 - growth models 144, 147, 153
 - health care 151
 - innovation 143–4, 149
 - knowledge policies 141–3
 - knowledge systems 147, 153
 - mobility 145, 152
 - modernization 145, 147, 153
 - networks 141–2
 - R&D expenditure 142
 - recruitment 144, 151
 - technology 147–8
 - universities/higher education 74, 80–81, 141–2, 144–7, 149–50, 153
- United States 2–4, 15–16, 22, 27, 33, 38, 40–41, 49, 68, 70–71, 84–115, 118–20, 122, 125, 132–4, 137–8, 141, 143, 145–6, 155, 158–9, 161, 163–4, 171–2, 174–5, 177
 - agriculture 87, 89, 106
 - competitiveness 97, 99–101, 114
 - defence 86, 90, 94, 96–9, 105, 112–13, 145
 - economic growth 94, 97, 102, 111–12
 - education 84–5, 88–90, 93, 102–3, 106–7, 110–14
 - elite actors 86, 93, 102, 109, 112–14
 - funding 84, 86–9, 91–3, 96–102, 106–7, 110–11, 113–14
 - governance 85–6, 89–92, 94–5, 101, 110–11, 114–15
 - growth models 94–7, 102, 104, 111
 - health care 87–8, 91, 98, 100, 103, 106
 - higher education 112
 - innovation 84–5, 92, 96, 101, 105–7, 109–11, 114
 - knowledge policies 26, 84–9, 91–2, 94, 100–105, 107–12, 114
 - knowledge systems 91, 111, 114
 - metagovernance 112
 - mobility 92, 111–12
 - modernization 90, 104
 - networks 89, 95, 108–10, 112
 - power 84, 86, 109
 - R&D expenditure 95–7, 100, 104
 - recruitment 88–9, 93
 - research institutes 110
 - state formation 112
 - taxation 107
 - technology 84, 93–4, 96, 99–100, 103–4, 108, 110–11, 114, 164

- universities/higher education 27, 60, 73–5, 80, 84–97, 101–3, 106–7, 109–10, 112–14, 124, 132, 134, 165
- universities 7–9, 14, 25, 71–4, 76, 164, 168–9, 171–2, 176
- see also individual universities*
- in China 22–4, 26–32, 34, 36–8, 42, 81
- in the EU 118–19, 128–32, 136–9, 173
- in France 156
- in Germany 154, 156–7
- in Hong Kong 67, 78–81, 83
- in India 45–7, 53–4, 57–63
- in Japan 65–6
- in Singapore 67–8, 71–6
- in the UK 74, 80–81, 141–2, 144, 146–7, 149–50
- in the US 27, 60, 73–5, 80, 84–9, 91–7, 101–3, 106–7, 109–10, 112–14, 124, 132, 134, 165
- world-class 31, 61–3, 72–3
- Universities Governance Commission 57
- University of Chicago 93
- University of Hong Kong 80
- University of Pennsylvania 93
- University of Science and Technology of China 36, 38
- University of the Chinese Academy of Sciences 36
- US Steel 92
- van Noorden, R. 13
- veterinary sciences 87
- Vietnam War 70
- Vision 2030 53, 57
- Volcker, Paul 96
- von Clausewitz, Carl 5
- Wang Nai-Xing 26
- war on coal 103, 106
- warfare–welfare nexus 12, 88–91, 96, 114, 161, 163–4, 170
- Warsaw Pact 161
- welfare state 7, 69, 91, 100, 122, 137, 163, 170
- see also warfare–welfare nexus*
- White House Council of Economic Advisers 109
- Willetts, David 143
- Witt, Michael A. 41
- world-class universities 31, 61–3, 72–3
- Xi Jinping 29
- Yale University 74
- Ziman, John 8–9