



Routledge Research in Information Technology and Society

THE POLITICS OF BIG DATA

BIG DATA, BIG BROTHER?

Edited by

Ann Rudinow Sætnan, Ingrid Schneider, and Nicola Green



Index

Page numbers in **bold** denote tables, those in *italics* denote figures.

- 23andMe 51
accountability: The Campaign for 145; as control mechanism 39, 53, 62, 113, 122, 123n6, 144, 148, 266, 296; definition 40; futility of 42, 44; prerequisites for 42
ACLU (American Civil Liberties Union) 110, 119
Axiom 138–139
AEPD (Agencia Española de Protección de Datos, Spain) 148
Airbnb 131
Adey, Peter 79
algorithms 39–45; and accountability 41, 113, 123n6, 266 (*see also* accountability); accuracy of 31–32, 33, 34, 36n11, 39, 41, 119, 137; algorithmic logic 323–324, 329; algorithmic models 29, 48, 58, 72, 129, 329; and audit logs 115; autonomy of 58, 116, 122, 123n6, 145; and bias 30, 39, 40, 42, 70, 114, 137, 142; and Caesar Key 279; complexity of *see* algorithms, opacity/transparency of; effects/consequences of 44, 117, 137, 142, 155, 157, 166, 242; gaming of 118; and narrative 97, 230, 234, 237, 238; opacity/transparency of 25, 31, 39, 42–43, 44, 99, 115, 133, 134, 135, 137, 142, 154; predictive 40, 325; as protected speech 116; and power 57, 60, 237–238; and profit 111; and politics 230, 237, 323, 329; self-learning 157 (*see also* deep learning; machine learning); and surveillance 229, 230; structures of *see* algorithmic models
Alibaba 131
Amazon 34, 131, 132, 133, 141, 145, 155, 162, 164
ambient computing 322
analytics 4–5, 35, 47, 49, 71, 129, 132, 239; in epistemology 72; in the European Commission 94–95; and media platforms 134, 138; in politics 235, 237–238; and prediction 49, 50, 52, 59, 61, 94, 115, 130, 143, 325 (*see also* predictive analytics); and regulation 145–146; and social exclusion 141–143; and subjectification 80, 100; and surveillance 76–77, 79
Amoore, Louise 75, 76–77, 83
Anderson, Chris 26, 27, 97, 90
anticipation 27, 97, 113, 143, 313; *see also* data analysis, predictive analysis; prediction
Anti-Defamation League 114
antitrust/competition law 130, 132, 133, 154–162, 166; and the European Commission 156–159; Facebook case 158–159; and French *Autorité de la concurrence* 159, 160; and German Federal Cartel Office (*Bundeskartellamt*) 159, 160, 161, 162 (*see also* Federal Cartel Office); Google cases 156–158; interface with data protection law 160–162; national antitrust cases 159–160
Apple, Inc. 132–133, 141, 145, 155, 162–164, 190, 206, 210, 259; Apple Music 132
Armitage, Richard 35n5
artificial intelligence 6, 39, 43, 48, 62, 72, 123, 144; and machine learning 4, 6, 40, 62, 71, 72, 97, 115, 119, 130, 132, 142, 144, 232

Arvato AZ Direct 139
 audio-visual analysis 328
 automation bias 52, 58, 62, 81, 117; definition 58
 Autorité de la concurrence (France) 159–160
 autonomy (human, political) 58, 60, 62, 63, 74, 116, 117, 123n1, 141, 142, 176–196, 260, 312, 313, 325; definitions of 58, 179–182

Baker, Stewart 34
 Barad, Karen 1, 11, 23, 321
 Barber, Benjamin R. 177, 180, 181
 Barry, Andrew 12
 Bauman, Zygmunt 190, 220
 Beer, David 240
 Berlin Data Protection Authority 273
 Benkler, Yochai 110
 Bezos, Jeff 117
 bias 39, 41–42, 70–71, 73, 75, 113, 114, 115, 144, 323–324; in algorithms *see* algorithms and bias; in data/datasets 30, 39, 70; and ethics 137, 142, 248; prediction as 40; and power 122, 137, 142; and neutrality 39, 42; and objectivity 41, 43, 323

Big Data 1–330; analytics *see* analytics; and classification *see* classification; and correlation *see* correlation; and datafication *see* datafication; definitions 1, 2–8, 15n2, 22, 24–25, 46, 47–48, 68, 69, 72, 129–130, 190, 232, 233, 241, 266, 292, 321–322, 324; as mythology/imaginary/aura of truth *see* bias, automation bias; 2, 7–8, 29–30, 47, 49, 72, 89–90, 92–95, 101, 135–136, 233, 265, 322–323; and predictive analytics/prediction *see* prediction; and quantification *see* quantification; Big Data Solutions 5

Bigo, Didier 56
 Bilić, Paško 116
 BITKOM e.V. (Germany) 268, 274, 275, 284n24
 Bjørnstjerne Bjørnson Prize 218
 black box 39, 43, 44, 110
 Blackstone, Sir William 34
Black Mirror 228
 body counts 55
 Boellstorff, Tom 48, 50, 74–75
 border control 40, 41, 70, 79
 Bowker, Geoffrey C. 28, 97

boyd, danah 2, 5, 47, 70, 71, 97, 233, 251, 266, 283n6
 Brexit 135, 140, 151, 164
 Browne, Simone 12
 Bulger, Monica L. 250, 259
 Bureau of Labor Statistics (US) 133
 Burrows, Roger 240, 326
 Bush, George W. 121, 123n8

cable networks 117
 Caesar Key 279–280
 Cambridge Analytica 60, 140, 167n2, 235
 Campaign for Accountability (US) 45
 capitalism 131, 136, 156, 162, 186; communicative 283–4n18, 326; digital and Big Data-based 130, 133, 136, 145, 146, 154, 164, 166, 167; knowing 326, 327; platform 131; *see also* data, capital

Caspar, Johannes 148
 causality/causation 26, 47, 49, 52, 61, 71, 188; causal models 26, 27–28, 35n10

CCTV 42, 55, 80, 187, 229
 censor/censoring/censorship 116, 118, 119, 261n4

CERN (European Organisation for Nuclear Research) 310
 ChoicePoint 139
 ‘Chaos Computer Club e.V.’ (CCC) 247, 248–249, 252–254, 257, 258–259, 261n4, 261n10, 261n11, 261n16; and ‘Chaos macht Schule’ 249, 253–260

Christl, Wolfie 138–140
 citizen 11, 32, 41, 79, 92, 94, 110, 129, 146, 152, 184, 187, 204, 205, 206, 209, 210, 213, 214, 270, 271, 274, 275, 326; and actions/political participation 122, 176, 177, 179, 181, 191, 192, 193, 193n4, 272; and autonomy 153, 181, 191, 192; beliefs/opinions of 147, 190; data about 7, 140, 183, 184, 187, 189, 197, 236; power/empowerment of 99, 135, 146, 180, 182, 185, 271, 302, 304, 305; privacy/protection of 10, 101, 123n6, 149, 153, 165, 166, 271, 272; rights of 135, 149, 150, 153, 154, 165, 166, 192, 199; transparent 186–191, 192, 191, 325; and trust 98, 147, 164, 268

Citizenfour 220
 citizenship (civil, political, social) 178, 180, 184, 185, 193n4; and discrimination 41

Clapper, James 57

classification 28, 39, 136–137, 138, 143, 144–145, 186; in politics 183, 184–185, 187; and social exclusion 140; and surveillance 189

Clinton, Hillary 112, 113
 commodification 22, 137–138, 166
 communicative capitalism *see* capitalism, communicative
 competition 132, 135, 136, 137, 146, 156, 157, 166, 233, 275; anti- 115, 131, 132, 156, 157, 158, 161; as contest 238; competing technologies 294–295; law *see* antitrust/competition law; competitiveness/competitive advantage 92, 93, 94, 96, 100, 132, 153, 161, 299; competitor(s) 115, 155, 156, 157, 158, 207, 236

complexity 46, 56, 62, 97, 99, 144, 324; and data analytics/prediction 52, 53, 62, 97, 98; and error 52; and language/text 48, 207, 220; and research 293, 299, 308, 322, 324; and validity 53

computerisation 48, 89, 101; *see also* datafication

confidentiality 200, 207, 208, 209, 210, 216, 219

consent 25, 31, 74, 90, 95, 99, 116, 148, 150, 151, 153–154, 159, 181, 199, 200, 207, 208, 209, 210, 211, 212, 213, 216, 217, 219, 219, 312

content analysis *see* methodology, content analysis

correlation 6, 26, 29, 35n8, 47, 49, 50, 51, 52, 60, 61, 71, 129, 134, 143, 184, 266; coefficient 29, 35n6; spurious 29, 35n7, 71, 140

‘Council of Conservative Citizens’ 113, 114

Court of Justice of the European Union (CJEU) 130, 157, 158, 164–166; and the Data Retention Directive 165; and the ‘right to be forgotten’ 117, 165; and Privacy Shield/Safe Harbour 152, 166

Cranor, Lorrie F. 167n6

Crawford, Kate 2, 5, 47, 70, 71, 97, 233, 266

cryptography *see* encryption

crypto party movement 267, 276, 277, 282n5

Cruz, Ted 35n5

Cukier, Kenneth 3, 5, 25

cyberlibertarianism 116, 276–279

cypherpunk 276–279, 280, 281, 284n26, 285n27, 285n28

data, definitions of 15n2, 23–24, 50, 69–70, 73, 82–83, 230–232, 322; open *see* open access, open research data; personal 47, 56, 184, 185, 188, 189–190, 200, 227, 260; personal (anonymisation/pseudonymisation of) 49, 100, 151, 153, 238–239, 269; personal (commodification of) 99, 136, 139, 159, 228, 255, 275; personal (definition of) 6–7, 231, 284n23; personal (laws regulating) 25, 147–148, 148, 149, 150, 151, 152, 153, 159, 160, 165, 166; personal (protection of) 99, 147–148, 148, 149, 256, 257, 259, 267, 275; ‘raw’ vs. ‘cooked’ 69–70, 74, 97–98, 231; sensitive 200, 275, 306; as social sorting 141–145

data accuracy/errors/quality 4, 7, 22, 29–30, 31, 32, 33, 47, 49, 51, 52, 62, 69, 137, 140, 142, 189, 323

data activism 198, 220, 248, 253, 261n4

data analysis 2, 4, 6, 8, 22, 23, 26, 28, 47, 50, 56, 62, 69, 71–72, 89, 94, 95, 96, 228, 265, 293, 322, 328; and accuracy/inaccuracy 7, 34, 51–52, 60, 135–136, 142, 292; and action 4, 31, 46, 59, 69, 73, 78–81, 82, 83, 98, 232; and capacity 3, 4, 57, 72, 97, 190, 266, 292, 298, 306; and categorisation/ranking/scoring/profiling *see* classification; 4, 59, 75, 81, 129–130, 136–137, 138, 139, 142, 143–144, 145, 236, 240; and correlation *see* correlation; 4, 6, 26, 29, 35n6, 52, 60, 71, 129–130, 134; and complexity *see* complexity; 53, 299; and discrimination/social sorting *see* discrimination; 59–60, 137–138, 141–142, 143–144, 145; and job loss 143; and manipulation 61; and opacity/transparency *see* opacity/transparency; 62, 115, 137, 140, 142, 146, 154; and patterns 6, 24, 26–27, 30, 32, 48, 49, 71, 72, 75–78, 129–130; and politics 234–238; predictive analysis 6, 49, 50, 52, 60, 62, 115, 129–130, 134, 135, 143 (*see also* prediction); privatisation of 138, 326; reanalysis 1, 4, 6, 15n6, 22, 25, 26, 31, 60, 62, 68, 69, 70, 72, 73–75, 76, 79, 81, 82, 94, 132, 136, 138, 140, 147, 153, 188, 232, 233, 236, 293, 299, 309–311 (*see also* data repurposing); and reductionism 46, 48, 52–53, 59, 62, 69, 70, 71, 72, 73, 76, 80, 81, 98, 115,

data analysis *continued*
 129–130, 144, 145, 167n2, 188, 201,
 308 (*see also* datafication); and trust 52,
 96–97, 98 (*see also* trust); *see also*
 analytics
 databases 51, 74, 233, 234, 238; contents
 of 6, 7, 30, 184, 234, 238; curation/
 quality of 30–31, 32; and narrative
 230–234, 238; networked 145, 189; and
 politics 230, 242–243; relational 6–7,
 138, 187, 239; security of 200; size of 3,
 4, 15n4, 26, 29, 30, 33, 71, 73–74, 138,
 189, 200, 228, 230, 232, 240, 299, 308;
see also data collection; datasets
 data broker 81, 122, 138, 139–140
 data as capital/commodity 5, 6, 22, 25, 26,
 70, 89, 92, 93, 94, 95, 96, 99–100,
 133–135, 138–141, 145, 146, 154–162,
 162–164, 211, 228, 229, 239, 275,
 306–307, 326
 data collection 8, 25, 31, 56, 57, 70, 73–74,
 75, 94, 116, 117, 129, 137, 140, 151,
 159, 161, 184, 211, 221, 227, 237,
 239–240, 327, 327–328
 data controller, data handler 6, 7, 15n4,
 150, 151, 154, 166
 ‘data deluge’ 298
 data derivative 76, 77, 83, 123n2, 184
 ‘data double’ 21, 76, 77, 78, 83, 143
 data-driven approaches: as business model
 238, 239; to cultural production 234,
 236; to decisions 39; to economic
 development 93, 95; to governance 12;
 limits of 71; to media 10, 135; to politics
 237; to publics 211–243; to public
 policy 94, 97; to search engine design
 119; to surveillance 235
 datafication 2, 50, 53, 57, 62, 98, 101, 135,
 136, 137, 138, 230, 243; definition of
 48, 231
 data generation 69, 73–75, 82, 242, 309;
 privatisation of 326
 data interpretation 28, 51, 52, 62
 data literacy/media literacy 256, 275
 data management 5, 69, 79, 118, 123n6,
 208, 294, 299, 301, 308, 312–313; self-
 management of personal data 99, 256;
 encryption key management 280
 data market 25, 26, 92, 93, 96, 98, 99, 100,
 101, 114, 139, 149, 160, 256, 307, 310;
see also data as capital/commodity;
 digital economy
 data ownership 156; commercial/
 proprietary ownership 6, 311, 329; loss

of self-ownership/control 22, 140, 147,
 248, 271, 283n6, 301; collegial/shared
 ownership 310; self-ownership/control
 95, 99, 149, 150, 248, 256–257, 260,
 271, 276, 278, 283n6, 310
 data pragmatism 47–49, 61–62
 data protection 14, 56, 61, 62, 77, 95, 101,
 102n10, 110, 141, 199–201, 259–260,
 273, 274, 283n18, 304; and activist
 groups 259; and authorities 15n4,
 148–149, 151–152, 153, 154, 161, 165,
 166, 167, 167n4, 252, 253, 256, 270,
 270, 272–273, 283n14, 283n15, 283n18,
 284n23 (*see also* regulatory authorities);
 and business association 275; and
 collective practices 265–286; and law
 6–7, 95, 98–99, 101, 115, 116, 130, 133,
 140, 146, 149–154, 159–160, 160–162,
 163, 165, 166–167, 167n4, 270, 271,
 272–273, 284n19; and public opinion
 147–148; and self-protection 95, 135,
 220, 247–261, 265–286, 283n15
 data repurposing 4, 6, 15n6, 22, 25, 26, 31,
 60, 62, 68, 69, 70, 72, 73–75, 76, 79, 81,
 82, 94, 130, 132, 136, 138, 140, 147,
 153, 157, 188, 232, 233, 266, 293
 datascapes 266, 267, 282, 321
 data security 22, 150, 161, 166, 197, 200,
 207, 208, 211, 216, 219, 247, 248, 249,
 253, 254, 255, 258, 260n2, 267, 272,
 280, 281, 284n25
 datasets 2, 3, 4, 6, 7, 15n4, 24, 26–27, 30,
 46–47, 49–50, 51, 61, 62, 70, 81, 140,
 161, 238, 239, 265, 298, 326; *see also*
 databases, data collection
 data sources 4, 7, 15n7, 21, 22, 24, 25, 26,
 47, 48, 49, 59, 62, 68, 70, 71, 72, 73–74,
 79, 80, 81, 83, 135, 138, 139, 186, 187,
 190, 200, 204, 216, 228, 231, 238,
 239–240, 240–241, 254, 266
 data stream 21, 22, 123n2, 140
 data subject 6, 11, 60, 70, 73, 76, 83, 99,
 117, 123n2, 138, 182, 266, 269, 312,
 313, 315, 327, 328; and humanism 77;
 rights of 150, 151, 153, 165;
 subjectification/subjectivation 60, 77,
 78, 79–80, 80, 81, 82, 83, 130, 135–145,
 166; as suspect 79, 80, 81
 data theft/misuse 140, 212, 258; *see also*
 data security
 data training 94, 247–261, 275
 data transfer 70, 74, 152, 166, 222n2, 292
 dataveillance 69–70, 236, 248; *see also*
 surveillance, data-based

deduction, deductivism 27, 28
 deep learning 40, 130, 144; *see also*
 algorithms, self-learning; machine
 learning
 defamation and right of reply 116–117
 Degli Esposti, Sara 69, 79, 83
 democracy 12, 13, 59, 60, 90, 100, 112,
 120, 123, 192, 220; and autonomy 116,
 141, 176–193; and civil rights 59, 100,
 101, 178, 179, 192; and civil society
 111, 113, 119, 123, 166; and
 deliberation 98, 111, 120, 133, 134; and
 (dis)information 122, 134–135; and
 filter bubbles 121 (*see also* filter bubble/
 data bubble); and the internet 133,
 134–135, 141; and liberalism 129, 177,
 180, 182–183, 192; and media 111, 112,
 123n3, 130, 133, 134; and participation
 122, 133, 176, 177, 178, 179, 191, 192;
 and practices/responsibilities 99, 271;
 and privacy 153, 154, 166, 176, 282;
 and surveillance 182–183, 187, 191,
 192; theories of 121, 191; and
 transparency 31, 113, 296, 302, 304; and
 trust 98, 100, 101, 164
 ‘Denver Guardian’ 113, 122
 Derrida, Jacques 227
 Desrosières, Alain 12
 DHS (Department of Homeland Security,
 United States) 42
 digitisation 1, 2, 21, 22, 30, 47, 48, 116,
 129, 135, 136, 138, 141, 143, 266, 268,
 285n35, 292, 321, 322, 326, 329
 digital economy 99, 100, 132, 156, 159,
 162, 191, 200, 207, 207, 208, 208, 216,
 219, 274, 275
 digital literacy 10, 135, 147, 248, 249–252,
 252–254, 256, 256–257, 257–259,
 259–260, 260n2, 261n6, 261n18; and
 education reform 256–257, 257–259
 digital maturity 252–254, 256, 259, 260
 digital rights 98, 150, 154, 165, 247, 248,
 249, 260, 260n2, 261n4; *see also* rights,
 digital; rights, online
 Digital Single Market 98, 101, 149
 Dinh, Viet D. 76
 discrimination 41–42, 59, 63, 69, 75, 79,
 98, 114, 115, 135, 138–141, 141, 142,
 144, 153, 154, 184, 248, 261n4, 313
 discourse 10, 12, 62, 75, 197, 198, 202,
 215, 220, 222, 270, 282, 322, 323, 325;
 on business 302; concept of 10;
 discourse analysis *see* methodology,
 discourse analysis; on informational

self-protection (ISP)/privacy 267–268,
 268–276, 270, 276–281, 282, 283n8,
 283n18, 284n19, 284n20, 286n37; and
 media 201, 205, 207, 209, 268; and
 policy/political 27, 54, 90, 92, 101,
 236, 273, 274; post-Snowden 197–222;
 and power 10, 12; and public 9, 10, 11,
 111, 198, 199, 209, 214, 220, 221, 228,
 270, 325; on securitization/security 46,
 54, 80, 325; on surveillance 53, 60, 68,
 221
 discourse analysis *see* methodology,
 discourse analysis
 disruption 111, 130, 131, 135, 234
 DNA 51, 59, 187
 documentary analysis *see* methodology,
 documentary analysis
 drones 34, 39, 40, 55, 59, 215
 dystopia 59, 60, 191, 228, 229, 266
 eBay 162
 echo chamber 112, 133, 134, 143; *see also*
 filter bubble/data bubble
 economy, digital *see* digital economy
 elections: Big Data influence on 60, 111,
 112, 122, 135, 140, 167, 235–236, 270;
 Big Data themes in 273, 274, 279,
 284n19
El País 133
 empiricism 23, 26, 35n4
 employee data/Big Data in the workplace
 139, 141–143, 144, 218
 encryption 14, 153, 199, 200, 207, 207,
 208, 209, 216, 217, 219, 255, 256,
 267, 268, 269, 272, 278–279, 279, 280,
 281, 282, 282n4, 285n33, 285n35,
 285n36; *see also* Caesar Key; privacy,
 privacy enhancing/friendly technologies
 (PETs)
 epistemic cultures/communities 305, 306,
 311, 315, 326
 epistemic issues of Big Data 68–84, 90,
 97, 100, 138, 228, 322, 323, 324, 325,
 328
 Ericson, Richard V. 76–77, 83, 190
 ethical issues of Big Data 3, 4, 30, 39–44,
 77, 82, 102, 189, 192, 253, 254, 293,
 305; and autonomy 142; and consent
 312; and discrimination 80, 144, 248;
 ‘hacker ethics’ 270, 271; and open data
 306, 312, 313; and privacy 190, 248;
 and surveillance 83; and trust 100, 146
 ethnography *see* methodology,
 ethnography

EU Charter on Fundamental Rights 165
 Eurobarometer 102n9, 147
 European Commission (EC) 89–102,
 102n5, 135, 149, 152, 156, 158, 159,
 163–164, 165, 293, 297, 303; and
 lobbying 146; and competition law *see*
 antitrust/competition law
 European Parliament 6, 102n10, 135, 146,
 149, 153, 154, 166; and lobbying 146
 evidence-based decisions/policy 93, 94,
 96, 98, 102n8
 Facebook 34, 42, 185, 189, 206–207,
 285n36; business model 34, 110, 112,
 114, 115, 118, 122, 131–132, 133–134,
 145, 155, 156, 158–159, 159–160, 162,
 189, 285n36; and democratic/social
 engagement 110, 113, 114, 119, 133,
 190; and fake news 110, 112–113, 114,
 119, 122 (*see also* fake news); and
 surveillance 8, 26, 71, 139, 140,
 141–142, 148–149, 166, 166n1, 190,
 209, 210, 240, 254, 259, 285n36
 fake news 112–113, 114, 118, 119, 122,
 135, 140, 251, 257, 258; fake content
 generator 112
 false positive/false negative 32, 33, 33–34,
 36n12, 52, 59, 62
 FBI (Federal Bureau of Investigation,
 United States) 21, 34, 140
 Federal Cartel Office (*Bundeskartellamt*,
 Germany) 159, 160, 161, 162; *see also*
 anti-trust/competition law, and Federal
 Cartel Office
 Federal Commissioner for Data Protection
 and Informational Freedom (Germany)
 272, 283n14, 284n23
 Federal Constitutional Court (Germany)
 271
 Federal Communications Commission
 (United States) 122
 Federal Foundation for Data Protection
 (Germany) 272
 Federal Ministry of Education and
 Research (Germany) 282n1
 Federal Office for Information Security
 (Germany) 272
 Federal Trade Commission (United States)
 141
 Federation of the Digital Economy
 (Germany) 274
 filter bubble/data bubble 120–121, 123n1,
 133, 134, 154, 242
 First Amendment (United States) 114, 116

FISA Court (Foreign Intelligence
 Surveillance Act Court, United States)
 42
 Frontex 42
 Foucault, Michel 10, 56, 70, 73, 75, 78,
 186
 Fourcade, Marion 136–137
 Fowler, Mark 122
 fragmentation: of audiences 111 (*see also*
 filter bubble/data bubble); of data
 infrastructures 299; of data protection
 laws 149; of data sources 301; of
 markets 94, 95; of the public sphere
 133, 154; of society 143–144, 166 (*see*
also filter bubble/data bubble)
 freedom of expression 110, 114, 116, 119,
 123n3, 133, 135, 209–210; and
 defamation 116; and rights of reply 116
 French Privacy Authority (CNIL) 148, 165
 Friedrich, Hans-Peter 281
 G8 (Group of Eight) Open Data Charter
 100
 Ganascia, Jean-Gabriel 182, 185, 189–190
 Gandy, Oscar Jr. 69, 79
 Gartner, Inc. 102n1, 186, 190
Gattaca 59, 63
 GCHQ (Government Communications
 Headquarters, United Kingdom) 68, 204
 General Data Protection Regulation
 (GDPR) 130, 167n4; assessment of
 153–154; content of 7, 98–99, 101,
 149–153
 genetics 7, 51, 59, 60
 GEOSS (Global Earth Observation System
 of Systems) 311
 Giddens, Anthony 177, 186, 269, 278
 Gillespie, Tarleton 228, 237, 242
 Greenwald, Glen 197, 198, 216, 220
 Goliath 214, 221
 Google 4, 5, 63n6, 102n5, 112, 113, 114,
 119, 122, 131, 132; and AdSense 158;
 and algorithms 29, 114, 116, 118–119,
 157; and Alphabet 155, 158; and AMP
 113; analytics 29, 48, 49, 50, 51, 89,
 102n3; analytic and data quality/bias 31,
 35n9, 70, 110, 113, 114, 116, 118–119,
 142; and autocomplete 113; business
 model 26, 34, 42, 110, 116, 131, 132,
 133–134, 145–146, 155–156, 156–158,
 161, 162, 163, 259; and Chrome 155,
 158; Google+ 132; and Flu Trends 29,
 57; Google Ireland Ltd. 163; and Play
 Store 158; and privacy/'right to be

forgotten' 117–118, 165–166; and
 Scholar 5, 31, 35n9; and Search 131,
 155, 156, 158, 161; and Search Ranks
 136; and Shopping; and surveillance 8,
 136, 139, 141, 190, 206, 210; and Signal
 132; and Threema 132; and Trends 89,
 102n3; and YouTube 155 (*see also*
 YouTube)
 Government Communications
 Headquarters (GCHQ, United Kingdom)
 68, 204
Guardian, The 13, 122, 198, 204,
 211–212, 213
 Habermas, Jürgen 112, 121, 133
 hackers 22, 30–31, 35, 204, 210, 216, 218,
 247–261, 270, 271, 328
 Hacking, Ian 3, 12
 Haggerty, Kevin D. 76, 82–83, 190
 Hallinan, Blake 240–241
 Han, Byung-Chul 180, 185, 192
 Hanisch, Carol 13
 Harcourt, Bernard E. 180, 189, 191, 192
 hate speech 113, 114–115, 116, 118, 134,
 249, 257
 Hayden, Michael 3, 4, 59
 health 33, 53, 58, 167n1, 178, 180, 191;
 and data 49, 50, 51–52, 53, 89, 130,
 135, 138–139, 141, 144, 305, 306, 312,
 313; and discrimination 59–60,
 138–139, 141, 142, 144; and
 governance/management 41, 46, 58, 74,
 94, 117, 136, 139, 141, 183, 187, 294;
 and risk 52, 58, 139, 313
 Healy, Kieran 136–137
 Heisenberg, Werner von 49, 50, 63n3,
 63n4
 Held, David 177, 181
 Heynen, Robert 12
 Hildebrandt, Mireille 60
 HLEG (High Level Group on Scientific
 Data) 297–305
 Horizon 2020 101
House of Cards 227–243
 Hughes, Eric 276, 278
 human factors 60, 62
 humanism 77
 IBM 4, 59, 90, 324; and i2 Enterprise
 Insight Analysis 73–74, 81; and IBM
 Analytics 63n2; and iPhone 162, 163;
 and iPod 132; and iTunes 132
 identity: gender 81; identity-building 250;
 indeterminacy of 60; and Facebook 119;

national 91; personal 6, 7; political 120;
 professional 122; Snowden's 204, 205,
 207; verification of 138, 139
 inclusion/exclusion: in Big Data sets 208;
 methodological 283n12, 293, 310; social
 41, 130, 140, 141
 inductivism 26–27, 28, 35n4, 72, 308
 information security 200, 207, 208, 216,
 219, 272
 informational self-protection (ISP)
 265–286
 Instagram 155, 210, 254
 Intel 3
 intermediaries 110, 111–112, 114–118,
 119, 130, 131, 158, 228; and (ir)
 responsibility 112–113
 international relations 200, 207, 208, 211,
 217
 internet service providers 117, 147, 150,
 155, 199, 204, 219, 240; and cell phones
 22, 188; and platforms 7, 130, 132, 133,
 159, 240, 285n36
 Internet of Things 7, 57, 130, 185, 186,
 266
 interpretation *see* data interpretation
 interoperability 94, 295, 299–300, 306,
 306–309, 311, 312
 intra-action 1, 10, 11, 12, 23, 321
 Introna, Lucas 70
 Irani, Lily 116
 Jasanoff, Sheila 90, 91
 Joerges, Bernward 15n8
 Kammerer, Dietmar 228–229
 Kant, Immanuel 58
 killings 55, 59
 Kim, Sang-Hyun 90, 91
 Kitchin, Rob 3–4, 7, 72, 230–231, 233,
 324
 Knorr Cetina, Karin 305
 'knowing capitalism' 326, 327
 Kosinski, Michal 141–142
 Kranzberg, Marvin 1, 14n1
 Kroes, Neelie 92–95, 99, 303
 Lahlou, Saadi 188, 193n8
Landesmedienanstalten (Germany) 252
 Lange, Patricia 250–251, 256, 258, 260,
 261n7
 Latour, Bruno 4, 280
 League of European Research Universities
 292
 Lee, Timothy 118–119

legality 4, 82, 100, 167n4, 199, 199, 207, 208, 209, 212, 216, 217, 219, 219, 255, 283n12; of business models 149, 158, 163, 164; of data collection 6, 15n4, 26, 42, 115, 140, 149, 205, 209, 213, 219, 284n23; of data sharing 6, 199, 293, 311, 314; of data use/data-based actions 41, 42, 73, 122, 167n6; and jurisdiction issues 149, 161, 162; as protective/regulatory strategy 56, 95, 98, 111, 116, 123n7, 151, 152, 153, 154, 156, 157, 162, 178, 193, 213, 220, 260, 261n4, 269, 271, 272–273, 275, 281; of secrecy 115, 199, 285n28, 285n35

LeMay, General Curtis 35n5

LexisNexis 139

liberalism 99, 100, 129, 177, 178, 179–180, 182–183, 192

libertarianism 116, 156, 180, 276–279, 284n26; *see also* cyberlibertarianism; cypherpunk

lobbying 119, 145–146, 149, 261n4

Lyon, David 12, 68, 69, 75, 77, 129–130, 144, 145, 176, 185, 186, 187, 191, 192, 231–232

McDonald, Aleecia M. 167n6

machine learning 62, 71, 72, 97, 115, 119, 130, 132, 142, 144, 232; *see also* algorithms, self-learning; deep learning

McNamara, Robert 55

Manovich, Lev 71–72, 233–234

MapReduce 48

Marichal, José 189–190

MarketPsych 60

Marshall, Thomas Humphrey 178–180

Marx, Gary 184, 185

Mashey, John R. 102n4

Massumi, Brian 82

Matthew effect 144, 167n3

Mau, Steffen 135–137, 139, 143–144

Max Planck Institute (Germany) 292

Mayer-Schönberger, Viktor 3, 5, 25

media 9, 21–22, 51, 55, 60, 111, 114, 117, 118, 122, 201, 213, 234, 248, 249, 252, 256; and concentration/monopolisation 117; and coverage/interest 89, 185, 211, 220, 249; data-driven 10, 230, 235, 240; and democracy 112, 114, 116, 120, 130, 133, 155; digital 68, 248, 249, 249–252, 260; discourse 197–222, 268, 276; and filter bubbles 123n1 (*see also* filter bubble/data bubble); literacy 135, 248, 249–252, 252–254, 256–257, 257–259,

260n2, 261n6, 272, 273, 274, 275; logic 115, 118, 221, 238; markets 133, 155; platforms 132, 134, 135, 138, 159, 231, 257; pluralism 111–112, 123n3, 135, 166; regulation of 112, 117; social 35–6n10, 42, 47, 59, 60, 61, 70, 71, 73, 74, 79, 112, 115, 116, 131, 133, 134, 135, 138, 139, 141, 159, 201, 248, 250, 253, 254, 255, 257, 258; studies 228, 231, 232, 248, 251; and surveillance 139, 140, 141, 183, 185, 190, 228, 230, 235

megafirms 112

megaplatforms 111, 112, 114

Merkel, Angela 206, 216–217

Merton, Robert 144, 167n3, 296, 302–303

methodology 27, 201–202, 321–329; and audio-visual analysis 247–261, 328; content analysis 197–222, 201–202; discourse analysis 10–11, 197–222, 202, 274; documentary analysis 9, 89–102, 91, 92, 102n5, 199, 293–297, 327–328; and ethnography 247–261, 248, 249, 250, 252, 255, 260, 260n3, 328; and narrative analysis 89–102, 90, 221, 230, 305; and policy analysis 9, 90, 91, 92, 129–167, 292–316, 293–297, 327, 329; and textual analysis 89–102, 327–328; qualitative methods 91, 102n5, 327–328; quantitative methods 72, 201, 327; *see also* data collection; research design

metrification 133

Meulen, Emily van der 12

Microsoft 145, 162, 210, 259, 261n18

military technology 55; *see also* drones 34, 39, 40, 55, 59, 215

Ministry of Justice and Consumer Protection (Germany) 273

Minority Report 59, 63

Montebourg, Arnaud 155

moral economy (of datafication) 135–145

N 3, 26, 30–31

Napoli, Philip M. 240

narrative analysis *see* methodology, narrative analysis

National Research Council (NRC) (United States) 292

National Security Agency (NSA) (United States) 8, 32, 34, 57, 59, 68, 188, 190, 197–222, 200, 203, 207, 215, 216–217, 217, 219, 222n2, 267, 268, 269, 281

nation-state 129, 325, 326

neoliberalism 136, 165

Netflix 227–243; and audiences/publics 237, 238–243; and Netflix Open Source Software Centre 239

New York Times 35–6n10, 89, 102n2, 113, 114, 163

newspapers 21, 55, 114, 117, 131, 158, 185, 190, 197–222, 203, 205, 207, 215, 216–217, 217, 219, 260, 265; impacts of digitisation on 112, 131, 133–134, 158

newsfeeds 34, 42, 79, 115, 110, 116, 118, 122, 131, 133, 259

Nissenbaum, Helen 70, 193n7

Nobel Peace Prize 215–216

NSA 13, 32, 34, 57, 59, 68, 188, 190, 200–222, 200, 203, 207, 215, 216, 217, 217, 219, 222n2, 267, 268, 269, 281, 283n7

‘The Numbers’ platform 60

Obama, Barack 90, 141, 145, 204, 206, 210, 211, 212, 215

OECD (Organisation for Economic Cooperation and Development) 132, 296–305

Oettinger, Guenther 92–96

Oldfield, Adrian 180, 18, 193n6

oligarchy 120

online rights 165, 177, 248, 259, 267; *see also* digital rights; rights, digital; rights, online

open access 6, 73, 94, 99–100, 110, 156, 188, 239, 254, 258, 261n4, 326, 329; as ecosystem 94–95; conceptions of/visions of 101, 292, 294–305, 314–316; and data production 308–309; dimensions of 293, 295–305; and infrastructures 94, 298, 299, 303, 306; ‘intelligent openness’ 297–298, 299–300, 303; and interoperability 295, 299–300, 306, 307–308, 309, 311, 312; open research data 292–316, 327

Oracle 139

O’Neil, Cathy 137

O'Reilly, Tim 122

Orwell, George 192, 229; and *1984* 206, 229

Oudshoorn, Nelly E.J. 182, 188

Palantir Technologies 59, 63n8

panopticon 13, 74, 186, 192

parliaments: parties of 270, 273–274, 283n8, 284n19; role of 42, 102n10, 121, 61–62, 111, 121, 130, 131, 138–141,

199–200, 204, 207, 208, 212, 216, 219, 274, 285n35; *see also* European Parliament; German Parliament Investigatory Committee; Norwegian Parliamentary Control Committee on Investigative, Surveillance, and Security Services

participation 261n7, 278; digital 137, 231, 241; political 101, 111, 123n6, 133, 176–193, 193n1, 270, 270, 283n8, 285n28; in research 21, 304, 310, 312, 313

pattern recognition 6, 24, 26–27, 29, 30, 32, 41, 47, 48, 49, 52, 57, 58, 60, 68, 71, 72, 75–76, 77, 79, 81, 129, 137, 188, 266; self-fulfilling 142

Paul, Rand 218–219

PayPal 162

PGP 267, 282n4, 285n33

platforms 7, 60, 94, 110, 111, 113, 114, 117, 118, 119, 123n4, 130–135, 138, 140, 141, 145–146, 147–148, 150, 152, 153, 154, 227, 228–230, 231, 252–253, 257–258; and anti-competitive effects/market dominance/monopoly/oligopoly 10, 117, 119, 130–133, 156–162, 166, 326; and capitalism/capitalists 117, 130, 131, 133–135, 145, 154, 162–164, 166, 326; as ecosystems 138; and first-mover advantage 132; and locked-in effect 131; megaplatforms 111, 114; and network effect 130–133; and switching costs 131; and walled gardens 132

Plato *see* Ring of Gyges

personal data *see* data, personal

personalisation 7, 116, 117, 118, 134, 136, 229; and filter-bubbles 120 (*see also* filter bubble/data bubble); of searches 156–157; of newsfeeds 111, 133

Podesta reports 141

Poitras, Laura 32, 197, 198, 220

polarisation: of Big Data debates 95; of political discourse 120, 121, 143 (*see also* filter bubble/data bubble); of society 34, 143–144, 166 (*see also* filter bubble/data bubble)

policy analysis *see* methodology, policy analysis

popular culture 228, 229, 235, 236, 240, 241, 328

power 8, 10, 11, 12, 235, 236, 237, 323; analytical/computational 72, 100, 235, 266, 308; and asymmetries 53, 57–61, 61–62, 111, 121, 130, 131, 138–141,

power *continued*
 145, 146, 154, 162, 164–165, 166, 182, 184, 185, 186, 192, 193, 271, 283n6; of Big Data 1, 3–4, 8, 24, 46, 47, 60, 61, 90, 111, 129, 144, 146, 210–211, 221, 231, 233, 234, 322; biopower 81, 82; citizen empowerment 95, 99, 110, 122, 135, 176–182, 185, 191, 247–261, 275, 302, 304–305; definitions of 177, 238; disciplinary/policy 79–80, 199; discursive 10, 62, 90, 222; economic/market/monopoly/oligarchic 98, 110–111, 120, 131, 136, 141, 146, 155–156, 159, 161, 162, 164, 180, 183, 210–211, 259, 303; explanatory 96; of imaginaries 91, 92; of media 112, 122; military 60; panoptic 56; performative 91; predictive 60; regulatory 111–112, 119, 121, 151, 153, 164–166, 259, 273–274; of states 180, 221, 229; statistical 24; and surveillance/sousveillance 182–186, 221; of technology 55, 61
 prediction 7, 8, 27, 39, 40, 41, 47, 49–53, 59, 60, 61, 69, 71, 78, 81, 82, 83, 94, 97, 102n7, 111, 112, 138–139, 140, 142, 143, 183, 184, 189; as bias 40; and consumption 60, 68, 82, 240; and policing 46, 48, 55, 56, 59, 137, 248; and pre-emption 60, 82, 94, 98; predictive analytics 6, 40, 46, 49, 50, 52, 59, 61, 62, 63n5, 115, 129–130, 135, 141, 143, 146; predictive value 33
 PRISM 166, 204, 205, 213, 222n2
 privacy 5, 22, 41, 53, 56–57, 61, 62, 95, 99, 118, 129, 141, 166, 176, 186, 200, 205, 207, 208, 209, 210, 211, 212, 213, 216, 217, 218–219, 219, 222n2, 239, 261n4, 266–267, 268, 269, 304, 312, 314; and authorities 148–149, 166; and autonomy 60, 63, 176, 178, 181–182, 191, 192; as collective practices 208, 265–286, 283n6, 283n18; conceptions/definitions of 181, 271, 276, 277; by design/by default 151, 154; and discourse 280–281, 282, 284n20, 286n37; as individual practices 61, 99, 167n6, 189–190, 199, 210, 211, 247–261, 265–286, 283n6 (*see also* informational self-protection (ISP)); and law 25, 129, 148, 149–154, 159, 161, 163, 199, 239, 281; privacy enhancing/friendly technologies (PETs) 59, 199, 269, 272, 275, 277, 280–281, 282n4;

privacy paradox 269; privacy policy statements 99, 239, 240; privacy settings 248, 254, 255, 260; privacy studies 269; private life/private spaces 56–57, 165, 178, 181, 182, 185, 186, 187, 189, 191, 229, 255
 Privacy Shield 152, 166; *see also* Safe Harbour
 private sector 46–47, 56, 90, 91, 94, 117, 129, 139, 146, 183, 199, 205, 206, 207, 208, 209, 212, 216, 217, 219, 219, 236, 255, 258–259, 275, 292, 303, 314, 316
 privatisation: of data analysis 229–230; of data generation 229–230, 326, 327; of data control/management 6, 123n6, 144, 147, 222, 229–230, 327, 329
 probability 27, 29, 35n6, 48, 49, 58, 60, 61, 76, 80, 97, 142, 184
 profiles/profiling 7, 58–59, 60, 70, 111, 140, 141–142, 143, 150, 153, 155, 159, 184, 187, 229, 236
 proportionality 59, 95, 153, 163, 200, 202, 207, 208, 213, 216, 219, 304
 policy analysis *see* methodology, policy analysis
 politics: defining 8–12, 82, 91–92, 121, 130n4, 177, 193n2, 193n4
 public(s): civic(s)/civil society 81, 111, 123, 123n6, 166, 178, 179, 193n4, 236, 247, 248, 252, 258, 259, 267, 270, 271, 275, 281, 304 (*see also* rights, civic/civil); calculated publics 237, 242; defining 234, 236–237, 238, 239, 241, 242; public debate 95, 192, 193, 221, 285n35, 324; global 268; public good 91, 92, 164; public interest 89, 117–118, 123, 165, 197, 201, 209, 216, 218; public issue(s) 15n1, 179, 235; public officials 97; public opinion 9, 137; public safety 284n19; public values 118; ‘streamed-to-public’ 241; *see also* citizen; citizenship; public sphere
 public sphere 11, 47, 56, 89, 90, 91, 93, 94–95, 96, 99, 130, 133–135, 147, 151, 154, 166, 176, 177, 182, 183, 231–232, 236, 259, 272, 275, 283n12, 292, 296, 297, 301, 303–304, 310, 314, 316, 326, 327, 329; and automation 110–123
 quantification 12, 47, 48, 58, 61, 72, 133, 135, 136, 137, 138, 140, 144, 231, 232, 256, 323, 327
 ‘quantified self’ 47, 137, 256
 quantum mechanics 49

race (competition) 90, 95, 135, 152, 161, 164, 236; (intersectional category) 12, 138, 248
 ranking 13, 42, 70, 114, 115, 129–130, 133, 135, 136, 138, 140, 143, 147, 156, 157, 166, 313
 rating 13, 74, 133, 135, 136, 138, 139, 140, 142, 143, 147, 166, 238, 239
 Reddit 110
 regulation 8–10, 24, 63, 69, 91, 95, 99, 100, 101, 110–111, 112, 115, 119–120, 121, 122, 123n7, 129–167, 208, 208, 212–213, 251, 273, 274, 286, 295, 301, 326, 327, 328, 329
 regulatory authorities *see* Court of Justice of the European Union (CJEU); European Data Protection Board (EU); Federal Cartel Office (*Bundeskartellamt*, Germany); Federal Commission for Data Protection and Freedom of Information (Germany); Federal Communications Commission (United States); Federal Constitutional Court (Germany); Federal Foundation for Data Protection (Germany); Federal Office for Information Security (Germany); Federal Trade Commission (United States); FISA Court (United States); French Privacy Authority (CNIL); Ministry of Justice and Consumer Protection (Germany)
 regulatory capture 119, 120
 regulatory circularity 120
 regulatory regimes 132, 325
 revolving door rules 120
 Research Data Alliance 292
 research design 312, 324–327
 research governance 301, 310–311, 312–314
 research practice 293, 300–318, 321, 323, 324, 328, 329; definition of 305; and heterogeneity *see* heterogeneity, of research practices; and interdisciplinarity 102, 300–301, 314, 322; and methodology *see* methodology; and politics 323
 research review boards 313
 responsible research and innovation (RRI) 101–102
 rights 53, 54, 92, 99, 100, 101, 149, 165, 166, 178–179; of association 178; to be forgotten 119, 123n6, 150, 165; civic/civil 114, 116, 123n6, 141, 154, 177, 178–179, 179–180, 181, 184, 188, 192, 222n2, 236, 247, 248, 270, 271; children’s 247, 259; to compensation 151; consumer 146; of data subjects 150, 151, 153; digital 98, 150, 151, 153, 154, 165, 247, 248, 249, 260, 260n2, 261n4 (*see also* digital rights; online rights; rights, online); to erasure 123n6, 150; First Amendment 114, 116; freedom of expression/free speech 110–111, 123n3, 133, 135, 185, 209, 210, 296; to informational self-determination 99, 270, 271, 272 (*see also* informational self-protection (ISP)); to judicial remedy 98, 151; to object 150; online 150, 151, 153, 165, 177, 248, 259, 267 (*see also* digital rights; rights, digital); privacy/personal data protection 41, 53, 56, 98, 99, 118, 149, 150, 165, 178, 199, 222n2, 267, 269, 272, 273, 275; to rectification 150; of reply *see* defamation and right of reply
 Ring of Gyges 115, 123n5
 risk 24, 25, 31, 40, 41, 46, 47, 48, 55, 57, 62–63, 74, 77, 80, 91, 184, 185, 189, 212, 248, 257, 260, 294, 301, 304, 315; assessment/calculation/estimation of 41, 46, 77, 97, 129, 136, 139–140, 144, 184; to autonomy/privacy 62, 95, 151, 186, 190, 253; of bias 144; of consequences 31, 49; and data security 150–151, 200; detection/management/mitigation/reduction of 46, 54, 63, 138, 139–140, 183, 184, 185, 313; economic 31, 76, 94–95, 139, 156, 200, 206–207, 207, 208, 216, 219; of errors 24, 49, 52, 58, 61–62, 75; factors 40, 74; of failure 54; flags 80, 138; health/disease 51–52, 58, 60, 139, 144, 313; and security 54, 183; social/societal 47, 53, 56–57, 60–61, 63, 140, 143, 144, 146, 154, 185, 191
 Roberts, Sarah 116
 Roche, Maurice 180, 181
 Rolfsen, Ulrik Imtiaz 218
 Roof, Dylann 113
 Rose, Nikolas 12
 Rousseau, Jean-Jacques 180
 Rouvroy, Antoinette 78–79, 82
 Royal Society 297–304, 297n3
 Rusbridger, Alan 198–202, 199–200, 206, 207, 208, 208, 209, 213, 216–217, 216, 217, 218, 219, 219–220
 Safe Harbour 166

safety 22, 94, 95, 99, 131, 165, 187, 192, 193, 284n19, 304, 312, 314; online 113, 218, 247, 248–249, 252, 253, 255, 256, 259, 260, 261n4; of personal data/privacy 7, 99, 152, 153, 154, 249, 269, 271, 276, 277
 Savage, Mike 326
 Schmitt, Carl 121
 Schrems, Max 166
 Science and Technology Studies (STS) 8, 75, 90, 102, 201, 266, 277, 281, 305, 322, 328
 Scopus 31
 search engines: and bias 70, 115; and content farms 118–119; as intermediaries 111, 114, 117; as research tools 31, 35n9; and market share 156–157; and results 110, 113, 115, 116, 117, 165; and optimisers 113, 115; and power 111, 115, 138; regulation of 117, 123n7, 165; and ‘right to be forgotten’ 117, 165; and taxation/tax avoidance 117, 163; and trust 147–148; and user data 236, 237
 securitisation 46–63, 80, 324; definitions 46, 54; and dehumanisation/deindividuation 55, 56; and insecurity 46, 53, 54, 56, 57, 61, 62; and surveillance 46–47, 53–55, 56–57, 61; and technology 55, 56
 security 22, 28, 31–32, 34, 35, 42, 46, 53, 73, 77, 79, 80, 146, 183, 192, 212; and security agencies/services 74, 75, 204, 206, 212, 213, 218, 222n2, 267, 268, 272; and assessment/screening 74; cyber-/data/information security 161, 197, 200, 207, 208, 211, 216, 219, 247–248, 253, 254, 258, 260n2, 275, 280, 281, 284n25; and data-mining 75–76; definitions 53, 54; and discourse 53, 54, 80; human security 53–54; national security 53, 54, 222n2; of personal data 150, 247, 249, 258, 275; and policy 53, 54, 145, 248; and pre-emption/prevention 48, 82, 83, 248; and vs. privacy 56–57, 59, 61, 62, 95, 166, 176, 181–182, 187, 192, 199, 204, 211, 213, 222n2, 248, 254, 255, 267, 273, 275, 304, 312, 314; ‘security continuum’ 54; security studies 80, 232; and surveillance 55–57, 59, 73, 74, 75–76, 79, 80–81, 83, 185, 204, 213, 236, 268; and technology 53–55, 55–57
 self-determination 58, 63, 181, 193, 270,

274, 283n17; informational 61, 153, 271, 272–274, 275; *see also* autonomy self-fulfilling prophecies 52, 53, 54 semantics 2, 9, 48, 130, 144, 279, 285n36 sensitive data 100, 141, 142, 200, 210, 239, 275, 306 sensitivity/specificity (statistics) 33, 33 shaping (mutual, social, sociotechnical) 1, 10, 13–14, 58, 129, 228, 232, 248, 275, 283n18, 285n36, 321–322; *see also* intra-action ‘sharing economy’ 131 Silicon Valley 113, 115, 145, 156 Skype 209, 210 Snapchat 155 Snowden, Edward 8, 13, 58, 59, 68, 69, 140, 190, 197–222, 203, 205, 207, 215, 216, 217, 217, 219, 235, 267, 268–269 social media 36n10, 116, 159; and children 253, 254; and/as communication channels 59, 131, 133; and cyberbullying/hate/shitstorms 115–116, 134, 257; and data mining 73, 74; and fake news 112, 258 (*see also* content farms; fake news; social media, and manipulation; personalisation, of newsfeeds); and filter bubbles 133 (*see also* echo chambers; filter bubble/data bubble; social media, personalisation); and manipulation 112, 115–116 (*see also* content farms; fake news; social media, fake news); and ‘personalisation’ 134 (*see also* filter bubble/data bubble; echo chambers; data, personal, anonymization/pseudonymisation; data, personal, commodification of; social media, filter bubbles); and personal data/privacy 47, 59, 60, 61, 71, 79, 253–254, 255 (*see also* data, personal, protection of; informational self protection; privacy; privacy, as individual practices; privacy, privacy enhancing/friendly technologies); as platforms 131, 135, 138, 159 (*see also* platforms; megaplatforms); and regulation 135 (*see also* media, regulation of; regulatory authorities); and research 201; and surveillance 70, 74, 79, 135, 139, 140, 141–142, 248, 254, 255 (*see also* dataveillance; surveillance, and Big Data; surveillance, and data/data-based surveillance; surveillance, and privacy; surveillance, and social media); and trends 42, 47; *see also* media, social;

Facebook; Instagram; Skype; Snapchat; WeChat; WhatsApp social inequalities 135, 136, 141, 143, 144, 145, 187; and class 191; and ethnicity 191; and gender 83, 191; and political participation 191; and power 138–141, 166, 186; *see also* discrimination ‘Social Score’ 137; and China 141 social sorting 12, 59, 63, 69, 75, 79, 130, 137, 144–145, 266, 326 social world 115, 191, 280; definition of 278–279 Sociotechnical: conditions/contextes/environments 266, 275, 281; imaginaries 2, 13, 90–92; infrastructures/arrangements 275, 280, 281, 285n36, 312; innovation 92, 242; networks/systems 4, 70, 145, 221, 266, 280–281; phenomena/objects 97, 307; practices 267, 277 Solove, Daniel 184, 192, 193n7 sousveillance 178, 182, 185, 189 specificity *see* sensitivity/specificity Spotify 132, 240 Srnicek, Nick 130 standardisation 4, 299; of data 4, 23–24, 299, 306, 307, 308, 309, 312; of language 307 Star, Susan Leigh 28 Stasi (*Staatssicherheitsdienst*) 210, 268 statistics 12, 23, 27, 29, 48, 71, 265, 266; and analysis 52, 60, 228; and biases 137; as evidence 29, 55; as governance tool 63n9, 97, 183–184, 232; and media content 228; and prediction 59; reduction to 55, 60, 78, 184; and risk 184; statistical power 24; statistical significance 24, 313; subjects of 60, 78, 184 story/story-telling 197–198, 199, 202, 203, 204, 206, 207, 214–215, 216, 220–222 stratification 144; of individuals 136, 137; of news relevance 134 Strauss, Anselm 278 Striphias, Ted 240–241 surveillance 73, 76, 82, 83–84, 141, 261n4, 271; and action 78–81; and advertising 68; and autonomy 176, 181, 191–192; and Big Data 56, 57, 58–59, 62, 68–84, 154, 190, 197, 198, 208, 221, 230–234, 235, 238, 241, 255, 259, 266; biosurveillance 187; as business model 68, 74, 79, 83, 239–240; and commerce 75, 81, 186, 208, 229, 271, 273; and

consumption 81, 82; and data/data-based surveillance 69, 70, 74, 75, 76–78, 78–81, 81–82, 83, 184, 185, 188–191, 199, 213, 228, 229, 230–234, 235–236, 241–242, 248, 255, 259 (*see also* dataveillance); and data doubles 76–77, 82–83; definitions of 68, 69, 73, 182, 231–232; dialectics of 75; and discourse 53, 60, 197, 205, 221, 268; disciplinary surveillance 75; and governance 273, 274; and governmentality 78, 274–276; and internet 68, 83, 212; and the Internet of Things 57; and intersectionality/social sorting 12, 58–59, 69, 75, 81, 145, 191; mass surveillance 46, 56, 57, 58, 59, 61, 69, 166, 190, 200, 205, 206, 216, 221, 227, 235–236, 267, 268, 269; and media 197–224, 205, 227–243; mobile surveillance 188; and NSA 59, 190, 197–222; and persons/subjects/watched 70, 73, 76, 77, 78, 81, 83, 145, 184–185, 192, 242; and politics 21, 176–193, 227, 234–238; practices of 56, 75, 183, 205, 211, 220, 221, 229; and privacy 141, 186, 189, 229, 255, 268, 269, 272; and privacy enhancing technologies 59, 267, 269; prospective surveillance 73–74; and security/securitisation 46, 53–55, 75, 83, 268, 273; and social media 79; and societal services 75; and sousveillance 182, 185, 188, 189; and sociotechnical systems 145; and statistics 183–184; surveillance societies 229; surveillant assemblages 76, 281; and technologies 53–55, 55–57, 73, 83, 176, 182, 183, 184, 187–188, 229; and terrorism 68, 72, 76; and totalitarianism 184; and watchers 192, 209–210, 241–242
 Surveillance Studies 73, 75, 76–77, 82, 182, 228–229, 230, 232, 242, 322
 Suskind, Ron 123n8
 Swidler, Ann 306
 Tarde, Gabriel 265
 tax: abuse 119; and Amazon 162–163, 164; and Apple 162–163, 163–164; avoidance 117, 130, 162–164, 167; ‘Double Irish with a Dutch Sandwich’ schemes 162–163; and Google 162, 163; havens 117, 162–164; -payers 31, 304; records 7
 technology assessment 56, 57, 62, 83, 129, 144, 153

technology dependencies 47, 53, 57–61
 technological determinism 58, 61–62, 129
 techno-politics 11, 15n8, 55, 91–92,
 92–95, 96–100, 100–102, 113, 135, 136,
 177, 184, 192–193, 199–200, 237, 248,
 282, 292–305, 314–315, 322–323;
 technocracy 96–100
 technosocial intra-action/co-construction
 1, 7, 10, 11, 12, 23, 321, 324–325
 technosocial ecologies/embeddedness 1,
 10, 43, 78–79, 129, 156, 239, 266, 278,
 294, 305–314, 315–316, 321, 322
 textual analysis *see* methodology, textual
 analysis
 third party/parties 148, 153–154, 158, 165,
 166, 239, 280; *see also* trusted third
 parties
 Timan, Tjerk 182, 188
 Tor 59, 280
 tracking 21, 29, 57, 69, 74, 79, 135, 136,
 137, 138, 139–140, 166, 188, 191, 209,
 229, 247–248, 254–255, 256, 258, 259,
 260, 308; *see also* surveillance
 transparency *see* algorithms, opacity/
 transparency of; *see also* democracy,
 transparency
 Transparency International EU 145
 transformations, digital 3, 48, 58, 69, 93,
 94–95, 129, 130, 133–145, 186, 231,
 232, 242; *see also* datafication
 ‘TrapWire’ 59
 trending/trends 4, 29, 42, 46, 47–48, 49,
 50, 51, 52, 55, 62, 89, 102n3, 111, 122,
 135, 143, 190, 206, 236, 292, 295
 TrueID 139
 Trump, Donald 35, 60, 63n8, 112–113,
 114, 121, 135, 140, 167n2, 235–236
 trust: in analytics 43, 52, 97; in authorities/
 governments 97–99, 100, 102n9, 112,
 200, 268, 271; in Big Data 146; blind
 trust 52, 98, 101; in citizens 212; in
 colleagues 306; in data 33, 96, 97–98,
 298, 300, 303; in digital economy/
 environment 95, 98–99, 100, 147–148,
 205–206, 274–275; and distrust 101,
 102n9, 112, 147–148, 268, 271, 277; in
 Facebook 285n36; in organisations 277;
 in persons 80; in science 303, 313; in
 social fairness 145, 164; in technologies
 98–99, 140–141, 277; trustworthiness
 98–99, 280
 trusted third party 280
 truthfulness 133, 134, 135, 199–200, 207,
 208, 216, 217, 219

tweet(s)/re-tweet(s) 112
 Twitter 42, 110, 133, 139, 155, 162, 206,
 210–211, 254
 Uber 131, 140
 ubiquitous computing 91, 129, 232, 266,
 322, 325
 uncertainty principle 49, 63n5
 unemployment 94, 96, 143
 United Nations 53
 users: configuration of 7, 271; and consent
 148, 159–160, 210, 239–240, 255; data
from/about 57, 71, 74, 99, 111,
 116–117, 118, 132, 134, 139, 148–149,
 154–155, 157, 167n6, 188, 228, 238,
 239–240, 255 (*see also* users, and
 surveillance); discrimination of 142; of
 Facebook 71; and friendliness 94, 297;
 of Google 4; of internet 42, 120, 147;
 and interfaces 42–43; and intra-actions/
 mutual shaping 11, 118, 189, 231, 241,
 242 (*see also* users, configuration of;
 users, as prosumers); and loyalty 134; of
 PETs 59; non-users 15n9; opinions of 8,
 147–148; and power asymmetries 140,
 145, 154–155, 159–160, 271; profiling/
 targeting of 139, 140, 159, 228, 229,
 238–239, 240–241 (*see also* users, and
 surveillance); as prosumers/producers/
 consumers of content 131, 137, 157,
 231, 240–241, 242; protection of
 148–149, 154, 160, 167, 273, 285n36;
 of research data 307, 311, 312; and rules
 122; self-protection of 95, 99, 113,
 167n6, 261n4, 269, 270, 275, 279–280,
 285n33; and surveillance 80, 140, 210,
 229–230, 240, 241, 242, 254 (*see also*
 users, profiling/targeting of); as value
 99, 111, 130, 132, 134, 141, 155,
 158–159, 160, 161
 valorisation 135, 136, 138; user
 participation in 137; *see also* rating;
 ranking
 Vestager, Margrethe 160, 164
 ‘virality’ 114; as metric 111
 visa applications 70, 205
 voters 120, 121, 123n1, 135, 178, 181,
 270, 279; manipulation/micro-targeting
 of 60, 140; and suppression 35, 111,
 113; surveillance of 236
 vulnerabilities: of groups 140; human 140;
 online 248, 260; of research subjects
 312; societal 56; of technologies 247

Wal-Mart 60
 war 55, 59, 60, 73, 185, 206; ‘clean war’
 55; Cold War 53; role of drones in 55,
 59; Gulf War 55; ‘Operation Desert
 Storm’ 55; Vietnam War 55; ‘war on
 terror’ 35n5, 55, 80
 Washington Post 117
 WeChat 155
 Weiser, Marc 129
 Westin, Alan 181
 WhatsApp 131–132, 148–149, 155,
 158–159, 255, 285n36
 whistle-blower 32, 197, 198, 200, 203,
 204, 205, 214, 218, 220, 252, 268
 White House 141, 142, 145, 235, 237

Wikileaks 211, 218
 Winner, Langdon 11, 192–193
 Wittgenstein, Ludwig 50, 266, 282n3
 XKeyscore 59, 61
 Yeung, Karen 9, 12
 Youtube 131, 155, 210, 249, 250, 256; *see*
also Google, and YouTube
Zero Dark Thirty 203
 Zimmerman, Phil 267, 285n3
 Zorn, Isabel 250, 261n6
 Zuckerberg, Marc 110, 118, 122, 189,
 210–211