

Index

- Actor–network theorists (ANT), 11–12
- Additive manufacturing, 30, 32–33, 210
- Apple, 21–22
- Appropriate Technology movement, 41–42
- Art, 93–98
- Asymmetric innovation, 9–10
- Audience labor, 13
- Autonomen, 159
- Autonomy, 58–59, 69
- Autopoiesis, 88, 103, 108
- Autopoietic machine, 105
- Big cottage industry, 212
- Biofinancialization, 69
- Buzzwords, 66
- Cambridge Makerspace, 23
- Capitalism, 9
- Capitalist economies and societies, 55
- Carbon 3D, 34–35
- “Catapult” program, 170
- Civil, Mechanical and Manufacturing Innovation (CMMI), 32–33
- Cold War laboratories of Battelle Memorial Institute, 30–31
- Computer numerical control (CNC), 152–153
- Computer-aided design (CAD), 174
- Consumer-generated content, 13
- Contentious politics, 125
- Continuous liquid interface production technology (CLIP technology), 34–35
- Craft thinking, 192–199
- Crafting science, 184–191
- Creative destruction, 9
- Creative industries, 49
- Creative Quarter (CQ), 133–134
- Crowdsourcing, 13
- Cultural quarter, 113–114
- Cultural squares, 113
- Cyber-physical systems, 73
- Darwinian Marxism, 84–86
- Decentralization of production, 99–103
- Democratization, 172–175
 - of technology, 172–173
- Derby Hackerspace, 22
- Derby Maker Faire, 130
- Derby Silk Mill, 130
- Diffusion of practices, 33–34
- Digital Agenda for Europe, 75–76
- Digital economy, 12
- Digital Single Market strategy, 75–76
- Digital technology, 211
- Disruptive innovation, 198–199
- DIY metal 3D printer, 42–43
- DTM, 36, 38–39
- Empty signifier, 59
- Engineering Directorate (ENG), 32–33
- Enthusiasm, 191
- Entrepreneurial approaches, 10
- Entrepreneurship, 155–168
- Ethnographic methodology, 16–17
- European Union (EU), 170
- Fab Labs, 5–6, 23, 81–82, 109, 212–213
 - Charter, 125
 - FabLabs. io, 113
 - truck, 164–165
- Financialization, 68–69
- Fixer’s Manifesto, 126–128
- Forces of production, 77–82

- Fourth industrial revolution, 70–71, 210
 discoursing 3D printing within, 71–77
- Frappe machine, 177–178
- Frugal innovation, 194–195
- Frugality, 192–199
- Fused Deposition Modeling (FDM), 34–35, 77–78
- Gadget makers, 170
- Geek public, 88
- Gezi Park, 163–164
- Google Groups, 144
- Grammar School, 23, 176–177
- Grassroots community workshops, 109–110
- Grassroots innovation, 170–171
- Hack Cyprus, 178–179
- Hacker cultures, 174–175
- Hackerspaces, 5–6, 12, 19, 22, 78–79, 104, 109, 182, 212–213
 conditions of 3D printing culture in, 110–116
 Hackerspaces.org, 113
- Hacking, 12–13
- Hacklabs, 125
- Hermeneutical process of ethnography, 18–19
- Homebrew Computer Club*, 83
- Inclusive growth, 72–74
- Inclusivity, 195
- Innovation, 8, 12, 169–170
- Innovation Union, 75–76
- Instant gratification problem, 188
- Intended audience, 20–21
- Intensive development years, 33–40
- International Labour Organization (ILO), 73
- Internet 2.0, 80–81
- iPhone technologies, 36–38
- Knowledge-based economy, 67–68
- Labor-saving technologies, 55
- Laminated object manufacturing (LOM), 34
- Learning, 183
 space, 178
- Leicester Hackerspace, 106, 113–114, 140–142, 184–185, 199
- Leninism, 159
- Light bean, 185
- Low-cost 3D printers, 44–45
- Luddite movement, 11–12
- Maker community, 6–7
- Maker Faire, 130–131, 146, 149
- Maker Mini Faire, 146–147
- Maker movement, 125
- MakerBot, 21–22, 30, 58
 replicator, 178
 Wi-Fi, 47–48
- Makers movement, 4–5, 209, 212–213
- Makers Yard, 115–116
- Makers' Involvement, 40–51
- Makerspaces, 5–6, 109, 212–213
- Manufacturing Technology Centre, 77–78, 169
- Marxism, 86
- Material ideas, 93–98
- Material object, 94
- Materialization of ideology, 74
- Meetup, 200
- Meritocracy, 61–62
- Microsoft Innovation Center, 176–177
- Moore's law, 70–71
- Napster phenomenon, 80–81
- National Additive Manufacturing Innovation Institute (NAMII), 41
- National Science Foundation (NSF), 32
- Neoliberalism, 57–58
- Neotechnic technology, 99–103
- Netflix, 80–81
- NottingHack, 133–134
- Nottingham City Council, 133–134

- Nottingham Hackerspace, 142–143
 NY Resistor, 21–22
- One Road One Belt Initiative, 72–73
 Online media, 19
 Open coding, 20–21
 Open hack-nights, 185–186
 Open Source, 40–51
 Openness, 205–208
- Pay as you feel scheme (“PAYF”
 scheme), 141
 Peer-to-peer networks (P2P networks),
 78–79
People’s Capitalism, 86–87
 Philips Lifestyle, 81–82
 Photo-glyph process, 31–32
 Photographic-printing process, 31–32
 Pirate bay, 79–80
 Pirate Parties, 79–80
 Platform capitalism, 80–81
 Policymaking, 169
 Political consumerism, 126–127
 Practice as politics, 123–125
 Precursor technologies, 30–33
 Premature deindustrialization, 56
 Principal Investigator (PI), 36–38
 Productive leisure, 15
 Prosumption, 13, 119–120
- Radical science movement, 83
 Recursive public, 88, 137
 REMAP, 149–150
 Replicator, 66–67, 92
 RepRap 3-D printing, 85
 RepRap 3D printers, 77, 103
 RepRap model, 44–45, 145, 201–202
 Representational machines and spaces,
 119–122
 Research and development (R&D),
 169
 Resilience, 205–208
 Right technology at the right time,
 54–59
 Right to the City Network, 157–160,
 163–164, 168
- Rugged consumerism, 126–127
 in digital age, 13–16
- Science, 93–98
 fiction, 89–93
 Selective laser sintering (SLS), 36, 38,
 190
 Service work, 55
 Shapeways, 81, 116–117
 Single Market, 75–76
 Social Democracy, 159
 Social factory, 81
 Social justice, 155–168
 Social movement, 58–59
 Social order, 122
 Society of spectacle, 74
 Solid freeform fabrication, 30, 210
 Spaceship Earth Recyclers, 105–106
 Startup Weekends, 176–177
 Strategic Manufacturing Initiative
 (STRATMAN Initiative),
 32–33
 Structural weaknesses, 75
 Suburban husbanding, 15
- Targeted innovation, 9–10
 Technology, 53–55, 76–77
 Techshop, 143–144
 3D
 cube, 178
 inkjet, 89–90
 movie, 178–179
 printed guns, 49–50
 printers, 1–3, 5, 7–8, 62, 81–82, 169,
 174
 3D printing, 1, 53, 116, 169, 171,
 209–210
 affordability, 1–2
 autopoiesis, 103–108
 conditions of 3D printing culture in
 hackerspaces, 110–116
 culture, 2, 11, 211
 discoursing 3D printing within
 fourth industrial revolution,
 71–77
 forces of production, 77–82

- foundations, 30
- hacking and user-producer relation, 12–13
- history, 29–30
- innovation, 8–12
- internal organization, 140–143
- material ideas, 93–98
- method, 175–183
- methodology, 16–27
- neotechnic technology and decentralization of production, 99–103
- positioning and purpose of 3D printing in four different spaces, 132–140
- research questions, 16
- revolution, 59–66
- right technology at the right time, 54–59
- rugged consumerism in digital age, 13–16
- science fiction, 89–93
- significance, 3
- skills, individualized 3D printers, and building robots at home, 199–204
- speculation and promise, 66–71
- study, 3–4
- systems corporation, 33–34
- technological development, 30
- technology, 6–7, 29
- ubiquitous and networked, 143–146
- utopian narratives, 82–88
- Top-down approach, 196
- Transformative social innovation, 170
- Trello, 144
- Ubiquitous computing, 145–146
- User innovation, 172–175
- User-generated content, 13
- User-producer relation, 12–13
- Utopian narratives, 82–88
- Utopianism, 86–87
- World Economic Forum (WEF), 71–72