

Index

- Abbate, Janet 138, 153
Abernathy, William 115, 161
AC/DC example 107–8
actants 58–9
action, definitions 75
action together 94
Actor Network Theory (ANT) 60,
62–5
actors, in Latour and Callon networks
58–60
Advanced Research Projects Agency
(ARPA) 138
Aitken, Hugh 65, 147
Akrich, Madeleine 55, 59, 61, 66–7,
71–2
Alsène, Eric 37
Altair 136
Alter, Norbert 31, 33
alternative frames of use 84–5
Amblard, Henri 62–3
Ancelin, Claire 162
Apple 136–7
appropriation 68
arenas 78
Arnal, Nicole 93
Aron, Raymond 100, 109
Arpanet 138, 153
Arrow, Kenneth 8, 119
Arthur, Brian 102–6
ATT triode example 64–5
automatic metro (Aramis) example
59, 61

Bachelard, Gaston 50
Baczko, Bronislaw 125
Ballé, Catherine 33
Barbichon, Georges 31
Barère, Bertrand 149
Barras, Richard 22, 118
Baszanger, Isabelle 77
Battelle, John 161

Baudelaire, Charles 132
Baxandall, Michael 29, 91, 121, 154
Bazerman, Charles 134
BBS (bulletin board systems) 140
Beaudouin, Valérie 69
Becker, Howard 77
Béguin, Pascal 79
Bell, Alexander Graham 146
Bellamy, Edward 126
Beltran, Alain 143
Benjamin, Walter 132
Berliner, Emile 151
Bertrand, Gisèle 94
beta testers 94
bicycle examples 50–52
Bijker, Wiebe 49–52, 71–2, 80
Bimber, Bruce 25
Blaug, Mark 5, 7
Bloch, Marc 24, 119
Bloor, David 48
Boudon, Raymond 72
Boullier, Dominique 18
boundary frames 81
boundary-object phase 160–61
boundary objects 78–9
Bourdieu, Pierre 56
Boyer, Robert 119
Braudel, Fernand 24
Breton, Philippe 121–3
bridge construction example 91–2
Brown, Jerry 137
Bucciarelli, Louis 79, 148, 162
bulletin board systems (BBS) 140
Busson, Alain 93

Callon, Michel 54–7, 59–61
Carey, James 132
Caron, François 150
Carré, Patrice 143
Castoriadis, Cornelius 17–18, 39, 159
Castronova, Edward 94

- catchall-object phase 158–9
 causal imputation 100
 Ceruzzi, Paul 123
 Chanaron, Jean-Jacques 37–8
 Chandler, Alfred 25
 Chappe, Claude 134, 151, 154
 Chase, Stuart 132
 Chevalier, Michel 131, 144
 cinema example 89
 Citroën 2CV example 146–7
Civilisation matérielle, Économie et capitalisme (Braudel) 24
 Clark, Kim 79, 115
 Clarke, Adele 77–8
 Clayton, Nick 72
 coal mines examples 31–2
 Coleman, James 11
 Collins, Harry 48
 common artifacts 85–6
 common worlds 79
 communications technology, effects 26–30
 Community Memory 135–6
 computer development example 121–3
 computers *see* ICT studies
 concretization 111–12
 concurrent history phase 157–8
 Constant, Edward 21, 113
 consumer innovations 6–7
 consumption junction 65
 conventional objects 94
 conversion of ICT objects 68
 Corn, Joseph 130
 Cortada, James 90
 Coulon, Alain 96
 Cowan, Robin 104, 106
 Cowan, Ruth Schwartz 65, 68
 Cresswell, Robert 46
 critical mass 13
 Cros, Charles 128–9
 cultural focus 45–6
 cultural technology 43–8

 Danto, Arthur 99
 Daumas, Maurice 14
 David, Paul 105–8, 148
 De Certeau, Michel 87–8, 92
 De Fleur, Melvin 12, 26
 De Forest, Lee 153
 De Fornel, Michel 69, 85–6, 95
 De Lamartine, Alphonse 125
 De Oliveira Domingues, Cristiano 117
 Debray, Régis 28
 decoding 66–7
 demand–pull theories 19–23
 design engineers' culture 36–7
 determinism
 historians' views 23–6
 see also Ellul, Jacques
 detribalization 27
 diffusion
 economic models 7–9
 sociological models 9–13
 Dixon, Robert 7
 Dockès, Pierre 107, 118–19, 162
 Dolbear, Amos 129–30
 domestication of ICT objects 68
 Dosi, Giovanni 20, 110–11, 113–14
 Douglas, Susan 130, 134
 Du Gay, Paul 69
Du Mode d'existence des objets techniques (Simondon) 111
 Dupuy, Jean-Pierre 94
 Durand, Claude 33

 Edge, David 49
 Eisenstein, Elizabeth L. 29–30
 electric vehicle example 56, 60
 electricity *imaginaire* 131–3
 Ellul, Jacques 15–17
 entrepreneurs, definitions 77
 ethnomethodology 73–6
Eve future (Villiers de L'Isle-Adam) 127–8
 evolution of technical object 8
 evolutionary economics 109–12
 excluded users 69
 expelled users 69
 expert systems examples 36

 Febvre, Lucien 13–15
 Felsenstein, Lee 135–6
 Fessenden, Reginald 153
 Figuiet, Louis 130
 Fischer, Claude 96, 103, 151
 Flammarion, Camille 129, 143
 Fleck, James 35–6
 Flichy, Patrice 12, 69, 72, 89–90, 96, 134, 140, 143, 149–51, 154, 159

- Foray, Dominique 9, 18, 102–3, 105, 107–9, 148
- Ford/GM example 89
- Forth rail bridge example 91–2
- Fragments d'histoire future* (Tarde) 128
- frames of functioning 82
see also imaginaire, technological imaginaire and frame of functioning
- frames of reference 80–87, 123–4
- frames of use 82–5
- France, Anatole 128–9
- Freeman, Christopher 22–3, 90, 114–15, 117–19
- Freyssenet, Michel 36–7
- Fridenson, Patrick 146
- Friedmann, Georges 32
- Fujimura, Joan 76
- Fulchiron, Jean-Claude 150
- Furet, François 28–9
- Gallie, D. 33
- Garfinkel, Harold 74–5, 96
- Gash, Debra 70
- Gaston Lagaffe 56
- Gates, Bill 137
- Gaudin, Thierry 120, 125, 146
- Geddes, Patrick 131
- Gernsback, Hugo 129
- Gerson, Elihu 76
- Giard, Luce 92
- Giedion, Siegfried 37
- Gilfillan, S. Colum 25
- Gille, Bertrand 14–15, 104–5, 107
- Giraud, Alain 152
- Goffman, Erving 80, 85
- Google 161
- Gouletquer, Pierre 47
- Granovetter, Mark 13
- Gras, Alain 149
- Griesemer, James 78–9, 160
- Griliches, Zvi 7, 10
- Gross, Neal 9–10
- Guterl, Fred 162
- Hall, Stuart 66–7, 69
- harnessing example 23–4
- Haudricourt, André-Georges 15
- Hawkes, Terence 59
- Hawkins, Richard 148
- Heilbroner, Robert L. 25
- Hennion, Antoine 154
- Heritage, John C. 74
- Herskovits, Melville 45–6
- Hert, Philippe 69
- Hiltz, Starr Roxane 139
- Hirsch, Eric 68
- Hoddeson, Lilian 65
- Hoffsaes, Colette 33
- holography example 22
- Homebrew Computer Club 136
- Hounshell, David A. 88, 146
- Hughes, Thomas 26, 84, 104, 112, 132, 157
- Hugo, Victor 127
- hybrid corn studies 7, 9–10
- ICT studies
 business environments 70–71
 ethnomethodology 75–6
 uses 68–70
see also information technology, uneconomic adoption
- imaginaire*
 discourse examples 130–33, 138–43
 genealogies of 120–23
 producers 126–30
 role in technological development 133–5
 slow development 123–4
 social *imaginaire* and frame of use 125–6, 149–52
technological imaginaire and frame of functioning 145–9
- incorporation of ICT objects 68
- incremental innovation 114
- influence 121–2
- information technology, uneconomic adoption 134
- ‘innerness’ of technical objects 86
- Innis, Harold 27–8
- innovation
 analysis 163–5
 definitions 6–7, 55
 phases 157–62
- innovation taxonomy 114–15
- innovation users 153
- Intel 136
- interactionist sociology 76–9
- Internet *imaginaire* 138–43

- interpersonal contact 11
interplanetary communication 128–9
Inuit example 45
Invention and Economic Growth
(Schmookler) 20
Isambert, François-André 72
- Jennings, Tom 140
Jobs, Steve 136
Jouët, Josiane 48, 65, 68–9, 82, 93, 161
- Katz, Elihu 11, 67
Kline, Ronald 69, 84
Kling, Rob 140
Knight, Kenneth 110
Kondratiev, Nikolai 116–17
Kroeber, Alfred 25
Kuhn, Thomas 48, 112
- La Science et ses réseaux* (Callon) 54
La Vie électrique (Robida) 127
*Laboratory Life, The Construction
of Scientific Facts* (Latour and
Woolgar) 53, 63–4
Lacaze, Dominique 127
Landes, David 5
Latour, Bruno 3, 53–61, 147
Laughlin, Charles 47
Lazarsfeld, Paul 27
Le Bas, Christian 9, 18
Le Château des Carpathes (Verne) 127
Le Travail (Zola) 128
Le Vingtième Siècle (De Robida) 127
learning by doing 8, 104
learning by using 8, 103
Lefebvre des Noëttes, Richard 23
Leroi-Gourhan, André 43–6
Les Misérables (Hugo) 127
letter sender example 81–2
Lévy, Pierre 40
Levy, Steven 135, 144
Licklider, Joseph 138–9
Lievrouw, Leah 119
Linhart, Danièle 32
literature *see* science fiction
Livet, Pierre 94
Livingston, Eric 74
Livingstone, Sonia 68
lock-ins *see* non-optimal lock-ins;
technical lock-in
- long cycles 116–19
Looking Backward (Bellamy) 126
Lorenz, Konrad 155
Lynch, Michael 72, 74, 96
- Mackay, Hugh 66
Malerba, Franco 22
Mallet, Serge 32
Mangematin, Vincent 60
Mansfield, Edwin 7
Marchand, Marie 162
Marconi, Guglielmo 117, 129, 146,
151, 153, 161
market characteristics, as mediating
technology and organization 38–9
Marshall, Alfred 101
Marti, Bernard 148
Martin, Michèle 103
Marvin, Carolyn 124, 130–31
Marx, Karl 3, 31, 101
Marx, Leo 130–31
material culture 46
matterism 28
Maunoury, Jean-Louis 18
Mauss, Marcel 43–4, 163
McCloskey, Donald 109
McGuire, J.E. 72
McLuhan, Marshall 27
Mead, George H. 86
Méadel, Cécile 151
media, sociology of uses 67–70
mediology 28
Melia, T. 72
Mendelbaum, Maurice 65
Mensch, Gerhard 22, 116–17
Midler, Christophe 63, 162
milieu extérieur 45
milieu intérieur 44–5
milieu technique 45
Minitel examples 69, 93, 161
Misa, Thomas J. 25–6
Monjardet, Dominique 38
Montgolfier, Joseph de 146
Moore, Fred 138
Morley, David 67
Moscovici, Serge 31
motor car example 82–5, 146–7
see also Citroën 2CV example
Mowery, David 19
Mueller, Milton 119

- Mumford, Lewis 143–4
- Nadar (pseudonym of Gaspard-Félix Tournachon) 127
- Naville, Pierre 40
- Nelson, Richard 13, 18, 110, 114
- network externalities 103–4
- The Network Nation, Human Communication via Computer* (Hiltz and Turoff) 139
- networks of influence 10
see also technoscience networks
- Networks of Power* (Hughes) 104
- Noble, David 34–5
- non-optimal lock-ins 106–7
- nuclear reactors example 106–7
- numerical control machine tools
 examples 34–5
- object worlds 79
- objectification 68
- Odasz, Frank 140
- Ogburn, William 25
- operative sequence 44
- opinion leaders, distinction from first adopters 12
- optical pulsar discovery study 74
- Orlikowski, Wanda 70–71, 81
- Orsenigo, Luigi 110–11, 113
- Ortsmann, Oscar 40
- Oudshoorn, Nelly 72
- Ozouf, Jacques 29
- Pacey, Arnold 71
- Painting and Experience in Fifteenth Century Italy* (Baxandall) 154
- Pasquier, Dominique 69
- Pasteur, Louis 55
- Patterns of Intention* (Baxandall) 154
- Peaucelle, Jean-Louis 33
- The People's Choice* (Lazarsfeld) 27
- People's Computer Company 135
- Perez, Carlota 114
- Perriault, Jacques 69, 120–21
- Perrin, Jacques 37–8, 118
- Perrot, Michelle 38
- Personal Computer *imaginaire* 135–8
- Pestre, Dominique 71
- Pharo, Patrick 73
- Pinch, Trevor 49–52, 71–2, 80, 84
- plans, definitions 75–6
- Poirier, Jean 71
- The Poverty of Philosophy* (Marx) 31
- Preece, William 129
- printing press, effects 28–30
- process innovation
 distinction from product innovation 6
 as having predictable demand 20
- product information 11
- product innovation, distinction from process innovation 6
- Proulx, Serge 94
- Quéré, Louis 51, 64, 73, 86
- Quirk, John 132
- qwerty keyboard example 106
- radical innovation 114
- railway carriage example 155
- Rallet, Alain 94
- Ralph 124C 41+* (Gernsback) 129
- re-invention 13
- Real, Bernard 6
- reference groups 77
- rejecters 69
- repairs 84
- resisters 69
- Resource One 135
- retribalization 27
- Reynolds, Barrie 46–7
- Rheingold, Howard 139, 141, 143
- Ricardo, David 3
- Rice, Ronald 13
- Ricoeur, Paul 75, 99–100
- Rip, Arie 134, 162
- Robbins, Lionel 4
- Robida, Albert 127
- Robinson, Mike 76, 85–6
- Rogers, Everett 10–11, 13, 18, 119
- Roosevelt, Theodore 132
- Rosenberg, Nathan 8, 14, 19, 21, 103–4, 110
- Rosier, Bernard 107, 119, 162
- Roszack, Theodore 137
- Ryan, Bryce 10
- Sadoul, Jacques 144
- Sahal, Devendra 114
- Sappho project 23, 90

- Schaffer, Simon 49
 Schmookler, Jacob 20
 Schumpeter, Joseph 5–6, 102
 Schütz, Alfred 73
 science, as organizing work 37–8
 science fiction 126–30
Science in Action (Latour) 54
 science in-the-making
 as negotiation 48–9
 as rhetorical 53
 SCOT (Social Construction of Technology) 49–50
 script 66–7
 Segal, Howard 126
 Segrestin, Denis 156
 Serres, Michel 72
 Shapin, Steve 49
 Shapiro, Carl 103, 106
 Shibutani, Tamotsu 77
 Silverstone, Roger 67–8
 Simondon, Gilbert 92, 111–12, 147
 simultaneity of inventions 25
 Singer, Charles 18
 Smith, Adam 3
 social constructivism approach *see*
 technology, as social artifact
 social worlds 77–8
 socio-technical frames 79–87, 152–7,
 161–2
 socio-technical history, definitions
 100–101
 socio-technical systems school 32
 Sol 136
 solar house example 79
 Solow, Robert 5
 spokesperson metaphor 54–5
 SST (Social Shaping of Technology)
 49
 Star, Susan Leigh 76, 78–9, 160
 steam engine *imaginaire* 131
 stirrup example 23
 strategic actors 60
 strategists 87–91
 Strauss, Anselm 77
 strong programmes 48
 Suchman, Lucy 75, 96
 supply–push theories 21–3
Sur la pierre blanche (France) 128

- Tarde, Gabriel 128
 Taylor, Robert 32, 37–8
 Taylorism 32, 37–8
 technical convergence 45
 technological change 5
 technological competition 101–9
 technological complementarities 104–5
 technological controversies 49–50
 technological determinism, and the
 organization of labour 31–40
 technological frameworks 49
 technological lock-in 105–6
 see also concretization
 technological moments 26
 technological paradigms 112–15
 technological revolutions 114–15
 technology
 as cultural transformation 15–18
 historians' analysis 13–15
 as a language 47
 as missing factor of production 3–7
 as social artifact 48–53
 technology analysis model
 frames of reference 80–87, 123–4
 objectives 79–80
 socio-technical action
 during innovation 87–91
 during stability 91–6
 technoscience networks
 actors 58–60
 context 60–62
 limitations 62–5
 networks 57–8
 overview 53–7
 telegraphy examples 28, 84, 90, 128,
 134, 150–52
 telephony examples 83–4, 150, 151
 Tesla, Nicolas 129
 Thévenot, Laurent 94, 99
 Thomas, Dorothy 25
 threshold models 13
 Thuillier, Pierre 72
 time passage
 as evolutionary 109–12
 long cycles 116–19
 as multiple paradigms 112–19
 technological competition 101–9
 viewed as history 99–101
 Toda example 45–6

- Touraine, Alain 56
 Tournachon, Gaspard-Félix *see* Nadar
 triode example 64–5
 Turkle, Sherry 68
 Turoff, Murray 139
Twenty Thousand Leagues under the Sea (Verne) 127
 ‘two-step flow’ thesis 27
- user-strategists 90–91
 users’ roles
 adjusting technical objects 92–4
 cooperation 94–6
 during innovation 87–91
 in information technologies 70–71
 overview 65–6
 semiotic approaches 66–7
 uses, sociology of 65, 67–70
 Usher, Abbott P. 25
 Utterback, James 19, 161
- Valente, Thomas W. 13
 Van Lente, Harro 134, 162
 Varian, Hal 103, 106
 VCR example 93
 Velkovska, Julia 69, 93
 Vercruysse, Jean-Pierre 150
 Verhoest, Pascal 150
 Verne, Jules 126–7
 Veyne, Paul 100
 videophone examples 95
- Villiers de L’Isle-Adam, Auguste, de 127
The Virtual Community (Rheingold) 141
 Von Hayek, Friedrich 4
 Von Hippel, Eric 90, 153, 156
 von Siemens, Werner 131
- Walras, Léon 6
 water mill example 24
 weak determinism 25
 Weber, Max 100
 Webster, Juliet 35
 The Well 139–41
 Wheelwright, Steven 79
 White, Lynn 23
 Williams, Raymond 123
 Williams, Robin 35, 49
 Williams, Rosalind 130, 132–3, 144
 Winner, Langdon 52
 Winter, Sidney 13, 110, 114
Wired (journal) 143
 Woolgar, Steve 53, 60, 64, 66, 72
 Wozniak, Steve 136
 Wyatt, Sally 69
- Yates, JoAnne 70, 91, 134
- Zitt, Michel 20
 Zola, Émile 128
 zoology museum study 78–9