

Index

3M 162, 163

a

Abbott Laboratories 318
 Abengoa 380
 Acquisitions 21, 59, 101, 103, 327, 343 ff.
 ADM 399
 Advanced shareholder value orientation *see*
 Shareholder value orientation
 AEA 420
 AGA 143, 334
 Agribusiness 127 ff.
 – basic strategies 132
 – biotech input traits 130
 – biotechnology 127 ff.
 – challenges 129
 – consumer-driven markets 134
 – cost restructuring 131
 – crop protection 127 ff.
 – crop yield 127 ff.
 – eras of agribusiness 130 ff.
 – food quality 127 ff.
 – food supply 127 ff.
 – growth 130
 – improved crops 133
 – industry restructuring 131
 – innovation 128, 130
 – major industry players 131
 – opportunities beyond yield 134
 – product pipelines 132, 133
 – profitable growth 127
 – public support for agriculture 129
 – R&D 131
 – seeds 127 ff.
 – size 127
 – value competition 131
 Agrochemicals 169
 – *see also* Agribusiness
 Air Gases 137

Air Liquide 138, 139, 143
 Air Products 138, 139, 143
 Airgas 140, 143
 Akzo Refinery Catalysts 419
 Albemarle 419
 Alignment/quality gates *see* Stage-gates
 Alliances 58
 – *see also* Joint ventures
 Amoco 7, 338
 Amoco Chemicals 7
 Analytical services 257
 Anti-trust authorities 347
 Apollo 404, 412
 Arkema 7
 Aromatics 202
 Ashland 150
 Asia 56, 57, 76, 137, 145, 152, 244, 245, 377,
 441 ff.
 Asia Pacific 80, 442
 Asian crisis 53
 Asian rust 132, 133
 Asset-heavy industries 28, 60
 Aventis 7, 404
 Aventis CropService 335

b

BAE Systems 335
 Bain Capital 404
 BASF 6, 37, 58, 100, 211, 213, 297, 377, 378,
 398, 404, 430, 434, 436, 437, 441 ff.
 – change 443
 – focus 443
 – goals for Asia Pacific 442
 – return on capital 12
 – speed 443
 – Values and Principles 447
 – Verbund 258
 – Verbund strategy 441, 444, 445
 – Vision 2010 443

- BASF Coatings 106
- BASF in China 441 ff.
 - BASF China Ltd. 443
 - decentralization 444
 - direct engagement 442, 443
 - East Asia regional headquarters 443
 - economic development 447
 - education 447
 - environmental protection 447, 449
 - expansion plans 444
 - joint ventures 443, 444
 - local presence 443
 - local production 444
 - market penetration 444
 - Nanjing petrochemical project 444, 445
 - operations in Greater China 445
 - outlook 449
 - post second World War era 442
 - production 446
 - profitable growth 449
 - reform program 443
 - representative offices 443
 - risk factors 449
 - sales growth 446, 447
 - social responsibility 447
 - sustainable development 447
 - synthetic dyes 442
 - targets 444
- Basic chemicals 2
- Bayer 6, 7, 335, 398, 404, 430
- Beecham 337
- Behavioral change 190
 - *see also* Mindsets and behaviors
- Beijing 443
- Benzene 201, 205
- BIO 383
- Bioprocessing 208, 213
- Biotech *see* Biotechnology
- Biotechnology 55, 58, 127 ff., 173, 375 ff., 378
 - acceptance 382
 - barriers 400
 - bio feedstock 58
 - bio routes 58, 376, 389
 - bio-based feedstock 206, 208, 376
 - biocatalysis 389, 390, 395, 397
 - biochemicals 399
 - bioethanol 399
 - biomass 382, 392, 398
 - biomass-based ethanol 380
 - biorefineries 379
 - cellulose 379
 - energy crops 379, 380
 - hemicellulose 379
 - lignin 379
 - proteins 379
 - waste biomass 379
 - biomaterials 399
 - biopolymers 382, 398, 399
 - bioprocesses 376
 - bioproducts 376, 379
 - biorefineries 376, 380, 398
 - biotechnology intelligence 58
 - biotransformation 389, 395
 - cellulase 380
 - commoditization 398
 - cost differential 383
 - cost savings 376
 - economic benefits 376, 379
 - energy efficiency 376
 - environmental benefits 376
 - enzymes 375, 376, 380, 390, 392
 - external challenges 381, 382
 - fermentation 375, 376, 389, 390, 395
 - fine chemicals 399
 - genomics 389, 395
 - go-to-market strategy 386
 - hemicellulase 380
 - impact 399
 - industrial biotechnology 375 ff., 389 ff.
 - innovation 376, 377
 - investments 382
 - key drivers 376
 - Kyoto target 376
 - market 375
 - market development 386
 - new business building 381, 382
 - opportunities 382, 384
 - profit 375, 381
 - regulation 379, 383, 400
 - sales 375, 376
 - strategy 381, 382, 383
 - assessment 384
 - business models 384
 - value chain positions 384
 - sugar 391, 398
 - sustainable society 389
 - technology advances 376
 - uncertainty 382
 - value capture 383
 - value capture case examples 383 ff.
 - value chain 381, 391
 - white biotechnology 375 ff.
- Blackstone Group, The 404, 406, 413
- BOC 138, 139, 143
- Borden Chemical 404, 412

- BP 6, 7, 211, 378, 430, 437
 - *see also* British Petroleum
- BP Chemicals 316
- Bremer, Matthias 43
- Brenntag 150, 151, 157, 404
- BRIC countries 145
- Brigham and Women's Hospital 179
- British Petroleum 318
- Brown, John 318
- Business intelligence 90
- Business models 36
- Business plans *see* Purchasing
- Business portfolios 37
- Buyout firms 403 ff.
 - *see also* Private equity investors
- C**
- Cain, George 318
- Canadian government 379
- Capital markets 10 ff., 330, 417, 419, 423
 - capital market expectations 14 f., 20, 21, 327
 - capital market valuation 12, 13, 21
 - deviations 11 ff.
 - earnings announcements, effects of 13
 - earnings surprises 14
 - share price 12 ff.
 - signals 13, 17, 19, 26
 - stock price 13, 20
 - valuation levels 15 ff.
- Capital productivity
 - specialty companies 36
 - value drivers 35
- Cargill 209, 378, 398
- Cargill Dow 378
- Cash cost 66 ff.
- Cash flow 13
- Celanese 7, 297, 404, 413, 424
- Celltech 343 ff.
 - Cimzia 346, 353
 - molecular antibodies 345, 346
- Change initiatives 311
- Change management 229, 335
- Change programs 321
 - *see also* Organization
- Chemcentral 150
- Chemical companies 3, 7
 - commodity companies 17, 32 ff.
 - diversified companies 32 ff.
 - specialty companies 32 ff.
- Chemical distribution *see* Chemical distributors
- Chemical distributors 149 ff.
 - acquisitions 154
 - changing environments 153
 - competitive differentiation 156
 - consolidation 154
 - evolution 150
 - financial strength 154, 157
 - fragmentation 149, 150
 - future outlook 157
 - geographical coverage 154, 157
 - growth 149, 153
 - local success factors 153
 - logistics services 149
 - market size 149, 150
 - next industry S-curve 154, 156
 - one-stop shop 151, 155, 157
 - outsourcing trends 156
 - partners of industry 149 ff., 154 ff.
 - partnership-specific success factors 153
 - service portfolio
 - compliance with environmental and safety standards 151, 155
 - economic delivery 151
 - value-added services 149
 - strategic partnerships 149, 154
 - advantages to chemical producers 154
 - advantages to customers 155
 - advantages to distributors 155
 - supply chain management 149
 - trends 151
 - globalization 149 ff., 152
 - outsourcing 149 ff., 153
 - QHSE 149 ff., 152, 155
 - value chain 149 ff., 151, 156
 - wholesaling 150
- Chemical industry 1 ff., 53, 159
 - consumption 2, 150
 - cost restructuring 419
 - customers 1
 - demand 3, 55, 56, 64, 100
 - demand growth 3, 63, 65 ff., 207
 - evolution 7
 - exports 4
 - geographic shift 55
 - growth 100
 - growth rates 3
 - Japan 1 ff.
 - maturity 28, 29
 - mobility 28, 29
 - output 2, 3
 - overview 1 ff.
 - production 2
 - public perception 359
 - supply 65

- technology shift 55
- top ten companies 5, 6
- United States 1 ff.
- Western Europe 1 ff.
- Chemical products 2, 4
- China 4, 52, 55, 69, 73, 76, 81, 84, 145, 202, 208, 213, 216, 221, 229, 241, 244, 262, 427 ff., 428, 441 ff.
 - demand 80, 206, 427
 - dynamics 427
 - efficiency 427
 - foreign direct investment 427
 - foreign markets 56
 - foreign participation 443
 - growth of GDP 427
 - growth opportunities 103
 - intellectual property rights 245
 - labor costs 83
 - net importer 3 ff., 56, 429
 - patent protection 245
 - potential rival 103
 - trust-based relationships 427
 - wholly foreign-owned businesses 57
 - *see also* Chinese chemical industry
- China Business Council for Sustainable Development 448
- China Development Research Centre 432
- China National Offshore Oil Corporation 435
- ChinaPetroleum & Chemical Corp. *see* Sinopec
- Chinese Academy of Science 434, 436
- Chinese chemical industry 427 ff., 441 ff.
 - commodity chemicals 429
 - consumption 428, 443
 - exports 429
 - foreign direct investment 430
 - growth 428
 - joint ventures 429, 430
 - landed cost advantages 429
 - lessons of Confucius 433 ff.
 - integrated sites 437
 - investment levels 437
 - market knowledge 435
 - mianzi 436
 - multi-user sites 437
 - operational excellence 437
 - production 437
 - proximity to customers 435
 - proximity to markets 435
 - recruiting and retaining local talent 436
 - relationships 436
 - site selection 437
 - sourcing 437, 439
 - supplier base 439
 - margins 429
 - market growth 441
 - market size 428, 441
 - MNCs in Chinese chemical market 430–433
 - barriers 433
 - corporate strategy for China 433
 - cut-throat competition 432
 - dynamics 431
 - intellectual property 432
 - local distributors 432
 - organizational structures 433
 - relationships 432
 - stumbling blocks 431
 - supplier quality 432
 - support 431
 - uncertainty 431
 - nutritional and health supplements 430
 - overview of top five chemical zones 438
 - private enterprises 428
 - profitability 428
 - specialty chemicals 429
 - state-owned enterprises 428
 - wholly foreign-owned enterprises 428, 430
- Chinese Chemical Industry Research Institution 434
- Chinese Communist Party 436
- Chinese Research Academy of Environmental Sciences 449
- Ciba 329
- Ciba Specialty Chemicals 58, 378, 430, 435
- CIP 252
 - *see also* Continuous improvement process
- Clariant 105, 241, 255, 430
- CNOOC-Shell 435
- Coal 74, 208, 213
- Coal-to-liquid 84
- Codexis 378, 398
- Cognis 419
- Collaborative Planning, Forecasting, and Replenishment 286
- Commodities 9, 313
 - *see also* Commodity chemicals
- Commoditization 36, 95, 97, 106, 170, 227, 241, 262, 376
- Commodity chemicals 17, 18, 22, 24, 28, 32 ff., 63 ff.
 - attractiveness 63
 - commodity chemical businesses 63 ff.
 - commodity chemical companies 17
- Commodity companies 7, 60, 332

- Communication 221, 325, 330
 - *see also* Mergers and Acquisitions
 - *see also* Purchasing
 - Compass Minerals 413
 - Competitive advantage 218, 221
 - Competitive differentiation 106, 149, 156
 - Concentration 101, 131
 - Consolidation 100, 101, 131, 142, 152, 297, 419
 - *see also* Mergers and Acquisitions
 - Continuous improvement process
 - KPI system 249, 250
 - mindset 249, 251
 - organization 249, 250
 - target setting process 249, 251
 - tools 249, 251
 - Continuous performance improvement 241, 246, 249
 - Corn sugars 208
 - *see also* Biotechnology, biomass
 - Corporate cultures 109, 337
 - Cost curves 65 ff.
 - Cost of capital 15, 33, 66
 - portfolio management 39
 - Cost of ownership 220
 - Cost of sales 215
 - Cost reduction 170, 185
 - *see also* Production
 - CPFR 288
 - *see also* Collaborative Planning, Forecasting, and Replenishment
 - CPI *see* Continuous performance improvement
 - CRM 305, 307
 - Crude oil 82, 201, 202, 205, 207
 - CTL *see* Coal-to-liquid
 - Customer Relationship Management *see* CRM
 - s. CRM, IT
 - Cyclicality 17
 - capacity additions 63 ff.
 - commodity cycles 33, 35
 - creep 65 ff.
 - cyclical returns 33
 - debottlenecking 65 ff.
 - fly-ups 33, 63
 - peaks 64 ff.
 - profitability cycles 63
 - troughs 17, 23, 63 ff.
 - Cytec 343 ff., 419
- d**
- Dalian Luminglight S&T 430
 - Danisco 102
 - DCF *see* Discounted cash flow
 - Deere & Company 179
 - Degussa 6, 7, 59, 102, 105, 106, 109 ff., 162, 163, 297, 330, 332, 378, 398
 - acquisitions 111 ff.
 - best@chem 113, 120
 - Blue Spirit 117, 119
 - Business First 113
 - business units 114
 - core businesses 110
 - core portfolio 111
 - corporate center 116
 - corporate culture 117
 - corporate growth areas 113
 - Creating Essentials 119, 120
 - divestments 110
 - EBIT improvements 113
 - Emerging Markets 120
 - focus 110
 - globalization 120
 - guiding principles 118, 119
 - Human and Corporate Excellence 120
 - innovation 124
 - linking knowledge 121
 - management structure 114
 - mission statement 118
 - multi-user sites 116, 437
 - new brand 118, 119
 - operating organization 115
 - organic growth 111 ff.
 - organizational concept 113
 - portfolio matrix 111
 - profitable growth 124
 - shared services 116
 - Site Excellences 120
 - site services 116, 117
 - Solutions to Customers 120, 121
 - spread on cost of capital 12
 - Strategic Management Process 111
 - team organization 121, 122
 - vision 118
 - Degussa-Hüls 109, 110
 - Dell 282, 283, 295
 - DeSimone, Joseph 178
 - Disconnects
 - feedstock driven 64, 73
 - technology driven 64, 73
 - Discounted cash flow 12, 20
 - Distributors *see* Chemical distributors
 - Diversa Corporation 179, 378, 398
 - Diversified chemicals 28, 32 ff.
 - Divestment 59, 63, 64, 71, 72, 103, 109, 343 ff.

- Dow 6, 162, 163, 208, 213, 215, 297, 398, 430
 - Dow Corning 274
 - DSM 37, 58, 105, 376, 378, 389 ff., 390, 395, 400
 - application assays 393
 - arachidonic acid 395
 - *Aspergillus niger* 392, 393, 394
 - biotech products 392
 - biotech tools 392
 - *E. coli* 397
 - feed products 392-395
 - food products 392-395
 - genomes 393
 - genome sequences 393, 394
 - hydroxynitrile lyase 397
 - *Mortierella alpina* 392, 395
 - nutritional ingredients 392–395
 - pharmaceuticals and fine chemicals 392, 395–398
 - antibiotics 395
 - cephalixin 396
 - chiral intermediates 395, 396
 - gene therapy products 395
 - recombinant proteins 395
 - vaccines 395
 - (R)-2-chloromandelic acid 397
 - specialty chemicals 389 ff.
 - sport drink 393, 394
 - DuPont 6, 38, 58, 209, 215, 378, 398, 430
 - APEX 176
 - collaboration with partners
 - bio-based technology 178
 - biorefinery 179
 - external companies 177
 - government laboratories 177
 - internal functions 177
 - nanotechnology for the soldier 179
 - polymerization in carbon dioxide 178
 - replacement of chlorofluorocarbons 179
 - small startups 177
 - sulfonylurea herbicides 180
 - universities 177
 - US government 179
 - drawing upon many sciences
 - pathogen screening 181
 - single wall carbon nanotubes 182
 - Sorona polymer 182
 - emerging sciences and technologies 173
 - future developments 183
 - applications in other markets 183
 - digital ink technology 183
 - platform building 183
 - sulfonylurea technology platform 183
 - growth platforms 173
 - growth through innovation 173 ff.
 - history 173
 - inbound marketing 175
 - innovation challenges 173, 174
 - innovation framework 175
 - innovation process 175
 - Learning Histories 175
 - Open Innovation 177
 - Rapid Value Assessment Tool 176
 - RVA 176
 - *see also* Rapid Value Assessment Tool
 - Top 75 107, 176
 - Traction Index 176, 177
 - DuPont Qualicon 181
 - Dynamit Nobel 404
 - DyStar 404
- e**
- Eastern Europe 4, 145, 216, 221, 302
 - Eastman 297
 - Emerging markets 3, 100, 247
 - Emerging markets evaluation framework 104
 - Engineering 257
 - Enterprise Resource Planning 302
 - *see also* ERP, IT
 - Entrepreneurship 109
 - Environmental health and safety rules 55
 - Equity markets 419 ff.
 - *see also* Capital markets
 - Eras of the chemical industry 7
 - ERP 302, 307
 - Ethane 69, 73 ff., 82, 86, 207
 - Ethanol 376, 379, 380
 - Ethylene 6, 64, 73 ff., 81, 84, 86, 202, 207
 - EuropaBio 383
 - Europe 56, 137, 228, 399
 - *see also* Eastern Europe, Western Europe
 - European Chemicals Agency 155
 - Evans, Richard 335
 - Exports 81, 203
 - ExxonMobil 6, 83, 207, 211, 213, 215
- f**
- Feedstock 57, 65, 79 ff., 201 ff.
 - bio-based feedstock 206, 208
 - drivers of price volatility 201 ff.
 - feedstock access 85, 206
 - feedstock advantage 87, 206
 - feedstock cost 79
 - feedstock cost advantage 85

- feedstock disadvantage 81
- feedstock price 55, 60, 71, 201 ff.
- feedstock price advantage 79, 203
- feedstock price increases 201
- feedstock price volatility 14 ff., 201 ff.
 - asset restructuring 212
 - fleximizing 211
 - hedging 209, 210
 - layered volatility effects 205
 - looking for advantage 212
 - margin spikes 202
 - minimizing profit impact 201
 - natural gas prices 203
 - optimizing contracts 209, 210
 - price spikes 202, 203, 205, 206
- Ferguson, James 44
- Financial investors 403 ff.
- Financial markets 424
 - *see also* Capital markets
- Financial sponsors 419, 421, 424, 425
 - *see also* Private equity investors
- Fine chemicals 16, 17
- Fire protection fluid 163
- Focus 30, 109
- Ford 330
- Foresight 60, 102
- Forward integration 86
- Fudan University 436
- Full cost 66 ff.
- Full cost curve 66
- Full cost economics 64
- Functional excellence 54, 60, 215, 221, 223, 241, 283
- Functional silos 289

g

- Gas-to-liquid *see* GTL
- GE Advanced Materials 317
- GE Plastics 434
- Genencor International 58, 378, 380, 398
- Geographic expansion 87
- Gerstner, Lou 318
- Givaudan 378
- Global food demand *see* Agribusiness
- Global sourcing 216, 217
- Globalization 38, 100, 142, 152, 216, 244
 - global companies 7
 - global processes 302
 - global production networks 229, 241, 246, 253, 247
 - global structures 54
 - global supply chains 253
- Goldman Sachs 413

- Greenfield expansion 87
- GTL 73, 83, 84, 207

h

- Halcon International 167
- Heilmeier, George 44
- Henkel Technologies 434
- Herfindahl Index 6
- Hexion Specialty Chemicals 101
- Hoechst 7, 260, 404
- Hong Kong 443
- Hüls 260
- Huntsman Polyurethanes 445
- Hybrids 7, 58

i

- IBM 318
- ICI 97
- Image of chemical industry 359
 - *see also* Public perception of the chemical industry
- IMCD 150
- Incumbents 56, 66
- India 56, 69, 80, 145, 216, 221, 241, 262, 302
 - intellectual property rights 245
 - patent protection 245
- Industrial gases industry 2, 137 ff.
 - capital investments 144
 - capital productivity 141, 144
 - consolidation 142
 - cost reduction levers 143
 - cost structure 144
 - energy efficiency improvements 143
 - financial performance 140
 - focus on the customer 142
 - geographic spread 137
 - growth 141, 142
 - growth opportunities 137
 - advanced applications development 146
 - electronics 45, 137, 146, 147
 - emerging markets 137, 145
 - healthcare 45, 137, 146, 147
 - hydrogen-based fuel 45, 147
 - new business models 45, 137, 146, 147
 - value-adding services 45, 147
 - healthcare 142
 - *see also* Industrial Gases Industry, growth opportunities
 - history 141–143
 - industry characteristics 138
 - capital intensity 138
 - customer contracts 138
 - customer relationships 138

- customer size 138
- distribution 138
- entry barriers 138
- regional footholds 138
- technical know-how requirements 138
- industry reinventing itself 137 ff., 141, 142
- innovation 137
- key players 138
- main products 137
- Mergers and Acquisitions 142
- operational efficiency improvements 143
- price-cost squeeze 143
- profitability 140
- revenues 137
- revenues of major players 139
- technical innovations 141
- wide range of applications 137
- Information Technology 297
- *see also* IT
- Infracor 116, 260
- Infraserv 260
- Initial Public Offerings *see* IPOs
- Innovation 41 ff., 128 ff., 159 ff., 173 ff., 227, 242, 378
 - applications 55
 - balanced portfolio 170
 - barriers to new production processes 244
 - best-connected scientists 164
 - business focus 43, 51
 - customer demands 46, 49
 - customer interaction 162
 - customer needs 162
 - decision-making 168, 169
 - dimensions of innovations 160, 161
 - drivers of innovation 159 ff.
 - creativity 161, 165 ff.
 - knowledge 161 ff.
 - perseverance 161, 168 ff.
 - external scientific advisors 164
 - functional silos 161
 - growth through innovation 173 ff.
 - impact of chemical innovations on industry 41
 - innovation engine 41, 42, 51, 52
 - innovation rates 97
 - intellectual property protection 45
 - interdisciplinary breakthroughs 159, 165 ff.
 - interdisciplinary problem-solving 166
 - measures to stimulate innovation 170
 - milestone plans 168
 - new technologies 55, 74, 83, 84, 243
 - Nobel prizes in chemistry 166
 - organizing for innovation 170, 172
 - partnership models 178
 - patent coverage 46
 - process innovation 254
 - product innovation 55, 60
 - project management 168
 - relationships 50
 - revitalizing innovation 159 ff.
 - scientific idea competitions 166
 - serendipity 168
 - service innovation 55, 60
 - sources of innovation 106
 - specialization stifling creativity 165
 - state-of-the-art knowledge 164
 - value chain positions 50
 - value from innovation 55
 - *see also* Biotechnology, innovation
- Insight 60, 102
- Integrated petrochemical site 444
- Integrated sites *see* BASF, Verbund
- Integration management 59
- Inter-regional chemicals trade 4
- Internal Rate of Return 417
- Investment decisions 17, 63, 71, 72
- Investment timing 17, 63, 64, 67
- Invisible hand 63, 66, 67
- Iogen 379
- IPOs 419
- IPS *see* Integrated petrochemical site
- IRR *see* Internal Rate of Return
- IT 297 ff.
 - cost benchmark 297
 - cost management 297
 - CRM 298, 305 ff.
 - business impact 306
 - careful platform and provider selection 306, 307
 - clear focus 306
 - customer-specific products 305
 - customer-specific services 305
 - early failures 305
 - implementation success factors 306
 - key success factors 308
 - IT demand management 308
 - project portfolio management 308
 - value management 308
 - pay-as-you-go 308
 - pay-as-you-go strategy 306
 - satisfaction level 306
 - drivers of IT-enabled improvements 298
 - ERP harmonization 302 ff.
 - business processes 303
 - geographies 303

- implementation constraints and enablers 304
- organizational ownership 304
- organizations 303
- value creation potential 304
- expansion IT 298
- global solutions 298
- infrastructure costs 298
- infrastructure management 299 ff.
- investments 297, 298
- management 298
- operational IT 298
- organization 298
- priorities 298
- service standardization 301
- single instance ERP 303
- strategic elements of infrastructure management 299, 300
 - clear performance imperatives 300
 - consolidation of infrastructure activities 301
 - consolidation of service offerings 301
 - cost accountability 302
 - outsourcing strategy 302

j

- Janssen, Emmanuel 344
- Japan 228, 399, 441
- Jebsen & Co. 442
- Joint ventures 56, 82, 83, 85, 87, 88

k

- Key drivers of regional competitiveness 88
- Key performance indicators 222, 237
- Kimberly-Clark 318
- KKR 412
- Klasen-Memmer, Melanie 43
- Knowledge management 241, 254
- Koch Industries 211
- KPIs 248, 292
 - *see also* Key performance indicators
- Kraton Polymers 412, 420

l

- Labor productivity 228, 246, 249
- Lactic acid 209, 378, 398
- Lanxess 7
- LBOs 403 ff., 419 ff., 425
- Lean management 105
- Lean operations *see* Operations
- Lehmann, Otto 44
- Leveraged buyouts 403 ff.
 - *see also* LBOs

- Life sciences 7, 131, 390
- Linde 138, 139, 143, 147, 334
- Liquefied natural gas 73, 83, 84, 204
- LNG 73, 84
 - *see also* Liquefied natural gas
- Logistics 218, 248, 257
- Lonza 398
- Low-cost competitors 227, 244, 262
- Lubrizol 419, 420
- Lyondell 7

m

- M&A 59, 143, 157, 281, 302, 339, 343 ff., 404, 417, 419, 421
 - *see also* Mergers and Acquisitions
- Maintenance 257
- Manufacturing regions
 - Asia 4, 6
 - Europe 4
 - North America 4, 6
 - Western Europe 6
- Marginal producer 71
- Massachusetts General Hospital 179
- Massachusetts Institute of Technology 178
- Matlin Patterson 419
- Maturity 7
- Maxygen 398
- Merck
 - liquid crystal displays 42
 - liquid crystals 42 ff.
 - active patent strategy 43, 45
 - best intellects 44, 50, 51
 - customer-focused approach 44, 46
 - flatscreen displays 49
 - Maged A. Osman' patent 46
 - market 45
 - milestones in development 48
 - multidomain vertical alignment 46
 - MVA 47
 - staying power 43, 44
 - timing of internationalization and diversification 44, 50
 - market leader in LC technology 50
- Merck, Heinrich Emanuel 44
- Mergers 59, 109, 110, 327 ff., 343 ff.
- Mergers and Acquisitions 6, 7, 56, 59, 98, 142
 - integration risks 330
 - transaction premium 330
- Messer Griesheim 143, 419
- Messer Group 140
- Metabolix 399
- Methane 69, 84

- Methanex 211, 213
- Methanol 74, 84
- Methanol-to-olefins 74, 84, 208
- (S)-Metolachlor 169
- MG Technologies 404
- Michelin PAX tire system 163
- Michigan State University 179
- Microeconomic rigor 90
- Microelectronics 173
- Middle East 55, 57, 60, 69, 73, 79 ff., 202, 207, 213
- Middle East cracking capacity 86
- Migration of customer industries
 - construction chemicals 100
 - low labor costs 100
 - proximity to customer base 100
 - textile dyes 100
- Millennium 7
- Mindsets and behaviors 187, 227, 249, 275
 - *see also* Operations
 - *see also* Organization, organizational change
- Mitsubishi 6
- MNCs *see* Multinational companies
- MTO 84, 87, 208, 213
 - *see also* Methanol-to-olefins
- Multinational companies 428, 430

- n**
- Nalco Holding 413
- Nanotechnology 173
- Naphtha 81, 82, 84, 201
- National Institute of Standards and Technology (NIST) 179
- National Renewable Energy Laboratory 179
- Natural gas 55, 69, 81, 201, 207
- New entrants 56, 66, 101
- Nexia 399
- North America 55, 57, 73, 75, 137, 228
- Novartis 329, 339
- Noveon 419, 420
- Novozymes 58, 378, 380, 398

- o**
- OEE *see* Overall Equipment Effectiveness
- Olefins 84
- OPEC 202
- Operational efficiency 143
- Operations 227 ff.
 - lean operations 227 ff., 315
 - academy programs 236
 - benefit tracking 238
 - blueprint 233
 - capability-building 227, 234, 237
 - company-specific targets 234
 - core processes 233
 - expert community 234, 236
 - leadership 234, 238
 - mindsets and behaviors 227, 230 ff., 235
 - operating system 230 ff.
 - operational improvement 236
 - operational programs 233
 - performance dialogues 235, 237
 - performance management 230 ff.
 - program management 235, 238
 - training 235, 237
 - transformation 231 ff.
 - operational excellence 227
 - see also* Functional excellence
 - operational improvement 227, 229
 - speed of change 229
 - sustainability 229
 - turnaround 229
 - operational improvement
 - speed of change 233, 236
 - sustainability 233, 236
 - turnaround 233
 - operational programs 233
 - organizational performance
 - metrics 316
 - opportunity-based stretch targets 316
 - value drivers 316
 - sustainable continuous improvements 227
 - transformation 231, 318
 - *see also* Production
- Oracle 317
- Organization 311 ff.
 - alignment of business goals and personal objectives 317
 - corporate transformations 318
 - organizational change 312, 318
 - behavior shifts 318, 321
 - change story 321
 - diagnostic 319
 - gaps 318
 - implementation 319
 - Influence Model 321, 322
 - influencers 321
 - interviews 319, 321
 - mindset shifts 318, 321
 - mindsets and behaviors 318, 321
 - program architecture 321
 - surveys 319, 321

- organizational health management 312
 - organizational performance 311 ff., 317
 - culture 318
 - elements 319, 320
 - fact-based performance reviews 317
 - health management 315 ff.
 - integration of performance management with culture 318
 - performance management 315 ff.
 - profile 319
 - rhythm 317
 - structure 311
 - challenges 313
 - corporate center 312, 314
 - corporate center roles 315
 - governance functions 314
 - global business divisions 312 ff.
 - scope 313
 - shared services 312, 314, 315
 - talent 313
 - Organizational performance 89, 91
 - *see also* Organization
 - Outsourcing 149, 248, 288
 - Overall Equipment Effectiveness 105, 257
- P**
- Peking University 436
 - Performance culture 311, 319
 - Performance products 2
 - Perkin, William Henry 7
 - Petro Canada 379
 - Petrochemical companies 317
 - Petrochemical hub 79
 - Petrochemical industry 203
 - Petrochemicals 64, 79, 201, 205 ff.
 - PetroChina 428
 - Pfizer 344
 - Piramal, Nicolas 101
 - Platinum Equity 404
 - Polymers 2, 8, 378
 - Polyolefins 81, 84, 435
 - eastward shift 79
 - structural changes 79
 - Polypore 413
 - Portfolio expansion 86
 - Portfolios 9, 36, 102, 109
 - portfolio management 27, 103
 - portfolio rationalization 37
 - portfolio strategy 38
 - *see also* Business portfolios, Product portfolios
 - Post-merger integration 327 ff., 343, 344, 346
 - *see also* Post-merger management
 - Post-merger management 59, 327 ff., 343
 - aspirations 329, 330, 331
 - cornerstones of organization 329, 335
 - alignment behind a common goal 335, 336
 - definition of organizational structures 335, 336
 - performance culture 337
 - talent 335, 338
 - corporate culture 109
 - design phase 328, 329, 331
 - execution phase 328
 - form of integration
 - best-of-both 328, 339
 - bolt-on 328, 339
 - takeover 328, 339
 - transformation 328, 339
 - integration plan 329
 - CEO, role of 339
 - communication 338, 340, 341
 - effect controlling 340
 - implementation controlling 340
 - integration manager 339
 - integration office 338, 339
 - master plan 339, 340
 - project management tools 338, 340
 - project organization 338
 - project teams 338, 339
 - steering committee 338
 - integration process 328, 330, 331
 - risks 334
 - securing the business 334
 - standalone potential 331, 334
 - strategic opportunities 331, 334
 - synergies 109
 - targets 330
 - values 330
 - vision 330
 - Praxair 138, 139
 - Price pressure 36
 - Price-cost squeeze 55, 97, 99, 100, 227, 262, 431
 - Private equity 9, 53, 59, 101, 157, 403 ff., 417 ff.
 - available private equity 417
 - value drivers 421
 - Private equity investments
 - value drivers
 - add-on acquisitions 421
 - aligned interests 420, 424
 - capital expenditure 421, 422
 - cash flow acceleration 420, 421

- cycles 423, 424
- entrepreneurial freedom 424, 425
- financial market conditions 420, 423
- growth potential 421
- implementation principles 422
- institutionalized change projects 422
- joint financial goals 425
- management teams 422, 424, 425
- metrics 422
- operations 420
- performance improvements 420, 421
- portfolio streamlining 421
- strategy 420
- sustainable value 423
- working capital management 421, 422
- Private equity investors 403 ff., 417 ff., 425
- attractiveness of chemical sector 406, 418
- capital overhang 406
- challenges for buyout firms 411
 - corporate buyers 411
 - exit strategies 412
 - expected returns 411
 - increased equity stakes 411
 - IPOs 412
 - prices 411
 - secondary buyouts 412
 - sophistication of sellers 411
 - structural impediments 412
 - trade sales 412
- chemical buyout transactions 404, 405
- competitive advantage 414
- competitive edge 410
- core competences 418
- deals 404
- differentiation 414
- distinctive strategies 414
- efficiency improvement 406
- exit strategies 419, 423
- fund performance 407
- holding periods 417, 418
- investor base 417
- key inefficiencies 418
- key success factors 418
- motives of financial investors 410
- multiples 406
- opportunities 418, 419
- returns 417, 419
- risks 417
- specialization 414
- specialties 404
- strategy 414
- transactions 404, 419
- value generation in buyouts 407, 409
 - acquisition 408
 - divestment 409
 - equity value 409
 - holding period 409
 - investor characteristics 408, 410
 - sources of value 408, 410
 - transaction timing 408
 - value capture 409
 - value creation 409
 - value generation mechanisms 408
- value generation levers 407 ff.
 - financial arbitrage 407, 409
 - financial engineering 407
 - improving operational effectiveness 407
 - parenting effect 407
 - primary levers 409
 - reducing agency cost 407
 - strategic repositioning 407
- Procurement *see* Purchasing
- Producer cash cost curve 65, 66
- Product portfolios 7, 9, 16, 27, 28, 31, 99, 244
- Production 241 ff.
 - challenges 246
 - complexity management 241, 253
 - core competences 248, 249
 - cost optimization 241
 - cost reduction 241
 - operational cost optimization 249
 - operational levers 241, 246
 - outlook
 - business models 256
 - globalization 256
 - price 256
 - service 256
 - sourcing 256
 - plant optimization 241, 246, 253
 - production network consolidation 247
 - structural cost optimization 247
 - structural levers 241, 246
 - *see also* Operations
- Production clusters 87
- Productivity management 257
- Profitability 60, 64, 65, 70, 185, 215
- Project execution 92
- Public perception *see* Public perception of the chemical industry
- Public perception of the chemical industry
 - acceptance 366
 - anonymous entity 361
 - associations 360
 - CEFIC 372
 - communication
 - ChemiDrom 371

- Chemie. Element unseres Lebens 369
- Chemie im Dialog 369
- Chemie ist wenn... 369
- current challenges 371
- dialogue programs 371
- events 371
- image campaigns 371, 372
- International Chemistry Olympiad 371
- joint advertising 369
- political campaigns 371
- credibility 363
- current challenges 371
 - ideological barriers 373
 - international comparison 372
 - new technologies 372, 373
- driver of developments in other sectors 364
- economic importance 364
- image and acceptance in Germany
 - better-educated young people 362 ff.
 - cross-industry comparison 362
 - decision makers 362 ff.
- image dynamic 368
- image formation
 - collective consciousness 361
 - dramatic events 362
 - economic environment 362
 - social developments 361
 - social environment 361
 - socio-political environment 362
- individual benefits 365
- key images 360
- long-term trend 367
- maximum trust 367
- minimum trust 367
- plant safety 365
- positive basic trend 367
- product safety 365
- responsibility 365
- restructuring 364
- significance 359
- skepticism 366
- social responsibility 365
- stock market slumps 364
- strict controls 366
- structure 359
- trustworthiness 367
- value of good image 361
 - expenditure on political issues 361
 - market performance 361
 - recruitment costs 361
- Purchasing 185 ff., 215 ff.
 - behavioral change 186 ff., 221
 - alignment of goals 190
 - management endorsement 190
 - time commitment 190
- building capabilities 221
 - analytical skills 221
 - Centers of Expertise 221
 - implementation tracking skills 221
 - leadership skills 221
 - skill set 221
 - supplier qualification know-how 221
 - train-the-trainer approach 221
- business plans 220
- commodity strategies 187
- communication 221
- corporate services 215
- cross-functional teams 220
- diagnostic 186
- entitlement pricing 218
- feedstock 215
- impact on corporate goals 188
- interaction with other functions 187
- levers 215, 220
 - aggregation of volumes 215, 216
 - collaboration with third parties 216
 - commonality 216
 - cross-functional knowledge 219
 - input changes 215, 217, 218
 - process improvement 215, 218
 - simplification 218
 - standardization 215
 - substitution 218
- logistics 215, 218
- low-cost suppliers 216, 219
- maintenance, repair, and operations 185
- mission statements 187, 188
- MRO 215
 - see also* maintenance, repair and operations
- negotiations 218
- next horizon
 - change management 224
 - globalization impact 224
 - leveraging supplier network 224
 - make versus buy 224
- operating practices 221
- organizational buy-in 220
- organizational structure 221
 - center-led purchasing function 221, 223
 - cross-company categories 223
 - cross-functional mechanisms 221, 223
 - global network 224
 - skills and capabilities 223

- performance measurement and management systems 186 ff., 219, 222
 - controlling principles 196
 - hardwiring savings 198
 - performance information 196
 - performance reviews 198
 - reduction of renegade buying 199
 - restricted spending authority 198
 - performance transformation programs 186 ff.
 - problem-solving tools 221
 - project teams 188
 - purchasing function 186
 - purchasing performance 185 ff., 219
 - purchasing power 215, 216
 - raw materials 185, 215
 - renegade buying 186, 199
 - services 185
 - standardization 190
 - state-of-the-art tools 187
 - strategic opportunities 215, 219
 - strategic sourcing 187
 - sustainable purchasing transformations 185 ff., 220
 - transactional procurement 187
 - value creation process 186 ff., 191 ff.
 - volume leverage 186
 - *see also* Behavioral change
- q**
- Qatar 83
 - QHSE *see* Quality, health, safety, and environment
 - Quality, health, safety, and environment 149
- r**
- Raytheon Co. 179
 - R&D 50, 51, 107, 211, 390, 433
 - REACH 155
 - Recapitalizations 419
 - Reinvestment economics 66, 69 ff.
 - Requests for quotations 216
 - Research and development, industry-overlapping transfer 41
 - *see also* R&D
 - Restructuring 262
 - Return on invested capital 27, 30 ff., 281
 - Return on sales 269
 - Return to shareholders 12
 - *see also* Total returns to shareholders
 - Revenue advantage 269 ff.
 - *see also* Sales and marketing
 - Revenue capability 275
 - RFQs *see* Requests for quotations
 - Rhône-Poulenc 7
 - Rhodia 7, 101
 - Ripplewood 412, 420
 - Rockwood 404
 - Rockwood Specialties 101
 - ROIC 27, 30 ff., 281, 311
 - *see also* Return on invested capital
 - ROS *see* Return on sales
- s**
- Safety stock 218
 - Sales and marketing 106, 269 ff.
 - capability building agenda 275
 - commercial system 270, 275
 - capability-building agenda 278
 - commercial toolkit 277
 - mindsets and behaviors 278
 - performance expectations 277
 - program design 277
 - commercial toolkit 275
 - customer interface model 273
 - customer needs 272
 - customer segmentation 271
 - differentiation 271, 273
 - go-to-market value delivery systems 270 ff., 277
 - mindsets and behaviors 275
 - no-frills strategy 271
 - performance design 275
 - performance expectations 275
 - performance management 275
 - pricing excellence 274, 275
 - profit potential 272
 - target customer identification 272
 - value proposition design 272
 - value-added strategy 271
 - volume focus 272
 - Sandoz 329
 - Sanofi-Aventis 7
 - SAP 302, 307
 - Sasol 83
 - Saudi Arabia 207, 213
 - Schulman 105
 - SCM 302
 - *see also* Supply chain management
 - Shanghai Chemical Industry Park 437
 - Shareholder returns 20, 21, 28, 38
 - Shareholder value 1, 10, 27, 29, 35
 - Shareholder value orientation 11 ff.
 - advanced shareholder value orientation 11, 19, 22, 26
 - Cash-Flow-at-Risk model 23

- financial flexibility 22
- financing policies 22, 26
- investor relations 24 ff.
- capital market diagnostic 19
- value creation aspirations 22
- Shareholder returns *see* Total returns to shareholders
- Shell 6, 83, 208, 211, 213, 379, 398, 430, 435
- Siebel 307
- Simon, David 318
- Sino-German Research and Development Fund 447
- Sinopec 428, 437, 445, 448
- Site services 248
- Site services and infrastructure 257 ff.
 - best owners 264
 - bundling 258
 - changes in organization 258
 - core activities 257, 267
 - customer orientation 265
 - dedicated service units 257, 259
 - divestment 263
 - driver of manufacturing productivity 257
 - external customers 258, 260
 - external growth 263, 267
 - external providers 259
 - flexibility 266
 - freedom of contract 259, 260
 - growing selectively 264
 - improving performance 264
 - increasing competitiveness 262
 - integrated sites 258
 - IT systems 261
 - market mechanisms 260, 261
 - multi-user sites 116, 259, 261
 - ownership changes 258, 259
 - performance improvement
 - operational 266
 - performance management system 267
 - structural 266
 - plant effectiveness 257
 - separate company 259
 - service contracts 260
 - service mentality 258, 260
 - service units 261
 - transition 259, 261
- SKW Trostberg 109, 110
- Smith, Darwin E. 318
- SmithKline 337
- Solutia 343 ff.
- Solvay 344
- South East Asia 3
- Specialties 313
 - *see also* Specialty chemicals
- Specialty chemicals 7, 9, 28, 32 ff., 43, 95 ff., 109, 241, 244
 - acquisitions 113
 - business models 103
 - changing industry landscape 99, 101
 - commoditization 97
 - geographic demand shift 99
 - growth 97, 113
 - key strategic levers 95
 - emerging markets 102, 103
 - rediscover innovation 102, 106
 - revisit strategy 102
 - top-class operations 102, 105
 - upgrade performance management 102, 107
 - market 99
 - maturing demand 99
 - overview 95-100
 - profitability 99
 - sales 96
- Specialty companies 60, 95 ff., 109 ff., 332
 - leading positions 95
 - superior operational performance 95
 - value drivers 35
- Specialty gases 137
- Specialty products 2
- Stage-gates 107, 169, 192
- Standardization 190
- Stranded gas 55, 60, 69, 74, 81, 85, 207
- Strategic choices 28, 53
- Strategic headroom 60
- Succinic acid 209
- Südzucker 380
- Sun Microsystems 303, 317
- Super hydrophobic polymer surfaces 162
- Supply chain 218, 246
- Supply chain management 241, 281 ff.
 - asset utilization 282
 - complexity management 287
 - cross-functional planning and execution 283
 - cultural change 281, 294
 - designing top-performing SCM 290
 - differentiated models 284
 - distribution management 284
 - end-to-end integration 284
 - forecasting 286
 - functional excellence 283
 - improved service levels 281, 282
 - improvement program management 294
 - ambitious targets 294

- continuous improvement 294
 - sustainability 294
 - systematic approach 294
 - information flows 283
 - integrated planning and execution 284
 - inventories 253
 - inventory levels 282
 - inventory management 284
 - key elements 283, 284
 - distribution management 288
 - end-to-end integration 289
 - integrated planning and execution 289
 - order and demand management 286
 - production management 287
 - supply management 288
 - key success factors 290 ff.
 - alignment with business strategy 290, 291
 - carefully designed performance management system 292
 - coordinated decision-making 292
 - cross-functional interfaces 292
 - detailed approaches 293
 - inventory 292
 - priority of process over IT 293
 - sophisticated mathematics 293
 - tailored organization structure 293
 - transparency of performance 290
 - lead time 254
 - lower operating costs 281, 282
 - materials flows 283
 - optimal lot sizes 254
 - order and demand management 284
 - order management 284
 - overarching capabilities 283
 - production management 284
 - production network rationalization 287
 - production scheduling 287
 - replenishment points 254
 - safety inventories 254
 - service level management 284
 - skill change 281, 294
 - strategic lever 281
 - supply management 284
 - total cost optimization 287
 - Supply-demand balance 75, 202, 205, 423
 - Surface Specialties 343 ff., 419
 - *see also* UCB
 - Sustainable competitive advantage 270
 - Synergies 327, 330
 - corporate center 333
 - management team 333
 - marketing and sales 333
 - production 333
 - purchasing 333
 - synergy potentials 332, 333
 - technology 333
 - Syngenta 132, 134, 169
 - Synthetic gases 137
- t**
- Taiwan 443
 - Taiyo Nippon Sanso 140
 - TCO 191, 194, 288
 - *see also* Total cost of ownership
 - TCO optimization levers 191
 - Technology management 241, 254
 - Technology Platform on Sustainable Chemistry 399, 400
 - Texas Pacific Group 412, 420
 - Total 6, 7, 213, 398
 - Total cost of ownership 186, 191, 194, 288
 - Total Productive Maintenance 266
 - Total returns to shareholders 30 ff., 53, 327
 - TotalFinaElf 7
 - TPM *see* Total Productive Maintenance
 - Trade flows 4
 - TRS 30 ff., 53, 54, 311
 - *see also* Total returns to shareholders
 - Tsinghua University 436
 - Turumi, Kazuaki 43
- u**
- UCB 59, 343 ff., 419
 - bio-pharmaceuticals 343, 344
 - films 343
 - focus on specialty products 344
 - formation of Surface Specialties 346 ff.
 - appointments 350
 - aspiration-setting 349
 - communication 348
 - fairness, transparency, and respect 348
 - focus on people 348
 - improvement initiatives 351
 - information 347
 - integration structure 348
 - management structure 348
 - measuring the impact 352
 - redesign 349
 - vision 349
 - history 344-346
 - innovation and globalization 343, 344
 - integration of UCB Pharma and Celltech
 - priorities 355
 - results 355

- ringfencing 355
 - values 355
 - vision 355
 - zero-based approach 355
 - international expansion 344
 - Keppra 345, 353
 - key learnings 356
 - pharmaceutical products 344
 - pharmaceuticals 343
 - specialty chemicals 343
 - Zyrtec 345
 - *see also* Union Chimique Belge
 - UCB Chemical 344
 - UCB Films 344
 - UCB Pharma 344
 - Union Carbide 7
 - Union Chimique Belge 343 ff.
 - United States 399
 - *see also* North America
 - *see also* USA
 - Univar 150
 - University of North Carolina 178
 - University of Texas 182
 - US Army 179
 - US Department of Energy (DOE) 179
 - US government 179
 - USA 56
 - *see also* North America
 - *see also* United States
 - Utilities 257
- v**
- Value chain 83, 195, 218, 246, 248, 270, 271, 283
 - Value creation 27 ff., 45, 90, 109, 149, 186, 215, 228, 241, 248, 327, 333, 346, 403, 421
 - fundamental value 11 ff., 21, 26
 - long-term value creation 11, 22, 24, 26
 - structural drivers 27 ff.
 - value creation potential 326, 329
 - value drivers 15 ff., 56, 331
 - Value drivers
 - capital productivity 27, 39
 - margins 27, 39
 - *see also* Private equity investments
 - *see also* Value creation
 - Value proposition 270
 - Value redistribution 56
 - Vantico 419
 - Vasella, Daniel 339
 - VCI 359 ff., 367
 - *see also* Verband der Chemischen Industrie e.V.
 - VEBA 109, 330
 - Vendor-managed inventory 218, 286
 - Verband der Chemischen Industrie e.V.
 - advocacy 359
 - communication of benefits 359
 - representation of chemical companies 359
 - Vertical integration 75
 - VIAG 109, 330
 - VMI 288
 - *see also* Vendor-managed inventory
 - Volatility *see* Feedstock price volatility
 - Volvo 330
- w**
- WACC 65
 - *see also* Weighted average cost of capital
 - Warburg Pincus 413
 - Weighted average cost of capital 63, 65
 - Western Europe 73
 - Western multinationals in Middle East 89
 - White biotechnology *see* Biotechnology
 - Whitesides, George M. 160, 178
 - Win-win solutions 153, 156, 218
 - World Trade Organization 430
 - WTO *see* World Trade Organization
- x**
- Xiaoping, Deng 443
- y**
- Yara 211
- z**
- Zhejiang Longsheng Group 430





















