Index

A/B tests for KontoSensor, 208 Accuracy, 195 Active method development, 15 Active personalization, 61 AdaBoost, 112 Adobe Experience Manager (AEM), 55 Adversarial attack, 89 Advertising cutting down 60-second Ad. 42 facial coding application in, 41-42 optimizing vignette style ad and making culturally relevant, 42 Airbnb, 133 new user bookings, 190-192 AlexNet, 95 Alibaba, 38-39 Allianz Global & Specialty (AGCS), 166 Amazon, 38-39, 131, 215 Amazon's Alexa, 43 Anticipation, 219 APIs, 11 Apple credit card, 89 Apple's Siri, 43 Application programming interfaces (APIs), 135-136 Arc de Triomphe, 219-220 Artificial intelligence (AI), 8, 20-21, 38-39, 80, 92-93, 130, 184, 200 AI and future of sales, 34 AI-based voice assistance, 33 algorithms, 15 applications in modern sales organization, 23 - 34to creating structure to voice assistant generated data, 43-44 marketing, 25-27 sales and management, 30-34 sales development, 27-30 salesforce achieves scalable, 21-23 Artificial neural networks, 86-87 Association rules, 87 Attention mechanism, 99 Autoencoders, 97 Automated machine learning (AutoML), 21 algorithms, 26-28 Automated speech, 92

Automatic text, 12 Automation, 8 Automotive customer insights, changing capabilities in, 11 Automotive industry, transformation of, 9–11

B2B, 70-71 B2C, 70-71 Backpropagation, 94 Bagging technique, 109–112 Beat Cinematch, 104 BellKor's Pragmatic Chaos, 104 Bias. 84 Big Data, 184 analytics, 8 era, 79-80 "Black box" methods, 86-87, 89 Boolean labels, 62-63 Boosting technique, 87, 112 Branches, 108 Business implementation, considerations for, 99 Business intelligence (BI). See also Artificial intelligence (AI), 178 deploying, 178-179 Business-friendly products, 177

Campaigns, 25-26 Car clinics, 11 Cascaded style sheets (CSS), 136, 139 Central processing unit (CPU), 83 Chatbot technology, 43-44, 46, 53 developing chatbot persona "Serena," 45-46 Climax scene, 214 Cloud, 172 Cloudera, 54-55 Clustering approach, 87-88, 206 Codalab, 185 Cold data, leveraging, 174-175 Cold storage, 174 Comma-separated values (CSV file), 141 Commodity, 160 Communicate risks relevant to users, 151-152 Competencies, 163-164 Competitive advantage data protection, 149

designing for privacy in age of digital customer insight, 149-154 individual privacy management, 148 privacy, 149, 154, 156 Competitive data science platform, 185-186 Complementary phenomena, 13 Consent management, 152 Constant learning. See also Deep learning, 15 Consumers' emotions, 39 Content creators, guidance for, 57 data and feature engineering, 57-59 model and performance, 59-60 prediction and feedback, 60-61 Content Health Panel (CHP), 55 Content Management System, 55 Content Marketing. See also Machine-driven content marketing, 52-53 Credit Suisse content marketing business challenge, 53 data science solutions for, 53-63 through time and at Credit Suisse, 52-53 Content Marketing Institute (CMI), 52-53 Content success prediction tool, 57-61 Contextualize data collection, 150-151 Convolutional Neural Networks (CNN), 92, 94-95, 114 Correlation One, 185 Cost function, 94 COVID-19 pandemic, 130 COVID19 Global Forecasting, 185-186 Credit Suisse content marketing business challenge, 53 content marketing through time and at, 52-53 Cross-industry standard process for data mining (CRISP-DM), 188-189 CrowdAI, 185 CrowdANALYTIX, 185 Crowdsourcing Data science, 184, 195 Crowdspring, 133 Culture, 164 Customer centricity, 5-7 communication, 202-204 feedback channels, 10-11 monitor data disclosure, 153-154 service, 125-126 Customer experience management (CEM), 155 marketing perspective, 154-156 Customer insights on "transparency"-myth, 150-152 changing capabilities in automotive customer insights, 11 constant learning, 15 customer centricity as driver for growing importance of, 5-7 decision support through meaningful controls, 152-153

deep learning and, 97-99 designing for privacy in age of digital, 149-154 dynamic capabilities as necessity and opportunity, 8-9 helping customers monitor data disclosure, 153-154 individual privacy management in machine age of. 148 network competencies, 14-15 new data sources. 11-12 new methods, 12-13 new technologies, 12 synthesizing competencies, 13-14 transformation from market research to, 7-8 transformation of automotive industry, 9-11 value generation of customer insights, 15-16 through voice assistants, 43-47 Customer relationship management (CRM), 21-22, 162 Cutting down 60-second Ad, 42

Data

analytics, 178 disconnect, 170-171 generation capabilities, 11 leakage, 193 literacy, 153-154 management, 73, 172 models, 21 sources, 11-12 synthesis, 13 visualizations, 178 warehouses, 176 Data "superpower," realizing, 180-181 Data competitions challenges of, 188-189 Kaggle competition, 190-192 metrics, 193-195 opportunities of, 186-188 Data growth amount of data, 173-175 data disconnect, 170-171 data value equation, 171 deploying business intelligence, 178-179 quality of data, 176-177 realizing data "superpower," 180-181 unlocking value of data, 171-172 usage of data, 178-181 Data protection, 2, 54 as global driver for data-driven innovation, 149 Data revolution, story creates, 211-212 Data science, 89-90 Airbnb's new user bookings, 190-192 competitions procedure in nutshell, 190 crowdsourcing, 183-185 data protection, 54

guidance for content creators, 57-61 Kaggle, 185-186 monitor and optimization, 55-56 personalizing content, 61-63 relevant data, 54-55 solutions for content marketing, 53-63 Data Scraping, 2, 130-131 check legal aspects of scraping data source, 135-136 defining business problem, research question and required data, 132-133 defining scraping logic, 136 emergence of, 129-131 locating and analyzing data source, 133-135 scraping data, 136-141 six-step process, 132 storing and retrieving data, 141 Data value equation, 2, 171-172 Data-driven innovation, 149 Database, 80 models, 11 science, 80 Datathon, 204-205 DBSCAN method, 207 Decision support through meaningful controls, 152-153 Decision tree ensembles bagging, 109-112 boosting technique, 112 empirical illustration of three decision tree ensembles, 112-114 growing single decision tree, 105-109 leveraging ensembles to win \$1 Million Netflix prize, 103-105 real-world case, 105 seeing forest for trees, 114 from tree to forest, 109 Deep Blue, 20 Deep learning, 87 and customer insights, 97-99 neural networks, 89 recommender systems, 98-99 Deep neural networks (DNNs), 2, 92-93 Deep reinforcement learning, 99 Deepfake Detection Challenge, 186 Demography, 41-42 Denial-of-service attack (DoS attack), 135 DenseNet, 95 Density-Based Spatial Clustering of Applications with Noise (DBSCAN), 206 Design thinking methods, 6 DesignCrowd, 133 99Designs, 133 Deutsche Bank, 200, 204 Digital services, 43 Digital technology, 74 Digital transformation, 5-6, 170

Digitalization, 5–6 Disambiguation, 126–127 Doordash, 89 Dramatic arc, 219–220 DrivenData, 185 Dynamic capabilities, 16 as necessity and opportunity, 8–9

E-health, 68 Education, 68 Electronic resource planning (ERP), 162 Email Sentiment Analysis, 30 Emotional arousal, 40 Emotional response benefits of, 40 facial coding application in advertising, 41-42 measuring through facial coding, 39-43 outlook on further applications of facial coding, 42-43 types of emotions to measure, 39-40 validation of facial coding, 40-41 Ensemble, The, 104 Enterprise applications for communities advancement₆₉ Entertainment, 70 Error function, 94 Excel, 215 Experience Data (X-data), 162 collecting, 163 Experience economy, 160-161 activating experience management across organization, 163-164 collecting X-Data, 163 enter age of experience management, 162-163 experience drives economics offering, 160 operational data, 161-162 understanding experiences of stakeholders, 161 Experience management (XM). See also Customer experience management (CEM), 162-163 activating experience management across organization, 163-164 AGCS, 166 applying XM to close experience gap, 165-167 Under Armour, 166-167 competencies, 164 integrating XM into operating cadence of organization, 164-165 JetBlue, 165-166 Experience Management Platform[™], 164

Expressiveness, 41

Face-to-face interview techniques, 43 Facebook, 38–39, 87 Facebook Messenger app, 44–46 Facial coding, 2, 11-12, 38-39 application in advertising, 41-42 benefits of, 40 measuring emotional response through, 39-43 Minority Report become reality, 38-39 outlook on further applications of, 42-43 systems, 40 types of emotions to measure, 39-40 validation of, 40-41 Facial data, 11-12 Facial expression, 40 Feedback, 162 Feedforward networks (FNNs), 93-94 File-based data storage, 141 Financial crisis (2007-2008), 105 FinTechs, 200 5G end of line. 74 mean for collecting customer data, 71-74 new aspects associated with, 66 starting era of, 65-67 state of the art, 67-68 use cases for, 68-71 10-fold cross-validation technique (10-fold CV technique), 85-86 4G. 65 Fourth Industrial Revolution, 21 Framing, 219 Fraud detection, 92 Functional magnetic resonance imaging (fMRI), 212 Future of sales, 34

Gaming, 70 General Data Protection Regulation (GDPR), 135, 148, 201 Generalization, 84 Generative Adversarial Networks (GANs), 95 Genius, 21-22 Global School in Empirical Research Methods (GSERM), 15 Google, 16, 20, 38-39, 87 Google AI system, 130 Google Analytics, 54-55 Google Assistant, 43 Google bot, 130 Google Duplex, 38 Google Inception, 130-131 Google Search Console APIs, 54-55 GoogLeNet, 95 Graphics processing units (GPUs), 88, 92-93 GreenBook Research Industry Trends Report (GRIT Report), 8 Group Method of Data Handling, 92 GrubHub, 89 Gut instinct, 84

Hierarchical clustering algorithm, 87–88 Hold competitions, 184 Hopfield networks, 92 Host competitions, 184 Hosts, 184 Hot data, leveraging, 174–175 "Hovr" technology, 167 Human machine interfaces (HMI), 11, 16 Human resources, 122–125 Hyperbolic tangent, 94 Hypertext markup language (HTML), 134 Hypertext transfer protocol (HTTP), 136

Image classification, 94–95 files, 140–141 recognition, 12, 130–131 scraping, 130 Inciting Incident scene, 214 Individual privacy management, 148 Informed consent, 150 Innocentive, 185 Innovative firms, 2 International Data Corporation, 126 Internet, 130 Internet of things (IoT), 21, 66, 151, 170

Javascript, 140–141 JetBlue, 165–166 JSON, 140–141

Kaggle, 185–186, 188 competition, 190–192
Kantar's facial coding system, 41 *KontoSensor*, 2, 200–201 activation and configuration, 201 customer communication, 202–204 Datathon, 204–205 enhancing activation of, 207–208 integrated use cases/functionalities, 201–202 predictive overdraft, 205–207 sample emails sent out by, 203 working on, 208

Language translation, 92 Lead nurturing, 26–27 Lead qualification, 26–27 Lead scoring and prioritization, 27–28 Learning algorithm, 84 evaluating success of, 84–86 Leaves, 108 Lexical diversity, 126 Line charts, 217–218 LinkedIn, 130–131 Logistic Regression, 22 Logistics function, 94 Long Short-term Memory Networks (LSTMs), 96 Long Term Evolution (LTE). See 4G Longitude Problem, 183–184

"Machine age" for customer insights, 6-7 Machine learning (ML), 8, 13, 20-21, 38-39, 63, 80-83, 170, 184 age of, 222 Big Data era, 79-80 call to action. 89-90 ethics. 88-89 evaluating success of learning algorithm, 84-86 stages in learning process, 83-84 types of machine learning algorithms, 86-88 at work, 81-82 Machine-driven content marketing. See also Telemarketing, 2 added value of. 63 Maintenance, 69 Malicious attacks, 89 Market basket analysis, 87 research to customer insights, 7-8 Marketers, 27 Marketing. See also Content Marketing, 25 campaigns, 25-26 lead nurturing and lead qualification, 26-27 perspective customer experience management, 154-156 Measurement error, 84 Median method, 207 Medical diagnosis, 92 Microsoft's Cortana, 43 Minimal viable products (MVPs), 10 Minority Report, 43 Minority Report become reality, 38-39 MobileNet, 95 Modern sales organization AI and future of sales, 34 AI and machine learning, 20-21 AI applications in, 23-34 sales process of, 24 salesforce achieves scalable AI for businesses with data, 21-23 Moneyball (movie), 212-213, 216 Moneyball phenomenon, 81 Music, 218 MySQL server, 141

Naive Bayes, 22 National Academies of Sciences, Engineering, and Medicine (NASEM), 185–186

Natural language analytics, 122-126 customer service, 125-126 human resources, 122-125 Natural language processing (NLP), 2, 22, 96, 120-121 emergence of, 119-120 Natural language understanding (NLU), 120-121 emergence of, 119-120 Net Promoter Score®, 162 Netflix Prize, 103-104 Network competencies, 14-15 Networking, 14 Neural networks, 92-94 architectures and applications, 94-97 autoencoders, 97 CNN and image classification, 94-95 GANs, 95 LSTMs 96 reinforcement learning, 97 RNNs and NLP, 96 transformers, 97 Neuroscience, 218 News aggregation, 92 Next Best Actions, 30-32 Nodes, 93, 108 Numerai, 185

Objective function, 94 Office of Science and Technology Policy (OSTP), 185–186 Operational data (O-data), 161–162 experience data, 162 Organizers, 184 Over-the-air updates (OTA updates), 10 Oxytocin, 212

Pace Productivity Inc, 24 Pacing, 219 Pandora's Box, 80-81 Passive personalization, 61 Pattern discovery, 87 Peloton, 161 Personalizing content, 61-63 data and features, 62-63 model and applications, 63 recommender systems, 61-62 Pipeline generation, 29-30 "Plug-and-play" technology, 163 Poetics, 219 Porsche Case, 9-11 Porsche Passion Report, 14 Predictable Revenue, 24 Prediction models, 53-54 Predictive analytics, 200-201 Predictive forecasting for sales leaders, 32-34 Predictive models, 22
Predictive overdraft, 205–207
Privacy, 148

designing for privacy in age of digital customer
insight, 149–154

as global driver for data-driven innovation, 149

marketing perspective CEM, 154–156
privacy-sensitive information systems, 148

Programmatic advertising, 13
Protecting privacy, 148
Python, 206

Quality of data, 176–177 breaking down data silos, 177 overcoming lack of access, 176–177 Quantitative model, 13 Quantum computing, 12

R programming language, 136-137 Random Forest, 22, 60, 88, 92-93, 109, 112, 114, 207 Random sampling, 85-86 Random-access memory (RAM), 83 Readability, 58 Reading difficulty, 59 Real business applications of natural language analytics, 122-126 Real-time navigation, 10-11 Recommender systems, 61-62, 98-99 Recurrent neural networks (RNNs), 92, 96 Recurring behavior, 206 Regular expressions, 136 Reinforcement learning, 97 Relational database, 133 ReLU activation function, 95 Request for proposal (RFP), 31 ResNet, 95 Revocation, 153 RMySOL, 141 RSelenium, 134 rvest, 134

Sabermetrics, 212
Sales
AI and future of, 34
better decision making with opportunity insights and next best actions, 30–32
development, 25, 27, 30
lead scoring and prioritization, 27–28
and management, 30–34
predictive forecasting for sales leaders using voice assistance, 32–34
prospecting and pipeline generation, 29–30

Salesforce achieves scalable AI for businesses. 21_{-23} structured data 22 unstructured data, 22-23 Salesforce Einstein, 22-23 Salesforces AutoML models, 22 Santander Customer Satisfaction, 185 SAP Analytics Cloud, 173, 179 SAP Business Technology platform, 171, 173 SAP Data Warehouse Cloud, 173, 177, 180 SAP HANA Cloud, 173-175 data tiers in, 175 SAS. 206 Scalable AI for businesses, 21-23 Scraping, 130 Scraping logic, 136 Screen scraping, 130 Search engine optimization (SEO), 53 Search engines, 16 Seekers, 184 Self-driving cars, 92 Sensors, 80 Sentiment analysis, 59, 128 "Serena," developing chatbot persona, 45-46 Shallow learning methods, 114 Sigmoid, 94 Smart home technology, 69 Smart logistics, 69-70 Smart transportation, 69-70 Soap-operas, 53 Social media, 11-12, 20, 55 Sociological models, 16 Somatic marker hypothesis, 39 Sponsors, 184 Stakeholders, experiences of, 161 Statistical modeling, 81-82 Storytelling, 212-213 Amazon, 215 anticipation, 219 Arc de Triumph, 219-220 back to data, 213 constructing, 215-217 flip and ramp, 221–222 framing, 219 getting help out of weed pile, 214-215 honing slide and chart, 215 line charts, 217-218 music, 218 neuroscience, 218 pacing, 219 from past tense to right now, 222-223 putting together big moment without designer or Brad Pitt, 221 starting with key scenes, 213-214 story creates data revolution, 211-212 Structured data, 22 Superpower, 172

Supervised learning, 86–87 Support vector machines (SVMs), 86–88, 92–93 Synthesizing competencies, 13–14 Sys. sleep(x) function, 137

T-statistics, 15 Technological and organizational measures, 149 Technology transformations, 10 Telemarketing. See also Content Marketing; Machine-driven content marketing conversions, predicting, 105 decision tree, 108 Telemedicine, 68 Text analytics, 2 Text classification models, 15 Text Mining, 120-121 emergence of, 119-120 project considerations, 126-128 technologies, 128 Text processing methods, 128 The Furrow (agricultural magazine), 52 "Time Series" method, 206 Time-consuming factor analysis, 5-6 Time-wise fraction of article read, 57 Transformation process, 2 Transformer(s), 97 transformer-based language models, 114 TransmogrifAI, 22, 33 Transmogrification, 22 "Transparency"-myth, 150-152 communicate risks relevant to users, 151-152 contextualize data collection, 150-151 TripAdvisor, 131 TunedIT, 185 Turing, Alan, 20 Turing machine, 20 Turning Point scene, 214 Turning raw sensory information, 83 Twitter, 130-131

Uber, 9–10, 161 Under Armour, 166–167 Uniform resource locators (URLs), 134–135 Units, 93 Universal Mobile Telecommunications System (UMTS), 65 Unstructured data, 22–23 Use cases for 5G, 68, 70–71 applications at national or regional scale, 69 enterprise applications for advancement of communities, 69 entertainment, 70 personal, home, and social applications, 68–69 smart transportation and smart logistics, 69–70 Use-oriented development processes, 6

Valence, 39-41 Validation of facial coding, 40-41 Value generation of customer insights, 15-16 Variable cost per contact (VCPC), 125 VGG, 95 Visualization tools, 13 Vodafone, 69 Voice assistance, 32, 34, 39 challenges and benefits of using voice assistants in research, 44 designing voice driven chatbot, 44-45 developing chatbot persona "Serena," 45-46 Einstein voice assistant smart speaker, 33 generating customer insights through, 43-47 outlook on further applications of, 46-47 utilizing conversational AI to create structure to voice assistant generated data, 43-44 Voice coding, 2 Voice driven chatbot, designing, 44-45

Weather sensors, 80 Web scraping, 130 World Health Organization (WHO), 185–186

XGBoost, 60, 63, 112, 114 XML, 140–141 XML path language (XPath), 136, 138

Yelp, 89

ZFNet, 95 ZINDI, 185