

# Index

- Aarhus Convention, 200
- Academics, 183
- Active participation, 194
- Activity (A), 166–167
- Ad hoc governance, 203
- Adaptive capacity, 329
- Advanced metering infrastructure (AMI), 302
  - gained benefits, 310–313
  - implementation assumption, 306
  - method, 305–313
  - price reference and cost calculation, 306–310
  - result, 313–314
  - and smart city, 302–305
  - study approach, 305–306
- Agile approach, 94
- Agile project management, 142
- Agrarian society. *See* Society 2.0
- Agriculture and food area, 241–243
- Alternative data, 288
- Amazon. com, 289
- Amsterdam Pact, 199
- Anholt–Ipsos City Brands Index (2020), 164, 167
- Apple, 239
- Application Programming Interfaces (APIs), 50, 241, 291
- Apps, 89
- Artificial Intelligence (AI), 3, 14, 38, 87, 220, 254, 332
  - challenges regarding use of, 260–266
- Asilo, 202
- Assisted living (AL), 271
- Attitudes, 265
- Atuservicio.uy application, 237–238
- Augmented Reality, 3, 261
- Australian Centre for International Agricultural Research, 243
- Automated technologies, 261
- Automatic coding, 255
- Automotive companies
  - digital transformation as identity quest for, 139–143
  - transformation of, 141–143
- Automotive sector, 141
- Autonomous vehicles (AVs), 254
- Awareness-raising, 296
- BA Obras, 243
- Barcelona’s Telecare Service, 76–77
  - case of, 77–79
  - system, 77
- BBVA API market in Spain, 241
- Beneficial AI, 271, 276
- Benefit–cost ratio (BCR), 305
- Bibliometric analysis, 255
- Bibliometrix software, 65
- Biblioshiny, 65
- Big data, 14, 38, 51, 69, 87, 286
  - analytics, 261
  - capture and analysis, 293
  - characteristics, 286–287
  - sources, 287
  - tools, 288
  - types, 287
  - use, 288–292
- Billing and meter reading fee omission (BMR-FO), 311
- Blockchain, 14, 38, 261
  - networks, 3
- Blog, 163
- Bloom Consulting Digital City Index (2020), 164

- Bosco della Partecipanza di Trino, 189
- Building Information Modelling (BIM), 94
- Bus Checker, 239
- Bus Times, 239
- Business intelligence (BI), 340
- Business models, 63
- Buzz marketing, 163
- By-design resiliency, 44
- “By-design resilient system”, 45
- Car dominance, 112
- Car-to-Car communication (C2C communication), 140
- Car-to-X communication (C2X communication), 140
- Car. Software Org* software unit, 146
- Card Detection System, 290
- Carmakers as question of organizational identity, digital transformation of, 143–147
- Cars, 142
- Cause–effect issues, 260
- CED-scheme, 132
- Centre for Deliberation, The, 91
- Centre of Regional Science, 89
- Change acceptance zone, 138
- Change management, 195
- Chipping containers, 293–294
- Circular economy, 200
- Cities and regions area, 238–240
- Citizens engagement, 42
- City Brand Hexagon, 167  
composition of, 169
- City branding, 167–170  
data and methods, 162–167  
digital marketing communication and, 172–176  
digital transformation of city branding through new forms of marketing communication, 161–163  
results, 167  
tools and importance of digital marketing communication in city branding, 170–172
- City Councilors on smart city approach, 97–101
- City data management platforms (CDMP), 51
- City Hall  
consultant, 93  
employees on smart city approach, 97–101  
website, 94
- City Knowledge Management Platform (CKMP), 51–52
- City KPIs, 40, 44
- City layer, 89
- City management process, 42
- City marketing, 160
- City of Poznan, The, 92–97
- City simulation software (CSS), 345
- Citymapper, 239
- Civic Budgets, 88
- Civic eState, 204
- Civic participation concepts, 86, 98  
form of, 97
- Civic profitability, 202
- Civic Tech, 220–221
- Civic technology, 237
- Climate change, 221
- Climate crises, 184
- “100 Climate-neutral and smart cities” project, 100
- Cloud computing, 3, 14, 38, 87
- Co-design process of social policies, 6
- CocoaSoils, 242
- Codeando Mexico, 244
- CogniCity OSS, 235
- Collaborative intelligence, 220
- Collective intelligence, 41, 220
- Collective process of understanding and negotiation, organizational identity as, 136–137
- Common good, 193

- Commons, 188
  - evolution of methodological approaches for, 198–199
  - experience of commons in Naples, 199–204
  - HUL approach as “third way”
    - in conservation and management strategies, 190–194
  - landscape as living heritage, 188–190
  - multidimensional evaluation
    - methodology for, 204–205
  - tools, 194–197
- Communities, 188–190
- Community Heritage, 189
- Community Led Local Development (CLLD), 200
- Community of relations, 193
- Complex Adaptive Urban Ecosystem, 39
- Complex social value of landscape, 196–197
- Complexity Science, 39
- Computational social sciences, 291
- Conformity check, 341
- Connected, Automated, Shared and Electrified (CASE), 140
- Connected cars, 130
- Connected domain ontologies, examples of, 341–345
- Connected mobility, 140
- Connectivity, 86
- Consumers, 62
- Contact center fee reduction (CC-FR), 311–312
- Context analysis, 255
- Contextual knowledge, 195
- Conventional meter (CM), 306
- Core community, 189
- Core healthcare proposition, 321
- Core Smart City Ontology, 52
- Core technologies for Smart City 5.0, 49
  - knowledge management and ontologies, 51–54
  - MAT, 49–50
  - SI, 54
- Correspondence check, 341
- Cost calculation, 306–310
- Cost-benefit analysis (CBA), 305
- COVID-19, 224
  - impact on development of smart cities dimensions, 24–28
  - pandemic, 27, 38
  - sensitivity maps, 328–330
  - smart cities in context of, 23–24
- Crowdfunding platforms, 3
- Crowdsourcing platforms, 3
- Cultural heritage, 188
  - cultural heritage/landscape, 194
- Cyber-physical system (CPS), 38
- DATA, 237
- Data collaboratives, 220
- Data concentrator unit (DCU), 309
- Data fusion, 287
- Data intelligence, 220
- Data journalism, 289
- Data management, 274
- Data opening, 239
- Data processing module, 46
- Data-capture, 289
- Data-driven technologies, 64
- De-carbonization, 302
- Decentralization, 227, 245, 302
- Decision-making module, 46–48
- Decision-making process, 43, 47, 49, 99, 183
- Deep dive, 139
  - digital transformation of
    - carmakers as question of organizational identity, 143–147
    - managing organizational identity in light of digital transformation, 148–149
    - transformation of established automotive companies, 141–143

- trends of digitalization in mobility and automotive sector, 140–141
- Deep learning, 332
- Deliberative polling, 90
- Deming cycle. *See* Plan-do-check-act cycle (PDCA cycle)
- Design process, 92
- Development Strategy for City of Poznan, 92
- Developmental process, 4
- Digital Communication City Index (DCCI), 167
- Digital communication in cities, 162
- Digital communication of city (DCC), 166
- Digital ecosystem
  - of Smart City 5. 0, 49
  - of smart services, 42
- Digital learning process, 261
- Digital marginalization, 60
- Digital marketing communication in city branding, 172–176
  - tools and importance of, 170–172
- Digital mobile communication, 163
- Digital p2p platform, 48
- Digital Peer-to-Peer Platform, 45
- Digital performance and progress indicators, 22
- Digital platforms, 69
- Digital technologies, 20, 141–143
  - use of, 21
- Digital transformation, 14, 62–64, 147–148, 220, 319, 321
  - accountable and sustainable healthcare, 320–323
  - bibliometric analysis, 65–68
  - of carmakers as question of organizational identity, 143–147
  - case of “Barcelona’s Telecare Service”, 77–79
  - case of “Smart City Wien”, 76–77
  - changing organizational identities, 137–139
  - of city branding through new forms of marketing communication, 161–163
  - concept of identification, 135–136
  - core attributes, 17
  - COVID-19 pandemic impact on development of smart cities dimensions, 24–28
  - deep dive, 139
  - development of future mobility solutions for smart cities, 130–131
  - digital performance and progress indicators, 22
  - digital transformation impact on individuals and companies, 17–20
  - high-level research model for digital transformation in healthcare, 323
  - identity of individuals and organizations, 131–134
  - as identity quest for automotive companies, 139–143
  - integrated approach to digital healthcare in context of smart cities, 319–320
  - management of smart cities, 69–76
  - managing organizational identity in light of, 148–149
  - methodology, 64–65
  - organizational identity as collective process of understanding and negotiation, 136–137
  - organizational identity stability and dynamics, 134–135
  - overview of, 15
  - phases of digital transformation in smart city domain, 20–22
  - research problem, 68–69
  - of smart cities, 20
  - smart cities, 60–61
  - smart cities in context of COVID-19 pandemic, 23–24

- theoretical considerations on
  - organizational identity, 131
  - Volkswagen Case, 146
- Digital Twin City, 48
- Digital urban ecosystem, 41
- Digitalization, 21–22, 63, 220, 286, 302–303
- Digitization, 14, 21, 28, 63
- Direct benefits, 310–311
- Disaster prevention, 245
  - area, 234–236
- Disruptive technologies, 14, 17
- Diversity, 227
- Domain SC ontologies, 341
  
- E-commerce, 262
- E-services, 89, 220
- East Japan Earthquake and Tsunami
  - in 2011, 235
- Education, 290
- Electronic health record (EHR), 266
- Emergent intelligence (EI), 51, 220, 346
- Employability, 255
- Employee disability (EDI), 278
- Energias de Portugal (EDP), 230
- Energy
  - area, 230–234
  - crises, 184
- Energy-not-served (ENS), 313
- Entrepreneurship, 7
- Environment model, 346
- Environmental harmony, 227
- Equitable design, 183
- EU Urban Agenda, 204
- European cities, 165
  - approach of, 165
- European Commons Assembly (ECA), 200
- European Food Safety Authority (EFSA), 241
- European Union, The, 25
- Evaluation, 182
- Expected waste generation rates, 260
- Experiential marketing, 163
  
- Expert knowledge, 195
- Exposure, 329
  
- Facebook, 165, 167
- Faro Convention, 192
- Federalismo demaniale, 201
- Fifth-generation mobile network, 292
- Finance, 288
  - area, 240–241
- Finnish Transport, 238
- 5G technology, 38
- Fog computing, 14
- Fog Computing, 3
- Formal matching process, 341
- Fourth industrial revolution, 254, 263
- Free and Open Source, 3
- Freedom of information (FOI), 237
- Future jobs, 264
- Future of work, 264
- Future smart cities research
  - dynamics of, 3–5
  - human and social dimension of smart cities revisited, 6
  - indicative initiatives and use cases for, 8
  - strategic footprint of smart cities revisited, 6–7
  
- General SC ontology, 341
- Geographic information systems (GIS), 235
- Geospatial technology, 38
- Global Open Data for Agriculture and Nutrition (GODAN), 241–242
- Golemio, 339
- Google, 239, 291
- Governability for truly smart cities, 183–184
- Governance
  - agenda, 182–183
  - system, 182
- Governments, 263, 288
- GovTech, 220
- Green management, 7

- Hard skills, 265  
 Head-end-system, 305  
 Health monitoring (HM), 271  
 Healthcare, 289, 319  
   area, 236–238  
   innovation in, 321  
   system, 320–321  
 High-level research model for  
   digital transformation in  
   healthcare, 323  
 High-value data, 224  
 High-value datasets, 221  
 Historic urban landscape approach,  
   194–195  
 Holonic approach, 42  
 HUL approach as “third way”  
   in conservation and  
   management strategies,  
   190–194  
 Human AI loop model, 272  
 Human connectivity, 4  
 Human dimension of smart cities, 6  
 Human freedoms, 263  
 Human resources (HR), 262  
 Hunting society. *See* Society 1.0  
  
 ICCROM, 189  
 ICity Rank, 109  
 “Identity gap” concept, 137–138  
 In-depth interviews (IDIs), 86  
 Indian labor market, 261  
 Indigenous Peoples’ and Community  
   Conserved Territories and  
   Areas (ICCAs), 189  
 Indirect benefits, 310–311  
 Individual In-Depth Interviews  
   (IDIs), 97–101  
 Industrial society. *See* Society 3.0  
 Inflation rate, 306  
 Information and communication  
   technologies (ICTs), 38, 60,  
   69, 75, 92, 220, 286  
 Information layer, 89  
 Information Society, 74  
 Information Technologies (IT), 38, 290  
  
 Information technology operations  
   analytics (ITOA), 290  
 Innovation, 194  
   in healthcare, 321  
   management, 69  
 Innovation Resistance Theory (IRT),  
   249  
 Innovative mobility concepts, 140  
 Innovative technologies, 235  
 Instagram, 165, 167  
 Integrated Soil Fertility Management  
   (ISFM), 242  
 Integrated Territorial and Urban  
   Conservation (ITUC), 188  
 Integrated Territorial Investment  
   (ITI), 200  
 Intelligence, 220  
 Intelligent City 1.0, 61  
 Intelligent enterprise service bus  
   (iESB), 40  
 Intelligent environments, 254  
 Intelligent Transportation System  
   (ITS), 94  
 Intensified collective process, 147  
 Interaction (I), 166  
 Interdisciplinary learning, 266  
 Intergovernmental Panel on Climate  
   Change (IPCC), 328  
 Internal rate of return (IRR), 305  
 International development, 288  
 International Institute of Tropical  
   Agriculture (IITA), 242  
 International Organization for  
   Migration, 36  
 Internet of everything, 7  
 Internet of Things (IoT), 14, 38, 56,  
   69, 87, 220, 254, 261  
 Internet-connected devices, 264  
 Italian metropolitan cities, 123  
 Italian Ministry of Infrastructure and  
   Transport (IMIT), 108  
  
 Job, 258  
   marketing changes and challenges,  
   276–278

- Kano's model, 262
- Key Performance Indicators (KPI), 39
- Knowledge, 265
  - layer, 89
  - management, 51–54
  - processing module, 46
- Knowledge graphs for SCs, 336–345
- Labor market, 263
- Landscape
  - as living heritage, 188–190
  - regeneration, 193
- Landscape Observatories, 190
- Latin American Open Data Initiative (ILDA), 237
- Leadership support, 20
- Linux databases, 289
- Linux-based technology, 289
- Living heritage approach, 188–190
- Local communities, 183
- Local governments, 17
- Local Initiatives Centers, 93
- Location Aware Services, 3
- Logistics area, 244
- London Air API, 239
- LoRaWAN, 292
- Lotka's Law, 65
- Machine controls, 263
- Machine learning (ML), 14, 38, 87, 228, 261, 332
- Managed service scheme, 305–306
- Manufacturing, 289
- Mapway, 239
- Marketing and Communication Strategy (2018–2022), 171
- Marketing communication, digital
  - transformation of city branding through new forms of, 161–163
- Matching process, 341
- McKinsey Global Survey, 17
- Media, 289
- Metaverse, 3–4, 7
- Meter data management system (MDMS), 305
- Methodi Ordinatio methodology, 255
- Metropolitan City of Milan (MCMI), 111
- Metropolitan City of Turin (MCTO), 111–112
- Metropolitan public transport system, 121
- Metropolitan Rail System (MRS), 118
- Metropolitan Transport System, 121
- Millennium Sustainability Goals, 192
- Ministry of Agriculture and Rural Affairs (MARA), 243
- Ministry of Foreign Affairs of the Netherlands, 243
- Mobile applications, 171
- Mobile computers, 14
- Mobile tele-service, 79
- Mobility, 141
  - model, 346
- Mobility as a Service (MaaS), 74
- Modeling, 328
- Multi-Agent Technology (MAT), 49–50, 328
- Multidimensional evaluation
  - methodology for commons, 204–205
- Naples, experience of commons in, 199–204
- Napoli Lab, 202–203
- Narrowband IoT (NB-IoT), 292
- National Association of Italian Municipalities (ANCI), 108
- National Emergency Management Agency (BNPB), 236
- National growth strategy, 108
- National Metropolitan Cities Operational Program (NOP), 108
- Negotiation process, 334
- Net present value (NPV), 305
- “Net Zero Carbon Cities” program, 72

- Neural network models, 264
- Neurotechnology, 264
- Next generation technology, 4
- Nonattainment New Source Review (NNSR), 73
- NVivo 12 software, 255, 258
  
- Once-only principle, 224
- One semantic space, 41–42
- Online appointment scheduling system, 94
- Ontologies, 51–54
  - for describing resource supply networks, 333–334
  - ontology-driven knowledge base, 46
  - for SCs, 336–345
- Open banking, 240
- Open data, 220
  - holders, 224
  - literacy, 221
  - open data-driven society, 249
  - and open innovation, 222–224
  - performance expectancy, 228
  - society 5.0, 225–229
  - use-cases, 229–247
- Open Data Management Systems (ODMS), 244
- Open government data (OGD), 221
- Open innovation, 222–224
- Open-source digital platform, 51
- Operating analysis, 340
- Operational agent, 334
- Order agent, 334
- Organizational change, 137
  - process, 143, 148
- Organizational identification, concept of, 135
- Organizational identity, 133, 148
  - changing, 137–139
  - as collective process of understanding and negotiation, 136–137
  - digital transformation of carmakers as question of, 143–147
  - managing organizational identity in light of digital transformation, 148–149
  - stability and dynamics, 134–135
- Organizations, 17, 134
  
- Pandemics, 184, 221
- Papelea, 243
- Partecipanza Agraria di Nonantola, 189
- Patient-centric healthcare, 321–322
- Payback period (PP), 305
- Peer-to-Peer platform (p2p platform), 46, 141
- Penalty function, 335
- Personal agent, 48
- Personalization, 262
- Petabencana. id, 235–236
- Piano Urbano della Mobilità Sostenibile (PUMS), 108
- Pilot projects, 203
- Plan-do-check-act cycle (PDCA cycle), 226–227
- Planning module, 46–48
- Plantwise Global food security program, 242
- PlantwiseKnowledge Bank, 243
- PLN, 302, 305
- Plus One coworking spaces, 93
- PM2.5 particle monitoring, 240
- Policy design, 182–183
  - evaluating policy design in smartness, 184
- Policy transformation, 184
- Popularity (P), 166
- Potential revenue from accelerated customer outage handling (COH-PR), 313
- Potential revenue from better meter abnormality fast detection (MED-PR), 312–313
- Potential revenue from meter reading accuracy improvement (MQI-PR), 312

- Potential revenue from the prevention of clock loss/clock error/ measurement stop (PICE-PR), 313
- Poverty, 221
- Power line carrier (PLC), 306
- Poznan Civic Budget (PBO), 93
- Poznan Supercomputing and Networking Center (PSNC), 92, 100
- Prevention of Significant Deterioration (PSD), 73
- Price reference, 306–310
- Problem solving, 229
- Process automation, 14
- Protective constraints, 194
- Public sector agencies, 17
- Public service area, 243–244
- Public transport authorities, 239
- Publicly available data, 287
  
- Qualitative analysis, 340
- Quantitative analysis, 340
  
- R Bibliometrix package, 65
- Radio frequency (RF), 306
- Real estate, 290
- Real-life data collection, 87
- Real-time data, 236
- Recommendation Systems, 3
- Relationality principle, 191
- Remote activities, 13
- Renewable energy (RE), 302
- Requirements specification step of implementation, 55
- Resilience, 227, 245
  - requirements of smart city 5.0, 42–45
- Resilient (R), 43
- Resilient by design, 43
- Resilient services, 42
- Resource agent, 334
- Resource and demand model (RD model), 50
- Retail, 290
- Retail banking, 290
- Return on investment (ROI), 321–322
- Robo taxis, 130
- Robotics, 69
  - process automation, 261
- Rule-making, 279
  
- Saffron's City Brand Barometer (2020), 164
- SARS-CoV-2 pandemic, 14
- Science and research, 290–291
- Security protocols, 38
- Self-investment and OM scheme, 306
- Semantic check, 341
- Semantic interoperability (SI), 51, 54
- Semantic matching process, 341
- Semantic requirements, 340–341
- Semi-structured data, 287
- Sendai Framework for Disaster Risk Management, 235
- Sensitivity, 329
- Sensor technology, 20
- Sensory devices, 38
- Separate Services, 39–40
- Service design process, 25
- Service lifecycle, 223
- Service Map, 64
- Service oriented architecture (SOA), 40
- Service providers, 183
- Sewer system, 75
- Shared capacity, 188
- Shared mobility, 130
- Short message service (SMS), 75
- 6G Networks, 3
- Skills, 265
- Sloan Digital Sky Survey (SDSS), 290–291
- Slovak cities, approach of, 165
- Slovenia
  - capture and analysis of big data, 293
  - chipping containers, 293–294
  - good practices of smart cities in, 292–298

- smart neighborhood, 297–298
- smart waste management system, 292–293
- tablets in vehicles, 294
- vehicle and container tracking, 294
- waste platform module, 294–297
- Smart cities (SC), 36, 60–61, 87, 89, 105, 181–182, 254, 279–280, 285–286
- AMI and, 302–305
- Amsterdam program, 39
- app, 97
- approach, 88
- big data, 286–292
- city councilors and city hall employees on, 97–101
- concept, 14, 38, 87–90, 106
- COVID-19 pandemic impact on development of smart cities dimensions, 23–28
- Data Platform, 40
- designing policy for, 184–185
- development and concept, 38, 40
- Digital Platform, 40
- element, 50
- good practices of smart cities in Slovenia, 292–298
- integrated approach to digital healthcare in context of, 319–320
- knowledge base, 48
- knowledge base, 52
- ontologies and knowledge graphs for, 336–345
- paradigm, 106
- Poznań app, 99
- services, 38
- solutions, 38
- as urban ecosystem, 43
- Smart Cities 1.0, 88
- Smart Cities 2.0, 61, 88
- Smart Cities 3.0, 88, 98–99
  - methodological approach, 112–116
  - results, 116–121
- smart sustainable mobility and SUMPs in Italian context, 107–112
- Smart citizen in smart city
  - concept of smart city, 87–90
  - deliberation and participation, 90–92
  - individual in-depth interviews, 97–101
  - The City of Poznan, 92–97
- Smart City 4.0 conceptual model, 45
- Smart City 5.0, 41
  - application and future scope, 330–332
  - architecture, 45
  - city challenges, 36
  - core technologies for, 49–54
  - digital urban ecosystem, 41
  - framework for constructing UHVI, 329
  - implementing separate services, 39–40
  - levels of smart city development and implementation, 39
  - ontologies and knowledge graphs for SCs, 336–345
  - requirements, 41–42
- Smart City, 38–39
  - smart city data platform, 40
  - smart city digital platform, 40
  - smart Evropská street as SC testbed of Prague, 345–347
  - smart resource management system, 332–336
  - steps of implementation, 55–56
  - strategic assessment and City KPI, 40
  - sustainability and resiliency requirements, 42–45
  - vulnerability framework, 328–332
- Smart City Ontology (SCO), 52, 54
- Smart City Wien, case of, 76–77
- Smart community, 89
- Smart development, 76
- Smart economy, 26, 89, 93

- Smart energy grid model, 346
- Smart environment, 27, 89, 93
  - layer, 89
- Smart Evropská street as SC testbed of Prague, 345–347
- Smart governance, 25, 90
- Smart grids, 304
- Smart health, 26
- Smart healthy cities, 106
- Smart living, 27, 89
- Smart meter (SM), 302, 304
- Smart Mlaka, 297
- Smart mobility, 28, 89, 94
  - solutions, 130
- Smart neighborhood, 297–298
- Smart Prague ontology, 339–340
  - design principals, 340–341
- Smart production, 142
- Smart Resilient City, 43
- Smart resource management system, 332
  - ontology for describing resource supply networks, 333–334
  - planning process, 335–336
  - software operation logic, 334–335
- Smart services/Personal agent, 48
- Smart sustainable cities, 106
- Smart sustainable development, 188
- Smart sustainable mobility in Italian context, 107–112
- Smart technologies, 260
- Smart transport system, 50
- Smart villages, 291–292
- Smartness, 181–182
  - designing policy for smart cities, 184–185
  - evaluating policy design in, 184
  - governability for truly smart cities, 183–184
  - policy and governance agenda, 182–183
- Social construction, 188
- Social constructionist approach, 133–134
- Social dimension of smart cities, 6
- Social media, 98, 162
  - data, 287
  - platforms, 165–167, 173
- Social networking, 14
- Social networks, 162
- Social process, 138
- Society 1.0, 225
- Society 2.0, 225
- Society 3.0, 225
- Society 5.0, 220, 225–229
  - main features, 226–227
  - origins, 226
- Society of Automotive Engineers (SAE), 140
- Society of imagination. *See* Society 5.0
- Soft skills, 265
- Sports, 291
- State-of-the-art technologies, 148
- Statistical analysis, 330
- Strategic assessment, 40
- Strategic footprint of smart cities
  - revisited, 6
  - entrepreneurship, 7
  - green management, 7
  - limitless innovation, 7
  - sustainable development, 7
  - urban management, 7
- Streaming data, 287
- Street-level data, 236
- Structured data, 287
- Sub-categories, 113
- Super-smart society. *See* Society 5.0
- Sustainability, 227
- Sustainability requirements of Smart City 5.0, 42–45
- Sustainable (S), 43
- Sustainable city development, 42
- Sustainable development, 7, 245
- Sustainable development goals (SDGs), 4, 72, 201, 203
- Sustainable services, 42
- Sustainable Urban Mobility Plan (SUMP), 107
  - in Italian Context, 107–112
  - of MCBO, 117

- Swiss Agency for Development and Cooperation SDC, 243
- Syntax check, 341
- Synthetic population model, 346
- Tablets in vehicles, 294
- Tamper detection officer fee omission (TDO-FO), 311
- Targeting of consumers, 289
- Technical requirements, 340–341
- Technical skills, 262
- Technological accessibility, 60
- Technological advances, 254
- Technological innovation (IT), 262
- Technological model, 63
- Technological systems, 60
- Technology, 254, 256, 289
- Technology Acceptance model (TAM), 249
- Technology layer
  - core elements of, 46
  - data and knowledge processing module, 46
  - planning and decision-making module, 46–48
  - smart services/personal agent, 48
- Technology transfer, 254
  - challenges and solutions related to AI and technologies, 266–271
  - challenges regarding use of AI, 260–266
  - job marketing changes and challenges, 276–278
  - methodologies used in articles, 258
  - methodology, 255
  - results, 255–274
  - smart cities, 279–280
  - solutions, 271–274
  - study sectors, 258–260
- Technology–Organization–Environment framework (TOE), 249
- Tertiary communication, 162
- Thematic Objectives (TO), 200
- TOGETHER 2025 strategy, 246
- Tools of digital marketing
  - communication in city branding, 170–172
- Transformation, 182
- Transport for London (TfL), 238
- Travel apps, 239
- Trends, 265
- Twitter, 165, 167, 239, 291
- UEFA European Football Championship EURO 2012, 91
- UN Sustainable Development Goals, 4
- UNESCO approach, 194, 196
- Unified Medical Information Analytical System, 76
- Unified Theory of Acceptance and Use of Technology (UTAUT), 249
- United Nations statistics, 36
- United States of América (EUA), 73
- Unstructured data, 287
- Urban Agenda, 199
- Urban Civic Communities, 203
- Urban civic uses, 204
- Urban Digital Ecosystem (UDE), 43, 45
- Urban management, 7
- Urban Planning and Housing Code, 73
- Urban planning process, 27
- Use-cases, 229
  - agriculture and food area, 241–243
  - cities and regions area, 238–240
  - disaster prevention area, 234–236
  - energy area, 230–234
  - finance area, 240–241
  - healthcare area, 236–238
  - logistics area, 244
  - public service area, 243–244
- User interface (UI), 333
- Valle d’Ampezzo, 189
- Value creation, 229

- Value-based healthcare, 321–322
- Vehicle and container tracking, 294
- Viral marketing, 163
- Virality (V), 166
- Virtual agent (VA), 334
- Virtual reality (VR), 3, 87, 261
- Virtual round table decision-making process, 47
- Virtual world design, 55
- Visualization components, 346
- Volkswagen AG (automotive company), 146
- Volkswagen Automotive Cloud (VW.AC), 146
- Volkswagen Case, 146
- Volume, velocity, variety, variability, and veracity (5Vs), 286–287
- Vosviewer software, 255
- VTS information system, 293
- VUCA, 62
- Waste
  - disposal, 297
  - platform module, 294–297
- Waze, 239
- wDialogu, 91
- Web applications, 171
- Weighted average cost of capital (WACC), 306
- Wireless sensor network, 38
- Wisdom-of-crowd. *See* Collective intelligence
- WOM, 163
- Word-of-Mouth marketing (WOM marketing), 163
- World Health Organization (WHO), 331
- Younger generation, 264
- YouTube, 165
- Zipf's Law, 65–66