INDEX

Air pollution, 20–21 Air quality monitoring systems, 20 Aliveness concept, 187 America Online (AOL), 195 Amsterdam Smart City platform, 41 Anti-tourism sentiment, 28 Archeology and digitalization of cultural heritage tourism, 159 Artificial Intelligence (AI), 9, 18, 51, 152, 164. 185–186 Augmented reality (AR), 19, 152, 160–161, 164 Autonomous vehicle, 60-61 Battery electric vehicles (BEV), 60 Bibliography, 172 **Bibliometrics**, 172 analysis method, 172-173 **Bidirectional communications** process, 51 Big data, 8, 51, 139–140, 143–144, 152, 185-186 analytics, 24-25 platforms, 24-25 Biodiversity, 141 Bioregionalism, 35 Blue Flag, 23-24 Blue-Green city, 88, 130 Blue-Green mobility, 94-96 Blue-Green Smart Comprehensive urban plan, 94 Blue-green smart sustainable mobility, 128 - 129Blue-green smart U-cities blue-green city, 88 blue-green ubiquitous cities as livable and sustainable urban settings with high quality of life and less greenhouse gas emissions, 92-96 case study, 96–98 challenges and solutions, 99 Denmark, 96–97

Finland, 97–98 greenhouse gas emissions as significant threats for sustainable threats, 88-89 literature review. 85-88 restrictions. 87 sustainability, 85 toward sustainable cities with livability and high quality of life, 89-92 ubiquitous city, 87-88 urbanization challenges, 85-87 Blue-Green strategies, 95, 98–99 Blue-green sustainable mobility, 107–108 Blue-green sustainable urban plan to bluegreen sustainable mobility, mobility risk management, 119-120 Blue-Green comprehensive strategic urban plan, 133 Blue-green smart city and mobility case study, 220-223 challenges, 228-229 cultural norms, 228-229 DCT. 217-218 digitalization, smart life, and smart cities, 213-214 environmental challenges, 215 5th Wave/tomorrow age theory or theory of comprehensive everything, 215 i-sustainability plus theory, 215-217 literature review, 212-220 security issues, 229 Seoul, 221-222 Songdo, 223 sustainability, 212-213 U-City as new idea for sustainable development, 229 U-City disadvantages, 229 ubiquitous life and ubiquitous cities, 218-220 urban planning, 214-215 Blue-Green ubiquitous cities, 94

British oil company, 56 "Broadband Village" project, 42 Building information model (BIM), 159 Built environment sustainability and quality of life (BESOol), 119, 193 Business economy, 111–118 Business life, 73 Carbon dioxide emission (CO₂ emission), 86, 88-89, 170 Challenges of urban transport solutions, 63-66 Chenggong New District, 42 Chinese language, risk, 127 Cities, 71-73, 139-140 **CIVITAS ECCENTRIC, 41** Clean energy, 201, 203–204 Clean mobility, 204 Climate change, 22-23, 78 Close-range photogrammetry, 159 Cloud computing, 9, 92, 94, 143-144, 152 Communication technologies (CT), 40 Comprehensive blue-green sustainable strategic urban plan, 108, 129 - 130Comprehensive strategic urban plan, 129-130 Confluence District Project, 43 Conventional vehicles (CVs), 60 Copenhagen waste management program, 78 Corona epidemic, 191 Corporate social responsibility (CSR), 190 Covid-19 epidemic, 4 Cultural deviation, 90, 223-224 Cultural diversity, 141 Cultural heritage digitalization of cultural heritage for sustainability of tourism, 158-161 tourism, 158 Cultural sustainability, 90 Customer relationship management (CRM), 25-26 Cyber-physical systems (CPS), 10 Data collection process, 173

Data mining, 8, 152

Decarbonization, Decentralization, and Digitalization (D3 Revolutions), 112 Decision-making process, 221 Deep ecology, 44-45 Deep learning, 51 Department of Smart Cities, 78 Digital archiving, 159 Digital city, 5-6, 195 Digital close-range photogrammetry, 159 Digital learning, 216-217 Digital methods in archeology, 159 Digital platforms, 41-42 Digital systems, 148 Digital techniques, 159 Digital technology, 161 Digitalization, 87-88, 112, 158, 186, 202, 213-214, 218, 226, 228 Digitalization of cultural heritage, 161 acknowledgment of digitalization for sustainable cultural heritage tourism management, 159-161 archeology and digitalization of cultural heritage tourism, 159 for sustainability of tourism, 158-161 tourism, 159 Dongtan Eco-City, 42 Doost Cultural Theory (DCT), 110, 217 - 218Doost Mohammadian's concept of tomorrow's SMEs, 114 Doost research method (DRM), 110, 192 methodology, 193 Doost Risk Mitigation Method (DRMM), 107, 110 risk with, 120 Doost Sustainability Digitalization Impact Comprehensive Plan (D-SDIC model), 110 E-commerce, 8 e-learning, 215 E-pattern, 79 E-tourism, 17

Eco-communities. 34–35

Eco-friendly practices, 16, 28 green applications, 23–24 green energy, 22–23

green infrastructure, 23 information communication technologies, 19-22 low carbon. 24 problems and solutions, 27-28 smart tourism and, 18-24 Eco-friendly tourism practices, 19 Eco-gastronomy, 74, 77 definition, importance, and features of smart city, 74-77 e-pattern, 79 examples of smart cities in World and in Turkey, 77 farmer information system, 79 Gaziantep ecological village project, 78 gluten free cafe online sale, 78 Izmir. 78 Konya, 79 smart city examples in Turkey, 78 smart city examples in world, 77-78 smart plant factory in city, 78 sustainability, 72-74 sustainable cities-eco cities and eco-gastronomy, 77 www.konyapedia.com, 78-79 Eco-neighborhoods, 34-35 Eco-city, 34, 36-37, 77, 146-147 Builders Foundation, 36–37 concept of sustainability and sustainable tourism, 140-142 smart cities and smart tourism destinations, 142-144 smart eco-city tourism, 145-148 standards, 146 tourism, 146-147 Ecologicalization process, 35-36, 45 Economic development, 213 Economic Growth, 141 Economic policy, 90 Economic risks, 105–106 Economic sustainability, 90 Ecophobia, 44-45 Edu 5.0 concept, 215–217 Education, 223-224 Educational sustainability, 89 Educational technologies, 215 Electric technology, 60 Electric vehicles (EVs), 60

Electricity, 21 Emerged technologies, 63 Employment, 139-140 Employment Quality, 141 Energy, 170 management, 201 monitoring systems, 21 resources, 170 Enterprise Risk Management (ERM), 87, 105, 226, 228 Environmental challenges of blue-green smart city and mobility, 215 Environmental cleaning, 141 Environmental development, 213 Environmental risks, 105-106 Environmental strategies, 125-126 Environmental sustainability, 84, 90 Environmental technologies, 40 European Fund for Regional Development, 41 European Union, 4, 6 Eco-Label, 23-24 Explanatory mixed methods, 192 Failure modes and effects analysis (FMEA, 107 Farmer information system, 79 Fifth wave theory (5TH wave theory), 109, 111, 116, 118, 187, 189 blue-green smart sustainable mobility, 128 - 129calculate risk through DRMM Method, 120case study, 122-127 challenges and solutions, 132 comprehensive blue-green sustainable strategic urban plan, 108, 129-130 DRMM, 107 Germany, 125–126 Iran, 126–127 literature review, 104-118 livable urban setting, 108–109 methodology, 118-122 mobility, 107-108 mobility risk management provide comprehensive blue-green sustainable urban plan to

blue-green sustainable mobility, 119-120 modern livable urban setting urban plan. 130 results, 127-132 risk analysis and mitigation, 105 risk management, 104-105 risk management in mobility, 105, 107, 127 - 128risk management patterns, 107 risk with DRMM measurement, 120 share, control, and mitigation, 122 Fifth-generation technology (5G technology), 62 Financial Risk Management (FRM), 87, 105, 226, 228 5-Why method, 120 5th Wave/Tomorrow Age Theory, 109, 118, 186-187, 215 background, 110 business economy, 111-118 impacts, 111 main points, 109 results, 111 Food, 73 safety, 73 Fossil fuel production, 56–57 Fourth Industrial Revolution. 215 Free Wireless Internet service (Wi-Fi service), 153 Free-vehicles transportation, 201 Gas. 21 Gastronomy, 72-73

Gastronomy, 72–73 Gaziantep Gaziantep Ecological Village Project, 78 gluten free cafe online sale, 78 smart plant factory in city, 78 Geographic Information System (GIS), 27, 62 German Federal Institute for Risk Assessment (BfR), 125 Global developments affecting transportation system, 106 Global energy situation, 54–57 Global Positioning System (GPS), 154 Global transport of dangerous goods, 106–107 Globalization, 73, 206 Govern Mentality Risk Management (GRM), 87, 105 Government Financial Organization Associations (GFOA), 129-130 Governmentality risk management (GRM). 226-228 Green applications, 23–24 Green city, 5–6 Green comprehensive strategic plan, 104 Green Destinations (GD), 23-24 Green energy, 22-23 Green Globe, 23-24 Green infrastructure, 23 Green Key, 23-24 Green mobility, 128-129 Green movement. 35 Green strategies, 94, 200-201 Greenhouse gases, 86, 88-89 emissions as significant threats for sustainable threats, 88-89 Gross Domestic Product (GDP), 16, 65 H2020 Smarter Together Project, 41 Healthy communities, 35 High quality of life, blue-green ubiquitous cities as key toward livable and sustainable urban settings with, 92-96 High sustainability model, 218High technologies, 185-186, 198, 202 Historical building information model (HBIM), 159 Home automation systems, 24-25 Human beings, 24 Hybrid electric vehicles (HEV), 60 Hybrid SME, 110 i-comprehensive urban plan, 95 i-sustainability plus, 95, 98 i-sustainability plus theory, 110, 118, 189, 215, 217 for technological society and innovative ecosystem, 187-189 Inclusive mobility, 204 Industry 4.0, 10

Information and communication technologies (ICTs), 5, 16-17, 19, 22, 38, 51, 53, 84, 87-88, 99-100, 143-144, 152, 180, 183, 186, 212, 218 air quality monitoring systems, 20 energy monitoring systems, 21 noise monitoring systems, 21 smart lighting systems, 22 smart parking systems, 21-22 traffic control systems, 20 waste management systems, 21 Information technology (IT), 40, 183, 186, 226 AI, 9 big data and data mining, 8 cloud computing technology, 9 at foundation of smart cities, 7-10 Industry 4.0, 10 IoT. 9 Innovation, 59 Innovative, and smart mobility technologies, 191-192 Innovative ecosystem, i-sustainability plus theory for, 187-189 Innovative management, 187-189 Intelligent city, 5-6 Intelligent Transport Systems (ITS), 59, 61. 63. 108 Internal combustion engine vehicles (ICEVs), 60 International Data Corporation, 185 International Environmental Management Standard, 23-24 Internet and information, technologies based on, 183-185 Internet of Energy (IoE), 183–184, 202, 226 Internet of Things (IoT), 4, 9, 17, 24–25, 51, 53, 99–100, 112, 139–140, 143-144, 152, 183-184, 186, 202, 215 Internet services, 143-144 Ishikawa diagrams, 120 Izmir (Izmir Agriculture Mobile Application), 78

Knowle West Media Center (KWMC), 41

model (KTB model), 110 Knowledge city, 5-6 Konya (Smart Tourism Guide Application), 79 Light-emitting diode (LED), 22 Livability, 181-182, 187 concept, 86 toward sustainable cities with livability and high quality of life, 89-92 Livable urban settings, 108-109 with high quality of life and less greenhouse gas emissions, blue-green ubiquitous cities as key toward, 92-96 Local Control, 141 Local welfare, 141 London's smart city approach, 41-42 Low carbon, 24 Lvon Smart Community project (LSC project), 43 M.O.V.E. project, 41 Machine learning (ML), 7, 51, 185 Maersk shipping countries, 97 Marketing strategies, 64 Massive open online courses (MOOCs), 215 Metaverse, 164 ecosystem, 221-222 Seoul, 221-222 Methane, 88-89 Ministry of Environment, 78 Ministry of Environment and Urbanization, The, 145 Mobile applications, 139-140, 152-153 Mobility, 59, 99-100, 107-108, 180, 197 blue-green sustainable mobility, 107 - 108risk management in, 105-107, 127-128 risk management provide comprehensive blue-green sustainable urban plan to move to blue-green sustainable mobility, 119-120 smart blue-green mobility, 108 Mobypark (smartphone application), 10 - 11

Knowledge, technology, and business

Modern cities, 198 Modern livable urban Setting urban plan, 130 Modern technologies, 186 Moovit (app), 201–203 National Labels, 23–24

National Smart Cities Strategy and Action Plan (2020–2023), 38, 75 Natural resources, 16 Near field communication (NFC), 152 Near frequency communication (NFC), 21–22 Network analysis, 174, 176–177 Nitrous oxide, 88–89 Noise monitoring systems, 21 Novel technology adoption, 64 Novel transportation technologies, 51, 59–61 autonomous vehicle, 60–61 electric technology, 60

OKOPROFIT program, 41 Opportunities of urban transport solutions, 63–66 Overtourism, 28

Parallel algorithms, 8 Pars Oil and Gas Company (P.O.G.C Company), 128 PESTEL analysis, 63-66 economic factors, 63-64 environmental factors, 66 political and legal factors, 63 social factors, 64-65 technical factors, 65-66 Physical integrity, 141 Plug-in electric vehicles (PHEV), 60 Political sustainability, 89 Profitable quality leader, 125-126 Programming models, 8 Project Risk Management (PRM), 87, 105, 226, 228 Public transportation systems, 5, 201 Pudong, 42 Quality of life, 181–182

toward sustainable cities with livability and high, 89-92 Radio frequency identification (RFID), 9, 21-22, 152 **REACT-EU** initiative, 190 Recent developments in evaluation of renewable energy resources in tourism businesses conceptual framework, 170 - 172data collection process, 173 findings of research, 173-174 method, 172-174 research model, 172 Renewable energy, 27, 89 Renewable energy sources, 23, 99–100, 170 - 171in tourism enterprises, 170 Research on energy, 176-177 Research process, 172 Research tool, 119 Resource Efficiency, 141 Resources, 21 Risk analysis and mitigation, 105 Risk calculation through DRMM Method, 120 Risk management, 104-105, 128 challenges and solutions concerned on risks of road transport system of global countries, 106 classification, 105 global developments affecting transportation system, 106 global transport of dangerous goods, 106 - 107in mobility, 105-107, 127-128 Risk priority number (RPN), 107 Risk with Doost Risk Mitigation Method measurement, 120 Road transport sector, 54, 66 Road transport system of global countries, challenges and solutions concerned on risks of, 106 Robotic, 186

SARS-CoV-2, 4 Self-driving vehicles (*see* Autonomous vehicle) Semi-supervised learning, 185 Seven pillars of sustainability (7Ps model) Seven-pillar sustainability model (7Ps sustainability model), 110, 181, 189 Sino-Singaporean Tianjin Eco-City (SSTEC), 42 Small and medium enterprises (SMEs), 111, 217-218 Smart and Sustainable Destinations (SSD), 17 - 18Smart Blue-Green city, 98 Smart Blue-Green infrastructure, 95 Smart blue-green mobility, 108 Smart Cities Wheel (SCW), 6, 38 Smart city, 4, 19–20, 28, 37–38, 67, 72, 75, 142-143, 152-153, 186, 213-214, 223 applications in world, 10-11 characteristics of, 6 components of, 38-39 concept of, 4-5, 20, 51, 53-54, 75 Copenhagen waste management program, 78 definition, importance, and features of. 74-77 definition of. 5–6 examples in world, 77-78 examples of smart cities in World and Turkey, 77 information technologies at foundation of smart cities, 7-10 IoT technology, 24-25 smart economy, 39 smart environment, 39 smart governance, 38-39 smart living, 39 smart mobility, 39 smart people, 39 Smart destinations, 15–17 application, 26 and characteristics of, 16-18 concept, 29 future of, 19-22 problems and solutions, 27-28 smart tourism and eco-friendly practices, 18-24 Smart eco-city tourism, 145, 147-148 eco-city tourism, 146-147

sustainable city tourism, 145–146 Smart eco-city, 34, 39, 43, 147-148 Amsterdam, 41 Bristol. 41 Chengdu, 42 components of smart city, 38-39 eco-city. 34-37 Kunming, 42 London, 41 Lyon, 43 Milton Keynes, 42 Munich, 40-41 project examples, 40 Shanghai, 42 smart city, 37-38 Tianjin, 42 Smart economy, 6, 39, 142-143 Smart education, 215 Smart energy consumption monitoring system, 21 Smart environment, 6, 39, 142–143 Smart governance, 6, 38-39, 142-143 Smart infrastructure, 182–183 Smart life, 142-143, 213-214 Smart lighting systems, 22 Smart living, 6, 39 Smart London Innovation Network, 41-42 Smart mobility, 6, 17, 39, 58, 63, 96–97, 180. 200-201 definition, 58-59 intelligent transportation systems, 61 - 63novel transportation technologies, 60 - 61services, 180 systems, 202-203 Smart parking systems, 21–22 Smart people, 6, 39, 142–143 Smart sensors, 28 Smart systems, 139–140 Smart technological applications, 148 Smart technological systems, 139-140 Smart technologies, 11-12, 152 integration into tourism destinations, 154 Smart tourism, 17-18, 24, 164 concepts, 143, 152-153 green applications, 23-24 green energy, 22-23

green infrastructure, 23 information communication technologies, 19-22 low carbon. 24 Smart tourism destinations, 143–144. 153 - 154significance of sustainability in, 154-158 Smart tourism technologies (STTs), 26-27 Smart transportation/mobility, 142-143 Smart waste management systems, 143-144 Smart Yangpu, 42 Smartness, 87-88, 90, 92, 94, 128-129, 186.198 strategies, 95 Smartphones, 139–140, 213 Social ecology, 35, 44-45 Social equality, 141 Social Peace, 141 Social sustainability, 90 Software Failure Modes Effects Analysis (SFMEA), 120 Songdo International Business District. 223 Spring City (see Kunming) Sustainability, 38, 72, 74, 84-85, 108-109, 112, 212-213, 215 concept, 140, 142, 174, 176 cultural heritage tourism and digitalization, 158 digitalization of cultural heritage for sustainability of tourism, 158-161 of energy, 170-171 movement, 37 plus, 228 plus city, 228 seven pillars of, 98 significance of sustainability in smart tourism destinations, 154-158 smart city and smart tourism concepts, 152-153 smart tourism destinations, 153-154 and sustainable development, 181 theory, 118 in tourism. 18 of urban tourism, 139-140

with livability and high quality of life, 89-92 sustainable cities-eco cities. 77 Sustainable city, 5-6, 212, 214, 224, 226 tourism, 145-146 Sustainable comprehensive strategic plan, 104 Sustainable cultural heritage tourism management, acknowledgment of digitalization for, 159-161 Sustainable development, 181, 203, 213, 217 - 218strategies, 216-217 U-City as new idea for, 229 Sustainable Development Goals (SDGs), 36, 157 Sustainable gastronomy, 73–74 Sustainable infrastructure, 182–183 Sustainable living, 33–34 Sustainable mobility, 58, 63, 107, 119, 200-201 definition, 58-59 intelligent transportation systems, 61-63 novel transportation technologies, 60 - 61systems, 202-203 Sustainable Mobility Management, 125 Sustainable smart city, 85, 181 Sustainable thinking, 35 Sustainable tourism (ST), 140-141 activities in destinations, 23-24 approach, 157 concept, 140-142 Sustainable urban settings with high quality of life and less greenhouse gas emissions, blue-green ubiquitous cities as kev toward livable and, 92-96 Sustainable urban tourism, 145 System adaptation process, 181 Systematic literature review (SLR), 84, 104, 212

Talk London, 41–42 Tech Londoners, 41–42 Technical sustainability, 89, 202–203 Technological society, i-sustainability plus theory for, 187-189 Technological systems, 143-144 Technologies, 183-186 Technologies based on internet and information, 183-185 Technology mirrors culture, 198 Theory of Comprehensive Everything, 109, 118, 215 case studies, 193-196 5th Wave/tomorrow age theory or, 186-187 high technologies, 185-186 i-sustainability plus theory for technological society and innovative ecosystem, 187-189 interviews, 197 literature review/background, 180 livability and quality of life, 181-182 methodology, 191-193 mobility, 180 Netherlands/Amsterdam, 195-196 questionnaire, 196 results, 197 smart and sustainable infrastructure, 182-183 smartness, digitalization, and ubiquitous, 186 South Korea/Seoul, 193–194 sustainability and sustainable development, 181 technologies, 183-186 technologies based on internet and information, 183-185 Urban 6.0 and Utopia, 189-191 3-E Houses (3-E HOUSES), 41 3D line drawing, 159 recording, 159 Socio-Eco-Environment SMEs model. 110 Tianfu New District plan, The, 42 Tomorrow Age Theory, 109-118 Tomorrow's SMEs concept, 110 Tourism, 164 big data system, 25-26 businesses, 171 digitalization of cultural heritage for sustainability of, 158-161

industry, 16, 153, 170 sector, 18, 148, 170-171 strategy, 16 Tourist experiences, 164 Traffic control systems, 20 Transformable energy, 143–144 Transition. 50 process, 63, 66 project, 64 Transmission technologies, 24-25 Transparency, 229 Transport sector general situation, 57 - 58Transportation, 200-201 global developments affecting transportation system, 106 Turkey, examples of smart cities in World and in. 77 Turkey, smart city examples in, 78 Turkish culinary culture, 72 U-airport, 226 U-building, 226 U-cities, 87-88, 212, 218, 220, 228 construction and implementation plan, 220disadvantages, 229 as new idea for sustainable development, 229 U-citizen, 226 U-democracy, 112 U-education, 226 U-governance, 112 U-government, 226 U-health, 226 U-infrastructure, 226 U-life, 226 U-mobility, 226 U-politic, 226 U-security, 226 U-services, 226, 229 U-technique, 226 Uber (app), 201 Ubiquitous (U), 186, 193-194 blue-green cities, 84 concept, 98 life, 218-220 smart city, 223 tools, 202

United Nations Environment Conference, 140–141 United Nations Environment Program (UNEP), 36, 140-141 United Nations forecasts, 223 United Nations World Urbanization (2016), 3Urban 6.0, 189-191 Urban areas, 99-100 Urban design, 214-215 Urban development, 198 Urban eco-village, 34-35 Urban Ecology, 34-35 Urban infrastructure planning, 214 Urban livability, 204 Urban mobility technologies, 51 Urban planning, 4, 11, 214-215 Urban settings, 50 Urban strategic planning, 108 Urban sustainability, 214-215 Urban transformation, 198 Urban transport solutions challenges and opportunities, 63-66 concept of smart city, 51-54 global energy situation, 54-57 overview. 54-58 sustainable and smart mobility, 58-63 transport sector general situation, 57 - 58Urbanization, 78 challenges, 85-87 challenges threaten livability and quality of life, 86-87 environmental problems, 86

system, 34–35 Utopia, Urban 6.0, 189-191 Value engineering, 98–99 Vehicle to Grid (Vehicle2Grid), 41 application, 62 Vehicular ad hoc network (VANET), 63 Virtual display technology, 159 Virtual reality (VR), 19, 152, 160-161, 164 Virtual restoration, 159 Visitor Satisfaction, 141 VOSviewer package program, 173 Waste management systems, 21 Water, 21 water-based concerns, 200-201 Web-based applications, 18 Wired city, 5–6 Wireless internet networks (Wi-Fi), 154 Wireless sensor networks (WSNs), 22, 51, 62 Wireless technologies, 21-22 World and in Turkey, examples of smart cities in. 77 World Health Organization (WHO), 126 - 127World Tourism Organization (WTO), 77, 140 - 141World Travel and Tourism Council (WTTC), 16 WoS database, 173 ZigBee network, 22

242