## Index

### A
- 9/11 terrorism attack 1, 6, 134
- access overload control (ACCOLC) 192-193
- acoustic messaging 188
- Actor Network Theory (ANT) 140, 143-146, 149, 151-153
- agility 1-2, 4, 8-9, 103, 153
- Air Quality Index (AQI) 217, 226
- alarm congestion analysis 188
- Amazon 100
- ambient technologies 72
- Analytical Hierarchy Process (AHP) 262-263, 275, 279, 285
- automatic identification systems (AIS) 75, 152, 212, 261, 281, 283

### B
- Base system controller (BSC) 193
- Beaufort Wind Scale 215, 226
- blogs 27, 37, 39, 85-88, 92-93, 232
- Boxing Day tsunami crisis 85-86
- Bureau for Crisis Prevention and Recovery (BCPR) 264-265, 280, 284

### C
- California Department of Forestry and Fire Protection (CAL FIRE) 253
- Capital Wireless Information Net (CapWIN) 97, 107
- cartography 245-248, 250, 253, 258-259, 261
- cell broadcast (CB) 188, 190, 192-196
- cell broadcast (CB) technology 192
- cell broadcast center (CBC) 190, 193
- Clean Air Act 217
- closed-circuit TV (CCTV) 72
- collaborative improvisation 74, 79, 82
- command centers 55-57, 67, 124, 263, 273
- Common Alerting Protocol (CAP) 224
- Common Operational Picture (COP) 248, 254-256
- communication modelling 112, 119, 121
- communicative roles 112-113, 119, 121, 127-129, 132
- computer scientists 77
- Control, Communication, Computer, and Intelligence (C4I) System 264, 266
- control event (CE) 207
- Core Meta-Model 158, 164, 181
- cost-benefit analysis 191, 194, 196
- crisis information flow management 94
- crisis information mapping 85
- crisis management information systems 139-140, 142-145, 148-151, 206
- crisis management organization 214
- crisis management systems 141, 146, 205
- crisis organizations 139-140, 142, 145, 148, 151
- crisis relief-response process 156
- crisis response systems 158, 161, 165, 204-205, 209-210, 286
- criterion of key communication agent 120, 122-127
- Cyclone Nargis 34

### D
- damage assessment maps 254
- DARPA Agent Markup Language (DAML) 89
- data gathering 56, 99, 204, 207, 264
- data packets 80
Index

decision support systems (DSS) 10, 42, 95, 262, 270, 272, 280-285
Department of Environmental Health (DEH) 255
digital combustion 59, 69
digital combustion (DC) 255
Digital Typhoon 209, 212
disaster legislation 13-14, 19
disaster management units 227
disaster preparedness 12-13, 18, 32, 87, 227, 229-230, 237, 257, 260
disaster victims 3-4
discipline 1-2, 7-9, 153, 207
distributed collaboration 43, 79, 82
dynamic control tasks 114
dynamic environments 66, 120, 133-134, 152
E

eBay 100
Electronic Data Interchange (EDI) 268, 280
elimination methodology 191
emergency communications requirements 197
Emergency Data Exchange Language (EDXL) 224
emergency event scale 214
Emergency Management Information System and Reference Index (EMISARI) 205
emergency management system (EMS) 1, 54, 96, 105, 110, 224, 249, 261
emergency scale 27, 214-215, 217-218, 220-222, 224-225
Emergency service and civil protection communities 191
emergency services 13, 45, 72-73, 96-97, 104, 135, 193, 195, 250, 261
emergency virtual teamwork 72, 74, 81-82
emergency warning system 188
environmental dynamics 263
Environmental Protection Agency (EPA) 217
ethyl chloride (EC) 59-65
evacuation planning 228, 230, 239-240
Extensible Markup Language (XML) 94, 183, 232, 241
F
Federal Communications Commission (FCC) 96-99, 105-108
Federal disaster assistance payments 3
FEMA Target Capabilities List 2
FEMA Universal Task List 2
G
geographic information systems (GIS) 35-36, 39, 75, 141, 152, 209, 227-233, 236-240, 240-261
geoinformation 227-230, 239-241
geospatial technologies 35, 227
geospatial tools 228, 245-248, 250, 252, 254, 256-260
geovisualization 243, 245-248, 250, 253-254, 258-259
Global Disaster Alert and Coordination System (GDACS) 224, 226, 234-235
Global Monitoring of Environment and Security (GMES) 229
global positioning systems (GPS) 36, 67, 75-78, 80-81, 229, 233, 237, 254
Global Security and Crisis Management Unit 241
Google 36, 99-100, 109, 227-237, 239-244
Google Earth 36, 227-237, 239-244
Google Maps 36, 234, 242-243
gross national product (GNP) 218-219
gross state product (GSP) 218, 222
group decision support system (GDSS) 41-43, 45, 52, 284
H
hardware nodes 197
Health and Human Services (HHSA) 255-258
Helios software 34
high reliability organization (HRO) 15, 21-22
High Reliability Theory (HRT) 15-16
Homeland Security Presidential Directive (HSPD) 246
House of Quality (HoQ) 278
Hurricane Katrina 2, 5-7, 9-11, 14, 25, 27, 84-86, 93, 97, 100, 108, 141, 152, 202, 209-212, 222-223, 225-226, 230, 243-244, 246-247, 261, 282
hydrochloric acid (HCL) 59, 62
Index

I

Incident Commanders (IC)  55-67, 118, 121-130, 249
Incident Management Assist Teams  2
incrementalism  15-16
incrementalism, disjointed  16
Index Ontology  88-94
information acquisition  156-159, 175-176
information and communication technologies (ICT)  84, 113-117, 130-132
information data  66
information management  34-35, 39, 95, 99, 117, 139-140, 142-143, 146-147, 149-150, 209, 212, 229, 235
Information Management System for Hurricane disasters (IMASH)  209
initial response (IR)  6, 207
initiating event (IE)  207
initiator  121-123, 126
Institute for Crisis Management (ICM)  203
instrumental orientation  146
interactive maps  72
Interagency Geospatial Preparedness Team (IGPT)  246, 261
International Federation of the Red Cross and Red Crescent Societies (IFRC)  32, 39, 102, 252
International Organization for Standardization (ISO)  87, 94
Internet Engineering Task Force (IETF)  100, 104, 107-108
inter-organizational information  157

K

Katrina crisis blog  85
key communication agent  120, 122-127
Keyhole Markup Language (KML)  228, 232-234, 242-243
knowledge management (KM)  74, 148, 192, 201-202, 206-207, 209-211, 239
knowledge management systems (KMS)  202, 207
knowledge representation  85-86, 92

L

leadership  1-2, 5-8, 20, 42, 137, 192, 281, 285
learning resource  79
Linguistic separation  214
Local Assistances Centers (LAC)  254-255, 257
local disaster management  103, 229-230
location tracking  72

M

main addressee  121-123, 126
main speaker  121-124, 126
Management Information Systems (MIS)  69, 262-263, 266, 273-274
material safety data sheets (MSDS)  59, 64
maximum effectiveness mode  263
message boards  92-93
Miskel, James  3, 10
mitigation  13-14, 20, 45-47, 229-230, 245-252, 254, 258-259
Mobile Internet  190, 197
mobile penetration rates  188
Modified Mercalli Intensity (MMI)  216, 226
mudding through  15
multilingual ontology  85, 91
multiple criteria decision making (MCDM)  271
multi-threaded work  56

N

Nasa World Wind  227-228, 231
National Crisis Decision Support System (NCDSS)  262, 278-279
National Flood Insurance Program (NFIP)  252
National Incident Management System (NIMS)  211, 246-247, 249, 261
National Mapping and Resources Authority (NAMRIA)  235
National Oceanic and Atmospheric Administration (NOAA)  216-217, 226, 230, 243, 252
National Response System 2, 8
Nationwide Emergency Services Network (NESN) 2, 8
natural disasters 13-14, 25, 36, 87, 97, 153, 203, 224, 235, 246, 249, 260
networks of action 143, 152
networks of knowledge 140, 143, 145
non-governmental organizations (NGO) 32, 35, 40, 229
normalizing event (NE) 207-208

O
Office for Co-ordination of Humanitarian Affairs (OCHA) 33-34, 39
One Laptop Per Child (OLPC) project 30
ontologies 86-87, 89-90, 92, 94-95, 211
open network architecture 96
Operational Area Emergency Operations Center (OAEOC) 250-251, 253-257, 259
Operation Chimera 210
Operation Last Chance One 252

P
PalCom 72-76, 78-83
personal hygiene 88-90, 93
Personalized Multidisciplinary Information Seeking and Retrieval Service (PMISRS) 164, 173, 182-184
pervasive computing 72-74, 81-83
pervasive computing technologies 72-74, 81-82
Philippine Institute of Volcanology and Seismology (PHIVOLCS) 236, 243
police database 77
Post Katrina Reform Act of 2006 5
prediction and warning capabilities 13
problem sciences 29, 31, 38, 242
program evaluation review technique (PERT) charting 270
public awareness 13-14, 19
public communication services 195
Public Safety Spectrum and Wireless Innovation Act 98, 109
Public Safety Spectrum Trust (PSST) 98, 108
public wireless services 195, 197

Q
Quality Function Deployment (QFD) 262, 264, 275, 277, 279, 283, 285
quality of decision 264
quality of service (QoS) 104, 171

R
Radio Amateur Civil Emergency Service (RACES) 72-74, 81, 253
radio base system (RBS) 193-194, 196
radio report 79
recovery response (RR) 207-208
relief-response organizations 156-157, 174, 181
RELU-Risk project 45-46, 49-50, 52
resource-based view (RBV) 146
Resource Description Framework (RDF) 87
restoration event (RE) 66, 79, 103, 170, 207-208, 246
Richter Magnitude Scale 216, 226
risk analysis 12, 17, 19, 191, 194

S
safety of hostages (SH) 272
safety of rescue team (SRT) 272
sensemaking 1, 5-8, 10-11, 15, 56, 69, 83, 154
sensor-networks 72
service descriptions (S-Desc) 170-171
short messaging service (SMS) based solution 195, 197
short messaging service (SMS) center 190, 193
short messaging services (SMS) 33, 37, 188, 190, 192-198
short term deployment 190
Simple Object Access protocol (SOAP) 178
Simputer project 30, 40
simulation exercise 58-59
situational analysis (SA) 207
situation-aware (SA) process 159, 175
situation-gap-use model 158
Slammer 210, 212
social network analysis 135, 143
socio-metric status 112, 119-120, 123, 125, 127
socio-technical knowledge 139
spatial data infrastructure (SDI) 36, 40
spatial interrelations 227, 240
Standardized Emergency Management System (SEMS) 249, 261
Strong Angel III 209-210

T
Technology Acceptance Model (TAM) 250-251, 258, 260
Telecoms Sans Frontieres (TSF) 32, 40
terminating event (TE) 207

text message 60

ThinkTank wGDSS 41-42, 45-51

time-event charting (TEC) 270

topical episode analysis 112, 119-122, 131

topics, associations, and occurrences (TAO) 89

topographical change 218-220, 222

Triadic constraints 214

U

unified emergency scale 27, 214, 218, 224

UN Institute for Training and Research (UNITAR) 229

universal service obligations 195-196

UN Joint Logistics Centre (UNJLC) 32, 40

unmanned aerial vehicle (UAV) 55, 58-60, 65-68, 70, 254

unprocessed image 66

U.S. anthrax attacks 14, 25

U.S. Department of Agriculture (USDA) 255

U.S. Department of Homeland Security (DHS) 1-3, 5-6, 11, 212, 217, 225, 249, 261

U.S. Federal Emergency Management Agency (FEMA) 2-3, 5-6, 11, 217, 222, 225, 246, 251-252, 261

U.S. Geological Survey (USGS) 216, 226, 246

U.S. House Committee on Energy and Commerce 98

U.S. Office of Emergency Preparedness (OEP) 13, 205

U.S. Senate Commerce, Science, and Transportation Committee 98

V

video feed 55-56, 58, 65, 67-68

virtual globes 227-232, 241, 244

virtual teams 20, 26-27, 44, 46, 72-74, 81, 134, 157

Visual investigative analysis (VIA) charting 22, 26, 37, 42-43, 55-57, 60, 67, 82, 100, 104, 107, 168, 170, 177, 182, 188-190, 192, 197, 199, 205, 207, 210, 231-232, 240, 253, 259, 270, 273

voice over Internet protocol (VoIP) 99-100

volume of very high resolution (VHR) 232-234, 240

volunteered geographic information (VGI) 230, 240, 242

Vulnerability analysis 13, 17, 228

W

warning networks 192

wearable devices 72

web-based group decision support systems (wGDSS) 41-47, 51-52

Web Ontology Language (OWL) 87, 89, 95

Wikipedia 20, 40, 90-91, 94

Wireless Internet Information System for Medical Response in Disasters (WIISARD) 67

wireless networks 96, 98-99, 104, 107, 109, 188-190, 193, 197

World Food Programme (WFP) 32-33, 37, 40

World Wide Web Consortium (W3C) 87, 95, 224-225

Y

Yahoo! Groups 36

Z

zone of operations 192-194