Index

A
accelerometers 246, 247, 248, 261, 263, 265
access control 30, 31, 32, 44, 46, 48
accountability 24, 29, 42
activity monitoring 248
actor-network theory (ANT) 121
ad hoc networks 116
Advanced Audio Distribution Profile (A2DP) 276, 277
aging concept 93
aging in place 292, 309
aging societies 77, 78
AIXTRA 269, 274
ambient assisted living (AAL) 76, 81, 83, 84, 88, 89, 91, 92, 93, 195, 196, 198, 201, 212, 213, 214, 215, 217, 218, 225, 227, 228, 236, 238, 240, 242, 243
ambient assisted living environment (AAL Environment) 289, 290, 294
ambient intelligence (Aim) 90, 91, 92, 93, 297, 310, 311, 313, 314
ambient technology 196
American Academy of Pediatrics (AAP) 3
American College of Sports Medicine (ACSM) 252
AMIGO project 79
analog-to-digital converter (ADC) 97, 101
anonymity 24, 39, 40, 42, 45, 46
application programming interfaces (API) 289, 291, 298, 299, 301, 302, 303, 306, 308
Arthritis 253
artificial intelligence (AI) 91, 92
assisted living 195, 196, 197, 212, 213, 214, 215, 289, 290, 292, 309, 310, 311, 312
assisted living facility (ALF) 144, 153, 155, 159
assistive medical devices 80
asynchronous communications 22
asynchronous monitoring 7
atrial fibrillation 7
audit trail 48
authorization 116
availability 94, 99, 109
Aware Home 294, 310

B
barometric pressure sensor 246
Berg Balance Scale (BBS) 251
Bodily Wellbeing 218
body area networks (BAN) 95, 101
body sensor networks (BSN) 99, 115
Bottom-Up Processes 170, 194
BSN nodes 99
bureaucratic formalization 177
business process 137

C
Callon, Michel 121
care chains 25
care pathways 25
care provider organisation (CPO) 225
chronic disease management 124
Chronic Obstructive Pulmonary Disease (COPD) 253, 254, 264
Class 1 technologies 166
Class 2 technologies 166
Class 3 technologies 166
clinical support systems (CSS) 9, 12, 19  
clinicians 25, 27  
clinician workflow 25  
CodeBlue WSN 99, 104  
Comprehensive Assessment and Solution Process for Aging Residents (CASPAR) 150  
computed tomography (CT) 147  
confidence 51, 53  
consent directive 41, 44, 48  
contact-to-balloon time 272  
contextual analysis 222  
continuing care 292  
continuity of care records (CCR) 25  
coronary artery diseases 147  
credibleity 75  

**D**  
data availability 24, 28, 30, 42, 43  
data confidentiality 24, 29, 35, 42, 43  
data integrity 24, 37, 38, 42, 48, 99  
data mining 9, 11  
data warehousing 9, 22  
decision support systems (DSS) 9, 10, 13, 18  
dementia 140, 141, 143, 144, 145, 146, 147, 149, 154, 155, 156, 157, 158, 159, 160  
dense connected sensors 95  
departmental information systems (DIS) 24  
diabetes educator 7  
Diabetes Mellitus 147, 153  
digital avatar 224  
digital health records 24, 42  
disease management 165  
distributed wearable augmented reality framework (DWARF) 79, 89  
door-to-balloon time 272  
Dydactic Trust Scale 53  

**E**  
E&AR 217, 223, 226, 242  
Earth magnetic field sensors 246  
ease of use 75, 93  
economic welfare 218  
e-health 23, 24, 28, 29, 35, 42, 43, 49, 50, 52, 59, 60, 61, 64, 65, 66, 75  
e-health environments 95  
elderly population 77, 88, 92  
electronic health data 24, 36  
electronic health records (EHR) 23, 24, 25, 26, 28, 41, 42, 44, 47, 48, 95, 120  
electronic medical records (EMR) 2, 3, 6, 7, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 22, 25  
electronic patient health information (ePHI) 15, 16, 22  
electronic personal records (EPR) 95  
emergency medicine 165  
Enhanced Data Rates for GSM Evolution (EDGE) 277  
enterprise-wide master patient indexing (EMPI) 8  
e-prescription system 128, 138  
event-triggered 293  
expectations-confirmation theory (ECT) 258  
Experience and Application Research (E&AR) 217, 223  
Experimental Software Engineering in Germany 294  
extensible markup language (XML) 11, 22  

**F**  
faith 51  
fall detection 248, 264, 267  
fall detection methods 248, 252, 255  
ferromagnetic materials 246  
focus design discussion (FDD) 231, 242  
foot switches 246, 247, 249  
fractal analytic techniques 141  
fractal dimension (Fractal D) 144, 145, 146, 160  
Fraunhofer Institute 294  
full-scale simulator 269  
functional requirements 275  

**G**  
Gator Tech House 295, 296  
general packet radio services (GPRS) 95, 99, 277  
general practitioners (GP) 24, 25, 31
gerontechnology 151, 154, 155, 158, 159
global position system (GPS) 247, 265, 267
global system for mobile communications (GSM) 95, 276, 277
goal interdependence (GO) 179
Goniometers 246
Google 23, 27, 33, 35
Google Health system 23, 27, 33, 35
Greek social security system 128
group assimilation 173, 175
gyroscopes 246, 247, 249, 261, 263

H
Habitation in Advanced Age 215
Handsfree-Profil (HFP) 277
Headset-Profil (HSP) 277
healthcare delivery 119
Healthcare Information and Management Systems Society (HIMSS) 25, 44, 48
healthcare information technology (HIT) 3
healthcare organizations 162, 163, 166, 177, 178, 179, 181, 182
healthcare, patient-centric 25, 120, 124
healthcare services 161, 165, 167, 181
health changes 139
health information systems (HIS) 121, 122
Health Insurance Portability & Accountability Act (HIPAA) 24, 29, 30, 39, 42, 120
health level seven (HL7) interface 8, 11, 22
health level seven (HL7) standard 26, 34
Health Sciences Education and Research Commons (HSERC) 298
HealthVault system 23, 27, 33, 35
hedonic qualities 78, 84
High Speed Packet Access (HSPA) 277
home healthcare 165
hope 51, 60, 66
hospital information systems (HIS) 24, 25
human-centred design 219, 220, 221, 222, 239
human-centred design process 226
human-computer interaction (HCI) 84, 89, 91, 92
human resources 125, 126
Hypertension 147, 148

I
identifiable health information 162
IEEE 802.15.1 standard (Bluetooth) 95, 97, 99
IEEE 802.15.4 standard (Zigbee) 95, 97, 101, 104, 113
Independent Functioning 150, 160
independent living 218, 219, 223
individually identifiable health information (IIHI) 28, 48
information and communication technologies (ICT) 218
information systems (IS) 163, 164, 165, 166, 167, 168, 180, 182, 183, 185, 194
information technology (IT) 180, 181, 183, 186, 188, 190, 191, 192, 193
InfoWay system 25, 26, 31, 37, 40, 45
infusion 168, 170, 171, 173, 174, 175, 181, 182, 183, 191, 192, 194
interdependence 178, 190, 192
international classification of functioning (ICF-model) 250
internet protocol (IP) 277, 279
intracorporal technology 93
IT Capacities 180

J
Java context awareness framework (JCAF) 79, 89
joint application development (JAD) 124, 130, 132, 133, 134, 135, 137

K
Kaiserslautern, Germany 195, 196, 197, 199, 201, 212, 214

L
Latour, Bruno 121
Lewin Group Report 162
Lewin’s (1947) planned change model 168
local area networks (LAN) 96
Location-Aware Technology 160
location tags 94
long-term care (LTC) 165, 292, 294
magnetic resonance imaging (MRI)  147
magnetometers  246, 247
Maslow, Abraham  81, 89
Maslow's hierarchy of needs  81
MavHome  295, 296, 297, 312
medical databases  26
medical engineering  77
Medication Event Monitoring Systems (MEMS)  293
Med-on-@ix  268, 269, 270, 271, 272, 273, 274, 275, 279, 280, 283, 284, 287
mental wellbeing  218
metadata  22
Microsoft  23, 27, 33, 35, 42
middleware  78, 93
miniature gyroscopes  246
mini-mental state examination (MMSE)  141, 145
MobiHealth system  99
mobile ad hoc networks (MANET)  96, 97, 98, 99, 108, 116
mobile nodes  96, 108, 116
mobile sensors  95
namespaces  22
national committee for quality assurance (NCQA)  9, 20
national electronic health record infrastructures  25
natural human movement  139
NHS Spine project  23, 25, 46
NICTIZ project  23, 25, 45
non-exercise activities with thermogenesis (NEATs)  251
non-zero sum games  53
Notarzt  268, 269
occupational therapy (OT)  298, 305
online health management  124
OpenAAL platform  79
Open Services Gateway Initiative (OSGi)  296
open source  22
OpenWings framework  79
operations support system (OSS)  298, 300, 301, 303
organizational assimilation  174, 176, 193
organizational climate  181, 191
organizational culture  126, 133
organizing vision (OV)  183, 184
Parkinson’s Disease (PD)  140, 148, 155, 156, 254
passive infrared devices (PIR)  142, 143
patient-centered care  2, 16, 21
patient centered medical homes (PCMH)  1, 2, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17, 18, 20
patient centered medicine  2, 15, 18
patient centeredness concept  1, 2, 3, 4, 5, 7, 9, 10, 12, 14, 18, 19, 20, 21
patient registries  22
PC systems  99
Personal Assistive Unit for Living (PAUL)  195, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 214
personal digital assistants (PDA)  96, 98, 99, 100
personal healthcare domain  23
personal health records (PHR)  8, 9, 11, 15, 18, 23, 24, 26, 27, 28, 29, 33, 35, 41, 42, 48, 119, 120, 121, 122, 123, 124, 125, 127, 128, 129, 130, 131, 132, 136, 137
picture archiving and communications systems (PACS)  165
portable computers  96
pressure sensors  246
preventative medicine  2, 5
primary care physicians (PCP)  3, 14, 16, 17
Prisoner’s Dilemma  53
privacy  23, 24, 29, 30, 32, 35, 40, 41, 42, 43, 44, 46
process-based healthcare system  137
process designs  125, 126
process reengineering  125, 126, 135
professional mobile Radio services (PMR)  277
proprietary technology  22
Index

public switched telephone network (PSTN) 277

Q
quality of service (QoS) 98
Quebec 166, 172, 179, 182

R
radio frequency identification devices (RFID) 142, 143, 144, 152, 153, 155, 157, 294, 296, 301, 308
real-time transport protocol (RTP) 279, 286
recombinant interfaces 297
referential grid system 139
Regional Health Information Organization (RHIO) 23
registry master patient indexes (RMPI) 8
rehabilitation therapy 78
relationship marketing 54
remote patient monitoring 23, 24
representational state transfer (REST) 291, 298, 301, 302, 306, 308
research area for urban sociology 196, 198
research on acceptance and usability 215
research on the elderly 215
Réseau universitaire intégré de santé (RUIS) 171
respiratory distress 269
REST APIs 291, 301, 302, 306, 308
risk 50, 51, 52, 56, 57, 58, 59, 60, 61, 62, 63, 64, 66, 73, 74, 75
Rotter scale 53
routinization 168, 171, 174, 175, 194
RWTH Aachen University 268, 269, 279

S
scalable medical alert response technology (SMART) 100, 114
schemas 22
Second Life (SL) 291, 299, 302, 303, 304, 305, 308
sensor-based assessment 247, 260
generator devices 78
Sensorized Elderly Care Home 294
sensor network architecture 94
sensor networks 94, 96, 97, 99, 102, 103, 105, 114, 116
Service-oriented Programmable Smart Environments for Older Europeans (SOPRANO) project 79, 91, 217, 218, 219, 221, 222, 223, 224, 226, 227, 228, 231, 235, 238, 241
Session Initiation Protocol (SIP) 279
Siemens Medical Solutions 7, 21
sink nodes 97, 98
sit-to-stand (STS) transfer 249
smart healthcare systems 76, 77, 86
smart home 291, 292, 311, 313
smart living environments 160
smart materials 93
smart sensor nodes 95, 96, 97, 116
social capital 52, 54, 72
social complexity 54
social interaction 218
social representation 174
sociotechnical competence 122
sociotechnical systems 121
spatial goal 142
spatio-temporal gait parameters 249
standardized gait and balance assessments (SGB) 141
synchronous communications 22
systems development lifecycle 137

T
task interdependence (TI) 179
technological frames 173, 176, 184
technological innovation 170, 171, 175, 176, 180, 181
technology acceptance 88, 92, 93
technology acceptance model (TAM) 163, 164, 165, 280
### Index

<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>telehealth</td>
<td>161, 162, 163, 164, 165, 166, 167, 171, 172, 173, 174, 176, 178, 179, 180, 181, 182, 183, 184, 185, 188, 193, 194</td>
</tr>
<tr>
<td>telecommunications technology</td>
<td>161, 164</td>
</tr>
<tr>
<td>Telenotarzt</td>
<td>269, 273, 274, 280, 282, 284, 288</td>
</tr>
<tr>
<td>terrestrial trunked radio (TETRA)</td>
<td>276, 277</td>
</tr>
<tr>
<td>theory of reasoned action (TRA)</td>
<td>163, 165</td>
</tr>
<tr>
<td>third generation (3G) wireless technology</td>
<td>95, 99, 112</td>
</tr>
<tr>
<td>three dimensional (3D) accelerometer</td>
<td>248, 249</td>
</tr>
<tr>
<td>Tiger Place</td>
<td>296, 297</td>
</tr>
<tr>
<td>Timed Up &amp; Go (TUG)</td>
<td>251</td>
</tr>
<tr>
<td>top-down processes</td>
<td>170, 194</td>
</tr>
<tr>
<td>transmission control protocol (TCP)</td>
<td>279</td>
</tr>
<tr>
<td>trust</td>
<td>49, 50, 51, 52, 53, 54, 58, 59, 60, 63, 67, 68, 69, 70, 71, 72, 73, 74, 75</td>
</tr>
<tr>
<td>trust building</td>
<td>50</td>
</tr>
<tr>
<td>trustees</td>
<td>51, 53</td>
</tr>
<tr>
<td>trust, generalities of</td>
<td>51</td>
</tr>
<tr>
<td>trust, interpersonal</td>
<td>52, 54, 58, 69, 70, 73</td>
</tr>
<tr>
<td>trust, mutual</td>
<td>52, 53</td>
</tr>
<tr>
<td>trust, online</td>
<td>49, 50, 52, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 70, 74, 75</td>
</tr>
<tr>
<td>trustors</td>
<td>51, 53, 54, 55</td>
</tr>
<tr>
<td>trustworthiness</td>
<td>51, 53, 55, 57, 59, 70, 73</td>
</tr>
<tr>
<td>two dimensional (2D) accelerometers</td>
<td>248</td>
</tr>
<tr>
<td>ubiquitous computing</td>
<td>92, 94, 110, 112</td>
</tr>
<tr>
<td>Ubiquitous Monitoring Environment for Wearable and Implantable Sensors (UbiMon) framework</td>
<td>99, 113</td>
</tr>
<tr>
<td>ultra badge</td>
<td>295</td>
</tr>
<tr>
<td>ultra wideband (UWB)</td>
<td>144, 145</td>
</tr>
<tr>
<td>United States</td>
<td>1, 2, 3, 20</td>
</tr>
<tr>
<td>universal design</td>
<td>289, 291, 292, 308, 311</td>
</tr>
<tr>
<td>universally unique identifiers (UUID)</td>
<td>8</td>
</tr>
<tr>
<td>universal mobile telecommunications systems (UMTS)</td>
<td>95, 99, 277</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>289, 298</td>
</tr>
<tr>
<td>University of Cologne</td>
<td>274</td>
</tr>
<tr>
<td>University of Kaiserslautern</td>
<td>195, 196</td>
</tr>
<tr>
<td>urban sociologists</td>
<td>195</td>
</tr>
<tr>
<td>usability</td>
<td>77, 78, 79, 80, 82, 84, 85, 86, 89, 91, 93</td>
</tr>
<tr>
<td>user awareness</td>
<td>24, 38, 42</td>
</tr>
<tr>
<td>user datagram protocol (UDP)</td>
<td>279</td>
</tr>
<tr>
<td>user diversity</td>
<td>93</td>
</tr>
<tr>
<td>user involvement</td>
<td>218, 219, 223, 227, 230, 232, 235, 236, 237, 238, 241</td>
</tr>
<tr>
<td>user requirements</td>
<td>220, 232, 234</td>
</tr>
<tr>
<td>user satisfaction</td>
<td>258, 259</td>
</tr>
</tbody>
</table>

**W**

<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASP architecture</td>
<td>294</td>
</tr>
<tr>
<td>wearable motion-sensing technology</td>
<td>244</td>
</tr>
<tr>
<td>wearable vital sign sensors</td>
<td>94</td>
</tr>
<tr>
<td>web services</td>
<td>22</td>
</tr>
<tr>
<td>Web sites</td>
<td>63, 75</td>
</tr>
<tr>
<td>Web site trust</td>
<td>52, 56, 58, 64</td>
</tr>
<tr>
<td>WiMAX standards</td>
<td>95</td>
</tr>
<tr>
<td>wireless ad hoc networks</td>
<td>96, 102, 111, 113, 116, 117</td>
</tr>
<tr>
<td>wireless body area network (WBAN)</td>
<td>95</td>
</tr>
<tr>
<td>wireless local area network (WLAN)</td>
<td>96</td>
</tr>
<tr>
<td>wireless mesh networks (WMN)</td>
<td>96, 116</td>
</tr>
<tr>
<td>wireless networking</td>
<td>95, 96</td>
</tr>
<tr>
<td>wireless networks</td>
<td>95, 96, 110, 115</td>
</tr>
<tr>
<td>wireless nodes</td>
<td>96</td>
</tr>
<tr>
<td>wireless vital sign sensors</td>
<td>99</td>
</tr>
<tr>
<td>workflow management systems</td>
<td>137</td>
</tr>
<tr>
<td>workflow technology</td>
<td>120</td>
</tr>
</tbody>
</table>

**Z**

<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Configuration (ZeroConf)</td>
<td>295</td>
</tr>
</tbody>
</table>