

Index

# Table of Contents

Table of Contents ..... i

List of Figures ..... vi

Executive summary ..... 1

1 Overview of people location solutions ..... 3

    1.1 Device segment ..... 5

        1.1.1 Mobile phones and smartphones ..... 5

        1.1.2 Dedicated people locator devices ..... 9

    1.2 Positioning segment ..... 10

        1.2.1 Mobile network-based location technologies ..... 12

        1.2.2 GNSS: GPS, GLONASS, Galileo and Compass/BeiDou 2 ..... 13

        1.2.3 Wi-Fi positioning ..... 13

        1.2.4 Bluetooth ..... 15

    1.3 Network segment ..... 16

        1.3.1 Public cellular networks ..... 17

        1.3.2 The cellular M2M connectivity market in Europe and North America ..... 19

    1.4 Platform segment ..... 21

    1.5 Market segmentation ..... 22

        1.5.1 Family locator services ..... 22

        1.5.2 Pet locator devices ..... 22

        1.5.3 Medical and telecare location solutions ..... 22

        1.5.4 Mobile workforce management ..... 23

        1.5.5 Lone worker protection ..... 23

        1.5.6 Electronic offender monitoring ..... 24

2 Family locator and consumer-oriented locator solutions ..... 25

    2.1 Handset based family locator services ..... 25

        2.1.1 Mobile operator branded family locator apps ..... 26

        2.1.2 People locator apps ..... 28

        2.1.3 Location sharing services ..... 30

2.2	Consumer oriented locator devices .....	33
2.2.1	General purpose locator devices .....	35
2.2.2	Child locator devices .....	36
2.2.3	Pet locator devices .....	42
2.3	Company profiles and strategies.....	48
2.3.1	BrickHouse Security.....	48
2.3.2	CareWhere .....	49
2.3.3	Comtech Telecommunications .....	50
2.3.4	Garmin.....	51
2.3.5	Haltian .....	53
2.3.6	hereO.....	54
2.3.7	Jiobit.....	56
2.3.8	Kippy .....	57
2.3.9	Life360 .....	58
2.3.10	Location Labs (Avast Software) .....	59
2.3.11	Pawtrack.....	60
2.3.12	Republic Wireless.....	61
2.3.13	SPOT (Globalstar) .....	62
2.3.14	Suchmich .....	64
2.3.15	Sygic.....	65
2.3.16	Tractive .....	65
2.3.17	Vodafone .....	67
2.3.18	Weenect .....	67
2.3.19	Whistle Labs (Mars).....	69
2.3.20	WTS Positioning Solutions.....	70
2.3.21	Yepzon .....	71
3	Medical alarm, mobile telecare and mPERS devices.....	75
3.1	Overview of demographics and common medical conditions.....	75
3.1.1	The ageing population .....	75
3.1.2	Medical conditions .....	77
3.2	Telecare and PERS solutions .....	79
3.2.1	The telecare service value chain .....	81

- 3.2.2 Telecare and PERS services in Europe and North America ..... 82
- 3.2.3 Mobile telecare and mPERS devices ..... 85
- 3.3 Company profiles and strategies ..... 89
  - 3.3.1 Buddi ..... 89
  - 3.3.2 Doro ..... 91
  - 3.3.3 Emporia Telecom ..... 93
  - 3.3.4 Everon ..... 94
  - 3.3.5 GreatCall ..... 95
  - 3.3.6 GTX Corp ..... 96
  - 3.3.7 Laipac Technology ..... 98
  - 3.3.8 Lok8u ..... 99
  - 3.3.9 LOSTnFOUND ..... 100
  - 3.3.10 MobileHelp ..... 101
  - 3.3.11 Navigil ..... 103
  - 3.3.12 Nortek ..... 104
  - 3.3.13 Philips Lifeline ..... 105
  - 3.3.14 Tunstall Healthcare Group ..... 106
- 4 Mobile workforce management and lone worker safety services ..... 109
  - 4.1 Employment statistics ..... 110
    - 4.1.1 Employment by industry ..... 110
  - 4.2 Mobile workforce management ..... 112
    - 4.2.1 Market segmentation and key market players ..... 113
    - 4.2.2 Mobile workforce management business models ..... 115
  - 4.3 Lone worker safety ..... 117
    - 4.3.1 Lone worker legislation and standards ..... 119
    - 4.3.2 Adoption of lone worker safety solutions ..... 123
    - 4.3.3 Lone worker protection devices and services ..... 124
  - 4.4 Company profiles and strategies ..... 129
    - 4.4.1 Actsoft ..... 129
    - 4.4.2 AlertGPS ..... 130
    - 4.4.3 Aware360 ..... 130
    - 4.4.4 Blackline Safety ..... 131

- 4.4.5 ClickSoftware ..... 133
- 4.4.6 Fleet Complete ..... 135
- 4.4.7 GuardianMPS ..... 137
- 4.4.8 Honeywell ..... 137
- 4.4.9 Oysta Technology ..... 139
- 4.4.10 pdvWireless ..... 141
- 4.4.11 ProntoForms ..... 141
- 4.4.12 Reliance High-Tech ..... 142
- 4.4.13 Safe Apps ..... 143
- 4.4.14 Scandinavian Radio Technology ..... 144
- 4.4.15 Send For Help Group ..... 146
- 4.4.16 ServiceMax (GE Digital) ..... 148
- 4.4.17 SoloProtect ..... 149
- 4.4.18 Track24 ..... 151
- 4.4.19 Trimble ..... 152
- 4.4.20 Tsunami Solutions ..... 154
- 4.4.21 Twig Com ..... 155
- 4.4.22 Vecima Networks ..... 157
- 4.4.23 Verisae (Accruent) ..... 158
- 4.4.24 Verizon Connect ..... 158
- 4.4.25 Vismo (Cellhire) ..... 160
- 5 Electronic offender monitoring ..... 163
  - 5.1 Prison population ..... 164
  - 5.2 Offender monitoring programmes ..... 167
    - 5.2.1 Electronic offender monitoring in North America ..... 167
    - 5.2.2 Electronic offender monitoring in Europe ..... 169
  - 5.3 Offender monitoring service providers and devices ..... 173
    - 5.3.1 Monitoring service providers ..... 174
    - 5.3.2 Tracking devices and major providers ..... 175
    - 5.3.3 Mergers and acquisitions in the electronic offender monitoring industry ..... 178
  - 5.4 Company profiles and strategies ..... 180
    - 5.4.1 Alcohol Monitoring Systems ..... 180

5.4.2 Attenti ..... 181

5.4.3 BI Incorporated (GEO Group) ..... 182

5.4.4 Comp Electronic Monitoring ..... 184

5.4.5 Corrisoft..... 184

5.4.6 G4S..... 185

5.4.7 Geosatis ..... 187

5.4.8 Satellite Tracking of People (Securus Technologies) ..... 187

5.4.9 Sentinel Offender Services ..... 189

5.4.10 Sierra Wireless..... 189

5.4.11 SuperCom ..... 191

5.4.12 Track Group ..... 191

6 Market forecasts and trends ..... 195

6.1 Market forecasts ..... 195

6.1.1 Family locator services and consumer-oriented people locator devices ..... 196

6.1.2 Pet locator devices and services..... 198

6.1.3 Mobile telecare, mPERS and medical alarm devices ..... 200

6.1.4 Mobile workforce management services ..... 202

6.1.5 Lone worker protection services ..... 203

6.1.6 Offender monitoring solutions..... 206

6.2 Market trends ..... 208

6.2.1 The technology giants reintroduce location sharing functionality in apps ..... 208

6.2.2 Locator device vendors diversify into serving the needs of businesses..... 209

6.2.3 The pet locator market still suffers from low market awareness..... 210

6.2.4 Mobile telecare solutions open up new market opportunities ..... 211

6.2.5 Growth in connected things will drive the market for mobile WFM solutions... 212

6.2.6 The addressable market for lone worker safety solutions is growing ..... 212

6.2.7 Stronger focus on software and analytics within offender monitoring ..... 213

6.2.8 The threat from large technology companies ..... 214

Glossary ..... 217

## Index

## List of Figures

Figure 1.1: Tracking device infrastructure overview .....	4
Figure 1.2: Smartphone shipments by vendor and OS (World 2017) .....	6
Figure 1.3: Smartphone adoption and market shares (EU28+2 2013–2017) .....	8
Figure 1.4: Smartphone adoption and market shares (North America 2013–2017) .....	9
Figure 1.5: LBS system overview .....	11
Figure 1.6: Mobile network operators in Europe and North America (2018) .....	18
Figure 1.7: Mobile operators in Europe by M2M subscriber base (Q2-2017) .....	20
Figure 1.8: Mobile operators in North America by M2M subscriber base (Q2-2017) .....	21
Figure 2.1: People locator and location sharing apps (2018) .....	29
Figure 2.2: Location sharing features in Google Maps and Facebook Messenger .....	32
Figure 2.3: Consumer oriented people locator devices .....	34
Figure 2.4: Price examples of locator devices serving the consumer market (2018) .....	36
Figure 2.5: Child population by age group (EU28+2 and North America 2017) .....	37
Figure 2.6: Price examples of child locator devices (2018) .....	38
Figure 2.7: Wearable child locator devices .....	39
Figure 2.8: Pet population and pet products sales (EU28+2 and North America 2017) .....	42
Figure 2.9: Price examples of dedicated pet locator devices (2018) .....	45
Figure 2.10: Pet tracking and activity monitoring devices .....	47
Figure 2.11: Garmin inReach satellite communication devices .....	52
Figure 2.12: Haltian's Snowfox trackerphone .....	54
Figure 2.13: Jibit Smart Tag and app .....	56
Figure 2.14: Relay child locator and communication device .....	61
Figure 2.15: Globalstar satellite tracking devices .....	63
Figure 2.16: Weenect Kids tracking device and app .....	68
Figure 2.17: Yepzon's Freedom locator device .....	73
Figure 3.1: Population by age group (EU28+2 and North America 2017 and 2025) .....	76
Figure 3.2: Number of people suffering from various medical conditions (EU/US 2015) .....	77
Figure 3.3: Leading telecare solution providers (EU 28+2 and North America 2017) .....	80

Figure 3.4: Telecare value chain..... 81

Figure 3.5: Telecare users by country (EU28+2 and North America 2017) ..... 84

Figure 3.6: Mobile phones for seniors ..... 85

Figure 3.7: Examples of mobile PERS and medical alarm devices (2018) ..... 86

Figure 3.8: Mobile telecare and mobile PERS devices..... 87

Figure 3.9: MobileHelp Duo mPERS system..... 102

Figure 4.1: Employment by industry (EU28+2 and North America 2016) ..... 111

Figure 4.2: Examples of mobile workforce management service providers (2018) ..... 114

Figure 4.3: Workforce management services marketed by mobile operators (2018)..... 116

Figure 4.4: Lone worker categories ..... 117

Figure 4.5: Risks of lone working in various occupations ..... 118

Figure 4.6: Examples of ARCs capable of monitoring lone workers (UK 2018)..... 122

Figure 4.7: Examples of dedicated lone worker protection devices (2018) ..... 125

Figure 4.8: Lone worker protection service providers (EU28+2 and North America 2018) .. 127

Figure 4.9: Blackline G7..... 132

Figure 4.10: Honeywell Personal Tracker Solution..... 138

Figure 4.11: SRT306 Personal Alarm..... 145

Figure 4.12: SoloProtect ID Pro ..... 150

Figure 4.13: Overview of the Trimble PULSE end-to-end field service management suite.... 153

Figure 4.14: TWIG SOSCard alarm..... 156

Figure 4.15: Verizon Connect’s Workforce software ..... 159

Figure 5.1: Prison populations and occupancy levels in North America (2017) ..... 165

Figure 5.2: Prison populations and occupancy levels in Europe (EU20+2 2017) ..... 166

Figure 5.3: Electronic monitoring programmes in Europe (EU28+2 2017) ..... 172

Figure 5.4: GPS-based offender monitoring devices ..... 175

Figure 5.5: Offender monitoring solution providers in Europe and North America (2018) .... 177

Figure 5.6: Acquisitions in the electronic offender monitoring industry (2010–2017) ..... 179

Figure 6.1: Child locator device shipments (EU28+2 2017–2022) ..... 197

Figure 6.2: Child locator device shipments (North America 2017–2022) ..... 197

Figure 6.3: Pet locator device shipments and subscribers (EU28+2 2017–2022) ..... 199

Figure 6.4: Pet locator device shipments and subscribers (North America 2017–2022) ..... 200

Figure 6.5: Mobile telecare device shipments, users and revenues (EU28+2 2017–2022) .. 201

Figure 6.6: mPERS device shipments, users and revenues (North America 2017–2022) ..... 202

Figure 6.7: Mobile workforce management users and revenues (EU28+2 2017–2022) ..... 202

Figure 6.8: Workforce management users and revenues (North America 2017–2022) ..... 203

Figure 6.9: Lone worker protection devices and services (EU28+2 2017–2022) ..... 204

Figure 6.10: Lone worker protection devices and services (North America 2017–2022) ..... 205

Figure 6.11: Offender monitoring systems and revenues (EU28+2 2017–2022) ..... 206

Figure 6.12: Offender monitoring systems and revenues (North America 2017–2022) ..... 207