

Index

Table of Contents

Table of Contents.....	i
List of Figures.....	vi
Executive summary.....	1
1 Public transport in Europe and North America.....	3
1.1 Modal split of passenger transport.....	5
1.2 Bus fleets and public transport utilisation.....	8
1.3 Market shares for bus and coach OEMs.....	11
1.4 Rail-borne public transport modes.....	12
1.4.1 Trams and light rail.....	13
1.4.2 Metro.....	14
1.5 Organisation and contracting in public transport.....	16
1.5.1 Legal framework in Europe.....	17
1.5.2 Legal framework in North America.....	18
1.5.3 Organisational forms and regional differences.....	19
1.6 Major public transport operators.....	21
2 ITS technologies and solutions.....	27
2.1 Public transport ITS infrastructure.....	28
2.1.1 Vehicle segment.....	30
2.1.2 Roadside segment.....	33
2.1.3 Backoffice segment.....	34
2.1.4 Traveller segment.....	35
2.1.5 GNSS segment.....	36
2.1.6 Network segment.....	37
2.2 Public transport management.....	41
2.2.1 Planning and scheduling tools.....	41
2.2.2 Computer aided dispatch systems.....	41
2.2.3 Traffic signal priority.....	42
2.2.4 Depot management.....	42

2.3	Traveller management.....	43
2.3.1	Passenger information	43
2.3.2	Entertainment	44
2.3.3	Fare payment	45
2.4	Driver management	46
2.4.1	Driving data registration and analysis.....	47
2.4.2	Eco-driving schemes.....	47
2.4.3	Video-based driver monitoring.....	48
2.4.4	Insurance risk management.....	48
2.5	Vehicle management.....	49
2.5.1	Vehicle diagnostics and maintenance planning	49
2.5.2	On-board security solutions.....	50
2.6	Business models and strategies	50
3	Market forecasts and trends	53
3.1	Market analysis.....	53
3.1.1	Market value forecast	54
3.1.2	Regional markets	56
3.1.3	Major vendors.....	58
3.2	Market drivers and barriers.....	61
3.2.1	Macroeconomic environment	61
3.2.2	Regulatory environment	63
3.2.3	Competitive environment	65
3.2.4	Technology environment	66
3.3	Value chain analysis	70
3.3.1	ITS and telematics industry players	71
3.3.2	Automotive industry players.....	80
3.3.3	Telecom industry players	82
3.3.4	IT industry players	85
3.4	Future industry trends	87
3.4.1	ITS adoption to grow alongside general IT maturity.....	88
3.4.2	Open architectures altering the ITS value chain	88
3.4.3	Public transport stakeholders embrace integrated mobility to stay relevant.....	89

- 3.4.4 Mobile devices assume multiple important roles in the ITS infrastructure 90
- 3.4.5 Public transport stakeholders invest in autonomous vehicles & electromobility 91
- 3.4.6 Data analytics to drive service improvements..... 92
- 4 OEM products and strategies 95
 - 4.1 Daimler..... 95
 - 4.2 Iveco 99
 - 4.3 MAN Truck & Bus 101
 - 4.4 Scania..... 103
 - 4.5 Volvo Group..... 106
 - 4.6 New Flyer..... 110
 - 4.7 Gillig..... 112
 - 4.8 Alexander Dennis..... 112
 - 4.9 VDL 114
 - 4.10 Van Hool 115
- 5 Aftermarket solution providers..... 117
 - 5.1 International 117
 - 5.1.1 Conduent..... 117
 - 5.1.2 ENGIE Ineo..... 122
 - 5.1.3 GIRO..... 125
 - 5.1.4 INIT 127
 - 5.1.5 IVU..... 133
 - 5.1.6 Siemens Mobility 138
 - 5.1.7 Thales 142
 - 5.1.8 Trapeze Group 145
 - 5.2 Germany and Eastern Europe..... 152
 - 5.2.1 Atron 152
 - 5.2.2 DILAX Group 155
 - 5.2.3 i-Cell..... 156
 - 5.2.4 ICOM 157
 - 5.2.5 Kapsch PublicTransportCom 159
 - 5.2.6 Moovel (Daimler) 162
 - 5.2.7 Nettropolis 165

5.2.8	PSI Transcom	166
5.2.9	R&G	169
5.2.10	Radcom	170
5.2.11	Ridango	171
5.2.12	Scheidt & Bachmann	172
5.2.13	Tri Star Group	174
5.2.14	UTI	176
5.3	France, Benelux and the UK.....	178
5.3.1	21st Century Technology	178
5.3.2	Actia.....	181
5.3.3	Comatis	185
5.3.4	GreenRoad	186
5.3.5	Hanover Displays	189
5.3.6	Lumiplan.....	190
5.3.7	Maestronic.....	192
5.3.8	Masabi	193
5.3.9	MiX Telematics	194
5.3.10	Omnibus	198
5.3.11	RATP Smart Systems	200
5.3.12	Simpliciti	203
5.3.13	Vix Technology	204
5.4	The Mediterranean.....	207
5.4.1	GMV.....	208
5.4.2	Goal Systems	212
5.4.3	Grupo ETRA	213
5.4.4	Indra	216
5.4.5	Leonardo	220
5.4.6	Link Technologies	221
5.4.7	Metatronix and Digigroup Informatica.....	223
5.4.8	PluService.....	224
5.4.9	Swarco.....	226
5.4.10	Tecmic.....	230

5.5 The Nordics 232

5.5.1 Consat Telematics..... 232

5.5.2 FARA..... 234

5.5.3 Fältcom (Telia Company)..... 237

5.5.4 Hogia Public Transport Systems..... 239

5.5.5 Icomera (ENGIE Ineo) 242

5.5.6 Pilotfish 243

5.5.7 Thoreb 247

5.5.8 Traffilog..... 249

5.5.9 TriNorth Solutions 251

5.5.10 Trivector System..... 252

5.5.11 Vehco 254

5.6 North America..... 256

5.6.1 Accenture 256

5.6.2 Avail Technologies 257

5.6.3 Clever Devices..... 259

5.6.4 Cubic Transportation Systems..... 261

5.6.5 Ecolane..... 265

5.6.6 ISR Transit 266

5.6.7 Luminator Technology Group 268

5.6.8 Moovit..... 270

5.6.9 Routematch 271

5.6.10 Swiftly 273

5.6.11 Synovia Solutions..... 275

5.6.12 TransLoc (Ford)..... 276

5.6.13 Zonar Systems (Continental) 279

Glossary 283

Index

List of Figures

Figure 1.1: Modal split of passenger transport on land (EU-23+2 2016)	6
Figure 1.2: Modal split of passenger transport on land (North America 2016)	7
Figure 1.3: Bus statistics – vehicle stock, new registrations & passenger-km (EU23+2).....	9
Figure 1.4: Bus statistics – vehicle stock, new registrations & passenger-km (NA).....	10
Figure 1.5: Bus & coach (>3.5t) market shares, by group & brand (EU26 + EFTA 2017)	11
Figure 1.6: Heavy-duty transit bus segment market shares, by brand (NA 2017)	12
Figure 1.7: Largest Metro Networks in Europe and North America (2018)	16
Figure 1.8: Key figures on major public transport operators.....	22
Figure 1.9: Market presence for major transport operators (EU23+2 & NA 2017)	25
Figure 2.1: Public transport ITS infrastructure overview	29
Figure 2.2: Examples of on-board equipment installed in public transport vehicles	31
Figure 2.3: ITS equipment in buses and light rail in the United States (2017)	32
Figure 2.4: Example of public transport ITS backoffice segment	34
Figure 2.5: Examples of app-based journey planner and smart card payment solution	36
Figure 2.6: Mobile network operators in Europe and North America (2017)	39
Figure 2.7: Fare Payment Technologies.....	46
Figure 3.1: Public transport ITS market value and penetration (EU28+2 2017–2022)	54
Figure 3.2: Public transport ITS market value and penetration (NA 2017–2022)	55
Figure 3.3: Major public transport ITS providers	60
Figure 3.4: Financial data for leading ITS and telematics industry players.....	73
Figure 3.5: Key data for companies and groups active in ITS for public transport.....	75
Figure 3.6: Mergers and acquisitions among companies active in public transport ITS	78
Figure 3.7: Mobile operators in Europe by cellular IoT subscriber base (Q2-2017)	83
Figure 3.8: Mobile operators in North America by M2M subscriber base (Q2-2017)	85
Figure 5.1: INIT's ECOdrive driver panel	130
Figure 5.2: Overview of IVU.suite.....	134
Figure 5.3: Overview of the Trapeze System	148
Figure 5.4: Moovel app	164

Figure 5.5: Actia’s Podium 2 dashboard with driverAID function 183

Figure 5.6: GreenRoad Central dashboard 187

Figure 5.7: MiX Telematics’ RIBAS display 196

Figure 5.8: Swarco’s new NEXT OBU terminal 228

Figure 5.9: Fältcom’s MIIPS C Unit 238

Figure 5.10: Pilotfish’s Vehicle Gateway VG210 245

Figure 5.11: Swiftly’s live map dashboard 274

Figure 5.12: TransLoc Rider app 278

Figure 5.13: Zonar device options – Connect Tablet, 2010 and Samsung Galaxy Tab 281

