

Fleet Management – World 2019

A complete set of nine unique reports - offering in-depth analysis and unique insights into the global fleet management market.

This package offers more than 1200 pages of excellent reading and comprises the following titles in Berg Insight's IoT Research Series:

Fleet Management in Europe

Fleet Management in Russia/CIS and Eastern Europe

Fleet Management in the Americas

Fleet management in China

Fleet Management in South Africa (including Africa outlook)

Fleet Management in Australia and New Zealand

Trailer and Cargo Container Tracking

The Global Construction Equipment OEM Telematics Market

The Airport Asset Tracking Market

Please find below the summaries for each of the reports included in this package.

Summary

Executive summary

Fleet management (FM) is an ambiguous term used in reference to a wide range of solutions for different vehicle-related applications. Berg Insight's definition of a fleet management solution is a vehicle-based system that incorporates data logging, satellite positioning and data communications to a backoffice application. The history of fleet management solutions goes back several decades. On-board vehicle computers first emerged in the 1980s and were soon connected to various satellite and terrestrial wireless networks. Today, mobile networks can provide ubiquitous online connectivity in many regions at a reasonable cost and mobile computing technology delivers very high performance, as well as excellent usability. All of these components combined enable the delivery of vehicle management, transport management, driver management and mobile workforce management applications linking vehicles and enterprise IT systems.

Commercial vehicle fleets play an essential role in the economy in both North and Latin America. In North America, there are approximately 14.4 million GVW 3–8 commercial vehicles in use. Around 18 million lighter vehicles including GVW 1–2 vehicles and cars with no GVW are also used by enterprises or public entities. In Latin America, the number of commercial vehicles in operation is estimated to 26.7 million, out of which 5.9 million are heavy trucks and 20.8 million are light commercial vehicles. Berg Insight is of the opinion that the market for fleet management in the Americas is in a growth period which will continue in the years to come. The advanced North American market will remain on a growth track, not the least driven by regulatory developments such as the ELD mandate which is now in force. Latin America has traditionally presented a very different scenario, often requiring an educational process in order to extend the perception of fleet management beyond security-related aspects. The Latin American fleet owners have however also started to embrace functionality for optimisation of fleet operations to an increasing extent.

Berg Insight expects the FM market to continue to show healthy growth in 2018–2022. In North America, the number of systems in active use is forecasted to grow at a compound annual growth rate (CAGR) of 15.6 percent from 8.0 million units in 2017 to 16.4 million units

by 2022. The penetration rate in the total population of non-privately owned commercial vehicles is estimated to increase from 26.6 percent in 2017 to 49.7 percent in 2022. In Latin America, the number of systems in use is projected to increase from 3.0 million units in 2017, growing at a CAGR of 13.1 percent to reach 5.5 million units in 2022. The penetration rate in the region is estimated to increase from 11.2 percent in 2017 to 19.7 percent in 2022.

Verizon Connect is the clear leader in the fleet telematics space both from a global perspective and in the Americas specifically. The closest competitor in the Americas is Geotab which has grown considerably in the past year, followed by Omnitracs and Trimble which have both surpassed 0.5 million active fleet management subscribers in the region. Zonar Systems rounds off the top-5, just ahead of Michelin which has established a strong position in the Americas through multiple acquisitions. Additional top players with installed bases in the range of 0.2–0.3 million active units in the Americas include Teletrac Navman, KORE Position Logic and Fleet Complete. A total of 15 players had installed bases exceeding 0.1 million active units in the Americas at the end of 2017, including also Gurtam, Synovia Solutions, BSM Technologies, GPS Insight, WideTech and Pósitron. The remaining top-25 vendors are J.J. Keller, Spireon, Autotrac, Azuga, ORBCOMM, Pointer Telocation, Agilis Systems, OnixSat, CalAmp and Encontrack. Fleet management solution providers with installed bases just outside of the top list moreover include MiX Telematics, TomTom Telematics, OMNILINK, Ituran, Centro de Soluciones Inalámbricas (CSI) and Satrack.

Most vehicle manufacturers now offer factory-installed fleet telematics solutions either independently or through partnerships. Examples of OEMs which have introduced systems in the Americas include Daimler, Volvo, Scania, MAN, Iveco, PACCAR, Navistar, Ford, GM, Hino, Isuzu, FUSO and Ram. The OEM telematics initiatives in the Americas have intensified in recent years. Large installed bases of OEM telematics systems are now found on the North American market, in many cases powered by established aftermarket fleet management solution providers. Notable telematics players actively supporting OEMs include Verizon Connect, Zonar Systems and PeopleNet. The volumes of OEM telematics systems are so far substantially smaller in Latin America. The adoption is however expected to take off also in this region. Solutions supplied by the OEMs are anticipated to increase in importance across both continents in the Americas in the coming years.

Summary

Executive summary

Fleet management is an ambiguous term used in reference to a wide range of solutions for different vehicle-related applications. Berg Insight's definition of a fleet management solution is a vehicle-based system that incorporates data logging, satellite positioning and data communications to a backoffice application. The history of fleet management solutions goes back several decades. On-board vehicle computers first emerged in the 1980s and were soon connected to various networks. Today mobile networks can provide ubiquitous online connectivity at a reasonable cost and mobile computing technology delivers very high performance, as well as excellent usability. All of these components combined enable the delivery of vehicle management, transport management, driver management and mobile workforce management applications linking vehicles and enterprise IT systems.

Commercial vehicle fleets play an essential role in the European economy. According to official statistics there were 37.8 million commercial vehicles in use in EU23+2 in 2015. The 6.1 million medium and heavy trucks accounted for more than 75 percent of all inland transports, forming a € 250 billion industry. Approximately 0.8 million buses and coaches stood for 9.3 percent of all passenger kilometres. The greater part of the 30.9 million light commercial vehicles (LCV) in Europe was used by mobile workers and for activities such as distribution of goods and parcels. Last but not least, there are an estimated 21.0 million passenger cars owned by companies and governments.

Berg Insight is of the opinion that the European fleet management market has entered a growth period that will last for several years to come. Individual markets may however suffer temporary setbacks, depending on the local economic developments. The number of fleet management systems in active use is forecasted to grow at a compound annual growth rate of 15.2 percent from 7.7 million units at the end of 2017 to 15.6 million by 2022. The penetration rate in the total population of non-privately owned commercial vehicles and cars is estimated to increase from 15.0 percent in 2017 to 28.8 percent in 2022.

A group of international aftermarket solution providers have emerged as the leaders on the European fleet management market. Berg Insight ranks TomTom Telematics as the largest vendor in Europe at the end of 2017 with 708,000 subscribers in the region. Transics is ranked as the largest player in the aftermarket heavy trucks segment with an estimated 121,000 active units installed. Other significant players include European companies such as Masternaut, Microlise, ABAX, Viasat, Bornemann, Trakm8, Quartix, OCEAN (Orange), GSGroup, Targa Telematics and Vehco and international players like Verizon Connect, Trimble and Teletrac Navman from the US, Fleet Complete from Canada, Astrata Europe from Singapore and the South African telematics providers Ctrack (Inseego) and MiX Telematics.

All major truck manufacturers on the European market offer OEM telematics solutions as a part of their product portfolio. Mercedes-Benz, Volvo and Scania launched their first products in the 1990s followed by MAN in 2000, Renault Trucks in 2004, DAF Trucks in 2006 and Iveco in 2008. A major trend in the past years has been the announcements of standard line fitment of fleet management solutions. Since the end of 2011, Scania is rolling out the Scania Communicator as standard on all European markets and includes a ten-year basic service subscription. The new generation of the Actros trucks from Mercedes-Benz contains the FleetBoard vehicle computer as standard in all EU28 countries. Volvo offers Dynafleet as standard in Europe. New MAN trucks are now equipped with RIO as standard replacing MAN TeleMatics. DAF launched its new optional DAF Connect that has been developed in-house in September 2016. The leading OEMs in Europe are Scania, Volvo and Daimler with 219,000, 117,000 and 108,000 active FM subscribers respectively at the end of 2017.

The consolidation trend continues and 13 M&A activities have taken place in the past year. In October 2017, Blue Tree Systems was acquired by ORBCOMM. ABAX acquired Danish Fleetfinder in December 2017. In January 2018, EcoFleet was acquired by Fleet Complete and Verizon Connect moreover continued its European expansion with the acquisition of Movildata in Spain. Vehco was acquired by AddSecure in May 2018, which gave Vehco the structure and financial strength to further expand within fleet management. Vehco's third acquisition followed shortly thereafter when the company took over the ownership of Groeneveld ICT Solutions. The latest transaction was done in October 2017 when Viasat acquired Portuguese TrackIT Consulting after recently having picked up also Locster in France and Detector in Spain.

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Commercial vehicle fleets play an essential role in the economy in the CIS and Eastern Europe, where several countries are part of important Pan-European transport corridors. The total of around 10 million heavy commercial vehicles in the region account for a major share of the inland transports. Motor vehicles are for example involved in about 70 percent of the total inland transportation in Russia. In Europe, medium and heavy trucks account for over 75 percent of all inland transports, forming a € 250 billion industry. Moreover, the greater part of the total 15 million light commercial vehicles in the CIS and Eastern Europe are used by mobile workers and for activities such as distribution of goods and parcels.

Berg Insight is of the opinion that the fleet management industry is in a long-term growth phase. Key drivers in Eastern Europe and the CIS include cost reductions related to fuel savings and regulatory developments such as ERA-GLONASS and the Platon electronic toll collection system which increase the awareness of telematics. The number of fleet management systems in active use in the region is forecasted to grow at a compound annual growth rate of 13.5 percent from 4.8 million units at the end of 2016 to 9.1 million by 2021. The penetration rate in the total population of non-privately owned commercial vehicles is

estimated to increase from 14.2 percent in 2016 to 24.2 percent in 2021. The Russian market accounts for a significant share of the region's total installed base and is forecasted to grow from 2.1 million active FM units at the end of 2016 to 3.5 million units by 2021.

The leading FM solution providers in terms of installed base in the CIS and Eastern Europe include diverse players from a number of countries. Belarus-based Gurtam is the leading FM software provider, having surpassed the milestone of 500,000 vehicles under management in the region. Arvento Mobile Systems from Turkey and TechnoKom based in Russia are the first and second runners-up, followed by Turkish Mobiliz and the Russian players NIS (MTS), SCOUT and Navigator Group. Additional top-15 players include Russia-based Omnicomm which has around 100,000 active FM units, as well as Infotech in Turkey, Fort Telecom and SpaceTeam in Russia, the European market leader TomTom Telematics, Princip in the Czech Republic, the major truck OEM Scania and Secret Control which is based in Hungary. With the exception of TomTom Telematics and Scania, the major international solution providers based in Western Europe, North America or South Africa are yet to reach the top-15 list for this region.

The expectations for the future fleet management market in Eastern Europe and the CIS include a gradual convergence with the developments in Western Europe. Eastern Europe is already tracing the most developed European markets closely in terms of system functionality and service models. The major Russian solution providers have historically mainly served large corporations with standalone software systems which are paid upfront and hosted in-house, whereas subscription services traditionally mainly have been adopted by SMBs. Cloud services based on recurring service fees have however now become a greater focus also for major enterprise fleets on the Russian market and the domestic FM solution providers are increasingly pushing for a transition towards SaaS-based models. Another key trend on the European market is factory-fitment of OEM telematics, which is offered by most of the major truck manufacturers. The local manufacturers in Russia/CIS have however not yet fully embraced this development and the OEM fleet telematics activities remain comparably limited in the region. The local commercial vehicle manufacturers in the CIS market are also expected to gradually introduce proprietary telematics systems including vehicle tracking, remote diagnostics and other fleet management functionality, driven by regulatory developments and increasing competition from Western truck OEMs.

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Commercial vehicle fleets play an essential role in the Chinese economy and are crucial for the development of the country. Road transport represents around 75 percent of the total goods transports on the Chinese market measured by weight, corresponding to almost 31 billion tonnes in 2013. The total ownership of trucks in China reached almost 17.9 million vehicles in 2011 according to official statistics. Around 2.5 million buses are moreover estimated to be in operation in the country.

Berg Insight is of the opinion that the Chinese fleet management market will experience steep growth in the next coming years. The development is boosted by a combination of political decisions to track selected trucks and buses and the explosion of e-commerce which forces logistics companies to improve the fleet management efficiency and customer service by enabling tracking of goods status information. National, provincial and regional initiatives to reduce pollution in the transport sector are moreover expected to speed up the renewal of the operating fleet of trucks and buses. This development along with increasing factory-fitting of telematics platforms together foster increased FM adoption on the Chinese market. The

number of fleet management systems in active use is forecasted to grow at a compound annual growth rate of 22.9 percent from 2.1 million units at the end of 2014 to 5.9 million by 2019. The penetration rate in the total population of registered commercial vehicles including trucks and buses is estimated to increase from 9.0 percent in 2014 to reach 19.8 percent in 2019. Track & trace systems dominate the market and the installed base so far includes a notable share of low-end systems with comparatively limited functionality.

The Chinese fleet management market includes numerous players that have installed tens of thousands of telematics systems for fleet clients. Top providers with installed bases of more than 100,000 units include E6GPS and Etrans. There are furthermore a number of players with installed bases in the range of around 50,000–100,000 units, including Beijing Zhongdou Technology (Ccompass), Shenzhen Huabao Electronics Technology, Shenzhen Weitongda Electronics and 666GPS. Other players with installed bases of approximately 50,000 units include Zhengzhou Shenyang Science & Technology, Shenzhen SOFAR Communication, Shanghai Transun Telematics Technology, Sinocastel, Baoding Beier Electronics and Aerospace Intelligent. Also a small number of international aftermarket solution providers have entered the Chinese fleet management market but the installed bases of the foreign providers remain limited. Among the few international providers that have entered this market and achieved installed bases of at least 1,000 units are Trimble, MiX Telematics, Microlise and Navman Wireless.

Some Chinese commercial vehicle OEMs have introduced telematics systems. In the truck segment, a small number of OEMs stand out as more prominent in terms of fleet telematics activities – most notably Foton and Shaanxi Automobile Group. There are further a number of telematics initiatives among the bus manufacturers from players such as Yutong and King Long Group. The latter is also known as the Three Dragons and includes the brands King Long, Golden Dragon and Higer. Multiple telematics offerings have been launched within the group. Also a number of other truck and bus manufacturers are exploring opportunities related to fleet telematics, but many OEMs still have little or no activity in this space. The automotive industry players on the Chinese market are in the future expected to increasingly equip new commercial vehicles with telematics systems in line with government initiatives.

Summary

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Trailer and cargo container tracking is a subsegment of asset tracking and aims to increase operational efficiency and make logistics chains more secure. Berg Insight's definition of a real-time tracking solution is a system that incorporates data logging, satellite positioning and data communication to a backoffice application. Trailer tracking can be part of fleet management solutions including both trucks and trailers. The history of fleet management solutions goes back several decades while tracking and monitoring of shipping containers came in focus after 9/11. Today, mobile and satellite networks can provide ubiquitous online connectivity at a reasonable cost and mobile computing and sensor technology delivers high performance as well as excellent usability. All of these components combined enable the delivery of supply chain management, security management and operations management applications linking trailers, containers, cargo and enterprise IT systems.

In order to make freight transport efficient, products are packed into collective logistics units which can remain intact throughout the delivery chain. Smaller logistics units such as boxes and pallets are often grouped into larger units and loaded on trailers, semi-trailers, swap bodies, rail freight wagons, air freight unit load devices (ULDs) or intermodal shipping containers. These loading units can be applicable to one or more modes of transport. Trailers and semi-trailers are mostly used in road transport, swap bodies can be transferred between road and rail transport, rail freight wagons are used on railways, ULDs are used in air freight transport and shipping containers can be carried on several transport modes. More than 20 million intermodal containers and over 13 million trailers are in use worldwide.

Berg Insight estimates that shipments of remote tracking systems with cellular or satellite communication capabilities for cargo loading units including trailers, intermodal containers, rail freight wagons, air freight cargo containers, cargo boxes and pallets reached 0.9 million units worldwide in 2017. Growing at a compound annual growth rate of 20.9 percent, the shipments are expected to reach 2.4 million units in 2022. During the same period, the installed base of remote tracking systems is forecasted to grow at a compound annual growth rate of 19.6 percent from 3.7 million units at the end of 2017 to 8.9 million units by

2022. Trailer tracking is the largest market segment, estimated to account for 49.3 percent of the total installed base of tracking units deployed on trailers and cargo containers in 2017. Intermodal container tracking is the second largest segment with an estimated share of 32.9 percent of the total installed base at the end of 2017.

Berg Insight ranks ORBCOMM as the largest provider of tracking solutions for cargo loading units, having a significant installed base of trailers as well as containers. The company has in the past years been highly involved in M&A activity related to real-time asset tracking, including notable acquisitions such as Blue Tree Systems, Euroscan and WAM Technologies. The latter was involved as a subcontractor for the Maersk/AT&T project to roll out a system for real-time tracking of Maersk entire fleet of 270,000 refrigerated containers. The project is one of the largest cellular-based industrial IoT deployments of its kind. The North American trailer telematics market is dominated by ORBCOMM and SkyBitz which both have more than 300,000 active units, while Omnitrac, Spireon and I.D. Systems all have between 100,000–200,000 units. The European trailer telematics market is considerably smaller. Idem Telematics is the leading player with 60,000 active units while other top Europe-based players include Schmitz Cargobull and Novacom with over 25,000 active trailer units each. Mecomo and Agheera, also based in Europe, are strong vendors in the adjacent swap body segment. Envotech and Numerex, based in Malaysia and the US respectively, have large installed bases on containers. Amsted Rail, Asto Telematics and Nexiot have all deployed thousands of tracking devices on rail freight wagons. Other significant players include Sensitech that has an installed base of over 200,000 units in the general cargo segment and OnAsset Intelligence which is active in the air freight cargo tracking market.

Berg insight anticipates that there will be a strong focus on increased supply chain visibility and transport security in the coming years. Tracking of trailers, intermodal containers and rail freight wagons is increasingly common and technology advancements allow for ever-smaller logistics units such as individual pallets or cargo boxes to be tracked at a reasonable cost. General acceptance of remote tracking solutions will first be established in specific usage scenarios such as high-value, time-critical or refrigerated goods. Decreasing hardware costs, improved battery life and the emergence of LPWA technologies are expected to impact the market positively and foster wide-spread adoption of cargo tracking solutions in the coming years.

Summary

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In spite of the country's weak economic performance, Berg Insight is of the opinion that the market for fleet management in South Africa is in a growth period which will continue in the years to come. The number of FM systems in active use is forecasted to grow at a compound annual growth rate (CAGR) of 14.0 percent from 1.3 million units at the end of 2017 to 2.5 million by 2022. The penetration rate in the total population of non-privately owned fleet vehicles used by businesses is at the same time estimated to increase from 28.6 percent in 2017 to 49.8 percent in 2022. South Africa is a relatively mature telematics market and the penetration is comparably high from an international perspective. Far from all deployments are however full-scale advanced FM solutions. A notable share of the installed fleet telematics systems on the South African market is represented by comparably low-end tracking systems, e.g. light FM solutions, including SVR systems extended with basic FM features.

The South African fleet management market is clearly dominated by five domestic players with broad telematics portfolios. Berg Insight ranks Cartrack and MiX Telematics as the largest providers of fleet management solutions in South Africa, both having estimated installed bases of more than 200,000 active units in the country. The second runner-up is Tracker which in addition to its in-house developed solutions also markets fleet management systems powered by TomTom Telematics. The remaining top-5 players are Netstar and Ctrack which both have installed bases exceeding 100,000 FM units in South Africa. Additional examples of domestic aftermarket players include Digit Vehicle Tracking (Digicell), GPS Tracking Solutions (Eqstra Fleet Management/enX Group), Autotrak and PFK Electronics. In addition to TomTom Telematics, other renowned international solution vendors active on the market include Gurtam, Pointer Telocation and Geotab. Foreign telematics players have however generally not managed to achieve any top-ranking market shares on the South African fleet management market so far. Commercial vehicle OEMs including Scania, Daimler, MAN and Volvo Group have moreover all introduced fleet telematics solutions in South Africa, though the adoption levels generally remain relatively modest so far.

Summary

Executive summary

Berg Insight is of the opinion that the market for fleet management (FM) in Australia and New Zealand is in a growth period which will continue in the years to come. The number of FM systems in active use is forecasted to grow at a compound annual growth rate (CAGR) of 16.4 percent from almost 0.8 million units in 2017 to nearly 1.7 million by 2022. The penetration rate in the total population of non-privately owned fleet vehicles used by businesses is at the same time estimated to increase from 16.9 percent in 2017 to 32.7 percent in 2022. The fleet telematics market in the region is today influenced positively by a number of different drivers including regulatory developments related to health and safety regulations, chain of responsibility legislation and road user charges.

A large number of diverse vendors are active on the FM market in Australia and New Zealand, including several of the leading international players as well as a plethora of small and medium-sized companies mainly focused on this region. Berg Insight ranks Teletrac Navman as the largest provider in Australia and New Zealand, having surpassed the milestone of 100,000 active units in the region. Verizon Connect is estimated to be the second largest player, followed by EROAD and MTData based in New Zealand and Australia respectively. MTData is owned by the operator Telstra since 2017. The fifth largest player is South Africa-based Netstar which has reached over 40,000 units in the region following the acquisitions of Pinpoint Communications and Ezy2c. Other notable vendors with estimated installed bases of more than 20,000 active units in Australia and New Zealand include the local suppliers IntelliTrac, Smartrak, Coretex and Digital Matter, as well as international players including MiX Telematics and Fleet Complete. The latter entered the region through the acquisition of Geotab's reseller Securatrak. Top-ranking FM providers on the global market such as TomTom Telematics, Trimble and Gurtam have also expanded to this region. Additional examples of local players with comparably sizeable subscriber bases include Myionu, GPSEngine, Procon Telematics and Directed Electronics Australia. The latter works with a range of vehicle OEMs on the local market. Commercial vehicle OEMs which have introduced fleet telematics solutions in the region independently or through partnerships include Isuzu, Volvo Trucks, UD Trucks, Scania, PACCAR, Toyota, Hino, Mercedes-Benz and Mitsubishi.

Summary

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Berg Insight has found that the global installed base of active construction equipment OEM telematics systems reached over 2.0 million units in 2017. Growing at a compound annual growth rate (CAGR) of 19.2 percent, the active installed base is forecasted to reach 4.9 million units worldwide in 2022. This includes all CE telematics systems marketed by construction equipment OEMs, either developed in-house or provided by the CE manufacturers in partnership with third-party telematics players. The European market accounted for almost 0.5 million active construction equipment OEM telematics systems at the end of 2017. The North American market is estimated to be slightly larger than the European. The Rest of World moreover represents more than half of the global installed base of CE telematics systems provided by construction equipment OEMs.

Most major construction equipment OEMs have introduced telematics offerings for their customers either independently or in collaboration with telematics partners. OEM telematics systems are today commonly factory-installed as standard at least for heavier machines. Berg Insight ranks Caterpillar and Komatsu as the leading construction equipment OEMs in terms of the number of CE telematics systems deployed worldwide. Based in the US and Japan respectively, the two companies – which are also by far the leading construction equipment manufacturers in terms of market share – together account for more than one million CE telematics units. Caterpillar's largest markets for its telematics offerings are North America and Europe while Komatsu has the largest share of its telematics units in Japan and China followed by North America and Europe. The remaining top-5 players include Japan-based Hitachi Construction Machinery, UK-based JCB and Sweden-based Volvo CE which have all surpassed the milestone of 100,000 units. Other notable OEMs include Deere & Company and Hyundai Construction Equipment which are based in the US and South Korea respectively. Doosan Infracore, based in South Korea, as well as Switzerland-based Liebherr and CNH Industrial which is headquartered in the UK further all have global installed bases of construction equipment telematics units in the low tens of thousands.

Summary

Executive summary

An increasing number of companies have introduced asset tracking and management solutions which can be used to keep track of airport assets and improve the efficiency of ground handling operations and maintenance routines. Berg Insight estimates that the global installed base of active airport asset tracking systems was less than 0.2 million units in 2018. Growing at a compound annual growth rate (CAGR) of 17.1 percent, the active installed base is estimated to reach close to 0.4 million units worldwide in 2023. This includes all airport asset tracking systems deployed for various motorised ground support equipment (GSE), non-motorised equipment (NME) as well as other applicable airport assets including on-road vehicles used in airport environments. Berg Insight's definition of an airport asset tracking solution covers systems based on various technologies including conventional cellular-based IoT connectivity and emerging low-power wide-area (LPWA) wireless technology as well as proprietary radio, Wi-Fi and Bluetooth.

The airport asset tracking market is served by a number of different types of players, ranging from specialists focused exclusively on tracking and management solutions for specific airport assets, to companies that offer a more comprehensive set of solutions for the aviation sector, and more general telematics players that also serve other industries. Berg Insight ranks Undagrid (GSEtrack), Quantum Aviation Solutions and Resonate MP4 (XOPS) as the leading vendors of airport asset tracking solutions in terms of installed base. Both Undagrid and Quantum have reached more than 10,000 active units respectively. Additional strong players include ADVEEZ, Targa Telematics and Pinnacle (iMATS). The latter has notably partnered with Honeywell which in late 2018 signed a major agreement with Swissport to deploy ground handling services jointly developed with Pinnacle. Targa Telematics has furthermore established a partnership with TCR Group which is also collaborating with Sensolus for non-motorised GSE tracking. Additional players active in the field of airport asset tracking for example include Litum IoT, DigiMobi, EC2E, INFORM, Ctrack (Inseego), Tri-Logical Technologies, Smarter Asset Management (SAM), Katlyn International, Speedshield Technologies and Geotab, all having installed bases of at least 1,000 units each.