

# LBS Platforms and Technologies

**LBS Platforms and Technologies** is the sixth consecutive report from Berg Insight analysing the latest developments on the global market for LBS platforms and middleware.

This report in the LBS Research Series from Berg Insight provides you with 180 pages of unique business intelligence including 5-year industry forecasts and expert commentary on which to base your business decisions.

## ***This report will allow you to:***

- **Benefit** from 30 new executive interviews with market leading companies.
- **Learn** about the latest trends on the location platform and technologies market.
- **Identify** key location platform vendors and technology developers.
- **Discover** new players in the indoor location platform market.
- **Recognise** how different use cases and market segments drive location platform developments.
- **Understand** the strengths and weaknesses of key location technologies.
- **Comprehend** how passive location platform architectures can enable new business opportunities.
- **Anticipate** future drivers for location platforms and middleware revenues.

## **Berg Insight's LBS Research Series**

What are the real business opportunities for LBS on the global market? Berg Insight's LBS Research Series is a unique series of market reports published on a quarterly basis. Each title offers detailed analysis of the most interesting LBS topics such as LBS platforms, location-based advertising, mobile personal navigation services and location-enabled content services. Once per year we also publish a summary of our research with detailed forecasts for the major regions.

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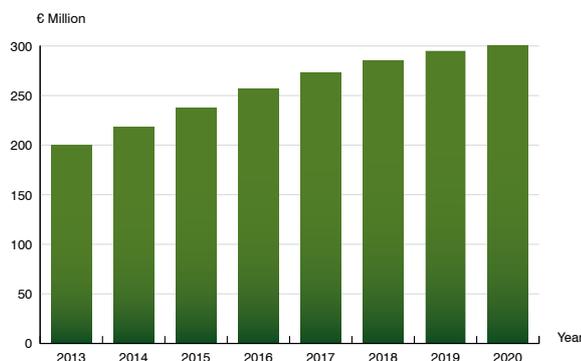


## Which technologies will enable future indoor location services?

Mobile location platforms enable three categories of location-based services (LBS): public safety, national security and law enforcement, as well as commercial services. Over 70 percent of all emergency calls are placed from mobile phones and it can often be difficult for callers to convey their location to first responders. Location platforms can not only reduce the time to find the location of the caller, but also enable more efficient handling of simultaneous calls from people reporting the same incident to distinguish single accidents from multiple events. Another use case is public warning systems that locate and send messages to all handsets within a geo-fenced area. Government agencies can use location platforms and data mining systems for infrastructure protection and location-enhanced lawful intercept.

Location technologies can be divided into handset-based technologies (such as GPS) with intelligence mainly in the handset, network-based technologies (for instance Cell-ID, RF Pattern Matching and U-TDOA) with intelligence mainly in the network, as well as hybrid technologies (for instance A-GPS and OTDOA) with intelligence in both the handset and the network. Several new hybrid location technologies are in development, aiming to improve the performance of global navigation satellite systems (GNSS) in difficult environments. In pure indoor environments where GNSS is unavailable, the most common location technologies rely on Wi-Fi location using RF Pattern Matching or multilateration, augmented with data from sensors in the handset such as accelerometer, gyroscope, compass and barometer.

The Federal Communications Commission's (FCC) E911 mandates for location of mobile emergency calls released in 1996 was a major driver behind the development of location platforms for the North American market. In most parts of the world, governments and telecom regulators are gradually introducing emergency call and lawful intercept regulations that require at least basic location platforms. Although most regulators have not yet imposed any specific location accuracy requirements, more accurate location information may well be demanded in the future as technologies mature and costs decrease. In the US, the FCC has already published proposed updates to its E911 rules that would require delivery of accurate location information – including vertical location information – for calls placed from indoors. In Europe, as well as in other developed countries such as Japan and South Korea, early deployments of location platforms focused on supporting commercial services due to the lack of a clear mandate for emergency services. In the first deployment phase, lasting from 2000 to 2003, operators invested in platforms and services. Overall, the results did not live up to the expectations in terms ►



Location platform and middleware revenue forecast, € million (World 2013–2020)

► of uptake or usage and many operators therefore lost interest in LBS as a mass-market proposition. Mobile advertising and enabling various forms of enterprise and B2B services still remains a focus area for many mobile network operators. Network-based location data can for instance support various forms of fraud management and secure authentication services as well as location analytics services.

A broad set of actors are developing indoor location technologies and platforms that enable use-cases ranging from emergency call location to commercial applications like navigation, customer engagement and analytics. The commercial indoor location market is still at a relatively early stage and has not yet reached mass adoption. The market has suffered from a lack of cross-platform solutions and confusion among venue owners over which positioning technologies to use. Understanding of the value of indoor location and analytics services is now growing among retailers and venue owners, at the same time as uncertainty over which technologies to deploy decreases. However, remaining challenges include how to motivate end-users to download the venue owner's app, as well as how to bring customer value that encourages continued use of the app on a regular basis.

Berg Insight estimates that over 300 mobile network operators worldwide have deployed at least some type of basic location platform. Additional deployments and updates of existing platforms to support new technologies and features can be expected in most markets in the coming years. The primary driver remains government mandates. Increasing operator interest in advertising and analytics services will also contribute to future growth, especially for passive location platforms and data visualisation tools. However, the market for mobile network location platforms is becoming mature. Berg Insight forecasts total global annual revenues for GMLC/MPC, SMLC/PDE, SUPL A-GNSS and passive location platforms will grow from € 200 million in 2013 at a compound annual growth rate (CAGR) of 6.0 percent to € 300 million in 2020. These revenues comprise licenses for new deployments, as well as capacity and technology upgrades, maintenance and support services for existing platforms.

### This report answers the following questions:

- What is the current status of the global mobile LBS platform market?
- Which use cases and market segments are driving location platform development?
- Which mobile operators have deployed LBS platforms and middleware?
- How is GPS-technology affecting network-based location technologies?
- What are the benefits with Assisted-GPS, OTDOA and hybrid location technologies?
- How will lawful intercept requirements affect technology choice for operators?
- Which location platforms and technologies are best suited for location-based advertising?
- Which vendors provide mobile network location platforms and middleware today?
- Which vendors offer indoor location technologies and platforms?

## Executive summary

### 1 Introduction to location platforms

- 1.1 **Location platforms and location-based services**
  - 1.1.1 Overview of mobile location platforms
  - 1.1.2 A brief history of location platforms and services
- 1.2 **Mobile communication services**
  - 1.2.1 Mobile voice and data subscribers
  - 1.2.2 Mobile voice and SMS revenues
  - 1.2.3 Mobile data and application revenues
  - 1.2.4 Location apps and service revenues
- 1.3 **Mobile location platforms and technologies**
  - 1.3.1 Mobile location platforms
  - 1.3.2 Mobile location technologies
  - 1.3.3 Location middleware
- 1.4 **The mobile LBS value chain**
  - 1.4.1 Location platform vendors and technology developers
  - 1.4.2 LBS middleware vendors
  - 1.4.3 Connectivity chipset vendors
  - 1.4.4 Mobile network operators
  - 1.4.5 Location aggregators and database providers
  - 1.4.6 Smartphone platform and handset vendors
  - 1.4.7 Mobile application developers and service providers
  - 1.4.8 Indoor location solution providers
- 1.5 **Telecoms regulations drive location platform deployments**
  - 1.5.1 European emergency call and privacy regulations
  - 1.5.2 LBS regulatory environment in the US
  - 1.5.3 Emergency call regulations in Australia
  - 1.5.4 Emergency call regulations in Canada
  - 1.5.5 The Indian Department of Telecommunications location mandate
  - 1.5.6 Emergency call regulations in Japan

### 2 Technology overview

- 2.1 **Mobile network location platforms**
  - 2.1.1 Location architecture for GSM/UMTS networks
  - 2.1.2 Location architecture for LTE networks 29
  - 2.1.3 Location architecture and technologies in 3GPP2 networks
  - 2.1.4 Control Plane and User Plane location platforms
  - 2.1.5 OMA SUPL 1.0
  - 2.1.6 OMA SUPL 2.0 and SUPL 2.1
  - 2.1.7 OMA SUPL 3.0
  - 2.1.8 Handset client-based and probe-based location platforms
  - 2.1.9 Location in converged IP networks
- 2.2 **Network-based positioning technologies**
  - 2.2.1 Cell-ID
  - 2.2.2 Enhanced Cell-ID and RF Pattern Matching methods
  - 2.2.3 E-OTD and OTDOA
  - 2.2.4 Uplink Time Difference of Arrival (U-TDOA)
  - 2.2.5 Wi-Fi positioning
  - 2.2.6 Bluetooth Low Energy and iBeacons
- 2.3 **GNSS and hybrid location technologies**
  - 2.3.1 GNSS: GPS, GLONASS, Galileo and BeiDou 3
  - 2.3.2 Assisted GPS and A-GNSS
  - 2.3.3 Hybrid, mixed mode and indoor location technologies
- 2.4 **Comparison of location technologies**
  - 2.4.1 Cellular network-based location technologies
  - 2.4.2 A-GNSS and Wi-Fi location technologies
  - 2.4.3 Location technologies in development

### 3 Location technology market trends

- 3.1 **Multiple parallel efforts drive location technology development**
  - 3.1.1 Emergency call location and public safety
  - 3.1.2 Location-enhanced lawful intercept and national security
  - 3.1.3 Consumer and enterprise LBS and apps
  - 3.1.4 Commercial indoor location services
  - 3.1.5 Network optimisation and customer experience management
  - 3.1.6 Mobile advertising and analytics
  - 3.1.7 Fraud management and secure authentication
- 3.2 **Smartphone ecosystems**
  - 3.2.1 Smartphone platform market shares
  - 3.2.2 Handset vendors and operators start to back new smartphone platforms
  - 3.2.3 Smartphone platforms transform into new vertical silos
  - 3.2.4 Towards a complete LBS offerings

### 4 Commercial deployments

- 4.1 **Platform deployments in Europe**
  - 4.1.1 3 Group
  - 4.1.2 Deutsche Telekom Group
  - 4.1.3 KPN Group
  - 4.1.4 Orange Group
  - 4.1.5 SFR
  - 4.1.6 Telecom Italia Mobile
  - 4.1.7 Telefónica Group
  - 4.1.8 Telenor Group
  - 4.1.9 TeliaSonera Group
  - 4.1.10 Vodafone Group
- 4.2 **Platform deployments in the Americas**
  - 4.2.1 América Móvil
  - 4.2.2 AT&T Mobility
  - 4.2.3 Bell Mobility
  - 4.2.4 Rogers Wireless
  - 4.2.5 Sprint
  - 4.2.6 Verizon Wireless
- 4.3 **Platform deployments in Asia-Pacific**
  - 4.3.1 BSNL
  - 4.3.2 NTT DoCoMo
  - 4.3.3 Telstra
  - 4.3.4 Telkomsel
- 4.4 **Platform deployments in the Middle East and Africa**

### 5 Market forecasts and trends

- 5.1 **LBS market trends**
  - 5.1.1 Emergency call mandates remain a key driver for platform deployments
  - 5.1.2 Location-enabled lawful intercept
  - 5.1.3 Location-based services revenue forecast
  - 5.1.4 Smartphone shipment forecast
- 5.2 **Location platform deployments**
  - 5.2.1 Vendor market shares
  - 5.2.2 GMLC/MPC and SMLC/PDE platform deployment forecasts
  - 5.2.3 A-GPS and SUPL A-GPS server deployment forecast
  - 5.2.4 Location middleware deployment forecast
  - 5.2.5 Indoor location platform deployment forecast

### 6 Location platform and technology vendor profiles

- 6.1 **GMLC and SMLC location platform vendors**
  - 6.1.1 Alcatel-Lucent
  - 6.1.2 Creativity Software
  - 6.1.3 Ericsson
  - 6.1.4 Mobile Arts
  - 6.1.5 Oksijen

- 6.1.6 Persistent Systems
- 6.1.7 Polaris Wireless
- 6.1.8 Redknee
- 6.1.9 TeleCommunication Systems
- 6.1.10 TruePosition
- 6.2 **Probe-based location solution vendors**
  - 6.2.1 Astellia
  - 6.2.2 GBSD Technologies
  - 6.2.3 Intersec
  - 6.2.4 JDS Uniphase
  - 6.2.5 Polystar
  - 6.2.6 Procera Networks
  - 6.2.7 Septier Communication
  - 6.2.8 Tektronix Communications
- 6.3 **Location middleware vendors**
  - 6.3.1 Aepona
  - 6.3.2 CellVision
  - 6.3.3 Genasys
  - 6.3.4 Mobilaris
  - 6.3.5 Reach-U
  - 6.3.6 Telenity
- 6.4 **GNSS chipset and assistance server vendors**
  - 6.4.1 Broadcom
  - 6.4.2 CSR
  - 6.4.3 Qualcomm
  - 6.4.4 RxNetworks
- 6.5 **Handset-client location platforms and location data aggregators**
  - 6.5.1 Apigee
  - 6.5.2 Combain Mobile
  - 6.5.3 Esri
  - 6.5.4 Locaid
  - 6.5.5 Navizon
  - 6.5.6 PathSense
  - 6.5.7 Skyhook
  - 6.5.8 TechnoCom
- 6.6 **Sensor and signal fusion platform developers**
  - 6.6.1 Apple
  - 6.6.2 Indoo.rs
  - 6.6.3 Insiteo
  - 6.6.4 Lighthouse Signal Systems
  - 6.6.5 InvenSense
  - 6.6.6 Loctronix
  - 6.6.7 Pole Star
  - 6.6.8 SenionLab
  - 6.6.9 Sensewhere
- 6.7 **Signal measurement technology developers**
  - 6.7.1 Boeing
  - 6.7.2 ByteLight
  - 6.7.3 GloPos
  - 6.7.4 IndoorAtlas
  - 6.7.5 iPosi
  - 6.7.6 InvisiTrack
  - 6.7.7 NextNav
  - 6.7.8 Nokia
- 6.8 **BLE beacon, Wi-Fi equipment and retail analytics solution vendors**
  - 6.8.1 Aisle411
  - 6.8.2 Aruba Networks
  - 6.8.3 Cisco Systems
  - 6.8.4 Estimote
  - 6.8.5 Euclid
  - 6.8.6 Gimbal
  - 6.8.7 iinside
  - 6.8.8 Point Inside
  - 6.8.9 RetailNext
  - 6.8.10 Ruckus Wireless
  - 6.8.11 ShopperTrak
  - 6.8.12 Walkbase
  - 6.8.13 Wifarer
  - 6.8.14 Zebra Technologies

## About the Author



**André Malm** is a senior analyst with a Masters degree from Chalmers University of Technology. He joined Berg Insight in 2006 and his areas of expertise include location-based services, personal navigation services and wireless M2M markets.

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