LBS Platforms and Technologies

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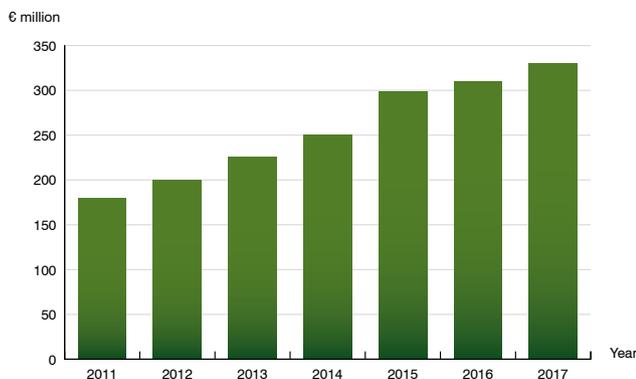
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The global market for LBS platforms and middleware boosted by government mandates

Location platforms comprise software and hardware extensions to network infrastructure components that together can calculate the position of a handset. Mobile location platforms enable three categories of location-based services (LBS): public safety services, national security and law enforcement applications, as well as commercial LBS. Nearly 70 percent of all emergency calls are today placed from mobile phones and it can often be difficult for the caller to convey their location accurately to first responders. Location platforms can reduce the time to find the location of the caller. They 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 can locate and send messages to all mobile users within a geo-fenced area. Government agencies can also use location platforms and data mining systems for critical 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) 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. If not enough satellites are visible, it is for instance possible to fuse GNSS measurements with other network signals and data from inertial sensors to calculate the position. 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 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 ready-made services. Overall, the results did not live up to the expectations in terms ▸

▸ of uptake or usage and many operators therefore lost interest in LBS as a mass-market proposition.

A majority of commercial LBS now use location data obtained directly from GPS receivers and Wi-Fi chipsets in the handset, or various third party location databases, rather than directly from operators using network-based location. Mobile operators are however showing increasing interest in using mass location data for advertising and marketing, as well as new services like analytics. Moreover, governments and telecom regulators worldwide are now introducing emergency call and lawful intercept mandates that require at least basic location platforms. Although the regulators have typically not yet imposed any specific location accuracy requirements as part of the mandates, more stringent location accuracy may well be demanded in the future as technologies mature and costs decrease.

A diverse set of players are now developing indoor location platforms to support use-cases ranging from emergency call location to navigation, shopping, analytics and marketing. The established location platform vendors and connectivity chipset vendors are extending their offerings to enable indoor location. In addition, a growing number of technology specialists and start-up companies are also introducing software or infrastructure solutions that enable handset vendors, app developers and enterprises to add indoor location capabilities to smartphones that are already on the market.

Berg Insight estimates that one third of all mobile network operators worldwide have deployed at least some type of basic location platform. Additional deployments and updates of existing platforms can be expected in most markets in the coming years, primarily driven by government mandates, but also by new mass location applications such as advertising and analytics. Berg Insight forecasts that total global annual revenues for GMLC/MPC, SMLC/PDE, SUPL A-GNSS and probe-based location systems will grow from € 180 million in 2011 to € 330 million in 2017. These revenues comprise integration fees and licenses for new platform deployments, as well as capacity and technology upgrades, maintenance and associated services.

Location platform and middleware revenue forecast, € million (World 2011–2017)

This report answers the following questions:

- What is the current status of the global mobile LBS platform market?
- Which mobile operators have deployed LBS platforms and middleware?
- How is GPS-technology altering the conditions for LBS app developers?
- What is the current status of E112 in Europe and similar programs in other regions?
- How is GPS-technology affecting network-based 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 location platforms and middleware today?

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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, wireless M2M and personal navigation services.

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