DON'T GET LEFT OUTDOORS

THE FUTURE OF MOBILE LOCATION-BASED SERVICES LIES IN ITS RAPID ADOPTION OF INDOOR TECHNOLOGIES, ARGUES POLE STAR'S CHRISTIAN CARLE

For more than 20 years, the use of the global positioning system (GPS) has been the gold standard for outdoor navigation. The satellite-based navigation system has become the indispensable tool for people to determine their locations outside buildings, in cars, on motorways, in the street…

More recently, manufacturers have added GPS capabilities to mobile devices such as mobile phones and tablets, which in turn, has created new opportunities for existing location-based services (LBS), such as mapping and navigation. This quick rise of smartphones and easy access to more context-aware information has changed the way people live, travel and shop.

But as we rely even more on our smartphone for everyday life, the physical limitations of GPS, which doesn't work indoors or between tall buildings in dense urban areas, are becoming a real challenge for the next generation of LBS applications. Simply put, for GPS to work, it requires a clear view of the sky, where a receiver has an unobstructed line of sight to satellites. As a result, all our mobile, location-based apps, like navigation, for example, won't work indoors, or inside airports, shopping malls, museums, subways and so on – which is where we actually need them the most, as we spend a majority of our time indoor. It also happens that smartphones are accessed inside buildings 80 per cent of the time, making an even stronger case for bringing location technologies indoors.

The rise of indoors

So, it shouldn't come as a surprise then, that, indoor location has gained huge market traction in the past two years in two areas: first in professional environments, with employees or equipment location services, where indoor location has improved efficiency and security; and second, in the broad consumer market where context-aware services have become a key differentiator for interacting and engaging with potential customers as they get closer to retail stores, for example. Analyst firm ABI Research predicts that by 2017, the indoor location technology market will reach US$5 billion in revenues, representing over 200,000 installations of infrastructure equipment, including Wi-Fi hotspots, Bluetooth antennas and so on, and over 800 million branded app downloads.

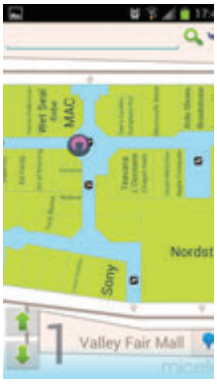
Indoor location technology has become such a huge market that it is actually bigger than its outdoor counterpart, if you include commercial buildings, where it helps consumers find their ways

to stores, to items on their shopping lists and much more. After the huge success of GPS, indoor location is today the next killer technology, reinventing the location services industry, mobile advertising, app development and the entire mobile ecosystem itself. Indoor location is a true revolution that cannot be ignored any more and paves the way for new and innovative services that will enable a smooth end-to-end user experience (from outdoor to indoor and vice versa), better security, improved productivity and efficiency of mobile tools, and much more.

Use cases

Although the main purpose of indoor location is to help users to navigate within buildings such as airports, malls or exhibit centres, it also opens the gate for innovation frenzy, creating new location-based applications, while improving existing ones, such as customer analytics, store optimisation, proximity advertising, couponing and CRM. Here are just some of the advanced applications that our customers are implementing.

- Indoor navigation is one of the primary applications for indoor location, bringing users to a specific point of interest that they were looking for. It helps travellers to find their gates to catch their flights or trains, convention attendees to find their conference rooms or particular booths and more.
- Proximity advertising and location-based coupons are transforming mobile devices into tools that drive buying behaviour. Brands can now directly communicate with the consumer, depending on their interest and location. Retail property owners are able to sell in-app advertisements to retail storeowners in their buildings, complementing traditional billboards and catalogue ads
- Location sharing, in conjunction with social networks, meets the demands of growing enthusiasm for social platforms. Users are able to identify contacts, physically close to them, and connect with friends, virtually or in-person. But more importantly, location-based social networks enable brands to benefit from viral marketing, increasing their visibility to multiple targets at the point of purchase.
- Consumer behavioural analytics are the intrinsic value of a location-based application. These statistics help to better understand buyers' behaviours and the total customer experience. Similar to internet analytics, location services are able to deliver data for the development of a tailored in-store customer experience



Ecommerce comes to the real world

In a digital world, where 'showrooming' becomes the norm – with shoppers coming into a store to look for a product, then checking the price online and eventually buying it from a website – retailers are struggling to find ways to compete with ecommerce sites. For years, ecommerce sites have been able to precisely target customers with keywords and clicks technologies using advanced behaviour marketing analysis and targeted messaging.

However, indoor location has disrupted the status quo, giving back to brick-and-mortars retailers the upper hand over digital commerce. With indoor location technologies, it is now possible to know when a customer is inside a building, just like an e-commerce website knows when an Internet user is on its homepage. Store owners are now able to offer unique incentives to shoppers, bringing a strong value added component to their digital and CRM strategies, which enables more efficient location-based marketing, sending consumers the right message, at the right place, at the right time. Finally, ecommerce comes to the real world in real time.

But linking real and online worlds is just the tip of the iceberg, as indoor location technologies are forever affecting the way we live, shop, travel and interact with traditional and online commerce. Just as GPS started the location-based revolution more than 20 years ago, the indoor location industry is about to do it all over again. Don't be left behind!

INDOOR LOCATION HAS GAINED HUGE MARKET TRACTION IN THE PAST TWO YEARS IN TWO AREAS

Christian Carle is CEO and founder of Pole Star (http://www.polestar.eu/)

From early adopters to a mature market

In 2012, the indoor location market finally reached maturity, overcoming the main technological barriers and driving, for the first time in its history, large-scale deployments at airports, museums and shopping malls. Here are the key milestones that made the tipping point actually happen:

- Installations of indoor location services became of excellent quality and were available from numerous providers.
- Indoor location apps are now mainstream for iPhone and Android devices, covering about 80 per cent of the smartphone market already.
- Because of the rapid market penetration and adoption of smartphones, indoor location services no longer require the use of a specific and separate mobile device, even in professional environments.
- Low-cost and easy-to-implement technologies are now widely available, making it easier for all sorts of venues, like shopping centres, airports, rail stations, subways or museums to integrate indoor location technology into their respective mobile apps and bring real added value to customers.
- Efficient tools and open software development kits (SDK) allow for any application developers to deploy indoor location services in their venues or for their customers
- The fusion of multiple technologies, such as Wi-Fi, Bluetooth Low Energy and GPS, along with specific ones already integrated in smartphones (accelerometer, magnetometer, gyroscope and a pressure sensor acting as an altimeter), allowed organisations to overcome the main technical barriers that prevented indoor location from being successful in the market. Today, it's finally possible to address 100 per cent of an indoor venue at a low cost and independently of its Wi-Fi network density.
- Finally, the performance reached by indoor location technologies has now surpassed GPS for the outdoors – so much so that indoor location today is more accurate than outdoor positioning, with an average accuracy of a few square metres compared to several tens of square metres for GPS.

NAO Campus is a reliable, cost-effective and flexible indoor positioning system for powering mobile applications. It enables visitors in airports, malls or other public buildings to have access to location-aware, profile-driven information and services such as location-based couponing, navigation, turn-by-turn guidance, point-to-point distance and time estimates, accessibility information for the disabled and much more. The system also provides strategic marketing information such as visitor flow and behavior-based statistics.