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Location-Based Services: Definition and Examples

Location-based services use real-time geodata from smartphones to provide information, entertainment or security. Here's how businesses are using this technology.

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Editor Reviewed

Location-based services (LBS) use real-time geodata from a smartphone to provide information, entertainment, or security. Some services allow consumers to check in at restaurants, coffee shops, stores, concerts, and other places or events. Businesses often offer a reward – prizes, coupons or discounts – to people who check in at their locations. Google Maps, Foursquare, Yelp and Facebook check-ins all use location-based services. **[Related guide: Making the Most of Yelp for Your Small Business]**

Location-based services can use a smartphone's GPS technology to track a person's location if the user has allowed access. After a smartphone user opts in, the service is able to identify their location down to the street address without manual data entry.

According to Allied Market Research data, the LBS market accounted for more than $36 billion in 2020 and is predicted to reach more than $318 billion by 2030. With so many companies embracing location-based services, it's essential to understand LBS benefits, drawbacks and how you can make the most of this technology for your small business.

What is location-based technology?

A location-based service is any technology that depends on real-time location tracking to function. The technology persistently identifies the user's physical and geographical location, which is then used to perform services and functions.

Location-based technology is commonly used with mobile devices, but it can be applied to any device able to provide a location, including desktop PCs.

Key Takeaway

Location-based technology tracks your physical and geographical location constantly, not just at one moment.

How does location technology track your movements?

Several mechanisms inside a typical mobile device can provide location information. The most common technologies are GPS, RFID, Wi-Fi, and cellular technology. We'll explain these in more detail in the next section, but they all operate on similar principles.

A mobile device communicates with other devices and hubs – such as satellites, routers and towers – to function. Because the mobile device pings off multiple communication hubs, its precise location can be triangulated.

Examples of technologies used to track location

A few examples will clarify how these location-tracking methods work. The most precise location-tracking services incorporate more than one of these technologies.

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Geoscope Exhibit 2022
Apple v. Geoscope
IPR2024-00259, Page 2 of 13

The Global Positioning System is an array of satellites that exist solely to help find items across the planet. Any device with a GPS receiver (including most smartphones) can ping these satellites. This capability lets the device communicate with at least four satellites. The satellites compare the signal delay to pinpoint where the signal originated.

This process lets your phone know precisely where you are and provide turn-by-turn navigation. A widespread business use for GPS technology is GPS fleet management software, which businesses use to remotely keep tabs on their company vehicles and their drivers' performance.

Did You Know?

The best GPS fleet management systems help you maintain your company vehicles' health, ensure driver safety, and comply with the relevant laws and regulations.

Wi-Fi

Wi-Fi location tracking works differently from other methods. Typically, a device only connects to one Wi-Fi network at a time, eliminating the possibility of triangulation. Wi-Fi location tracking uses IP addresses instead. Every network has a physical IP address that allows the greater internet to know where it is so it can send information across the internet infrastructure accurately. When your phone connects to a Wi-Fi network, it pairs with that network's physical IP address, allowing location services to know your current address.

Cellular technology

Cellular tracking works much like GPS. However, instead of connecting to satellites, your device connects to cellular towers. Generally speaking, you'll usually be in the range of at

Geoscope Exhibit 2022
Apple v. Geoscope
IPR2024-00259, Page 3 of 13

least two towers, enough for the system to use triangulation to find your location.

QR codes

Quick-response (QR) tracking is similar to Wi-Fi in principle. When a dynamic QR code is scanned, it logs information related to the scan. When the QR code is established, its physical location can be recorded. That location can then be tagged anytime the code is scanned.

Tip

To incorporate QR codes into your marketing plan, place QR codes on your business cards and marketing materials, and then experiment with the QR code's destination to test online coupons and special offers.

RFID

RFID tracking is a combination of these other methods. An RFID scanner typically has a static location. You can log the scanner's location when it pings off other networks. When the RFID scanner is activated, it tags its location when it records the access. This process can identify the location of the device accessing the scanner.

You can find RFID technology in key fobs for keyless entry systems, RFID-enabled timeclocks for employee monitoring, and the best inventory management solutions that track your physical inventory's location.

Uses of location-based services

Companies have found many ways to use device location information.

- **Store locators:** These allow retail customers to quickly find the nearest store location.

Geoscope Exhibit 2022
Apple v. Geoscope
IPR2024-00259, Page 4 of 13

- **Proximity-based marketing:** This means local companies can push ads only to individuals within the same geographic location. Location-based mobile data can improve local marketing strategies by identifying potential customers who are likely to act on the information.
- **Travel information:** A location-based service can deliver real-time information, such as traffic updates or weather reports, to a smartphone so the user can plan accordingly.
- **Roadside assistance:** Many roadside assistance companies provide an app that allows them to track your exact location if the user experiences a blown tire or car accident, so they don't need to give directions.
- **Mobile workforce management:** For logistics-dependent companies that employ individuals out in the field or at multiple locations, an LBS lets employees check in at designated locations with their mobile devices. Businesses managing remote workers often rely on geographic data to ensure workers are where they need to be.
- **Fraud prevention:** Location-based services can mitigate credit card security risks. For example, an LBS creates another level of security by matching a customer's location to a credit card transaction. Tying the smartphone's location to a credit card lets the company flag transactions made across several geographic locations over a short time.

LBS companies

Many mobile app developers lack the resources to develop software that can interpret a smartphone's location, so they use existing solutions through an API to save time and money. These companies liaise with wireless carriers to connect businesses with smartphone users' locations. They provide tools to increase user engagement and connect with the most mobile phone users possible.

Companies well known for their LBS software include AT&T, Esri and HERE.

Examples of location-based service apps

Th are some LBS apps you might already be using.

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Apple v. Geoscope
IPR2024-00259, Page 5 of 13

Uber, Lyft and other ridesharing apps

Hailing a ride from your phone relies on the power of location-based services. Wouldn't it be annoying to manually enter your address into your favorite ridesharing app every time you're in a rush to get somewhere?

With location-based services, your ridesharing app immediately knows where you are. The app then locates drivers near you upon request and gets you a quick ride to your destination.

Did You Know?

To become an Uber or Lyft driver, you must have your car inspected – before approval and every four to 12 months after you start work.

Carrot Weather

Most weather apps present you with forecasts from just one nearby source. Carrot Weather uses location-based services and APIs to go beyond this standard model.

When you open the Carrot Weather app on your phone, it collates weather data from several sources into a forecast unique to your exact location. At the same time, it emphasizes data protection and never shares your personal data with external sources.

In addition to LBS-powered weather forecasts, Carrot Weather comes with a quirky personality the user can adjust, as well as 100-plus secret locations users can discover thanks to its location-based technology.

Pokemon Go

Pokemon Go is an immensely successful location-based app. Its entire model is based on location: Everywhere you go, you'll find a different set of Pokemon to catch. Some locations even have Pokemon you can't catch anywhere else. Pokemon Go shows the power of LBS not just for business but for fun.

Did You Know?

You can use Pokemon Go to market your business by hosting a Pokemon Go lure party, using in-game "incense" to make your location a destination, and holding special events on designated community days.

Location-based services FAQs

Who uses location-based services?

Local businesses and their customers use and benefit from location-based services. Companies across many industries use LBS to provide customers with relevant offers and content, analyze their behavior, and improve the overall customer experience.

Customers enable location-based services to receive information and timely promotional offers that matter to them, facilitate location-specific services like food delivery and ridesharing, navigate to their destinations, track their fitness activity, and much more.

What are some common types of location-based apps?

While many businesses can use location-based technology, some industries have a higher chance of maximizing LBS benefits.

- **Travel and tourism apps:** Location-based travel apps offer users optimal routes, recommendations for nearby places of interest, attractions, events and location-specific weather updates.

Geoscope Exhibit 2022
Apple v. Geoscope
IPR2024-00259, Page 7 of 13

- **Retail apps:** With an LBS app, you can help navigate potential customers to the nearest store, make the best use of proximity-based marketing, and determine the efficiency of your promotional efforts.
- **Health and fitness apps:** Thanks to LBS, an app can monitor users' workout activities and routes and even help them share their sports accomplishments on social networks. These apps can also offer relevant business recommendations, including nearby healthy food stores.
- **Restaurants and hospitality apps:** A restaurant or hospitality business can use food delivery apps to provide your customers with takeaway meals. Most food delivery apps use LBS for real-time delivery tracking, status updates and expected time of arrival. A business can also send notifications with special offers to nearby customers.

Should your business use location-based services?

Assess the pros and cons of using LBS before implementing the technology. While location-based services can facilitate conversion tracking and increase your offerings' relevancy, they also pose an additional security risk and must strongly emphasize customer privacy.

Retail, hospitality and travel industries can particularly benefit from LBS. On the other hand, tech companies or those focusing on online traffic or international markets might not fully use the technology.

What are the benefits of location-based services?

For customers, location-based services offer an extra sense of security in emergencies. For example, they can easily access car assistance, and ambulance services can instantly respond if there's an accident. Additionally, LBS lets consumers receive personalized ads and relevant content, helps them make the most of their traveling experience, and minimizes fraud risk.

Th are several reasons to embrace LBS:

- **Improve the customer experience.** With LBS, you can offer customers relevant content and services rather than annoying them with generic ads and marketing offers. You can also help navigate them to your nearest store location. By tracking regular check-ins and offering loyalty programs, you can identify and reward your best customers.
- **Receive detailed insights into customer behavior.** Location-based services can help you understand your customers' buying patterns – how many people visit your business, when they visit, whether they take advantage of your offers and more.
- **Maximize your marketing efforts.** Thanks to LBS, you can notify customers near your business's location about current offers and special events. Additionally, comments and reviews on a location-based app can help attract new customers.

Did You Know?

Even negative customer reviews can provide valuable insight into your brand's perception.

What are the disadvantages of location-based services?

While there are many benefits of implementing LBS in your business, be aware of potential drawbacks as well.

Privacy remains the primary concern of LBS app users. Unfortunately, some businesses can be careless with storing and sharing customer data, leading to data breaches and leakage. Your company should provide users with a clear and straightforward way to opt in or out of location-based services. [**Related article:** Have You Been Hacked? How to Recover From a Data Breach]

Here are other potential drawbacks of using LBS for your business:

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Apple v. Geoscope
IPR2024-00259, Page 9 of 13

- Reliance on smartphones (users without appropriate devices are automatically excluded)
- The potential effect of a VPN and other factors for determining the customer's location
- The possibility of getting lost among the noise from other LBS apps
- Increased risk of irrelevance if the user is constantly on the go or traveling

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Max Freedman has spent nearly a decade providing entrepreneurs and business operators with actionable advice they can use to launch and grow their businesses. Max has direct experience helping run a small business, performs hands-on reviews and has real-world experience with the categories he covers, such as accounting software and digital payroll solutions, as well as leading small business lenders and employee retirement providers. Max has written hundreds of articles for Business News Daily on a range of valuable topics, including small business funding, time and attendance, marketing and human resources.

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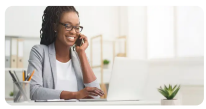

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