



MARKETSANDMARKETS™

LOCATION-BASED SERVICES (LBS) AND REAL-TIME LOCATION SYSTEMS (RTLS) MARKET WITH COVID-19 IMPACT ANALYSIS GLOBAL FORECAST TO 2026

REPORT BROCHURE WITH SAMPLE PAGES



INTRODUCTION

1.1 INTRODUCTION TO COVID-19

COVID-19 is an infectious disease caused by the most recently discovered novel coronavirus. Largely unknown before the outbreak began in Wuhan, China, in December 2019, COVID-19 has moved from a regional crisis to a global pandemic in just a few weeks. World Health Organization (WHO) declared COVID-19 as a pandemic on March 11, 2020.

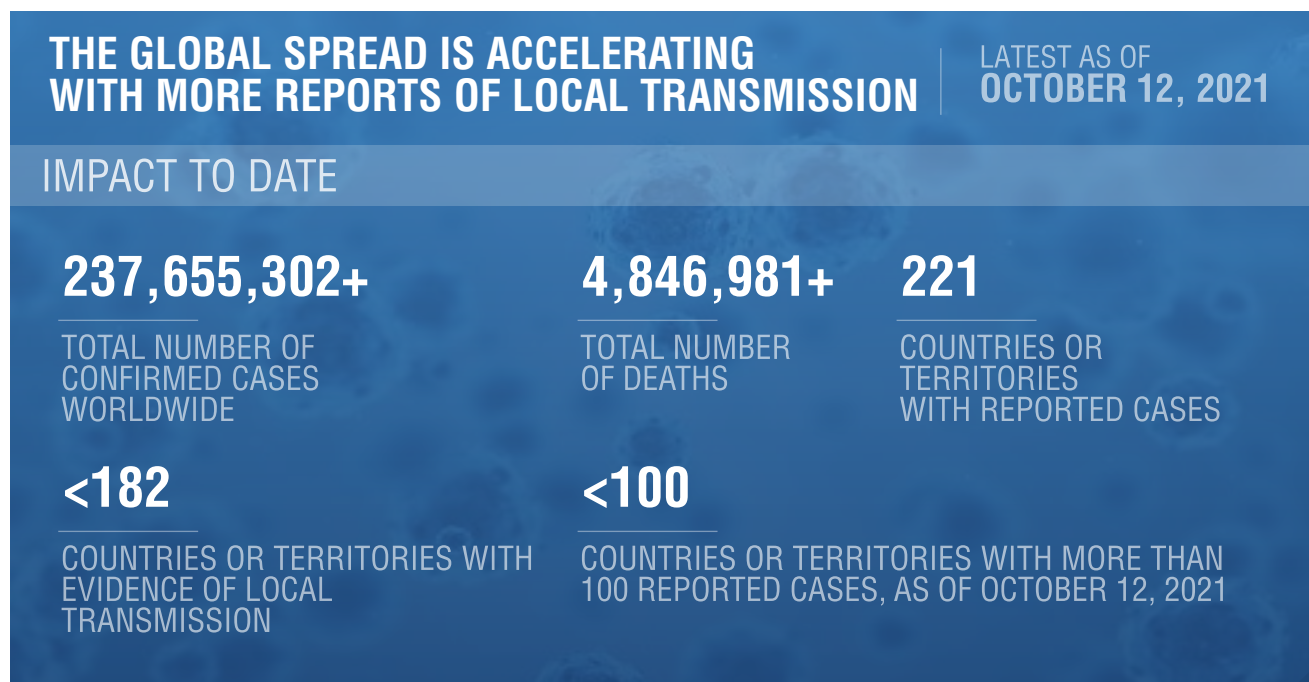
As this virus is spreading rapidly at a global level, countries across the globe are trying to prevent further contagion by taking measures such as social distancing, contact tracing, self-quarantining, surveillance, communication, and testing. So far, China, South Korea, Japan, and Singapore have managed to flatten the curve, while the US, Italy, Spain, Germany, France, and Iran are imposing drastic measures to slow down the spread and control fatalities.

Government agencies have announced special financial aid packages towards the development of preventive and curative drugs, the purchase of critical care medical devices, and the fast-track approval of diagnostic tests. Various organizations across the globe, such as the Bill and Melinda Gates Foundation and Wellcome Trust, are also coming together to accelerate and strengthen efforts to fight the COVID-19 pandemic.

1.2 COVID-19 HEALTH ASSESSMENT

This is indeed an unprecedented crisis, which has put enormous strain on healthcare providers across the globe. According to the WHO, within 67 days, the first 100,000 confirmed cases were reported worldwide. It took 11 days to reach 200,000 confirmed cases, 4 days to reach 300,000 confirmed cases, and 12 days to reach 1 million confirmed cases.

FIGURE 1 COVID-19: THE GLOBAL PROPAGATION



Source: WHO and ECDC

INTRODUCTION

1.2.1 COVID-19 ECONOMIC IMPACT—SCENARIO ASSESSMENT

Recovery from this crisis largely depends on various knowns and unknowns, which most countries will have to deal with and respond to. The speed and strength of the economic recovery will depend on the health and economic responses as well as the agility and speed of implementing various measures.

FIGURE 2 CRITERIA IMPACTING THE GLOBAL ECONOMY



In the recent past, the global economy has become substantially more interconnected. The adverse consequences of various steps related to containment are evident from global supply chain disruptions, weaker demand for imported products and services, and the increase in the unemployment rate. Risk aversion has increased in the financial market, with all-time-low interest rates and sharp declines in equity and commodity prices. Consumer and business confidence have also reduced significantly.

However, in this fast-changing environment, the full impact of the pandemic on the global economy may not entirely be known. MarketsandMarkets uses three scenario-based approaches (epidemiology and health response as well as an economic response) to assess the economic impact and recovery period at the global level. Countries and regions are likely to have different impacts and recovery periods.



INTRODUCTION

1.3 OBJECTIVES OF THE STUDY

- To define, describe, and forecast the Location-Based Services (LBS) and Real-Time Location Systems (RTLS) market by component, location type, application, vertical, and region
- To forecast the size of the market segments with respect to four main regions—North America, Europe, Asia Pacific (APAC), and the Rest of the World (RoW)
- To provide detailed information regarding the major factors (drivers, restraints, opportunities, and challenges) influencing the growth of the LBS and RTLS market
- To analyze each submarket with respect to individual growth trends, prospects, and contributions to the total LBS and RTLS market
- To analyze opportunities in the market for stakeholders by identifying the high-growth segments of the LBS and RTLS market
- To profile the key market players comprising top vendors; provide comparative analysis based on business overviews, regional presence, product offerings, business strategies, and key financials; and illustrate the market's competitive landscape
- To track and analyze competitive developments, such as acquisitions; new product launches and product enhancements; agreements, partnerships, and collaborations; expansions; and Research and Development (R&D) activities, in the market
- To analyze the impact of the COVID-19 outbreak on the LBS and RTLS market

1.4 MARKET DEFINITION

Location-Based Services (LBS) can be defined as an information service provided by a device that delivers and updates information related to the location of the device as and when required. The implementation of LBS requires software application of a service provider, network and/or mobile-device-based technology, and a content provider for geo-specific information.

Real-Time Location Systems (RTLS) are local positioning and tracking systems used to locate and identify objects, people, or targets automatically in real time, usually for indoor applications, within a building or other contained area. RTLS tags, badges, or sensors, attached to objects or worn by people, communicate wirelessly with fixed receivers, readers, trackers, excitors, reference points, or access points installed in the vicinity.

1.5 MARKET SCOPE

- The study provides an analysis of the global LBS and RTLS market based on contemporary market trends and developments and its potential growth from 2016 to 2026.
- The global LBS and RTLS market is categorized based on component, location type, application, vertical, and region.
- The market size is estimated based on the approximation of the market shares of major vendors in the LBS and RTLS market.
- The market size is constructed from 2021 to 2026, considering 2020 as the base year.
- The estimation of the market also includes revenue generated by third-party vendors, system integrators, and core LBS and RTLS vendors.
- The market is estimated considering the revenue streams of LBS and RTLS together.



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1.5.1 MARKET SEGMENTATION



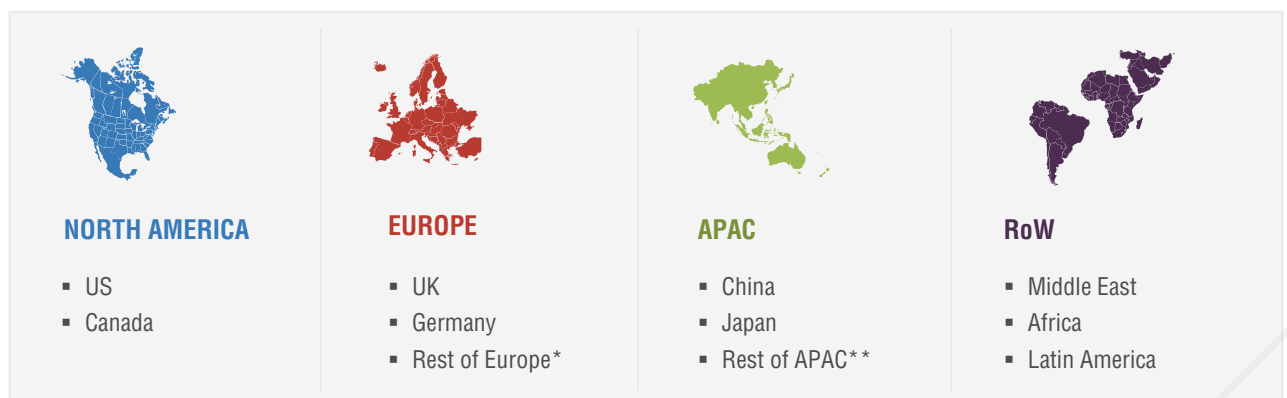
*Other verticals include energy and utilities, BFSI, telecom, and education.

**Others include location-based gaming and emergency support.

*** RoW includes MEA and Latin America.

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

1.5.2 REGIONS COVERED



*Rest of Europe includes France, Netherlands, Switzerland, Italy, Ireland, Spain, and Sweden

**Rest of APAC includes India, South Korea, Singapore, and Malaysia

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis



INTRODUCTION

1.5.3 YEARS CONSIDERED FOR THE STUDY



Note: The forecast period is 2021-2026

Source: MarketsandMarkets Analysis

1.6 CURRENCY CONSIDERED

- The base currency used to indicate the market size (in terms of value) and company revenue in this report is US dollars; the unit maintained for the same is 'USD million'.
- ISO 4217 codes are used to depict currency names; the market size, in terms of value, is represented using 'USD'.
- The market has been mainly studied in terms of USD million; the denomination is based on the size of the values, enabling uniform accommodation of these values within tables, figures, or any form of study of a particular segment.
- For companies reporting their revenues in terms of USD, revenues were sourced from their annual reports.
- For companies reporting their revenues in other currencies, the average annual currency conversion rate was used for that particular year to convert the value to USD.

TABLE 1 UNITED STATES DOLLAR EXCHANGE RATE, 2018–2020

CURRENCY	PERIOD	2018	2019	2020
EUR	January 01– December 31	USD 1 = EUR 1.1496	USD 1 = EUR 1.1199	USD 1= EUR0.8355
Swedish krona	January 01– December 31	USD 1 = SEK 8.8732	USD 1 = SEK 9.4560	USD 1 = SEK 8.5340

Source: fxtop.com



INTRODUCTION

1.7 STAKEHOLDERS

- LBS application developers
- LBS and RTLS software/service providers
- Network connectivity providers
- Wireless infrastructure providers
- Mobile content developers and aggregators
- Smart devices and consumer electronics manufacturers
- Venture capitalists, private equity firms, and startup companies
- Government bodies, such as regulating authorities and policymakers
- LBS and RTLS-related associations, organizations, forums, and alliances

1.8 SUMMARY OF CHANGES

- In the latest edition of the report, the main market was segmented by component, location type, application, vertical, and region.
- The new research study consists of ecosystem, value chain analysis, technology analysis, Porter's five forces analysis, patent analysis, and pricing model analysis of the LBS and RTLS market.
- The new study comprises detailed use cases from different industries.
- The new market study consists of the region-wise regulatory landscape.
- Updated financial information/product portfolio of players: The new edition of the report provides updated financial information in the context of the LBS and RTLS market during 2018–2020 for each listed company in graphical representation.
- Updated market developments of profiled players: The current report includes the developments during 2018–2021 pertaining to the market.

THE REPORT ALSO INCLUDES:

- Operational drivers for every segment in the LBS and RTLS market
- Market ranking of the top five players in the LBS and RTLS market
- Competitive leadership mapping of key vendors in the LBS and RTLS market based on the product portfolio and the business strategy and market ranking for the players in the market
- The COVID-19 impact on the overall market
- The new market study consists of the region-wise COVID-19 impact

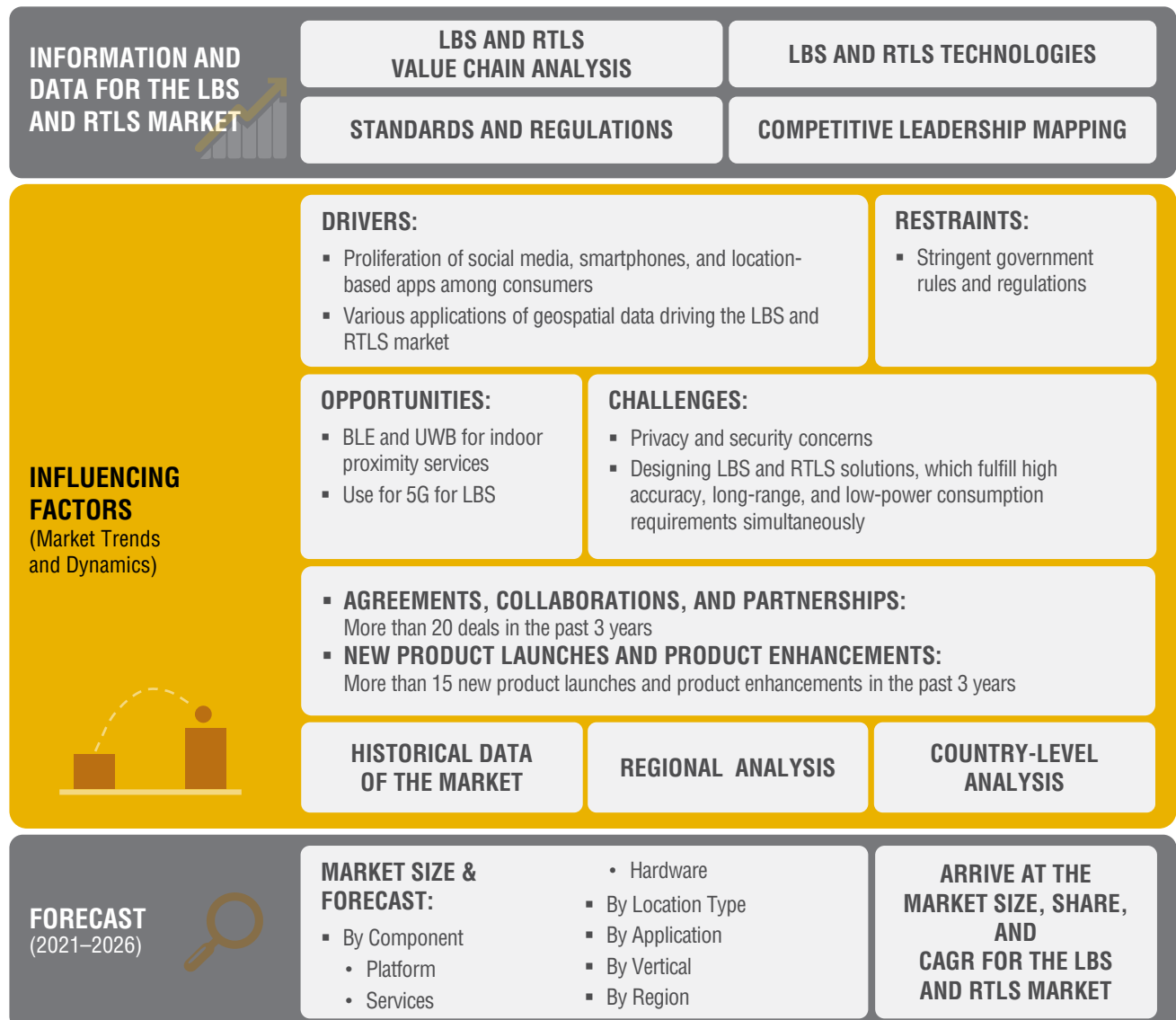


RESEARCH METHODOLOGY

2.1 RESEARCH DATA

The research study for the LBS and RTLS market involved extensive secondary sources, directories, and databases, such as Factiva, Hoovers, and Bloomberg Businessweek, to identify and collect information useful for this comprehensive market research study. The primary sources were mainly various industry experts from core and related industries; preferred LBS and RTLS platform, hardware, and service vendors; third-party system integrators; and commercial enterprises. In-depth interviews were conducted with various primary respondents, including key industry participants and subject matter experts, to obtain and verify critical qualitative and quantitative information, as well as to assess prospects of the growth of the market. Various macro and microeconomics factors were considered for constructing the global LBS and RTLS market. The following illustrative figure shows the market research methodology applied in developing this report on the global LBS and RTLS market.

FIGURE 3 GLOBAL LBS AND RTLS MARKET: RESEARCH DESIGN



Source: MarketsandMarkets Analysis



RESEARCH METHODOLOGY

2.1.1 SECONDARY DATA

In the secondary research process, various secondary sources were referred to, for identifying and collecting information for this study. Secondary sources include annual reports; press releases and investor presentations of companies; and white papers, certified publications, and articles from recognized associations and government publishing sources. Moreover, journals such as the International Journal of Computer Science, Information Technology, and Security (IJCSITS); Journal of Location Based Services; and associations, such as The International RFID Business Association (RFIDba), Location Based Marketing Association (LBMA), and The International Map Industry Association (IMIA), have also been referred to for consolidating this report.

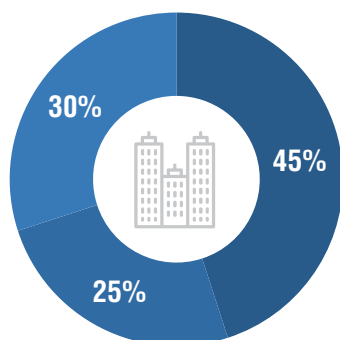
Secondary research was mainly used to obtain key information about the industry insights, the market's monetary chain, the overall pool of key players, market classification and segmentation according to industry trends to the bottom-most level, regional markets, and key developments from both market- and technology-oriented perspectives.

2.1.2 PRIMARY DATA

In the primary research process, various primary sources from both demand and supply sides were interviewed to obtain qualitative and quantitative information for the global LBS and RTLS report. The primary sources from the supply side included industry experts, such as Chief Executive Officers (CEOs), VPs, marketing directors, technology and innovation directors, and related key executives from various key companies and organizations, operating in the global LBS and RTLS market. After the complete market engineering (which included calculations for market statistics, market breakdown, market size estimation, market forecasting, and data triangulation), extensive primary research was conducted to gather information and verify and validate the numbers arrived at, through our estimation process. Primary research was also conducted to identify the segmentation types, industry trends, key players, competitive landscape of the global LBS and RTLS market, and key market dynamics, such as drivers, restraints, opportunities, industry trends, and key player strategies.

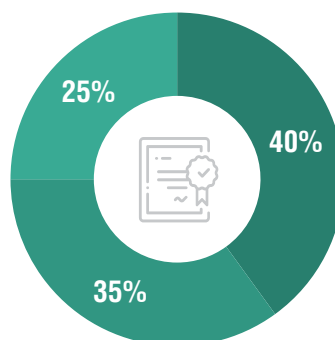
2.1.2.1 BREAKDOWN OF PRIMARY PROFILES

BY COMPANY TYPE



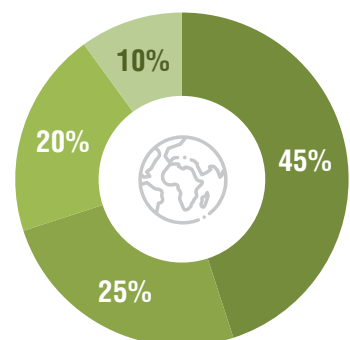
- Tier 1
- Tier 2
- Tier 3

BY DESIGNATION



- C-Level Executives
- Director Level
- Managers

BY REGION



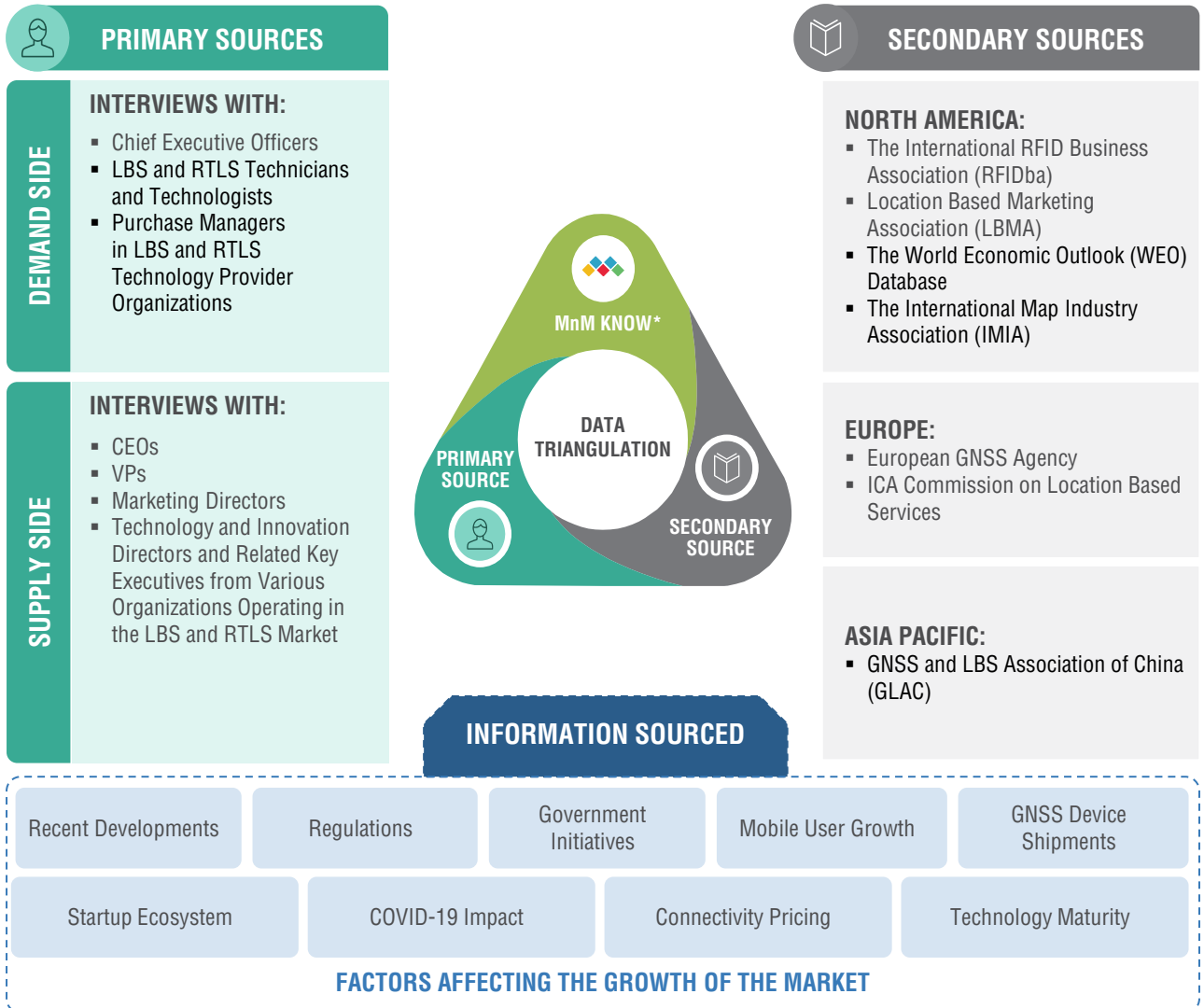
- North America
- APAC
- Europe
- RoW

Note: Tier 1 companies have revenues of more than USD 1 billion, Tier 2 companies have USD 500 million to USD 1 billion of overall revenues, and Tier 3 companies have USD 100 million to 500 million, of overall revenues

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

RESEARCH METHODOLOGY

2.2 MARKET BREAKUP AND DATA TRIANGULATION



*MnM KNOW stands for MarketsandMarkets' 'Knowledge Asset Management' framework. In this context, it stands for the existing market research knowledge repository of over 5,000 granular markets, our flagship competitive intelligence and market research platform 'Knowledge store', subject matter experts, and independent consultants. MnM KNOW acts as an independent source that helps us validate information gathered from the primary and secondary sources. MarketsandMarkets' reports, such as the Digital Map, Location Analytics, and The Geofencing Market have been referred to for making the report.

Source: MarketsandMarkets Analysis



RESEARCH METHODOLOGY

2.3 STUDY

The following global economic assumptions were taken into consideration to complete the overall market engineering of the LBS and RTLS market:

TABLE 2 ASSUMPTIONS FOR THE STUDY

FACTOR	ASSUMPTION	IMPACT
Economy	<ul style="list-style-type: none"> A positive global economy is expected to continue until the end of 2026. In 2019, the worldwide GDP reached 4.2%, marginally lower than in 2018. In advanced economies, a modest and uneven recovery is expected to continue with the gradual narrowing of output gaps. 	<ul style="list-style-type: none"> A positive economic climate means positive spending with a strong focus on business cases and short-, mid-, and long-term results. In 2020, the GDP growth was estimated to strengthen by 4.5%.
Exchange Rates	<ul style="list-style-type: none"> MarketsandMarkets assumes that dollar fluctuations would not be serious enough to affect the forecast to a significant extent. 	<ul style="list-style-type: none"> A fall in the dollar value is expected to create revenue growth opportunities for US multinationals, whereas stability in the dollar value is expected to stabilize the price of imports and exports.
Financial Statistics	<ul style="list-style-type: none"> MarketsandMarkets extracts all revenues and financial insights from companies' websites or annual reports. 	<ul style="list-style-type: none"> It ensures the authenticity of the financials mentioned in the reports.
Platform	<ul style="list-style-type: none"> Platform spending has boomed over the last two years, and organizations are investing in adopting platforms and services to achieve digital transformation. 	<ul style="list-style-type: none"> Platform spending is expected to drive the spending on hardware, IT, and business services.
Explosion of Data	<ul style="list-style-type: none"> More users are connecting to LBS and RTLS platforms that connect, share, process, store, and analyze data, which is expected to contribute to big data collectively. 	<ul style="list-style-type: none"> Predictive analytics might become critical for the world to function. The universal demand for data from consumers and enterprises is expected to continue to exceed the capacity of networks.
COVID-19	<ul style="list-style-type: none"> MarketsandMarkets assumes a short-term effect on the technology sector, affecting raw materials supply, unsettling the electronics value chain, and initiating an inflationary product risk. MarketsandMarkets assumes a delay in the scheduled new projects and reduced discretionary spending by enterprises. 	<ul style="list-style-type: none"> The impact of COVID-19 is believed to be short-term; however, it may affect the forecast to a significant extent for a minimum of eight to 12 months.

Source: MarketsandMarkets Analysis

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1 EXECUTIVE SUMMARY

LBS are information services that leverage real-time geodata from a mobile device or smartphone to provide the user with value-added information or service-based information. The services either use embedded satellite navigation receivers or network-based technologies to determine the user location and facilitate the delivery of data and information services. RTLS are local positioning and tracking systems, primarily used to identify and locate the exact position of objects, people, or targets in real time for diverse environments and industries. RTLS tags, badges, or sensors, attached to objects or worn by people, communicate wirelessly with fixed receivers, readers, trackers, excitors, reference points, or access points installed in the vicinity.

Location-based technologies are used in applications that integrate geographic-location information with business processes, thus helping in the analysis of location information. Location-based information is required in different business data sets to relate, compare, and analyze the relationship between these sets. Most of the structured as well as unstructured business data is spatially significant. Visualizing and exploring the relationship of this data and using the resulting discoveries can help organizations in decision making. LBS and RTLS are expected to be major factors in identifying hidden or unidentified patterns in businesses. LBS, analytics, and RTLS, when used in conjunction with a Geographic Information System (GIS), provide a platform to interpret and analyze the information that can be presented through visual representation.

LBS and location tracking technologies are becoming disruptive and transformative for many businesses in sectors, such as healthcare, transportation, retail, advertisement, and public administration. The major application areas of RTLS include inventory/asset tracking and management; personnel/staff locating and monitoring; access control and security; environmental monitoring; yard, dock, fleet, and warehouse management and monitoring; and supply chain management and operational automation/visibility. Many new applications of LBS and RTLS, such as location-based social media networks, location-based gaming, location-based health monitoring, and transport LBS, have emerged in recent years. Mapping and navigation systems are the major systems using LBS. The transport sector has been one of the major adopters of LBS applications, which include the use of LBS for driver assistance, fleet management, and passenger information. For instance, for driver assistance and passenger guidance, LBS enables locating available on-street parking spaces, safety warnings to the drivers, and multimodal routing for fleets.

Various wireless technologies, such as Radio-Frequency Identification (RFID), Wireless Fidelity (Wi-Fi), ultrasound, Infrared or Infrared Radiation (IR), Ultra-Wideband (UWB), and Bluetooth Low Energy (BLE), are used in today's RTLS, depending on the use cases or application areas. These technologies are supported by advanced software and hardware location-based solutions. Each technology has its advantages and disadvantages regarding the accuracy, cost, power consumption, scalability, and signal coverage. Wi-Fi, Bluetooth, and RFID can bring accuracy up to several meters, while UWB is more suitable for applications where positioning accuracy is a critical parameter.

The market for LBS is expected to grow due to several factors, such as increasing availability of spatial data and analytical tools, rising use of social media, smartphones, and location-based apps among consumers, growing demand for geomarketing, and emerging applications of geospatial data. Additionally, the emergence of 5G and low-cost, efficient connectivity technologies have helped create ubiquitous connectivity. Enhancement in connectivity technologies, supplemented by growing interest in personalizing services based on users' location information, has boosted the LBS and RTLS market. Moreover, the realization of the cost benefits of deploying solutions for the tracking and management of assets (organizational resources—both personnel and vehicles) is expected to drive the growth of the market.

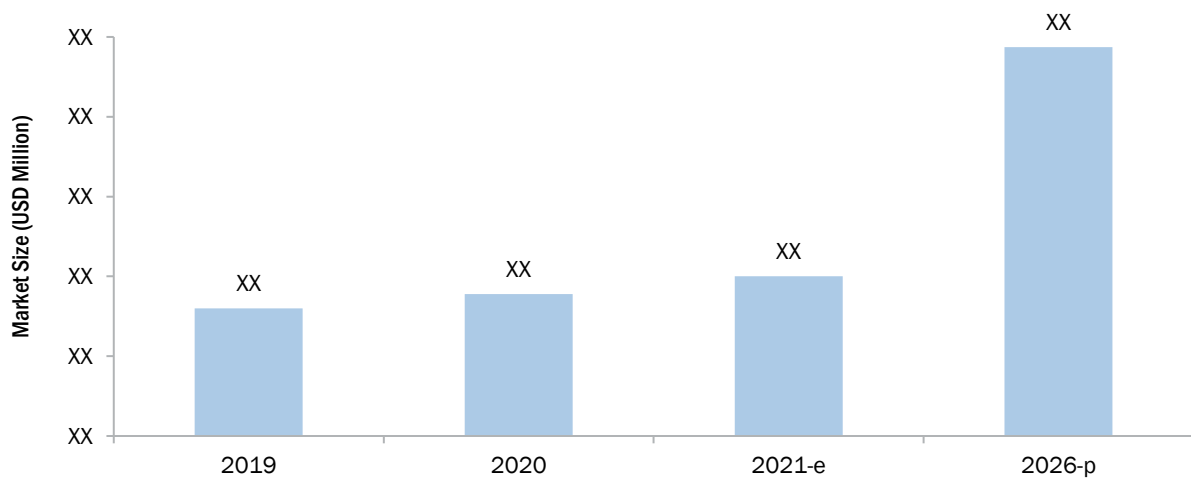
State-of-the-art infrastructure is required to deploy LBS and RTLS platforms and services. For example, several networking components, including network infrastructure, database design, and application development environment, are required to support LBS and RTLS, which are based on multi-tier client-server technologies. The development of these technologies represents the first step in realizing Spatial Data Architecture (SDA), thereby offering greater scalability and flexibility to existing LBS options. Similarly, designing an RTLS with all the features, such as high accuracy and range, and low power consumption, is a major challenge faced by RTLS vendors. The lack of standards leading to difficulty in interoperability is another challenging factor for the market players.

The emergence of RTLS has further augmented the opportunity areas for LBS. Technologies enabling LBS, such as the Internet of Things (IoT) and smart wearable devices have played a significant role in enhancing the adoption of leading technologies in this market. The major factors responsible for the upsurge in real-time location tracking solutions include optimizing resources through efficient asset tracking, increasing standardization of LBS and RTLS technologies, declining cost of RTLS hardware and platform, increasing technological advancements, rising application across various industry sectors ranging from healthcare to defense, and increasing government support and funding. However, a few pivotal factors hindering the growth of this market are high upfront costs and budgetary constraints, technical issues associated with the use of LBS and RTLS technologies in conjunction with other technologies, operational challenges with RTLS technologies, and privacy and security concerns.

The LBS and RTLS market report is segmented based on component, location type, application, vertical, and regions. Based on components, the platform segment held the highest share in 2021. The growth of the segment can be attributed to the rising deployment of platforms for locating assets and enabling LBS for the end-users. Among services, the deployment and integration services segment held the highest market share in the LBS and RTLS market in 2021. The growth of the segment can be attributed to the rising demand for RTLS and LBS, especially in the APAC, Middle East and Africa (MEA), and Latin American regions.

By location type, the LBS and RTLS market is segmented into outdoor and indoor. The indoor segment is expected to grow at a higher Compound Annual Growth Rate (CAGR) during the forecast period, due to advancements in indoor positioning and indoor spatial data modeling technologies and the increasing availability of indoor GIS data. By application, the LBS and RTLS market is classified into tracking and navigation, marketing and advertising, location-based social networks, location-based health monitoring, and others (location-based gaming and emergency support). Among applications, the tracking and navigation segment held the highest market share during the forecast period, due to the increasing use of these applications in driver assistance, passenger information, and vehicle management. Among verticals, the transportation and logistics segment held the highest market share as route tracking and monitoring, and field asset monitoring are emerging as key applications of LBS and RTLS in this vertical.

FIGURE 1 LBS AND RTLS MARKET SIZE, 2019–2026 (USD MILLION)

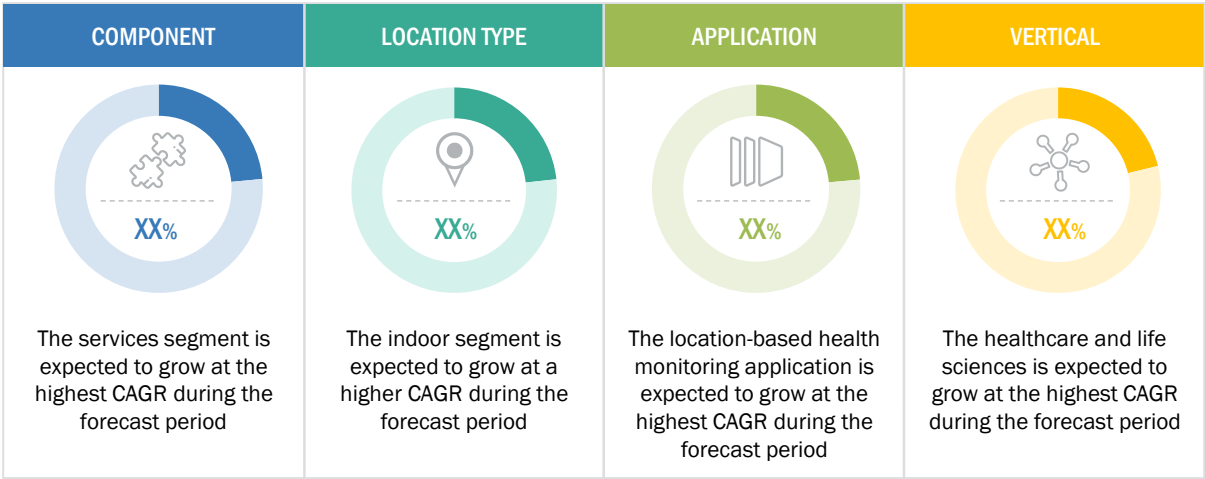


e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

The figure above depicts the global LBS and RTLS market during the forecast period. The global LBS and RTLS market is expected to grow from USD XX million in 2021 to USD XX million by 2026 during the forecast period. The growth of the market is fueled by the increasing use of smartphone apps and GNSS devices and the introduction of efficient location-based technologies.

FIGURE 2 FASTEST-GROWING SEGMENTS IN THE LBS AND RTLS MARKET DURING 2021–2026

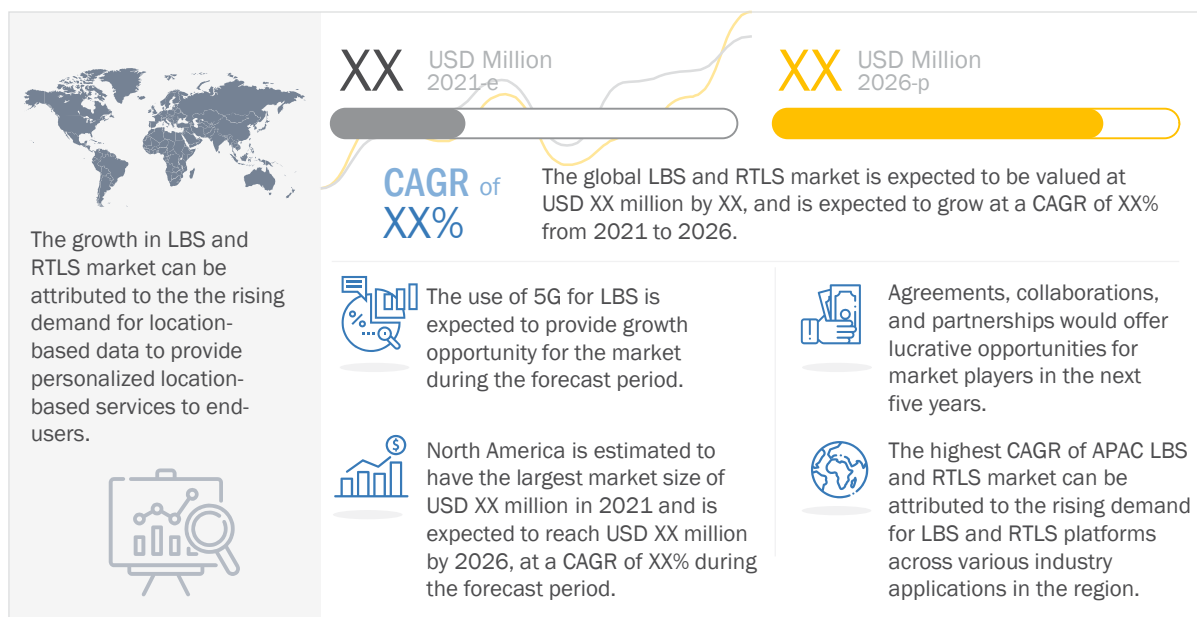


Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

2 PREMIUM INSIGHTS

2.1 ATTRACTIVE OPPORTUNITIES IN THE GLOBAL LBS AND RTLS MARKET

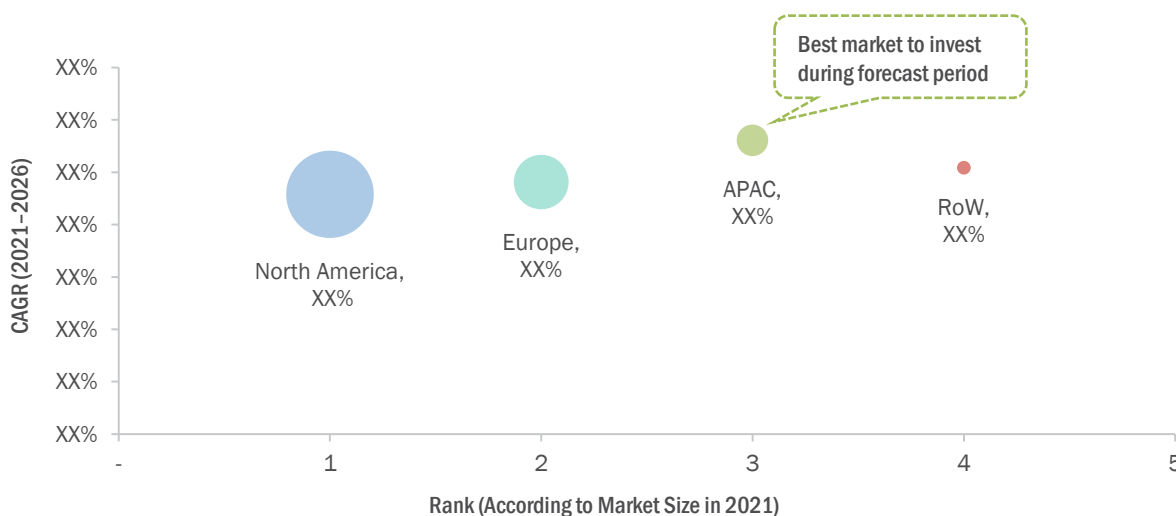
FIGURE 3 PROLIFERATION OF SMARTPHONES AND SUBSEQUENT LOCATION-BASED APPS DRIVING THE GLOBAL LBS AND RTLS MARKET



Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

2.2 LBS AND RTLS MARKET: MARKET INVESTMENT SCENARIO (2021-2026)

FIGURE 4 ASIA PACIFIC CONSIDERED AS THE KEY MARKET FOR INVESTMENT DURING 2021-2026



Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis





3 MARKET OVERVIEW AND INDUSTRY TRENDS

3.1 MARKET DYNAMICS

LBS and RTLS is a lucrative market for solution providers. The market is expected to witness significant growth in APAC and parts of Latin America and MEA, boosted by the higher adoption rate of big data technologies, increased use of smart devices, and IoT to collect location-based spatial data, in these regions.

The emergence of 5G, BLE, and UWB, is expected to further boost the growth of the market. However, there are also a few challenges, such as data standards governing the LBS and RTLS technologies and privacy and security concerns that may inhibit the adoption of these technologies. With the expansion of application areas of the LBS and RTLS technologies and the advancements in the technologies across various verticals, end-users are increasingly adopting location-based solutions for continuous operations and continued day-to-day business activities. The major dynamics for the market have been listed below:

FIGURE 5 DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES:
LBS AND RTLS MARKET

 <p>DRIVERS</p>	<ul style="list-style-type: none"> ▪ Increasing competitiveness for RTLS market ▪ Growing demand for LBS and RTLS for industry applications ▪ Proliferation of social media, smartphones, and location-based apps among consumers ▪ Growing demand for geo-marketing ▪ Emergence of ride-hailing services ▪ Various applications of geospatial data driving the LBS and RTLS market growth
 <p>RESTRAINTS</p>	<ul style="list-style-type: none"> ▪ Concerns regarding data security and privacy inhibit adoption of RTLS ▪ High cost of installation and maintenance restricts RTLS market growth ▪ Unsatisfactory results and negative feedback from RTLS end users
 <p>OPPORTUNITIES</p>	<ul style="list-style-type: none"> ▪ BLE and UWB for indoor proximity services ▪ Use of 5G for LBS ▪ Opportunities and applications in Industry 4.0
 <p>CHALLENGES</p>	<ul style="list-style-type: none"> ▪ System irreconcilability and lack of unvarying standardization ▪ Privacy and security concerns ▪ Designing LBS and RTLS solutions to fulfill diverse needs of customers

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

3.1.1 DRIVERS

3.1.1.1 Increasing competitiveness in the RTLS market

RTLS is one of the most high-priced tracking technologies. However, the increased competition in the RTLS market has led to the development of cost-effective RTLS solutions by some players operational in the market. The market for RTLS technologies has witnessed steady growth in recent years, owing to the rising number of players entering this market who provide RTLS platforms equipped with innovative features for the customers. The rise in the number of startups and the increased accessibility to personalized solutions are the two major factors that have led to high competition in the RTLS market. Players operational in the RTLS market attempt to develop secure and advanced solutions to stay ahead in the competition. More than 150 players are involved in the RTLS market. Out of all the players, the top 5 players account for about XX% of the market share. These top companies majorly focus on healthcare, retail, and manufacturing industries and have introduced industry-specific solutions. The startups and smaller players in the market offer customized solutions and are expanding their customer base in industries, such as livestock, agriculture, education, sports, and aerospace & defense. These strategies adopted by the startups help them achieve higher growth and increase their market share. Thus, the high competition in the RTLS market has led to RTLS companies offering application-specific customized products at affordable rates to their customers.

3.2 VALUE CHAIN ANALYSIS

Value chain analysis helps analyze the source of competitive advantage among market players from the basic material suppliers to end-users. The model works by segregating a firm into its strategically relevant activities to understand the behavior of costs and identify any sources of differentiation. For a firm to achieve a competitive advantage, it must achieve cost reduction in these strategically important activities.

The value chain for the LBS and RTLS market includes component providers, system integrators, retailers, and end-users. The following figure emphasizes the complete value chain starting from component providers to end-user of the market.

FIGURE 6 LBS AND RTLS MARKET: VALUE CHAIN ANALYSIS

COMPONENT	SYSTEM INTEGRATORS	RETAILERS	END USERS
<ul style="list-style-type: none"> Hardware providers (gateways, IR sensors, ultrasound microphones, and environmental sensors) Platform Providers (software and APIs) Service Providers 	<ul style="list-style-type: none"> Cisco IBM Google Microsoft Oracle Zebra Technologies Ericsson ESRI TomTom Qualcomm 	<ul style="list-style-type: none"> E-commerce (Amazon, Foursquare, eBay, PayPal) App Stores (Amazon app store, Apple app store, Google Play, Tencent My App) 	<ul style="list-style-type: none"> Retail Government Manufacturing Tourism and Hospitality Healthcare and Life Sciences Media and Entertainment Others

Note: The list of vendors is not exhaustive

Source: MarketsandMarkets Analysis



4 LBS AND RTLS MARKET, BY COMPONENT

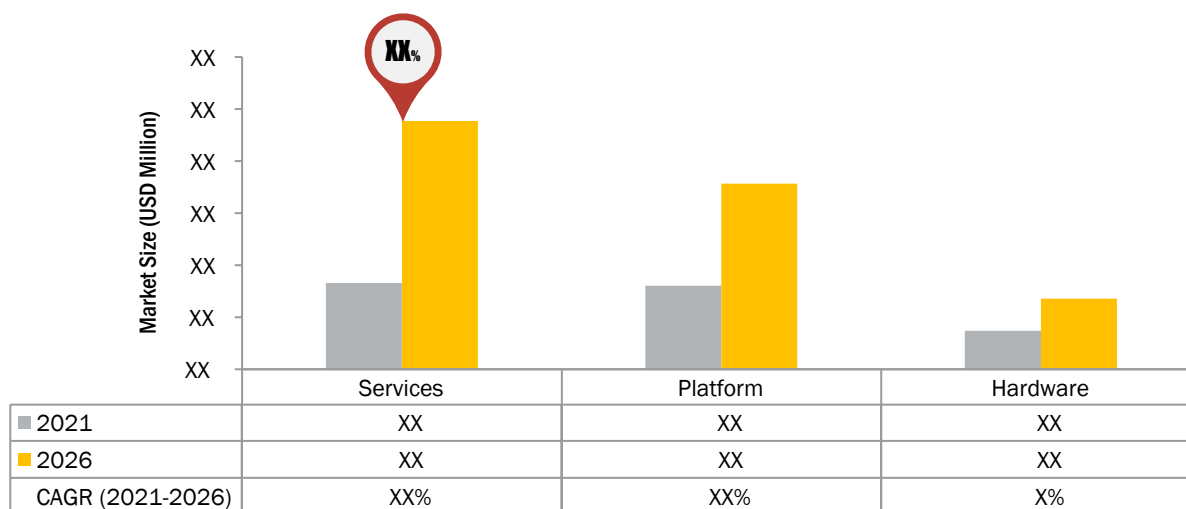
KEY FINDINGS

- The services segment is estimated to have the largest market size of USD XX million in 2021 and is expected to reach USD XX million by 2026, at a CAGR of XX% during the forecast period.
- The platform segment is expected to grow from USD XX million in 2021 and reach USD XX million by 2026, at the highest CAGR of XX% during the forecast period.
- The development of cloud-based location analytics and convergence of mobile, web, and social analytics are some of the factors driving the growth of the LBS and RTLS market.
- The deployment and integration segment of the LBS and RTLS services market is expected to have the largest market size, owing to the rise in the need for the effective implementation of LBS and RTLS services and consequent maximizing of the RoI.

4.1 INTRODUCTION

The LBS and RTLS market is divided into three components, including hardware, platform, and services. The growth of the LBS and RTLS services market can be attributed to the need for application support and maintenance in matured markets, such as North America, Europe, and APAC. The platform segment is projected to lead the LBS and RTLS market in 2020, owing to the increasing demand for LBS and RTLS platforms across various industrial applications. The services offered by the LBS and RTLS vendors comprise consulting and training, deployment and integration, and application support and maintenance. The hardware segment includes segments, such as tags/badges, readers/trackers/access points, and others.

FIGURE 7 THE SERVICES SEGMENT TO GROW AT THE HIGHEST RATE IN THE LBS AND RTLS MARKET DURING THE FORECAST PERIOD



Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

4.1.1 MARKET DRIVERS

- Decreasing cost of adoption of LBS and RTLS platform
- Increasing volume of deployment services
- The constant change in market area framework indicates innovations in hardware and services
- The growing need for asset tracking is driving the market growth for the platform segment
- Rising demand for location analytics is encouraging market vendors to enhance the capabilities of their LBS and RTLS platforms in the market
- Deployment and integration services to offer significant revenue growth opportunities in APAC.
- The growing demand for LBS and RTLS platforms to fuel the demand for application support and maintenance services
- Need for technical expertise, especially in Latin America and MEA regions to drive the demand for consulting and training services
- The growing adoption of hybrid LBS and RTLS platforms is driving the market growth for the hardware segment
- The rising adoption of smart sensors has supported the growth of LBS and RTLS hardware.

4.1.2 IMPACT OF COVID-19 ON THE MARKET

- There has been a significant increase in the availability of Bluetooth solutions targeting COVID-19 responses as real-time location systems, smart buildings, and other IoT solution providers modified the existing products or created new products to help facilities reopen safely.
- The outbreaks of the pandemic have slowed down the growth of the platform segment as operations of major LBS and RTLS application industries, such as transportation, logistics, and retail have been hampered.
- The demand for LBS and RTLS services is on surge in the pandemic, as customers are looking for specific enhancements in exiting platforms to enhance their asset performance.
- The demand for integration, deployment, maintenance, and support services is rising, as the demand for customized features and platforms is increasing in the COVID-19 pandemic times.
- LBS and RTLS hardware and sensors are mostly supplied from China as a result of low cost, but after the outburst of COVID-19, most countries have cut off all the imports from the country. This is because of fear of the further spread of the virus.
- The disruption in the manufacturing sector has hampered the growth of the hardware segment.

TABLE 1 LBS AND RTLS MARKET SIZE, BY COMPONENT, 2016–2020 (USD MILLION)

Component	2016	2017	2018	2019	2020	CAGR (2016–2020)
Platform	XX	XX	XX	XX	XX	XX%
Services	XX	XX	XX	XX	XX	XX%
Hardware	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 2 LBS AND RTLS MARKET SIZE, BY COMPONENT, 2021–2026 (USD MILLION)

Component	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
Platform	XX	XX	XX	XX	XX	XX	XX%
Services	XX	XX	XX	XX	XX	XX	XX%
Hardware	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

The table above highlights the LBS and RTLS market size, segmented based on components. The market is expected to grow from USD XX million in 2021 to reach USD XX million by 2026. The services segment is estimated to grow from USD XX million in 2021 and reach USD XX million by 2026, at a CAGR of XX% during the forecast period. The increasing volume of deployment services and cost-effective adoption of LBS and RTLS platforms is driving the market growth for LBS and RTLS market.

4.2 PLATFORM

The LBS and RTLS platform segment consist of software, solutions, and APIs to support location-based applications. These platforms are used to build LBS applications. LBS and RTLS platforms act as a connection between location-based data and the final analysis of that data into valuable information for improved asset management. The location tags and readers based on diverse technologies require a dedicated platform that can accomplish the tracking process and capture an enormous amount of real-time location data. The platform segment not only emphasizes the LBS and RTLS applications but also provides solutions to the limitations of using the passive RFID technology. A platform helps in providing location-based analysis, visualization, and real-time tracking of equipment, as well as people. The applications of this tracking include different locations, such as emergency wards or Operating Rooms (ORs) in a healthcare facility, or different sections of manufacturing facilities, and so on.

The rising importance of location analytics for understanding changing business trends has led to many organizations deploying LBS and RTLS platforms in their operations. These platforms help to localize, analyze, and act on the changing business conditions and trends.

TABLE 3 PLATFORM: LBS AND RTLS MARKET SIZE, BY REGION, 2016–2020 (USD MILLION)

Region	2016	2017	2018	2019	2020	CAGR (2016–2020)
North America	XX	XX	XX	XX	XX	XX%
Europe	XX	XX	XX	XX	XX	XX%
APAC	XX	XX	XX	XX	XX	XX%
RoW	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 4 PLATFORM: LBS AND RTLS MARKET SIZE, BY REGION, 2021–2026 (USD MILLION)

Region	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
North America	XX	XX	XX	XX	XX	XX	XX%
Europe	XX	XX	XX	XX	XX	XX	XX%
APAC	XX	XX	XX	XX	XX	XX	XX%
RoW	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

4.3 SERVICES

The services offered by LBS and RTLS platform can be segmented into deployment and integration, application support and maintenance, and consulting and training. These services are essential for the successful functioning of LBS and RTLS. The general cost of installation of LBS systems depends on the complexity of the application and the type of technology used. This cost comprises hardware, software, middleware, and services costs.

Services play an important role in the overall LBS and RTLS implementation process, especially for RTLS. Knowing the installation and maintenance details before deploying RTLS is very crucial for determining the exact time and cost investments required to install a platform. For instance, some RTLS installations may take months and can affect staff productivity in environments, such as hospitals, by obstructing the performance of existing systems. On the other hand, some solutions such as Wi-Fi-based RTLS can be integrated with the existing wireless network infrastructure of the facility and therefore require a shorter installation time. Other than installation and maintenance services, professional services, such as consulting, RoI analysis, and site inspection, are also included in the services segment.

TABLE 5 SERVICES: LBS AND RTLS MARKET SIZE, BY REGION, 2016–2020 (USD MILLION)

Region	2016	2017	2018	2019	2020	CAGR (2016–2020)
North America	XX	XX	XX	XX	XX	XX%
Europe	XX	XX	XX	XX	XX	XX%
APAC	XX	XX	XX	XX	XX	XX%
RoW	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 6 SERVICES: LBS AND RTLS MARKET SIZE, BY REGION, 2021–2026 (USD MILLION)

Region	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
North America	XX	XX	XX	XX	XX	XX	XX%
Europe	XX	XX	XX	XX	XX	XX	XX%
APAC	XX	XX	XX	XX	XX	XX	XX%
RoW	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

5 LBS AND RTLS MARKET, BY REGION

5.1 NORTH AMERICA

Currently, North America captures the largest market size in the LBS and RTLS market. The two major contributors to the overall market are the US and Canada. The US holds the highest market share in the LBS and RTLS market by region. In the US, transportation and logistics, retail, manufacturing, and government are some of the major verticals generating revenue for the LBS and RTLS markets. The growth in North America can be attributed to increasing technological advancements, increasing industry standards of LBS and RTLS, and increasing financial support from the government of several countries in the region. The region has also witnessed a proliferation of startups in the LBS and RTLS market.

5.1.1 NORTH AMERICA: MARKET DRIVERS

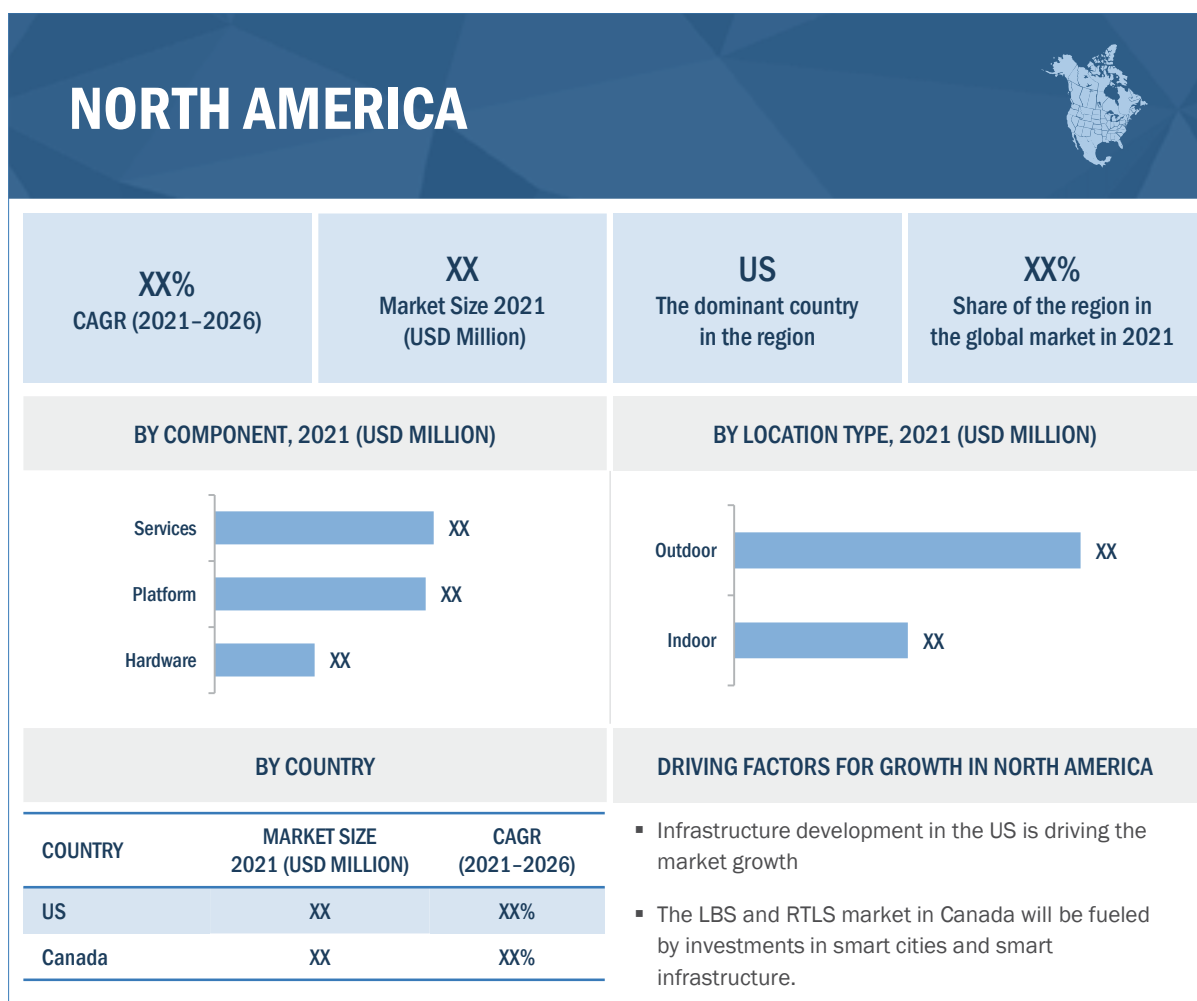
- Rising infrastructural developments in the US expected to drive the market growth
- LBS and RTLS in Canada to be fueled by investments in smart cities and smart infrastructure in the country

5.1.2 NORTH AMERICA: IMPACT OF COVID-19 ON THE MARKET

The lockdown implemented during the COVID-19 outbreak has had a significant impact on the retail, logistics, and supply chain business in North America during the last few months. Several logistics service providers are not able to operate at their full potential. This has also affected the demand for location-based services, such as route tracking and monitoring, and field asset tracking in the region. Since various states are expected to relax lockdown restrictions, the demand for location-based services from the logistics and supply chain sector is expected to grow in the near future. The supply chain, retail, and manufacturing businesses are also expected to witness significant growth and positive financial position in the coming years, which is also expected to affect the demand for location-based services from these industries negatively.

The LBS and RTLS market size in the US is expected to witness a significant decline in 2020, due to the adverse effects of COVID-19 on various industries, such as automotive, manufacturing, retail, sports, and education. In the coronavirus pandemic situation, a majority of people are focusing on satisfying their basic needs.

FIGURE 8 NORTH AMERICA: LBS AND RTLS MARKET SNAPSHOT



Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 7 NORTH AMERICA: LBS AND RTLS MARKET SIZE, BY COMPONENT, 2016–2020 (USD MILLION)

Component	2016	2017	2018	2019	2020	CAGR (2016–2020)
Platform	XX	XX	XX	XX	XX	XX%
Services	XX	XX	XX	XX	XX	XX%
Hardware	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 8 NORTH AMERICA: LBS AND RTLS MARKET SIZE, BY COMPONENT, 2021–2026 (USD MILLION)

Component	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
Platform	XX	XX	XX	XX	XX	XX	XX%
Services	XX	XX	XX	XX	XX	XX	XX%
Hardware	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 9 NORTH AMERICA: LBS AND RTLS MARKET SIZE, BY SERVICE, 2016–2020 (USD MILLION)

Service	2016	2017	2018	2019	2020	CAGR (2016–2020)
Deployment and Integration	XX	XX	XX	XX	XX	XX%
Application Support and Maintenance	XX	XX	XX	XX	XX	XX%
Consulting and Training	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 10 NORTH AMERICA: LBS AND RTLS MARKET SIZE, BY SERVICE, 2021–2026 (USD MILLION)

Service	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
Deployment and Integration	XX	XX	XX	XX	XX	XX	XX%
Application Support and Maintenance	XX	XX	XX	XX	XX	XX	XX%
Consulting and Training	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 11 NORTH AMERICA: LBS AND RTLS MARKET SIZE, BY LOCATION TYPE, 2016–2020 (USD MILLION)

Location Type	2016	2017	2018	2019	2020	CAGR (2016–2020)
Outdoor	XX	XX	XX	XX	XX	XX%
Indoor	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 12 NORTH AMERICA: LBS AND RTLS MARKET SIZE, BY COUNTRY, 2021–2026 (USD MILLION)

Country	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
US	XX	XX	XX	XX	XX	XX	XX%
Canada	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

The table above highlights the LBS and RTLS market in North America. The market is expected to grow from USD XX million in 2021 to USD XX million by 2026. The US LBS and RTLS market is estimated to grow from USD XX million in 2021 to USD XX million by 2026, at a CAGR of XX% during the forecast period. Rising infrastructural developments in the US are expected to drive the growth of the market in the country.

5.1.3 UNITED STATES

The US is expected to dominate the overall North American LBS and RTLS market, due to the development of infrastructures in terms of smart cities, smart buildings, and smart transportation. The increased accessibility to indoor and outdoor location technologies, such as RFID, NFC, Wi-Fi/WLAN, GPS, A-GPS, and Bluetooth, has considerably improved the demand for the LBS and RTLS platforms. The US is one of the top countries of smartphone users, and more than two-thirds of the country's population use smart devices and a large number of people use LBS on their smartphones.

In the US, retail banks use LBS to collect volumes of customer-related data. Analyzing these volumes of customer data helps banks improve their relationship with their customers. Retail, healthcare, eCommerce, and other verticals use context-aware technologies to advertise their new offerings. Many of the LBS vendors, such as Google, Microsoft, IBM, Cisco, Oracle, and Esri, are based in the country, making it one of the top players in the market. The integration of social networking platforms, such as Yelp, Foursquare, and Facebook, with LBS, has also boosted the LBS and RTLS market in the US.

TABLE 13 UNITED STATES: LBS AND RTLS MARKET SIZE, BY COMPONENT, 2016–2020 (USD MILLION)

Component	2016	2017	2018	2019	2020	CAGR (2016–2020)
Platform	XX	XX	XX	XX	XX	XX%
Services	XX	XX	XX	XX	XX	XX%
Hardware	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 14 UNITED STATES: LBS AND RTLS MARKET SIZE, BY COMPONENT, 2021–2026 (USD MILLION)

Component	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
Platform	XX	XX	XX	XX	XX	XX	XX%
Services	XX	XX	XX	XX	XX	XX	XX%
Hardware	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 15 UNITED STATES: LBS AND RTLS MARKET SIZE, BY SERVICE, 2016–2020 (USD MILLION)

Service	2016	2017	2018	2019	2020	CAGR (2016–2020)
Deployment and Integration	XX	XX	XX	XX	XX	XX%
Application Support and Maintenance	XX	XX	XX	XX	XX	XX%
Consulting and Training	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 16 UNITED STATES: LBS AND RTLS MARKET SIZE, BY SERVICE, 2021–2026 (USD MILLION)

Service	2021-e	2022	2023	2024	2025	2026-p	CAGR (2021–2026)
Deployment and Integration	XX	XX	XX	XX	XX	XX	XX%
Application Support and Maintenance	XX	XX	XX	XX	XX	XX	XX%
Consulting and Training	XX	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX	XX%

e: estimated; p: projected

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

TABLE 17 UNITED STATES: LBS AND RTLS MARKET SIZE, BY LOCATION TYPE, 2016–2020 (USD MILLION)

Location Type	2016	2017	2018	2019	2020	CAGR (2016–2020)
Outdoor	XX	XX	XX	XX	XX	XX%
Indoor	XX	XX	XX	XX	XX	XX%
Total	XX	XX	XX	XX	XX	XX%

Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

6 COMPETITIVE LANDSCAPE

6.1 OVERVIEW

This section will provide a broad understanding of the competitive leadership mapping of key vendors in the Location-Based Services (LBS) and Real-Time Location Systems (RTLS) market. These players have adopted organic and inorganic growth strategies to expand their global presence, which supported them in increasing their market shares. Major market players generate a significant portion of their revenues from North America, followed by Europe and APAC.

As a standard methodology, MarketsandMarkets studies the entire ecosystem and players operating in the market space. Vendors are placed into one of the four categories: stars, emerging leaders, pervasive players, and participants. The categorization is based on their performance in each criterion. However, due to the limitations of the syndicate study format, we have profiled a limited mix of vendors (leading vendors, innovators, and emerging startups) in the study.

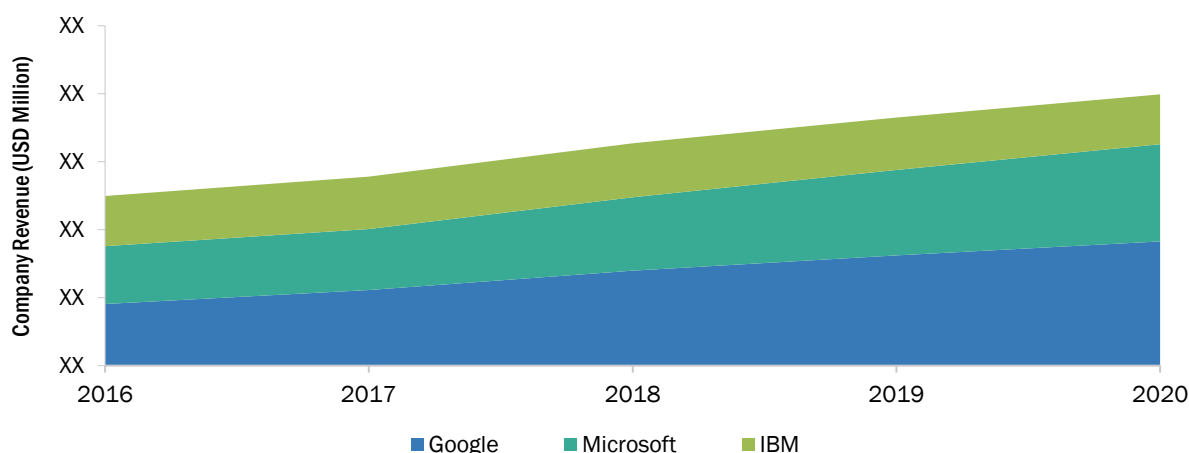
6.2 HISTORICAL REVENUE ANALYSIS

The key players in the LBS and RTLS market were identified through secondary research, and their market shares, in terms of value, were inferred from their annual reports, presentations, and secondary research sources. Primary research interviews were conducted with key opinion leaders in the industry, such as Chief Executive Officers (CEOs), directors, industry experts, and other executives, to validate revenues and market shares.

The size of the LBS and RTLS market, in terms of value (USD million), based on component, location type, application, vertical, and region, was derived using forecasting techniques based on demand patterns and production trends. The prices of LBS and RTLS solutions were verified through primary sources and secondary research.

The first step in the preparation of this report was to define the approach and methodology to estimate the market size. This was followed by primary interviews and feature mapping on a regional basis from MarketsandMarkets' repository. The bottom-up approach was followed to derive the market size in terms of value. The market size was validated by in-depth interviews with industry experts and secondary research. The excerpts of these interviews are available in the discussion guide section of the appendix chapter.

FIGURE 9 REVENUE ANALYSIS OF TOP MARKET PLAYERS, 2016-2020



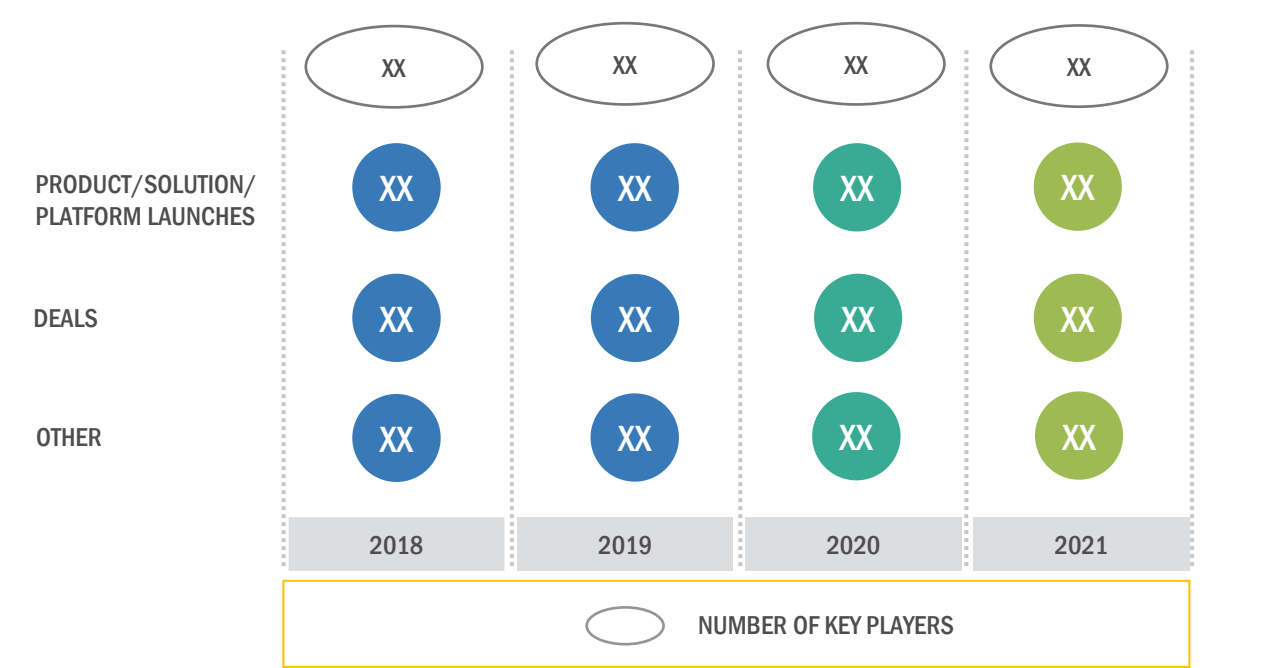
Source: Secondary Literature, Expert Interviews, and MarketsandMarkets Analysis

The top players mentioned above accounted for a majority of the LBS and RTLS market share, and this trend is expected to continue in the near future.

6.3 MARKET EVALUATION FRAMEWORK

Understanding the present stage of the market after analyzing the market dynamics in the last couple of years becomes essential to forecast how the market will shape in the near future. This analysis involves assessing the consolidation in the market by identifying the number of market players that account for over XX% of market share and the number of expansions, product launches, product enhancements, M&A activities, and strategic alliances. The MarketsandMarkets-market evaluation framework given below captures the key data for the period from 2018 to 2021 for the LBS and RTLS market.

FIGURE 10 MARKET EVALUATION FRAMEWORK: EXPANSIONS AND CONSOLIDATIONS IN THE LBS AND RTLS MARKET BETWEEN 2018 AND 2021



Note: Numbers in bubbles indicate players that accounted for a market share of more than XX% from 2018 to 2020.

Source: Annual Reports, Press Releases, and MarketsandMarkets Analysis

6.4 COMPANY EVALUATION QUADRANT

The company evaluation quadrant includes key players operating in the market to understand the performance of each player. This section also explains key growth strategies adopted by the top market players during 2018-2020 to expand their market shares and improve their offerings in the LBS and RTLS market. The company evaluation quadrant provides information about the major players in the LBS and RTLS market. It outlines findings and analysis of how well each market vendor performs within predefined company evaluation quadrant criteria. Vendor evaluations are based on two broad categories: strength of product portfolio and business strategy excellence. Each category carries various criteria based on which vendors are evaluated.

FIGURE 11 GLOBAL LBS AND RTLS MARKET: COMPANY EVALUATION QUADRANT, 2021



Source: Press Releases, Expert Interviews, and MarketsandMarkets Analysis

7 COMPANY PROFILES

7.1 KEY PLAYERS

7.1.1 CISCO

7.1.1.1 Business overview

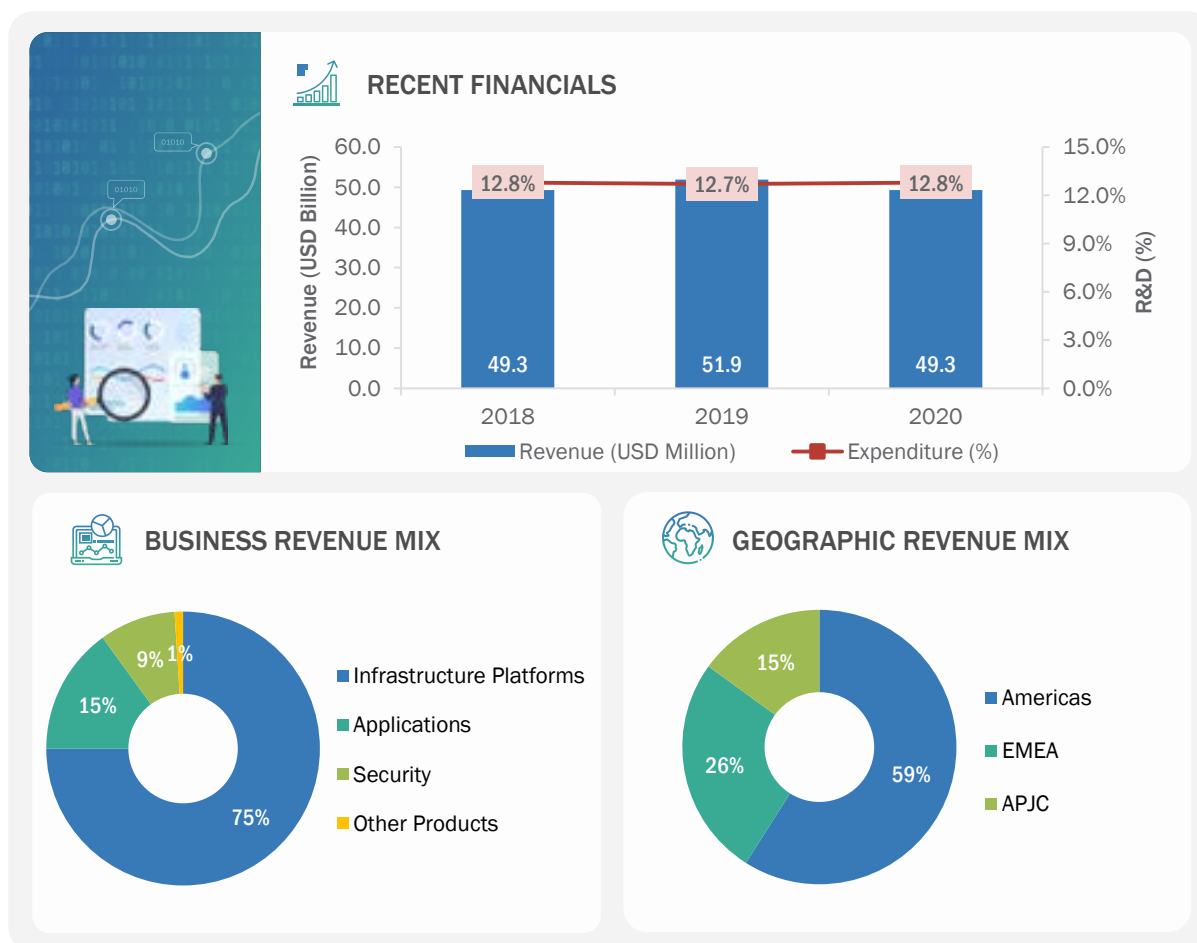
Cisco provides hardware, software, and telecommunication equipment related products and services. The company manufactures, designs, and sells Internet Protocol (IP)-based networking products. The company offers a wide range of LBS products and services for enterprise customers, public institutions, telecommunication companies, commercial businesses, and personal residences. Cisco offers the Cisco Unified Wireless LBS, which uses enterprise WLANs integrated with location tracking, in the LBS and RTLS market. The products and services offered by Cisco are majorly used by network administrators and network security personnel who support the protection and performance of enterprise networks.

TABLE 18 CISCO: BUSINESS OVERVIEW

CISCO	
Year Founded	1984
Country	US
City	California
Ownership	Public (NASDAQ: CSCO)
Annual Revenue	USD XX Billion
R&D Expenditure	USD XX Billion
Employees	77,500

Source: Company Website

FIGURE 12 CISCO: COMPANY SNAPSHOT



Note: The FY of the company ended on July 25, 2020

Source: Annual Reports and Company Website

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