

Underground Utility Mapping - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Abstracts

The Underground Utility Mapping Market size is estimated at USD 1.32 billion in 2024, and is expected to reach USD 2.09 billion by 2029, growing at a CAGR of greater than 9.61% during the forecast period (2024-2029).

Underground utility mappings like pipework or underground electric wires determine the utility location. Underground utility mapping is essential to civil engineering because it saves time and money on costly repairs caused by striking utilities. Project planners can accurately plan costs for work to be done with the help of an accurate utility map. However, surveyors face record accuracy and mapping challenges, as mapping the location of hidden utility objects is an inherently difficult task.

Key Highlights

Over the last few years, the subsurface utility engineering (SUE) industry has developed novel approaches to mapping underground utility infrastructure. Geophysical technologies such as electromagnetic locators and ground-penetrating radars are used with non-technical methods such as historical records to gather sufficient subsurface infrastructure information.

With the proliferation of smartphones in recent years, vendors are seizing the opportunity to create app-based mapping solutions to aid engineers in their work. For example, Radiodetection, a manufacturer of underground utility mapping tools, released an Android mapping app compatible with the RF marker locator range and the cable, pipe, or RF marker range. The app uses Bluetooth connectivity to create a real-time map of buried utilities.

The combination of emerging technologies with utility maps is revolutionizing the underground utility mapping market by improving the accuracy, efficiency, and safety of exploration activities. These advancements enable exploration teams to overcome challenges associated with underground infrastructure, optimize exploration routes, and minimize risks, ultimately driving growth and innovation in the market.

Technological advancements have led to the development of sophisticated detection applications that are more accessible to many users. These applications may include software solutions, mobile apps, and handheld devices equipped with sensors capable of detecting underground utilities.

High maintenance costs often accompany high upfront investment requirements for mapping tools. This can deter potential customers, especially smaller organizations or those with limited budgets, from adopting underground utility mapping solutions.

The COVID-19 pandemic accelerated the adoption of digital technologies, including underground utility mapping solutions. Organizations recognized the importance of digitizing and automating processes to improve efficiency, reduce reliance on manual labor, and mitigate future disruption.

Underground Utility Mapping Market Trends

Ground Penetrating Radar is Expected to be the Largest Component Type Solution

Ground-penetrating radar (GPR) is the preferred method for utility mapping, emitting directional electromagnetic waves in the MHz and GHz range. GPR uses the electromagnetic signal's return to determine the location of underground utility infrastructure.

GPR technology is highly accurate and can locate both metallic and nonmetallic utilities. Utility surveyors prefer ground-penetrating radar for utility mapping surveys because it provides quick data acquisition, lower operating costs, and high-resolution imagery.

GPR offers a non-destructive and efficient method for assessing concrete structures, delivering valuable information on rebar locations, slab thickness, and voids or conduits. By avoiding invasive techniques, GPR minimizes disruption to ongoing construction projects while ensuring accurate results.

Drone manufacturers are developing GPR-enabled drones for detecting underground utilities, which is expected to expand the market opportunities in the coming years.

As the number of natural gas pipelines grows, the need for accurate and efficient mapping and monitoring increases. Ground penetration techniques are essential for locating, identifying, and assessing the pipeline's condition without causing disruption or damage to the surrounding environment. According to GGON, as of February 2024, China had the highest number of operational gas pipelines globally. The Chinese gas network comprised 442 functional pipelines, with 302 proposed or already under construction. The total number of operational gas pipelines globally is above 1,500.

North America is Expected to Hold a Significant Portion of the Market Share in the Future

The rapid urbanization and population growth in North America are increasing the pressure on existing infrastructure systems, leading to higher demand for underground utility mapping services. Urban areas are particularly complex and densely populated, requiring precise mapping to avoid damage to underground utilities during construction activities.

According to the National Underground Asset Registry Advisory Group, the uncertainty of locating underground utilities costs the US economy an average of USD 50 billion (USD 50,000 million) per year, with over 1,500 injuries and nearly 400 deaths recorded over the last 20 years. Due to missing or inaccurate information about underground utility mapping, this uncertainty is a significant cause of highway construction delays. These mapping utility uncertainties fuel the growth of advanced technology-based solutions in the region.

Many cities and municipalities in North America are investing in smart city initiatives to leverage technology to improve infrastructure management, enhance public services, and optimize resource allocation. Underground utility mapping is crucial in smart city planning and development by providing essential data for infrastructural asset management and planning.

Significant efforts are being made in the region to develop methods of sharing data about underground utilities captured during construction. For instance, the City of Chicago launched a pilot program to deploy a platform for collecting data and sharing a

3D map of the subway.

The region's players are also focusing on inorganic growth strategies to capture significant market shares, boosting the growth of the regional segment. Moreover, many public works departments in the region currently use GIS to display the location of underground utilities.

Underground Utility Mapping Industry Overview

The underground utility mapping market is semi-consolidated due to the presence of both global players and small and medium-sized enterprises. Some of the major players in the market are Hexagon AB, GSSI Geophysical Survey Systems Inc., LandScope Engineering Ltd, Plowman Craven Limited, and Geospatial Corporation. The players are adopting strategies such as partnerships and acquisitions to enhance their product offerings and gain a competitive advantage.

July 2023: Hexagon's Mining division announced the acquisition of Canadian company HARD-LINE, one of the global leaders in mine automation, mine production optimization, and remote-control technology. HARD-LINE specializes in remote control solutions and network infrastructure, allowing for the tele-remote operation of hefty machinery from the control station in a safe area on the surface or underground, regardless of distance.

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Contents

1 INTRODUCTION

- 1.1 Study Assumptions and Market Definition
- 1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET INSIGHTS

- 4.1 Market Overview
- 4.2 Industry Attractiveness - Porter's Five Forces Analysis
 - 4.2.1 Threat of New Entrants
 - 4.2.2 Bargaining Power of Buyers/Consumers
 - 4.2.3 Bargaining Power of Suppliers
 - 4.2.4 Threat of Substitute Products
 - 4.2.5 Intensity of Competitive Rivalry

5 MARKET DYNAMICS

- 5.1 Market Drivers
 - 5.1.1 Emerging Technologies Combined With Utility Maps to Improve the Exploration Activities
 - 5.1.2 Increasing Availability of Detecting Applications and Increased Return on Marketing Spending
- 5.2 Market Challenges
 - 5.2.1 Significantly High Maintenance Costs of Mapping Tools

6 IMPACT OF COVID-19 ON THE UNDERGROUND UTILITY MAPPING MARKET

7 MARKET SEGMENTATION

- 7.1 By Component Type
 - 7.1.1 Solutions
 - 7.1.1.1 Ground Penetrating Radar
 - 7.1.1.2 Electromagnetic Locators

- 7.1.1.3 Other Solutions
- 7.1.2 Services
- 7.2 By End-user Industry
 - 7.2.1 Public Safety
 - 7.2.2 Oil and Gas
 - 7.2.3 Building and Construction
 - 7.2.4 Telecommunication
 - 7.2.5 Electricity
 - 7.2.6 Other End-user Industries
- 7.3 By Geography***
 - 7.3.1 North America
 - 7.3.2 Europe
 - 7.3.3 Asia
 - 7.3.4 Australia and New Zealand
 - 7.3.5 Latin America
 - 7.3.6 Middle East and Africa

8 COMPETITIVE LANDSCAPE

- 8.1 Company Profiles*
 - 8.1.1 Hexagon AB
 - 8.1.2 GSSI Geophysical Survey Systems Inc.
 - 8.1.3 Landscape Engineering Ltd
 - 8.1.4 Plowman Craven Limited
 - 8.1.5 Geospatial Corporation
 - 8.1.6 Vivax-Metrotech Corp.
 - 8.1.7 Maverick Inspection Ltd
 - 8.1.8 Red Laser Scanning
 - 8.1.9 Technics Group
 - 8.1.10 multiVIEW Locates Inc.

9 INVESTMENT ANALYSIS

10 FUTURE OF THE MARKET

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