

Tunnel Monitoring System Market by Offering (Hardware, and Software & Services), Tunnel Type (Highway, Railway), Networking Technologies (Wired and Wireless), and Region (Americas, Europe, Asia Pacific) - Global Forecast to 2023

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Abstracts

“Catastrophic failures of tunnels, resulting in loss of lives and incurring high costs, to drive the growth of the tunnel monitoring system market”

The tunnel monitoring system market is expected to grow from USD 340.7 million in 2018 to USD 663.8 million by 2023, at a CAGR of 14.27% between 2018 and 2023. The increasing investments in tunnel infrastructure across countries worldwide, catastrophic failure of tunnels resulting in loss of lives and incurring high costs, decreasing cost of sensors resulting in reduced cost of tunnel monitoring systems, and strict regulations pertaining to tunnel safety are driving the growth of the tunnel monitoring system market. However, factors such as high installation and monitoring costs, and management, processing, and analysis of large volume of data are restraining the growth of the tunnel monitoring system market.

“Hardware held a major share of the tunnel monitoring system market in 2017”

Tunnel monitoring system market can be segmented on the basis of offering into hardware, and software and services. Hardware is the most important component of a tunnel monitoring system and is used for measuring the physical aspects, such as temperature, pressure, strain, dynamic load, cracks, and corrosion, of a tunnel. The data are then transmitted to the software for further analysis. Hardware used in tunnel monitoring systems includes various types of sensors, such as piezoelectric, piezoresistive, optical fiber, corrosion, temperature, and pressure sensors.

“Railway tunnels held the largest share of the tunnel monitoring system market in 2017”

Railway tunnels are a crucial aspect of communication systems in any country. Most railway routes are in mountain ranges and in cities for underground transportation. Currently, major countries such as the US, the UK, Germany, Japan, China, India, Qatar, and Saudi Arabia are investing heavily in railway tunnels, thereby boosting their economy. For example, The Crossrail project is currently the biggest tunneling project in Europe with around 21km of the total 118km route contained within newly bored tunnels. In addition, the Middle East and China are increasingly investing in underground metro projects. Thus, the growing railway tunnel infrastructure would increase the demand for tunnel monitoring systems to maintain and monitor the health of railway tunnels.

“Market for wireless networking technology-based tunnel monitoring systems to grow at a higher rate between 2018 and 2023”

The market for wireless networking technology-based tunnel monitoring systems is expected to grow at a high rate between 2018 and 2023 due to the flexibility offered by this technology. It is expected that the use of wireless technology-based tunnel monitoring systems would grow in the future owing to the increasing adoption of supporting technologies such as Internet of Things. The sensors used in wireless tunnel monitoring systems are organized by wireless transmission. This makes the updating, adding, moving, and replacing of sensors easy after the initial installation. However, wired networking technology-based tunnel monitoring systems are costlier than wireless networking technology-based tunnel monitoring systems.

“Tunnel monitoring system market in APAC to grow at the highest rate between 2018 and 2023”

The highest growth of the market in APAC can be attributed to the factors such as increased population and rapid urbanization, which have led to an increase in the use of highways and railways. To ensure connectivity across the entire country, several governments in APAC are heavily investing in infrastructural developments such as highways and railways. This, in turn, has led to an increase in the construction of tunnels in countries such as China and India. APAC has started focusing on the benefits of tunnel monitoring systems, and countries such as China, Japan, Singapore, India, and South Korea are increasingly implementing tunnel monitoring systems to ensure

the safety of their existing and new tunnel structures.

In the process of determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews were conducted with the key experts. The breakup of the profiles of primary participants is as follows:

By Company Type: Tier 1–20 %, Tier 2–45%, and Tier 3–35%

By Designation: C-Level Executives – 35%, Directors – 25%, and Others – 40%

By Geography: Americas – 45%, Europe – 25%, APAC – 20%, and RoW – 10%

Companies that provide a range of customized solutions to customers are expected to emerge as the game changers.

This report profiles the major tunnel monitoring system manufacturers and solution providers operating in the market. The companies profiled in this report include:

1. Nova Metrix (US)
2. SISGEO (Italy)
3. SIXENSE Soldata (France)
4. James Fisher (UK)
5. Geokon (US)
6. COWI (Denmark)
7. Ramboll (Denmark)
8. RST Instruments (Canada)
9. Geocomp (US)
10. Fugro (Netherlands)

Research Coverage

This report covers the tunnel monitoring system market on the basis of offering, tunnel type, networking technology, and region. A detailed analysis of the key industry players has been done to provide insights into their businesses, products and services, and key strategies such as product launches and developments pertaining to tunnel monitoring systems.

Key Benefits of Buying the Report

The report would help the market leaders or new entrants in the following ways:

1. This report segments the overall market comprehensively and provides the closest approximations of the overall tunnel monitoring system market size and that of the subsegments across various regions.
2. The report would help stakeholders understand the pulse of the market and provide them information on key drivers, restraints, challenges, and opportunities pertaining to the tunnel monitoring system market.
3. This report would help stakeholders better understand their competitors and gain more insights to enhance their position in the market. The competitive landscape section studies competitor ecosystem and product developments in the tunnel monitoring system market.

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About

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The major players in the tunnel monitoring system market include:

Nova Metrix (US)

SISGEO (Italy)

James Fisher (UK)

GEOKON (US)

COWI (Denmark)

Ramboll (Denmark)

Fugro (Netherlands)

The market for software and services to grow at a higher CAGR between 2018 and 2023

The tunnel monitoring system market, on the basis of offering, has been segmented into hardware, and software and services. The market for software and services is expected to grow at a higher rate between 2018 and 2023. The growth of this market can be attributed to the predictive analysis provided by software and the increasing demand for maintenance services for infrastructure. Services are integral part of tunnel monitoring

systems. Services pertaining to tunnel monitoring include design and installation, real-time monitoring, data analysis and reporting, and preventative maintenance and repair services.

The market for railway tunnels to grow at the highest CAGR between 2018 and 2023

The highest growth rate of the market for railway tunnels can be attributed to the growing railway tunnel infrastructure worldwide, which would increase the demand for tunnel monitoring systems to maintain and monitor the health of railway tunnels. Some of the critical tunnel projects are concentrated in the Americas, the Middle East, and Europe. For instance, the 57km (35-mile) twin-bore Gotthard base tunnel will provide a high-speed rail link under the Swiss Alps between northern and southern Europe. It is the world's longest and deepest rail tunnel.

Wired networking technology to hold a major share of the tunnel monitoring system market in 2017

Among the 2 networking technologies, wired networking technology is likely to hold a larger share of the tunnel monitoring system market throughout the forecast period. Wired networking technology-based tunnel monitoring systems are widely deployed in tunnels as these systems offer reliable connectivity, and there is no limitation on data transfer range.

Europe held the largest share of the tunnel monitoring system market in 2017

Europe is among the technologically advanced regions worldwide. Well-established manufacturing industries in countries such as Germany, France, and the UK are the major concentration units for hardware manufacturers and software developers of tunnel monitoring systems. In the past two decades, the number of tunnel projects in Europe has increased, and the technical capabilities required in the tunneling industry have also been strengthened. The road and rail projects in the EU-15 countries in 2015 had an estimated value of USD 1.43 trillion; of which, tunnels and bridges accounted for USD 226 billion, and trams and metros accounted for USD 95.6 billion. Due to these factors, Europe held a major share of the tunnel monitoring system market in 2017.

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