

# Smart Cities: Connected Public Spaces



**Smart Cities: Connected Public Spaces** is the second strategy report from Berg Insight analysing the latest developments on the global smart street lighting, smart parking, smart waste collection, air quality monitoring and smart city surveillance markets.

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- **Insights** from 50 new executive interviews with market leading companies.
- **360-degree overview** of the smart cities ecosystem.
- **In-depth analysis** of smart street lighting, parking, waste collection, air quality monitoring and city surveillance.
- **New detailed profiles** of 91 market vendors.
- **Summary** of industry trends in each market segment.
- **Market forecasts** by region and technology lasting until 2025.



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## The smart cities market continues to evolve at a high pace

The public spaces of a city – such as streets, squares and transportation hubs – have become more and more crowded and congested by traffic. Meanwhile, safety concerns are also heightened as the risk for criminal activities, traffic accidents and even terrorist attacks grows larger. Improvements in the management of the public spaces of cities therefore become important to ensure that growing challenges of energy consumption, environmental degradation and public safety are addressed in the best possible way. The advancement of IoT technologies has opened up entirely new possibilities for cities to efficiently manage assets, resources and services across multiple city verticals, and effectively given rise to the concept of smart cities. Five smart city verticals have emerged as particularly important for the management of public spaces – smart street lighting, smart parking, smart waste management, urban air quality monitoring and smart city surveillance.

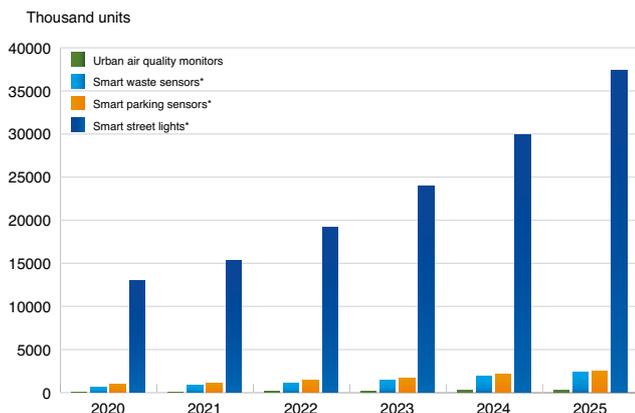
Smart street lighting solutions enable remote monitoring, control and management of street lighting networks. By the end of 2020, the global installed base of individually controlled smart street lights amounted to 13.0 million units (excluding China). Growing at a CAGR of 23.4 percent, the number is expected to reach 37.4 million in 2025. Europe is the leading adopter, accounting for more than 40 percent of the installed base. North America was the second largest market while the Rest of World region currently constitutes the fastest growing market. At the end of 2020, the leading smart street lighting vendor was Telensa with an installed base of nearly 2.1 million lighting controls. Included in the top three are also Signify and Sensus, while Itron constitutes a global leader in the networking segment.

Smart parking solutions based on connected parking occupancy detection sensors offer the possibility to provide real-time visibility of parking availability anywhere in a city. The dominant sensor types for such applications are in-ground and surface-mount sensors, collectively referred to as ground parking sensors. In 2020, there were 957,000 smart ground parking sensors installed globally (excluding China). The number will grow to 2.5 million units by 2025. Europe accounted for around 55 percent of the installed sensors while the North American and Rest of World regions represented around 188,000 and 241,000 devices respectively. At the end of 2020, the leading vendors in the market were Nedap, Smart Parking and Urbiotica. ▶

▶ The primary hardware needed for smart waste management applications is smart waste sensors that measure fill-levels in waste bins and containers throughout a city. These sensors may either be pre-integrated into bins and containers, for example as a smart bin offering, or retrofitted on existing collection points. The installed base of smart waste sensors reached 657,000 units globally in 2020 (excluding China). The market is expected to grow at a CAGR of 29.8 percent to reach 2.4 million units in 2025. Europe constitutes the leading market, accounting for around 50 percent of the global installed base. At the end of 2020, the leading vendors of smart waste sensor technology were Compology, Bigbelly and Enevo.

Traditional air quality monitoring systems have been around for decades to enable regulatory monitoring operations and typically consist of highly advanced and expensive stations deployed only at one or a few locations in major cities. The last decade has however seen a growing adoption of increasingly cheap and small non-regulatory and networked air quality monitoring devices that can serve as useful complements to traditional regulatory monitoring networks. The global installed base of such devices amounted to 73,000 units in 2020 and the figure is expected to grow at a CAGR of 34.0 percent in the next five years. The market is in a very nascent stage. Europe, North America and China lead the adoption.

Smart city surveillance refers to the use of networked security technology to improve safety levels in urban areas. The market is dominated by fixed network surveillance infrastructure, but applications such as body-worn cameras and gunshot detection sensors have also emerged as important complements for city surveillance operations. The smart city surveillance equipment market was in 2020 worth € 9.9 billion, with Asia-Pacific and in particular China accounting for the majority. The market will grow at a CAGR of 19.7 percent to reach € 24.2 billion by 2025. Leading video surveillance vendors include the Chinese vendors Hikvision and Dahua Technology as well as Swedish Axis Communications, while the leading providers of urban gunshot detection and BWCs are ShotSpotter and Axon respectively.



Installed base of smart cities applications (World 2020-2025)  
\*Excludes China

### This report answers the following questions:

- Who are the leading companies in the smart street lighting market?
- What is the outlook for smart street lighting vendors in the context of smart cities?
- Which are the main types of parking space occupancy monitoring solutions?
- Who are the leading smart parking sensor vendors?
- What are the key technology characteristics of on-street and off-street parking?
- Who are the leading providers of smart waste sensor technology?
- How will the adoption of LPWA network technologies affect the smart waste sensor market?
- What are some of the key considerations when deploying air quality monitors?
- Which are the main providers of low-cost air quality monitors?
- How much is the smart city surveillance equipment market worth?

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### Glossary

# About the Author



**Levi Östling** is an IoT Analyst with a Master's degree in Innovation and Industrial Management from the School of Business, Economics and Law in Gothenburg. He joined Berg Insight in 2018 and his areas of expertise include smart metering, ITS in public transport and smart cities.

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