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Smart Cities: Connected Public Spaces

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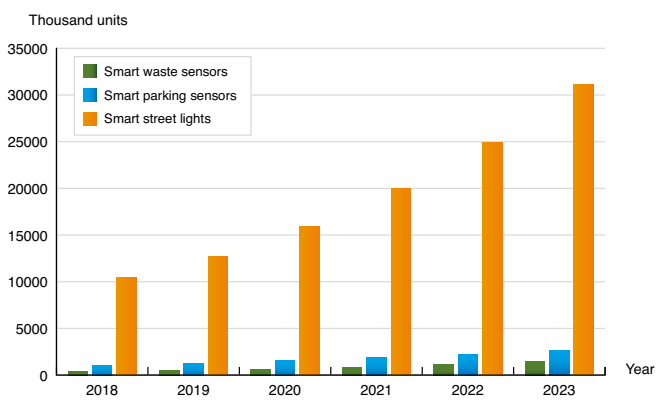
Strong growth expected across multiple smart city applications

Along with the growing urbanisation, the public spaces of a city, such as streets, squares and transportation hubs become more and more crowded which put pressure on the publicly available assets and services. Meanwhile, safety concerns are also heightened as the risk for criminal activities, traffic accidents and even terrorist attacks grows larger. Thus, improvements in the management of public spaces within cities become important to ensure that the challenges from 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. By focusing on providing connectivity to assets in the public spaces themselves, a group of smart city applications stand out in terms of their importance for the management of public spaces – smart street lighting, smart parking, smart waste management and smart city surveillance.

Smart street lighting solutions enable remote monitoring, control and management of street lighting networks. By the end of 2018, the global installed base of individually controlled smart street lights amounted to 10.4 million units. Growing at a CAGR of 24.5 percent, the number is expected to reach 31.2 million in 2023. With the UK at the forefront, Europe has led the adoption of smart street lighting and today accounts for around 40 percent of the global installed base. North America has seen a more scattered uptake of smart street lighting but is nevertheless home to some of the world's largest deployments to date. The Rest of World accounted for 31 percent of the global installed base in 2018 and the Chinese market constitutes a large part of these installations. As of Q3-2019, the leading smart street lighting vendor was Telensa with an installed base of nearly 1.8 million lighting controls. Included in the top three are also Signify and Sensus, of which the latter became a top player in 2017 through its acquisition of SELC. US-based Itron is also a leading player in the networking segment, having acquired Silver Spring Networks in 2018.

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 2018, there were 1.1 million smart ground parking sensors installed globally, a number that will grow to 2.6 million units by 2023. The European market accounted for nearly 40 percent of the installed sensors while the North American market lags behind with only 145,000 devices installed in 2018. The Chinese market, which is mainly served by domestic vendors, moreover comprises the majority of installed sensors in the Rest of World. As of Q3-2019, the top three smart ground parking sensor providers were Nedap, Fangle Technology and SmartGrains.



Installed base of smart cities applications (World 2018-2023)

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 to enable substantial improvements in waste collection services. 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 market for smart waste sensor technology is yet at an early stage, comprising some 379,000 connected collection points globally in 2018. The market is however forecasted to grow at a CAGR of 30.8 percent to reach 1.5 million units in 2023. Today, Europe constitute the leading market, accounting for around 50 percent of the global installed base. The leading vendors on this market are Bigbelly, Enevo and Dingtek Technology that together accounted for nearly 35 percent of the global market in Q3-2019.

Smart city surveillance refers to the use of networked security technology to improve public safety levels in metropolitan areas. The market is dominated by the fixed network surveillance infrastructure market, but applications such as live-streaming body-worn cameras (BWCs) and gunshot detection sensors have in recent years emerged as important infrastructure complements for city surveillance operations. The market for smart city surveillance equipment was in 2018 worth € 6.5 billion, with Asia-Pacific and in particular China accounting for the majority. The market is forecasted to grow at a CAGR of 24.5 percent to reach € 19.5 billion by 2023. Leading video surveillance vendors include the Chinese vendors Hikvision and Dahua Technology as well as Swedish Axis Communications, while leading providers of urban gunshot detection and BWCs include ShotSpotter and Axon respectively.

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 recommended solutions for 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 the components of a smart city surveillance system?
- How much is the smart city surveillance equipment market worth?

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Glossary

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