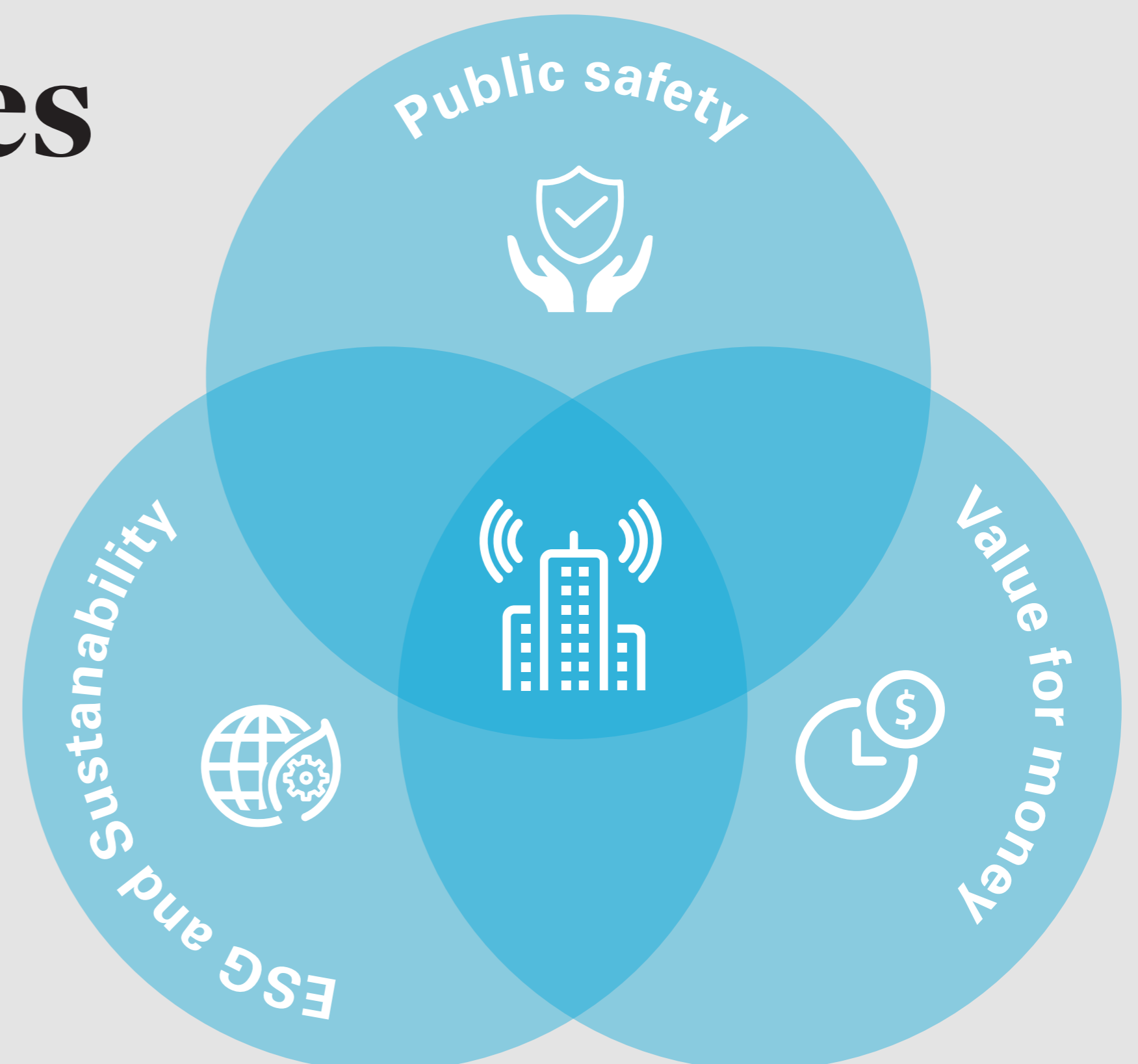


Why are smart cities important?

Existing smart city technologies have been applied to improve public safety, generate cost savings, and assist localities in reaching sustainability and improved quality of life goals.

With increasing urban populations, smart cities can present a sustainable path for urban development in a variety of areas:



Public safety

The aim of many smart city projects is increased public safety. For example, traffic-monitoring cameras give public authorities the ability to see accidents in real time, notify first responders and proactively divert traffic. Managed lanes, highway lanes designed to regulate traffic movement (i.e., HOV lanes, toll lanes), help further ease traffic congestion and create safer highway driving conditions. Noise sensors, if installed in traffic lights, can detect the sirens of police cars or ambulances to provide first responders with right-of-way, or more sophisticated sensors may be used to detect and identify sounds such as a gunshot or a cry for help and can alert the police immediately. Improved waste management and waste management collection services contribute to decreases in instances of disease.



ESG and sustainability

Smart city technologies can help achieve ESG goals by enabling more efficient delivery of services and an associated reduction of GHG emissions.

Electrical vehicle charging stations and citywide bike-sharing programs reduce emissions by reducing the necessity of driving gasoline-powered vehicles. Even gasoline-powered vehicles can decrease emissions through more efficient traffic management systems that reduce driving time. Smart housing projects, which include intelligent building management technologies or seasonal energy storage, further reduce the carbon footprint of residential and commercial buildings.

As modernized public transit remains a major tool for cities to address emissions and urban congestion issues, beyond expanding current metro systems, the electrification of existing mass transit options also furthers these aims. Relatively simple actions, like upgrading aging diesel-fueled public transportation buses with electric buses, reduce emissions and noise pollution associated with the operation of the bus fleet. Other municipal service vehicles, like garbage trucks, are also prime candidates for fleet electrification.

Fleet electrification also frequently includes ancillary projects like the upgrading of depots with charging infrastructure to further maximize the efficiency of the fleet's energy consumption, or the modernization of bus stations and stops to improve passenger experience and wait times.

Modernized bus shelters are also increasingly becoming hosts of data-collecting sensors that aid in the bus system's decision-making. In turn, these sensors can then enable smart advertising, which represents another potential revenue stream for the city.

For cities needing to achieve emission reduction pledges made under the Paris Climate Accord, smart city initiatives offer actionable methods of change without upending the lives of the city's residents.



Value for money

Well-structured projects, from a technical, financial and legal perspective, may require only limited initial capital from government sources. From such initial capital outlay, the municipality may receive strong and noticeable improvements in the quality of life for residents.

In some of these smart city projects, in which the service to be optimized already generates revenue, the smart city projects can even pay for themselves.

Investments in bus fleet modernization, for example, can be paid over time with passenger fares collected on a system-wide basis, further offsetting any cost, and electric buses benefit from a reduced cost of ownership (up to 70 percent less) as opposed to traditional diesel-powered buses.

The reduction of diesel fumes and improvement of air quality also leads to improved public health and associated cost savings with fewer negative health impacts requiring fewer hospitalizations. Other smart city projects, like toll roads, can create new streams of revenue for municipalities. The long-term cost savings achieved via smart city projects can then ultimately be passed along to city residents through an overall lower cost of living.

By investing in smart city technologies, cities may become more attractive to businesses and industries, further promoting their economic growth and competitiveness.