



## Smart Cities at a glance



A smart city relies on millions of inputs from citizens, from sensors, from mobile and Internet-of-Things devices and assets. Information and communications technology is at the heart of the smart city and enables innovative new services for residents, businesses, investors, tourists and the city managers.

A smart city uses digital technologies to engage more effectively and actively with its citizens, enhance the city performance and the wellbeing of its inhabitants and visitors, reduce operational costs and the city resource consumption and to generate new business opportunities while increasing the overall attractiveness of the city.

Smart cities drive innovation and investment in ICT, improving public services and quality of life. With over 50% of the worldwide population

living in urban areas, making smart cities sustainable and resilient are key urban development goals. Privacy, security and usability are essential considerations for citizens and key to ensuring successful deployment and adoption of the new city services.

## Main applications

Smart cities include a variety of applications in many sectors such as green/environmental issues, health and social care, building management and connected homes, energy efficiency, public safety and emergency services, waste management, transportation, mobility and resource optimization.

For instance, smart parking will monitor parking spaces available in the city and an app on your smartphone will tell you in real time where they are located. Smart lighting will adapt to weather conditions. Intelligent transport systems will connect vehicles and infrastructures to alert travellers to the traffic conditions and potential hazards, as well as comfortable multi-modal travel options. Smart grids will monitor and manage energy consumption and smart electrical meters will help you optimize your home heating system. In agriculture, cloud-connected equipment will enable farmers to plan, fertilize and harvest their crops more efficiently. Smart manufacturing will combine customized ordering with 3D-additive production and just-in-time delivery.

There is a myriad of applications, many of which are already part of our daily life, however these applications are waiting on seamless interoperability to make them practical. Cities around the world will use similar underlying technologies and a smart city will need a holistic approach which avoids designing a new generation of “vertical silo” solutions. This must be supported by globally acceptable standards that enable fully interoperable, replicable and scalable solutions.



# ETSI work in Smart Cities

## ETSI City Digital Profile Industry Specification Group (CDP ISG)

ETSI's City Digital Profile (CDP) Industry Specification Group (ISG) will develop a standards-based framework and corresponding technology overview that will enable city administrators to select advanced services for their citizens, whilst avoiding "lock in" to proprietary approaches, respecting essential environmental KPIs and sustainability objectives. Standard information interfaces will help reduce overall complexity and therefore also reducing costs. Providing this framework and roadmap for technology investment and deployment is expected to significantly increase market confidence levels in city infrastructure investments, as well as ensuring the long-term interoperability of technical solutions and the ability to replicate those solutions across domains, between cities and at scale.

Partnering with other industry and research groups worldwide, the ISG CDP is building on existing standards and specifications, including the work of oneM2M and TC SmartM2M. Fundamental issues such as citizen related data retention and privacy protection will be considered in coordination with other groups such as oneM2M and ETSI's TC CYBER.

## Machine-to-Machine or Internet-of-Things?

M2M communications will form the foundation layer for our future world of smart devices, smart appliances, smart homes and smart cities. The internet-of-things extends the M2M network into the Cloud. Our Smart M2M technical committee has analysed the impact of the Internet of Things on smart cities in an ETSI Technical Report (TR 103 290) and fully supports focusing IoT global standardisation activity in our joint initiative oneM2M, which has global SDO partnerships across all five continents. oneM2M has developed a common M2M Service Layer that can be readily embedded within hardware and software, and relied upon to connect the myriad of devices in the field with IoT application servers worldwide.

## Other ETSI groups involved in Smart Cities

Our Industry Specification Group on cross-sector Context Information Management (ISG CIM) develops technical specifications to enable multiple organisations to develop interoperable software implementations for cross-cutting Context Information Management (CIM) services for smart city applications and beyond. It focuses on exchanging data together with its metadata (definitions, provenance, quality information, coverage, licensing) between all kinds of databases, user Apps, IoT platforms and networks.

Many of our other groups are involved in smart cities; for example the Access, Terminals, Transmission and Multiplexing group (ATTM), the human factors (HF) special committee, the operational energy efficiency for users (OEU) group, and the environmental engineering (EE) technical committee.

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**ETSI** produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, aeronautical, broadcast and internet technologies and is officially recognized by the European Union as a European Standards Organization. ETSI is an independent, not-for-profit association whose more than 800 member companies and organizations, drawn from 66 countries, determine its work programme and participate directly in its work.

**For further information, please visit: [www.etsi.org](http://www.etsi.org)**

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