Building and enabling smart and sustainable cities of the future

By Matone Ditlhake   30 Nov 2022

According to analysts, more than two-thirds of all people will inhabit an urban environment by 2050. Smart cities of the future will have to provide affordable data-driven infrastructure in order to be sustainable.

Source: Unsplash

Smart cities are all about creating the perfect conditions for a prosperous economy, an affordable data-driven infrastructure that will create and protect jobs and more importantly, promote social equality in an era of digital transformation.

A city is not only a social ecosystem, it also needs to provide essential financial and public services including healthcare, education, security and housing - all the infrastructure required to make it a place where people actually want to live.

According to a study by Frost & Sullivan, investments in smart technologies will rise over the next two years and spending on smart city technology is expected to reach $327bn by 2025. Smart cities are likely to generate business opportunities worth $2.46tn by 2025.

Many cities have already invested in technologies like contact-tracing wearables and apps, autonomous drones and crowd analytics and open data platforms. They also plan to invest in smart grids, intelligent traffic management, autonomous vehicles, smart lighting and e-governance services.

One could expect a higher adoption of technologies such as 5G and AI as these smart cities start focussing on data-driven and connected infrastructure. There will also be an increased in spend on technology as they prioritise more digitalised services and a strong data analytics infrastructure.

Frost & Sullivan defines a smart city as one with 'active and verifiable pursuits' in at least five of eight areas: smart governance and education; smart healthcare; smart buildings; smart mobility; smart infrastructure; smart technology; smart energy; and smart citizens.

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Municipal services have to be available digitally, they will have to take a more personal and customer-friendly approach. It is critical that they improve their digital presence by enhancing their processes, their infrastructure, and going digital with all municipal services.

Governments and municipalities around the world are already using cellular and Low Power Wide Area (LPWAN) wireless technologies to connect and improve infrastructure - providing convenience, efficiencies and good quality of life for all.

A smart city is a framework, predominantly composed of Information and communication technologies (ICT), to develop, deploy, and promote sustainable development practices to address growing urbanisation challenges.

A major part of this infrastructure is an intelligent network of connected devices using wireless networks and the cloud. IoT apps receive, analyse and manage data in real-time to help governments, municipalities, companies and the public make better decisions that will improve their quality of life.

Infrastructure that enables everyone to engage with the smart city ecosystems through their smart devices can help cut costs and improve sustainability. For example, by streamlining digital processes, citizens can improve their energy consumption, manage garbage collection and decrease traffic congestion.

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In order to achieve this, smart cities require a low-powered interconnected network for collecting and sharing data. At the minimum, it has to work non-stop and fulfil the high requirements of connectivity, bandwidth and processing power.

A good example is the smart grid, a fully interconnected power system that operates at high energy-efficiency levels and supplies the entire smart city infrastructure. Smart meter technologies monitor and regulate the power supply and thereby enhance the grid's reliability.

Smart meters are intelligent electronic devices that provide data on water and electricity consumption. It's a two-way

communication system that enables utilities to collect information on consumption and monitor the energy patterns of consumers.

The smart grid will typically power electric storage units like EV charging stations and will utilise distributed energy systems (DES). Automation will also enforce fault detection and power cut prevention measures.

Smart cities are the future of urban living, comprising an ecosystem that incorporates a plethora of intelligent devices in complex systems. It will not only safeguard the interests of all the citizens, but it will ensure their safety and welfare.

ABOUT MATONE DITLHAKE

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