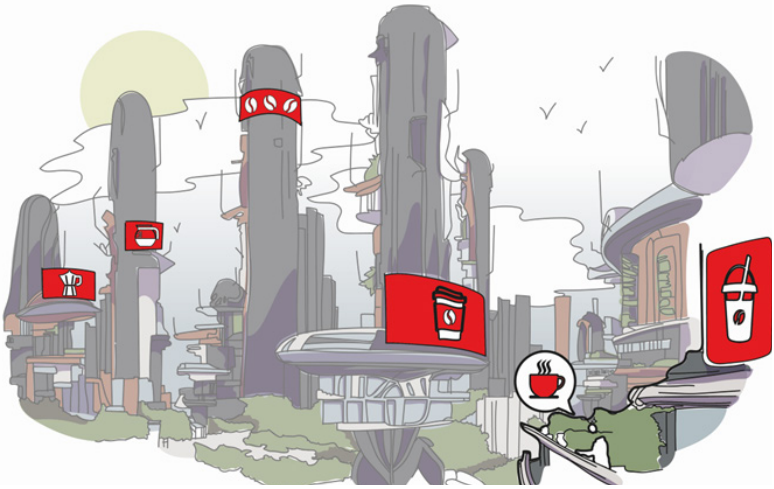
"SMART CITIES" ARE THE CITIES OF TOMORROW

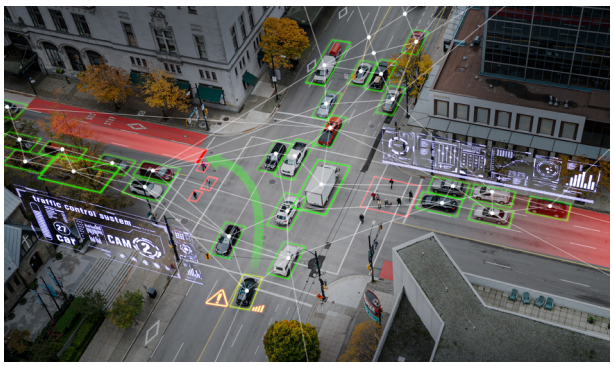
By **Jay Silva**, Architect
Stephen George + Partners

Rapid technological growth this century has changed how we live, work, and interact with our surroundings. Many professions and hobbies have been driven towards technology for a while, and accelerated as a result of the recent pandemic, and while some of this was a temporary growth, most of it is here to stay. The idea of Smart Cities is one of the most exciting concepts to come out of this technology revolution. **Modern technology is used by Smart Cities to improve liveability for residents, streamline city processes, and encourage sustainable development**. By rethinking conventional methods and pushing the limits of innovation, Smart Cities provide an intriguing view of the near future.

Urban areas known as "Smart Cities" make use of data-driven technology, Internet of Things (IoT) devices, and interconnected infrastructure to enhance different elements of city life. To effectively manage resources, improve citizen services, and encourage sustainability, these cities make use of modern sensors, data analytics, AI (Artificial Intelligence), and automation. Smart Cities strive to establish a seamless environment that smoothly incorporates technology into the fabric of urban living, from transport systems to waste management, and energy consumption to public safety.



Singapore is often considered to be at the forefront of smart technology. The country, like the UK, has an ageing population, and they have decided to invest in its digital healthcare system. This has been accomplished through normalising online consultations and wearable technologies that remotely monitor patients. They use a Smart Nation (**https://www.smartnation.gov.sg/**) technology, which uses sensors to digitally collect data across the city. This collects information on what individuals do on a regular basis and can be used to indicate the cleanliness of a neighbourhood or how crowded an event is. This is comparable to the data our phones already transmit to Google to indicate how congested the highways are, and then Google may alter directions to reduce congestion.



The physical arrangement of Smart Cities can be significantly shaped by Architects. Architecture must evolve as technology becomes increasingly embedded in urban planning in order to **produce buildings and places that are not only visually appealing but also responsive to the requirements of a technologically enhanced population.** To reduce power usage, Oslo in Norway has LED lights that are all linked to a processing unit that can change the quantity of lighting based on need. By also granting citizens free parking, access to bus lanes, and reduced toll rates, they promote the usage of electric cars in the community. They recognised that they had a traffic issue, and since they can now monitor cars, they better understand how traffic moves into and out of the city. This was one of the motivating factors for the shift.

Buildings intended for Smart Cities must have capacity for modern communication networks, energy-saving technologies, and adaptable floor plans. Digital Twins and IoT devices and sensors can be incorporated into architecture for real time monitoring and can enable adjustments to temperature, lighting and other controls which can optimise energy consumption and increase user experience. **Architects should be aiming to seamlessly integrate these technologies with the existing surrounding infrastructure.**

Smart Cities provide a new perspective on urban growth. In addition to the physical design of the city, planners must consider the integration of digital networks and services of the wider context. To design a unified and useful urban environment, planners must coordinate a variety of interconnected elements, such as smart grids, efficient transportation systems, and sustainable waste management.

Urban Planners can make decisions based on useful data insights provided by Smart City technology. The creation of transportation networks and the creation of zoning restrictions may both benefit from real-time data on traffic flow, air quality, and energy consumption. Urban Planners must adopt a dynamic strategy that welcomes technology and adjusts to shifting citizen requirements as cities expand and change.

The development of Smart City ideas is unquestionably connected to the future of UK cities. **Cities in the UK are struggling to accommodate expanding populations while preserving quality of life, sustainability, and efficiency as urbanisation keeps rising.** Initiatives in Smart Cities supply a road map for reaching these objectives.

Several UK cities have already started the process of becoming Smart Cities. For instance, London has launched programmes to increase the effectiveness of public transit

(Smart Parking https://www.smartparking.com/uk), improve public services, (better use of the collective data legally, ethically, and securely for the benefit of all Londoners) and lower energy usage (Congestion Charge and Ultra-Low Emission Zone). Manchester has embraced digital innovation to build a networked ecosystem that promotes urban development and economic progress.

The UK Parliament Smart Cities Research Briefing states that **'Additionally, Smart City projects may raise issues for inequality, for example, if the benefits or projects are not experienced equally by rural and urban communities, of if they disadvantage those without digital skills or access to digital technology such as smart phones.'** These concerns underscore a critical aspect of Smart City development. Rural communities, often left on the periphery of technological progress, may find themselves further marginalised as the urban centres surge ahead with Smart City innovations. Moreover, individuals lacking digital skills or access to essential technology, such as smartphones, may be inadvertently left behind in this digital transformation. To truly realise the vision of Smart Cities, it is imperative that these projects are approached with an unwavering commitment to inclusivity, ensuring that the benefits and opportunities they offer are accessible to all, regardless of geographical location or digital ability. Smart Cities should aspire not only to be technologically smart but also socially and economically equitable.

The whole concept of Smart City technology is to better the liveability for residents. **The technology should not be used for the sake of it, or just because we can. It needs to better the lives of the residents and help them either day-to-day or across their lifetime.**

The physical and digital environments will be significantly shaped by Architects and Urban Planners as the UK invests in Smart City infrastructure. **To build cities that are inclusive, resilient, and sustainable as well as smart, it will be crucial for planners, architects, politicians, and technology specialists to work together.** Especially as the root of Smart Cities, and their resultant success are about keeping the people 'smart'.

Smart Cities represent a fundamental shift in how we think about, create, and run urban spaces. At the forefront of this shift, Architects and Urban Planners are challenged with designing environments that seamlessly incorporate technology into urban life. T**he idea of "Smart Cities" has potential for improving citizen experiences, streamlining urban operations, and fostering a more sustainable and connected future for all as the UK looks towards the future.** The UK may open the door for a new era of urban excellence by embracing innovation, collaboration, and adaptation. But it needs to be led by technology experts, and architects need to be open to the integration.

in Connect with Jay