



Five Minute Briefing – Smart Cities

The challenges of climate change, population growth, demographic change, urbanisation and resource depletion mean that the world's great cities need to adapt to survive and thrive in the twenty first century. For leaders of growing cities, reducing emissions whilst improving living standards and delivering economic growth represents an enormous challenge. Information and communications technologies, however, can help transform energy-hungry urban centres into low-carbon 'smart cities' of the future.

Over centuries, cities have developed sophisticated solutions for many of the physical aspects of urbanity: architecture, transport, utilities and the public realm to name a few. However, the use of information and the role of technology in cities has barely progressed. Some leaders in cities around the globe are starting to move beyond the physical city; they are conceiving Digital Infrastructures and Information Products as a platform for economic development.

Technology has reached a critical point; cloud computing, the internet of things, hyper connectivity and modern analytics are providing opportunities at affordable cost that only a few years ago would have been described as science fiction. The success of Information and Communications Technologies (ICT) at home and at work has meant that citizens now have access to powerful smart devices wherever they go.

Smart cities are not simply those that deploy ICT. They combine new technology with smart new ways of thinking about technologies' role in organisation, design and planning. City leaders must, as they plan smart city initiatives, envision ways that technology can create new urban user experiences; think about the smart city as a holistic system; and consider ways that new systems can result in positive behavioural change.

City leaders need to redefine their roles in this emerging world by determining priorities and setting strategic frameworks. A city that makes the change from fragmented use of technology projects to a systemic approach will improve local conditions and gain export opportunities for the solutions they develop.

Amalgamating information on city systems means it can be deployed, real-time, to city leaders, allowing them to make decisions about the most effective use of city resources swiftly – and, ultimately, feed those decisions back to the components of the city: transport providers, energy companies, building owners. Also – and this is often overlooked – information can be provided to the city's end users, and through awareness the behaviour change necessary to achieve resource efficiency can be achieved.

Today, many cities are using ICT to improve performance at a departmental level, by deploying mobility, utilities, community and government e-services. Others are pushing the smart city concept even further, actively taking steps to make the concept an integral part of their development strategy.

By improving the city as a system, transformation is achieved.

Urban management systems are evolving to reflect these changes. To better deal with more open, widely available information, city administrators are shifting from single departmental solutions to approaches that can address city-wide issues that can enable them to better:

- Mitigate climate change risk
- Increase efficiency of resource use
- Enhance economic development and the creation of jobs
- Support communities and make cities a better place to live and work
- Run cities more efficiently

By harnessing a smart approach to administration, planning and partnering with technology companies, urban leaders have the opportunity to create economies of scale and scope for addressing challenges, to improve the efficiency by which they can deliver solutions across their cities, and create holistic, interconnected services built on civic needs and priorities.

The building blocks of a smart city solution (as defined by Wikipedia and other sources not Arup) are

- economy
- mobility
- environment
- people
- living
- governance

These are often repeated but it is a complex issue and there is no one size fits all solution for any City. Anything a City does must be needs and value led and technology enabled.

What makes a 'smart city' smart is the combined use of leadership, urban informatics and systems architecture — or smart systems — to enable residents, visitors and businesses to make better, more informed choices, that respond to a particular cities drivers and enable measurement of the value.

A Smart City solution must be a multi-disciplinary, interdepartmental response to a City vision that aims to reduce consumption and emissions, enhance the City as a place to live and work, deliver economic growth and create resilience to climate change.