

Smart buildings and smart cities, a burden or opportunity?

How we can turn the still largely theoretical concept of smart cities as an urban and architectural vision that combines economy, ecology and technology, into a reality. This was the topic of a virtual roundtable discussion hosted by Drees & Sommer where a panel of regional experts shared their perspectives on the development of smart buildings and cities.

The idea of smart buildings and cities has been around for quite some time, but the concept is still largely theoretical and under debate from a definition perspective; it means different things to different people.

Some definitions are focused primarily on the use of Internet of Things (IoT) technologies that collect data and use it to manage operations of buildings and facilities, whilst others look more widely at energy efficiency and improved user welfare. What we don't have, is one universally accepted definition of a smart city.

What we do know, is that we seek for smart buildings and cities to address the future needs of end users in all areas that affect life in an urban area with the aim to make big cities more efficient, cleaner, sustainable, and more livable. This comes with both a burden and an opportunity. As people, nations and the world at large, we're more connected than ever, what we need now is to design buildings and cities that let us apply this to create urban environments that are flexible enough to withstand time and that fulfil the expectations of the end user whilst providing a safe and secure environment.

With perceptions of smart cities often data based, it's important to differentiate between technology add-on solutions for existing buildings versus fully integrated designs for new developments and urban areas that fuse architecture and technology.

There is no doubt that technology is an integral and focal part of the future and that it plays a vital role in the development of smart cities, but it goes far beyond building automation that enables mobile lighting and air-conditioning controls to save energy. When we talk about smart cities, it's not about adding technology to existing structures, but rather designing and constructing buildings that amalgamate technology that can evolve and advance over the lifespan of a project. This is critical given the principal challenge that technology evolves much faster than buildings. While real estate is designed to last a minimum of 50 years, technology is often updated or replaced within a few years,

leaving the challenge to design buildings that can seamlessly incorporate ever evolving and advancing technology.

Smart buildings and cities are naturally associated with IoT technologies with sensors that collect data from citizens, devices, buildings and assets, to monitor and manage important aspects of the urban area including transportation systems, energy and utility supply and waste management. Increasingly, elements of smart cities are being requested or considered for new projects, both for individual buildings and master developments, so in many ways, we're on the smart journey already. Just think about the apps we use to find our way around the city, to book transportation and to deliver food to our homes. The technology is there, and the user is ready, so what's holding back the realisation of smart buildings and cities around the world?

During a virtual roundtable hosted by Drees & Sommer on the topic of smart buildings and cities, panelist Andy Shaw, Managing Partner of design studio AMA, said: "My take on it is that there are two sides to the ledger: burdens and benefits. On the benefits side you can get higher efficiency out of your building, better utilisation of resources, lower energy use and improved wellbeing for citizens including cleaner air, more efficient traffic management and better access to health services, travel and education. These are all very practical elements you can measure, but on the burdens side it's more complex with important philosophical and ethical considerations like privacy and the risk of commoditising citizens. As architecture originates from human needs - and on a larger scale the improvement of society- there are important questions around who owns the data that's generated, who you can trust to manage and use the data, and what role governments should play in the control and governance of smart cities. These ethical issues need to be resolved while technology keeps developing."

The aim of technology use in smart cities is to bring different experiences to users in urban areas as opposed to enhancing existing ones, and this challenge is a reflection of where the market stands; we have the technology companies on one side and the design and engineering firms on the other. The way technologists and engineers envision the various aspects of smart cities is different. Demand creates the opportunity for technology to be incorporated in the design fabric, but as an industry, we need to collaborate to ensure these ambitions can be fulfilled.

Dr. Taha Khedro, Partner, Technology Consulting Ernst & Young MENA, made an important point on this during the virtual roundtable discussion: "Part of the problem we see today is that there are plenty of ideas and technology concepts when it

comes to smart buildings and cities, but the engineering thinking needs to be considered early on. We need to weigh up the ambition versus the reality as the possibilities are not limitless. As an industry, we design to improve people's experience and the question is what we can do to push the frontier of the next-generation experience from a physical and digital perspective - how can we bring simple technology to complement the physical experience? This a paradigm shift."

It's evident that smart building technology doesn't work without a building and that a smart building will not work without embedded technology. In managing expectations, however, it's key to ensure that investments made in technology for smart developments produce the right returns. In doing so, we shouldn't be afraid to try what hasn't been done before, but as Denis McNelis, Engineering Manager at BAM, rightfully mentioned in the discussion: "the biggest danger in the industry is overselling. A lot is being delivered and can be delivered, but what are the expectations of the end user? I'm a great believer that technology will get us there, but we need to be careful that technologies don't get ahead of themselves as a concept and keep this in mind in our design thinking."

Although the concept of smart buildings and cities remains still largely theoretical, it's clear that the expectations of the end user are essential in their design. As Elie Mrad, Head of Architecture and Design at Arada, commented: "the biggest concern is that we are still predicting the future with smart buildings and cities at concept stage. We need to carefully analyse the end-user experience and analyse both the lifespan of the technology and the physical environment, so we can manage expectations of the space we're designing."

Is it just technology that's evolving or will requirements for physical space change as well? From a developer's perspective, we see the need to build communities and not just serve individuals which is especially true for master planning, with spaces that are people centric and designed to bring people together. This calls for a mixture of technology and architectural based design; using technology to enhance the sense of community in a building or city.

Some industries have changed through technology, like agriculture and media, but this hasn't happened to design and construction yet. There are people looking at digital disruption for our sector to address client ambitions for smart buildings and cities, but as an industry we need to recognise that we can't realise these ambitions with the same tools, approaches and processes we have been using. We can't magically make this happen; it needs to be looked at and worked on holistically.

* * *

Sophia Silferkrok
Marketing Manager
mobile +971 505596921
sophia.silferkrok@dreso.com

Dubai, July 19, 2020



Drees & Sommer: Your Innovative Partner for Consulting, Planning, Construction and Operation

As the leading European Consulting, Planning and Project Management enterprise, Drees & Sommer has worked with private and public clients from construction bodies to investors on all types of real estate and infrastructure projects – both analog and digital – for 50 years. With its pioneering and future-shaping consulting, the company offers solutions for successful buildings, high-return portfolios, powerful infrastructure, and liveable cities. 3,820 employees in interdisciplinary teams based at 46 locations worldwide support clients across a wide spectrum of sectors. All the services provided by the partner-run company take into consideration both economic and ecological concerns. Drees & Sommer calls this holistic approach ‘the blue way’. Drees & Sommer commenced operations in the UAE in 2003 and has been bringing innovative solutions to the country’s real estate and hospitality sectors with unparalleled expertise and experience.

Sophia Silferkrok
Marketing Manager
mobile +971 505596921
sophia.silferkrok@dreso.com