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# Smart Buildings beyond the Pandemic

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# COVID-19 – Accelerating Change in Real Estate

The COVID-19 global pandemic, and its economic aftermath, will have a long-lasting effect on how people work, meet, live, relax, travel, holiday and interact. Home-working and imposed isolation during the crisis have opened the eyes of both employees and employers to the possibility of doing things differently. There have been some benefits. Reduced commuting has improved air quality. It has also introduced extra hours into many people's lives which – for some – have fundamentally contributed to an enhanced work-life balance<sup>1</sup>. For others, it has introduced hugely increased levels of stress<sup>2</sup>.

Overall, employees seem to want to return to their place of work, even if on a more flexible basis than before. The Chinese experience has led the way. One commentator<sup>3</sup> reported a range of return-to-office rates (Q2 2020) of 80–100 % in Shanghai and 75–80 % in Chengdu and Chongqing – now returned to normal in 2021. This is natural, as we sociable humans miss face-to-face interactions with colleagues.

Nevertheless, things will change in the world of real estate as a result of the pandemic, as new ways of working have come under the spotlight. McKinsey<sup>4</sup> notes that, “the knock-on effects of the virus outbreak have made the demand for many types of space go down, perhaps for the first time in modern memory. This has created an unprecedented crisis for the real estate industry. Players will feel an even greater sense of urgency than before to digitize and provide a better – and more distinctive – tenant and customer experience.”

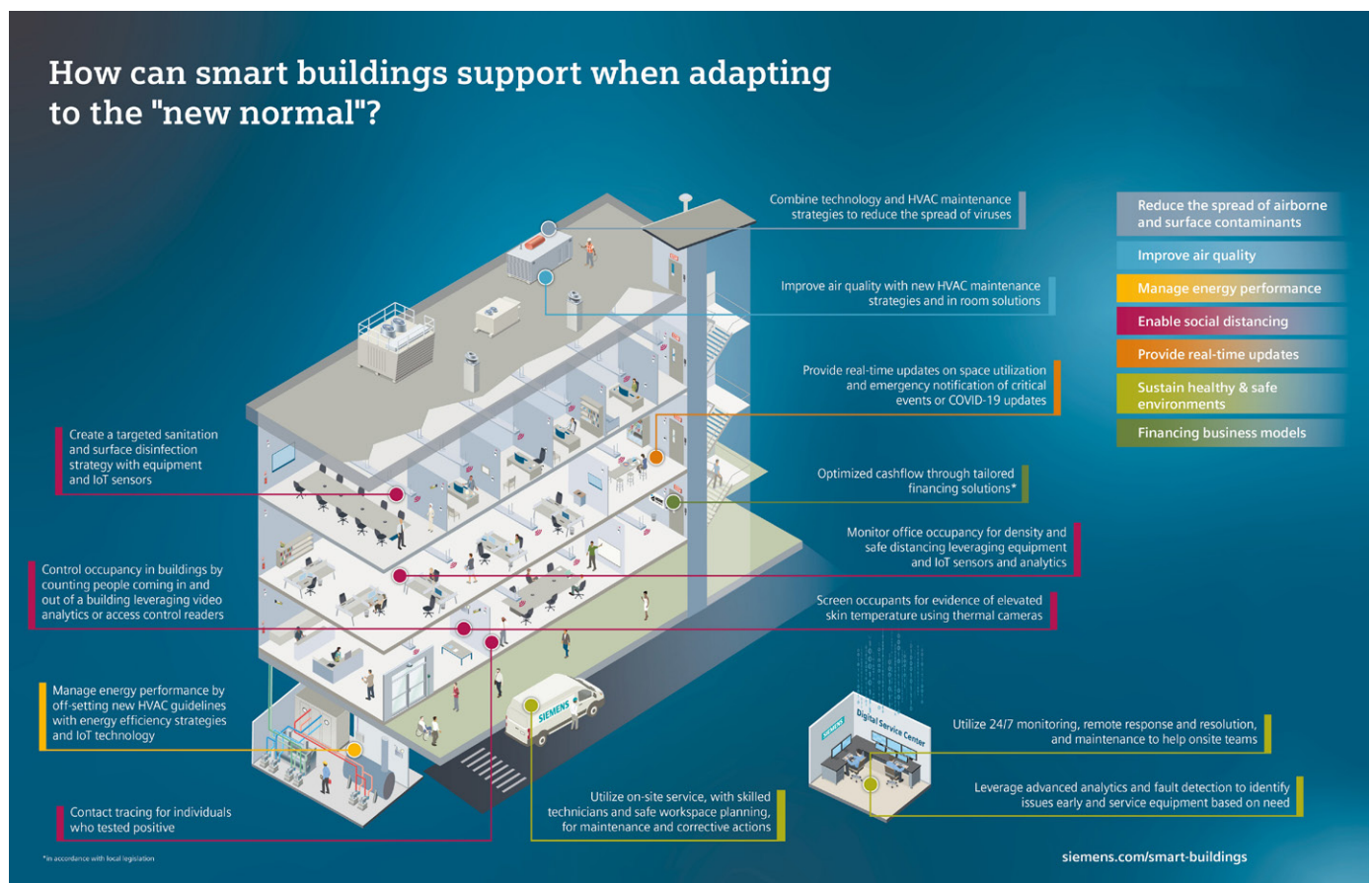
In fact, the reality is that investing in smart, digitalized buildings has been making sense for a long time. The pandemic has only served to underline the value that smart buildings offer, as digitalized buildings demonstrate their value in enabling a safe and secure return to work<sup>5</sup>.



Now, the crisis for the landlords, building owners and facilities managers is very real, and highly significant. The enterprise value of real estate assets<sup>6</sup> has fallen very significantly in most sectors. At the same time, because most buildings do not yet have 'smart' controls, energy use<sup>7</sup> across offices, hotels, and retail buildings reportedly dropped by just 16 % during lockdown. In other words, empty buildings without remote, digital control of heating and ventilation systems were still using 84 % of the energy that they did when occupied.

The same McKinsey report underlines the way smart, digitalized buildings are the face of the post-pandemic future. It notes that, "creating a differentiated experience will necessarily involve a suite of digital-first products and experiences: tele-health, on-demand delivery and concierge services, virtual communities, contact-less access for residents, guests, and maintenance staff, and much more. These digital offerings will pay dividends in the form of superior loyalty and the ability to create brand new revenue streams while better meeting the needs of tenants and end-users."

The only question, then, is how to invest further in smart buildings in ways that are financially sustainable, even in a post-pandemic world.



From social distancing and space optimization to remote operations, we are committed to supporting you with the right smart buildings solutions.

# “Smart-buildings-as-a-Service” – **Smart Conversion when Capital is Constrained**

Turning existing buildings into smart buildings is clearly desirable. Offices, hospitals, public buildings, airports, schools and universities, will all need to implement technologies such as touchless controls, remote fire and security, smart HVAC, and more, to ensure safety and manage infection control. In some countries, mandatory upgrades – fire and safety in France, energy performance certification throughout Europe – mean that buildings owners and landlords will have to make additional improvements. So how can all this be made affordable?

The post-pandemic world is one in which capital is constrained. For a start, the current economic crisis means that there is very little capital from retained profits to deploy. Also, organizations will be keen to preserve working capital to manage any shocks on the road to recovery. Nevertheless, we have already seen from the previous section this paper that buildings that are not smart are unlikely to gain tenants – in a world where real-estate demand generally is expected to fall.

Smart finance provides a solution. Pioneering CFOs are looking for ways to make their buildings smart without having to deploy their precious capital, and those smart financing techniques exist.

We are seeing the emergence of a concept called ‘Smart Buildings as a Service’<sup>9</sup> – sometimes called ‘servitization’. It is made possible by underlying smart financing structures. Landlords and owner-occupiers are conserving their capital for growth and improvement initiatives, and are choosing to let integrated technology-service-finance companies fund the digital transformation of their buildings. There are a variety of modern financing models that allow this to happen, but the most attractive is where smart solutions partners are able to do this as low- or zero-net-cost for the building owner – public or private. Using proprietary data, Siemens has modelled the potential for self-financing, zero-capital, smart buildings conversion across a number of countries and sectors (see table 1).

Using smart financing techniques, the integrated solutions provider introduces technology and systems to create intelligent buildings which deliver a clearly predictable level of energy savings. The reduction in energy costs is then harnessed to effectively fund the cost of conversion. While the level of energy reduction will vary, depending on external climate, cost of power, and other factors – in most cases the savings can be reliably reflected in a financing structure to deliver self-financing smart buildings upgrade anywhere in the world. The solutions provider agrees a buildings conversion contract with the owner over a predetermined period, after which the owner benefits from the ongoing reduced energy consumption, along with all the other added benefits of smart buildings.

Throughout, the building owner has had to put no capital at risk, and has conserved their own funds for strategically important development activities – whether commercial growth or improved public services. In the post-pandemic period, where cash reserves have been used up and revenues are experiencing a downturn, the idea of self-financing smart buildings conversion becomes even more compelling than before the crisis.

	Commercial buildings	Hospitals	Public Administration Buildings
<b>China</b>	16,102	4,656	7,267
<b>USA</b>	7,602	2,187	4,939
<b>India</b>	3,394	922	489
<b>Russia</b>	2,683	1,188	1,887
<b>Turkey</b>	1,600	114	1,126
<b>Germany</b>	1,468	665	1,033
<b>UK</b>	1,461	473	1,029
<b>France</b>	1,258	624	885
<b>Spain</b>	961	214	676
<b>Poland</b>	575	458	405
<b>Scandinavia</b>	404	100	285

Table 1: Smart Buildings – Potential for self-financed conversion (\$ million)<sup>8</sup>

## I Next Steps

This short insight note has demonstrated that continued investment in smart buildings provides a well-proven return on investment. The pandemic has made that investment imperative to ensure people's safety, their healthiness and productivity when at work, their enjoyment of leisure time, their effective receipt of healthcare, and their ability to consume education or public services.

Smart Buildings as a Service – made possible by smart financing structures – provides a compelling way of investing in smart buildings without having to find, or tie up, precious capital in the current volatile economic circumstances.

<sup>1</sup> European Union, The Parliament Magazine, Work-life balance in the Coronavirus era, 7 Jul 2020

<sup>2</sup> Forbes, How to Dramatically Improve Work-Life Balance, 28 Apr 2020

<sup>3</sup> JLL, COVID-19, Global Real Estate Implications, 19 Apr 2020

<sup>4</sup> McKinsey, Commercial real estate must do more than merely adapt to coronavirus, 9 Apr 2020

<sup>5</sup> FedTech Magazine, How Smart Technology Can Create Healthy Office Buildings, 12 Aug 2020; LinkedIn Pulse, M Rebellius, Investing in remote connectivity will continue to pay off beyond the current crisis, 27 May 2020;

<sup>6</sup> Green Street Advisers, REITs amid a pandemic, 3 Apr 2020

<sup>7</sup> Business Green, Study: Empty commercial buildings wasting energy and money during Covid-19 lockdown, 28 Apr 2020

<sup>8</sup> Methodology: Proprietary data on the average cost of smart buildings conversion per m<sup>2</sup> was applied to the commercial buildings, government buildings and healthcare estates respectively in each of 13 countries. In the first two segments, the top 40 % of cities were taken as the base 'estate'. For healthcare, acute treatment centres (public and private hospitals) were considered only. These financial volumes were then reduced by 50 % to eliminate the effect of existing smart building conversion rates, new build that already delivers smart capabilities, and building stock that may not – for whatever reason – be susceptible to self-financing arrangements that use energy savings to fund a smart buildings

<sup>9</sup> See, for instance, ITEA, BaaS "Building as a Service" as technical enabler for future building automation ecosystems, 2016

**Siemens Smart infrastructure and Siemens Financial Services work closely to provide integrated technology and finance solutions.**

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