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Smarter buildings are safer buildings:

TENANT SAFETY AS AN AMENITY

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Introduction

Prior to the COVID-19 pandemic, commercial real estate owners and operators were using technologies, including cellular, IoT and AI, to offer tenants new, connected amenities in an effort to drive up net operating income (NOI) while attracting and retaining lessees. Post-COVID, with work from home a potentially permanent shift for some workers and companies, Commercial Real Estate (CRE) priorities have changed -- but those underlying technology investments can still be leveraged to the same end. The combination of cellular, IoT, AI and other technologies can help make buildings smarter and safer, helping owners and operators ensure public health guidelines are being maintained while giving occupants a better, safer experience.

New use cases for the post-pandemic scenario

According to Owen Kell, senior researcher at Swedish smart buildings research firm Memoori Research, the pandemic had caused the emergence of a number of brand new, COVID-specific use cases such as social distance monitoring and management and mask compliance,

among others, but also emphasized that the majority of applications and IoT adoption trends in the smart buildings market were already present prior to COVID. "The difference is that interest in, and adoption of certain technologies has been supercharged as a direct result of the pandemic. This is particularly the case for technologies and offerings related to areas including remote building management, flexible working, occupancy analytics and AI-powered biometrics or contactless solutions," Kell said.

Greg Corlis, principal emerging technologies at KPMG, believes that building owners and operators have to now look at how they deploy technologies into their properties that will enable three business priorities for their tenants. "First, there is the safety concern for tenants as they return to the office," he said. "Second, they need to differentiate their properties from their competitors' by improving the employee/guest experience and lastly, they need to deploy sustainability solutions that will help them and their tenants achieve some of their ESG (Environmental, Social and Corporate Governance) objectives." Corlis said that some of these

technologies (cellular, IoT and AI) will help owners and operators to address multiple of these priorities but also noted that it will take time to figure out which ones to prioritize and which ones will turn the most significant business value.

According to Thomas Ricci, Coretrust Capital Partners managing principal, technologies such as cellular, IoT and AI will remain vitally important for tenants. "Of equal importance is the intense focus that's been put on providing a safe and healthy environment using technologies in other capacities," he said.

Coretrust Capital Partners is a real estate investment firm focused on the acquisition and operation of large office properties across the U.S. With help from wireless services provider Connectivity Wireless Solutions, Coretrust Capital Partners implemented 5G technology to transform its own tower in downtown Los Angeles into a smart building. The transformation, which included a Distributed Antenna System (DAS) comprised of 317 multi-band antennas and 20 software defined remotes for fiber optic connectivity, had the goal of providing improved cellular



Image courtesy of Honeywell

coverage and internet connectivity.

“I delivered several speeches, in congresses and meetings, talking about remote control data collection, devices at the edge and all these nice things. But often, these were more concepts that were staying in a nice PowerPoint,” said Marco Argenton, Head of Product Management at Telit. “Now they are really becoming a real priority when it comes to important topics such as safety, health monitoring, tracking. And each of those technologies that I mentioned, are applicable to the commercial real

estate sector. When it comes to technologies, I would not make any distinction between cellular technologies such as 5G, 4G or Wi-Fi. I consider all these technologies as a unique thing.”

Telit’s IoT solutions for smart buildings enable building owners to connect and automate building, technology, and energy systems to transform the way they manage these facilities. These IoT-based solutions enable building managers to reduce operating costs, improve occupancy services, and minimize the building’s impact on

the environment. Telit’s portfolio for the smart building market also enables integrated wireless IoT security and surveillance solutions for building owners.

Eddy Wagoner, digital CIO at JLL Technologies, said that these technologies had been implemented in the smart building segment prior to COVID-19 but added that the pandemic accelerated the trend. “People are expecting and demanding a safer, more flexible and better experience as they return to the office. Buildings without effective use of these technologies will not



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“People are expecting and demanding a safer, more flexible and better experience as they return to the office. Buildings without effective use of these technologies will not meet occupants’ expectations.”

Eddy Wagoner, Digital CIO at JLL Technologies

meet occupants’ expectations. With that in mind, smart buildings will be the preferred real estate for tenants post-pandemic,” Wagoner said.

“Even prior to COVID-19, commercial real estate owners and operators had shifted their focus to improving the occupant experience, but the needs, demands and expectations of building occupants have evolved in the past year. From parking to getting

through security and the comfort of their workspaces, employees want the office experience to be a safer, more secure, and a well-coordinated experience,” said Manish Sharma, vice president, chief technology and chief product officer at Honeywell Buildings Technology.

“To meet occupants’ new needs, smart buildings can use technologies like IoT, AI, and cellular to deliver frictionless experiences, healthier and comfortable spaces, real-time visibility, safety and security, and sustainability and efficiency. It’s equally important these technology solutions, deployed through interconnected ecosystems, provide actionable insights to facility managers to allow for adaptation to occupants’ changing needs,” Sharma added.

Prashanth Parsam, director at Cognizant, believes that the new scenario following the pandemic will be the acceleration of the adoption of technology in order to make buildings smarter and safer. “This would accelerate the adoption of technology and connectivity which will be much faster than pre-COVID times. A lot of solutions such as HVAC monitoring for air quality and visitors tracking will

now become de-facto solutions as part of all smart building initiatives. Usage of analytics and AI will become more prevalent for use cases related to video analytics, energy and sustainability.”

New priorities for the CRE sector following the impact of COVID-19

According to Kell, of Memoori, various applications that help to deliver and maintain “wellness” through the monitoring and improved control of metrics including indoor air quality, temperature and air flow were already being explored and adopted by some CRE operators as a differentiator prior to the pandemic. “Interest in and adoption of these kinds of technologies and approaches has been rapidly accelerated by the pandemic. Virtually every company that we monitor in the smart buildings space has adapted, evolved or re-branded their offerings in light of the pandemic. A major trend we’ve noted over the past six months in particular is the emergence of a variety of ‘return to work’ solutions. These typically include the integration of a variety of tools and analytics designed to help building owners and operators adapt to new

behaviors and tenant expectations brought about by the pandemic,” Kell said. The analyst also noted that some of these solutions include tools to better understand and report on space occupancy and usage patterns going forward; tools to assist with space planning and leasing management; tools to actively monitor and control occupancy and maintain social distancing; video analytics tools that facilitate monitoring of social distancing and mask compliance; thermal cameras deployed to provide fever screening; analytics and control features that optimize HVAC conditions to minimize the risk of virus spread, and new contactless solutions, particularly for access control, but also for other building services.

Meanwhile, Ricci also noted that Coretrust has implemented new security systems and protocols, touchless destination dispatch elevator controls, air purification devices, Ultra Violet-C Germicidal Irradiation (UVCGI) in-duct air disinfection, Ultra Violet-C (UVC) robots, new Building Automation Systems (BAS) as well as data mining technologies to make informed decisions and increase energy efficiency across the firm’s properties.

“Pre-pandemic, companies were debating the impact to productivity if they offered more flexibility to their employees. Forced remote work during the pandemic ended that debate. People were productive. They realized that they can better balance work and life commitments with more flexibility. And companies are realizing that retaining top talent will require delivering a better employee experience while enabling business productivity through CRE technology, including health and wellness and sustainability initiatives,” Wagoner said.

According to Wagoner, the increased use of IoT devices, coupled with the increased speed of 5G, explodes data volumes in buildings. “Data will play a dramatically increasing role in how and how fast spaces are planned and used moving forward—creating healthier, smarter buildings while achieving key business objectives, like driving efficient operations and cost savings,” he said.

“As we emerge from the pandemic, many building owners and managers are re-evaluating options to enable new services in their properties. The emergence of new spectrum for the private sector, such

as CBRS in the U.S. is seen as a way to reduce structured cabling costs for building management systems, enable new methods of connecting tenants to their private networks with more reliable and secure wireless than Wi-Fi, potentially lowering building operations cost,” said



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*Todd Landry, JMA Wireless’
Corporate VP for Product and
Marketing*

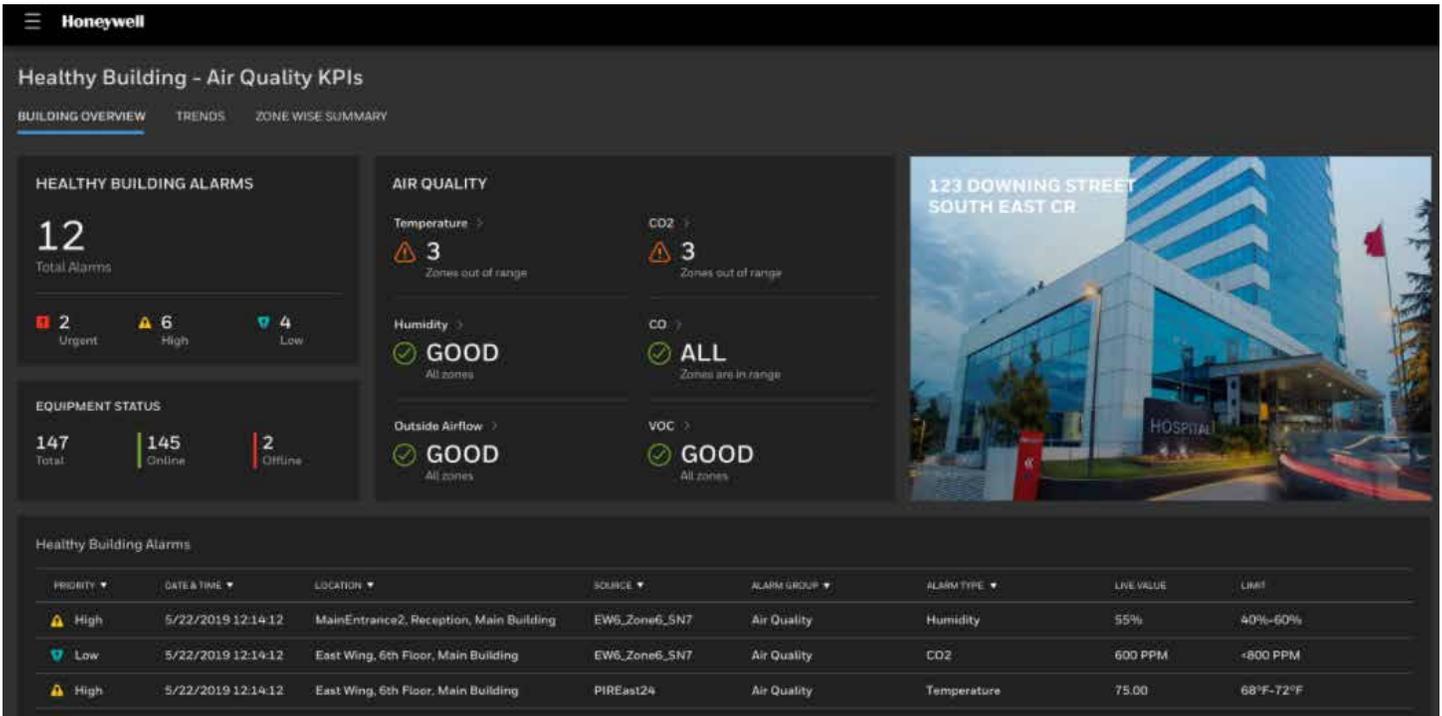


Image courtesy of Honeywell

Todd Landry, JMA Wireless’ corporate VP for product and marketing.

Sharma, of Honeywell, believes that the pandemic put the office work environment under a magnifying glass and raised occupants’ expectations for returning to the office. In order to meet these elevated expectations, new technologies and applications need to be deployed in commercial buildings. “Post-pandemic, facilitating building occupants’ daily interactions and experiences in similar ways on a centralized application is a natural next step. Imagine if users

could book a workstation or meeting room to plan their day, inform building management of temperature needs or any other building maintenance requests, pay for parking, register guests, order food or sign for a package all through a centralized platform,” Sharma said.

“Another priority for the commercial real estate professional is creating and maintaining safer and healthier environments. For instance, analytics systems integrated into building management systems allow staff to monitor air quality, humidity, pressure, and

even occupant behavior through real-time data. And for custodial staff, sensors can alert building management systems when occupants have left a room, indicating ideal times for staff to enter to clean,” Sharma added.

The role of IoT, AI and 5G to enable safer, smarter buildings

According to Argenton, of Telit, technologies such as cellular, IoT and artificial intelligence were already in use prior to the pandemic. However, the executive believes that the pandemic, in a way, could

be considered a catalyst to boost the adoption of new technologies even further. “And maybe, the scope can be slightly different than before. But I see a common denominator, which is a need for digitalization. So I see really a boost in this direction, in order to facilitate and to encourage the adoption of these technologies -- for economic reasons, of course, but also for some practical reasons,” the executive added.

According to Memoori, prior to the pandemic, there was already a growing body of evidence that demonstrated how technology-enabled smart workspaces that allow

users personalize and control their environment could generate a competitive advantage in terms of higher occupancy rates, tenant retention and productivity. “The offering of new services can provide further differentiation, by helping reassure tenants that workplaces are as ‘COVID-safe’ as possible,” Kell said.

“For new builds, owners should be turning to private LTE/5G first as the backbone of all communications going forward in the building for operations. There are significant cost savings by deploying private cellular networks opposed to wired networks in addition to providing

high-bandwidth, highly reliable and velocity capabilities. All of these will assist in the adoption of IoT technologies that will drive the integration of AI into building operations with the explosion of data that will be available across the facility,” said Corlis, of KPMG. “All of these technologies will help to differentiate properties to retain and attract new tenants. Existing properties can also significantly benefit from private networks, IoT and AI, although it will take some planning and prioritization of the use cases they are looking to enable and the value they will return.”

Corlis also said that LTE will typically address 70% of the IoT use cases that building owners, operators and tenants would want, but 5G will enable the remaining use cases that require extreme bandwidth capacity.

“The advent of private 5G and LoRa is on the rise as millions of sensors on buildings will need to be connected for automation and prediction. The cost of cellular connectivity is still considered to be high and hence, LoRa and Wi-Fi 6 adoption is going to be faster,” Parsam of Cognizant said.

Parsam also said that Cognizant is

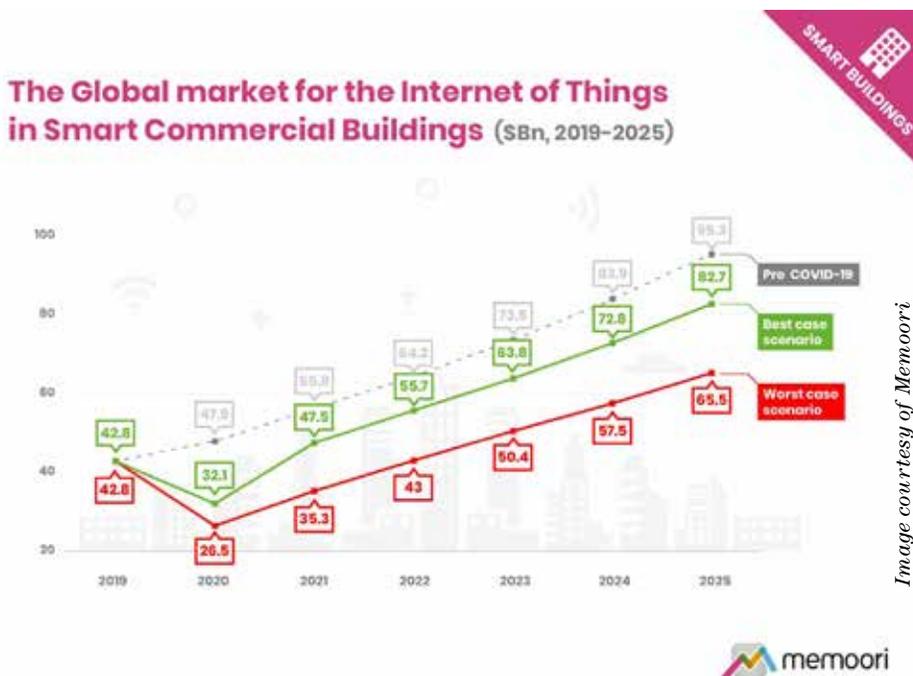


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Greg Corlis, Principal Emerging Technologies at KPMG

seeing increased adoption of technologies to support safety and sanitary protocols in buildings. “While IoT platforms and advanced analytics/ML are being adopted, 5G technologies are still being evaluated. The lack of low-cost 5G end-points [and] the cost of a private 5G roll-out

is also a critical factor for determining the adoption of 5G by CRE operators,” the executive added.

Ricci of Coretrust said that building owners have no other option than to stay up with the latest technology. However, he said that it is yet too early to know the role of 5G in the CRE sector. “Our building’s DAS has the ability to scale up as 5G achieves market penetration and as apps requiring 5G continue to appear,” the executive said.

Wagoner of JLL highlighted that the amount of data provided by IoT devices, paired with the speed of 5G, will enable AI to provide information in near-real-time, supporting real-time decision-making and experience services. “Think back to episodes of Star Trek. The crew walked through the ship, talked to the computer and received instant answers necessary to deal with the emergency at hand. Now, imagine your ‘crew’ walking through your office space and asking the building for information related to conference room space, building operations or other amenities, then getting an immediate, real-time answer based on current activity in the space. That science fiction of yesterday is about to be our reality,”

Wagoner said.

“As we emerge [from the pandemic], cellular wireless will be a critical foundation on providing several new capabilities for businesses. First, as tenants seek ways to adapt the changing position of workstations to meet COVID distancing, it will provide a high degree of agility. In addition, its ability to leverage inherent location methodologies will enable new forms of data sets that will feed analytics engines to automated contact tracing. Even more so, the data sets can be further leveraged by AI engines to provide real time messaging, thus closing the loop on human communications using mobile devices. The role of 5G, and private cellular wireless, will enable new performance experiences and will be key to enable these new data sets,” said Landry, of JMA Wireless.

According to Honeywell’s vision, technologies like cellular, IoT, and AI, allow building owners to offer better experiences that increase value, reduce vacancy, and even secure rent premiums. “Building health and comfort start with smart edge devices like sensors and actuators that improve [indoor air quality, or IAQ] via filtration,



“Building health and comfort start with smart edge devices like sensors and actuators that improve IAQ via filtration, disinfection, and ventilation. When coupled with AI and machine learning, they also can turn data into insights to make sure the building is providing the best experience.”

Manish Sharma, VP, Chief Technology and Chief Product Officer at Honeywell Buildings Technology

disinfection, and ventilation. When coupled with AI and machine learning, they also can turn data into insights to make sure the building is providing the best experience. This helps maximize occupants’ comfort levels while maintaining energy efficiency in unused spaces and

driving down costs,” Sharma said.

“Video technology, which is widely used for building security and surveillance, is one of the most immediate applications of 5G in buildings. Private 5G networks allow any connected technology to be faster, more reliable, and scalable. Warehouses and stadiums have been early adopters of 5G networks, but as 5G becomes more affordable and accessible, we’ll see commercial office buildings invest more heavily in its infrastructure,” Sharma added.

The CRE sector’s investment strategy in technology

According to Argenton, Telit’s customers in the CRE sector are increasing investments in innovative technologies to enable smarter and safer buildings. “We see traction and not a reduction in investments. I think that what happened to our world and our life in the last year could be a catalyst for something new to happen,” Argenton said. “And I hope in a way that this could be a catalyst also for new investments, not for a reduction. Unless there is a restriction due to the global crisis from an economical point of view, in my opinion, I think that we should see more traction.



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Marco Argenton, Head of Product Management at Telit

I think that this will help to make more investments because higher investments will hopefully end up in more revenues and income for all those that decide to take a strategic approach and invest more in that direction.”

Memoori said that investments in



“Companies with prior pre-requisite investments in underlying IoT technology hardware proved much more adaptable and resilient to the business disruptions caused by COVID.”

Owen Kell, senior researcher at Memoori Research

smart building technologies over the course of 2020 were adversely affected, due to a combination of budgetary constraints, limited site access for contractors, and in some market verticals a pure focus on revenue generation activities for business survival. “Companies with prior pre-requisite investments in underlying IoT technology hardware proved much more adaptable and resilient to the business

disruptions caused by COVID. The ability to remotely monitor and control site access and building systems operations helped maintain security and minimize operational costs even while the majority of workers were forced to work remotely. A desire to improve long term competitiveness, resilience and productivity should help spur continued investment in the field,” Kell said.

“Beyond COVID, corporate commitment to ESG, is also rising up the agenda, and continued tech investments will be required to improve and effectively report on their performance in this regard,” Kell added.

“Six months ago, many of our clients in the CRE segment told us that they were not prioritizing making tech investments and planned to leave it up to the tenants. That dialogue is now starting to change as they are seeking ways to differentiate their properties from their competitors. Many organizations are consolidating and reducing their real estate footprint so competition is only growing amongst properties,” said Corlis, of KPMG. Corlis also believes that with ESG being such a dominant topic these

days and with many companies committing to be carbon neutral over the next 5-10 years, their real estate will become a significant contributor to them meeting those goals. “Regulations, some with significant fines, are also driving the need to implement advanced technologies to help tenants and owners to meet their sustainability goals. Based on these factors, the CRE sector should accelerate the adoption of IoT solutions that will help to achieve these sustainability goals,” Corlis added.

Ricci, of Coretrust, believes that the CRE sector will certainly pursue a long-term investment strategy in terms of technology adoption. “Technological advancements are critical to the day to day operations of our tenants and staying current with the latest technologies is a must have to compete for tenants and differentiate ourselves from other buildings and landlords,” he said.

“Our clients are telling us that they are going to dramatically increase their real estate technology spending. In a recent Forrester survey, the overwhelming majority of hundreds of real estate team respondents anticipated increasing their

investment, with more than half expecting immediate short-term increases in the \$500K-plus range. Clients understand the short-term benefits and long-term ROI that the right technology solutions can provide in incenting their employees to want to come to the office, and in their ability to deliver a better experience, drive sustainability and more effectively use their portfolio,” said Wagoner, of JLL.

Meanwhile, Landry, of JMA Wireless, believes that the CRE sector has a huge opportunity in front of it to establish new forms of revenue streams and differentiation in their building services with new tech investments. “This will likely keep or increase tech investments - but will enable an increase in value and a net increase in common area maintenance (CAM) revenues for CRE business. The more innovative and sophisticated CRE organizations will recognize these and rally to provide the differentiation,” Landry said.

According to Sharma, of Honeywell, COVID-19 accelerated the adoption of technology trends that originated before the pandemic. “For example, improving the occupant experience has been a trend

for years, but now it is taking a front seat following an increased focus on building health and safety. This trend is here to stay even post-pandemic because people are more aware of personal space and indoor air quality. As a result, we expect to see the CRE sector invest more in long-term technologies that create safer and healthier environments while generating energy efficiencies and improving the productivity of facility teams and tenants’ employees alike.”

New requirements from tenants in a post-COVID scenario

According to Kell, it remains challenging to assess the effectiveness of the various “return to work” solutions that are being marketed at reassuring workers and tenants to return at this stage as many workers are still working from home,

“Owners and operators cannot just take a back seat and allow tenants to take the lead on deploying solutions to help address these requirements. They should be looking at these technologies as accelerators for their own business priorities and to help differentiate their properties. Private LTE/5G will provide the backbone for all

communications in the facility, also allowing the owners to segment the network for specific tenant networks, simplifying the enablement of new IoT use cases across the network,” said Corlis, of KPMG.

Joe Braga, Head of Regional Marketing at Telit, said that the company is promoting the adoption of private cellular in several sectors including the CRE market. “Private cellular is becoming more prevalent. We’re a big proponent of private cellular. We see a lot of traction for the coming years, particularly for campus and commercial buildings. “When you couple private cellular with distributed antenna systems (DAS), I think that you’re going to see the demand for DAS happen more commonly at campuses or buildings.”

Meanwhile, Ricci said that providing a healthy and safe environment that promotes the wellness of employees when it comes to returning to the office is essential. “Any technology that aids in allowing us to offer this assurance to our tenants is on our list of considerations or has already been implemented,” the executive said.

Also, Sharma noted that office buildings of the future will

leverage emerging technologies to create dynamic, collaborative, and healthier environments. Smart edge devices and software with advanced algorithms will deliver novel ways to improve indoor air quality while still meeting energy efficiency goals, he said. “Advanced biometrics will enable touchless building access and advanced video analytics that use AI can help to manage building occupancy and identify crowding. Digital dashboards and mobile applications will give tenants visibility into key indicators of the building’s health, such as temperature and humidity,” Sharma added.

Best technologies to fulfill with safety and sanitary protocols in buildings

Memoori believes that all mentioned technologies such as IoT, AI and cellular will have a role to play when it comes to enable safer and smarter buildings. “The primary focus for many companies at the moment is trying to better understand what impact changing behaviors in working patterns will have on their future space requirements, so a variety of technologies that support this should see continued investment. Occupancy data can be generated based on a wide variety of different technology approaches, including video analytics, IoT desk

sensors, people counting devices, Wi-Fi or Bluetooth-based analytics,” Kell said.

The Memoori analyst also highlighted that surveys of future intentions around home or flexible working practices vary wildly in terms of predicted impacts depending at what point in the pandemic they were conducted, the survey audience and the country in which the survey was conducted. “What we can be sure of however, is that even a minor shift (5-10% less people in the office versus 2019 levels) could still have a major effect on the CRE market and overall space demands, so owners and operators of buildings with the ability to provide more value add services around wellness, engagement or comfort should fare better than those without,” Kell added.

Corlis said that there are already several use cases that help to improve safety and sanitization in a facility, including air quality monitoring, UVA smart lighting and UVC air filters to help kill airborne and surface bacteria and viruses, people count monitoring to identify groupings of people to inform sanitization schedules and computer vision temperature monitoring



cameras to identify human temperatures that may create concern.

Ricci, of Corestrust added that other use cases include touchless fixtures, UVCGI, destination dispatch, broad wireless coverage in outdoor environments, new building automation systems, lighting control systems, data mining and reporting.

“The pandemic experience, coupled with the influence of the more tech-savvy millennials joining the workforce, is creating a dynamic where people expect a better experience enabled by technology. People leveraged technology to assist in their lives and livelihoods during the pandemic. They are expecting that same capability from both a safety and productivity perspective when they return to the office,” said Wagoner, of JLL.

“CRE technology plays a role in both productivity and safety. Touchless technology, combined with utilization sensors to detect usage and work order systems to report safety and cleaning issues, provide important safeguards to ensure that buildings and staff are adhering to safety and sanitary protocols during the pandemic,” Wagoner added.

The JLL executive said that the firm is seeing clients leverage technology to support use cases including: Re-imagining office layouts with occupancy data and space utilization technology, prioritizing data-driven building operations with real-time monitoring and work order management, continued optimization and adjustment of real estate operations with holistic data. “It’s important to note that buildings were already deploying CRE technology before the pandemic. “The past year has significantly accelerated these trends and revealed compelling new uses for CRE technology as well,” Wagoner added.

“Each of these technologies are important in the building industry. In creating a healthier building, though, it’s a layering approach – it’s considering different solutions that together provide a safer environment not one single thing. IoT and AI offer building operators scalability and constant learning of its specific site,” Sharma said. “Pairing smart edge devices like sensors and actuators throughout a building with AI-driven software, for example, can enable building managers to receive insights and better

predict outcomes, like traffic patterns throughout the building or even when air strategies need to be adjusted based on time of day and occupancy levels.”

The Honeywell executive also said that the implementation of these technologies by building owners and operators is not just a response to the pandemic, as these technologies can help building owners provide experiences that better respond to occupants’ daily comfort needs, including light levels, air quality, and temperature. “5G will allow building managers to speed up the implementation of IoT and AI in a building and helps make these solutions more scalable,” Sharma said.

“The role of these technologies can be summarized in one word: ubiquity. Regardless of the need [of CRE companies] to increase business, to retain the customers or simply to deal with aspects such as safety, security, compliance, in general, at the end of the day, you need the data. And when you need that data, you need data every time and everywhere. So all those technologies, whatever that technology is, could be cellular outside the building and Wi-Fi inside the building,

and 5G where this technology is already present, at the end of the day, the first and most important role is to make all those services available in a seamless way.”

Argenton also said that Telit is designing and deploying each and every relevant technology when it comes to connectivity, such as IoT and cellular. “But not only cellular, we have also for example, Wi-Fi technologies, we have also the first 5G certified products in the market already. And those technologies are suitable for different types of applications (...) We have all the ingredients to facilitate and boost the adoption of those technologies, whether they are high-end devices or low-end devices. Depending on the use case, we have the suitable elements to really allow the integration and the implementation of these technologies,” Argenton said.

Did COVID-19 change the smart building concept in any way?

According to the Memoori analyst, most of the technology adoption trends in the CRE sector were already present prior to the pandemic. “It’s just that some of them have been supercharged by COVID,” Kell said.

Corlis, of KPMG believes that not much has changed in the smart building concept as a consequence of the disruption caused by the pandemic. “However some use cases are being prioritized over others. Owners and operators are also seeking ways to consolidate data across all of the different use cases they are enabling to simplify management and monitoring. Many use cases are still very much siloed so aggregating data is critical to have a full view across your full property and to enable AI capabilities. I still think it is going to take some time but the deployment of smart building technologies will start to explode over the next few months,” Corlis said.

“Anything that can address the concerns about the next unforeseen threat to the health and safety of the employees is going to be a must have in the office. Our tenants are more productive in the office where they can avail themselves to the latest technology and amenities that they may not possess at home or other remote workplaces,” said Ricci, of Coretrust.

“Pre-pandemic, many viewed smart buildings as a nice to have, but they were content with the



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*Thomas Ricci, Managing Principal,
Coretrust Capital Partners*

comfortable routines they knew and used. The pandemic disrupted those routines. People took an active role in protecting themselves. We’re now living in a world, shaped by this crisis, where touchless and AI-based technologies are more necessity than novelty,” Wagoner said, adding



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that the industry will be required to lean into this to attract future tenants, but it will also challenge investors and operators to take smart buildings even further and find the next big draw for occupants.

According to Honeywell, the biggest difference is that prior to the pandemic, most technologies were solely focused on efficiency - whether driving better operational

efficiency with predictive maintenance or energy savings. “Those are still really important aspects of a smart building. However, in a post-pandemic world, we’ll consider buildings ‘smart’ if they can do that and create healthier, safer indoor environments with improved indoor air quality, frictionless occupant experience, advanced video analytics - and all of this can

happen with advanced technologies that provide relevant, real-time data that drives better decision making,” Sharma said.

“Much of the value potential of IoT investment in the smart buildings market comes from the analysis of data derived from multiple business systems, servicing use cases that are “greater than the sum of their parts”. Solutions focused on a

particular area of building services (e.g. HVAC or elevators) alone can provide operational efficiencies and operational cost savings, but combining these datasets (e.g. occupancy data, weather data, tenant surveys) allows for a much richer, more granular analysis of the impact of building systems operational settings on comfort, engagement, productivity and satisfaction,” Kell said, adding that many organizations are already collecting relevant data, but do not yet have the internal expertise, analytics tools or corporate culture required to effectively derive value from the data being generated. “Here AI can play a role in identifying the correlations and patterns between datasets, helping to generate new value-add tenant offerings and make sense of the ever increasing volumes of data being generated,” Kell added.

“We believe the CRE companies that will take competitive advantage will be the ones that not only capitalize on 5G, IoT and AI but also integrate them into the full technology life cycle of their real estate platform. Imagine integrating the utilization data from IoT sensors, delivered at real-time

speeds through 5G incorporated into your desk and conference room reservation systems, to provide occupants with real-time availability through their experience apps,” said Wagoner, of JLL.

“5G will dramatically increase speed. IoT will dramatically increase data volume. And AI will dramatically enhance decision-making capabilities. Occupants will expect CRE to leverage these technologies to deliver better and faster solutions for them,” Wagoner added.

Sharma also stated that building owners willing to implement technologies to offer occupants a safer environment, would need to use a combination of technologies: IoT devices collect data and “talk” to each other, 5G/Wi-Fi provide the connectivity on which they run, and AI crunches and analyzes that data - and learns patterns - to generate insights. That said, deploying IoT and AI should be a top priority for CRE owners and operators.”

The executive also said that it is possible to better create a healthier building without AI, but it takes greater manpower and more resources, while AI analyzes data and deploys actions in seconds. “For instance, to facilitate contact

tracing, IoT devices and AI-enabled video analytics systems can track and collect data on an individual’s location, and the people with whom they interact, as they move around a building. In the event of an issue, owners and operators immediately have access to data indicating all of the people this individual came into contact with. This data could be collected manually over a period of time, but with AI, the data can be called up in a matter of seconds and action quickly taken.”

Conclusion

There is no doubt that the COVID-19 pandemic has caused a disruption in the CRE sector and transformed the way in which tenants will act in a post-pandemic world. Building owners had been implementing digital technologies to enable use cases to improve the comfort and safety of tenants. However, the disruption caused by the pandemic will certainly boost the implementation of cellular technologies, IoT and AI to enable even more use cases as tenants are putting health and safety as top priorities as workers return to face-to-face work. ((...))



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