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Lessons from COVID-19

Why We Need Smarter Buildings

Increasingly, Board Members, Residents, and Everyone In-Between Need To Keep Up to Date on the Technological Innovations Being Made to Condominiums



COVID-19 at this point requires no further introduction. The pandemic has become a catalyst for lasting change in the world, touching the ways we live, work, and think about our society. More than anything, it has made our reliance on technology more apparent while also accelerating the development of high-tech products that fulfill our needs. The condo industry is no different. Board meetings are being held over video call where possible; automated security systems are becoming a crucial element of enforcing physical distancing; and maintenance requests are most effectively being addressed through condo portal software.

Part of this technological push in condominiums is the increasing importance of smart buildings, which refers to “sophisticated telecommunications, building management and data networking services that provided shared tenant services (STS) to [a building’s] occupants” (Omar 2018). While Google’s subsidiary, Sidewalk Labs, brought the talk of smart buildings to the forefront, smart building technologies saw implementation long before Google became interested.

All parties involved in condominium management, from board members to residents, and everyone in between, should keep up to date on the technological innovations being made to condominiums to see how they can better their own homes. In this article, we will discuss some smart building technologies that already see extensive use in the market, how they have helped us adapt to the COVID-19 crisis, and how they will continue to be useful moving forward.

Security Systems

Security systems in the context of smart buildings are easy to talk about because they already see widespread use. This is not a reference to facial recognition cameras or infrared body count detection systems but something much simpler that we can often take for granted: fob systems.

The premise behind a fob system is simple: flash your fob on a sensor and, if you have permission to enter the designated area, the door will open. It may be difficult to envision such a straightforward concept as ‘smart’, but its potential for controlling building operations cannot be overstated. The ability to determine what

sections of a building people may access and the capacity to change those permissions on a dime is not only intelligent, but an extremely effective security measure (Lippert & Treffers 2016).

Aside from preventing unwanted guests from entering the property, think about the implications this has on regulating the flow of residents within the building. As the world gradually reopens in the midst of the COVID-19 pandemic, social distancing guidelines remain in place; how will these guidelines be enforced once building amenities open up? For example, reasonable measures would be limiting the number of residents using the gym simultaneously; the trick is enforcing these rules. Inevitably, there will be residents who do not adhere to these guidelines, and it is simply not possible to have security concierge monitoring the area around the clock. Even if they could, one incident of exposure over the course of a few seconds is all that is needed to transmit the virus.

The best method of limiting entry into a shared space such as the gym is by controlling the permissions of entry them-

ILLUSTRATION BY CARL WIENS

selves, which fob systems can provide. Gym permissions (or those of any amenity) could only be given to residents who booked those rooms in advance on a connected portal, and only for the allotted time. Security would not need to be present as often, and exposure to the virus becomes limited. This can lead to savings on security/concierge costs, perhaps reducing the amount of staff needed on site. Furthermore, high-tech security systems may increase the value of units in the building.

These controls will continue to be useful in a post-COVID-19 world where building amenities still have capacity limits, access to certain parts of a building need to be more meticulously managed, or simply as a precaution for the next time emergency measures need to be enforced. While fob technology itself is not new, its applications and untapped potential for building management make it a key element to smart building technologies.

Building Automation Systems

In many industries, automation is the direct precursor or partner to more complex smart technologies. This is because automation is the key point that determines what functions can be completed

through nothing more than quantitative measurements without direct human interference. This quantitative premise is also the requisite environment needed for smart technologies to exist.

This makes it all the more shocking that building automation systems (also referred to as BAS) were only rarely, if not ever, mentioned in mainstream smart city discussions. Building automation systems autonomously manage a building's energy and climate systems (e.g. HVAC, hydro, etc.) by identifying areas of both need and waste, and then adjusting the consumption or output of certain utilities to correct any issues found. It is potentially the most intelligent building system presently available, yet we have difficulty acknowledging it is as such. This is due to a social phenomenon known as the AI effect: when an AI proves it is capable of completing a task, we no longer consider the completion of that task as "intelligent" (Dyer-Witthford et al 2019, 9; McCorduck 2004, 204).

But make no mistake – BAS is incredibly useful. The benefits range from a more comfortable building environment to cost-efficient energy usage. The data collected from BAS is also impressive and

can be extremely useful in projecting a building's utility rates on a budget (Xiao & Fan 2014). The automation of these controls then frees up building staff to deal with more pressing matters that more likely require human interaction.

BAS has also become a useful asset in buildings attempting to fight off COVID-19 through its use of air sensor technologies. Recall that COVID-19 is primarily spread through aerosols and the transmission of droplets, whether it be through contact, inhalation, or other means. Some BAS have sensors that can detect particulate matter in the air, some of which may be moisture with the potential to carry COVID-19. High-risk areas can be identified and cleaned, and some areas can have their air quality regulated so particulate matter is reduced to the point where the risk of transmitting COVID-19 is minimized.

In a post-COVID world, BAS still offers a range of benefits by ensuring consistent comfort and automated energy efficiency. Air is a funny thing; we often forget about it until our homes are too hot or too cold, or in times of crisis such as our present day. BAS ensures that even when air is in the back of our minds, it will always be maintained to its highest



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quality. Consequently, residents will be able to live more comfortably without much manual effort or direct attention, leading to fewer complaints about the temperature in a building. This frees up management to deal with more pressing concerns, and potentially reduces the frequency of mechanical adjustments to building climate systems.

Accounting Systems

Much of the focus on smart buildings centers around the end user, which in this case is the resident. But just as buildings require management to be run effectively, smart buildings also expedite the management process to enable more effective services. The one component of management where automation and standardization already reign supreme is within accounting.

Effective management teams have already standardized accounting practices that allow the majority of work to be processed without disruption; but the best management teams have already begun incorporating intelligent automation to further bolster their work output. Automated accounting has not only already arrived, but it has become a crucial element to condominium management.

As with the aforementioned technologies, COVID-19 made companies seek alternatives to the classical method of manual cheque-processing. Many site offices began to close, and for the few that were open, there was a new hesitancy towards the use of paper. With the virus potentially surviving on surfaces for days at a time, cheques that could have come from anybody became a potential risk and hazard for employees handling them. These fears fueled a shift to digital accounting, thereby mitigating the risk of transmitting COVID-19 during payment processing.

But the benefits of automated accounting hardly stop there. Firms that have implemented automated accounting technologies have experienced monumental improvements in efficiency and communication because the correct information has been getting to the correct people faster (Brands & Smith 2016). In some cases, it can take up to a month for

invoices in site offices to be processed at head office and then paid; using automated accounting, this same process could only take a few days to complete. This improves the cash flow of the condominium corporation, a strong indicator of financial health, while also ensuring cheques get delivered to contractors and even residents more quickly. This once again frees up management to engage in other work rather than manually processing cheques, and also ensures financial transparency; there is no cheating the computer.

This is done through the use of a permissions matrix. Non-contract invoices usually have to be signed off by a property manager or board (depending on the value paid), which usually means the invoice is passed around manually. However, automated accounting uses a matrix to filter out what invoices should go to which parties for approval without the use of couriers or additional communication. More advanced modules can even process purchase orders or even scan cheques using OCR (optical character recognition) software to further automate the process.

These are all benefits that will persist even once COVID-19 disappears from our everyday vocabulary. Firms and condo corporations that have used automated accounting and seen the multitude of benefits will want to stay the course. Yet again we have another smart building technology already bearing fruit for its users, but it goes unnoticed simply because it exists on the back end of condominium management.

Already Arrived

One of my former professors recently wrote a piece called “Cognition on Tap” where he analyzed various industries and how they have been automated by the increasing availability of artificial intelligence and smart technologies (Steinhoff 2019). The condominium industry and its accompanying firms are no exception.

Resistance to change is natural. The shift from exclusively human interaction to putting our faith in machinery is admittedly a massive change, but it is the paradigm many successful industries

already exist within. But what makes the condominium industry special is that we are not simply bystanders to this change; the talk of smart buildings is at the forefront of technological development.

There is a willingness to build these technologies in a way that benefits all parties involved from boards, residents, managers, and everyone in between. The best way to engage in this development as a condominium board is to directly invest in them; deciding how your building shapes itself around smart technologies not only provides you the benefits of these technologies but also creates a potential template for new smart building development.

By embracing these new technologies beyond what they have offered to us amidst the COVID-19 crisis, we are simultaneously becoming involved in their development and implementation. The tap is on, but it is up to us to keep it flowing.

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