MULTIFAMILY

Journal of Utility management

THE LATEST RESEARCH AND MODELS FOR OPTIMIZING UTILITY USAGE IN MULTIFAMILY

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MUST-READS

SIMPLE LIFE. SIMPLEBILLS.

EMBRACING THE NEW: TRASH OF TOMORROW

OPPORTUNITY TO FOCUS ON SUSTAINABILITY

The autonomy of ROI robots

Journal of Utilitymanagement

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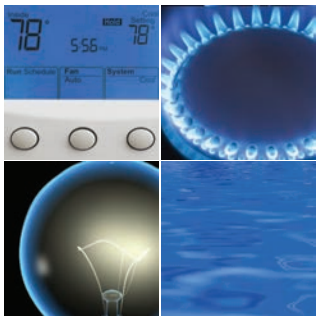

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The rise of ROI robot

Full disclosure. When I think about "I, Robot," my mind goes to the Will Smith action movie from the early 2000s where robots take over the world. It's scary stuff that makes you want to climb into a bunker with an abacus.

Yet, the actual source material, Isaac Asimov's collection of short stories, is an exploration of humans and robotics and finding an ethical balance. This issue, which we've themed, *ROI Robot,* is our exploration of Asimov's notions as they so perfectly tie to our industry.

We seek to make things better with new tools while always remembering the end goal: provide housing, a most basic human need. We do this by maximizing the efficiency of on-site teams and creating channels so that our residents can interact with us through technology.

This issue is an exploration of the new, emerging and next chapter of managing expense drivers and engaging our residents.

Herein we explore new technology providers and how they materially effect our NOI. How the SimpleBills platform captures expenses and relates to residents is revolutionary—changing our P&L by taking a huge liability off our financials.

UMA President Lori Hanson's examination of new approaches to amenity spaces and touring forms the future of residents' interactions with communities and directly impacts how communities will manage utility expense.

Consider this. If we leverage VR for tours, how will that impact our need to condition empty space? Peter Chan's article on data exploration debunks the suggestion that sustainability is not part of improving NOI. Haven't we all been asked at some point if our *new normal* eliminates sustainability?

Our IoT in multifamily article discusses how intelligent buildings can improve NOI as much as 15 percent. Such high-tech game changers create sustainability and a significant shift in how we think about energy consumption in our communities. If we marry all the ideas and technologies explored in this issue, I propose we will see the communities of the future. One not devoid of human contact, but one balancing technology and the human experience.

There is a profound shift in not only how we manage our communities and expense categories, but also in how we relate to our residents and stakeholders.

Today we are seriously exploring different ways of doing things. The phrase "Don't rock the boat," has been thrown out of the boat as we explore change and technology with increased appetite. It is with tremendous pride that we at the *Journal of Utility Management* present to you, ROI Robot.

Mary Nitschke
Publisher

Sustainability and our universe of utility management

It is indeed an unprecedented time that we find ourselves in as uncertainty, anxiety and confusion seem to be everywhere.

As society adjusts, the Earth appears to be temporarily healing itself as reduced pollution and fewer carbon emissions result from new restrictions and limitations on global travel. Fish are visible in the Venice canals and airborne pollution has significantly dropped. In India, the Himalayas are visible on the horizon for the first time in decades.

As a society, we appreciate our everyday frontline heroes and their sacrifices more than ever as we realize just how essential their work is to our existence. And, we are starting to understand a new meaning for the word, "essential."

This clarity of focus also applies to sustainability. Before COVID-19, sustainability was viewed as a mix of philanthropy, employee engagement, energy efficiency, water conservation, waste stream management, and investor relations. This focus has helped us realize as a society that sustainability is about delivering value and resiliency. It is not helpful; it is essential.

Sustainability and utility management offer strategies to preserve the bottom line and possibly improve it when faced with uncertainty around revenue collection. There is little debate that solutions such as lighting retrofits, demand energy management, smart energy procurement, on-site energy production, and energy management can reduce operational expenses. These investments avoid waste, optimize energy and lead directly to reduced costs. Such gained efficiencies can be the difference between making it or not.

The impact of the pandemic has likewise highlighted the importance of a sustainability strategy that centers around resiliency.

Sustainability accounts for a full lifecycle—from design to disposal, including the ability to adapt to changing conditions and maintain functionality. At Greystar, resiliency is viewed as the ability of people, buildings and organizations to function and recover when faced with trauma.

Sustainability relies on the assessment of risk and the preparation to respond to shocks and stressors of potential impacts.

It is important to keep the lights on, to ensure the safety of our communities, and to ultimately develop proactive designs and operational practices. While these processes and procedures focus primarily on our resident's health and well-being, the economic case is also significant.

The economic impact of the current pandemic will have a cost. In comparison, the annual financial loss from incidents like adverse weather events averages $152.2 billion in the United States or—18 percent of the 2019 economic growth of the U.S. economy.

Especially today, we may have a new understanding of how critical it is to manage environmental impacts. Sustainability has shown itself to be an essential strategy for businesses to weather the storm with an established long-view that minimizes waste and prepares for the unexpected.

It will take the combined efforts of all of us to position our assets to withstand the shocks and stressors of the future.

Fortunately, we are in this together. History has proven we can accomplish incredible tasks when we work together as a society. From flattening the curve to reimagining leasing, we can achieve our mission with purpose-driven action to best prepare ourselves for what might come next.

Chris Laughman
Industry expert and
Journal Guest Editor

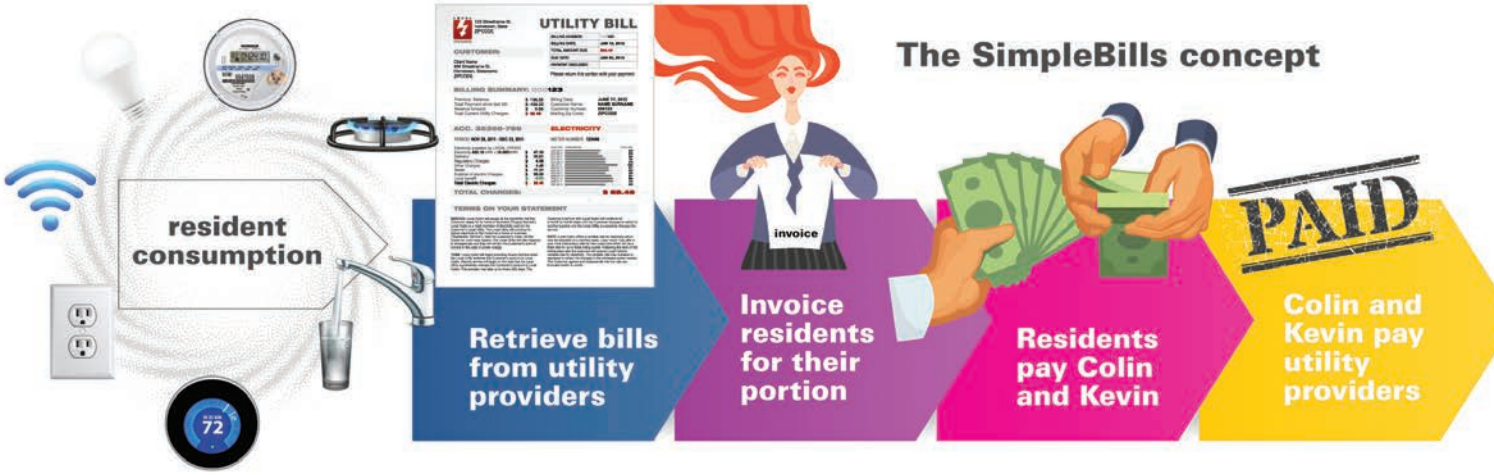
"If you want to be an innovator in the utility management space, then adopt the SimpleBills model," Jason Lindwall, RealPage SVP of Utility Management said. "This is the future of utilities."

Since its genesis over 10 years ago, SimpleBills' services have given property managers that *lightbulb moment* upon realizing their job has the potential to get a whole lot easier. By taking everything utility-related off the site staff's plate, properties everywhere are given the freedom to do what they were hired for: lease units and drive resident satisfaction.

"One thing we've learned about utilities over the years is that many people in the industry do them the way they've always been done," SimpleBills CEO Colin Heller said. "They don't know there's another, simpler way to manage utilities that can evoke a positive resident experience."

Heller and SimpleBills President Kevin Jones started out as roommates at Baylor University back in 2008. Like many college roommates using the standard model of utility billing, one of them always had to take the hit for the utility bill and wait to get reimbursed for the other's portion.

Legend has it that a certain someone (we won't name names) would consistently forget to pay the other back. As you can imagine, this caused some unwanted tension between the two, leading them to believe there had to be a better way. From there, they developed a step-by-step method for billing and collecting that had fellow Baylor students lining up:



This method became the foundation of what is now SimpleBills.

"We knew we created something special when we realized how much easier this was making students' living situations," Jones said. "We just couldn't believe no one had thought of it before."

After years of growth and innovation, Heller and Jones, along with a team of experts, have transformed the business into a complete utility management service that reaches student, single family and multifamily markets nationwide.

No prefunding

Unlike the old-fashioned model, SimpleBills does not require prefunding when billing and collecting from residents. Since their billing cycle isn't tied to the property's rent cycle, residents can expect their bill from SimpleBills about 1-2 days after they collect all utility bills from the provider. Compare this to the 30-45 days of floating resident utilities while waiting to get reimbursed, only to face the challenges of matching expenses and offsetting revenue. Then comes the challenge of navigating how to run a property when nearly half of their NOI is constantly tied up. With SimpleBills, the property staff is free to use their funds anywhere they see fit without having to worry about balancing books or handling resident concerns.

Estimated final bills (EFB)

The last month of utility billing for each lease has posed a challenge for property managers everywhere over the years. Since residents are billed after move-out, the probability of them paying their final utility bill has proven to be very low. The industry average for collection rates on bills is about 40 percent, causing properties a large financial loss. The EFB was created to ensure higher collections by invoicing the resident an estimated utility bill **before** move-out. Each number is calculated by a team of utility experts who use weather patterns and previous utility usage per unit to nail down an estimate. Across the board, calculations have proven to be 95 percent accurate.

Property and resident portals

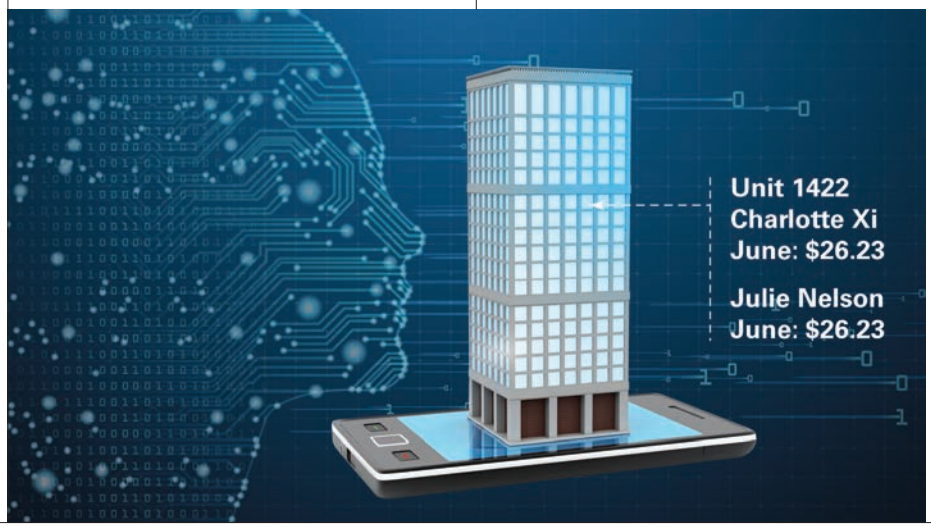
Coming from the perspective that it's easier to make decisions when well-informed, SimpleBills designed two portals: one for each property and one for each resident. The property portal contains information on common areas, vacant units, month-to-month variances, and floorplan averages. Having access to this information has proven helpful with leak detection and overall money savings. As for the resident portal, each resident can see PDF provider bills, usage breakdowns per utility, bills from previous months, and information on how their utility costs stacked up to others' in similar floorplans.

Customer support

SimpleBills' 4-star+ rating on Google is flooded with comments about customer service. With a customer support team open 7 days a week via call, chat, email and phone as well as over 200 HelpDesk articles on the ready, residents can get their utility questions answered in a matter of minutes without needing any assistance from property staff. As for site staff, designated account managers are assigned to each property to address questions and concerns from 30,000 feet down to the detail.

"It's clear just from the outpouring of customer response that SimpleBills is not like the rest," Lindwall said. "Utility management is a complicated business that site staff weren't trained or equipped to handle. SimpleBills has developed their processes in such a way that it has not only relieved property staff of a large burden but also given residents an incredible living experience."

Allison Arnold



New world operations

As our industry starts to get back to "normal" after the peak of the COVID-19 pandemic, we are seeing dramatic shifts in the way we operate our communities. We are also seeing a shift in resident expectations and preferences. In these times, we need to be adaptable and responsive to what our residents want—as well as what is needed to resume operations.

Here's what is occurring at our communities as we embark on establishing how our communities will get back to business.

The changing face of amenities

As amenities begin to reopen across the country, things look quite different. Some amenities remain closed, but many are reopening with changed rules, adjusted occupancy limits and new configurations.

For example, a pre-COVID 24-hour fitness center is now open only during business hours. The maximum occupancy was set at 25 people when the property opened, but management has now changed that to 8. Residents must make an advance reservation through their resident portal to use the fitness center.

The swimming pool that was once the place to be on hot summer days remains closed. Management is discussing opening it later this summer but will reduce the number of lounge chairs from 30 to 15, and they will have to hire an attendant to help maintain and enforce social distancing. The hot tub will remain closed, since its seating places occupants too close together.

Traditional tour alternatives

The leasing office used to welcome as many walk-in tours as they could get and would go to great lengths to attract a large number of people through the door.

Today the office has just reopened, but desired traffic patterns are much different.

Walk-ins are discouraged. A large sign in front of the leasing office entrance reminds anyone entering the building to wear a face covering, distance 6 feet from others and avoid entering if they have any signs of sickness.

Inside there are decals on the floor reminding people where to stand. There are plastic shields on top of each desk. Desk chairs are placed further back. Waiting area furniture has been removed.

Prospective residents calling the community are encouraged to take a virtual tour or view a video of the available apartment home rather than come in for an in-person tour. Anyone actually visiting the community must take a self-guided tour, or partially guided tour, in order to ensure proper social distancing.

Most leasing team communications are electronic and virtual, rather than in-person connections with residents and prospects.

Resident expectations

Residents are vocal about wanting the amenities reopened, but they are also expecting us, as operators, to implement measures that promote health and safety. Residents frequently want to know "what we are doing" to make our community safer.

A frequent resident request is around elevators—clearly outlined and labeled rules for capacity, social distancing, and germ protection. They want to know the cleaning frequency and are requesting items like self-cleaning germ shields over the buttons, etc.

Managers are scouring their maintenance supply catalogues and websites to find items like touch-free door handles, hand sanitizer stations, and extra cleaning supplies.

Cost savings

With the economic impact of COVID-19, many apartment owners have renewed focus in looking for cost-saving opportunities. General operating expenses such as marketing, resident retention, and others have been under close scrutiny and reevaluation since the beginning of the virus.

Management companies have been asked to re-bid services, cut expenses and provide reforecasts throughout this crisis.

Utilities with more residents home

In these recent months, our communities experienced many residents at home all day—quite uncommon in a traditional multifamily environment. As expected, we saw utility consumption increase. We also saw an increase in waste in our dumpsters.

Ongoing operational changes

COVID-19 has impacted how we collect rent (requests not to bring it in to the office; local or federal regulations may not allow for late fees to be charged or evictions to be processed), how we communicate with our residents (much more virtual and web-based), and it has increased demand for services such as virtual tours, enhanced digital marketing, amenity reservation technology, and others.

Residents have new expectations for how we manage our communities and expect different things for their rent than they did even a few short months ago.

Multifamily management is changing and is adapting to our new world.

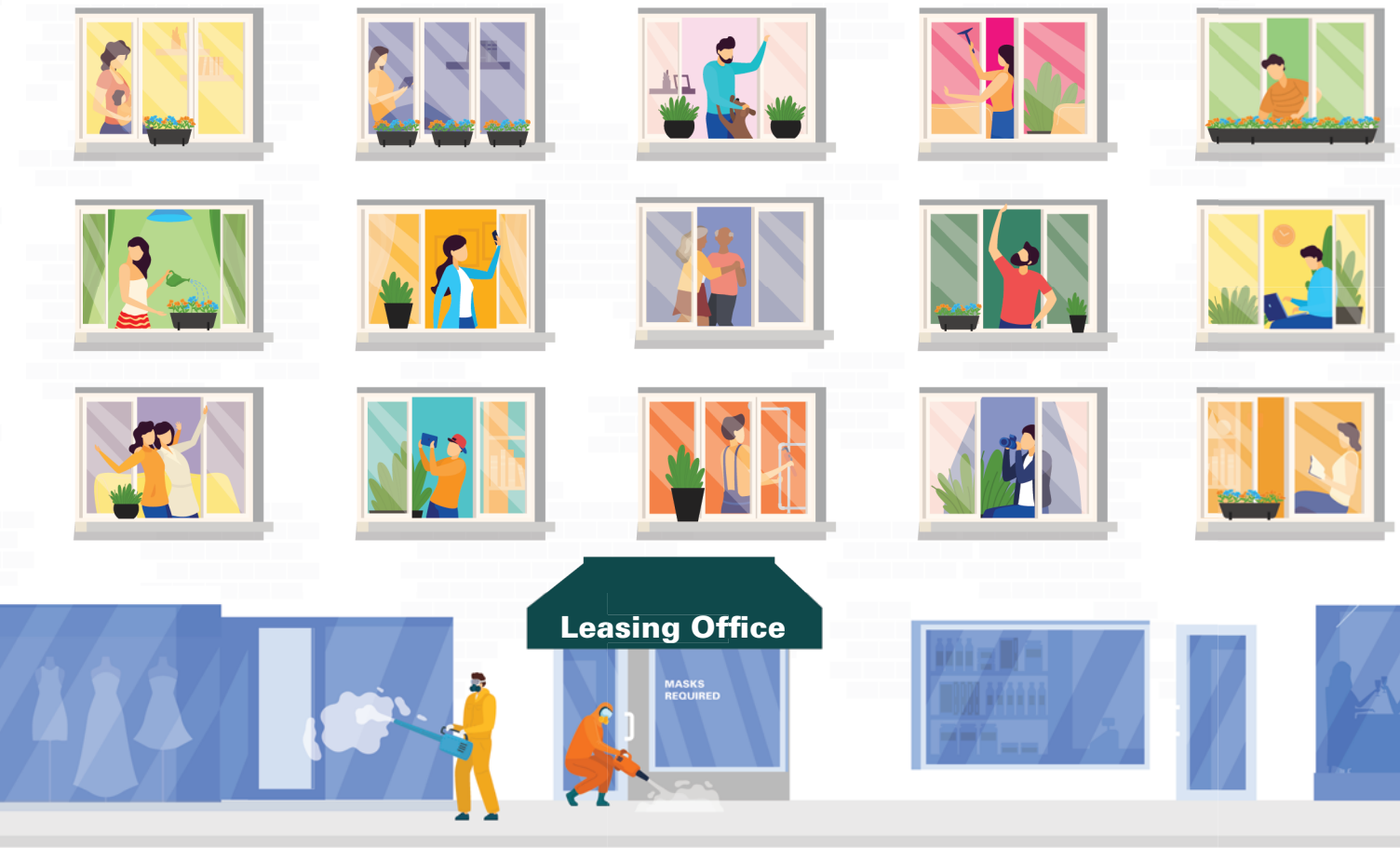
Lori Hanson is Operations Manager for Greystar.

Full house

A significant change in apartment operations is the rise in resident time at home due to C19.

This means **increased utility consumption,** plant wear and community traffic.

What can managers do to avert **added stress** for residents and increased risk to physical property?



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Building resiliency

Over-communicate. Keeping an open line of communication avoids confusion and assures residents and staff.

Avoid close contact with sick people. This includes those who are coughing or sneezing.

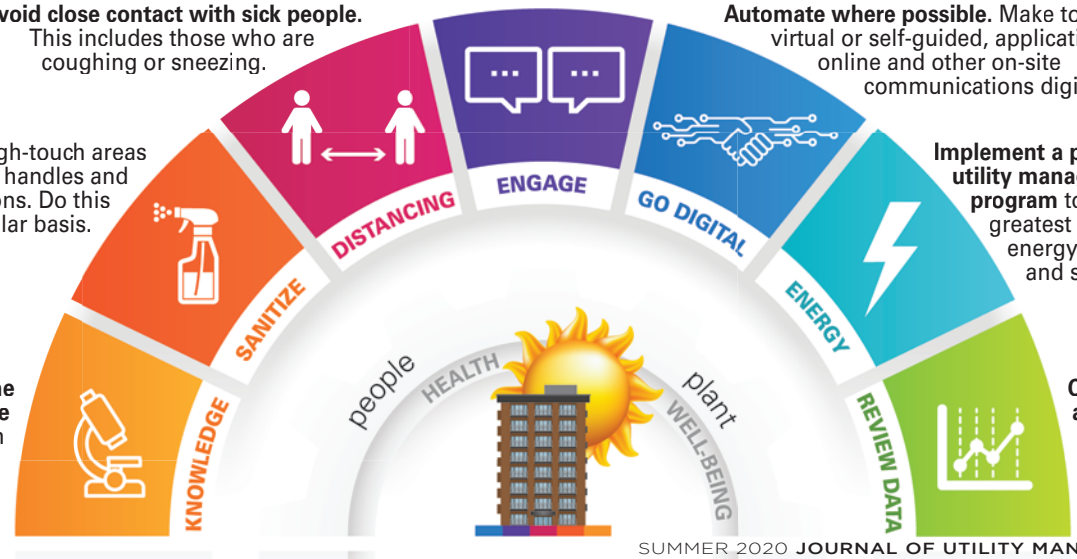
Automate where possible. Make tours virtual or self-guided, applications online and other on-site communications digital.

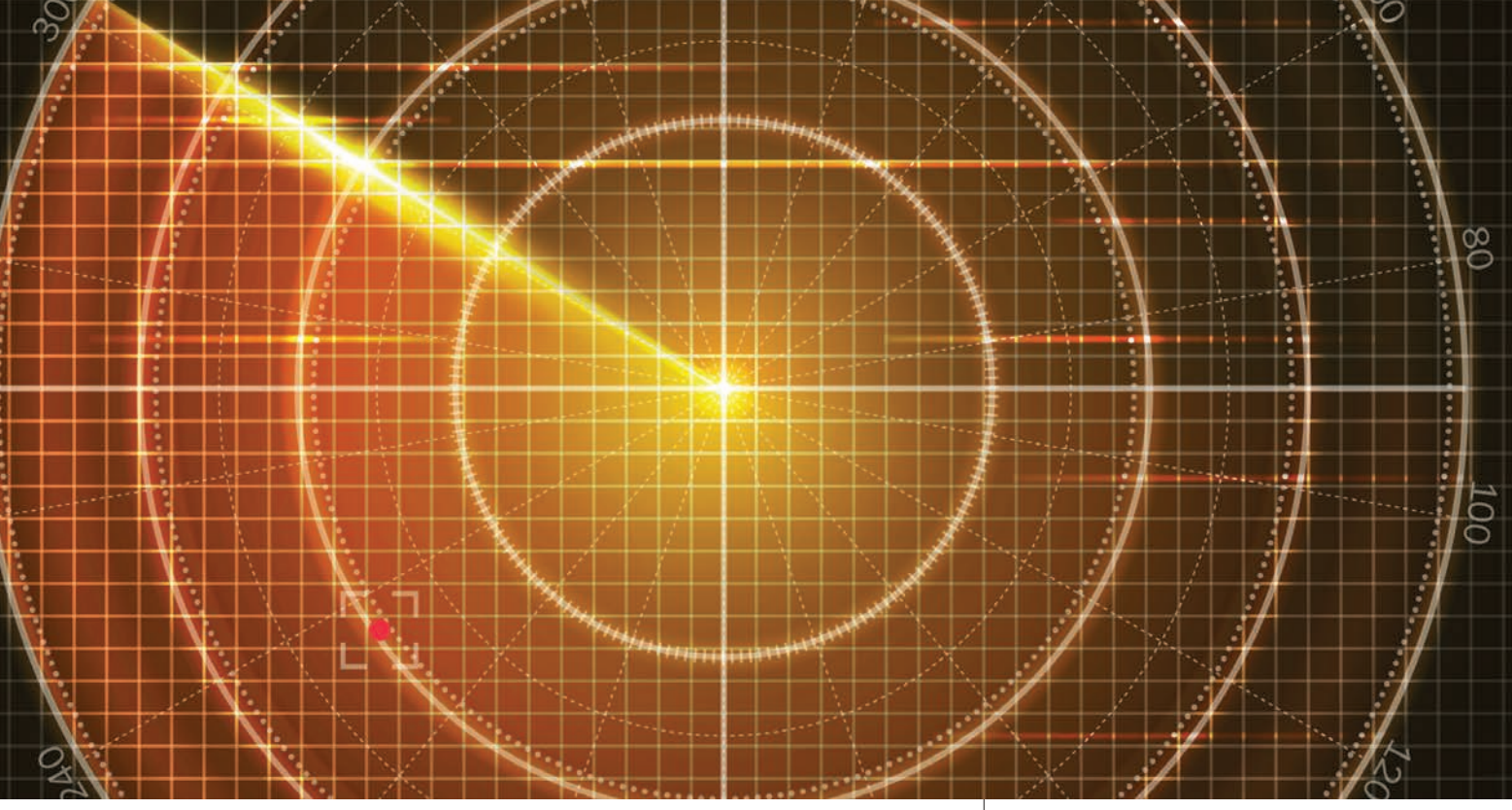
Sanitize high-touch areas like door handles and elevator buttons. Do this on a regular basis.

Implement a professional utility management program to assure greatest efficiencies in energy procurement and spend.

Know the difference between clean and sanitized.

Check for anomalies in utility billing. This could signal leaks.





Opportunity to focus on sustainability

When sustainability is discussed, there is often a primordial assumption that sustainability initiatives inevitably require capital expenditures: low-flow fixtures, high-efficiency boilers, LED lighting or others.

Those are obvious opportunities with tangible results for improving sustainability, and yes, they do require capital expenditure.

However, as Global Real Estate Sustainability Benchmark (GRESB) happily tells us, sustainability is not defined purely by equipment that enhances operational efficiency.

Sustainability is also driven by the intangible, the procedural, and sometimes, the less glamorous opportunities.

During these times of greater capital conservation, some of the not-so-sexy things creating efficiency without spending money are suddenly more interesting.

Business process efficiency, for one, improves sustainability by lowering operating expense without direct capital.

For example: How closely do we look at our utility bills? Perhaps a superficial glance to assure it was paid? Maybe even a second look to make sure the month-to-month delta is within a 5-10 percent tolerance?

If we're using a bill pay or resident billing partner—as most do—this data is probably readily available.

Even without the portfolio-scale necessary to justify a bill pay or resident billing partner (and so it's done in-house), this data is almost always available on the utility bills, or in the worse case scenario, available through a quick phone call.

Such data is just waiting for someone to do something with it.

Here's a real-world example from our own portfolio of what can be done with otherwise dormant data. We looked at a water bill for a building that showed an immaterial month-over-month increase. How did this particular bill catch our attention—after all, it showed only normal seasonality?

There was a fairly gradual upward trend—a trend line that any risk-averse investor would appreciate.

This delta eventually cost the property an additional $6,500+ per month at its peak deviation and wasn't due to a rate increase.

The year-over-year increase wasn't dramatic enough to trigger automated systems, but we knew something didn't look right. We couldn't really explain it.

So we started asking questions and digging around (figuratively). The key is that we were persistent, despite the on-site teams reporting that they could not find any leak of that magnitude.

In the end, we found a significant sub-slab leak (and affiliated void), which required the relocation of a resident, and quite a bit of work to execute such a complex repair.

The crux of the story is that we found it by taking a closer look at data that we already had.

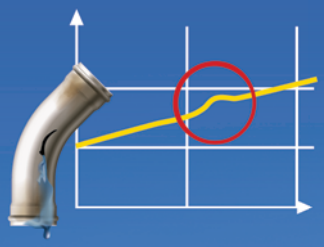
We avoided the more dramatic problem of a slab failure in an occupied building. By that calculation the avoided-cost value was immense, but not well defined.

Cost of finding this issue? Maybe a few hours of emails, analysis and phone calls over the span of a several weeks.

Though it took a few dollars of repair and maintenance cost, it was savings that we achieved without capital expenditure.

Sustainability is worth the effort. Though the optics of such efforts may not be high visibility—the payoff can be just as impactful. Sometimes it just takes a simple review of resource data already available.

Peter Chan is Director of Ancillary Services for Fairfield Residential



Hidden in plain sight

Data science delivers insight on apartment operations previously inaccessible. A subterranean leak is a perfect example of physical plant assessment by way of an axis of data.

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Sub-slab leaks

Definition

When a pipe under a building's slab leaks, damaging concrete and eroding surrounding soil

Causes

Poor installation
Ground shifts
Pipe abrasions
Pipe corrosion
Pipe age

Consequences

Structural damage
Foundation damage
Mold/mildew growth
Floor damage
Pipe corrosion

More common

Seismic-prone states like California
Older buildings
Corroding copper pipes
Orangeburg sewer pipe

Signs

Spike in water bill
Moving water meter when pipes not in use
Unusually low water pressure

Time is money

Undetected, sub-slab leaks increase foundation and building damage with time

Indoor air quality myths and facts

We have all become acutely aware of respiratory health over the last several months due to COVID-19. According to the United States Environmental Protection Agency (EPA), "Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants." The importance of pursuing optimal indoor air quality has taken on new significance; unfortunately, there is not a one-size-fits-all solution.

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), a global society advancing human well-being through sustainable technology for the built environment, says that "Ventilation and filtration provided by heating, ventilating and air conditioning systems can reduce the airborne concentration of SARS-CoV-2 and thus the risk of transmission through the air, and that in general, disabling of heating, ventilating and air-conditioning systems is not a recommended measure to reduce the transmission of the virus."

That is good news, as the summer heat and humidity are other health factors that affect our overall well-being.

Despite the fact that poor IAQ can affect the health of the occupants in any kind of enclosed space, there is conflicting information circulating the internet.

That said, three identifiable consistencies emerge when seeking to optimize IAQ. The first and most effective strategy to improve IAQ is to eliminate individual sources of pollution or to reduce their emissions. Examples include sealing off asbestos, adjusting gas stoves and fireplaces, etc. This strategy is often the most cost-effective approach. The second-most-effective strategy is increased ventilation. This approach lowers the concentration of indoor air pollutants by allowing outdoor air to come indoors. Most apartment home cooling and heating systems do not mechanically bring fresh air indoors. The use of kitchen and bathroom exhaust fans remove contaminants directly from the room where the fan is located and also improve the outdoor air ventilation rate. Because increasing ventilation can increase energy costs, one must be aware of the trade-offs.

Finally, keeping HVAC systems running optimally by changing filters and checking airducts is a strategy that is easier said than accomplished. This improves air quality when performed on a regular basis.

It is important to note that simply keeping rugs and carpets clean significantly impacts IAQ. And while over the past few years publicity suggests that houseplants improve air quality, there is currently no evidence that a reasonable number of houseplants remove significant quantities of pollutants in homes and offices.

No longer overlooked by most property owners and managers, as complementary to social distancing, improving the quality of indoor air will go a long way in improving health and overall well-being of users of their buildings. Check out the epa.gov and cpsc.gov websites for more information.

Wes Winterstein is an industry expert and independent consultant for WellVia

Something in the air

Top indoor pollutants

VOCS

Toxic vapors are off-gassed from man-made materials used in furniture, bedding and carpet

Smoke

Fireplaces, wood-burning stoves and cigarettes release particulants

Circulation

New buildings are made to be airtight, inhibiting ventilation

Toiletries

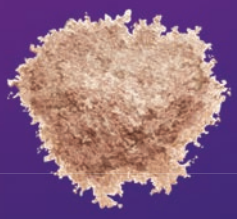
Aerosols, lotions, cosmetics, other toiletries add to harmful indoor air

Candles, electronics

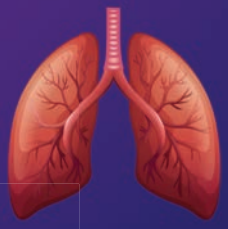
Air-fresheners and more release toxins that can cause headaches and fatigue

Mold

Bathrooms and kitchens are highly susceptible to mold, which is harmful for those with allergies or unexplained health issues

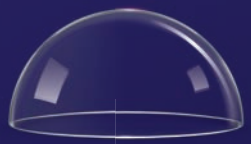


40lbs.
of dust and
45toxic
chemicals
collect in a 2-bdrm apartment over a single year



asthma
is the leading chronic illness in children
resulting in 1.8 million emergency room visits a year

pollutants
are 2-5X
higher indoors
the concentrations of pollutants indoors are higher than outdoors



90%
Americans spend most of their lives indoors
since COVID 19 that number has risen

SOURCE: EPA

Embracing the new: Trash of tomorrow

I keep hearing talk about the *new normal*. Like those two words actually belong side by side. Do they coexist? Absolutely. Do they describe our future? In my mind, you have to have one or the other; and I vote for new—change. We should reach for something better. Oftentimes, new can simply mean different; like a change in behavior. Yet how we get there is always by embracing the new.

It is exciting to see our industry shifting, changing and exploring the new. We look at our processes and try to find new ways to achieve the same result using tools instead of people.

Virtual reality (VR) apartment tours allow future residents to see their future home without the direct contact of leasing staff. We look at how we pay bills and ask if we can use technology to reduce paper and handing things to each other, thereby leaving our sanctum sanctorum. All of this involves identifying a challenge and solving it differently than we have in the past. I suppose the inference of the *new normal* is that we embrace the new and it becomes normal.

It is unsurprising that we have not approached managing trash as other aspects of our business. Historically, trash has been treated as a back-of-house issue and not as an area of resident engagement.

In the 1990s the first shift occurred when recycling became more prevalent and we needed residents to engage in activities around waste. Then in the 2000s we experienced another change with the adoption of package delivery, which made many goods more accessible. This increased our waste production to include more furniture, electronics, clothing and packaging materials.

Once it became more cost-effective for residents to replace an item than to repair it, trash became a challenge—not just of cost, but of functionality. Now we're left to consider: How do we manage it? How do we engage residents to assist? We struggle with waste. Trash is hard.

And now—how does *new normal* apply to trash? Initially, we should look at why our waste programs are what they are and ask the important questions: "Who handles my program?" "Do I outsource, and if so, am I comfortable with their services for my com-

munity with our new normal?" "What do my residents experience and does my program make them feel taken care of?" "Where are my bins located and what kinds do I have?" "Do I have to provide recycling or composting and if so, how much?" "What are the ramifications for not complying with a waste requirement?"

My favorite question, which always surprises: "Is my waste program adaptive for the seasonality of my residents' behaviors?" Then there is the new question: "How do I leverage technology to manage my trash?" You can utilize virtual reality for your tours, but you really cannot VR your trash program. Or can you?

Let's plan for the future. The pandemic has many companies evaluating their workforce and whether workers can be just as productive remotely as they can be in an office. Many companies are realizing that a large percentage of their workforce doesn't necessarily need to come into the office to be productive. This revelation and change will affect how many residents work from home and should be part of our *new normal* for trash and the resident experience with our community. How does this affect our trash programs? Our maintenance teams? Historically, waste is a labor-intensive function. Someone has to service the enclosures, pull the bins out for pickup, and physically manage the program.

As haulers get more sophisticated, our properties are being fined, along with receiving documentation of our indiscretions: "Here is a photo of your overflowing bin of trash, which we will now fine you for." "Here is the contamination, which we are fining you for," or "Here is the contamination, which is why we are refusing to service your property."

Haulers work with technology, yet as an industry our greatest innovations around waste require additional workforce in our communities. When we fight technology with increased manpower—we are not winning.

Okay. So we understand the challenges. We see what haulers are doing, and we understand our current programs. Now is the time to ask the question, "What is our *new normal*?" What if there was technology that continuously monitored your program for you and advised you, your team or your vendor when and where there is something to address? There are sensors on many compactors today to inform users when those compactors are full and ready to service. What if you had this visibility into a dumpster? How could you manage or reduce your labor (even if outsourced) if you knew the seasonality of your residents' behavior without physically inspecting those areas for issues? What if AI could advise of a full bin that needed to be rotated under a trash chute? What if AI could help resolve contamination before it's serviced by the hauler? What if that same technology could deliver information to residents so they could modify their behavior? What if AI could help you comply with whatever rules and regulations you are faced with in your market?

The reality is that the technology is out there. It is not completely new, but maybe new to our industry. This brings us to our present moment. The questions we need to brainstorm are: "What will our trash programs look like in the *new normal*?" "How will we achieve savings and objectives?"

Mary Nitschke
Publisher

The meaning of clean in the day of C19

Your leasing office and common areas are clean, but are they disinfected? Welcome to the age of microscopic traffic.

Counting incoming traffic was once done to analyze the quality of lead generation and the effectiveness of marketing channels. Today it's more often done to manage people who come into the office in order to maintain numbers conducive to social distancing.

While the data around C19 ebbs and flows, upping the game on a disinfected environment is a practice that remains smart throughout the ages.

First public health revolution

U.S. life expectancy doubled to over 80 years in the last 200 years. Many attribute this to medical advancements. And while this is somewhat true, the largest jump in life expectancy occurred between 1880 and 1920.

It was during this time that improved sanitation, public water treatment, sewage management and municipal garbage collection nearly eliminated deaths from tuberculosis, pleurisy, typhus, tonsillitis, cholera and dysentery.

These changes in public health services are called the First Public Health Revolution, and happened before medical advancements like antibiotics. The Industrial Revolution (1750-1850) and Louis Pasteur's germ theory (1861) together made hygiene and sanitization society's first line of defense in the fight against disease and illness.

Cleanliness is a simple concept. If you walk into a leasing office, desktops, the counter, even the floor are obviously clean or not. Clean is the absence of visible dirt. But as Pasteur and those who followed showed, germs (disease-producing microorganisms) are a whole other battleground in the fight for health and well-being. Let's first understand the differences between types of germs in order understand the products most effective in fighting them.

Germs include bacteria and viruses—they are not the same, nor are the medical protocols used to treat them.

Bacteria are single-cell organisms. Some are good like those in your digestive system. Others, if ingested, may reproduce and release toxins in your body making you ill—like a cold. Antibiotics effectively treat bacterial infections but are ineffective against viruses.

Viruses are made of genetic material—RNA or DNA—surrounded by a protective coating. Viruses can only live and multiply inside other living things.

Of the world's 2,000 identified viruses, less than 10 percent infect humans. Even then the human body has defense mechanisms to fight and stop most viral infections.

Our bodies fight such invading organisms on a regular basis. The body's first line of defense include skin, mucous and stomach acid, followed by our immune system.

When one's immune system is unable to fight a virus, effective treatments sometimes are able to stop it from reproducing. The virus then dies out on its own.

Proper nutrition is a good way to keep one's immune system strong enough to fight such invaders. A clean environment also keeps transmission and viral exposure to a minimum so that the body isn't required to fight an incoming infection.

Cleaners

Soap and detergent will clean surfaces and remove dirt and germs. Important to note: While these cleaners remove germs—they do not kill them. The Environmental Protection Agency (EPA) neither tests nor regulates cleaners for cleaning effectiveness.

Disinfectants

As people go in and out of your office or common areas, new germs follow. Disinfecting high-touch surfaces—those surfaces that are touched multiple times a day like door handles or elevator buttons—kills viruses, mold, mildew and fungi. Sanitization adds a layer

of community safety by eliminating the spread of viruses that may have been transmitted to a surface.

Disinfectants are regulated by EPA. To be certain that a product kills viruses, read the label. Not every cleaning product is a disinfectant, and most green products are not. The CDC (Centers for Disease Control) recommends using EPA-registered household disinfectants.

A simple homemade disinfectant can be created by combining one-third cup of bleach per gallon of water. Spray or wipe the solution on the surface to disinfect and let sit for at least one minute.

Alcohol also disinfects, but must be at least 70 percent alcohol. Alcohol pads are great for quickly disinfecting small items like your phone.

Disinfecting products work differently. It's important to follow the directions on the product you're using to disinfect your apartment, car, your space on public transportation or your office. Many products recommend leaving surfaces wet with the disinfectant for a specific period of time to ensure it works.

When disinfecting your office or common areas, prioritize high-touch surfaces. These are the most likely to harbor germs: doorknobs, faucets, tables, countertops, light switches, handles, desk tops, phones, keyboards, remotes, toilets and sinks.

Sanitizers

Sanitizers kill bacteria and are often used where food is prepared. The type of bacteria a product kills may be found on the product label. Both sanitizers and disinfectants are under the direction and review of EPA.

Dwell time is the time it takes for a product to kill respective germs. Some chemical formulas take as much as 5 minutes to work, while others kill germs in a minute or less.

The frequency of disinfecting should be increased with the level of area usage and health threats.

In addition to keeping public areas safe, maintain personal safety by keeping your hands away from your nose and mouth. Wash your hands for a full 20 seconds with soap and hot water each time you have used an elevator, opened a door or have touched other public spaces.

With every outbreak, we learn. C19 is no different. The key is keeping your resistance strong.

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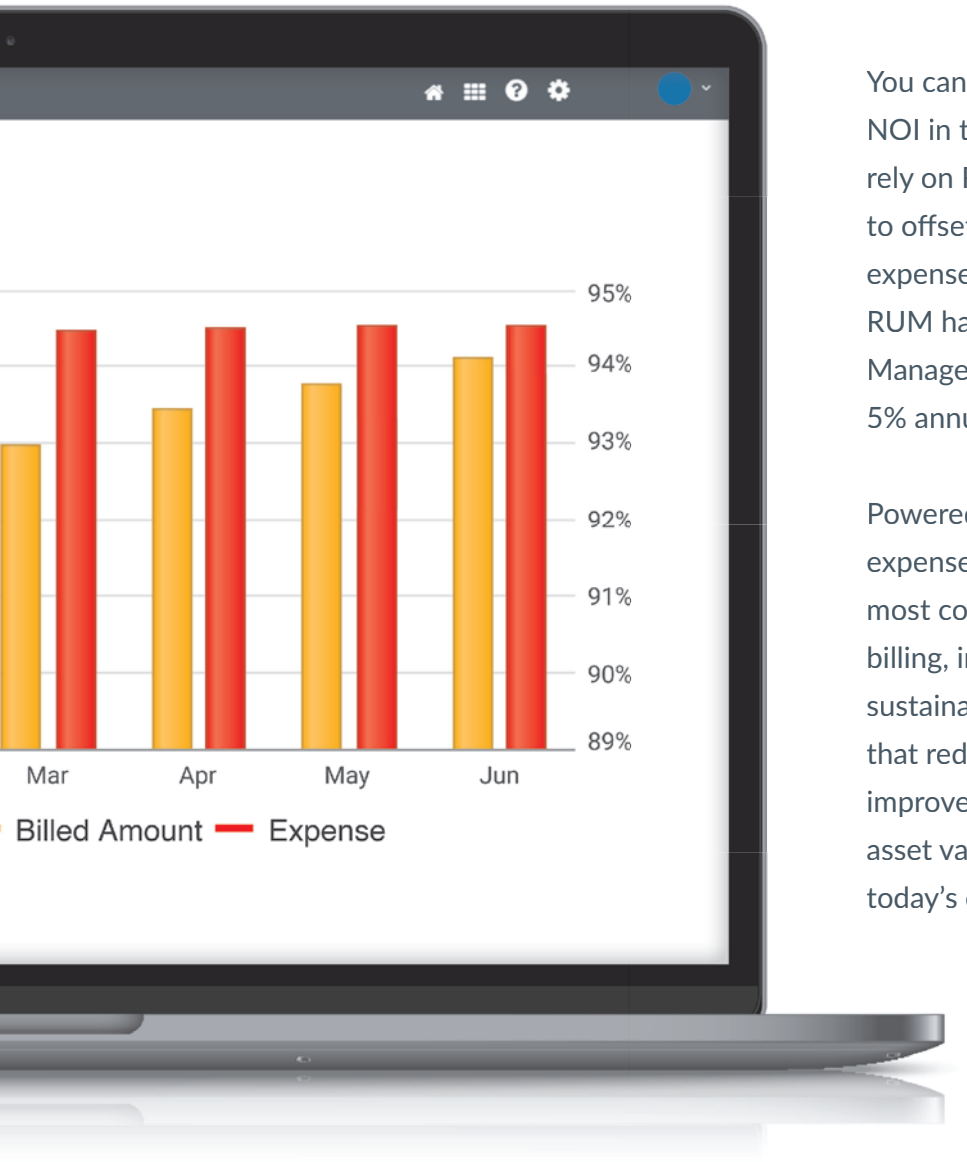

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