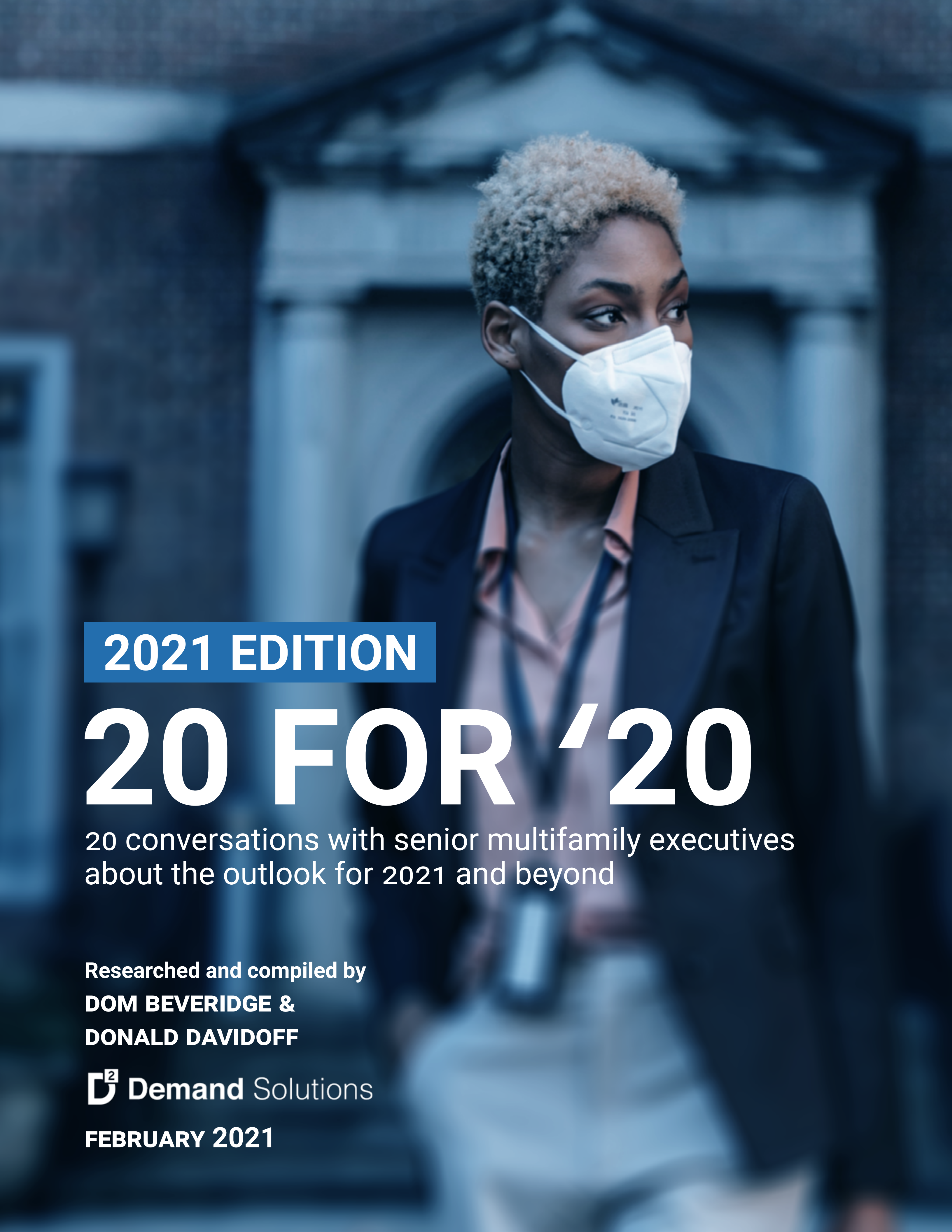


2021 EDITION

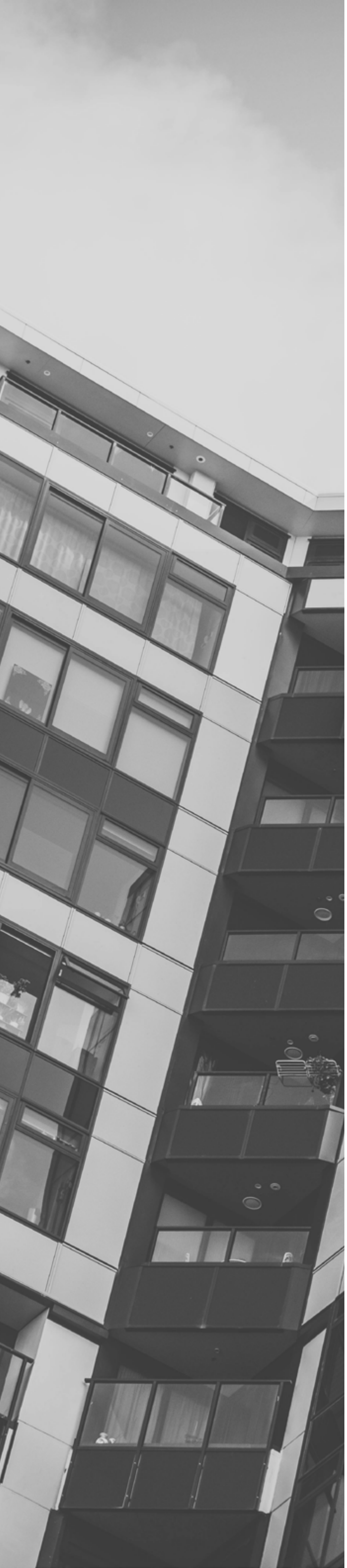
20 FOR ‘20

20 conversations with senior multifamily executives about the outlook for 2021 and beyond

Researched and compiled by
DOM BEVERIDGE &
DONALD DAVIDOFF

D2 Demand Solutions

FEBRUARY 2021



CONTENTS

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1
EXECUTIVE SUMMARY

WHAT CHANGED IN 2020?

IN GENERAL

Self-show became the norm and moved leasing closer to a future where **self-serve is the norm**

The rapid change that the pandemic forced has made operators realize they can be **nimbler** than they realized

The widespread adoption of work from home is changing the teams that we hire, the way they communicate, and even the office space where they will work

Fee managers had to get extra-proactive with ownership, as policy decisions became more frequent

Cybersecurity initiatives mostly didn’t change in 2020, in spite of widespread work from home

Smart Home/Building Tech increased in appeal as residents stayed home, however some projects stalled as construction slowed. Meanwhile the vendor landscape became clearer

Self-Show became ubiquitous, but self-show technology did not

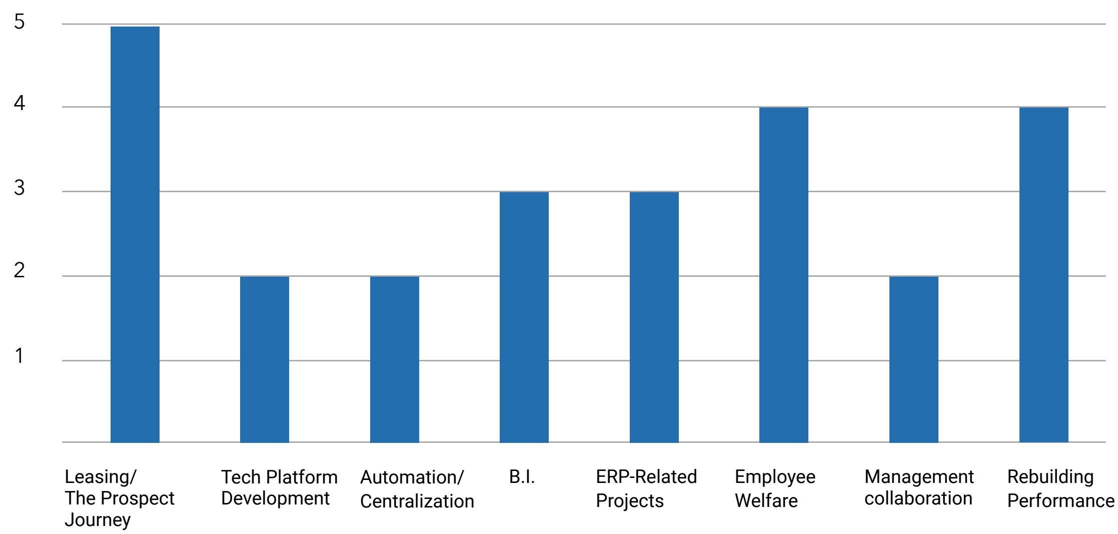
AI Leasing had a big year, although maybe not as big as we predicted a year ago. COO and CIO opinions on the technology differ markedly

CRM had a big year as the pace of change in leasing is making operators look for radical change

BI continued to be a high priority as demand for data increased through the pandemic

TOP PRIORITIES FOR 2021

"What is your #1 priority for 2021"



WHAT WILL BE DIFFERENT IN 2021?

Work from home is probably here to stay, at least to some extent

"Back to normal" will take until **late 2021**

Office space needs and footprints will change

There will be a lot less corporate travel

Companies will get more stuff done more quickly

Some big things will change at properties

Companies will look at technology platforms differently

D2'S TAKE ON THIS YEAR'S FINDINGS

COVID-19 provided an unprecedented stress test, and taught us some new things about operations and technology

Companies moved fast and broke stuff, and it worked well!

COVID changed leasing, and has changed the way many leaders think about the "AI vs.people" debate

Leaders are thinking about some technologies in a different way, adopting more of a "digital transformation" mindset

One company took a unique focus on renewals, and it holds a lesson for the whole industry

2
INTRODUCTION

For each of the last three years, D2 Demand Solutions (D2) has conducted a project designed to provide a unique perspective on multifamily operations and technology. Since 2019, we have conducted 20 interviews at the end of each year with senior multifamily executives to understand their priorities and their view on the industry outlook for the next few years.

Following the success of the first two editions, 20 for ‘20 is now firmly established as an annual event, with a fresh set of 20 executive interviews each year. It provides the opportunity to take stock of the year’s activities and project what companies plan to do for the foreseeable future. Each year we get to compare last year’s plans to what ultimately happened. We have found that it helps us to understand what is *changing* in multifamily.

2.1. ABOUT 20 FOR ‘20: 2021 EDITION

Unsurprisingly, change is a central theme to this edition. We structured the 20 conversations to focus on how COVID-19 impacted multifamily operations and technology. We replaced questions that we normally ask about performance trends (which we felt were redundant given the upheaval in markets) with questions about how businesses may change as the economy recovers. We focused the IT discussion on those technologies that were most likely to have been impacted by the pandemic.

As always, the key to 20 for ‘20 is perspective: we asked our 20 leaders to express their own opinions as candidly as possible. We find that by asking each respondent to answer the same questions, we impose the structure needed to compare answers. That comparison provides deep insight into strategy, operations and technology.

The interviews generally followed a conversational structure. In synthesizing the results for publication, we have attempted to identify the themes that we repeatedly heard in the research and the major points of difference. We report the results in three sections: first, the impact of COVID and the 2021 Outlook. Next, we move to technology, with a deep-dive on six technologies impacted by the pandemic. Finally, our conclusion provides the D2 viewpoint on the major themes emerging from this year’s findings.

This year we are delighted to have expanded our sponsorship program, with five leading technology providers contributing articles to this edition. Once again, we have curated the articles to ensure that they are relevant to our paper, and we urge readers to connect with the vendors to discuss any of the points raised in their thought-provoking articles.

2.2. RESEARCH RATIONALE

The 20 companies involved this year provide a variety of portfolios and operators. Of the companies interviewed, six were fee managers (predominantly large national platforms), three were public REITs, and the other 11 were owner-operators of various sizes and geographies. In total, the 20 companies represented in this research represent more than 1.5 million multifamily units.

We interviewed 20 executives, ten each from operations and IT. Each interviewee was the most senior person in either IT or operations at their company. To balance the desire for continuity with the need for fresh ideas, we kept eleven of the same interviewees from 2020 and introduced nine new ones.

Finally, this research aims to develop industry insight rather than to get individuals on the record. Therefore, the responses are anonymous, and we do not reference any information shared confidentially during the interviews. We have included some direct quotes where we think they help illustrate an important point, but we do not attribute them to individuals.

SPONSOR VIEWPOINT

WHAT THE PANDEMIC TAUGHT MULTIFAMILY ABOUT PAYMENTS

Domuso

2020 was an unprecedented year and the multifamily industry had to adapt more quickly than ever before. There are few areas where the double impact of the health and economic crises have been more pronounced than the way communities process payments. The need to keep associates and residents safe led property managers to expedite the use of contactless payments. At the same time, the economic stress on residents brought delinquency into sharp focus. Both sets of needs have technology implications.

A Catalyst for Digital Payments

Digital payments are not new - multifamily operators have been trying to increase adoption at their properties for years, but with uneven success, as some residents and property managers held on to the habit of writing checks or buying paper money orders. However, as the pandemic forced operators to cut out face-to-face interactions, many have grasped the opportunity to remove paper entirely from their rent collection processes.

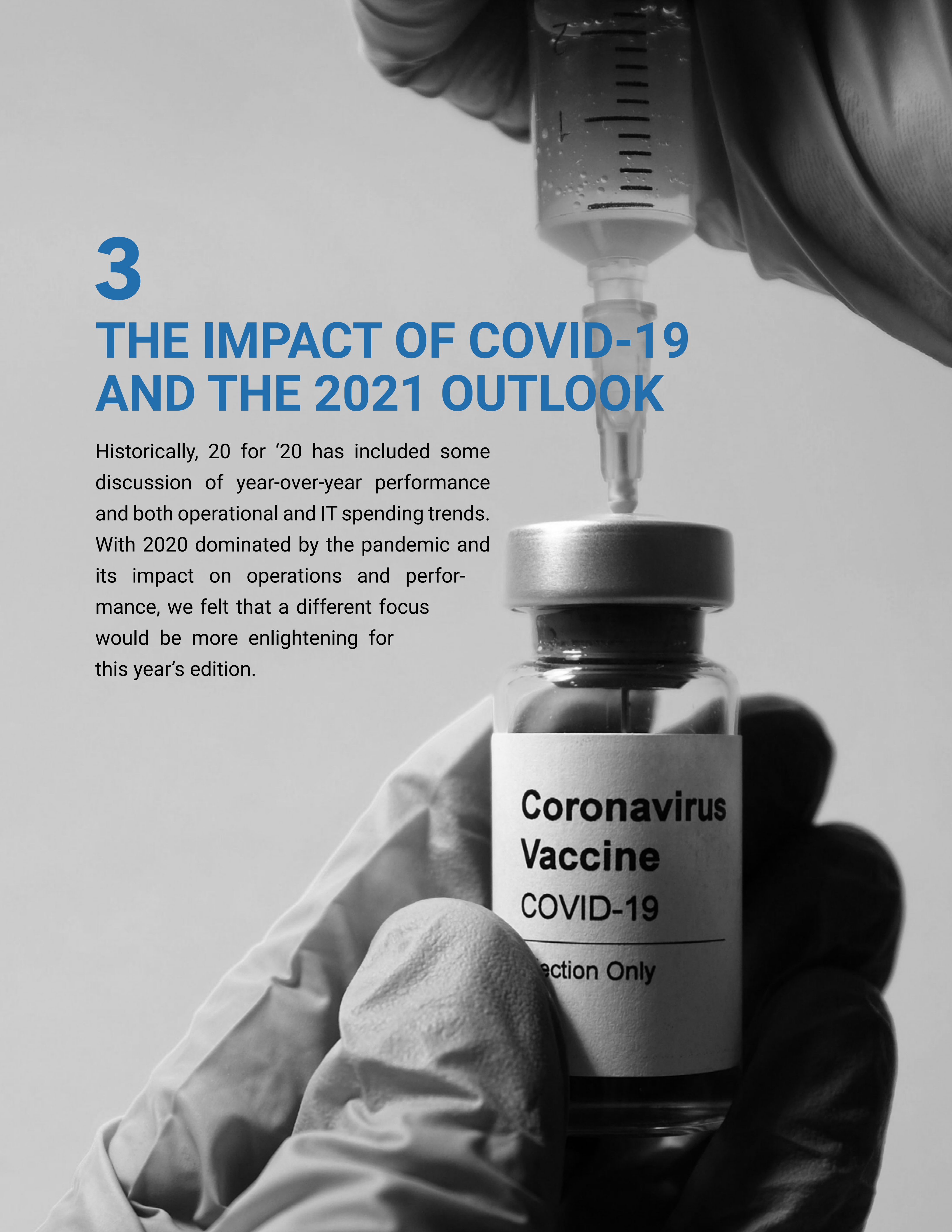
Most multifamily operators still rely on physical cashier's checks and money orders to manage payment risk of insufficient funds or disputes, but there are better alternatives. Digital certified funds, for example, manage risk by securely verifying a resident's bank balance before transferring payment directly to the property. This new form of payment acts as a digital equivalent of a cashier's check or money order. It ensures that funds are authenticated and applied directly to the property's accounting system, assuming the risk of chargebacks and guaranteeing payments to ensure the property is always paid in full and keeping ledgers in the black even when payments are disputed. This new approach, pioneered by Domuso, provides a new layer of risk mitigation, protecting properties from fraudulent payments, employee tampering, chargebacks, theft and delinquencies.

Beware of Credit Cards

NPR recently reported a 70 percent increase in rent payments being made with credit cards—another economic side effect of the pandemic. As residents reach their credit card limits, chargebacks and payment delinquencies will inevitably follow. This is a considerable risk for owners and operators, as renters can dispute credit card payments for up to 120 days after they are made, and property teams don't always have the bandwidth to contest disputes within the allotted 45 days they have to respond. This means operators now face two potential threats to cash flow: a temporary loss of income stemming from prolonged delays in rent payments and a reduction in cash reserves due to chargebacks.

To mitigate chargeback risk, property managers can require payments be made via certified funds, or they can work with a payment provider such as Domuso that offers chargeback protection as part of their credit card offering. Some also have integrations with kiosks for physical cash payments like MoneyGram, effectively turning cash into digital certified funds.

These are just two ways in which technology can mitigate risk and reduce delinquencies while protecting resident and employee health and safety. While it may not be the digital transformation we expected, new automation and payment technologies are available to deliver 100 percent digital, contactless payment options with more security, efficiency and financial protection than ever before.



3

THE IMPACT OF COVID-19 AND THE 2021 OUTLOOK

Historically, 20 for '20 has included some discussion of year-over-year performance and both operational and IT spending trends. With 2020 dominated by the pandemic and its impact on operations and performance, we felt that a different focus would be more enlightening for this year's edition.

The following three subsections summarize the responses of our interviewees to three simple questions:

- What changed in 2020?
- What will be different about 2021?
- What is your number one priority for the next 12 months?

3.1. WHAT CHANGED IN 2020?

In summarizing his company's 2020, one COO summarized the general narrative from all 20 interviews: *"2020 had three storylines: the year started robustly, with vigor in markets and a strong acquisition pipeline. Next, COVID put us into 6-8 months of playing catch-up. Finally, by the end of the year, we began to see green shoots of recovery."*

Those companies with a normally large development pipeline reported taking a financial hit from COVID-enforced delays. Others reported a buoyant year of acquisitions and dispositions, with multiple companies managing to close funds during the height of the lockdown. Some fee managers reported a particularly strong year for management fees, as the slowdown in acquisitions broke the normal cycle where strong property performance is rewarded by property disposition by the owner.

Customer Experience and the Rise of Self-Serve

Readers of previous editions of this paper will be familiar with our view that the multifamily industry has generally been slow to adopt the mega-trend of self-service. The pre-pandemic travel experience should provide the template: with booking and checking into flights and hotels all increasingly handled by consumer apps rather than agents, and rideshare apps largely replacing taxis and car services. Why then, (we have asked), should touring an apartment still depend so heavily on human interaction?

Things have changed substantially since last spring. Almost all companies had to deliver self-guided tours, and several operators shared views like, *"Our culture has changed: we're not as much in the face-to-face business anymore."* Most of our 20 leaders saw this change as an opportunity, only a few lamenting that it *"took some of the charm away from our customer experience."*

Unsurprisingly, the main examples of changes to property operations were amenity scheduling and self-guided tours, both of which became a necessity. Other examples included outsourcing maintenance (for people who don't like staff visiting their apartments). One company had been working on a program for some time and already had a library of videos for residents to perform their own repairs, using supplies delivered by property teams. This service model's widespread use in single-family rentals suggests that it should be more commonplace in multifamily.

We will cover self-show in greater depth in the next section, but for context, most respondents reported a fairly even split between agent-guided, self-guided and virtual tours across 2020. The popularity of virtual or "selfie tours" came as a pleasant surprise to most operators, as property team improvisation proved to be an effective engagement technique. The progress of self-show was characterized by most as an acceleration of a project already in their 2020 plans.

One operator shared that the experience of having to deploy self-show acted as a helpful distraction

> **Our culture has changed: we're not as much in the face-to-face business anymore.**

for site teams, giving them something else to focus on while the pandemic was dominating thoughts. Others noted that being forced to move to a self-serve environment had forced them to see how their operations appear to residents, adding that they now understand why they want self-serve and often see in-person as an impediment to good service.

On Nimbleness

Self-guided tours provide a good example of how the pandemic forced operators to plan and execute far more quickly than usual. Several also observed a cultural change in how they approach projects. Speed to market took priority over some of the finer points of a conventional implementation.

The less cumbersome implementation process extended to other areas of technology. Multiple companies described their rapid adoption of Microsoft Teams or Office365 while skipping traditional change plans and other conventional implementation steps for no apparent loss of fidelity.

One COO of a large owner-operator put it well: *"There were two major epiphanies for us: 1) Don't let perfect be the enemy of better; and 2) We largely abandoned the test-and-rollout approach in favor of just rolling out when we think it's the right thing to do."* It was a common theme, to which we will return in the Conclusions section.

Others shared that they got much quicker at making decisions for a variety of reasons. Some felt that with fewer process steps in implementation, they could naturally move more quickly. Others felt that it was more to do with a feeling of greater urgency and a willingness to accept answers much more quickly rather than dotting all of the i's and crossing the t's on decisions. The adoption of a "break/fix" approach aligns multifamily with one of the more dominant contemporary consumer technology trends.

Faster collaboration with properties was a theme of the interviews: some organizations spoke of the experience of rapidly forming A and B teams for COVID. Changes to payment processes were another intense area of focus where necessity begat opportunity. Communities had to roll out payment plans for struggling residents as the economic downturn took hold. At the same time, the contactless environment enabled several operators to get all their residents to adopt electronic payments—an objective that many had previously been working toward for some time.

One technology leader spoke of how COVID has *"...broken down some barriers to finding better mousetraps."* Since the pace of change in their organization had become so much quicker than they were used to, they had turned their attention to other processes that they could turn upside down: staffing models, for example. The experience has made this organization more liberal with what they will consider changing. One of the more interesting examples of rapid mobilization came from one firm that created a dedicated task force to drive renewals. This included a daily stand-up attended by all senior management down to site staff. The purpose of the stand-up was to make sure that everybody was doing all that they could to minimize attrition, and it was effective enough

> **"The COVID experience has broken down some barriers [in our organization] to finding better mousetraps.**

that it continued through the first three months of the pandemic.

Broader Cultural Implications

In addition to changing how companies think about project delivery, COVID also appears to have changed the profile of people they hire. One large midwestern employer had just hired a senior leader based in the Northwest. Prior to the pandemic, the candidate would not have been considered for the role unless they were willing to relocate.

While the suddenly ubiquitous work from home arrangements provided opportunities to change, the experience of rolling it out varied by company. Despite having always had scattered operations, some found the switch to virtual operations challenging. One of the largest operators spoke of their need to adjust to stricter adherence to policies and procedures, where previously the more in-person supervisory model had afforded associates more wiggle room.

For several firms, the ability to function outside of the office turned out to be far more robust than they had realized, particularly those companies that had been investing in migrating their technology to the cloud. Work from home heightened the need for firms to be collaborative and data-driven, with standardized metrics (including some new ones to track collections and delinquency) rolled out to executive and property environments.

While technology amply filled the gaps, organizations did notice some things that are harder to do in a virtual environment. Nurturing younger staff members is hard to do well via Zoom, and hallway discussions are hard to replicate. However, it is not all downside: one COO shared, *"Our organization now has a lot of 15-minute meetings that used to be an hour."* One technology lead cited work from home as a new and important use case for their company's new enterprise talent management platform; not all candidates are a fit for jobs with a significant work from home component.

One COO shared how COVID *"...hijacked schedules and broke some things that had been working before,"* including both resident and employee communications. Employee engagement had been particularly challenging, as this firm felt that they did not get it right the first time and found that the summer's political events further stressed morale and communications.

Another leader spoke of the impact of Black Lives Matter and related unrest on their business. It was already changing how this firm thinks about diversity, for example, building coalitions within the company based on race and women in leadership and making investments in organizations like the National Urban League.

Overall there was a recognition that the events of 2020 took a toll on property teams. One operator,

> **"COVID hijacked schedules and broke some things that had been working before.**

already in the process of post-merger integration, spoke of the stress of rapid change in an organization that already had an aggressive change agenda. In this case, the elevated stress both at work and at home had placed pressure on teams, leading management to increase their focus on employee engagement. They quickly established virtual town halls, and the leadership team took as much burden (e.g., for sourcing PPE) as possible away from site teams.

Working with Partners

For most of the firms we interviewed, relationships with partners, either owners or investors, provided a further nuance to the changing operating environment. Operational decisions, like opening or closing amenities, introduced a need for increased stakeholder management.

Some of the larger platforms reported that they simply have too many owners to be in lockstep but that they managed to keep interests aligned, typically through much more frequent proactive communication. Regular updates were critical as the speed of decisions (e.g. staffing policy, closing/opening amenities) was much faster than usual. One large operator said, *"We asked permission, strengthened some interesting conversations with owners, but overall the experience probably strengthened our partnerships."*

One technology lead for a large fee manager noted that they increased their IT budgets in 2020, and investors did not push back. The COO of another noted that variation in rules between jurisdictions had been challenging, especially when things started to reopen. At this point, individual and company politics provided a further set of considerations to manage.

On a more positive note, several operators reported that the regular, e.g., bi-weekly partner updates had improved alignment between teams. Some operators found that residents and investors have grown comfortable with different ways of working, which, as one COO speculated, will be a force for good for the foreseeable future.

3.2. WHAT WILL BE DIFFERENT IN 2021?

Part of each interview focused on the simple question: "What will be different in 2021?" The conversations followed the broad sweep of things that will change and things that won't. Below we summarize each topic with the major point or points of the discussion.

"Work from home is probably here to stay."

While there was a diversity of views about the future of remote work, the general feeling was that it will continue at least to some extent post-pandemic. One CIO summarized it well (from a remote location): *"The genie is out of the bottle, and we have shown that we can be productive in a work from home environment."* One Texas-based leader noted how the money associates had saved, for example, $400/year in tolls alone, was like being given a raise.

> **"... while we'll keep the best characteristics of our culture and support environment, we have crossed the Rubicon with our ways of working.**

Other leaders pointed out the availability of video conferencing as having been instrumental in driving productivity. Rapid adoption or greater use of collaborative platforms like MS Teams and Office 365 have also helped increase teams' productivity. However, several leaders cautioned that there are still some things that are hard to do remotely. Training, team nurturing, and culture building will all ultimately compel companies to bring teams mostly back to the office.

The general tone of responses is best summarized in the words of one of our COOs: *"I think most in-person interactions or visits to properties will get back to normal. I can tell that people are yearning to get back to the office. But while we'll* *keep the best characteristics of our culture and support environment, we have crossed the Rubicon with our ways of working."*

"We'll get back to normal at some point late this year."

Unsurprisingly, in December 2020, most leaders viewed the development and distribution of vaccines as the biggest variable in getting back to normal. Some firms have a COVID committee that continued to meet at the time of this research. The most bullish leaders thought that things would settle into a new normal by summer. The consensus view was that it would take until Q3 or Q4 of 2021.

"Office space will probably change."

One consequence of the rise of work from home is that it will likely change firms' requirements for office space. Several of the 20 companies in this survey are already planning new uses of space. A few companies had either canceled or postponed office moves in order to revisit requirements and layouts. Others are looking to reduce their overall office footprint.

The most interesting ideas were those concerning the nature of work. With a combination of more working from home, and a desire to focus in-person activities on high-value collaborative work, companies anticipate using space differently. Leaders favored plans with more rooms designed for collaboration and fewer permanent desks. One leader shared that their firm was looking to shed the offices furthest from airports in anticipation that accessible locations would better serve more collaborative in-person work habits.

"There will be a lot less travel."

Most companies will cut travel, some estimating by up to 50%. The pandemic has taught teams that they do not need to get on a plane and fly to meetings every time, and it has caused companies to rethink how they keep an eye on real estate assets. The most expensive travel will likely make way for video conferencing, and nobody knows the extent to which large, in-person conferences will recover to pre-pandemic levels.

"We'll get more stuff done more quickly."

Part of this pandemic's legacy for many companies is that it will help them be more agile and reduce time to market with new initiatives. Some operators are excited about the potential to shorten the planning and rollout of solutions, which will be helpful as 2021 began with a backlog of 2020 projects that were postponed due to COVID.

"Some big things will change at properties."

Leaders speculated on changes to property operations, with acceptance of self-show and virtual tours making traditional office hours look like an anachronism. As one operator put it: *"I think the days of us mandating how people lease apartments are over; customers are in control and operators need to adapt."* One operator was more bullish still on the changes to the leasing environment, sharing plans to start removing offices and turning them into units.

"We'll look at technology platforms differently."

In times of rapid change, some large operators grew frustrated that their platform vendors don't move quickly enough. The largest portfolios may be the vendors' largest customers by revenue, but they still account for a tiny share of their overall revenue and an even smaller share of their profits. To put it another way, scale does not secure economies of scale, and that (as we will discuss in the Conclusions section) is leading to some interesting changes in technology strategy.

SPONSOR VIEWPOINT

WHAT LARGE OPERATORS CAN LEARN FROM SMALLER ONES IN 2021

AppFolio Property Manager

appfolio Property Manager

Late last year, NMHC and One11 Group published the 2020 ***Apartment Industry Technology Benchmarking Report.*** *Surveying IT leaders in the industry, the report provides a look at what challenges companies face with technology. One thing in particular caught our eye: the largest number of respondents came from the 100-10,000 unit segment, one we know very well.*

There are important reasons to pay close attention to this segment of the industry:

- It is massive, both in its absolute size, with more than 20 million units in the segment, and the number and diversity of companies it represents.
- It is often under-represented in the industry conversation.
- The challenges it faces have ramifications for the entire industry.

One of the most revealing insights from the research is how smaller management companies resource IT. At an average of 1.5 FTEs in IT, they are accomplishing a lot with relatively little. These companies are delivering outstanding, technology-driven living experiences without the luxury of the IT resources available to many big companies.

Interestingly, the top challenges with property management systems across all companies were “Integrations with other applications” and “Innovation.” Those are related and highly legitimate concerns. The appeal of “best-of-breed” seems obvious—at first glance, who wouldn’t want to have their choice of applications? But as smart, lean operators can teach us, there is considerable downside.

As operators add more technology to their infrastructures, they add complexity and cost. This creates five obvious sources of risk, workload and ultimately cost that operators must balance against the benefits of adding different vendors’ technology:

1. Training and support overhead: Multiple inconsistent user experiences increase onboarding time and reduce productivity.
2. Innovation workload: Evaluating new technology and how well it integrates takes up too much time.
3. Vendor risk: Engaging a relatively unproven vendor puts you at risk, given acquisitions and the frequent market consolidation among startups.
4. Integrations and data integrity: Adding new sources of data, new APIs, and data formats limits the visibility of enterprise data and adds security risks—an often-understated challenge.
5. Cost control: The hidden inflation of costs beyond the original estimates as multiple vendors compete for share of the same operator’s wallet.

Today, technology innovation is a full-time job that can distract operators’ focus from that of delivering service. The important question for companies is: “Whose job should it be?” Amongst real estate companies, only the largest should view technology innovation as one of their core competencies. For everyone else, a better approach is to outsource technology innovation to a software partner that has it as its core competence.

Almost half of the smaller companies surveyed by One11 cited application consulting and development as the most pressing support needed by their IT departments. By bringing more functionality into the scope of their core systems (rather than adopting best-of-breed), companies can remove the need for many APIs and the complexity that they bring.

In most cases, performing all critical tasks on a single platform leads to a better outcome. Data integrity improves, training and support become easier, and system costs become predictable (and usually much lower.)

2021 will be a year of continued innovation in our industry, and many operators will grasp the opportunity to innovate at the core of their technology platform rather than the fringes. The entire industry can learn from the highly successful operators we are proud to have as customers.

3.3. TOP PRIORITIES FOR 2021

As usual, in the research for this edition, we asked our 20 interviewees what their number one priority is for 2021. The chart below summarizes all the responses given by more than one leader (note, some provided more than one answer).

The prospect journey describes projects ranging from CRM rollout to the broader transformation of the "soup-to-nuts" process of leasing an apartment. Different leaders emphasize different areas of technology, as we shall see in the following sections.

The CIOs who chose **technology platform development** as their top priority did so because they have the long-term objective of building a holistic, customer-centric operating model supported by technology. Both distinguished this approach from the traditional "point solution" mindset.

Two CIOs cited **automation and centralization** as their top priority to reduce the number of things they ask property teams to do, allowing them to focus on being better at fewer and more impactful things.

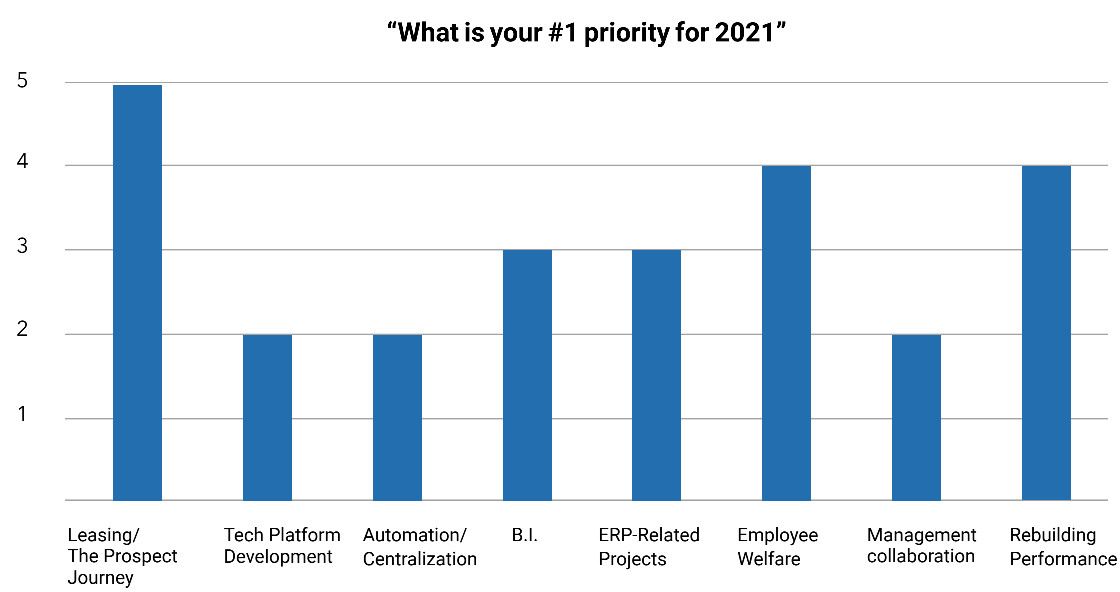
Similarly to one year ago, three of the 20 respondents have **BI** as their top priority, with two planning a complete replacement of their existing platform and one driving for adoption and expansion of theirs.

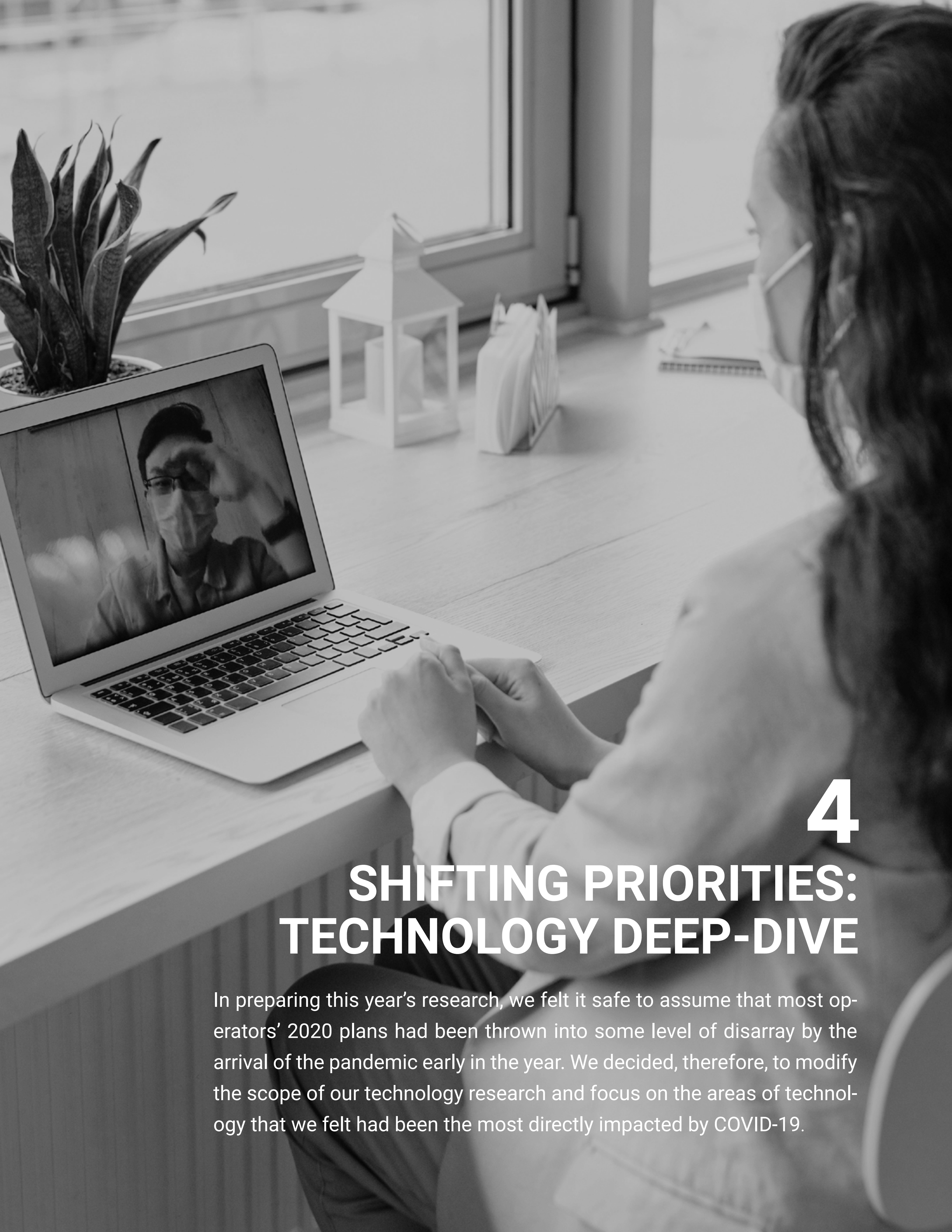
ERP is the main priority for three technology leaders, with two planning to replace theirs and the other delivering a set of projects to leverage their previously implemented system.

Employee welfare was unsurprisingly top of mind for several operators, as the need to continue to keep associates safe dominated thoughts about 2021.

Two operators had had a year of management change, due in one case to a post-merger environment and in the other to the hiring of some senior leaders, in line with their long-term succession plan. Unsurprisingly, fostering **management collaboration** is a top priority for both.

Finally, four operators cited **rebuilding performance** as priority #1, as signs of economic recovery present an opportunity to regain the pre-pandemic levels of growth for those companies that are apt to grasp it.





4
SHIFTING PRIORITIES: TECHNOLOGY DEEP-DIVE

In preparing this year's research, we felt it safe to assume that most operators' 2020 plans had been thrown into some level of disarray by the arrival of the pandemic early in the year. We decided, therefore, to modify the scope of our technology research and focus on the areas of technology that we felt had been the most directly impacted by COVID-19.

The following six subsections detail the responses of our 20 interviewees to questions about six topics relating to technology that seem particularly relevant to the upheaval of 2020:

- **Cybersecurity** considerations, which are particularly relevant given the virtualization of business operations enforced by social distancing
- **Smart home/smart building technology,** whose enormous potential to revolutionize operations and customer experience may have grown as contactless services became vital in 2020
- **Self-show** was already an imperative, as we argued in the last two editions of this paper, but became a necessity during the pandemic
- **AI leasing** is a technology that we tipped a year ago for rapid adoption; we were curious to know how COVID impacted attitudes among operators
- **CRM** had already been showing a resurgence in best-of-breed solutions (as we noted in previous editions). We were curious to understand how the rapid changes to leasing processes had impacted this technology
- **Business intelligence** seemed to us to be facing its own stress test, as new market conditions and phenomena would create new reporting requirements, and the virtualization of most organizations amplified the need for data to be highly accessible

Revenue management and short-term rentals, which have been a focus of previous editions of this paper, were not included this year. The devastating impact of COVID on the travel sector inevitably pushed short-term rentals down the priority list for most operators.

And after two years of confirmation that revenue management remains in a steady state across the industry, and with no substantial 2020 innovation to major systems, we left it out of this year's paper. Readers of the D2 Demand blog will be aware of the exciting developments in the arena of unit amenity pricing, which we fully expect to become a significant source of upside for operators in 2021.

In researching this section, we attempted to focus on what has changed due to COVID. We introduced a simple scale for responses, asking each interviewee to estimate whether their companies' initiatives in each area had sped up, slowed down, or not changed due to the pandemic. The scores are included in each of the following subsections.

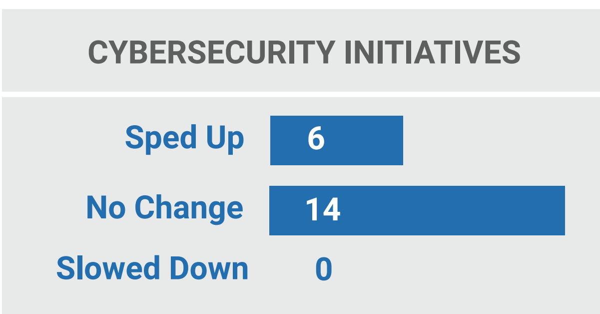
4.1. CYBERSECURITY

In preparing this survey, we felt it was safe to assume that the rush to virtualize business operations would significantly impact IT infrastructure. The NMHC One11 Technology Benchmark Report, released in November 2020, cited "Cybersecurity" and "Data Protection/Compliance" as the biggest IT challenges and opportunities by some distance. A huge spike in remote access to mission-critical systems would surely place greater pressure still on this already high-priority area.

However, when asked about 2020 activities and, in particular, whether or not they changed owing to COVID, a different picture emerges. Fourteen of 20 executives reported no additional steps because of the pandemic. Of course, that does not mean that cybersecurity is not a top priority—it is. But for various reasons (which we summarize below), most companies felt that the extensive resources that they were already focusing on cybersecurity left them adequately prepared for the 2020 upheaval.

Those respondents whose cybersecurity initiatives remained unchanged:

- *We're cloud-first and have been for a while, so we already had the necessary cybersecurity in place*
- *We were ahead of the curve, having devoted a lot of time to this previously when we saw other companies getting hacked*
- *Our main focus is now on new systems and their security provisions*
- *It's generally a high priority. We have a senior leader dedicated to it, and the roadmap hasn't changed*
- *It's been a big focus for some time because the investors that we have required it*



Those for whom COVID sped up cybersecurity initiatives:

- *It's become a bigger deal to us because COVID effectively expanded the perimeter of our organization*
- *We're now 100% cloud-based, and although we were on that path, COVID forced us to complete the journey*
- *We were already in the process of going completely mobile but accelerated adoption of cloud tech due to COVID*
- *We adopted a zero-trust model that has enabled people to use their own devices, etc.*
- *Cybersecurity became a bigger focus because of the expectations of some of our newer owners*

4.2. SMART HOME/ SMART BUILDING TECHNOLOGY

What Happened in 2020

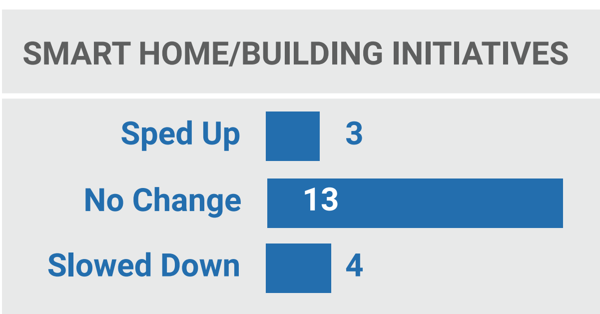
If any fast-moving technology was well-positioned to lean into the COVID pandemic, then surely it was the breed of technologies that enable home automation and access controls. As we wrote extensively in our 2020 white paper, Smart Building Technology in Multifamily Housing, the potential improvements to both customer experience and operating efficiency were already driving rapid growth in this sector long before the pandemic.

As lockdowns increased the ubiquity of work from home and closed local services, the demand for home delivery skyrocketed, further boosting smart home technology's attractiveness. When we asked our interviewees what had happened with their smart building initiatives, most replied that nothing had changed, with a few sharing that their adoption had slowed down.

While the appeal of smart building capabilities has undoubtedly grown through the pandemic, it is unsurprising to see varying levels of deployment activity. COVID affected development pipelines, which are an attractive target for smart home vendors. Some operators shared that investors and development partners had become reticent to add the technology into proformas. Others reported a temporary pause in activity as CapEx dried up. One large operator's ambitious plans for retrofit rollout stalled as they found that many residents did not want installation technicians in their apartments.

Where operators reported a slowdown in 2021 activity, they expected it to be temporary. Where activity levels stayed the same, some longer term questions emerged. Multiple companies remain undecided about the appropriate scope of the technology and what part of it the landlord should deliver. One leader shared a view represented by several other technologists: *"It is our job to provide seamless access control, but I'm not sure it's our job to make in-home IoT happen."*

As operators interpret their residents' and prospects' expectations, they are also considering the ROI implications of the technology. An interesting perspective came from one operator who was already replacing the previous generation of IoT technologies in some of its communities. Citing the efficiency benefits (that we describe in detail in our white paper on the subject), this operator had struggled to complete installation in 100% of units.



The operational efficiency benefits of keyless entry, leak detectors and thermostats depend on all of the equipment being installed everywhere. If homeworking residents push back on implementation, as many appear to have done in 2020, the partial implementation can yield substantially lower returns. While this was not a broad concern among respondents, it reinforces the need for operators to understand fully the source of financial benefits that justify the investment in this exciting technology.

The Outlook for 2021 and Beyond

The leaders we interviewed were generally bullish about future plans, with the caveat that the pace of the market recovery will determine the pace at which they scale up their investments. Several larger portfolios shared impressive numbers of units scheduled for retrofitting in 2021. Others mentioned that investment partners were now asking operators to retrofit their properties.

In describing their plans to complete rollout in 2021, one leader articulated the technology's role in their overall "connected community" vision. (We return to this subject in the "digital transformation" section of the Conclusions). Several of the larger operating platforms plan to complete access control rollouts in 2021, seeing this capability as essential to deliver self-guided tours (see next subsection). In each case, the operator had decided not to implement additional in-unit IoT functionality. One will take the pragmatic approach of rolling out to a tranche of buildings whose locks are due for replacement.

One interesting observation that differs strongly from our interviews a year ago is the prominence of bulk internet in companies' plans for 2021. Most operators cited the falling cost of community-wide internet as a driver. Several mentioned the increasing number of problems to which bulk internet is a good solution, as IoT becomes a bigger part of a community's technology footprint. Others will roll it out with the expectation of creating a revenue stream.

The Vendor Landscape is Changing

A year ago, the smart home component of our 20 conversations revealed a broadly held view that there were too many vendors in the market. That view was far less prevalent this year, possibly reflecting that most of the 20 interviewees have picked a horse or horses. Several companies expressed a desire to roll out a hybrid solution involving components of more than one vendor's technology, as they had identified different

HOW ACCESS CONTROL CAME OF AGE IN 2020

SmartRent

Believe it or not, it was only a year ago in these very pages where despite the rapidly escalating interest in smart home technology, senior leaders nevertheless reported that "nobody has a good solution for access control." In fact, access control was just becoming available, and not a moment too soon, based on the events that would follow.

This time last year, nobody realized what was about to happen. The apartments that we inhabited in the hours before and after work would become the office. Many of the local amenities that we loved to walk to would close. Our experience of goods and services would narrow, with a new emphasis on things that could be delivered to our homes.

At the same time, those considering moving to a new apartment changed their shopping behavior. As social distancing became the new normal, self-serve and contactless solutions came to the fore. For leasing, self-guided tours went from being an aspiration to an absolute necessity in the space of a few short weeks. What these 2020 experiences have in common is that they necessitated a rethink of how we manage access into multifamily buildings and units.

To do access control well, operators must address two sets of requirements: security and customer experience. The challenge is to tie multiple components together to provide a seamless experience to residents, guests and service providers while ensuring building security and increasing visibility to operators. Here are three considerations that we have learned from our customers about implementing access control:

1. Flexible access options: All communities are in some way unique, so the broader the choice of access methods and the more extensive the options for granting access to all perimeter doors, amenity spaces, garages and units, the better.

2. Seamless management of credentials: Integration with property management systems enables a secure means of managing, adding and removing access credentials, as well as allowing monitoring of visitor logs and customizing alerts, for example, when a door is left propped open.

3. A single control management platform: A single, cloud-based system should sync all access records, removing the need for on-site networking equipment and allowing oversight of multiple properties in the same portfolio. To deliver the flexibility mentioned above, the control management platform must be hardware-agnostic.

Self-guided tours provide a great example of why these three attributes need to work in concert. The tour paths in different buildings will require different access control hardware combinations, configured in different ways. Credentials, whether provided by SMS codes or through a dedicated app, must support a seamless tour experience. And access must be controlled and monitored through a cloud platform that provides complete visibility of building access.

The pandemic heightened demand for self-guided and virtual tours, package delivery and other services. It also required companies to be nimble, sharing resources between sister properties as COVID-forced absences stressed operations. The application of the kind of access technology described above has equipped operators to meet these challenges. It also made it easier to follow CDC safety protocols that have helped operators to keep their residents and associates safe.

As we move into the 2021 leasing season, it is not hard to imagine the benefit of a prospect being able to book a tech-enabled self-guided tour. Nor is it hard to imagine how the tour data will lead to improvements to lead follow-up and future decisions. And when prospects get to experience great access control and see how it addresses the needs of their changing lifestyles, it is easy to get excited about the industry's progress in just 12 short months.

strengths and weaknesses in vendor platforms.

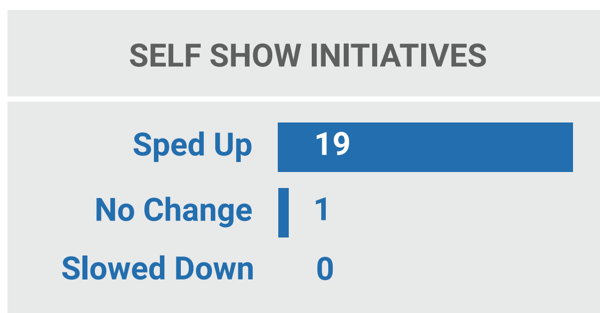
We would note that despite the still large population of vendors in the industry, the number actively engaged in projects with these 20 companies is very small. Two of the 20 companies involved in this survey had built their own proprietary smart building software platforms. For one, the decision was motivated by a desire to integrate more aspects of their resident experience than an off-the-shelf solution would allow. For the other, they simply didn't feel that the available solutions on the market were a good match for the resident requirements that their research had revealed.

Another important consideration in assessing the vendor environment is the series of capital events that have taken place since we published last year's edition of this paper. In a recent article ("Another Big Week in Multifamily Smart Home Technology"), we wrote about three important capital events. In May 2020, SmartRent closed a $60m funding round, with Amazon among the investors. A few months later, RealPage announced that it was to acquire Stratis IoT, integrating IoT technology into one of the industry's most comprehensive operating platforms. And in January 2021, Latch announced its plans to become a public company through a Tishman Speyer-sponsored SPAC (special purpose acquisitions company).

Of course, each of these events represents strong validation not only of the companies but also of the sector itself. It also equips three leading players with the resources to fuel more aggressive growth. It will be interesting to observe the trajectory of these industry leaders, as well as the reaction of the other players in the industry as we move through 2021.

4.3. SELF-SHOW

Given the events of the last year, it will come as no surprise that practically every company we interviewed felt the need to accelerate their self-show initiatives in 2020. In fact, the surprising thing about responses to this question is that there was a company that reported no change in its activity. It was an outlier in terms of its business, as well as its response: with a predominantly New York City-based portfolio, the complexity of organizing building access makes self-show riskier and more challenging than for most operators. In addition, the extreme inactivity in touring activity for most of the year meant that self-show would have made little difference to performance.



For the rest of the industry, self-show was an intense focus in 2020, where necessity forced companies to work more quickly than ever before to change the process. Below we have summarized what happened in 2020 at the companies we interviewed and the implications for the longer term.

What Happened in 2020

In the 2019 edition of this paper, we reported with some disappointment how little attention the multifamily industry was paying in self-guided tours. Given how self-show had already swept single-family rentals and the self-serve megatrend that had already changed so many experiences and industries, it was surprising to us that multifamily operators were so resistant to allowing self-guided tours in their buildings. A year later, we reported what felt to us like an astonishing turn-around, as almost everyone we interviewed had either already started a self-show initiative or planned to start one in 2020.

Nobody could have foreseen the sea change that we experienced last year, as emergency social distancing rules turned self-show from an aspiration to an absolute necessity overnight. Our interviewees had a great deal to say about the learnings of 2020, the main points of which may be summarized as follows:

- Nineteen of 20 companies completely rolled out their self-show processes more quickly than any previous initiative, going from gun to tape in as little as two weeks
- Practically all companies began low-tech, adopting a "key on a stick" approach (with automated door codes replacing the physical key where available). Maps and ID lanyards were among the other things typically made available for prospects
- Some operators reported that while the approach was successful overall, it didn't go 100% well, with lost keys and some instances of theft reported, particularly in the early weeks of lockdown
- Several operators gravitated toward a lockbox self-show capability with light integration (for booking, security checking, tracking, etc.) via property websites
- At the same time, virtual tours took off, unleashing the creativity of property staff and leading to surprisingly good results
- Overall, conversion rates have been impressive, as the pandemic has reduced the amount of speculative shopping and further increased the amount of research that prospects complete online

Companies broadly treated self-show as a process initiative rather than a technology one. With speed to market so critical, companies were highly resourceful. One large operator shared, *"It felt like we were going back to the '70s with all of the key distribution!"*

Several teams had conducted extensive research of the solutions market over the previous twelve months, concluding that current self-show technologies were unsatisfactory. Several senior technologists believe that any mobile tour solution that requires a prospect to download an app creates too much friction to be effective. Others cautioned that cell signals are not always strong enough to support an excellent mobile tour experience in high-rise properties.

What It Means for 2021

When we asked interviewees to tell us what the extensive 2020 learnings would mean for self-show in 2021, two broad themes emerged.

No Rush To Technology

Operators seem mainly happy with the self-show capabilities that they developed in the last year, with several planning to stick with lower technology through 2021, seeing no pressing need for a more tech-enabled tour. Some expressed skepticism at the need for the curated, museum-style tours that are gaining ground elsewhere. One COO spoke of the cultural hurdles still to be overcome as leasing agents instinctively want to tour people, meaning that team buy-in is an essential ingredient of successful tour technology.

There was also a feeling that the technology requirements keep shifting, as supporting technologies like access control and CRM continue to develop. For this reason, several companies are focusing on the leasing process that they want, which should include a good virtual tour, a way to engage with an agent, and a way to get people into the community and unit with or without an agent. A 100% virtual still feels scary to a few of the portfolios represented in the interviews.

Consistent with the general tone of caution about self-show technology, many interviewees spoke of plans to pilot more solutions in 2021 before making any implementation decisions. There were a number of reasons for this, including one perception that suppliers in this space remain immature, making the bleeding edge of the technology unattractive.

Another consideration is the makeup of portfolios. One size is unlikely to fit all properties, so fee managers, in particular, expressed a desire to standardize on two or three solutions that would cover the property types in their portfolios.

Integration Will Drive Technology Choices

A major theme of our conversations about AI leasing is the change in how many companies are thinking about leasing technology. We will elaborate on the theme in the Conclusions section but will summarize here since the finding is highly relevant to self-show.

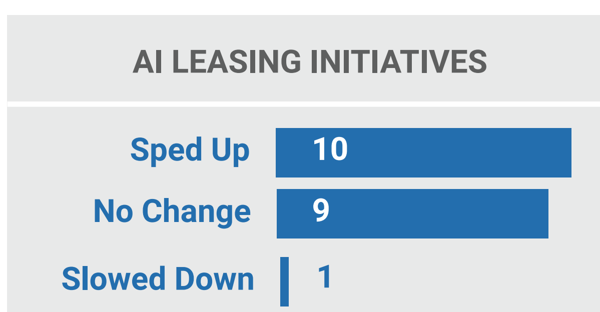
Historically, multifamily has been quick to reach for a technology that solves a problem. This has led companies to a technology "stack" that is an accretion of individual pieces of functionality (and usually numerous solution partners). Self-show is just such a "problem," but rather than reaching for a technology solution, an increasing number of companies are thinking about the entire leasing (and in some cases, resident) journey.

By asking a different question, operators are now focusing on integrating many leasing activities: initial engagement, lead tracking, touring options, etc. Access control and other systems introduce another layer to the process. And the role that AI (see next subsection) should play in guiding the prospect through their leasing journey represents an open question as operators reconsider leasing. In this environment, the skill of designing and executing leasing as a process into which technology can be integrated may well trump the benefits associated with any individual technology.

4.4. AI Leasing

A year ago, we predicted that 2020 would be a break-out year for AI leasing agents. The progress made by some companies, the availability of multiple viable solutions, and the relatively low friction and low-risk implementation made this an attractive solution to the perennial problem of lead handling. Based on our interviewees' views, half of whose initiatives sped up in 2020, the technology has gained ground, but perhaps not as quickly as other leasing innovations (self-show, for example).

In discussing the context of their 2020 AI initiatives, it became clear that different operators are thinking about the nature and potential of this technology in different ways. For the purpose of this summary, we have separated the views of the ten COOs from the ten heads of technology.



The COO View

For our 10 COOs, 2020 was a year of testing and evaluation and, in one case, a complete rollout of an AI leasing agent. Of those who tested, most plan some level of rollout in 2021. The leaders of some of the larger platforms in this study pointed out that the integration into other systems (PMS, CRM) is more important than the AI capabilities themselves.

One COO shared that their organization had decided to focus on resident interactions, as the risk of losing a lease altogether seems greater than the risk of mishandling a resident request, from which site teams at least have the opportunity to recover.

Elsewhere, the needs of individual business models shaped the thinking on testing and implementation strategies. One smaller operator is in the process of testing the capability at their smaller sites, where the staffing model is more challenging and provides a big incentive to figure out the technology. One larger owner-operator described their motivation to test AI was to "manage the crummy parts out of our site teams' jobs" and shared that they expect their leasing function to look completely different two years from now.

The larger fee managers all represented the view that they don't see the near-term opportunity to cut staff. One shared that although several of their partners are excited about potential staffing efficiencies, they are still hard to achieve. Staff members are attached to properties with different owners, meaning that they cannot be pooled in the same way they can in other organizations. They were all much more excited about the potential of AI to focus their teams on the prospect.

The Technology Leader's View

The ten responses from technologists present a more nuanced and varied set of opinions than those of the operators. Most respondents had a view on the technology and appeared excited about the benefits that it will bring. But there is already evidence that companies are thinking about this technology in a variety of ways.

One operator who has been running the technology portfolio-wide for some time spoke of longer-term plans to expand the AI footprint into other processes, including applications, move-ins and renewals. Others expressed a preference for focusing on resident processes first. One medium-sized fee manager voiced some skepticism at the state of the technology. Having used field team members to help evaluate AI vendor technologies, they found it too easy to stump the bots, making them nervous about losing prospects and ultimately holding them back from adopting an AI leasing agent.

The same concern was on the mind of one owner-operator who is in the process of a complete portfolio rollout of an AI agent. This firm has prepared a complete set of results metrics and has prepared a survey that will enable them to track the impact the agent is having on their business. An interesting point from one CIO is that part of the adoption is for teams to view the AI as "part of the team," adding that site teams need to understand the roles and responsibilities and parts of your organization the agent supports.

Some technology leaders are approaching AI from their websites first, including multiple instances of companies using the technology to help determine which pages to serve and improving conversions by moving prospects down the funnel. One company had substantially reinvented its leasing process during COVID, the contactless leasing process convincing them to double down on having their website be the main point of communication with prospects.

Their decision resulted from the observation that the pandemic led prospects to conduct even more of their research online. They decided that establishing trust should be the central tenet of the web part of the customer journey, which led them to be more transparent with revenue management controls, for example.

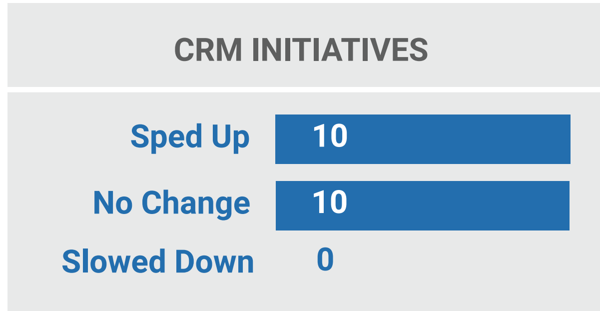
The centrality of the web experience also influences the adoption of bots: while this technology leader is convinced that natural language programs are the future, they decided to roll out live chat using their call center, so they could learn to do it well before training a bot to do it. And finally, given that the training of the bot is the most critical part of delivering the capability, this leader felt that this IP ought to be the company's property rather than that of a third-party vendor.

The necessity of using a third party was an interesting point in the technology conversations. Some leaders view barriers to creating AI technologies as relatively low, given the availability of the underlying (e.g., Google, Amazon) technologies. The increase in AI/chat vendor products on show at NMHC OPTECH in November 2020 seems to support that view.

Whatever the project's focus, it seems that various aspects of the prospect and resident experience will become more AI-enabled in 2021 and beyond. One technology leader put it well: *"It's one of the technologies (along with smart home) that may radically simplify multifamily experiences in the way that companies like Carvana and Rocket Mortgage, have done elsewhere."*

4.5. CRM

In researching this paper two years ago, we noted the emergence of multiple mature best-of-breed CRM solutions and the attention that the industry was paying to them. Last year we observed that CRM was emerging as a management priority, with numerous operators evaluating new solutions. This year, our question about the impact of COVID on CRM initiatives split respondents down the middle.



The half of respondents whose 2020 activities remained unchanged by the pandemic felt that their existing capabilities were strong enough or that leasing remained at a level that did not require further action. However, several of these companies shared that they had more ambitious plans for 2021, with a strong focus on improving lead follow-up capabilities. Of these, several respondents were in the process of testing AI leasing solutions and therefore anticipate having to address CRM integration next as AI rolls into full implementation.

The ten companies whose CRM activities accelerated in 2020 provide a strong indication that the market for CRM is changing. Large, mature organizations with long histories of using the CRM applications provided by their PMS provider were actively evaluating new systems or planning and, in some cases, completing cutover to them.

The companies that experienced an acceleration in 2020 CRM activities did so for a variety of reasons. For some, the pressure came from the need for more trackability in the contactless environment, as the dependency on digital lead tracking shone a light on the overall leasing process. Others (fee managers in particular),

IN CHANGE, AN OPPORTUNITY TO RETHINK CRM

Anyone Home Inc.

It's been a year like no other for leasing in the rental housing industry. A year ago in this publication, we urged operators to adopt self-show and reap the benefits our clients were already enjoying. Who knew that a few short weeks later, some form of self-show would be in place practically everywhere?

Of course, self-show turned out to be only one part of the story. Agents started to deliver virtual tours using their own cell phones. Call centers also had to change, rapidly reorganizing, so agents could work from their own homes rather than go to the office. We have experienced unprecedented change, and with change comes the opportunity to rethink the technology that underpins evolving leasing processes.

How CRM Can Do More

CRM means different things to different companies and individuals. But let us assume that there is an underlying data processing role that is common to all systems. Logging interactions, tracking leads, scheduling activities, for example, have always been the table stakes of all CRM. But the need to achieve marketing and leasing outcomes in a virtual environment creates a new set of challenges. Operators need to ensure the productivity of teams primarily working in a virtual environment. And those teams must deliver prospect journeys and experiences that reflect changing shopping styles.

The pandemic has changed the way that prospects engage with multifamily operators. These changes should be at the heart of your CRM and the processes that it supports. There are a few essential ingredients to prospect engagement for companies that want to use it as a source of differentiation.

First, you need a playbook for handling inquiries, making sure that your prospects take the next step in the leasing process at exactly the right time. In the virtualized work environment, more than ever, it is vital to track how effectively agents are handling leasing calls. For this reason, we favor leasing call scorecards that are available the next business day that measure and track performance and identify re-training opportunities.

Next, your CRM approach and ultimately system need to be prospect rather than building-centric. You should know when your prospects are searching for more than one property. Between 21% and 44% of prospects lease at a sister property to the first one they contacted. To most CRMs this is a blind spot, as their data structures force a "building-by-building" view of demand. By putting prospects at the center, your customer journey can match the way that prospects shop.

Supporting multiple tour types is now a top priority. These should include self-guided tours and help you understand each tour type's impact on leasing and exposure. While self-guided and agent-led tours convert fairly similarly on their own, lease conversion can climb as high as 38% for communities offering both options.

Finally, operators need to integrate their main communication channels: website, chat and contact center to meet the constantly-changing preferences of their prospects. Not only must you have a way to communicate through all of these channels, but they must also be integrated so that it's easy for your organization to pick the conversation up where it left off, irrespective of which channel and with which agent that conversation took place.

Leasing season is almost upon us, and after the turbulent year we have just experienced, we need to make sure we get it right. Does your CRM give you the capabilities and the platform for success that you will need for 2021?

grasped the opportunity to drive standardization on preferred CRM platforms.

The most intriguing accounts came from several large owner-operator platforms whose 2020 initiatives were in service of a more radical change agenda. Moving off a legacy CRM platform is a big decision for a large operator, so the perceived upside must be considerable. The integration of AI is a driver for several projects, but the ultimate objective is usually greater, for example, leveraging all of the technology to centralize leasing operations.

The appeal of centralization is instructive in considering the way that some of the larger, more sophisticated operating platforms view the future of leasing. The efficiency gains of pooling leasing resources between multiple properties are obvious and, of course, attractive. But for several operators, a rethinking of lead follow-up and tracking is motivated by a desire to focus the activities of property staff by taking repetitive work off their plates.

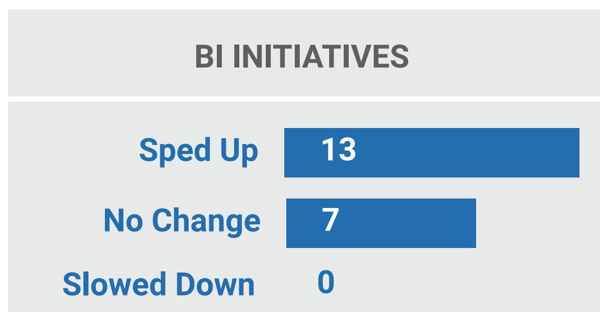
For operators with high density in some markets and submarkets, there are further potential benefits, as leads presenting at one community can be pushed to another if it represents a better fit for their requirements. To manage leads at a higher level than community by community (which is the way that most CRMs work), operators need technology whose database puts the prospect at the top of the hierarchy rather than the community.

This data requirement, along with the integration considerations (discussed in the self-show section above), narrows the number of potential vendors who can satisfy the changing needs of more sophisticated operators and will likely define this industry space for the foreseeable future.

4.6. BI

In the research that we performed for the previous two editions of this paper, B.I. has been a prominent part of the discussion. The most salient findings (in our opinion) have been the adoption patterns for this technology, which we have identified as inefficient, evolutionary, and expensive. This year we asked the question a different way, focusing on what had changed owing to COVID.

The majority of respondents told us that their B.I. initiatives had sped up during 2020. As the discussion developed, we began to notice that the companies' response (sped up or stayed the same) had more to do with their long-term approach to B.I. than any change resulting specifically from COVID.



The makeup of the interviewee base of 20 for '20 is varied but skews toward the industry's larger operating platforms. With scale comes a natural incentive to gain increasing control of and insight into data. So, large owner-operators and the largest fee managers have been at the higher end of BI investment. With that in mind, the views of the companies whose BI initiatives did not change can be summarized as follows:

SPONSOR VIEWPOINT

WHAT'S IN YOUR RENT ROLL?

Economic Occupancy and Revenue Management

Spherexx

If there were ever an era that presented historic pricing upheaval, it would be 2020. While the pandemic and its economic effects continue to wreak havoc in some markets, others have so far come through the downturn relatively unscathed.

Delinquency and evictions have been a constant concern, although legal methodologies can vary between states and multiple municipalities. Within the same multifamily portfolio, some assets may face a possible vacancy crisis due to lifting eviction moratoriums, while others may experience minimal vacancy.

At this point, it is uncertain when evictions will be adjudicated and how long the actual executions will require considering the huge backlog for many metropolitan courts. The Mortgage Bankers Association's think tank, Research Institute for Housing America, reported a loss to multifamily property owners as $9.1 billion for the second quarter alone for unpaid rent.

New York state is in the process of passing the Emergency Eviction and Foreclosure Prevention Act of 2020, whereby some properties will be limited on evictions and foreclosures until May 1. Other such jurisdictions may follow. London metro rents have fallen as much as 25% as renters migrate to the suburbs into lower density, safer locations. Americans are forming households less than before the Great Recession.

While the news on vaccines has been overwhelmingly positive, the speed of the rollout remains patchy, and new COVID variants continue to emerge. As we move through 2021, we have much reason to be optimistic. We must also prepare ourselves and our businesses for a year that promises to be full of uncertainty. And when the economic outlook is uncertain, smart operators redouble their efforts on revenue management.

Spring is around the corner, and revenue managers should already be working on their strategies for the year. Here are a few considerations that should be in the 2021 plan:

1. Identify income streams from units that are under partial pay agreements and determine if the monthly totals could deflate exposure when being calculated as fully occupied units.
2. Project forthcoming eviction vacancies through close communication with Operations to determine realistic move-out dates, thereby making sure the pricing system is working with the best possible data. Note: some management companies are paying delinquent residents to move.
3. Pay attention to regional and middle managers who are still working from home and have not been on location for some time. The sense of isolation that this can cause can compromise performance and ultimately results.
4. Stay close to market changes with engaged, frequent research and manage system settings accordingly: expect the unexpected.
5. Work with existing vendors for solutions to expand functionality that accommodates change management.

If 2020 has taught our industry anything, it has been the necessity for non-contact leasing. Prospects must be able to shop individual units along with special features, tour availability via video, virtually or self-guided, receive firm pricing quotes, validate identity, complete a residency application, pass qualification screening, and finalize document execution—all with a great user experience.

Such initiatives require streamlined technology, including business intelligence, seamless integrations with high-performance websites, CRM, revenue management, excellent digital collateral and document management tools. And the companies that can streamline these key functions will be the ones who are best-prepared to navigate the uncertainty of 2021.

- *We're a leader on BI, have been for years, and nothing new happened because of COVID*
- *We have a highly robust platform—we completely rearchitected it four to five years ago. We got all of our additional COVID dashboards done and out to the business overnight*
- *Our work has mainly been maintenance stuff. We haven't seen much change in the appetite for information during the pandemic—people just ask for more stuff in Excel*
- *Our growth continued but didn't accelerate in 2020. We now have a data scientist, and we're working on a data governance plan*
- *We're generally driving to mine more different types of information and correlations that can identify value in our business. COVID didn't change any of that*

The only other initiatives that did not speed up were ones that had yet to get underway at all. One respondent voiced skepticism about the need to deliver reporting over and above what their systems already yielded. The other shared that BI had been a top priority heading into 2020 but stalled due to other pandemic-related priorities and that they would redouble their efforts in 2021.

Those whose B.I. initiatives sped up:

The reasons cited by companies whose BI initiatives sped up in 2020 can be summarized as follows:

- *People are using data more in the remote environment, but I think we were on the way there anyway*
- *We had already planned BI improvements, but COVID dramatically accelerated them. COVID pointed out some weaknesses in both BI and pricing: our reporting was clunky, and we had a lot more demand for insight*
- *We have been working for years to build our framework. COVID got us over a cultural hump, as it forced adoption among stakeholders who had not been using it to the extent we anticipated. As people needed more and more information, they finally started to use the platform*
- *We saw a big increase in reporting. The level of use has gone way up during the pandemic, bringing us cases out of the woodwork*
- *COVID forced a lot of activity, e.g., needing to understand collections trends, which we have made available through the platform, driving up our user numbers significantly*
- *Coincidentally to COVID, we made some investments in data science and analytics in 2020. It's helping us to continue to reap the benefits of the big investments we started to make a few years ago*
- *It's not entirely to do with COVID, but I had some concerns about data management entering this year. It's all moved faster because of COVID; making our data available the way it needs to be is now a priority*
- *We've been on a multi-year, multi-vendor journey, but this year we really ramped up training, consistency in reviewing metrics, etc. We pushed to add dashboards that weren't on our roadmap—collections and marketing have been a big focus*

5
CONCLUSION

In a normal year, our review of the findings of these twenty interviews would focus naturally on what changed over the last twelve months. The ability to take the predictions and priorities of a year ago and compare them to a retrospective view of what actually happened gives a rare insight into industry dynamics. 2020, however, was no normal year, so the before-and-after comparison is somewhat moot.

In each of the last two years, our conclusions have identified an overarching theme that was present in most of the conversations. In 2019 we reported a "technology tipping point," as multiple genuinely transformative technologies and services (e.g., smart home, AI, and short-term rental platforms) appeared to be gaining traction in the market simultaneously. A year ago, we noted how the abundance of venture capital was creating an unprecedented level of innovation and new venture creation. We pointed out that the volume of new technology and potential partners was both a blessing and a source of considerable overhead as companies worked to make good technology choices.

This year, the impact of COVID unsurprisingly dominates our findings. The recurring theme is what changed and which changes will remain as society moves past the pandemic. As usual, we have identified five conclusions that stood out to us, each of which we elaborate in the following subsections. As you will see, our interest this year gravitates toward changes in ways of working and, more importantly, changes in how executives are thinking about experiences and the processes and technologies that support them.

5.1. WHAT WE LEARNED FROM THE COVID STRESS TEST

The pandemic placed an unprecedented stress test on operations. The good news is that operators were able to come through it. The 20 interviews covered broad ground and many different experiences and learnings. In the next four sections, we will unpack some of the broader themes of the research. This first conclusion will summarize management takes on the COVID stress test and what they learned from it.

> **Several operators felt that they had not planned adequately for the levels of stress at properties.**

It Stressed Teams And Communications

Going contactless was an obvious source of upheaval both for corporate and property operations. But while corporate operations adapted quickly to a new normal dominated by Zoom, MS Teams and the like, several operators reported that they had underestimated the impact of the pandemic on property teams.

The experience of radically changing processes while following protocols to keep residents safe was already a lot of change. That many associates were balancing this with new child care arrangements at home made the COVID experience much harder for property teams than their corporate counterparts. The civil unrest of the summer of 2020 provided an additional stressor as the direct impact on downtown properties and the indirect cultural impact on teams all took their toll.

Several operators felt that they had not planned adequately for the levels of stress at properties and had to react quickly and decisively. The resulting changes mostly took the form of more frequent and more collaborative interactions between management and staff. The focus on overcommunication extended to residents and ultimately to investment partners, as some policy decisions (e.g., the charging of late fees, closing of facilities) had implications for all stakeholders.

It Doesn't Appear To Have Stressed Cybersecurity

Having read the NMHC/One11 Group research into technology use in multifamily, we were aware at the time of the interviews that cybersecurity and privacy were the highest priority issues for multifamily operators. It seemed logical that the rapid shift to a fully digital workplace would heighten these concerns and become a greater focus during the pandemic.

The findings did not match the intuition. With only a couple of exceptions, companies did not see cybersecurity as a bigger priority than they had before the pandemic. Nor did most companies deviate from the cybersecurity plans that they already had in place. The general feeling was that existing plans (often designed to meet standards imposed by investment partners), were sufficient to handle even a fully digital environment.

It Revealed Something About Large Operators And Large Vendors

As we discussed earlier and will explore further in the following sections, COVID has changed much about how the industry thinks about leasing. In many cases, this is either causing operators to consider or accelerate their adoption of new CRM platforms. The proximate cause of this resurgence in best-of-breed is the desire for new functionality to support an evolving leasing model. The ultimate cause, though, is the inability of platform vendors to deliver new enhancements as quickly as more nimble suppliers.

Platform vendors have generally come out of the COVID crisis well, as urgent enhancements to address payment plans, delinquency, etc., have been hugely helpful to operators. But the observation with regard to more strategic software enhancements is that *"scale does not buy economies of scale."* A large operator, for example, may need a significant change to its CRM platform to support a change to its leasing model. But despite being a large operator and hence a large customer, its size in the context of the enormous userbase of its software is small, due to the industry's fragmented nature.

Many innovations are to do with driving efficiencies that accrue to larger companies. But when the technology has to move at the pace of a huge base of relatively small companies, operator and vendor interests become less well-aligned. Already this appears to be impacting decisions relating to leasing technology—a substantial part of the multifamily stack. One wonders what other sources of innovation might provide fresh opportunities for best-of-breed providers.

> ***"Scale does not buy economies of scale."***

It Got The Adoption Of Some Technologies Over The Hump

If there is a silver lining to the immediate aftermath of the initial lockdowns (we will talk about long-term benefits in the next sections), it is the bump in adoption for some technologies. Electronic payments were a beneficiary of this trend as companies who had tried for years to go 100% paperless were able to do so. When communities implemented mandatory contactless payments, they finally changed the habits of the surprising number of residents who still insisted on paying their rent with a paper check.

Corporate BI initiatives also benefited from the enforced abandonment of paper, as well as the office environment. Dashboards and other reporting capabilities that had previously been neglected by their intended users found new popularity during the pandemic.

It Has Put Efficiency Front And Center For 2021

Finally, throughout the 20 conversations about the COVID's impact on 2021, there was a strong theme of the need to drive greater efficiency. There are a couple of obvious drivers: first, there is the desire to return to pre-pandemic levels of growth and performance. The industry has shown remarkable resilience through the downturn, maintaining much higher collection rates than most dared to expect.

The other driver is opportunity. The rapid change and the reinvention and iteration of processes that became features of property management 2020 have created new and, in many cases, more efficient ways of working. Operators will look to take as many of those efficiencies as possible to the bank in 2021.

5.2. MOVING FAST AND BREAKING STUFF HAS WORKED WELL

The stress that COVID placed on operations and technology will likely prove to have a silver lining. All operators had to change, with unexpected initiatives planned and rolled out in short order. Operators shared that they accomplished in the first month or so more than they normally would in a year.

In the case of technology, the speedy delivery taught organizations some lessons about process and culture that should have long-term implications. As firms scrambled to either roll out or expand enterprise programs such as MS Teams and Office 365, new BI dashboards, payment capabilities and so on, they had to skip or at least shorten normal project steps.

Leasing, of course, experienced the greatest disruption of all processes. Faced with a situation where every day counted (this was the start of leasing season) and an environment where in-person training was not an option, operators had to forgo normal change management. The most interesting finding is that things have mostly worked out well, despite the lower investment in planning.

The takeaway from this experience is not that operators should drop change processes or robust implementation planning. Rather, there are other ways to think about implementation besides those to which organizations have become accustomed. Several companies described the "test and learn" approach that had ultimately delivered self-show in a matter of weeks and were enthusiastic to see how a similar approach could accelerate other long-term projects.

> **Much of the acceleration in project delivery came from a newfound willingness to move forward as quickly as possible with a 70% solution**

Much of the acceleration in project delivery came from a newfound willingness to move forward as quickly as possible with a 70% solution, rather than spending the extra time planning a 100% implementation. The benefits of speed to market at least for the moment, seem to be outweighing the risk of having to fix a rapidly delivered process.

It is hard to say how long this mood of liberation will persist and to what extent legacy attitudes will reclaim the ascendency as the industry moves past the pandemic. Several companies are bullish, though, with one large operator sharing how the mindset had changed their company's plans for 2021 and (hopefully) beyond. With a general objective of evolving to a more customer experience-driven technology platform, this company's reaction to the controlled chaos of COVID is to *"break down barriers to finding better mousetraps."*

The rapid change forced by COVID has revealed ways to work across silos and think differently about solutions. As we shall explain in the following subsections, there are plenty of innovations that could benefit from this mindset.

5.3. COVID CHANGED THE THINKING ON "AI VS. PEOPLE"

As we mentioned earlier, a year ago we were confident that AI leasing agents would achieve rapid adoption in 2020. The combination of a relatively simple rollout, multiple viable solutions and attractive benefits both to customer experience and operating efficiency felt certain to attract a rash of implementations. The technology indeed gained ground, but perhaps not in the way that we predicted a year ago.

Our 20 conversations suggest a shift in the way companies are viewing this technology. Two things in particular stood out from the responses.

What A Change In Terminology Tells Us

A year ago, our major finding was about "fully automated leasing." Early adopters were bullish about the potential of AI and other technologies (smart home technology, self-show) to drive efficiencies, including breaking the 1:100 (associates to units) paradigm. Reading through the 20 sets of responses, we noticed that leaders are talking about it in a different way.

Terms like "self-serve" or "contactless leasing" are ubiquitous in the responses, while "automation" is largely absent. There are a couple of reasons for this. First, and most obvious, the pandemic forced a rapid and dramatic change in the leasing process. The experience of having to enable self-show provided a different set of data points for operators on why a self-service model is both desirable and achievable. A move toward self-service appears now to be a higher priority than automation, per se.

If there was evidence a year ago of a strong desire to automate jobs out of multifamily organizations, it appears to have cooled. A small minority of interviewees spoke of a radically different staffing model for leasing. All were larger owner-operators (which is unsurprising as they have greater flexibility to pool associates between properties), and all spoke of it as a vision that would take a couple of years to become a reality.

> **Operators were pleasantly surprised at both the success of the "selfie tour" and the creativity that it unleashed in leasing teams.**

Another observation that seems highly relevant to staffing models is the role that people played in a changing leasing environment. After the initial months of lockdown, several leaders reported that prospect behavior began to change in the summer. Those companies offering a choice of touring options found practically all prospects chose either virtual or self-guided tours during the early months of lockdown.

However, as some restrictions eased during the summer, the demand for in-person tours grew. That finding is counterintuitive: it is seldom the case that when consumers are given a self-serve option, they return to its agent-assisted predecessor. Operators observing this shift in behavior were inclined to view it as a reaction to weeks of shelter-in-place restrictions, where people were starved of human contact.

Another important and consistent finding was the success of virtual tours. Operators were pleasantly surprised at both the success of the "selfie tour" and the creativity that it unleashed in leasing teams. Call centers also yielded some rich and often surprising learnings. One operator reported that their contact center had been busier throughout 2020 but with a smaller than usual call volume.

It seems that as people did more of their shopping online and less of it in person, they had more questions to ask and found value in talking to a human. Call center providers (both operators and vendors) also found that virtual call centers worked well, offering a flexible and cost-effective way of supporting a service delivered by humans.

An Intriguing Dichotomy

While leasing associates made something of a comeback in 2021, AI remains an enormously exciting technology for rental housing. What is curious about this year's results is the diversity in the opinions about what this technology has to offer. More interesting still was the difference in views expressed by COOs compared to their technology counterparts.

Operational perspectives mostly fell into two camps: "It's not a priority," or "We are at some stage of evaluating or rolling out a specific AI leasing agent." The consideration of the technology largely began and ended with the assessment of a specific off-the-shelf product.

> **The unusual time pressure forced even the most sophisticated operators to enable self-show in a mostly low-tech environment.**

As we explained earlier in the AI section of the Technology Deep-Dive, the IT leaders shared a much broader range of views on AI's potential application to leasing. Some regard the underlying technology as a commodity and wonder whether the skill of training a bot ought to be a core operator competence (rather than IP that should belong to a vendor). Others put another piece of the leasing process (websites, for example), at the center of the leasing process, and are looking to AI to bolster that channel rather than provide an alternative. Others still view resident communications as a higher priority and a safer test bed for AI technologies.

We would characterize the overall view of technologists as curious and cautiously enthusiastic. Several shared that the integration of the technology may be more important than the technology itself. To some, "integration" primarily meant interoperability with other key systems. But others were referring to the part that AI could play in a new concept of a digital customer journey, which is the subject of our next conclusion.

5.4. AN EMERGING "DIGITAL TRANSFORMATION" MINDSET?

The progress in 2020 toward self-serve has been a central theme of this research. The pandemic forced some to accelerate down a path to which they were already committed. It forced others to take the plunge into a process that they had previously resisted. Everybody got some level of experience in breaking the leasing paradigm, with each organization learning different lessons from that experience.

The unusual time pressure forced even the most sophisticated operators to enable self-show in a mostly low-tech environment. During the lockdown, self-show became ubiquitous, but self-show technology did not. As we described earlier, the "key-on-a-stick" tour processes were the most popular among the companies interviewed for this paper.

Further, for many communities, virtual tours turned out to be more consequential than self-guided tours. Leasing teams adapted to the new processes, and leasing performance remained remarkably strong. For 2021, rather than thinking about what app to roll out, operators and technologists now seem more inclined to imagine a new process that incorporates the best of the 2020 learnings.

In talking about the post-COVID technology environment, one technology leader referenced a December 2020 Gartner paper, which coined the term "total experience" as a major trend for 2021. In responding to technological disruption, the theory goes that IT leaders must apply a total experience strategy to " … *drive a differentiating digital transformation that creates superior interlinked experiences for customers and employees*."

> **The re-imagining of leasing as a customer journey has much in common with how companies in other industries approach digital transformation.**

This observation is perhaps at the heart of one of the biggest changes we observed between this year's interviews and last year's. Several interviewees spoke of their plans to accelerate toward a self-serve environment, emphasizing the prospect or customer journey. That represents a shift in emphasis away from implementing point solutions and toward a vision of a complete process that encompasses all communication touchpoints. By thinking of the prospect journey in this way, operators and technologists can make the right decisions on which parts of the process can and should be technology enabled.

For the first time in compiling 20 for '20, we observed evidence of the kind of thinking that applies in other industries where digital transformations are commonplace. As Tom Siebel explains in his 2019 book Digital Transformation, the driver of radical transformation in most industries is the existential threat that new digital competitors represent. A legacy retailer, for example, could find itself obsolete if competing organizations emerge that are better equipped to leverage the combination of cloud computing and AI.

The same existential risk does not exist in multifamily, which is why we at D2 have traditionally met talk of digital transformation with a healthy dose of skepticism. But the re-imagining of leasing as a customer journey has much in common with how companies in other industries approach digital transformation.

It is not hard to imagine how this mindset results in radical technology decisions. Already large companies have begun to migrate to new CRM platforms, usually because legacy technologies are incompatible with the needs of an evolving route to market.

For example, as companies engineer sales organizations to maximize sales effectiveness by optimizing the blend of technology and human interaction, it may make sense to centralize some leasing functions. Owner-operators with high market density are prime candidates for a more centralized model. Centralization provides the opportunity to manage demand at a market level, providing additional options and a better experience to prospects. It also changes the requirements for CRM, as a prospect-centric data structure becomes necessary.

Of course, centralized leasing is not for every operator. Still, it provides a good example of the extent to which companies are rethinking one of their most important processes. The re-imagining of customer journeys as a precursor to technology decisions may turn out to be one of the biggest changes in thinking brought about by the pandemic.

5.5. OH, RENEWALS

The final conclusion that we draw from our review of this year's interviews relates to something near and dear to our hearts at D2 Demand. As revenue management people, we naturally bias toward strategies and tactics that optimize top-line performance. Readers of our blogs and white papers, viewers of our industry webinars and recipients of in-person presentations and training will be familiar with our views on lease renewals.

To summarize what we have said at length elsewhere, renewals account for more than 50% of any community's annual revenue. They consume neither expensively procured leads nor time-consuming tour and follow-up activities, so a greater share of that revenue filters through to net operating income. But revenue management and sales processes, technology and mindset are overwhelmingly focused on new lease pricing.

We were inspired, then, to hear the story of one operator's unusual reaction to the pandemic and the impending economic downturn. The firm in question is a fast-growing, dynamic midwestern owner-operator. Without the deep revenue management experience and processes of a larger company, their focus gravitated immediately and decisively to renewals.

Their commitment to avoiding attrition was so strong that they instituted a daily stand-up with the entire management team (the COO and CEO were both on the calls). The stand-up's purpose was to ensure that every day, every community was doing everything that it could to ensure that residents with expiring leases did not move out.

The focus of senior management attention on this specific issue yielded some important results. It aligned the activities of properties to the senior management agenda. It increased the urgency of all follow-up activities and the proactivity of communications with residents whose leases were expiring. And, it improved renewal rates to an extent where the calls continued on a daily basis three months into the pandemic.

The commitment of executive time and energy to renewals and the results that it appears to have achieved beg the question: "Why didn't more firms do this?" Subsequent discussion with some of the other participating companies revealed that one large fee manager had created a "Head of Renewals" position within their revenue management team. In that case, the purpose of the role is to deliver consistent processes and make sure that a point of contact is always available for any resident wanting to discuss their renewal offer.

As revenue management people, we are strong advocates for revenue management technology and analytics. While vendors have made some improvements to renewal pricing analysis and administration, there is more to renewals than that. The stress test of the pandemic reminds us of the importance of operational consistency in the renewal process.

Just as an ounce of prevention is worth a pound of cure, the relatively modest investments that operators make in training negotiation skills and shoring up communication processes can pay rich dividends at renewal time. Revenue managers should remember this learning as they rebuild performance and drive toward growth in 2021.

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ABOUT THE AUTHORS

Dom Beveridge is a Principal with D2 Demand Solutions and has more than 20 years' experience in leadership and consulting roles in revenue management, sales and marketing. Before joining D2, Dom spent six years working with multifamily companies in a variety of roles with the Rainmaker Group, until and through the company's sale to RealPage, Inc. Dom was previously a strategy consultant for Capgemini Ernst and Young after spending much of his early career designing and implementing revenue management systems and consulting projects, with Talus Solutions (the creators of LRO), Manugistics, Inc. and JDA Software, Inc.

Donald Davidoff is the Founder and President of D2 Demand Solutions. He is recognized throughout the rental housing industry as a thought leader in pricing, marketing, leasing, business intelligence and related areas. Donald is perhaps best known for leading the development and implementation of Lease Rent Options™ (LRO), the industry's first automated demand forecasting and price optimization system. A former Senior Vice President with ten years at Archstone and a former Executive Vice President with Holiday Retirement, Donald works with C-suite clients to assess their operational and technology platforms and implement complex, highly impactful projects

ABOUT D2 DEMAND SOLUTIONS

D2 Demand Solutions has more than a century of experience bridging the gap between technology and people whether it's prospects, customers or associates (or all three). We've delivered game-changing programs in pricing and revenue management, sales performance, marketing and business intelligence. We focus on analysis rather than opinions, and we know how to identify and capitalize on opportunities, designing and building intuitive solutions. We've "seen the cultural change management movie" and show you the "script" to equip a modern, adult workforce.

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