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n 2020, the heightened corporate, institutional investor and employee attention on racial, gender and societal inequalities prioritized the "Social" component of ESG for the majority of real estate investment management firms. According to the NAREIM D&I Survey 2021, produced in association with Ferguson Partners, 9.6 out of every 10 REIMs have policies in place to improve diversity, equity and inclusion (DEI), with 75% dedicating money and 71% dedicating staff time to DEI.

Those figures are improving over time. In 2017, just 37% of REIMs dedicated staff to DEI efforts. By 2021, 71% do.

While there is no standard or widely accepted definition of the components of Social, ratings agencies typically include:

- Workforce: employee, labor practices & diversity; training & development
- Customers/community: customer satisfaction & well-being; product quality; community impact & engagement
- *Human rights/data security:* supply-chain issues & data security
 In reality, Social is a company's strengths and weaknesses in managing social trends, demographics and politics. Last year, it was the leading ESG factor for institutional investors globally. It became the heart of business strategy.

It is now a marker of the future sustainability of a company, not only in attracting and retaining capital and customers but also in attracting and retaining talent.

What does this mean for the asset and the future of real estate?

At the strategic level, it means a focus on well-being — a focus on the health and wellness of users, a focus on the impact a building has on tenants and communities, and a focus on social and community inclusivity.

The next steps will be inclusivity and community; after all, a building is not an isolated instrument. It resides in a community, street, village, sub-market and city filled with workers, residents, visitors and passers-by. It impacts a community through its design, use, users and the way it breathes.

Take the High Line in Manhattan. A symbol of adaptive reuse in an urban setting, the former railroad spur-turned elevated park became a cultural phenomenon featured in TV shows and celebrity photo shoots. It sent property prices skyrocketing by acting as an agent of rapid urbanization. It also left the neighborhood's lower-income residents unable to afford the new rents.

As we look to our post-Covid future, those inequities will be highlighted more. Calls to action — from our tenants, from our investors and our employees — will grow. Our challenge today is how to address them.

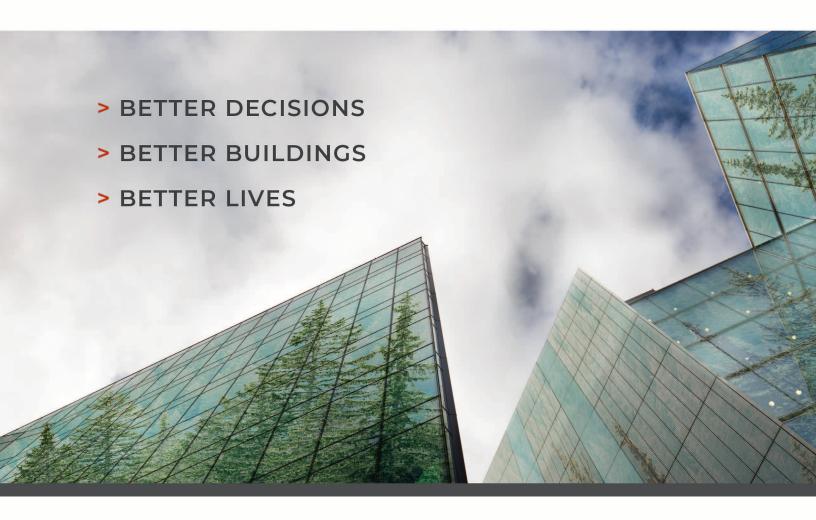
The REIM industry is rightly beginning with its own teams and corporations. As we look to a return to business, attention should quickly focus on the asset and the place of belonging it can become.

As Alfie Kohn, educator and author, described: "People will typically be more enthusiastic when they feel a sense of belonging and see themselves as part of a community than they will in a workplace in which each person is left to his own devices."

The future of real estate looks much more inclusive.







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Building HEALTH& WELL-BEING

The time is NOW

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Buildings do more than just house tenants — they can improve on the health and well-being of their occupants. While research around the ROI of health and well-being measures is gathering pace, senior ESG executives argue that, in the aftermath of a global pandemic, this is the time to take action. Health and well-being is about the safety and security of tenants and users. Improving environmental conditions can also positively impact productivity.

NAREIM speaks with Jill Brosig of Harrison Street, Laura Craft of Heitman, Rachel Hodgdon of the International WELL Building Institute and Sara Neff of Kilroy Realty Corporation on the impact of Covid-19 on the work already underway, how to further improve the tenant experience and how small actions could have many beneficial long-term impacts.

By Zoe Hughes

ROUNDTABLE

PARTICIPANTS



Jill Brosig, Managing Director and Chief Impact Officer, Harrison Street

Jill oversees the measurement, management, reporting and enhancement of Harrison Street's environmental and social initiatives. She is also responsible for identifying ingenious approaches, including leveraging products, technologies and partnerships, to create measurable, positive impact and value. Prior to joining Harrison Street, Jill was with Motorola, Inc. where she executed a variety of corporate initiatives including e-learning, Digital Six Sigma, leadership pipeline management, and fashion and women's market strategies. She is a certified Six Sigma Master Black Belt.



Laura Craft, SVP, Head of Global ESG Strategy, Heitman

At Heitman, Laura establishes systematic approaches to incorporate ESG into investment decision-making and management of private equity, private debt and public securities investments. Laura leads a partnership with Urban Land Institute to publish Climate Risk Investment Decision-Making Reports, which explores methods for assessing and mitigating climate risk at the investment and market level. In 2020, Heitman announced its commitment to reduce its global private equity portfolio's operational carbon emissions under its control to net zero by the year 2030.



Rachel Hodgdon, President & CEO, International WELL Building Institute

Rachel joined the International WELL Building Institute (IWBI) in November 2016, bringing her broad sustainability expertise and her track record as a leading global advocate for green schools, movement building and social equity to IWBI's work to advance human health through better buildings, more vibrant communities and stronger organizations. With over one billion square feet of space registered and certified in 65 countries, IWBI's evidence-based WELL Building Standard anchors an ecosystem of products and services that advance, measure and monitor real estate features that help people thrive.



Sara Neff, SVP, Sustainability, Kilroy Realty Corporation

Sara took Kilroy from having no sustainability program to being named the #1 publicly traded real estate company on sustainability in the Americas by GRESB for seven of the last eight years, and under her leadership the company achieved carbon neutral operations by the end of 2020. At Kilroy, she oversees all sustainability initiatives such as solar and battery dealmaking, energy implementation and water efficiency initiatives, the integration of sustainability standards into annual financial reports, and the Kilroy Innovation Lab.

hen real estate investment managers first started focusing on ESG, attention was first paid to the E, the environmental aspects, by helping reduce the carbon footprint, water usage, etc. As part of that attention, there were a lot of conversations regarding the ROI of environmental or green building solutions. Conversations are now taking place as we look to health and well-being. How do you look to the ROI of health and well-being solutions and strategies in your assets?

Sara Neff, Kilroy Realty Corporation: Whenever anyone says, "What's the ROI?" My response is always, "What's the ROI on holiday decorations?" We pay money for them every year in our lobbies, they make our tenants happy and it's the right thing to do even though we don't have an exact ROI on that investment. Investing in health is the same thing: it's hard to calculate the ROI but we know it's the right thing to do.

There are decades of research connecting buildings and human health outcomes. And, on an overall basis, investing in health is not a large financial burden. It's not expensive to get the [health and well-being] basics right as long as you plan for ¹ Preliminary findings from The Financial Value of Healthy Buildings study by Andrea Chegut and Natasha Sadikin.

them and develop your buildings correctly. Our residential tenants really appreciate it and, at this point, it's also risk management especially in a time like the Covid-19 pandemic.

Jill Brosig, Harrison Street: It's important to take a step back and define success. It shouldn't be just about getting X number of health and well-being certifications. It should be comprehensive. Once certified, firms need to have a plan on how to market the certification, to attract and retain tenants, and to use it to differentiate them from the building down the street.

I agree with Sara that this is the right thing to do. But I also believe that health and well-being, while a more qualitative topic compared to traditional environmental factors, can be measured.

MIT recently did a study on buildings that had healthy certifications versus those that didn't. Their initial study found that those buildings with healthy certifications had a 4% higher effective rent per square foot than non-certified buildings.¹

Fundamentally, it's about offering the building's occupants an enhanced experience while creating value for the asset and our investors. It's our job to communicate to our stakeholders why this work creates value. In our experience, once we do, they see the building as more attractive because tenants remain longer, people talk about how positive the experience at that building is, and what the property provides.

Laura Craft, Heitman: The Covid-19 pandemic has opened many people's eyes to social factors, including the health and safety of buildings. As important as energy reduction is, a visitor to a commercial office and retail space is going to care more about the health and safety of that space during a pandemic than they will be about the energy efficiency of that space. Health and safety aspects have become more of a binary determinant of whether visitors will go or will not go into a commercial space. These social factors are more of a demand driver than environmental issues during the Covid era. I see an ROI in investing in health and well-being to set your building apart and create a stickier employee, occupant and visitor. When health and safety initiatives are implemented, stakeholders can perceive your building as better run and higher quality than the building next door.

ROI from health and safety initiatives will mostly likely come through increased demand and use which can translate into revenue. The ROI for energy is about lowering costs and operating expenses. Health and safety is a different play, which can drive the demand side of the equation. For instance, at a

retail mall, if visitors feel the space is healthy and safe, visitors are more likely to shop. Retail tenants want to be where the shoppers shop. The same goes for office space — corporate tenants want to be able to provide a space for their employees that is healthy and safe.

But health and well-being, as Jill said, is qualitative and more subjective of an area to measure than knowing how much can be saved from energy and utility bills. Where are you facing challenges in measuring results and success?

LC: It's about stakeholder attraction and retention ratios; the stakeholders being tenants, employees and visitors. For a building, higher tenant satisfaction and higher retention means less down time and turnover cost.

SN: A lot is driven by the broker community. Our certified buildings cannot prevent sick people from entering the space and potentially getting others sick; the certifications mean that we've taken third-party verified measures to mitigate potential disease transmission. Learning how to explain that to a potential tenant requires some education. Our broker and leasing team now knows how to talk about well-being, and we're starting to see these benefits.

Rachel Hodgdon, International WELL Building Institute:

From an ROI perspective, recruitment and retention of the best tenants or the best talent is the top motivator. Silicon Valley conditioned Millennials looking for their first job and being heavily recruited out of college to be the "amenities generation." Companies were offering sleep pods, scooters and rock climbing walls. The other thing that started to happen, which is a generational shift, is that Millennials started to say, "I expect to work for an organization that aligns with my personal brand, and I expect to work for an organization who will take care of me as a whole person." That combination really shifted what employers needed to do to recruit and retain the best talent in the workplace.

11's not expensive to get the [health and well-being] basics right as long as you plan for them and develop your buildings correctly. 77



At WELL, we start from the question: What is this building going to do for me? What is this workplace going to do for me and my health and, by extension, my family? Then we put a science-focused and data-focused lens on top of that notion of the amenities-filled building. With this approach, many of our customers see improved recruitment and retention, not just of Millennials, but of all talent.

We have decades of evidence showing connections between building and human health. The Harvard School of Public Health conducted a double-blind study [The Impact of Green Buildings on Cognitive Function or CogFx] and found that enhancements to air quality and other environmental conditions had a measurable impact on cognition, problem solving and thus on overall aspects of productivity. Those things can be harder to measure, for sure. What we haven't necessarily had are multiple longitudinal studies that consider the variables associated with healthy building improvements in combination. But increasingly, many organizations are making portfolio-wide commitments and are able to start studying people-first enhancements or improvements to their spaces and measuring ROI across their building stack.

INCREASING THE HEALTH AND WELL-BEING FOCUS

How have you all focused on health and well-being inside your assets during the pandemic?

LC: We have been focused on cleaning protocols and indoor air quality for a period of time, but Covid-19 has motivated

everyone to take a closer look and see if we are doing enough. In many ways, it accelerates the journey around creating well-being standards and best practices. As an investor in a building, we want to provide to our tenants highly desirable spaces and amenities, which now more than ever includes enhancing the intangibles like health and safety. For example, making sure high-touch surfaces are safe and clean, increasing fresh air supply to dilute indoor air pollutants, and conducting checks on proper air treatment and filtration.

SN: I hope that Covid will make people start thinking about buildings as something that has external impacts, both health-wise and on the environment. For example, janitors are on the front lines and people are starting to realize how critical they are to preventing disease transmission. Janitors are the people who are being asked by the tenants, "Is this safe? Can I go in here? What are you using?" That's why janitors are also a major part of our health programs.

There are several certifications relating to health and well-being, the most notable being WELL and Fitwel. Why get certified and where are you in the certification process?

LC: We wanted to rely on a third-party standard to say, "Here are experts that are saying what they think is appropriate in terms of cleaning protocols and air safety ventilation." When Covid hit, we took a closer look at our office assets. We did a pilot and certified all office assets in our core fund to the WELL Health-Safety Rating. We are now looking to expand certifications to other property types.



Benchmarking research



Compensation Survey

Released in October

Produced in collaboration with Ferguson Partners

More than 300 pages of individual position compensation reports, including functions within:

Executive management, accounting, asset
management, capital markets, corporate marketing
and communications, due diligence, engineering,
environmental, finance, human resources,
investor relations, capital raising, leasing,
legal and compliance, portfolio management,
property management, risk management,
technology, transactions, valuations, debt and
REIT securities.



Diversity & Inclusion Survey

Released in January

Produced in collaboration with Ferguson Partners

First corporate benchmark for DEI metrics and best practices in REIM. Covers more than 44 pages of individual data points, including:

- Gender and ethnicity composition by seniority and iob functions.
- Best practice metrics relating to the implementation of DEI strategies and initiatives across investment management organizations, including issues relating to ownership & staffing, accountability, tracking & measurement, retention & recruitment, external partnerships and activities, pay equity & transparency.



Global Management Survey

Released in September

Produced in collaboration with Ferguson Partners

Covers more than 65 individual data points of benchmarking, including:

- Capital raising and AUM: Net and gross AUM growth capital raised as percentage of year-end AUM and investor concentration ratios.
- Organizational metrics: Headcount growth, employees per \$1bn AUM, employee breakdowns per function, per function and seniority, portfolio manager workloads (per account, psf, per GAV) acquisition officer workloads, asset manager workloads, outsourcing, average turnover, size and composition of executive committees and workloads and deal flows.
- Financial metrics: YOY financial performance, EBITDA (pre- and post-bonus) margins, bonus pools, revenue and expense breakdowns.

Defined Contribution Survey

Coming in October

Produced in collaboration with Defined Contribution Real Estate Council

This report will include:

 Capital raising volume and distribution strategies, enterprise metrics including staffing and organizational best practices, vehicle structuring and deep dives into product-specific metrics, such as

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ROUNDTABLE

SN: In 2016, we got our first WELL certification for residential rental units in Hollywood. It was the first of its kind in the world. We also started rolling out Fitwel the same year. Around the same time, I had a personal family issue that drove home the point of how poorly we were thinking about the externalities of buildings.

Currently 39% of my portfolio is certified under Fitwel, and we have earned the WELL Health-Safety Rating for Kilroy's entire directly managed portfolio. Early on in the pandemic we began working with Underwriters Laboratories and their pandemic response module, which is a lot of on-site air, water and germ testing, as well as looking at programs for janitorial engineering and operations. That documentation became the foundation of our WELL Health-Safety Rating submission.

JB: We are rolling out Fitwel across our portfolio. With our investments in healthcare and education, most notably senior and student living, being able to have a third-party healthy building stamp of approval completes the story of how we not only say how important well-being is for our residents and tenants, but can prove we are taking action. This proof comes not simply from a plaque on the wall, but in how we design and operate our buildings. Also, as a member of the Well Living Lab alliance, we will be incorporating research from their studies on how buildings impact occupant health and even aging into our operations.

Rachel, what are you seeing in terms of managers seeking certifications?

RH: With Covid-19, we're seeing sectors that have never participated in WELL nor participated in green building certification programs, signing up in droves. We are about to register 67 million square feet of real estate in multifamily residential. That's a market that's been

Being able to have a third-party healthy building stamp of approval completes the story of how we not only say how important well-being is for our residents and tenants, but can prove we are taking action.

challenging to shift at scale, both for green and healthfocused certifications.

When the pandemic hit, there was a brief pause in our business and then all of a sudden we were registering on average two million square feet of real estate every day. I think it goes back to that notion that this is no longer a "nice to have" but a "must have," whether you believe it's because of ROI, ESG or differentiation. Something shifted across sectors. We're seeing all kinds of assets registering, from schools to entertainment venues, multifamily homes and hospitality.

What's been really exciting is that many of those companies are signing up their entire portfolios at once, including new buildings and existing assets across the entire portfolio. The pandemic has made clear that health and well-being is material to a business's bottom line.

BROADENING THE TENT

As we look to health and well-being, how do we broaden the number of investment managers and owners of commercial real estate involved? What do we need to do?

SN: I think we can lead by example and we need to get others excited. What I love about ESG is we're not competing in this. We have to win in this together, globally. We have to get more people wanting to do this.

I think well-being struggles because it is so many things. How do I do well-being? Is it air quality or is it open stairwells? Do I need to start caring about legionella or is it light? It's very confusing right now, whereas I think environmentally speaking, it's easier to ask for.

I think we need to make it easy to put well-being in the lease; specifically, in the same way that tenants can specify in the lease that the temperature be kept at 72, plus or minus two, degrees. I also hope some positive change will come from the federal level with the new [Biden] administration.

LC: I believe all investment managers and owners want to be on the right side of change. Covid increased the focus on health initiatives and third-party well-being ratings. If these ratings become a new standard demanded from the market, more investors and owners will go through WELL or Fitwel. Buildings that do not meet market expectations could be viewed less favorably and that could impact investment returns.

RH: We've launched a consumer awareness campaign around the WELL Health-Safety Rating. This is part of our effort to broaden the tent. We know that there needs to be a trickle up effect; prospective home buyers and tenants are beginning to ask for assurances that their health and safety have been prioritized. We have engaged a number of celebrity ambassadors and are running ads across TV, digital and print for a number of months. We're encouraging everyone to look for the seal so we can all get back to business with confidence.

JB: We recently entered into a first-of-its-kind partnership with the Center for Active Design that will implement Fitwel certification across more than 500 student housing, senior housing, medical office and life sciences properties. The goal is to create a powerful foundation from which Harrison Street and CfAD intend to bring about broader market transformation at a time when health and well-being are being prioritized more than ever.

44 Prospective home buyers and tenants are beginning to ask for assurances that their health and safety have been prioritized. 77

Specifically, from a property owner's perspective, it is incumbent on a property owner to be very transparent with how healthy the building is and to always be thinking about the experience of your occupants. For example, when someone walks in the door, are they greeted with a sign broadcasting the air quality of the building? If the sign is green, it's good, and if for any reason it weren't green, assure building occupants there is an emergency preparedness plan to address it. Both investors and occupants are already demanding and expecting more transparency in how sustainable a building is.

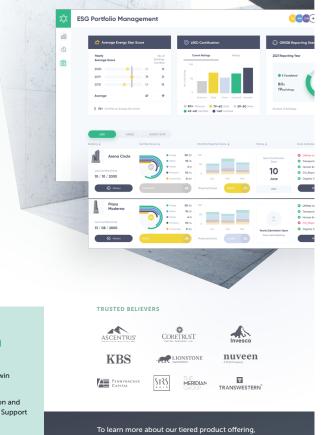


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Finding REPORTING best practices at the asset level

The NCREIF PREA Reporting Standards initiative was launched in 1993 for the purpose of providing consistent reporting of information within the NPI. Since then, the Reporting Standards have created a global database of definitions, agreed how to report fee and expenses worldwide, streamlined methodologies and much more while remaining true to the mission of comparability and transparency within reported information. The impact hasn't just been felt in the back offices of real estate investment management firms — but by transaction, portfolio and asset managers and institutional investors alike.

Standardization may feel like a somewhat dull topic, but it's critical to understanding exposures and therefore risk.

The Reporting Standards is now expanding its work to look at asset and investment-level performance and attribution reporting. John Caruso, Marybeth Kronenwetter and Joseph Nahas, Jr. speak with NAREIM about the Reporting Standards' new task force to create best practices around asset-level reporting, where some low-hanging fruit potentially lies and what the benefit to investors and managers will be.



John Caruso is Global Head of Fund Finance at Nuveen Real Estate and Chairman of the NCREIF PREA Reporting Standards Council. John is responsible for internal and external reporting activities including investor reporting, operational and financial analysis, property- and portfolio-level performance returns, and strategic management metrics at Nuveen. He leads global efforts related to fund finance and is a voting member of the Americas Investment Committee, OpCom and Executive Leadership Team. Prior to joining TIAA/Nuveen, John served as CFO and COO for both domestic and international firms engaged in various aspects of the real estate industry. He holds a BS in Accounting from Brooklyn College and received his CPA certification from New York State.



Marybeth Kronenwetter is Director of the NCREIF PREA Reporting Standards initiative. As a Director, Marybeth directs and supports the development, content management and maintenance of the NCREIF PREA Reporting Standards, related communications and other materials necessary for the NCREIF PREA Reporting Standards to fulfill its mission to facilitate investment decision-making for the institutional real estate investment industry. Previously Marybeth was the President of Real Estate Investment Advisors, Inc. Before her consulting career began, Marybeth was a Vice President with JMB Institutional Realty Corporation and on the audit staff of Deloitte. Marybeth is a CPA and received a BBA from St. Mary's College, Notre Dame, Indiana.



Joseph Nahas, Jr. is SVP, Institutional Marketing and Investor Relations at Equus Capital Partners and member of the Reporting Standards Council. Joe is responsible for institutional capital raising and investor relations activities for Equus. He serves on various committees and task forces with NCREIF, including its Performance Measurement committee, Close End Value Add Index task force and its Reporting Standards Valuation task force. Joe is an adjunct professor lecturing in Commercial Real Estate Investments at Villanova University School of Business and Temple University Fox School of Business. He holds the CRE designation from the Counselors of Real Estate. Joe holds an MBA in Real Estate Finance and a BBA in Economics from Temple University.

What are you doing? What are the goals of the Reporting Standards' new asset-level reporting task force?

John Caruso (JC): The overall goal of the Reporting Standards (RS) is to increase transparency and deliver consistent information to institutional investors so they can make informed investment decisions. What that really means is that we're trying to give investors more clarity into their funds and investments, so they have the ability to compare funds and investments on an apples-to-apples basis.

RS has traditionally focused on fund-level reporting, disclosures and information relating to performance. But we've seen more and more investors asking for performance and other data at the asset level.

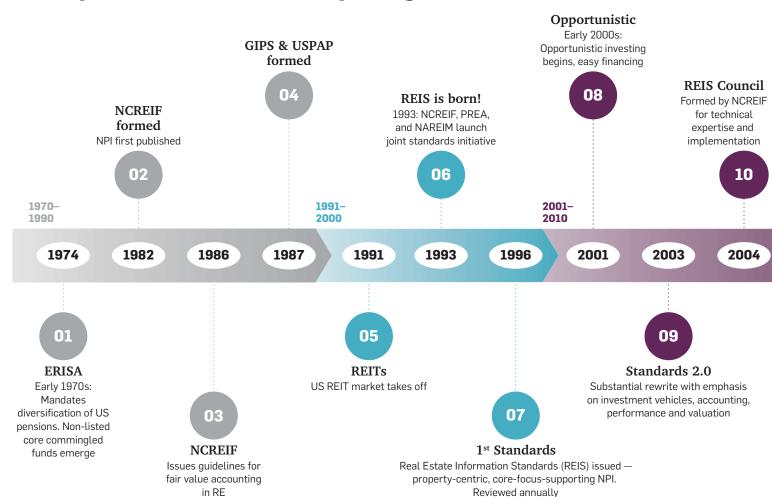
What investors are trying to do is compile a view of their entire exposure to real estate across many different managers. And the only real way to do that is to get granular. Investors need to see how asset-level data rolls up into their overall

portfolios and how it fits into their overall investment strategy, risk profile and investment goals.

Yet we all know that a significant pain point for investors is the sheer volume of inconsistent information they get from different managers. That's no one's fault. The inconsistencies can be related to different definitions or calculations, or because different countries have different accounting methods. And so we thought this should be an issue the Reporting Standards takes up.

What investors are trying to do is compile a view of their entire exposure to real estate across many different managers. And the only real way to do that is to get granular.

History of the NCREIF PREA Reporting Standards



Asset-level reporting would naturally provide insight into what's happening at the asset level. Would this then give investors the opportunity to see the attribution of returns more clearly, to see what is driving manager alpha?

Marybeth Kronenwetter (MK): One of the significant goals we're looking to understand relates to the drivers of performance. How are drivers to performance identified? Through attribution. Absolutely, attribution will help identify asset-level reporting elements to drill into.

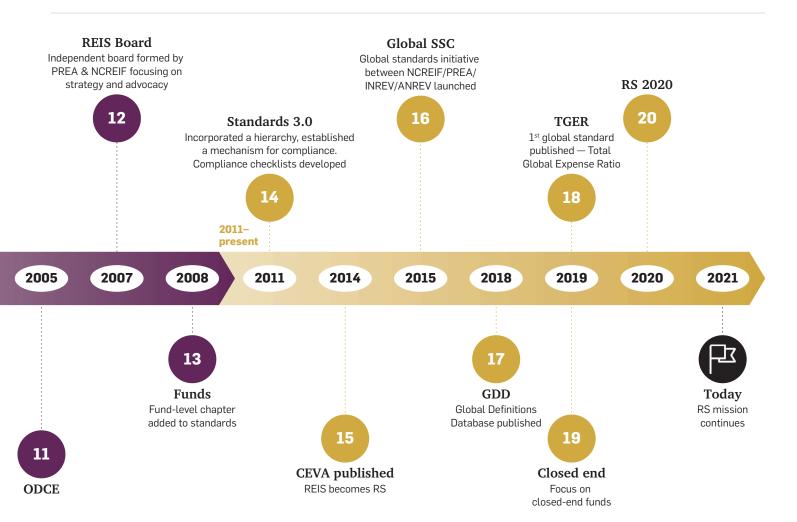
Joseph Nahas, Jr. (JN): It will be contingent or conditioned upon there being a standard. Even if we have data coming out at the asset level, if it's not standardized, then the attribution won't mean much. I think attribution would be an end result of the standardization at the asset level.

JC: One thing we're going to have to remind investors is that the performance on the asset level does not necessarily translate to performance at the fund level. Even on a gross return, performance is measured and computed differently. It approximates return at the gross level, but your net return is going to be different because you have fund-level expenses and fees. We always remind investors that there's that little bit of disconnect. As for what is driving the overall fund return, the asset-level attribution is a driver for it, but you can't line it up precisely.

TASK FORCE GOALS

What is your ambition for 2021?

MK: After we identify the task force members, we'll be looking at our existing work within the Reporting Standards and



identifying where we already have aggregated information at the property, asset and investment level. We can then prioritize our focus and decide whether we look to asset-level reporting based on issues such as diversification or performance.

Let me give you an example of the IRR. The fund level says if you're reporting for a closed-end fund, you have to report an IRR for the fund. The open-end funds don't have that requirement, but there isn't an investment where the IRR isn't looked at. Then it's a matter of which IRR: Are you looking at the target IRR? Are you looking at the IRR in place? Which is the most meaningful?

It's identifying common elements that are in the Reporting Standards today and asking which ones are reasonable to disaggregate, before trying to apply those concepts to the investment or asset level.

JN: Equus is a closed-end fund manager. At the fund level, there are differences between what's required and what's

recommended by vehicle. I suspect there'll be fewer differences of what's reported at the asset level than at the fund level. But whether you're an investor in an open-end fund or closed-end fund or a separate account, you want to get consistent information at the asset level from your managers.

Will there be major differences between how managers report asset-level performance?

MK: While there are more elements to report at the asset level, I believe there is more commonality in terms of reporting than what we find at the fund level.

JC: Where you're going to find the differences at the asset level is the differences between the four sectors. Information that's important for the retail sector, like sales per square foot, doesn't exist in the other three sectors. Measuring vacancies in

Investors know the types of information they want and they ask for it consistently. What is frustrating for the manager is when investors ask for it in different formats; having said that, they're asking for the same data.

residential is different than measuring vacancies in an office building, square feet versus units.

What are the key challenges ahead?

JC: Everybody does things a little differently. Trying to get consensus on which practice is the best practice or the best way to do it — or even what is a recommended way to do something — is a challenge.

JN: Investors know the types of information they want and they ask for it consistently. What is frustrating for the manager is when investors ask for it in different formats; having said that, they're asking for the same data.

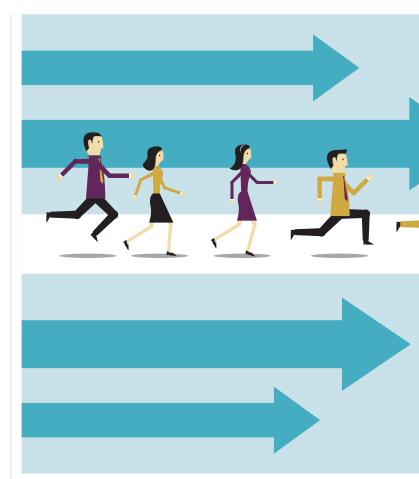
Investors are now drilling down to the next level because they're aware of the obvious — as a manager, I couldn't be reporting at the fund level if I didn't already have all the property data. I have to roll it up in some form or fashion to get to my fund. They're not yet consistently asking for the same data the way they've arrived at the fund level.

Helping investors understand the low-hanging fruit that we managers can produce in a standard format and in a standard report at the asset level will help LPs further define their requests, and maybe move them towards asking for the same thing of all managers. The key is for everyone, managers and investors alike, to not have to pull their hair out the way we all did before the Reporting Standards came into being.

GETTING QUICK WINS

What are examples of those low-hanging fruit?

JN: At the fund level, we report on lease expirations,



schedules and rollovers. We do the same with debt — we provide a debt schedule consistently, with fixed and floating rates and yields on each property. In the time of Covid-19, we're also starting to get questions about covenants. For us, these are prime examples of low-hanging fruit available at the asset level that we could regularly report on and create consistency around.

JC: I'm glad you mentioned Covid, Joe, because Covid has really put a spotlight on the asset level. We're getting calls from investors about rent collections, deferrals and abatements, and not just from our separate account clients.

During Covid, we and every other manager had to be able to pivot quickly and to track that information. We got down to the lease level, to lease charges and collections. Being able to get that granular and pivot on a dime was thanks in part to technology, but being able to provide that information to our investors and asset managers allows us to manage the asset better.



Some investors, particularly pension plans, are looking for exposure. They'll look at the AUM of assets regionally, by city, by sector. Investors will also look to asset-level performance, not just like the NPI return on the asset, but comparing that to the benchmark, and then in some cases, actual versus budget on things such as net operating income or capital expenditures. We are also reporting on sustainability at the asset level.

JN: Another area we're seeing requests for more information is about diversity and inclusion, not just related to our organization, but also the vendors, property managers and leasing brokers that we use for our assets. Do they have these policies in effect?

There are a lot of areas where you could target your work. How do you narrow that down to a core set of metrics?

44 Another issue is the deliverable. Until such time that there's a mechanized way of reporting and delivering to the person who is requesting the information, usually the investor, we're faced with tons of challenges. 77

MK: There's a lot here; what are we going to pick first?

It's also difficult to figure out what do you have to do versus what's nice to have. That does depend on the investors and their needs. It also depends on the type of fund, although less so now than it used to be because investors are asking for more information on commingled funds when they didn't before. There are a lot of uncontrollables, but everybody's got to be moving along the same objective.

Another issue is the deliverable. Until such time that there's a mechanized way of reporting and delivering to the person who is requesting the information, usually the investor, we're faced with tons of challenges. It will be important to coordinate with software providers, fund administrators and others on what the final report looks like. Otherwise, what we develop is just going to sit on the shelf, as a nice to have.

COLLABORATION EFFORTS

The challenge that the reporting standards is trying to solve is bringing the managers together to say, "We need some consistency." But what about vendors, technology providers and other service providers? Where do they fit in?

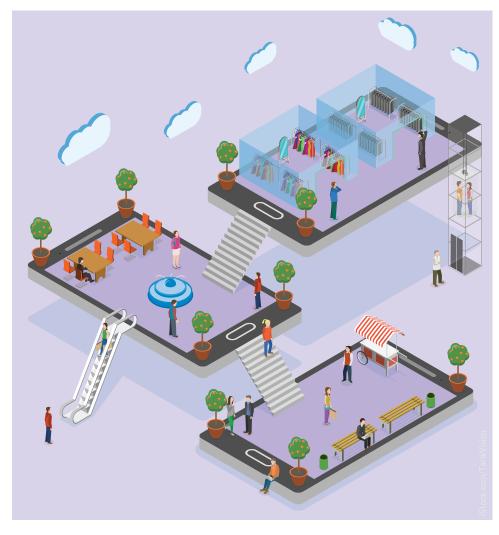
JN: You have to bring the technology onboard. We'll get standardization if we can get buy-in or endorsement from technology vendors.

MK: We're at a point where we're starting to entertain these discussions. I believe appetite will come. Reporting Standards is a gift to them. People are more receptive to collaboration. I'm most excited about that. ◆

ASSET MANAGEMENT

Retail as a SERVICE

NAREIM speaks with Manuel Martin, global head of retail at Nuveen Real Estate, on how he is looking to the future of the asset class and what that means for positioning Nuveen's legacy portfolio and mall assets in an increasingly digitized and omni-channel world.



Retail has been on the decline. What has been the impact of Covid-19 on the sector?

Covid has accelerated trends, but the world of retail was already undergoing extreme turbulence driven by a number of demographic and other consumer-related factors. Probably 80% of the retail industry's problem in the United States relates to mall space. This is for two very simple reasons. The first is overbuilding. Today, there are around seven malls in the US for every mall in Europe. That means some 600 US malls need to go, especially those that are in a lower quality tier.

The second problem is that malls are, by definition, a destination. The major traffic drivers — the anchors or more specifically the department stores have lost relevance and appeal. Furthermore, those department stores now have competition from Amazon and other ecosystems, which offer a huge selection of choice and are convenient and easy. If you know exactly what you want to buy, you don't need to leave your house. So not only do the malls overlap with one another, but the anchors are also in crisis. In Europe, the anchors to malls are quite different because they are typically hypermarkets or large supermarkets, which helps to drive necessity-based shopping.

Changing of the mall

Covid has accelerated several trends, such as office de-densification, a greater emphasis on the health and well-being of our buildings and flexible working. There has long been talk of malls dying. How do you envision the future of malls?

We have a problem of oversupply and with the anchors. The first problem of

What does the future of retail look like?

- Re-densification of retail will not work as a one-size-fits-all solution.
- Retail as a service where brands test products with and tailor solutions for consumers — will emerge stronger.
- Increased number of pop-up stores.
- Necessity and convenience will be the top agenda for all retail assets.
- Strip malls need to embrace diversified uses such as professional service and medical office tenants.
- Managers have to assess the omni-channel capabilities of incoming retailers.
- Amazon has a glass ceiling; there are activities (medical, food, entertainment) that need brick-and-mortar stores and that is why it is investing in physical retail.
- Retail real estate investment managers of the future need to have knowledge of real estate, other uses, redevelopment skills, the right technology and access to data to succeed.

The solution is going to be taking these failed anchor spaces and adapting them to the new world, such as retail as a service. This is a bigger space where you curate a number of brands, you have people come and interact, and you give customers special service. 17

oversupply is going to be sorted out with time. The development pipeline has been almost dry for several years and the quality assets will emerge stronger. The problem is what to do with our anchors today. Whether high or low quality, a lot of capital will be required to transform these spaces.

There's no secret sauce that works for every single asset, even for high quality ones. If you have an asset like the Mall of America in Bloomington, Minnesota, what will you do with it? You can't transform it into apartments or offices as there may be few buyers. Turning a mall into an industrial warehouse is also a

difficult proposition, not least given considerations of proximity to infrastructure, local traffic and logistics. Retail has always been a superior real estate use. If you're going to transform a retail asset into industrial, you're going to be doing it on a very high cost basis. There are two ways of making that happen: one way is to write down your assets, which is very painful, and the other way is to buy assets with a lower cost basis.

I don't think the densification of retail is a solution for every single mall. In some cases the solution is going to be taking these failed anchor spaces and

ASSET MANAGEMENT

¹ Deloitte, The Great Retail Bifurcation: Why the Retail "Apocalypse" is Really a Renaissance, 2018.

44 People put a lot of weight in your mall if they see that there are investments being made and new retailers that are going to keep them engaged with the mall brand and with the individual brands. 77

adapting them to the new world, such as retail as a service. This is a bigger space where you curate a number of brands, you have people come and interact, and you give customers special service.

Stores like Apple, Nike and Tesla are not there to sell you goods; they are brand showrooms focused on giving people options and tailoring solutions for them.

We will also see more pop-up stores. Paying less rent and renting for a shorter term gives the landlord flexibility to recover the space. It allows us to try different mixes of retailers, and it is a way of keeping the mall alive. That's very important for any visitor to, instead of seeing empty spaces, see new concepts. People put a lot of weight in your mall if they see that there are investments being made and new retailers that are going to keep them engaged with the mall brand and with the individual brands.

What happens to Class B, Class C assets, the poorly trafficked strip mall? Will they be lost to functional obsolescence or will they find a place?

The Spanish architect Arturo Soria came up with the concept of the linear city. It is one where people go from one point to the other, such as the school, the office, the shops. I still see that happening in many American cities where busy street centers are more functional than isolated malls. When I say functional, it is that they are serving a model of a market. They are more

convenient and they have a number of people either passing by or living nearby. At the end of the day, it's easier to manage ten or two dozen shops with a grocery anchor, than a mall where it is vital that people keep coming to see you.

Strip malls will need to incorporate more professional services such as law firms, dental offices and medical offices.

Necessity is going to be top of the agenda.

What kinds of discussions are you having with your investors?

Our portfolio in the US is nearly \$12 billion, with around 90 assets. We are the fourth largest owner of retail in the US and the third largest in the world. Around 50% of our assets are prime malls and the remaining assets are outlets, power centers, urban and lifestyle. There is a binary debate ongoing with investors where one option is to reduce their exposure to the here and now at a significant discount, or they can invest the required capital and protect their value in the mid and long term. There is no simple or single answer for all as each asset and investor comes with very specific circumstances.

All this cycle change, especially in malls, will bring more concentration within the sector. We see Simon [Property Group] buying Taubman [Realty] or Unibail leaving the US market to focus on their European operation. Many institutions will gradually sell their portfolios and it is likely that fewer hands will manage those, especially the quality assets.

Future in omni-channel

Traditionally retail space is underwritten on a sales per square foot basis. How do you underwrite experiential and retail as a service, because the metrics are completely different?

The way you assess a mall space, and the retailers you want within it, is completely different today. Today you want your space to have about 25% of general merchandising retailers; another quarter to host experiential retail such as Tesla, Apple and Nike; another 25% to be entertainment and food and beverage; and the rest dedicated to other uses or potential other uses different from the above.

The capacity to serve the asset catchment area demand is a big factor, but we also look at how retailers have adapted to combine different fulfillment channels and to keep the physical store relevant. For instance, the fast-fashion company Zara has invested heavily in geolocation tools, data gathering and online infrastructure. They have done this because they know that their online sales increase by 15% in the zip codes where they have a physical store. Their stores are brand showrooms and they are also a point for returns and exchanges.

The second vector in the mix is the bifurcation between value and premium retailers. Deloitte found that discount retailers, over the last five years, had combined growth of around 30%. For luxury or premium retailers, their combined growth was 80%. However, general (balanced price) merchandise retailers had a combined growth of 2% over the last three years.

Why is that? That's because value is rapidly becoming more important. We are living in a society in which the middle class in the US is shrinking

dramatically. Value to them is very important. People know that buying in the store, at TJ Maxx or Walmart, is cheaper than Amazon by 20% to 30%.

The other side of the equation is luxury; 50% of retail sales in the US are done by the top 25% earners. Offerings in the space have grown above and beyond traditional retailers. Nike is a luxury brand because you pay \$100 for a T-shirt. Apple is a luxury brand because you pay \$1,000 for a phone. Tesla is a luxury brand.

Along with the retailer's omni-channel capabilities is the reduction of their physical footprint. If you're going with someone who has fractionalized their footprint, you're going to be in a better position because those people are going to zip codes where their e-commerce is higher and they are going to use that store to serve their own license.

What is your outlook on retail?

We are very focused on necessity, essential goods and convenience. Those are working well and currently underpriced. Mixed use will be fine when the pandemic is behind us as stacked uses do well with hostage clients. People are anxious to go outside. Our major concerns are retail overcapacity and rapid loss of food and beverage installed capacity.

Who then are your top winners in retail?

In the power space, TJ Maxx and Burlington are doing very well both online and in physical sales.

Walmart is doing a terrific job in fighting the Amazon ecosystem. To do so Walmart is becoming a kind of Amazon. Amazon wants to become Walmart.

Target is doing very well. Their potential is huge. Walmart does \$700

per square foot of sales and Target \$500. It means that Target can use more of their space for fulfillment.

I like Whole Foods a lot, because they are serving a specific niche and they have a very fresh offering. They are a good blend of omni-channel technology. I also like Publix, which is doing well in the Southeast.

Lululemon and Apple are the new anchor tenants in many assets. Having them makes a difference.

Landlord pressures

Because of the speed in which things change, do your leases need to be shorter in duration?

In the short term, we're on pause. It's hard to get long-term commitments. The first thing we did when Covid broke out in April was to give our small retailers three months of rent deferral. Around 90% of them received government aid and eventually paid their rents. That created an engagement with them and a rapport that has been very useful.

In the long term, quality locations with the right mix will get the commitment of retailers. It's going to take some time. Again, the basis is going to be very important. If you paid a lot of money for your space, you're going to be more constrained when you invest capital and bring in the right retailers. It requires a balance.

Capex is going to increase. We are bringing in digital security, pickup locations and energy efficiency so that we can achieve a zero carbon footprint by 2040. We are creating apps for users and tenants. It's a whole new world. All of it costs money.

For retailers, capital will also be critical. A lot of them are successful, but the industry is undergoing huge disruption and transformation. If they want to continue being successful, they have to invest in getting and managing technology and data.

We talk about retail changing. It means you have to think differently about retail. What type of people skills are you looking for in your team?

For our investment professionals, we want people with fresh eyes and with knowledge of uses other than retail. We also want people with some knowledge of the planning process and with redevelopment skills.

Retail asset management is the essential skill we need. The type of asset manager I'm trying to get onboard today is someone with leasing skills, because of the number of tenants you need to turn around. Someone with design skills, because the buildings have to adapt and you need to make a completely different building with appealing formats. Someone able to integrate new technologies and digital strategies, like reading frequent card data and knowing how to track people with mobile phones. How you bring technology to digital retailers and how you fight technology disruption is critical. Digital savviness is very important today.

44 How you bring technology to digital retailers and how you fight technology disruption is critical. Digital savviness is very important today. 77

Boosting NOI with BULDING technology

A strategic approach to managing building technology can increase revenue, reduce cost and risk, and improve tenant experience.

These deficiencies are often easily overlooked because many technology systems are outside the scope of standard due diligence assessments. This results in a property that is not secure, not competitive and underperforming. To bring it to market standard requires a significant amount of capital and time.

ecently, a real estate investment

management firm targeted a

development was well constructed and

appointed, with sought-after amenities

such as a clubhouse, fitness center and

business center. However, despite its construction in 2019, the property's

technology systems were lacking or

Internet connectivity in common areas,

and technology infrastructure limited to

obsolete: no security cameras, no

a single Internet service provider.

complex in Columbus, Ohio. The

brand new, Class A, multifamily

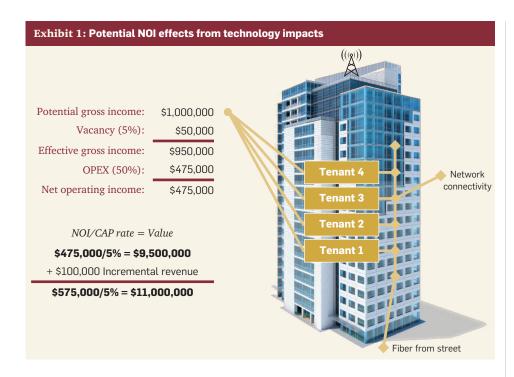
When it comes to acquiring and managing commercial real estate,

nowhere is the gap between criticality and prioritization larger than in the realm of building technology.

Technology — including connectivity and cellular coverage, building management and security systems, elevators, parking management, digital signage and more — is fundamental to the performance of a building. It affects every metric from NOI to tenant satisfaction. Despite this fact, few CRE investors or operators have a strategy to proactively assess or manage building technology in their portfolios.

Compared to the structured and standardized CRE environment, the evolving world of building technology can seem like a wild frontier. Building technology creates administrative headaches, incurs unforeseen costs, and exposes property owners and occupiers to risk. But it also presents tremendous opportunity: additional revenue, improved tenant experience, and cost and risk reduction (see Exhibit 1).

By Bob Geiger, Partner Engineering and Science, Inc.



Building technology creates administrative headaches, incurs unforeseen costs, and exposes property owners and occupiers to risk. But it also presents tremendous opportunity: additional revenue, improved tenant experience, and cost and risk reduction.

Owners, investors and asset managers can minimize tech challenges and boost NOI by developing and implementing a comprehensive technology strategy for their portfolios. A technology strategy allows operations to be streamlined, access and data to be monetized, and technological innovations used to stay competitive.

Getting started

A building technology strategy begins with a clear understanding of an asset's current position. As a baseline, perform a building technology assessment (BTA) using qualified inspectors to examine existing technology systems within each building. Often, these inspections are conducted with the help of a building technology consultant (BTC). Inspectors should provide an inventory and analysis with suggestions to improve efficiency, reduce risk and increase revenue.

Unlike other CRE assessments, such as property condition assessments, there is no recognized industry standard for BTAs. Custom scopes can be developed according to the asset and its objectives, but generally, inspections include the following:

- connectivity
- safety and security systems
- energy and building management
- emergency response
- rooftop management

Once complete, the BTC can discuss the report and refer technology

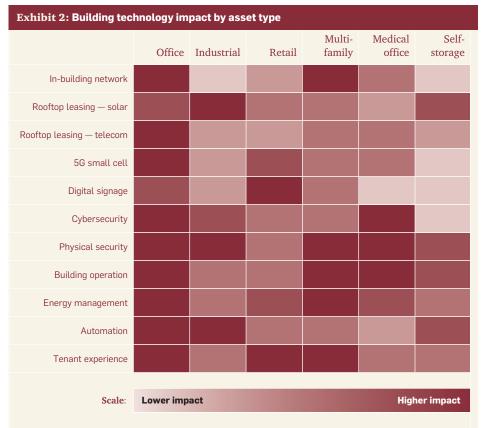
resources to support implementation of any improvements the owner elects to make. Note that the BTC should be "provider agnostic" in order to ensure the widest range of options and best outcomes with provider referrals.

If the building owner or operator chooses not to implement any of the suggestions contained in the report, the inventory component of a BTA is still a valuable tool for asset valuation as well as communicating and negotiating with technology providers.

Partnering with a building technology consultant

One of the barriers to effectively leveraging building technology is communication. Technology providers don't speak real estate, and many CRE owners don't speak tech. Bridge the gap with a building technology consultant (BTC) who understands your business objectives and the technologies available to support them. Whether assessing the tech infrastructure of a potential acquisition or seeking to optimize technology in an existing portfolio, discuss your overall strategy with your BTC, including financial targets, projected hold periods, positioning and any known challenges to reaching those goals.

DATA STRATEGY



When developing a technology strategy, CRE owners and building tech consultants must consider many variables, such as asset type, property use, business objectives, existing technology in place, budget, projected hold times and more. This exhibit illustrates how some systems or applications will have greater impact on one asset type versus another.

Boosting revenue

The most exciting aspect of proactively managing building technology is identifying new opportunities for revenue (see Exhibit 2). While vacancy rates may rise and fall, technology can provide income streams that are largely independent of the local real estate market. Not all technology tenants are feasible in all buildings, but a BTA will identify which of these "hidden rent rolls" is possible for a given portfolio:

 Rooftop leasing: Rooftop space may already be leased to a cellular provider. Is that provider paying the best market rate? Can the roof accommodate multiple carriers? Is the building owner or agent

- equipped to effectively negotiate with carriers? What about solar rooftop leasing?
- 5G opportunities: 5G wireless technology requires a vast increase in cell sites. Cell sites must be under 150 feet, so a high rise is not necessary to attract carriers. As 5G networks expand, the opportunity for real estate owners is lucrative.
- Wi-Fi network offerings: A
 centralized, secure Wi-Fi network
 that is accessible throughout the
 entire property allows the owner to
 improve tenant experience and
 charge a small technology premium.
 Add a cell signal booster capability
 and these amenities can be further

- monetized by collecting revenues from cell carriers. Many CRE owners miss this opportunity to provide better amenities to their tenants while leveraging their position as gatekeeper to Internet service providers.
- Fiber management/wholesale access: Consider the possibilities of having a fiber-based infrastructure running through the entire property that can provide as much as 1,000 Mbps of speed to each residential or commercial tenants. Including an HDTV streaming option to superfast Internet could be cheaper than the price tenants could procure on their own. These types of connectivity packages can generate a substantial amount of revenue, improve tenant experience, make the building move-in ready, and help differentiate the property from its competition.

Beyond access and data, a BTA may identify other ways to leverage technology to increase revenue. Owners of the AT&T Tower in Nashville chose to include a technology assessment as part of their overall repositioning strategy. In addition to technology tenants, they identified three key opportunities to boost revenue. First, they automated their parking structure to enable monetization of off-hours community parking. Then, they converted unused office space into tech-enabled community conference rooms available both as tenant amenities and as event rental space. Finally, they identified energy efficiency upgrades, including submetering, that boosted NOI and helped tenants meet sustainability goals. These three initiatives resulted in a gross annual income increase of \$1.2 million.

The tenant experience

In today's highly competitive rental market, building technology can give owners an edge with amenities that attract and retain tenants. Furthermore, offering turnkey technology increases occupancy by reducing the time required to deliver space to new tenants.

Connectivity and cell coverage are make-or-break amenities for both residential and commercial tenants. New screening technologies allow owners, or would-be owners, to evaluate and map cell coverage and capacity. The value of this information was recently highlighted by a retail mall that was struggling with foot traffic in its food court, until cell coverage mapping revealed a dead zone — the very spot where shoppers frequently sit and use their cell phones. By rectifying this issue, management improved shopper experience and a key metric used for leasing efforts.

Centralized networks in both multifamily and office properties allow landlords to offer turnkey, Internet-ready spaces. Particularly in office properties, communications and Internet infrastructure are often a major hindrance to occupancy. By offering centralized, secure Internet access, the tenant experience can be improved and the move-in process accelerated. For multifamily owners, new approaches to centralized networks mean tenants can log in and stay logged in anywhere on the property, from poolside to parking garage.

Protecting safety and security

Cybersecurity is an increasing concern for landlords, whose technology systems and practices heavily impact the cybersecurity of their tenants. From data To remain successful in the increasingly technological world of real estate, CRE players must prioritize building technology as a critical component to building performance.

(emails and digital files) to networks (such as common area Wi-Fi) to any "smart" systems with Internet connections (kiosks, parking monitors, comm systems) — even network closets — buildings present numerous access opportunities for cybercrime. A BTA will help identify and secure vulnerable entry points.

Efficient building technology is also central to physical security, including safety and disaster planning/response. Many buildings are at best equipped with silos of traditional, inefficient safety systems. An integrated technology strategy includes evaluation and optimization of the tech systems that enable critical response components such as situational awareness, coordinated access control and communication. In addition to protecting employees, tenants and property, security upgrades may qualify the building for reduced insurance rates.

Improving operational and building efficiency

Most modern commercial buildings contain as many as 20 or more computerized systems, each with its own network and service provider. Like mechanical, engineering and plumbing (MEP) systems, computerized systems have maintenance needs. Obsolescence is often a greater concern than remaining useful life. A reactive

approach to managing technology wastes resources and results in poor tenant experience, costly and defensive negotiations with tech providers, and frequent overspending. A BTA can provide a framework to begin planning and budgeting for proactive management of technology systems. Furthermore, it can identify opportunities to streamline, consolidate or automate systems to improve building efficiency. The cost of upgrading technology for building efficiency is often offset by reduced costs or even monetization opportunities.

Conclusion

To remain successful in the increasingly technological world of real estate, CRE players must prioritize building technology as a critical component to building performance. Fortunately, implementing an integrated technology strategy not only benefits tenants, but also simplifies and streamlines the operation of the portfolio and adds significant value to assets. By identifying opportunities to monetize technology at buildings, investments in a technology strategy may offer an impressive ROI of their own. •

Bob Geiger is Executive Director of Partner Engineering and Science, Inc.

The great REIM disruption?

Covid-19 has been the great accelerator of trends. While the real estate industry should finally become more efficient, local knowledge and experience still trumps technology in producing outsized returns and best-inclass real estate investment managers.

ost of us have been through several severe economic and real estate market cycles. This time around, one phenomenon that has been consistent across geographies and industries is that Covid-19 has been "the great accelerator" of the evolution of social and business behaviors, whether the acceptance and efficiency of work from home or remote learning, or accelerating the Internet-based retail/delivery impact on bricks-andmortar retail sites and last-mile distribution in opposite directions, or the technology additions required for businesses to adapt to the "new normal" business environment post Covid-19.

Prior to Covid-19, "disruptions" were taking place in most industries. In those "good old days" there were four primary technology-driven trends that disrupted industries:

- 1. Manufacturing and other techlevered human productivity (e.g. robotics replacing assembly workers on the line).
- 2. Delivery of products and services that improve productivity (e.g. Zoom

- replacing in-person meetings and Uber replacing taxis).
- **3.** Communicating with one another and large groups "flatly" (e.g. Internet).
- **4.** And big data, the aggregation of data and manipulation of information to better understand trends of social and business behavior.

We have observed, and participated occasionally, in the real estate industry's multiple attempts to create new technologies that improve the incredibly interdisciplinary and complex set of decision-making processes in managing large real estate portfolios optimally. To make a respectful and friendly adaption of a Churchill-ism, Once we run out of ideas that don't work the real estate industry always does the right thing. We believe that the real estate investment management business is finally becoming more efficient by leveraging technology and doing so faster and faster, whether by utilizing a complex set of existing software/services such as Yardi, Salesforce, Workday, Appfolio, Anaplan, MRI or by a custom build.

By Scott Brown, Fulcrum Global Investors, LLC

Local knowledge trumps technology

Natural selection has contributed to great return-generating REIMs becoming larger and larger AUM leaders. In fact, over the past decade it is estimated that the top 10% or so REIMs have raised more capital than the remaining 90% of firms. Should we conclude therefore that there will be five super REIMs in the post "Covid-19 accelerated" future state? We do not reach this conclusion. We believe that Moore's Law has real natural limits to its geometry in the real estate business. These limits are due to the very multidisciplinary, multilayered, multisector, multi-structure, multimarket, and otherwise just complex decision-tree optionality that exists in real estate investing.

The technological advantages required for the largest REIMs to continue to grow at the same speed, never mind faster, and produce better-than-average returns are not available or cost-effectively implementable in the real estate business. Put simply, real estate still requires local knowledge and experience that trumps technology and technology-levered processes when it comes to producing outsized real estate returns and operating REIMs.

We do believe that the largest REIMs will continue to leverage technology to their advantage. However, we expect the path of least resistance and optimal near-term outcomes will lead to continued specialization and operational productivity within property sector silos. This could eventually make each property-sector-focused division/company most efficient as publicly traded companies or REITs.

Of course, REIMs that have consistently average to below average

returns will most likely be acquired, at least the assets and funds, by larger more profitable and technologically efficient REIMs. Further, other REIMs' performance and growth will likely continue to be limited by the lack of autonomy in decision-making. For some this lack of autonomy is due to being one alternative asset class within a very large multi-asset class firm where real estate complexities are simply not understood or appreciated. For others, optimization of the internal REIM business may not be the primary consideration in optimizing outcomes for the overall company. For other REIMs, the retiring founding partners buyout still exists as a hurdle. These REIMs could become controlled by non-real estate investors through the founding partner buyout process. The REIM business is hard enough to excel in without spending critical time and attention convincing your own team to act for optimal growth of the REIM, tenants and investors.

Opportunities ahead

With these potential REIM market trends and a couple of continuing demographic trends:

- 1. Retirement, wealth and sovereign wealth portfolios continue to grow (after a serious Covid-19 adjustment) globally. Real estate allocations continue to grow globally from the benefits of real estate in a multi-asset class portfolio.
- Growing populations have the desire and ability to pay for better and safer working, living and playing conditions.
- More and more real estate continues to be transitioned (e.g. value-add and development) into the institutionally acceptable/ securitizable assets.

4. Balancing profitability with community, diversity, environmental and common sense respectful communications considerations are growing more and more important every day.

Therefore, rather than the Covid acceleration being the dominance of super large REIMs eating up other average or below average REIMs, we believe that today's conditions present an opportunity for the most prepared emerging REIMs to take advantage of the real estate technology that can be cost-effectively leveraged.

We can efficiently create a well-placed portfolio of levered equity development direct/co-investments in select cities where we have local advantages to deliver unbeatable real estate returns. Executing this approach while specializing in one property type adds critical operational excellence. This approach often provides outsized benefits to tenants, communities and cities, as well as outsized returns to investors.

Further, this new generation of REIMs can be exceptionally successful with a much smaller and specialized team, with much thinner overall fee levels to investors. Finally, the smaller team can mitigate specific project risks, and still offer risk mitigation through multi-city economic diversification.

Therefore, we believe that the Covid-19 based acceleration in the REIM business will be the decade of the emerging REIM companies that are stakeholder-oriented, technologically efficient and have outstanding local insights. ◆

Scott D. Brown, CFA is the Founder & CEO of Fulcrum Global Investors, LLC.

Bridging the GP-LP reporting gap with TECHNOLOGY

According to new research, managers need to step up their reporting game and fix issues such as frequency, formatting, transparency and even the actual data provided to win investor commitments.

o learn about the expectations that commercial real estate investors have today, Juniper Square held a virtual fact-gathering event in October 2020 with dozens of the largest institutional investors in the United States.

This is what we discovered:

- Most LPs approve of how their GPs are managing their investments, but LPs spend too much time chasing after the data they need in the format they want.
- Only one in seven LPs receive "good data in a timely manner" on their real estate investments. A majority noted that, after quarter end, it often takes three months or more for managers to provide aggregate portfolio data for the preceding quarter.
- Not a single LP told us that they are getting all of the data they would like to receive. Nearly 40% report that they get much better data about their investments in other asset classes.

- Roughly 60% believe that the data they are getting from their real estate managers is insufficient.
- Better property performance data is the number one request, with every LP asking for more or better data on tenancy, fees, debt and fund performance.
- Across the board, LPs want technology that improves the presentation of data and clarifies investment costs and performance.

Here's a sampling of what we heard from LPs about the data they are looking for:

- "We'd like to better monitor tenant and industry exposure in our office, industrial and residential properties."
- "We always want to know more about sector exposure and which assets are performing well."
- "We're looking for more details on leverage exposure, the impact of leverage and fees, and what fees are being paid to third parties."

By Brandon Sedloff, Juniper Square

- Altus Group, Future-Proofing the CRE Industry: Is Commercial Real Estate's Innovation Cure Moving Fast Enough? 2015.
- ² Altus Group, From Innovation to Value in Commercial Real Estate: Is Practical Innovation Taking Hold and What's Next for PropTech? January 26, 2020.

 "Cleaner data would help us all become better investors and allow us to re-allocate team resources to more important activities."

Although more GPs are realizing that data is foundational to their business, old habits die hard. Altus Group found that spreadsheets are still used as the primary tool for many key processes, including more than 60% of reporting.¹

An updated version of the Altus study found that GPs spend an estimated quarter of their time — the equivalent of three months each year — managing and organizing data.² When data is siloed across spreadsheets, CRE firms can't maximize efficiencies, the risk of human error increases, and it makes it more difficult to see and leverage the value-added insights data can provide.

Given that data and how it is reported is playing a much bigger role in institutional investors' expectations and investment-making decisions, transparency is a critical issue for the CRE industry. It is one of the most compelling value-creation levers available to GPs, and firms that get reporting right have an opportunity to drive differentiation and investor retention. Leading real estate firms are already implementing data-driven approaches to drive efficiency, reduce risk and costs, and to better analyze portfolio performance. Providing their investors with more insights often leads to better outcomes for them and increases the likelihood that they will be able to attract new investors or sources of capital.

GPs are turning to technology

The Covid-19 pandemic put a spotlight on the importance of, and need for, technology-driven collaboration and



data-sharing solutions. Data projects that once might have been of lower importance now have the full attention of the C-suite, which put a new focus on the need to access reliable data through cloud-based solutions. That's translating into GPs looking to technology to provide answers and help them address LPs' requests.

One solution to dealing with increased demands for investor reporting and

transparency lies in adopting digital solutions that can drive favorable investor outcomes, such as investor portals that offer 24/7 access to financial information. Many GPs are increasing their tech spend to better organize and structure data to transform reporting, reduce risk and drive better decision-making to improve business outcomes and the overall investor experience. According to Juniper Square's Commercial Real Estate

DATA STRATEGY

³ Juniper Square, Commercial Real Estate Executive Survey: Planning for Efficiency & Growth, October 13, 2020.

Neither robust nor transparent

In spite of increasing technology adoption, reporting standards, timeliness, quality, transparency and definitions still vary widely across GPs. LPs are still routinely forced to reach out to their real estate managers in search of information about their investments. Because there is no common data standard, GPs are stuck trying to keep up with LPs' requests.

To speed up the process and maintain data integrity, this forces some LPs to spend money on consultants to compile and validate data. This time could be better spent on having their consultants focus on data analysis to make manager selection and rebalancing recommendations, instead of data entry and aggregation. Providing timely, accurate reporting would be a big win for many managers — and providing more insightful data could be a game changer.

GPs that aren't bogged down by manual, error-prone spreadsheet-based reporting and analysis can better meet those LP requests. Technology or outsourcing services that ease reporting burdens can help GPs provide more reliable data. Access to reliable data ensures focus on the right priorities and drives more consistent decision-making for everyone from GPs to investors.

Executive Survey, more than 70% of GPs plan to spend even more on software in 2021.³

The same survey also found that digital innovation has been a key driver of business efficiency and growth, as tech-adopting real estate managers are seeing firsthand how technology solutions can shorten fundraising cycles, increase portfolio transparency, ensure greater security, and provide better experiences and outcomes for their investors. Furthermore, the survey found that CRE firms that spent more on technology in 2020 were more than twice as likely to raise more capital that year versus the previous year, and also were more likely to be on track to do more acquisitions.

Addressing reporting demands

Ensuring that reporting is transparent and useful doesn't have to be a challenge. Here are six ways to address investors' needs.

- Stop using spreadsheets. Instead, store all investor and investment data in a single, secure database. Your team will have access to the latest real-time data without the need for validation or reconciliation. And keeping all information in one easily accessible place and in the forms various stakeholders need, will reduce the time needed to produce reports, improve accuracy and free up the team to focus on more strategic activities. Of the numerous solutions available today, look for one that's purposely built for real estate and allows for the efficient upload of information; makes it easy to find and share documents; enables the user to set up permissions and notifications to remind investors to complete agreements; and provides clear reporting about who has received, viewed or signed documents.
- **Re-evaluate your reporting.** Best-inclass firms make a habit of providing

- their investors regular, timely and indepth reports on investments and forecasts. Investors may like and value all the information you send, but they may want more or different information. Ask. A simple survey can reveal ways to make your reporting more relevant. The key is to always stay in tune with your investors so you can provide additional value and show them that you are paying attention. It will set you apart.
- Make all information available 24/7. The days of "send it and forget it" are gone. So are the days of "we will get back to you soon" due to working from home and having access to real-time data. Give your investors a secure, easy-to-use portal that is accessible across devices so they have round-the-clock access to investment data and correspondence, like capital call and distribution notices, tax forms and other important documents.
- Get the branding and presentation *right.* The portal is the digital extension of your brand and reputation. GPs spend their entire careers building and protecting their image — the portal should reflect that. Simple details like fonts, colors and graphics can create positive associations and leave a lasting impression. Your reporting is a great place to showcase your brand and put it to work for you. It's also important to make sure your reports are easy to interpret and visually consistent. Investors want reporting to be a clean, clear and consistent representation of relevant performance factors and the value you provide.
- Provide the right data in the right formats. Relieve the need for your investors to input data into

their systems by giving them comprehensive reports in the formats that work for them.

Once LPs receive data, many report that they spend too much time trying to understand it, instead of making decisions — time that would have been better spent having more in-depth discussions about specific properties and what's driving performance. Make transparency the cornerstone of your reporting efforts and use your reports to help LPs understand what's going on with their investments so you can

use the time you spend with them to deepen your relationship and deliver more value.

The bottom line

Good, in-depth data and consistent reporting can be a game changer. Without them, a firm's reputation could be at risk if the true value of the investment process isn't communicated. When reporting isn't transparent and data is lacking, performance is left open to interpretation, which can have an impact on effectiveness because investors might not fully understand

investment decisions or the value a manager provides. It can also make it harder to differentiate managers from others, so it's imperative that reporting that others see is owned and optimized. Investors are willing to take on investment risk, not operational risk. Technology offers a way for GPs to reduce the burden of reporting and provide LPs with timely and accurate information that they want and need. •

Brandon Sedloff is Managing Director at Juniper Square.



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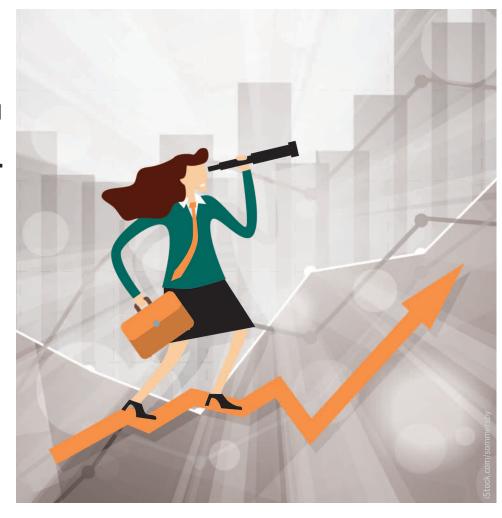
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LEADERSHIP

Let's raise a glass to 2020

For real estate investors, the uncertainty created by the Covid-19 pandemic manifested itself in widespread market opportunities. Many across the industry are gearing up for an exciting 2021 on the heels of the roller coaster that shaped 2020.



By Deborah Smith, The CenterCap Group

f one had paid attention to the major media pundits in 2020 it would have been fairly easy to conclude that the sky had fallen on the real estate market. We think the pundits had it plain wrong in many respects. Based on the conversations we have every day with owners, operators, investors and investment managers, we are not the only ones. Let's step back and take stock of what we saw in 2020 that inspired us and continues to do so. Through the uncertainty, enlightenment loomed and the enormous opportunities to create value are, and continue to be, in the making.

Let's start with where we were at the turn of the new decade. Conventional wisdom had the institutional real estate market focused primarily on the top 10 or so urban US markets for investment opportunities across all the major asset groups — multifamily, industrial, office and to a lesser extent retail — with a growing desire for investment into alternative real estate sectors, primarily to generate additional alpha over the NCREIF Index and secondarily as a nod to evolving demographic and consumer trends. We were also starting to see increasing numbers of institutional investors globally galvanize around the UN Principles for Responsible Investing, encapsulating ESG and impact investing in their liquid and illiquid strategies. Real estate players realized it behooved them to invest time into figuring out how to support sustainability mandates. Our view going into 2020 was that the concept of social infrastructure would probably migrate from a purely housing focus and weave its way, in some shape or form, into every mainstream and niche real estate dialogue over the next decade. It might take time, and progress perhaps less obvious, but it

Ahead of the Covid-19 pandemic, many of our clients were already making office location choices based, in part, on tax-efficiency considerations. Tired of high tax climates, they had been evaluating new regional offices in favorable tax locations, or had simply relocated altogether. •••

would happen and the early movers would benefit.

Change as an agent of opportunity

Then Covid-19 struck. Now the top 10 investing markets may be up for redefinition or, at a minimum, the conversation is evolving into one about the top 25 markets, perhaps more. Covid-19 led to shake ups in where people choose to live, how they choose to work, and where and how they choose to shop. So where are people going and will it be permanent? Will people physically return to work, continue working from home, or a combination of the two? What about urban versus suburban office markets?

Ahead of the Covid-19 pandemic, many of our clients were already making office location choices based, in part, on tax-efficiency considerations. Tired of

The pandemic has shown that physical retail centers are, and will remain, an important component of social infrastructure.

high tax climates, they had been evaluating new regional offices in favorable tax locations, or had simply relocated altogether.

Then there is the impact of Covid-19 on already evolving shopping habits. According to eMarketer estimates, approximately 14% of all retail sales were conducted online in 2020, up from 11% from the year prior. It's a big increase. While we can debate what the statistics mean to the relevance of malls, shopping centers and neighborhood hangouts, it seems clear that shoppers can't or won't buy exclusively online. The pandemic has shown that physical retail centers are, and will remain, an important component of social infrastructure. On a basic level, the retail sector plays a role in offering food, medical services and last-mile logistics opportunities. While we hypothesize about the permanency of population migration, let's also think about how those shifts impact traffic patterns, shopping habits and lifestyle choices, in addition to what people buy, how they buy it and where. Our view is change creates opportunity.

The continued rise of the niche plays

2020 also highlighted the role niche real estate sectors play in the industry.

When the world hunkered down and abruptly shifted to a mostly remote, Internet-based existence, sectors like data centers and cell towers began receiving more investor attention, as did manufactured and affordable housing (of all kinds) as governments struggled to keep people in their homes despite increased levels of unemployment from the pandemic shutdown.

Cold storage has proven to be a resilient asset class and has consistently performed even during times of economic distress. Consumer behavior changes driven by evolving demographic trends in both suburban areas and urban metropolises have led to increased online purchases of not only traditional retail products, but also fresh and frozen foods and produce. Consumers are demanding more "farm to fork" products and for them to be delivered fresh and just in time. Cold storage also plays a central role in the logistics supply chain for pharmaceutical storage, as well as life sciences and medical services. These trends have been catalyzed by Covid-19, and coupled with undersupply, are making institutional investors pay attention to this sector.

Similarly, when the world hunkered down and abruptly shifted to a mostly remote, Internet-based existence, sectors like data centers and cell towers began receiving more investor attention, as did manufactured and affordable housing (of all kinds) as governments struggled to keep people in their homes despite increased levels of unemployment from the pandemic shutdown. It has become clear that

supply has not kept up with demand in any of these sectors.

The increased focus on sustainability mandates

Then there is the increased focus on sustainability mandates. The real estate industry is a long way from developing consensus on what it means, and how to, effect impact investing. To be clear, it is not ESG and shouldn't be confused with it. At its foundation, impact investing is an old concept; it is about serving the dual mandate of generating positive social (or environmental) change and generating financial returns. Put differently, it requires taking ESG principles and executing them into a distinct investment strategy. For real estate, it has easily been identified with improving the resilience of vulnerable communities and providing access for improved lifestyles, improved health services and livelihood opportunities. A straightforward example is affordable housing. As the boundaries of impact investing are not yet defined, investors have a role in helping to define them, and more importantly, to execute on them. The good news is that the pandemic is creating political

motivation within local, state and federal governing bodies to work with, and in support of, investors.

Defining the role of technology going forward

In the integration of technology into the real estate sector, the new ways of doing old things present exciting opportunities for investors. We do not mean apps at office buildings, but how big data can be used to improve the risk-reward equation. The visibility technology has into our daily lives from shopping patterns, time spent in stores and which ones, to where we go after we leave them, is already here. If we know more about buyers, sellers and consumers, doesn't that mean investors are taking less risk for the same reward? Then there are the cost efficiencies associated with substituting artificial intelligence for labor costs. New construction technologies are here, too. Technology can enable us to provide faster, cheaper and more efficient ways to build and replicate real estate assets — and it can also be used to replicate (or supplement) what people do in underwriting, building, managing, buying and/or selling properties. We are only in the first inning of capturing the value technology will bring to the real estate industry.

So, 2020 wasn't all bad. This isn't the return of the last financial crisis. The real estate market of 2021 is marked by uncertainty, but so far there isn't a credit crunch. That makes it unique and exciting to be a part of. Let's raise a glass and get back to work.

Deborah Smith is Co-Founder and Principal at The CenterCap Group.

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SUSTAINABILITY

CRE's 2021 ESG opportunity

Reducing carbon emissions is a goal for institutional investors. Managers who want to pass investors' ESG sniff test should focus on implementing strategies and showing data-backed proof.

he Covid-19 pandemic has had a dramatic impact on the real estate world, forcing businesses to be accountable in entirely new ways. While one might assume that the resulting economic downturn would have negative consequences on sustainable investing, this couldn't be further from the truth

Responsible investing and the search for long-term value doesn't disappear in a crisis. If anything, ESG investments have steadily increased since the start of the pandemic. By the end of 2020, the total assets in sustainable funds hit a record of \$1.7 trillion, up 50% over the year. Prom January through November 2020, investors in mutual funds and ETFs invested \$288 billion globally in sustainable assets, a 96% increase over the whole of 2019. The markets are responding and, in fact, are being increasingly proactive in their ESG strategies.

So what does this mean for commercial real estate? The industry is on the precipice of a digital transformation as the convergence of ESG, a new administration, occupant needs and market demands presents an

ideal opportunity for CRE to prioritize the "E" in ESG as an integral driver of economic recovery and long-term portfolio value.

Increasing awareness and action

2019 and early 2020 saw a resurgence of climate change awareness, inspiring many to take action and capital markets to react like never before. Industry leaders such as BlackRock, Goldman Sachs and Blackstone, among others, have announced that ESG will be a key factor in investment assessments moving forward. One of the world's largest investors, the New York State Pension Fund, announced this past December that the fund will divest from many fossil fuels in the next five years and sell its shares in other companies that contribute to global warming by 2040. 4

Data reveals that companies with strong ESG principles outperformed their conventional counterparts in terms of stock performance in the first quarter of 2020.⁵ Investors have taken notice.

Now, with a new Biden administration and a new climate plan that specifically

By Raphael Rosen, Carbon Lighthouse

SUSTAINABILITY

- Georg Kell, Covid-19 Is Accelerating ESG Investing And Corporate Sustainability Practices, Forbes, May 20, 2020.
- Attracta Mooney and Patrick Mathurin, ESG Funds Defy Havoc to Rachet Huge Inflows, Financial Times, February 5, 2021.
- Larry Fink, 2021 Letter to CEOs, BlackRock.
- 4 Office of the New York State Comptroller, New York State Pension Fund Sets 2040 Net Zero Carbon Emissions Target, December 9, 2020,
- ⁵ Karen Gilchrist, The Coronavirus Downturn Has Highlighted a Growing Investment Opportunity and Millennials Love It, CNBC, April 14, 2020.

calls for a reduction in building carbon emissions, ESG is only gaining momentum. The impact is felt even at the state and local levels as many hone in on their own climate plans. For example, Local Law 97 in New York City will require that buildings 25,000 square feet or larger reduce their carbon emissions by 40% by 2030 and 80% by 2050. These macrotrends have created a promising path for ESG and economic recovery in 2021 and CRE now has the cost-effective technology solutions — advanced AI, deep data analytics, sensors, modeling capabilities — to unlock the value that ESG has to offer.

Data-backed ESG for a competitive advantage

Critical to ESG is proof. Until now, the industry has dealt with greenwashing without real impact. Yet, with the market demands for demonstrable carbon reduction impact, many owners are struggling to find a path forward amidst the complicated economic impacts of the pandemic.

With every expense — both existing and new — under increased scrutiny, only data-backed investments (ESG or otherwise) that show real financial and climate impact will pass investors' sniff test. The good news is that technology is redefining measurement and reporting for key sustainability initiatives. With AI and machine learning technology, CRE owners now have the advanced technologies, sensors, software and analytics tools that are cost-effective solutions in demonstrating proof of their carbon emissions reduction.

As CRE looks toward recovery, it will be critical to also demonstrate this ESG impact to tenants as well. Employers are seeking sustainable workspaces in

Quick wins to reduce carbon emissions

CRE managers can adopt some energy strategies to reduce carbon emissions, such as:

- Focus on the asset's biggest energy users and carbon emission contributors: the heating, ventilation and air conditioning system. There are solutions that don't require capex heavy fixes. For example, building management systems (BMS), advanced sensors, Al-driven software solutions and data analytics will help better manage the overall HVAC systems to ensure each individual piece of equipment is working efficiently and effectively as part of the overall system.
- Start with low-hanging fruit with cost-effective updates in the lighting system.
 Make sure you're using LED lights throughout the building, as well as sensors and automated scheduling to align use of lighting to when spaces actually need lighting (vs. after hours or when a conference room is not being used).
- Find energy saving solutions that also account for the 50% of energy used by tenants in triple-net lease structures.
- Data-back carbon reductions to easily market proof back to investors, tenants, staff and all stakeholders alike.

response to the demands of their employees. They understand the benefits of ESG for their employees and their business and will require climate-friendly workspaces as a result. Being able to clearly demonstrate the true ESG impact of a building will provide an unparalleled competitive advantage as CRE begins to reopen this year.

The long-term value of ESG

Maximizing a building's energy usage through ESG measures has a direct impact on overall net operating income (NOI) and subsequently drives substantial increases in asset value upon disposition. In the case that an owner ultimately wants to sell a property, they'll be more likely to attract investors. For those buying, ESG will be a key qualifier for which properties to invest in.

So much of the built environment can be optimized for enhanced societal and environmental benefits. Now it's up to Maximizing a building's energy usage through ESG measures has a direct impact on overall net operating income (NOI) and subsequently drives substantial increases in asset value upon disposition.

forward-thinking CRE leaders to take the necessary actions to prove out the holistic ESG approach. •

Raphael Rosen is CEO of Carbon Lighthouse.

Driving INNOVATION with data

Having the right people and processes to govern data and its transformation will determine the long-term winners in a rapidly changing environment.

nnovation is taking place first and foremost through digital transformation with data at its heart. Over the next 10 years, it is predicted that over 80% of companies will invest in digital transformation at an accelerated pace. Utilizing big data and advanced analytics will drive change in new frontiers for competitive differentiation. Innovating with data is the ultimate disrupter for value creation, while failure to engage with data can become a real threat to the survival of an organization.

Loosely defined, data innovation is a system, process or product that has not yet been invented but will meet a measurable need or provide an effective solution. There is a clear business case for the real estate investment management industry to capitalize on data insights. For example, digital strategies in the built environment include advanced analytics, AI and machine learning for real-time asset valuation, capital raising and portfolio

optimization, technologies for property management and leasing, improving the tenant experience, 3D virtual property tours using augmented and virtual reality, blockchain technology, smart buildings and more. What will the future's most successful companies look like if every business is a digital business at heart? They will embrace data innovation and technology and new ways of working. Those that do this at scale will be the winners.

From boutique real estate investment management firms to global REIMs, harnessing data to drive innovation, improve performance and achieve a competitive advantage are the best ways to keep ahead of the digital transformation curve. At its core, REIMs need to change how they engage with technology to innovate. A great place to start is with their data. Innovating with data in an ever-evolving environment will prove essential for real estate investment managers to ensure long-

By Linda J. Isaacson, Ferguson Partners

DATA STRATEGY

¹ Deloitte, Data Governance and the Board, 2020.

term competitive growth. The critical areas of productivity needed to achieve digital transformation include people, processes and technology. Beyond defining a data strategy, focusing on the people and processes governing the data will be critical for digital transformation.

Key driver: People

Recruiting the right talent to achieve digital transformation is not only a good investment — it is essential. Data literacy is a core competency in the transformation journey. Without the necessary instincts and experience to operate in a digital domain, reskilling will be vital. Scale through automation, a shift in resources and digital agility are substantial challenges to overcome. At the same time, hiring those with deep expertise is critical.

For larger, global REIMs, experts in systems thinking, artificial intelligence (AI), machine learning (ML), data scientists and talent with advanced analytic capabilities in building complex algorithmic models may need to come from the outside, even beyond the real estate industry. While AI and advanced analytics talent are valuable resources, engaging a data scientist team is not a prerequisite to innovating with data identifying and retaining individual contributors with the competencies to drive advanced analytics, insights, business intelligence, reporting, data governance and visualization will be essential for REIMs of all sizes.

As the focus shifts to building predictive and prescriptive models for data innovation, having high-performing talent to achieve competitive differentiation becomes crucial. There are already real estate investment managers using data insights to make

Recruiting the right talent to achieve digital transformation is not only a good investment—it is essential.

decisions rapidly without human intervention. All organizations, regardless of size, should include a chief data officer (CDO) or head of analytics in their data transformation planning to ensure disciplined governance, a key role in driving the success of innovating with data assets. It is difficult to outsource this function entirely, although there are companies that will refine an organization's data and analytic functions, and establish and lead their data governance programs. Data literacy, an essential component of a data-driven culture, must become a core competency of leadership within the enterprise, even if the CDO role is outsourced. Safeguarding proprietary data assets in REIMs, both large and small, is critical.

Deriving a competitive advantage requires REIMs to leverage and manage their data sets' quality and exclusivity regardless of structural size. A sustained commitment by the leadership is imperative. A team of skilled advisors with the experience and technical resources to help organizations design and implement their programs is also especially valuable to achieve success.

Key driver: Processes

Better internal data management leads to better decision-making. Technologies and tools help with workflow solutions for advanced, predictive and quicker decisions. Numerous studies show that data and analytics are critical to an investment management solutions process. For real estate, data insights include information regarding capital formation, fundraising, acquisitions, leasing, operations, tenant experience, disposition management, portfolio management and financing for a holistic view of the real estate investment management landscape.

Before embarking on any transformation project, structuring and defining data innovation will be essential. Foundationally, data governance needs to be developed and embedded throughout the data innovation process. Those that have not engaged in the process need to do so as soon as possible. Data governance is an iterative process continually applied within the organization. It refers to the policies and processes by which an organization defines the use, quality, consistency, usability, security and availability of its data and information.1 Arguably, how an organization gathers data and intends to use information will be integral in determining its strategic direction.

Standards for governance, which are crucial in assessing the risk profile, need to be raised. Minimizing risks associated with poor data management is just as integral in the governance model. A great investment manager must identify emerging trends and understand its customers' changing needs. Stakeholders and investors continue to demand transparency of information as the industry moves toward real-time valuation and reporting. Access to thirdparty and non-traditional data sources will power an investment manager's insights. A data-driven organization must have a continuum of clean core data and a robust roadmap to innovate.

Hurdles to adoption

Data can transform the way REIMs do business at all levels and processes. Data offers unparalleled insights and predictive abilities, but only if leveraged. For many REIMs, obtaining value from data is a challenge. A primary hurdle to innovating with data includes the lack of a data-driven decision-making culture. Such a culture questions return on investment challenges such as complexity, IT support, governance requirements and legacy systems; project costs can escalate unpredictably. Quality leadership and management's active role in driving data innovation in business models and across the enterprise are critical to success. Data innovation rarely performs well in isolation, and a data evangelist is needed to scale the strategy across all business functions.

Outcomes key to data innovation include better underwriting, superior analytics and access to more significant capital for real estate investment managers. Advantages of scale are not achieved if data is not optimized. The more data one can gather and analyze, the better the potential for new products and the greater the ability to attract customers at scale. Managers have to continuously repeat this process, lest they stagnate or fall behind. An open and inclusive platform that takes advantage of an entire ecosystem of data, while critical, does not change the fact that competitive advantage lies in proprietary data, leveraging the information and more differentiated decisions. As rapid digitization exposes systemic risks and technology surges worldwide, protecting, governing and innovating with data are ever complicated by an evolving digital landscape.

Additionally, the pressure on technology professionals has increased. Under the guise of Covid-19, cyber threats have increased, and becoming more proactive across all of IT infrastructure has become a leadership mandate. Beyond technical and talent challenges, ensuring the right internal culture is vital. Data-driven transformation cannot be attained without exceptional leadership, skill and a governance process.

First and foremost, leadership, especially the C-suite, must play an active role in leading data management strategies throughout the enterprise. While only 20% of data drives key insights within an organization, 100% enterprise participation is critical to ensure a data-governed platform. There are best practices for governing data, and not all strategies include adopting the most advanced technologies. Embedding a data steward within and across business units and portfolio companies has been shown to optimize the data. In organizations of all sizes, utilizing this best-in-class model, which ranks business units one against the other, is a strategic

way to enhance outcomes further and improve performance. Education, data literacy and reskilling at all levels will also be imperative to success. Key performance indicators (KPIs) to monitor individuals and business units, accountability, and real-time compliance are becoming essential. Those with the best data capabilities and systems win.

In larger managers, a central team can keep the management team informed and engaged in the governance framework and process. In smaller firms, management must engage and seek this information. Beyond the need for transparency and effective data governance, data regulations,

particularly those protecting private information, are imperative.

Solutions for REIMs

AI and ML are in the foundational stage in a long-term shift in societal and business decision-making. Both large and small REIMs must implement strategies to innovate with their data assets to compete in a rapidly changing world. Replicating human intelligence is not the goal, but utilizing AI and ML can produce sustainable competitive advantages. Investing in data and technologies is a necessary step in the innovation revolution. Predicting outcomes improves when proprietary data and emerging, nontraditional data sets are applied to complex problems. Determining a solution is not a singular function. It requires a deep dive into data and its implications across platforms and customers.

Data innovation can be applied successfully to diverse areas such as data science and experimentation, robotic process automation, advanced analytics and data management. It also applies to data quality, data optimization, business intelligence and dashboarding, predictive modeling and insight operationalization. The insights gained through data innovation will enable REIMs to optimize performance and improve ROI. Firms that formulate and utilize innovative approaches and have leaders actively engaged with enterprise-wide datadriven techniques will improve predictive outcomes and become market leaders. •

Linda J. Isaacson is Managing Director, Global Head of Innovation + Technology at Ferguson Partners.

Controlled environment agriculture:

Controlled environment agriculture has the solutions to significant food production and environmental issues. Now it just needs the capital.

The NEW asset Glass on the block

By Jacob Tannenbaum, Barclay Fellow

BARCLAY FELLOW

- 1 Center for Food Safety and Applied Nutrition, US Food and Drug Administration, FDA Strategy for the Safety of Imported Food, 2019.
- ² FAO, IFAD, UNICEF, WFP and WHO, The State of Food Security and Nutrition in the World 2020: Transforming Food Systems for Affordable Healthy Diets, 2020.
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ike extracting bread from air."
In 1908, Fritz Haber's invention of synthesized fertilizer revolutionized the agriculture industry. Through a process of extracting ammonia from the air for fertilizer use, annual global crop yields doubled overnight. His invention is credited with our ability today to feed billions of people. But new problems are catching up to us.

Here in the United States, we are currently extremely reliant on international imports to meet our produce needs. Coupled with the challenges of affordability and accessibility of labor, much of the country is also incapable of producing outside for the colder half of the year. As of 2020, 53% of all the fresh fruit and 32% of all the fresh vegetables consumed in this country are imported. ¹ Increasingly

unpredictable weather patterns are only making the challenges of conventional domestic farming more difficult. Globally, we are still struggling to meet demand for produce. A 2015 World Health Organization study found that only 36% of the global population has adequate availability of fruits and vegetables to meet minimum nutrition targets.²

Fortunately, a new wave of technology categorized as controlled environment agriculture (CEA) has the potential to revolutionize America's food production system once again and help alleviate the greater global deficit of high quality, affordable produce. CEA is proven to increase yields per acre by a magnitude of over 10 times that of conventional agriculture through curation of year-round, ideal conditions and symbiotic micro-ecosystems.³ Conventionally, these facilities use

hydroponic, aeroponic and aquaponic systems to grow vegetables without soil. This technology allows growers to use exponentially less water and fertilizer than conventional field agriculture. With new innovations in digital monitoring, robotic harvesting, and automated sorting and packaging, the challenges of finding labor are also alleviated. Equally important, CEA avoids the externalities of environmental degradation, which is systemic in conventional agriculture.

Through CEA we are able to produce higher quality crops without damaging the ecosystem. The controlled environment facilitates the elimination of toxic chemicals in exchange for biological pesticides (predators for parasites). Additionally, as facilities move closer to market, breeding programs are able to pivot away from a focus on shelf life (for long-haul shipping) towards flavor, texture and nutritional value. Changes in consumer demand for healthier local food is creating growing demand for CEA and ultimately opportunities for investment in the asset class.

Overview

Over the last century, conventional industrial farming has had catastrophic effects on the environment. Chemical pesticide use has decimated insect pollinator populations. Monoculture farming, erosion from tilling, herbicides and fungicides have polluted, depleted and sterilized our soils. Excessive fertilizing has polluted our water. It is not an exaggeration to say that the choices we make today will have cascading effects for centuries. The Food and Agriculture Organization (FAO) estimates that 33% of the world's soil is moderately to highly degraded through erosion, salinization, compaction,

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- ⁴ FAO, Polluting Our Soils Is Polluting Our Future, May 2, 2018.
- ⁵ Euan McKirdy, New Study Suggests Insect Populations Have Declined by 75% over 3 Decades, CNN, October 20, 2017.
- ⁶ Maarten Elferink and Florian Schierhorn, Global Demand for Food Is Rising. Can We Meet It?, Harvard Business Review, April 26, 2019.
- S2G Ventures, Growing Beyond the Hype: Controlled Environment Agriculture, 2020.

acidification, chemical pollution and nutrient depletion. These degradations hamper the soils' ecological functionality, affecting its food production capabilities.⁴ Insect populations have also declined by 75% over the past three decades, largely due to agricultural practices, hampering natural breeding and fruiting processes.⁵ The cataclysmic loss of biodiversity is reaching a breaking point that will not be easy to reverse. Therefore, it is critical that we reinvent the way in which we produce our food. Controlled environmental agriculture addresses all of these environmental concerns by creating a closed loop system.

CEA can be classified into three main structures: high tunnels, greenhouses and plant factories. Each has its own benefits and limitations.

- High tunnels are the least expensive and most common solution in the market today. At as low as \$3 per square foot in construction cost, they require very little capital to get started. While they are a great improvement over conventional agriculture, they have a short life span, are very susceptible to environmental damages, are less light and heat efficient, and are uninsurable.
- Greenhouses average \$35 per square foot at commercial scale and are the most energy efficient form of CEA.
- Indoor plant factories typically what people think of when they think of vertical farming are highly variable in price (generally between \$100 and \$200 per square foot for new construction), but can essentially be established in any reclaimed building or container. They are very high in climate control efficiency and yields per acre possible (by growing vertically), but are more

ESG considerations

CEA is a better impact solution than many other popular alternatives. It is often carbon negative. It requires limited use of rare earth metal materials whose mining undermines the true environmental values of many energy-oriented investors. It very poignantly addresses the problems of biodiversity and habitat loss. It decreases agricultural water usage by over 95%. It dramatically reduces shipping waste. And socially, it has the potential to solve global food crises.

limited in what crops they can grow efficiently. Plant factories also require extreme electricity consumption. For example, lettuce crops grown by CEA consume upwards of 350kWh per square foot per year compared to a typical greenhouse's 25kWh per square foot.

The costliest aspect of running any CEA facility is electricity consumption. Not accounting for transportation or increased quality's value proposition, electricity consumption is the biggest barrier today to achieving production cost parity with conventional agriculture. The key to understanding the efficiencies is to look at supplemental lighting efficiency, the cost of electricity and local conditions. Consider this: In New York state, at current electricity prices, even if LED technology was perfected to translate

100% of input energy to light, a greenhouse's use of the sun and supplemental light (instead of 100% artificial lighting) is still more efficient than the benefits of a plant factory's more insulative qualities.

For this reason, choosing the right asset type to invest in for a given location is critical. Are you near the Arctic Circle where natural sunlight is very limited for half the year and temperature lows are extreme? Then a plant factory is likely the correct option. Are you in a generally mild climate state with high electricity costs? Then a greenhouse may be right for you.

Opportunity

As of today, investment in CEA has reached just over \$2 billion across North America and Europe. The compound annual growth rate for the North American vegetable greenhouse market since 2007 is greater than 20%. In a \$20 billion market, crops from CEA facilities only account for 1.3% of the annual produce consumed in the US. With total food demand expected to increase between 59% to 98% by 2050, CEA's growth potential is exponential. This does not even account for the opportunity of increased produce demand facilitated by improved accessibility; research shows an increase of up to 32% in produce consumption for each additional supermarket in a census tract.⁷

11 Not accounting for transportation or increased quality's value proposition, electricity consumption is the biggest barrier today to achieving production cost parity with conventional agriculture.

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The barrier for some, and therefore the opportunity, is that these facilities require high upfront costs. In addition to the structures themselves, the intricate hydroponic irrigation systems, robotic equipment and sensory equipment can carry a large price tag. As a plethora of start-up companies race to compete and establish market dominance, they are hungry for capital. As such, many forego ownership of their facilities, instead focusing on their core expertise and leveraging capital towards opening more facilities.

Several developers and investors are capitalizing on this opportunity in a number of ways. The most common is a sale-leaseback. As examples: Equilibrium Capital acquired and leased two greenhouse facilities to indoor agriculture company Revel Green for \$11.3 million. It plans to finance at least three more greenhouse facilities. Another firm, Green Acreage provides sale-leaseback and construction financing to companies operating in the cannabis industry. Green Acreage invested \$77.3 million with Acreage Holdings that entered into longterm, triple-net lease agreements with Green Acreage for properties in California. Other players in the market executing similar strategies include Power REIT, which owns six CEA properties in southern Colorado and Maine with a total of approximately 131,000 square feet of greenhouse and processing space; and Innovative Industrial Properties that focuses on the acquisition, disposition, construction, development and management of CEA facilities across the country.

To better understand the lucrativeness of the opportunity, Innovative Industrial Properties states that their typical absolute net lease terms are 10 to 20 years with base rents at 10% to 16% of

total investment and 3% to 4.5% annual rent escalations. Typical deals range from \$5 million to \$30 million and carry security deposits and corporate guarantees. This compares quite favorably to conventional farmland sale-leasebacks that often have 5-year terms and net around 5% of the purchase price as base rent and escalate 7.5% to 12.5% every term.

Other growers have opted for mixeduse facilities where they can rent rooftop greenhouse space. This allows growers to be in deep urban locations and virtually eliminate shipping expenses. For example, Gotham Greens recently purchased and built a 15,000 square foot greenhouse on a vacant Brooklyn rooftop. Others have chosen to take the concept directly to the literal market. BrightFarms has, to date, signed up eight supermarket chains around the country — including three of the largest national chains - to build these rooftop farms for about \$2 million per acre. The facilities are expected generate \$1 million to \$1.5 million in annual revenue.

International investment continues to be an important funding source for controlled environment agriculture as countries like Saudi Arabia and the UAE look to establish sustainable domestic food systems through the furtherance of the technology. Many CEA growers have gotten their start through partnerships with sovereign wealth funds.

The opportunity is clear; how real estate investors choose to enter the space is up for debate. Funded by \$82 million from Equilibrium Capital, AppHarvest, a 3-year-old start-up, has purchased 366 acres in eastern Kentucky with the goal of leveraging economies of scale. With plans to develop a 2.76 million square foot greenhouse for

Although CEA has existed for the past decade, technological development and botanical research have greatly reduced the risk and challenges of the business. 77

\$97 million, AppHarvest will be one of the largest greenhouses in the world, supplying much of the Eastern seaboard within one day's drive.

Conclusion

Although CEA has existed for the past decade, technological development and botanical research have greatly reduced the risk and challenges of the business. Digital monitoring and control technologies have simplified running a CEA facility. Concurrently, consumer demand for high quality organics has risen dramatically, creating a bigger market.

As we stand today, the climate crisis has reached boiling point and habitat degradation has pushed biodiversity to the brink. CEA stands as a profitable, sustainable, lower risk alternative to conventional agriculture; its biggest challenge is simply the upfront costs of developing the facilities. •

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