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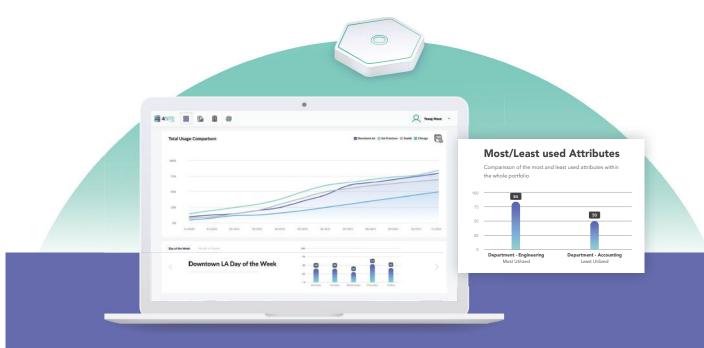


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Mary Guiteau

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(FMA)

IFMA is the world's largest, most widely recognized association for facility management professionals, supporting more than 20,000 members in 135 countries. Founded in 1980. IFMA's vision is to lead the future of the built environment to make the world a better place. A key contributor to the development of international FM standards. IFMA provides career resources, continuing education and three industry-respected credentials; maintains the largest repository of FM-related content on the web: and hosts year-round global events. Among the values that guide us, we believe in the benefit of global diversity, inclusion and social equity; and we recognize that sustainability, resilience and responsible environmental stewardship are paramount. For more information, visit ifma.org.

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Editor's Note Bobby Vasquez

When we grab a screwdriver, open a laptop or start the coffee maker, we have the expectation that each of these tools will perform the function they are intended to do. Each has a purpose for which we are familiar. Their use is not interchangeable — screwdrivers do not make coffee; laptops do not tighten screws.

Yet as we continue in new ways of working, our expectations for the purpose and use of buildings have changed, escalated, evolved. Once familiar to us as a place of work, today's workplace is expected to be a model of sustainable, aesthetic, automated, hygienic, inclusive, collaborative, innovative excellence. Heightened employee experience is driving much of this transformation, and the needs and wants of the workforce are changing daily — sometimes hourly.

However, to perform at their maximum, optimal level, our facilities must be able to perform at the bare minimum. None of that happens at any level without the capable knowledge and skills of an FM and their team.

This issue of IFMA's FMJ focuses on the spot where form meets function — and how FM plays an integral role in the strategy, process, practice and purpose that make our facilities what they need to be for the people who need them.

From the ever-evolving questions of space and how it is used to safely getting occupants in and around the building, FMJ authors present the latest best practices for FMs to stay flexible and responsive.

It's no secret that the future of workplace is design is here. The styles of work that have proven successful all had one thing in common — they stayed relevant. For organizations to stay relevant, they must provide spaces that are flexible, and it looks like that will be the standard for a long, long time (Page 13).

The workforce has spoken, and they have their concerns about what sort of workplace they're walking into. Organizations must prove their investment in resiliency technology to their personnel. FMs face a lot of choices to get this right, but the right place model can improve morale, productivity and a preference to be in the office. (Page 39)

Herding into a crowded elevator is never fun. With more focus on personal space and hygiene, people are more cautious when using vertical transportation. However, there are technological solutions available for smarter elevator traffic, especially in high-rise facilities (Page 35).

While the architectural adage of form follows function rings true, FM is the axis where form meets function — where space and its use find a purpose that exceeds our expectations.

Cheers!

STAFF EDITOR IN CHIEF

Bobby Vasquez

bobby vasquez@ifma.org

SENIOR EDITOR & WRITER

Chablis Lindquist

chablis.lindquist@ifma.org

SENIOR ACCOUNT MANAGER

Diana Maldonado diana.maldonado@ifma.org

DESIGNER

Ellen Peeples Cregan

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Mindy Williams-McElearney Director Turner & Townsend New York, New York, USA

Interested in writing for FMJ?

Email **bobby.vasquez@ifma.org** article ideas to be considered for future issues of FMJ.

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From the **Chair**

PETER ANKERSTJERNE

MBA, COP, IFMA FELLOW

Chair, Board of Directors Form follows function is a design principle associated with late 19th century architecture and industrial design, which states the shape of a building should primarily relate to its intended function or purpose. This principle still holds true and has probably never been more relevant than now, in the wake of the COVID-19 pandemic.

But what is now the purpose of the workplace? This is an essential question to ask yourself and your leadership team as we enter a new era in which the role of work and thus the workplace will fundamentally change. The future of work is now, and with it comes a variety of new work models, which we as facility and workplace managers will have to adapt to — now and in the years to come.

With increasing emphasis on technology and information management, the key words of today's workplace are flexibility and adaptability. The combination of economic, demographic, sociographic and technological developments over the last few years has resulted in significant changes, demanding adjustment to new requirements on employee experiences, workplace design, health and well-being and, not least, sustainability.

Facility and workplace management is critical in adapting to this change and in helping our business to thrive in a new, post-pandemic reality. During the lockdown, we have become change experts as we deal with workplace and workforce modification on a daily basis. We have maintained and improved workplace environments as employees have been going in and out of lockdowns. We have constantly complied to changing safety and security measures. On top of that, we tackled the increasingly complex integrations of data and new technology solutions to manage occupancy and service provisions — continuously optimizing the workplace to support every aspect of the business it touches.

Although the last two years have brought massive change to the workplace — which has probably not been seen at the same scale since the Industrial Revolution — the FM industry has pivoted and risen to the challenge. Recognizing that this is only the beginning, we should accept that the speed of change will probably continue at this high pace well after COVID-19.

New challenges are on the horizon, especially where the adaption of new sustainability standards and the drive toward net-zero carbon emissions will lead to even more change.

Technology and digitalization will certainly help us manage all the new requirements and support us in getting in front of the transformation. However, we must stay vigilant, ready and adaptive with a strong focus on not just managing change for the sake of change, but to understand how each new initiative and activity will support the business and the people within. Form does follow function, not only in design but especially in facility and workplace management.

With all the new requirements and opportunities brought upon us over the past two years, the best recommendation I can give is: try to stay on top of trends by following the IFMA communication activities and specifically the output from IFMA Research and Benchmarking Institute (RBI). Update your skillset by engaging in IFMA training programs and participate in our events both in person and online. This will give you a fundamental understanding of what is coming next and how you and your organization can quickly adapt and continue to be at the forefront of developments — and when you are, remember to share your experiences with the association to help the next generation excel at an even higher level.



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From the **President**

DON GILPIN
President & CEO
IFMA

Most of us don't go through life unchanged. As we progress through life's journey, we accumulate knowledge and experience that shape and reshape our perspectives, paths and positions. Great stories are built around characters who evolve over the course of the narrative. How we respond to an unexpected turn of events, negotiate life's obstacles, seize opportunities and develop into more mature versions of ourselves are the building blocks of our own great stories.

Businesses, industries and occupations also change and grow. As in life, with maturity comes more responsibility, higher expectations and an elevated level of influence. Over the past 40 years, facility management has evolved from a role primarily concerned with operations and maintenance to a strategic business partner, consulted in areas significant to the strength of the organization, the health and safety of occupants, and positive impacts on the community and planet.

Just within the last two years, FM experienced an unanticipated growth spurt. Having proven itself both capable and essential to business resilience and continuity, FM has not only gained recognition, but also clout. The C-suite depends on FM as a well-informed resource, providing highly technical information combined with rational guidance and creative ideas to help organizations make the right decisions for their employees, investors, future talent and Mother Earth.

While in college in the mid-1980s, I worked for the Dayton Hudson Corp. (now Target Corp.) in a department called "Office Services," which operated in tandem with building management for a 57-story skyscraper in downtown Minneapolis, Minnesota, USA. Our department coordinated and oversaw cleaning, maintenance, food/beverage service and package delivery to executives. We also had sole responsibility for the company's Qwip machine. The precursor to the modern fax, Qwip was advertised with the ability to "show your phone how to read and write." Magic!

Since joining IFMA in 2018, immersing myself in the profession of facility management, I began to realize that I spent my college years in FM — at least, FM as it was in that formative time. In the Office Services department, we never heard or discussed terms like "human factors," "sustainability," "building life cycle," much less "carbon neutrality" or "adaptive reuse."

Obstacles and opportunities have shaped and reshaped the FM profession. Now, thrust into the center of the return-to-occupancy, climate change and organizational culture conversation, all eyes are on FM for best-practice leadership. FMs are juggling physical space with IT needs, supervising health and safety protocols, tracking energy usage, retrofitting aging systems, supporting a hybrid workforce, and directly impacting employee performance, recruitment and retention — more responsibility, higher expectations and an elevated level of influence.

FM's advancement to becoming a trusted central figure in all things related to the built environment — consequently impacting the business, lives and communities — is a great story. IFMA is proud to be a supporting character. After all, in another epic story, "Frodo wouldn't have got far without Sam."

IFMA is your career-long learning partner. As your guide on the professional leg of your journey, we are constantly on watch for emerging topics, technologies and tools, bringing you timely information and resources so that you continue to thrive along with your ever-maturing occupation.

I leave you with this ... for a chuckle and to see how far FM has come since I was involved in Office Services, Google "Qwip machine" and click on images. Sometimes we need to revisit our past to appreciate our present and open our minds to what new magic lies ahead.

Vorda T. Liga

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How can FMs support the United Nation's UN2030 Sustainable Development Goals?

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- > be part of the conversations with experts to help achieve the goals
- > choose the particular SDGs you can work on immediately
- > help inform the ISO FM Taskforce on their work on standards around the SDGs

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If interested in impacting the life of a future FM leader, Contact Program Support Specialist Christina Gonzales at christina.gonzales@ifma.org to learn how to become a sponsor.

SUSTAINABLE GOALS





































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Industry News



Remembering Past Chair Richard Pierce, CFM, IFMA Fellow

IFMA mourns the passing of IFMA Fellow, IFMA Distinguished Member and 2001-02 IFMA Chair Richard D. Pierce. Following a five-month battle

with cancer, Pierce died peacefully at his home on Jan. 17. His family is planning a celebration of life service for April.

After joining the association in 1989, Pierce served on IFMA's Madison Chapter board as secretary/treasurer (1990-91), vice president (1991-92) and president (1992-93), helping to strengthen the chapter by initiating its first strategic plan. In 1998, he received IFMA's Distinguished Member Award; and in 2000, he was named to Facilities Design & Management magazine's "10 to Watch" list. A year later, he was elected chair of IFMA's board of directors, providing steadfast leadership balanced by thoughtful consideration.

Seeing the need to begin forging partnerships with likeminded organizations on a global basis, his efforts led to many of the beneficial partnerships and significant collaborations that IFMA has today.

For more than 20 years, Pierce directed operations for the University of Wisconsin-Madison's most prominent and historic facility, the Wisconsin Union. With executive-level responsibility for facilities, strategic planning, capital budget forecasting and project management, he led the organization through a comprehensive facilities improvement master plan for all Wisconsin Union's facilities. This first-of-its-kind plan was carefully integrated with University of Wisconsin's Campus Master Plan. In 1999, the university's chancellor presented him with the Alumni Association Award for Outstanding Leadership.

Admired for his unbounded energy, selfless dedication, strategic thinking and high ethical standards, Richard Pierce will be remembered for his commitment to the growth of IFMA on a regional, international and cross-industry level, and as an inspiration to individual members.

OSHA ALLIANCE PROVIDES WORKPLACE SAFETY UPDATES FOR TECHNICAL GUIDE ASSESSING ROBOT SYSTEMS

Increasingly, U.S. industries are using robotic technologies to perform dangerous or repetitive tasks, and these systems are becoming more collaborative and mobile in nature. While these advances add new capabilities to work and the workplace, they also introduce new workplace hazards for those who work with and alongside them.

In 2017, the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and the Association for Advancing Automation (A3) formed an alliance to share technical knowledge, improve awareness about workplace hazards and appropriate safeguards, and identify needed research on the use of

traditional industrial and emerging collaborative robotic technologies.

The alliance recently updated and expanded a chapter in OSHA's Technical Manual on Industrial Robot Systems and Industrial Robot System Safety, including current technical information on the hazards associated with industrial and emergent robot applications, safety considerations for employers and workers, risk assessments and risk reduction measures.

The manual serves to guide OSHA compliance officers as they perform inspections at facilities with robotic systems and provides a technical resource for safety and health professionals overseeing the use of robotic systems in workplaces.

"Robot use will continue to expand, and employers have a responsibility to assess the hazards these new applications may introduce and implement appropriate safety controls to protect the workers who operate and service them," said Douglas Parker, OSHA assistant secretary of labor.

The World Robotics 2021 Industrial Robots report estimates that more than 310,000 industrial robots now operate in U.S. factories. The continuing rise of robotics increases the risks associated with robotic systems' hazards such as struck-by/caught-between, crushing and trapping, electrical, hydraulic, pneumatic and environmental.

Learn more about robotics at osha.gov/robotics/hazard-evaluation-solutions.

Have relevant FM industry news to share?

Submit your news to be considered for inclusion in the Industry News section of the next issue of FMJ. Send us an email at **communications@ifma.org**

Expo 2020 Dubai wraps up, but its legacy (and buildings) will live on

For 170 years, World Expos have provided a grand stage for invention and cultural exchange. Postponed due to the COVID-19 pandemic, Expo 2020 Dubai — the first World Expo hosted in the Middle East, Africa and South Asia (MEASA) region — opened last October and concludes March 31, 2022. For the past six months, Expo 2020 has placed a spotlight on shared global challenges. Through its theme of "Connecting Minds, Creating the Future," the Expo invited nations, industries and individuals to not only showcase their scientific and technological breakthroughs, but also share sustainable, equitable ideas for planet-wide benefit.

According to the Expo 2020 Dubai website, the Programme for People and Planet "is a platform for the free and open exchange of new ideas and innovations. It's designed to help reimagine the global economy; place equality, universal respect and human dignity at the centre of human progress; and instill a sense of responsibility to live in harmony and balance with the natural world."

As part of the program, 10 theme weeks ran throughout the Expo, offering an exchange of inspiring new perspectives to address the greatest challenges and opportunities of our time. Representatives from governments, companies and universities sat down with topic experts to explore humanity's most critical challenges — climate change, world health — and opportunities — inclusive workplaces, digital transformation — through a cultural, social, environmental and economic lens. A few interesting conclusions:

Adaptability, resilience and microcredentials — short, outcome-focused courses, rather than lengthy degrees — will play an ever-increasing role in a job market where skills are changing rapidly.

The Fourth Industrial Revolution has the potential to create a more efficient, prosperous future; but its benefits may not be distributed equitably among marginalized communities, developing countries and genders.

The potential for innovative technology to improve quality of life beyond borders and minimize environmental impact has yet to be realized.

Home to six out of 10 of the fastest-growing economies in the world, Africa's youth population will make up 42 percent of the world's youth by 2030, presenting numerous opportunities for its population.

In the future of work, when machines will be able to execute most automated tasks, human thinking and creativity will be more valued.

Creating standards on the ethics of AI, ensuring robust data collection and protecting digital privacy are the most important factors building trust in the increasingly omnipresent technology.

In addition to 192 country pavilions, three large pavilions in the central plaza dedicated to the expo's sub-themes — Opportunity, Mobility and Sustainability — showcased mindbroadening projects, technologies and experiences. In line with the sustainability subtheme, once the expo concludes, 80 percent of Expo-built buildings and structures — including Al Wasl (meaning "connection" in Arabic), the largest 360-degree projection dome ever built — will be repurposed into a mixeduse, human-centric smart city called District 2020. According to the District 2020 website (district2020.ae), the future city will "contribute to the growth of Dubai's innovation economy through a focus on four key growth industries and disruptive technologies such as IoT, Al, big data and blockchain."

Study: Businesses look to resume global expansion plans following years of pandemic disruption

International accounting, tax and payroll management firm Auxadi explored the expansion plans of 100 global businesses, finding that 97 percent were planning to expand into new markets by 2023. Of those, 69 percent planned to expand to Asia Pacific, followed by Central America and Africa (59 percent).

Overall expansion optimism is high among businesses — 40 percent of those expanding believe their investments will become profitable within a year. The average anticipated timeframe for profitability stands at 18 months. Europe is viewed as the market that will yield returns the fastest (one

year), ahead of the U.K. (one year and one month) and Central America (one year and four months).

Top factors impacting a firm's choice of regional expansion include potential for growth and capturing market share (53 percent), demand for similar products (50 percent), market conditions (43 percent) and the ease of setting up a business (41 percent). Interestingly, a country's track record in dealing with COVID-19 was rated as the least important driver, with just 4 percent of respondents citing this as a factor.

Industry News

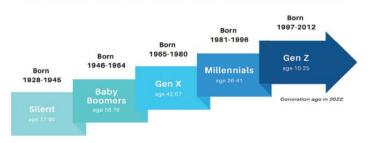
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NO LOOKING BACK: The New Design of the Workplace



As times change, so does the workplace. Generational shifts and societal changes are leading the charge toward a new work environment. Perhaps more than any other time in history, the workforce is now multigenerational. As the aging population works longer and the younger population enters the workplace, a wide variety of ages, lifestyles and working styles are all in the same space. The workplace has become a proverbial soup pot, in which a variety of unique ingredients (people) are thrown together, bound by the pot (their surroundings) and fortified by a roux (the organization). Everything comes together to create a wonderful product while allowing each ingredient to retain some of its unique qualities.

GENERATIONS IN THE WORKFORCE



Once organizations understand the extent of the different generations in the work force, it is helpful to appreciate each generation's unique preferences regarding career and communication styles.

THE GENERATIONS AND VARIOUS CHARACTERISTICS

GENERATION	BIRTH YEARS	CAREER ATTITUDE	COMMUNICATION MEDIA	COMMUNICATION PREFERENCE
_				
SILENT	1928-1945	Jobs ara for life	Formal letters	Face to Face
BABY BOOMERS	1946-1964	Worksholics	Telephone	Face to Face, or phone/email if required
GEN X	1965-1980	Work/Life Balance	Email / Text	Text or Email
MILLENNIALS	1981-1996	Work "with" and not "for" company	Text or Social Media	Online and text
GEN Z	1997-2012	Career multitaskers	Hand held devices	Facetime

With such a wide variety of generations working together, the office environment is now required to be a multitasking workhorse that can suit many different work styles.

Past Workplace Design

To understand the future, it is helpful to first look to the past, offering a point of reference. The design of the office environment has evolved over the past several decades.

In the early 1900s, large commercial buildings and skyscrapers were developed with a mix of private offices for executives and bullpens for staff members. That workplace design lasted 60 years.

- In the late 1960s, there was finally a change, with a shift to various alternate work settings for staff. The invention of panel-based furniture systems allowed increased freedom of movement and a greater degree of privacy when working. This workplace design lasted 20 years.
- In the late 1980s, the cubicle farm was created. Each employee had their own tall, three-sided vertical division that defined their space. Enclosed offices were along the perimeter of the building. This workplace design style lasted 20 years.
- In the early 2000s, there was a shift toward providing more
 workers with natural light. Private offices were moved from
 exterior walls to the space's interior, and workstations were
 moved to the perimeter. This workplace design lasted 20 years
 and continues to be relevant today.
- In the 2010s, as technology developed, workers became more mobile. Tall panels went away, benching became commonplace, and office space became more open, flexible and fluid. This lasted 10 years and continues to be relevant today.

So, what's next for the 2020s and beyond?

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Future Workplace Design

In today's office environment, flexibility is the name of the game. Spaces must be agile and able to transform efficiently and effectively to suit the company's unique needs on any given day. Flexibility will keep spaces relevant, and relevance is needed to stand the test of time.

EFFECTS OF THE PANDEMIC ON THE WORKPLACE

Since 2020, companies have had to learn new ways of working.

The pandemic forced more people to work remotely. To do that, adequate technology was needed. This brought about a whole new element that had not previously been necessary. Yet, as the pandemic continued, companies and employees became more proficient at using technology. Video meeting software went from a foreign concept to a daily necessity. Everyone adapted.

As workers started reentering the workplace, it was typically done partially, with some working in the office part-time and remotely part-time. Other workers remained working remotely, with limited, occasional visits to the office. Out of necessity, hybrid working was born. In this mode of working, office spaces are less proprietary and more shared. Instead of workers having assigned desks or offices, those spaces are now used on a scheduled basis, increasing the efficiency of the office space tremendously. In turn, fewer spaces are needed.

With the dawn of remote and hybrid working, one thing employers and employees realized is that even though more distance may be needed between workspaces, the quantity of those workspaces could be reduced. The people working a hybrid schedule who were not in the office 100 percent of the time did not need to be in as large a space as when they were in the office full-time. Hybrid workers also did not need a designated workstation or office. Instead, those spaces became shared by different people based on the scheduling of workdays, requiring detailed planning on the front end to make sure it could work on the back end. Facility managers increased their usage of scheduling programs, apps and devices to accommodate this new way of working.









Photo courtesy of Steelcase

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ACK: NO LOOKING BACK: NO LOOKING BACK:



Photo courtesy of Glassdoor

Due to the multigenerational range in today's workplace, spaces must meet the needs of a wide variety of users, from the Baby Boomer who prefers to work in an enclosed office to the Gen Zer who likes to work from the café table. The way to provide a workplace that fits the needs of everyone is to provide options.

Providing a palette of place provides workers a variety of locations from which to work: an enclosed room, an open office workstation, a lounge area, a work café or an outdoor patio. Providing options, and letting the employee choose where they want to work, is an impactful benefit.



Photo courtesy of Steelcase

Providing a palette of posture is also an effective way to offer choices to workers. Being able to choose whether you work standing up, sitting down, walking or lounging can provide many benefits that enhance employee satisfaction.



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NO LOOKING BACK: NO LOOKING BACK:

What people want now:

Wellness

According to a study by Gallup, State of the American Workplace (2017), 87 percent of workers want healthier workplace options. Additionally, 93 percent of tech workers would stay longer at a job if given healthy options. Workplace wellness is trending in many industries, including construction, interior design and human resources. What LEED has done for the construction of buildings, the WELL Building Standard is now doing for the health of building occupants. Research has shown that people who work in buildings that promote wellness are more productive and happier. The WELL Building Standard is based around seven concepts to optimize health and wellness: air, water, nourishment, light, fitness, comfort and mind. Designing spaces that follow these guidelines can offer improved employee health, satisfaction and retention.

Choice & Control

Employees in today's workplace are no longer content with being given a desk and told where to work. They want choice and control, which includes the ability to choose where and how they work. This does not mean that employers have to offer unlimited options. Rather, employers can curate a limited number of suitable options from which the employees can choose. Even if it is small, any amount of choice and the feeling of control can go a long way in creating a positive work environment. A key aspect of choice and control is flexibility.

Technology

The pandemic is demonstrating that technology is the key to communication, no matter the distance; people can work effectively with people in other cities, states and countries. It removed the boundaries of proximity. Having a workplace with adequate technology is crucial in today's environment. Keeping up with the rapid pace of technological changes can be challenging. However, it is necessary to provide a digitally connected workspace. Employees expect technology to be readily available. They expect it to be intuitive and easy to use.







As times have changed, so has the workplace. From generational shifts to societal changes, many factors affect the work environment and propel it forward. Armed with an understanding of the multigenerational workforce and past workplace design, FMs can make informed decisions on the future of what workplace design can be — a future that includes a new approach to hybrid working, plenty of flexibility, spaces that promote wellness, offering employees choice and control, and providing sufficient access to technology. Ready or not, there is no looking back.



Mary Mowad Guiteau, IFMA, IIDA, is the director of interior design at Holly & Smith Architects, APAC, with offices in New Orleans and Hammond, Louisiana, USA. A

graduate of Louisiana State University, she has more than 22 years of commercial design experience, working with owners, facility managers, users, developers and real estate companies. She is a member of IFMA's Baton Rouge Chapter.

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Diana Maldonado +1-281-974-5674 diana.maldonado@ifma.org



Ebony Clay +1-281-609-0990 ebony.clay@ifma.org

With sweeping changes in work and workplace, it's imperative for facility management professionals to lead their organizations to higher levels of performance and experience. Hosted by the association that has provided training, knowledge sharing and support to FMs globally for more than 40 years, IFMA's Facility Fusion is about building future-ready leadership skills. It's about exploring what's possible – for our facilities, industry and careers. It's about synthesizing ideas and industries for a new world of work. It's about fusing methods and mindsets from both within and outside of FM to find answers. It's about having the tools to adapt to rapid change.





Going beyond the new normal

Normal has suddenly gone from new to next to now. Change is happening so fast, if you blink, you miss it. Facility managers have a principal role in adapting space, technology, policy and purpose for competitive advantage, improved user experiences and net-positive impact.

Extraordinary times call for extraordinary leaders. Supercharge your ability to enable advancement, both for you and your organization. Speakers will explore the latest built environment objectives and outlooks, providing direction in every area of strategic FM leadership – operational, digital, environmental, cultural, cross-functional and transformational.

2022 Facility Fusion Power Speakers



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Erik Qualman

Technology and digital leadership expert, author of Socialnomics

Listed by Forbes and Fortune as a Top 50 Digital Influencer, Erik Qualman will share strategic insights on becoming a disruptive digital leader. His book "Digital Leader" propelled him to be voted the second most likable author in the world behind J.K. Rowling.



How to Thrive in the Future of Work

Tim Salau

Mr. Future of Work & CEO of Guide

Tim Salau has championed inclusive innovation and led product development at top Fortune 500 and hyper-growth companies: Google, Microsoft, Facebook, and WeWork. Tim travels the world speaking with organizations, executives, and government leaders about the future of work.

FM Symposium

Beyond Net-neutral Buildings - The Net Positive Wednesday, April 27 | Noon - 1:30 p.m.



This year's FM Symposium unites a panel of global innovators to discuss the game-changing ideas and principles surrounding net-positive buildings. Going beyond the new normal requires businesses to reinvent themselves, generating positive change for people and planet. Better understand what's necessary for you to lead your organization to a net-positive future.

Moderator:
Jeffrey Saunders
CEO, Nordic Foresight

Register today at facilityfusion.ifma.org

Speakers



Thomas Nørmark
Director, Global
Head of Al &
Robotics, Innovation
Technologies



George Sullivan CEO & Sr. Principal, Net Zero Analysis & Design Corp.



Kevin Powell
Director, Emerging
Technologies, US
General Service
Administration



Scott Koloms
President and Owner
of Facilities
Management
Services



Martha Lewis
Head of Materials,
Henning Larsen
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In 2022, we all must enter into one partnership for the planet. Unlike other historic economic revolutions, this time there are two additional imperatives: The first is to save ourselves from the climate crisis, and the second is to build new green economies in every country so that everyone can share in the benefits from this green revolution. This will only be done if we invest in our planet's future together.

— Kathleen Rogers, President, EARTHDAY.ORG

Earth Day: April 22, 2022

#InvestInOurPlanet

IFMA joins more than 1 billion global participants to affect positive change

IFMA's Vision is to lead the future of the built environment to make the world a better place. The Values that drive us, guiding our association in everything we do, include:

- A belief in the benefit of global diversity, inclusion and social equity.
- Recognition that sustainability, resilience and responsible stewardship of the environment is paramount.
- A commitment to open, honest, transparent and interactive communications.
- Striving for excellence and growth through innovation, leadership and sharing of knowledge.

This year's Earth Day theme, "Invest in Our Planet," is focused on accelerating solutions to combat our greatest threat, climate change, and to activate everyone — governments, citizens and businesses — to do their part.

EARTHDAY.ORG works with more than 150,000 partners in more than 190 countries to drive positive action for our planet. IFMA supports the world's largest recruiter to the environmental movement in its key areas of climate and environmental literacy, an end to plastic pollution, conservation and restoration, food and environment, and climate change action. For more information on Earth Day 2022 and how to get involved, visit earthday.org/earth-day-2022.

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TRANSITIONING TO A GREEN ECONOMY

Low carbon, resource efficient, socially inclusive¹

"We must step up to the challenge even more and be instrumental in leading our companies toward a net-zero emissions future based on green growth."

> Peter Ankerstjerne, MBA, COP, IFMA Fellow, Chair, IFMA Global Board of Directors

UNITED STATES: New federal and state action to support energy-efficient buildings, create jobs, lower costs²

n January 2022, the U.S. government announced the launch of the Building Performance Standards Coalition, a first-of-its-kind partnership between 33 U.S. state and local governments dedicated to delivering cleaner, healthier, more affordable buildings.

"The pandemic has placed a magnifying glass on healthy buildings, and the rising threat of climate change has elevated sustainable practices to a now-or-never priority."

— Don Gilpin, IFMA President and CEO

Representing more than 15 billion square feet of applicable floor space, the partnership facilitates new commitments to design and implement building performance standards at the state and local level, create good-paying union jobs, lower energy bills for consumers, keep residents and workers safe from harmful pollution, and cut emissions from the building sector.

Founded on a commitment to work with stakeholders, especially frontline communities, to address health, energy affordability and emissions reductions goals across the buildings sector, the Coalition has the ultimate goal of advancing legislation or regulation in each of the represented jurisdictions by Earth Day 2024.

The U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA) also announced a series of actions to kickstart building performance standards and policy innovation across the country. Helping jurisdictions with analysis support, policy design and implementation tools, the DOE will share best practices for state and local governments that are adopting building performance standards and the EPA will enhance ENERGY STAR Portfolio Manager® to provide new policy tracking and reporting capability.

GLOBALLY: Adopting the Glasgow Climate Pact, nations aim to turn the 2020s into a decade of climate action and support³

n November 2021, every party at COP26 — representing almost 200 countries — agreed to the Glasgow Climate Pact, which will accelerate action on climate this decade and completes the Paris Rulebook.

COP26 was the largest to date, with 120 world leaders and 50,000 registered delegates.

- More than 90 percent of world GDP is now covered by net zero commitments.
- There was a marked commitment to protect precious natural habitats, with 91 percent of the world's forests covered by a pledge from 137 countries to end deforestation by 2030.
- The cop26 declaration on accelerating the transition to 100 percent zero emission cars and vans brought together more than 35 countries, six major carmakers, 43 cities, states and regions, 28 fleet owners, and 15 financial institutions and investors committing to work together to achieve this goal.

- More than 100 countries signed the Global Methane Pledge to reduce global methane emissions by 30 percent by 2030. This includes six of the world's top 10 methane emitters: United States, Brazil, EU, Indonesia, Pakistan and Argentina.
- Launching the Breakthrough Agenda at COP26, many countries committed to work together this decade to accelerate development and deployment of the clean technologies and sustainable solutions needed to meet Paris Agreement goals.⁴

Sources:

- ¹ United Nations Environment Programme (UNEP), unep.org
- ² FACT SHEET: Biden-Harris Administration Launches Coalition of States and Local Governments, bit.ly/3rWRPc2
- ³COP26 The Glasgow Climate Pact, bit.ly/3oYrBUF
- ⁴COP26 World Leaders Summit Statement on the Breakthrough Agenda — GOV.UK, bit.ly/3I5fyfH

MARCH/APRIL 2022

SUSTAINABILITY TOUCHES EVERY ASPECT OF FACILITY MANAGEMENT

Environmental, cultural, economic, technical, social

Focus on IFMA ESUS: Identifying and exploring strategic and tactical initiatives related to sustainability in the built environment

"If we're going to meet global net-zero emissions goals, all facility managers will need assistance. In addition to providing information and guidance, ESUS curates resources, including your stories of the positive impacts sustainable initiatives are making in your facilities and communities. Share your practices and successes at sustainability@ifma.org; because it's not just about resilience for our organizations — it's about ensuring a resilient planet for future generations."

- Debbie Jaslow Shatz, CFM, LEED AP, ESUS Chair

rograms developed within IFMA's Environmental Stewardship, Utilities and Sustainability (ESUS) Community promote responsible consumption that protects the natural environment and educates the FM community about achievable corrective actions reflecting sustainable practices.



Environmental Stewardship Utilities & Sustainability Community



ESUS provides and supports research and training in these areas:

- Application of circular economy methods (sharing, re-using or recycling building products and materials in order to extend the product's life cycle) to the built environment
- Working toward the achievement of resilient buildings
- Reporting on net-zero building activities
- Following the latest technology and analytics trends
- Reporting on climate change mitigation

SNAPSHOT: CHPs

Combined heat and power (CHP) — also known as cogeneration – is a highly efficient technology that produces heat and electricity simultaneously. A 2020 study commissioned by COGEN Europe found that CHP is a primary enabler to achieve carbon neutrality in Europe by 2050. Cogeneration currently supplies 11 percent of electricity and 15 percent of heat in Europe. The U.S. Department of Energy (DOE) is leading the effort to generate 20 percent of U.S. electricity with CHP by 2030.

According to the U.S. EPA, as an on-site generation resource, CHP can be designed

to support continued operations in the event of a disaster or grid disruption by continuing to provide reliable electricity. More than 200 hospitals in over 30 states use CHP.

Resources:

- Is your facility a good candidate for CHP? Visit epa.gov/chp/my-facility-good-candidate-chp
- Find a CHP partner in your area of the U.S. at betterbuildingssolutioncenter.energy.gov/ cho
- COGEN Europe works with EU institutions and stakeholders to shape better policies and eliminate administrative, regulatory and market barriers to the wider use of cogeneration in Europe: cogeneurope.eu

"One of the challenges facing facility managers is a lack of funding for their sustainability initiatives. In the United States, many state and local governments provide financial assistance and offer rebates for sustainable projects. The DOE offers Combined Heat and Power Technical Assistance Partnerships (CHP TAPs), which promote and assist in transforming the market for high-efficiency CHP."

— Debbie Jaslow Shatz, CFM, LEED AP, ESUS Chair

SNAPSHOT: CIRCULAR ECONOMY

The current economic system is no longer working for businesses, people or the environment. Waste and pollution are the result of the way we design things. There is a solution. Circular economies are based on three principles: They eliminate waste, extend the life of products in circulation and regenerate nature. Influencing space utilization, repair and maintenance, and material flow, FMs have a critical role in the transition to a low-carbon future. Join the ESUS 2022 quarterly webinar series (esus. ifma.org) to learn how FMs are central to circular economies.

QUARTER 2 — May 11, 1 p.m. ET QUARTER 3 — Aug. 10, 1 p.m. ET QUARTER 4 — Nov. 9, 1 p.m. ET

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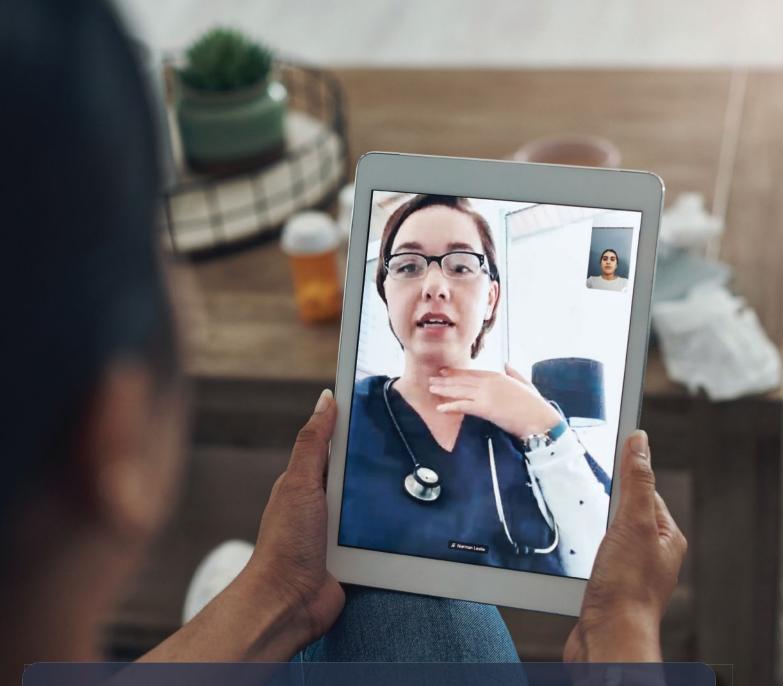
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COME TOGETHER

The convergence of IoT in health care FM

BY JOSHUA BOSELL

Health care is a unique industry in that operational staff and facility management staff must converge to ensure patient care is met and regulatory compliance is fulfilled. Today, the FM team is challenged in ways that have not been seen in a generation. The COVID-19 pandemic has driven the health care industry to rely upon a digital services model to ensure that physicians have safe interactions with their patients and provide a healthy environment for in-house staff and patients alike.

ccording to the PriceWaterhouse-Cooper (PWC) 2021 survey on health care trends, new technologies such as mobile applications have increased venture capital by 103 percent. That same study also found that more than 60 percent of their respondents favored the use of new technologies to advance patient care. The progression and implementation of 5G allow for big data, mobile devices and the Industrial Internet of Things to assist with the decision-making and support capital and operational initiatives.

The advent of 5G will allow IoT to become mainstream, further developing the ideals of a systems-centric approach to patient service delivery. Using a systems approach to patient care would start at the dispatch with real-time location services used for mobile handsets reducing the location to near meters rather than multikilometer distances that have been used from radio tower (Lakkis & Elshakankiri, 2017). Research has evaluated the needs of emergency services using Zigbee Wi-Fi to streamline and reduce traffic-related delays—effectively shortening the "golden hour."

The systems approach should not only be used for patient care. Today's FMs face challenges from environmental to inventory control to ensure that the hospital meets capital and operational expense initiatives. While HVAC/environmental control has long been a staple of operational expense control, other new technol-

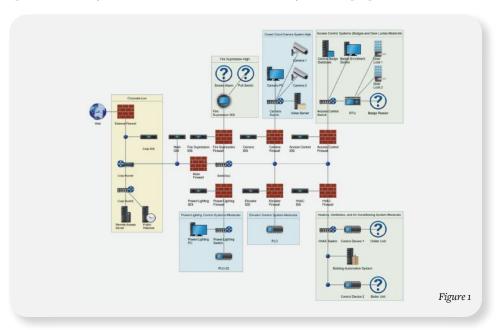
ogies exist within the realm of automation including RFID networks, RTLS and sanitization monitoring.

As with any new technology or innovation, there will be issues, including vulnerabilities. These include weaknesses in devices, risks from firmware, software (program) and even the resilience of the hardware. However, at its core is the lack of general understanding and consensus of how to manage such a network of converged technologies. Facilities must be able to meanstest the technology and partner with an equally established vendor to manage the operational life cycle.

With the pandemic driving hospital systems to reduce their floor space to balance the virtual delivery model, FM staff will be challenged in new ways, including cybersecurity. Forescout's 2020 survey on cybersecurity evaluated several sectors of the economy from finance, health care to public/government. What was found was that at the highest risk for cyber intrusion was access control and HVAC automated systems — both ranking No. 2 in all sectors, only being surpassed by HL7 gateways and pneumatic tube systems health care. The question becomes who is responsible for safeguarding these integrated systems, and what should facilities do?

Figure 1 depicts an integrated technology approach that provides a sustainable, secure converged network that allows both IT departments to become fully vested partners of facilities outside of their current role of protecting IT assets.

Convergence of the corporate (IT) and operational (OT) networks requires changes and updates to the hospital's delivery systems and the vendors that support them. Trades play a specific and integral role in supporting the implementation of the network. The building automation industry has a unique position as this trades



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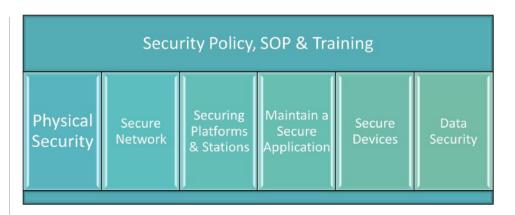
area specializes in operational technologies. Unfortunately, due to the fast-tracked use of IoT, OEM manufacturers have developed methodologies to deploy their systems, filling the technology gap that their representatives have left. Therefore, the building automation industry, like their health care customers, must make changes to support such opportunities.

ISSUE ONE: AN INDUSTRY IN TRANSITION

To be competitive, midsized to large organizations with building automation divisions could update their go-to-market strategy to include integrated infrastructure. However, to be successful, these organizations must modify their strategic approach to today's industry to adopt a new mentality as a "master integrator." There are three key areas where the industry must change — networking, secure design and training.

Building automation organizations have been solely reliant upon a service model that supports the core competencies of the trade, avoiding regulatory requirements; but as technology advances, IT/OT convergence will include big data and artificial intelligence. Service providers must treat this opportunity as a competitive advantage and distinguish themselves as a technology organization, not a division of a mechanical contractor. This advantage, however, is incumbent upon making organizational structure changes, including training and education.

The next generation building automation organization would deploy a team managed within the regional or national accounts division to unify currently siloed interdivisions. The team would include specialists in the core competencies of building automation, video surveillance, access control and fire/life safety. In addition, to assist with today's IoT challenges, a network engineer would be added to help with deployment and assist with network strategies, coordination and management of the software development life cycle, including the deployment and commissioning. This team, being diverse, can either be virtual or collocated.



Along with creating a network integration team, the organization must identify its security policies. The goal of establishing a standard is to make governance around secure engineering, programming and commissioning that insists upon application-based security features. Security policies should be unique to the building automation division and separate from the information technology departments' corporate security policies required for corporate networks. This is partly because programmable IoT devices are susceptible to zero-day vulnerabilities and other IP-based vulnerabilities, including those that affect the confidentiality, integrity and availability of the device, and the network itself. Also, a fundamental way of hardening software is through repeatability. Finally, standardization in many cases, including having a policy that dictates how programs are developed mitigates risk, and threat exposure when deployed.

ISSUE TWO: NECESSARY ORGANIZATIONAL CHANGES REQUIRED

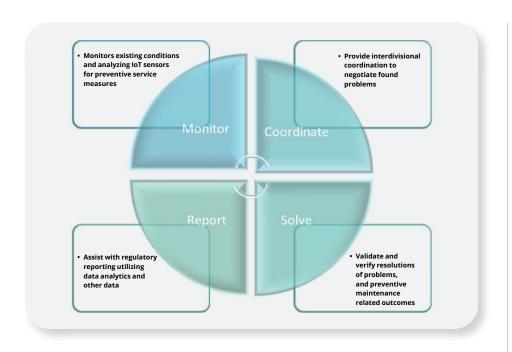
The investment and use of IoT within the health care industry is a choice to provide the best patient care. Integrated systems achieve organizational success through increasing profits from patient referrals and cost savings initiatives from operational management. While the long-standing focus of controlling operational expenses has been through energy management of the mechanical systems, hospital systems can now provide comprehensive services

through connected medical devices; thus, further lowering operating fees, real estate costs and increasing the return on investment. Like their building automation partners, the hospital system's FM team must make structural and process changes to their delivery methods.

Investment in training and coordination between divisions makes the service model move toward the information technology division. The convergence of operational technology with information technology also has lent itself to the confluence of personnel. Operational staff must be technologically savvy and maintain an active awareness of the systems they serve or control, including big data devices like that of real-time location services devices to connected medical devices. Even with troubleshooting, skilled labor must be capable of troubleshooting electronics as well as mechanical systems.



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changer. By providing an outcome-based approach, IoT has allowed the streamlining of the service model to use big data to evaluate and validate project financials; the industry has become more efficient. Unlike rudimentary technologies from the 1980s and 90s, the use of IoT has presented opportunities to small and medium-sized organizations to maximize operational and capital expenditures. However, it will be up to the FM staff of each health care system to establish both the mode and means of integration, deployment and sustainability.

While the Internet of Things has similarities to IT, operational technologies remain a gaggle of legacy technologies such as Modbus RTU, LON and BACnet MS/TP. These protocols allow for "open" integration but are limited to their own specific set of constraints during deployment. Thus, while the transition to a fully deployed IP-based IoT and wireless 5G is integrated, the existing infrastructure must depend upon long-standing techniques to prevent 21st century risks that include cybercriminals. Robust investment in IoT is a must, as is the procurement and sustainable management practice of protecting such an integrated system through IoT security processes — all rooted in good security practices. This will require the hospital system to establish a project selection methodology that takes these risks as part of the vendor selection process.

IoT's effects will continue to trend toward full convergence between operational technologies and information technologies. As a result, the end user and the technology providers must be prepared to move technology from proprietary networks such as TIA-485 (BACnet) and (H)ealth (L)evel 7 to IP-based devices supported singularly by 5G. This means that as new technology

develops and certainly matures, health care systems must identify whether they are cost-beneficial and assist with the mitigation of risks as part of their operational model. As part of the analysis, new jobs, new processes and federal regulatory final rules on patient information protection must also be considered.

To further challenge the service partnership, the service organization must develop a diverse technology team in handling the secure design, integration, deployment and support of provisioning big data and the complex nature of the infrastructure - moving from a construction model to a hybrid model that includes activities of foundationally IT-centric tasks including DevOps, network engineering and cybersecurity. In the end, it will be incumbent upon the service provider to change their service model to ensure they can be a supporting voice when health systems choose to deploy IoT. As a result, the service provider will strengthen their partnership while shifting the manufacturer's strategic initiatives from an executing role to supporting one, thus increasing direct revenue streams for the service provider.

With both the health care industry and supporting supply industries, IoT is a game

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Joshua Bosell, MSIT, PMP is the strategic project manager for Emcor Services in Indianapolis,

Indiana, USA. With more than 15 years of experience in IoT and the health care sector, he specializes in converged networks, IoT integrations and migrations.

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Toronto, ON, Canada

Bassim Abdulhadi, FMP
Riyadh, Saudi Arabia

Riyadh, Saudi Arabia Waleed Ahmed, FMP Riyadh, Saudi Arabia Abdulmajeed Al Dibas, FMP Riyadh, Saudi Arabia

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Robert Groves, FMP Barrie, ON, Canada Shariq Jawed, FMP

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Usman Ahmed, FMP Niagara Falls, Canada Shawn Legg, FMP

Fort Meade, Maryland Timothy Whelehan, FMP Woodbridge, Virginia

Tommy Carrillo, FMP Stafford, Virginia David Dolman, FMP Toms River, New Jersey



acility managers often use building enclosure investigations and evaluations to determine the condition of a façade/roof for safety and establish budgets for repairs. Depending on the configuration of the structure, access to perform an investigation can be challenging, especially with steep-sloped roofs, steeples/ spires, multistory buildings or facilities in urban settings. Existing methods to access a façade include the use of aerial lifts, swing staging, scaffolding or rope access. Each of these methods is time consuming, costly and oftentimes restricts pedestrian/tenant access in and around the building. A 21st century alternative to the traditional methods of building enclosure evaluation is to incorporate the use of aerial drones. A detailed visual survey of building enclosures can provide sufficient information as to the condition of the exterior building components including, but not limited to, the quantity, type and locations of deficiencies. For instance, a drone survey of a slate roof can provide the same information as a visual inspection from high-reach equipment at a fraction of the cost. Drone zooming capabilities can provide information on the condition of mortar and sealant joints, extent of masonry spalls or cracking, displacement of façade components and overall condition of roofing systems.

In the U.S., the Federal Aviation Administration (FAA) recently adopted procedures and certifications for using Unmanned Aircraft Systems (UASs)/drones for commercial use. UASs/drones capture

real-time, high-resolution video and photographs, therefore reducing the time and money it takes to perform a typical evaluation. Drones can quickly elevate and fly to the highest points of a building in a matter of minutes. The ability to view these heights from the safety of the ground is a tremendous advantage for the observer and lessens liabilities for the owner.

HISTORY OF DRONES

The first recorded use of a drone was in 1849 when Austria attacked the Republic of Venice with explosive-laden unmanned balloons directed into the wind. Less than two decades later in the U.S. Civil War, balloons were utilized for reconnaissance missions. In 1896, Samuel P. Langley developed a range of steam-powered aerodromes, unpiloted aircraft that were flown successfully along the Potomac River near Washington, D.C., USA.

The term "drone" originated in 1935 from the British produced unmanned radio-controlled aircraft that were used as anti-aircraft practice targets. Reconnaissance drones were first deployed on a large scale by the U.S. Air Force in the Vietnam War. They acted as decoys in combat, launched missiles against fixed targets and dropped leaflets for various operations. Drones continue to be used in military operations, but their use has expanded to hobbyists and professional civilian industries.

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HOW DO UASS/DRONES OPERATE?

UASs/drones work through a system of sensors. They are remote-controlled vehicles made up of a light composite material that allows them to maneuver easily and reach high altitudes. UASs/drones have three parts: the drone itself, the control system and lithium-based batteries. They are equipped with infrared cameras and global positioning systems (GPS) and are controlled by remote ground control systems (GSC) or ground cockpit. The on-board computer uses data from gyroscopes and accelerometers at each rotor to determine orientation and position. To follow is a general description of the maneuvers used by the ground cockpit to control a drone:

- ROLL | angles the drone's body to the left or right to move the aircraft side to side. While always looking forward, this is the equivalent of tilting the head to the left of right.
- PITCH | angles the drone's nose up or down to move the aircraft forward or backward. This is the equivalent of looking up or down.
- YAW | changes the direction the drone faces by turning the aircraft to the left and right on the vertical axis. This is the same as turning the head to the left or right.

FAA RULES FOR OPERATING UASS/DRONES

In 2015, the FAA created 14 CFR Part 107 to provide rules for drone use due to safety concerns for both hobbyists and commercial pilots, but only commercial pilots are required to become certified. In 2021, the FAA updated the rules to better accommodate commercial use. All drones must be registered with the FAA, whether it is used for hobby or commercial use. The rules for operating an unmanned aircraft also depend on where it is flown. Commercial UAS pilots will typically operate in Class G Airspace, which extends from the surface to the base of the overlying Class E airspace (14,500 feet). A remote pilot will not need air traffic control authorization to operate in Class G airspace. Class G airspace is uncontrolled, meaning that the FAA does not provide services in this airspace, nor do they provide any aircraft tracking or redirection. This is a free zone; therefore, UAS operations are unrestricted.

WHAT ARE THE BENEFITS OF USING UASS/DRONES?

The images that result from UASs/drones are easy to share and interpret. They provide an overview of the building that is often superior to a report collected by sampling individual data points through manual inspection. Some drone service providers are also able to stream drone imagery in real time (i.e., the facility manager can assess conditions from the ground by observing the drone oper-

RULES FOR OPERATING DRONES/UASS				
	FLY FOR FUN	FLY FOR COMMERCIAL USE		
PILOT REQUIREMENTS	No pilot requirements	Must have Remote Pilot Airman Certificate Must be at least 16 years old Must pass TSA vetting		
AIRCRAFT REQUIREMENTS	Must be less than 55 lbs. Aircraft does not need to be registered	Must be less than 55 lbs. Must be registered if over 0.55 lbs. Must undergo pre-flight check to ensure UAS is in condition for safe operation Must have a Remote ID		
LOCATION REQUIREMENTS	5 miles from airports without prior notification to airport and air traffic control	Class G airspace*		
OPERATING RULES	Must always yield right of way to manned aircraft Must keep the aircraft in sight Must follow community-based safety guidelines Must notify airport and air traffic control tower before flying within 5 miles of an airport Must not be physiologically impaired	Must keep the aircraft in sight Must fly under 400 feet (elevation) Must fly at or below 100 mph Must yield right of way to manned aircraft Must not be physiologically impaired		
EXAMPLE APPLICATIONS	Educational or recreational flying only	Flying for commercial use (e.g., providing aerial surveying or photography services) Flying incidental to a business (e.g., doing roof inspections)		
LEGAL OR REGULATORY BASIS	Public Law 112-95, Section 336 — Special Rule for Model Aircraft FAA Interpretation of the Special Rule for Model Aircraft	Title 14 of the Code of Federal Regulation (14 CFR) Part 107		

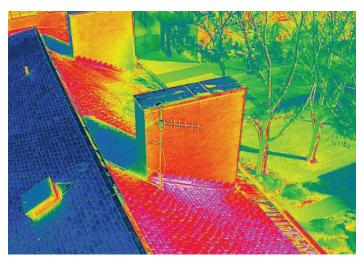
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ator's monitor). The drone can also be deployed very quickly and capture the necessary footage in hard-to-reach places much faster than traditional methods. A typical drone flight can be completed within a couple of hours depending on the size of the building.

- · Avoids expensive and traditional access methods
- Reduces inspection costs
- Less down time (for relocation and or breakdown of swing staging, scaffolding, and/or aerial lifts)
- Can access areas that could not previously be reached
- Highly controllable cameras
- Data can be immediately downloaded to use in reports
- High-quality video and images of building enclosure defects
- The drone's IR camera can locate potential moisture in roofs and potential thermal leakage within the building enclosure (roof, walls, windows)

Drones are also effective at evaluating buildings and property after a major weather event. They are helpful in quickly assessing damage to facilities and are widely used to assist insurance and utility companies. In 2017, the FAA issued 137 authorizations to local, state and federal agencies to support the Hurricane Harvey recovery.



WHAT ARE THE LIMITATIONS OF UAS/DRONE TECHNOLOGY?

The major limitation is weather. Drones should not be operated in stormy, windy or extremely cold weather. The wind speed limit is 20 mph. When operating a drone, the pilot must not operate out of the drone's line of sight. A professional enclosure consultant and/or engineer should interpret and analyze the collected data.

HOW DOES THE COST OF A UAS/DRONE EVALUATION COMPARE TO OTHER ACCESS METHODS?

Drones can be deployed very quickly and capture the necessary footage in hard-to-reach places much faster than a human. The table below compares the cost of drones to other access methods.

Drone technology has revolutionized traditional property condition assessments. Using high-resolution videography and photography, drones offer a safe, quick and cost-effective visual method to evaluate a wide range of properties and facility types. Consider using drones as the first option for inaccessible areas and logistically difficult sites. Drones have not yet taken the place of hands-on inspections of facades as mandated by many municipal ordinances; however, they are an invaluable tool to expedite and reduce overall costs of such evaluations.

COSTS OF ACCESS METHODS (FIGURES IN U.S. DOLLARS)				
	AVERAGE COSTS FOR EVALUATION USE	LIMITATIONS		
BINOCULARS	\$150	No ability to capture images observed for later use.		
AERIAL LIFTS	\$1,500 – \$5,000+ per day (not including operator)	Costly, coordination with facility operations critical, potential for mechanical failure. Tremendous attention to safety.		
SWING STAGING	\$2,000-\$3,000 per drop (not including operator)	Costly, coordination with facility operations critical, potential for mechanical failure. Delay in observation due to mobilization.		
SCAFFOLDING	Tens of thousands to install and remove \$1,500+ per day rental	Very costly, delay in observation due to mobilization.		
DRONES	The average cost for a UAS survey is approximately \$1,500-\$2,000 per day. It takes approximately 1-3 days depending upon size and configuration.	FAA regulations, battery life, weather (wind, rain, etc.)		

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Christopher M. Foley became a Certified Part 107 Licensed Drone Pilot in 2016. Since then, Foley has flown more than 100 building, civil engineering and athletic field evaluation missions. He is adept at using both RGB and Infrared cameras, and manages Gale's fleet of seven drones, as well as Gale's drone safety and training program.

Tony B. Robinson, RRC, BECxP, LEED® AP B D+C is an associate/senior project manager with Gale Associates, Inc.'s Building Enclosure Design & Consulting Group. He has more than 30 years of experience investigating, evaluating and designing repairs to the building enclosure (roofs, walls, windows and waterproofing). Robinson manages projects through all phases of building enclosure consultation, including initial investigation through preparation of design documents and construction period services. He is also a Certified FAA Remote Pilot for sUAS (Drone).



DESTINATION

DISPATCH



BY ÅSA C. MAGNUSSON

Over the past two years, how buildings are being used and how people move through them have drastically changed. Waves of shifting patterns between social distancing, office closures, remote working and isolation have caused headaches for facility managers.

hile the COVID-19 pandemic has created its own challenges, the need for flexible and efficient movement of people through buildings is, of course, not just tied to the current health and safety landscape. For decades, high-rise buildings have become increasingly taller, with more floors and tenants to serve. This has led to traditional elevator systems becoming less efficient in distributing passengers to their destinations.

Traditional elevator systems come with limitations – queuing up outside the elevator doors, sharing a cab with strangers, uncomfortable silence, patiently waiting for your floor to ding – not to mention the delay and frustration that comes with an elevator being out of service. The classic elevator setup does not always meet the needs of the modern property and its busy tenants. This is what led to the development of the intelligent elevator distribution system known as Destination Dispatch.

Sometimes referred to as Destination Control, Destination Dispatch was designed to improve life for building owners, facility managers, tenants and visitors, and the system's benefits touch every element of everyday elevator travel. At its core, it is a traffic control system that directs each elevator to the location where it is put to its most efficient use at any given moment. The technology is typically used in commercial, multi-elevator buildings. It offers an opportunity to not only adapt to changing health

and safety guidelines, but also allows for the flexibility needed to efficiently handle peaks and valleys of traffic throughout the working day.



HOW DOES DESTINATION DISPATCH WORK?

Smart Routing

A Destination Dispatch system analyzes the elevators' traffic data and learns from it, using the information to improve traffic flows. This reduces the estimated travel time between 30 and 50 percent compared with traditional systems.

Passenger Grouping

The system groups elevator passengers based on their destination floor. This means

that the individual can enter an elevator without having to press any buttons inside the cab, knowing that they will be moved quickly to their destination floor without waiting for people to get on and off.

Buttonless Calling

A Destination Dispatch system uses input devices such as keypads, touch screens or contactless proximity cards. All floor selections are made before the passenger is guided to the appropriate elevator, which travels directly to the correct destination. Per code, for ADA compliance, the system can include a hardware button to open the door and allow voice commands.

BENEFITS OF DESTINATION DISPATCH

1. Energy cost savings

The system enables significant energy savings due to more efficient distribution of passengers, a reduced number of floor-to-floor runs, and fewer energy-demanding stops and starts.

2. Increased capacity

Buildings can increase the handling capacity of their elevators without having to increase the number of elevators, replace the existing cars or change their speed.

3. Managed access and safety

With a destination system, tenants can expand their space anywhere in the building — not necessarily on adjacent floors. The system can route people and manage their access using key cards or codes, often integrating with security systems like gates or turnstiles.

4. Communicate smarter

With the use of central communications screens, the building can share enhanced communications with passengers about building management updates, safety issues, or staggered arrival and departure times.

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5. Improved tenant satisfaction

Fewer stops and shorter travel times lead to reduced stress during heavy traffic periods. This promotes tenant satisfaction and can help to enhance the reputation of the building — increasing the market value of the property and rental space.

6. Reduced construction costs

For new construction, a destination system allows for more efficiently configured elevator banks, with potentially smaller and fewer elevators and lobbies. With a smaller building core, it is possible to reduce construction costs while increasing rentable space and tenant capacity.



7. Improved COVID-19 safety

The system naturally leads to reduced crowding in elevator cars, and passengers do not need to shuffle around to access the button panel inside the elevator. This provides enhanced safety and confidence for passengers who want to limit proximity to others.

8. A customized passenger experience

For passengers with impaired mobility, a destination system offers better accessibility as it can allow them to move directly to a designated elevator. The system can also be set up with customized features such as a VIP or pet service, using individual passenger preferences programmed into their keycards.

IS DESTINATION DISPATCH RIGHT FOR YOU?

There are many factors to take into consideration for any building looking to improve elevator efficiency and capacity. It is important to establish that a building would benefit from the features the system offers. Destination Dispatch is well suited to mid- and high-rise office towers and buildings that attract consistently heavy traffic to specific floors. Examples include medical offices, fitness centers, renters of temporary office and conference space, restaurants, and roof-top bars or observation decks.

However, in some situations, Destination Dispatch is not ideal. A low-rise, single-tenant structure would not experience the efficiency benefits of the system. A high-rise property with traffic patterns of a hotel or public building is often not a great candidate either, as these types of buildings tend to serve a heavy volume of transient,

infrequent visitors who are unfamiliar with the building and would likely be confused by a non-traditional elevator system.

Each building will require a detailed traffic analysis to determine what specific destination solution would be suitable. The analysis looks at the location, height and size of the building, and whether it is commercial, residential or mixed-use. It would also consider the number of elevators and banks, the age and functionality of the current elevator equipment, the number and nature of tenants and their business activities, and the building's patterns of elevator traffic and intensity. An experienced elevator maintenance company or consultant will be able to review this assessment and help the facility management team choose the right type of destination solution.

THE DIFFERENT DESTINATION SYSTEMS

Not all elevator destination solutions are made equal. A full Destination Dispatch deployment is a large undertaking that requires significant investment. There are alternative elevator intelligence upgrades to consider.

ETA (ESTIMATED TIME OF ARRIVAL)

ETA is a control system that analyzes various factors to determine which elevator is best to answer the hall call, in the fastest possible time. These factors include elevator position, speed and direction, the location of the call and destination.

LOBBY BOOST

A Lobby Boost system uses destination input devices at the lobby level to help provide optimized travel from the lobby during periods of high traffic while retaining traditional up and down hall calls at the other floors. This allows lobby passengers to select their floor

and be sorted in order of destination. Although this could mean that passengers end up waiting slightly longer in the lobby, they will spend less time in the elevator and reach their destination faster. This solution is ideally suited to peak traffic times such as morning arrivals, afternoon departures, lunchtimes and early closing times before holidays.

FULL DESTINATION

The Full Destination Dispatch is the most common configuration providing the maximum benefits over time. For this solution, input devices are placed on all floors serviced by the elevator, allowing the system to group all riders traveling to the same floor.

HYBRID

In a hybrid destination model, input devices are located only on certain floors, with up and down call buttons on other floors and inside the elevator.

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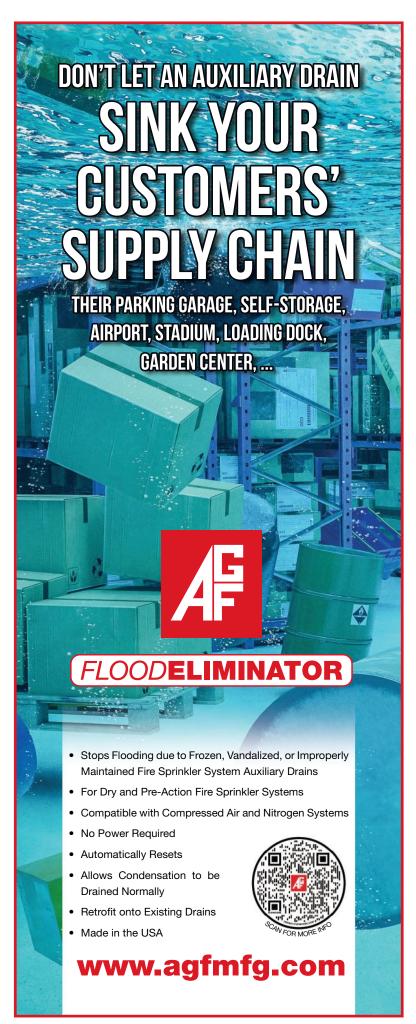


ARE TENANTS READY FOR A DESTINATION PROJECT?

For most elevator passengers, the benefits of an upgrade to Destination Dispatch will be immediately recognizable: far less crowding, more orderly traffic and quicker arrivals to their destinations. However, even though the system is carefully designed to be user-intuitive, some passengers may initially find it confusing. It is important to communicate the changes and any disruption to tenants — before, during and after installation. FMs will need to place explanatory signage in the lobby, and post instructions at landings and in communal areas. If FM has an email database or newsletter list for tenants, that could also be a great channel for sharing instructional videos or guide documents.

Every conversion to a destination system is a custom project and requires a thorough, detailed assessment to establish the suitability of building and elevator equipment. However, every opportunity to upgrade means countless benefits waiting to be captured — for both the building and tenants.

Asa Christina Magnusson, senior manager marketing and communications, American Elevator Group, is a skilled marketing professional with a background in serving high technology and manufacturing industries with strategic marketing insight and content.



Bouncing Back

WORKPLACE TECHNOLOGIES TO BUILD RESILIENCY

BY JOHN C. WANG





Last year concluded with little more order to it than 2020. Organizations announced hard dates for a return to the office and quickly found themselves at odds with reluctant employees. Meanwhile, COVID-19 had plans of its own — organizations had to change their strategies and reprioritize to meet both the needs of employees who were no longer happy with being put back in their boxes and a virus that could change the rules of the game at a moment's notice. The need arose to reassess business requirements to champion a model that was both sustainable in a business sense and one in which the employee experience was paramount.

lexible, remote or hybrid working is now formalized company policy rather than a temporary workaround. The shift to decentralized working models that embrace flexibility at their core—heeding external conditions and employee sentiments, rather than just the opinions of upper management—do better to guarantee long-term organizational resilience.

PUTTING EMPLOYEES BACK IN THE BOX

After the amount of hurdles organizations have had to jump over — government-mandated work-from-home orders, supply chain disruptions, a rapidly changing virus — they could be ready to compete at an Olympic level.

What were thought to be hard return-to-work deadlines around the second half of 2021 were pushed back once, then twice, until ultimately being put on ice indefinitely thanks to COVID-19 consistently moving the goal posts. It is not just a few small companies either. Big players such as Microsoft and Google have ditched deadlines to instead take an adaptive approach to situational developments. Employees said "no thanks" to a return to the office, citing concerns of health and safety, higher rates of productivity when working from home and a strong preference for this newly found flexibility.

For these reasons, organizations are realigning their strategy, building for long-term uncertainty by simultaneously championing workplace resiliency and radically improving the employee experience. These plans have given rise to a host of new working models that take resiliency to heart and do well to appease both employers and employees alike.

THE HUB-AND-SPOKE MODEL

The hub-and-spoke model is being adopted by some big names such as IT conglomerate Fujitsu who signaled they are already moving away from the conventional practice of working from a fixed office. Instead, employees are encouraged to choose where they want to work, be it their home, a main hub or a satellite office. The model will feature a streamlined headquarters (now with a 50 percent reduced footprint), hubs in larger metropolitans and multiple satellite offices spread across the islands of Japan for staff to work near home. This presents all the benefits of being in a structured office environment while cutting out the arduous commute.

Likewise, some of the U.K.'s largest banks such as Virgin Money and Metro Bank are converting their now less-frequented customer-banking branches into working space for corporate staff to acclimatize to long-term COVID-19 impact.

Decentralizing the workplace with hub-and-spoke is a growing trend because it can help mitigate concerns related to contracting COVID-19. For the employee, the benefits include the structure of the office, a reduced commute and a place to meet team members. Employees are together in smaller clusters, outbreaks can be limited and reduced commuting times can protect staff.

THE ACTIVITY-BASED WORKING MODEL

There are also organizations rolling out activity-based working (ABW); diverse and dynamic working spaces — such as quiet hubs, collaborative café areas or huddle rooms — that can be utilized depending on the working needs of the employee. By granting the

flexibility of when, where and how they work, employees gain greater control over their working environments and the ability to personalize their journey throughout the office. This high level of flexibility gives employees an improved workplace experience, bolstering their resiliency and ability to deal with external changes, in turn boosting resiliency of their organizations.

ABW can present fresh challenges for even the most seasoned FM professional. Space requirements ebb and flow, so how do FMs find the right mix? Without analysis in the background, it can be merely stabs in the dark. Increase desk space? Expand communal space? Subdivide meeting rooms into quiet hubs?

BOUNCING BACK: WHY BE RESILIENT?

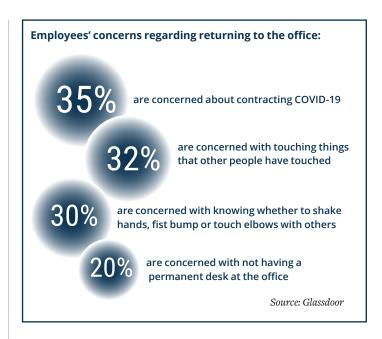
Why is resiliency in the workplace so essential right now? Many successful organizations have (or had) well-established and effective protocols, ranging from defining overall business direction for the next five years to something as trivial as clocking in and out for work. In times of stability, these measures are great; but once a crisis hits, the cracks quickly start to show.

Professor David Denyer of Cranfield School of Management in the U.K. defines resiliency as "The ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper." How quickly can an organization get back on its feet after a crisis?

Organizational resilience is very much centered around employee resilience. It is up to the organization to actively support the employee so that in turn, they may respond to external adversity. They can respond in a positive manner, and in a way that helps the organization not only survive but thrive. As work and workplace flexibility arrangements become official policies, the ability to rebound becomes increasingly important.

PRODUCTS OF THEIR ENVIRONMENT

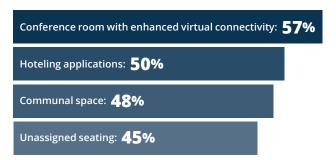
When staff feel the workplace experience has been downgraded, it shows in their work and level of engagement. According to a survey by Glassdoor, while more than half of employees were "eager to return" to the office in a flexible manner, nearly 90 percent of employees expressed serious concerns about returning to the office. This is affecting overall organizational resiliency, with the benefits of returning to the workplace wiped out by the potential risks. Furthermore, blanket return-to-office mandates without paying due attention to these concerns could be highly detrimental to the workplace experience.



Organizational resiliency requires input from different stakeholders across all levels of the organization to be enacted successfully. It is not just staff with concerns on their minds, it is a tough time for FMs too. Never has the spotlight shone so brightly on the workplace environment as during the pandemic — employees are more cautious, even fearful, of the spaces they inhabit and who they share space with.

Fortunately help is at hand, with organizations realizing these concerns and acknowledging their duty of care by offering increased funding to support more resilient workplace models. In a remote work survey by PwC, U.S. executives signaled they are already, or will be, planning new investments to support hybrid work.

Planned increase in investment:



Source: PwC U.S. Remote Work Survey

Much of this investment will likely be directed toward workplace technologies (such as scheduling, safety tools and sensors) to support these evolving, more resilient workplace models. It is a time of colossal change, and FMs should make their voices heard if they are not already, to take on a position of leadership, guiding FM choices and selecting models that help allay the concerns of a returning workforce and establish their organizations as highly resilient.

RESILIENCY-CENTRIC WORKPLACE TECHNOLOGIES

Spurred on by the outbreak, a host of technologies have truly come into their element with the power to make or break flexible work models.

When utilizing a hub-and-spoke model, there is inherently a greater number, but smaller and more dispersed locations for FMs to oversee, which consequently incur a greater need for technologies. Scheduling and booking tools, for example, will better manage occupancy and avoid overcrowding a smaller venue. Furthermore, these systems must span the entire organization. Expecting employees to use a different system or app for each satellite or hub location does not make any sense and hinders the collaboration it is trying to encourage.

The larger challenge for FMs may be overlooking the necessity for all hubs and satellite offices to be connected instead of each running their own smart building system. Room and desk booking systems, sensors, HVAC and so on, must communicate together. This highlights the importance of a unified integrated workplace management system for all facilities in this model, or integration will be a major headache, and in a worst-case scenario leave systems in different branches siloed. Imagine having to individually check each office to find a vacancy.

Recent usage statistics and data from space reservation systems and capacity sensors can quickly provide guidance in how space is being used correlated with how external conditions are changing habits. However, this can only be done in a meaningful way when data from all locations can be consolidated within a central platform for analysis to create a more accurate overview of utilization, then guide how adjustments should be made to meet actual space needs.

In an activity-based workplace, there are peaks and valleys in occupancy. Monday mornings can start slowly, peaking around midweek and tailing off by Friday. Going over capacity with not enough desks to satisfy staff needs becomes an issue — not to mention adequately observing social distancing. Desk booking systems and occupancy sensors can give live occupancy information, allowing an employee

to secure a spot before they arrive at the office and dissuading those without a reservation to come to the office when capacity is already at its limit.

There are also concerns about touching things previously touched by someone else. This comes at a time when cleaning and sanitization protocols have never needed to be so stringent. When employees fear cross-contamination, shared desk space can be a source of anxiety for employees and affect their ability to stay productive in the office. Tackling and reducing clusters and outbreaks is imperative for organizational resiliency. Data from desk booking devices and sensors can trigger notifications to cleaning teams that a reservation is complete and sanitization is necessary prior to the next occupant's arrival. The occupant can be assured all surfaces and equipment have been sterilized. With added support for low-touch options such as touchless desk check-ins, extra unnecessary contact can be further reduced.

KEY TAKEAWAY

Choosing the right workplace model can bolster employees and improve their ability to bounce back during times of great uncertainty. FMs should seek essential technologies that facilitate these resiliency-enabling models. Executives have signaled they are willing to invest, but FMs must guide and help select the optimal model, then take charge of technology investment spending that offers the best ROI and alleviates employee return-to-work concerns.



John Wang is co-founder and CEO of IAdea Corporation, a company focused on transforming the world with digital signage technologies. IAdea's products deliver the next-

generation Smart Workplace, Smart Transportation, and Smart Retail. Its innovations are licensed and distributed by leading brands globally. Large-scale digital signage deployments around the world are often built with IAdea technology. Wang led IAdea to receive several industry recognitions, including Red Herring's Asia 100 Award as an innovative and fast-growing company. In 2018 he was recognized by the Outstanding Individual Award at the Digital Signage Awards for his contribution in promoting uses of digital signage technology around the globe. He received his master's degree in computer science from the National Taiwan University.

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Environmental change is one of the greatest crises the world is facing. People and organizations are running out of time to limit the increase of the global temperature to 1.5 degrees above pre-industrial levels — a key goal think tanks, governmental agencies and scientists around the world say must be achieved to reduce the impact of climate change. Add the COVID-19 pandemic, and the goals become even more challenging.

s a result of these two seismic challenges, the workplace is evolving. To stay competitive as a building developer, owner and facility manager, meeting the challenges of individual consumers and society is crucial. Despite there being no one-size-fits-all approach, there are important steps that FMs can take as an industry to create more sustainable, healthy and flexible buildings.

Buildings play a significant role in limiting the devastating impact of climate change

All eyes are on the issue of global warming, but there is much more work to do. According to the United Nations Environmental Project's (UNEP) Emissions Gap Report 2020, "despite a brief dip in carbon dioxide emissions caused by the COVID-19 pandemic, the world is still heading for a temperature rise in excess of 3 C this century — far beyond the Paris Agreement goals of limiting global warming to well below 2 C and pursuing 1.5 C."

While a drop in CO2 emissions was the result of unsustainable conditions spurred

on by the pandemic, it shows that reducing emissions (or at least preventing temperatures from rising further) is possible. The UNEP report's finding is certainly a wakeup call, but it is encouraging to see that they state "a low-carbon pandemic recovery could cut 25 percent off the greenhouse emissions expected in 2030, based on policies in place before COVID-19. Such a recovery would far outstrip savings foreseen with the implementation of unconditional Nationally Determined Contributions under the Paris Agreement, and put the world close to the 2 C pathway."

Some countries such as the United States have made additional commitments. Last year, the U.S. government announced a new target to achieve a 50-52 percent reduction from 2005 levels in economy-wide net greenhouse gas pollution in 2030. This builds upon the nation's already established goal to create a carbon pollution-free power sector by 2035 and net zero emissions economy by no later than 2050.

There is an incredible need for public and private sector in every industry to work together, and those in the facility management industry must understand the role they play in meeting these goals. Against the backdrop of rising populations, urbanization and globalization in developing nations, considerable growth in construction and real estate is expected. Already consuming 40 percent of global energy annually, the global building footprint is expected to double by 2060, with energy expenditure growing by 50 percent.

Creating cleaner, safer indoor spaces is (and will continue to be) of great importance

In March 2020, many workers went home and did not return to the workplace for more than a year. Some say they will never return. The office as it was has changed. Expect the office of the future to be transformed into new mixed-use buildings where flexible spaces retrofitted to meet new standards will become the norm.

In preparation for the return of employees, building and facility stakeholders have had to reexamine their strategies for improving ventilation and indoor air quality. Arc, the Center for Active Design and the International WELL Building Institute have all released guidelines for the greater good. Given the benefits and the spotlight cast on health and well-being, there will undoubtedly continue to be a new level of scrutiny and demand for health-centric building practices that did not exist prior to the pandemic.

Pulling together a game plan to meet sustainability and health safety goals

What should FMs be doing now to meet sustainability and health safety goals? To help make the process smoother, here are three factors to consider:

1. Embracing electrification. One of the biggest focuses in the building industry in the coming years will be on building electrification. Gas, oil and propane used for

10 Predictions For Smart Building Technology in 2021 and Beyond

heating is one of the largest producers of CO2 and electrification is a cleaner alternative. As such, capturing the power of the all-digital, all-electric world is vital in the fight against climate change. According to Verdantix's 10 Predictions for Smart Building Technology in 2021 and Beyond, "building electrification will gain momentum, through corporate energy management strategies."

Federal governments have announced investing in electric buildings as a top priority. The U.S., for example, is supporting efficiency upgrades and electrification in buildings, wider use of heat pumps and induction stoves, and adoption of modern energy codes for new buildings to reach key targets. These governments will also invest in technologies to reduce emissions associated with construction, including for high-performance electrified buildings.

One of the benefits of electrified buildings is that sensors, metering and monitoring can help measure energy consumption, and software can be deployed to design, manage and automate energy use to reduce or eliminate waste. It can also create healthier working environments by ensuring proper air circulation and consistent humidity levels. Plus, the benefits of an electric building are not saved for new construction — upgrades can be made retroactively so current properties can better meet occupants' needs.

2. Partnerships and policy. Climate change is not something that can be fixed, but is an ongoing effort that needs to balance the desire to move forward as a society with the need to protect our environment and health. Stopping the impacts of climate change, however, cannot be achieved by the work of one person, company or country. It also requires the support of industry groups and governments.

Having policies at the highest level of government is critical, but often smaller, local government entities can enact change quicker. According to the aforementioned predictions from Verdantix, there is a trend toward building electrification "being driven by country-level carbon reduction targets, the rise of solar and EVs, and regulation in U.S. cities banning gas hook-ups in new construction. In 2021 the trend will gain new momentum, as firms accelerate programs to decarbonize their heating systems and look to benefit from the strong business case for using heat pumps to heat their buildings."

At a minimum, all required government standards must be met, but it is also important that organizations use the newest data to help drive voluntary changes. It is through this extra step that FMs can become better global citizens and create a healthier environment for occupants.

3. Vision to Impact. Making changes to long-standing practices is not easy and does not happen overnight. It requires commitment from the entire organization and a clear roadmap that incorporates a holistic approach and lays out concrete goals. While not comprehensive, fundamental steps from vision to impact include: defining success, setting targets, deploying a program and sustaining results. Another often overlooked best practice is having one person leading the charge when it comes to developing and leading sustainability and safety programs — it provides a level of accountability that is necessary to drive initiatives forward that otherwise can get lost among other business priorities.

Where we are, and where we want to go

COVID-19 and global warming — these two seismic challenges will undoubtedly continue to impact many parts of everyday life. This includes the way buildings are designed, built and operated. The good news is that the technology and resources are out there to create greener, healthier and smarter buildings of the future in a cost-effective manner. For many, however, the biggest hurdle is simply making these initiatives a priority.

Companies that make sustainability and safety a part of every decision will not only be doing their part to make the world a better place, they will also be creating a differentiator from their competitors and setting themselves up for long-term success.



Luis D'Acosta leads the global digital energy line of business, responsible for reimagining

the vision for buildings of the future and accelerating the digitalization of power distribution through the implementation of new technologies solutions such as IoT, software and cloud solutions for building management.

As an electrical engineer with more than 25 years of experience in the electric power industry, D'Acosta brings diverse knowledge and leadership expertise to his role. He is passionate about customer service, innovation and developing teams that deliver exceptional value.

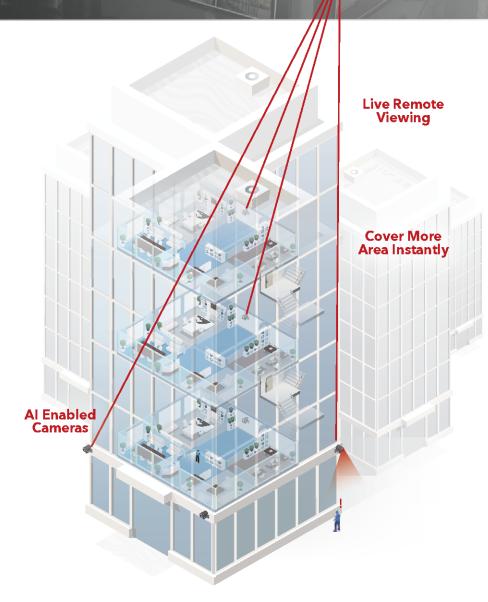
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MY FACILITY

>>>>>>> LISA MILLER

Southern Alberta Institute of Technology (SAIT) Calgary, Canada

Lisa Miller and the facility management team at the Southern Alberta Institute of Technology not only serve a diverse client base of students, staff, faculty and visitors, but also a diverse portfolio of modern and historic campus buildings. Miller, a recipient of IFMA's Forty Under 40 FMs, integrates people, place and process to prepare students for successful careers and lives. She is associate director, sustainable operations and quality assurance at SAIT.





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FMJ: Tell us about yourself and how you got into FM.

MILLER: Facility management was not an industry that was widely promoted when I graduated, nor was I very familiar with what FM was at the time.

After graduating from SAIT's Architectural Technologies program, I spent many years as a technologist producing construction drawings for small renovations throughout campus. Our small design team happened to be a part of the facility management department at SAIT. As I learned more about what FM was, I became excited to understand the impact of our design decisions.

I sought various roles within the FM team including design and space planning, project management, operations and maintenance, contract management, and now sustainable operations and quality assurance.

I consider myself fortunate to have stumbled into a profession that has provided, and continues to provide, many growth and learning opportunities.

FMJ: What is day-to-day life like at your facility?

MILLER: SAIT's mission of preparing students for successful careers and lives guides our approach. Our daily work contributes to this purpose but no two days are ever the same.

Managing facilities with high-traffic areas, competing demands for attention and varied expectations can prove challenging. SAIT delivers relevant, skill-oriented education to more than 50,000 students annually, supported by 1,900 employees.

Serving as the steward of our buildings and grounds, the prime focus of our facility management team is the physical operations of the entire campus ensuring spaces are safe, secure, functional and inviting.

Our team supports SAIT's Equity, Diversity and Inclusion Strategic Plan by providing physical infrastructure that recognizes the diversity of the SAIT campus, preparing our recreational facilities to support our SAIT Trojan athletes, or providing tours of our facilities to our students.

FMJ: What makes SAIT unique and what kind of challenges does your team face?

MILLER: The buildings at SAIT have been built over the span of 100 years. Our landmark building, known as Heritage Hall, was completed in 1922 and the Trades and Technology Complex added state-of-the-art learning space in 2012. Our main campus sits on 96 acres of what was once the outskirts of the city and is now an urban location where land is at a premium. To grow our campus, we must look up and we must be cognizant of respecting the architectural heritage symbolizing SAIT's history.

We are tasked with ensuring SAIT's buildings are managed effectively and protected from challenging environmental conditions. This can be difficult when we can experience temperatures dropping below -30 C (-22 F) for extended periods of time. Ensuring that building temperatures don't drop too significantly and pipes don't freeze is an annual event for our team.

Working with various stakeholders to understand their needs while also outlining and communicating service levels, necessitates a partnership with students, staff and faculty in managing our facilities. Managing the response to a burst pipe isn't just about remediation for us — it's about ensuring students can still learn, athletes can still train, and someone still has a bed to sleep in at night.

MY FACILITY

Southern Alberta Institute of Technology (SAIT) Calgary, Canada

FMJ: How much space do you manage and how is it used?

MILLER: SAIT's whole campus is a classroom. Our facilities include 23 buildings, residences, satellite campuses and leased spaces — totaling nearly 500,000 square meters (or just over 5 million square feet).

SAIT offers certificate, diploma, post diploma, apprenticeship and applied degree programs, baccalaureate degrees, corporate training and more than 1,000 continuing education courses as well as six dedicated and award-winning research areas. As one would expect, spaces on campus are diverse, need to serve many purposes, and can change frequently in response to industry demand and needs.

Our campus is a place where people live and a place where people learn. It is a health clinic and a wellness center. It's a research facility and a power plant. SAIT is a lecture theatre and a woodworking shop. It's a crane simulator lab and an e-gaming facility. Our campus is a world class culinary lab and an airplane hangar. A tech-driven data hub and a community for many!

FMJ: Tell us about your FM team.

MILLER: I work with an amazing team that holds responsibility for the operation and maintenance of SAIT's buildings and grounds and the governance of our integrated facility management contractor. Our goal is to enhance SAIT's physical learning environment, from buildings to electrical systems, roads and grounds to waste management, distribution services and sustainable building practices.

My team is a critical part of FM providing a safe and productive work and learning environment for our students, faculty and staff while generating innovative strategies to maximize operational effectiveness. Everyone has a different knowledge base and skill set and a unique perspective which, when combined, can lead to some pretty incredible ideas.

My team is highly engaged in both their own, and their teammates, professional and personal success and growth.

They make having fun a part of their every day!

FMJ: How is FM shaping the culture of SAIT?

MILLER: The facility management team is generally known as the keeper of the physical space in an organization. However, unlike other organizations, our participation in the academic environment allows SAIT facility management to support students, faculty and staff in both teaching and learning. In supporting a post-secondary environment, we engage with students for initiatives and projects across many programs and work with faculty to create and operate ideal teaching spaces. Our daily work becomes integral in shaping culture at SAIT.

In a post-secondary institution that focuses on trades and technology, like SAIT, facility management has a unique opportunity, not only to maintain the physical space, but to showcase it. As they are being trained for the workforce, students are interested in seeing and understanding the inner workings of our facilities. Designing and operating our facilities as living labs allows us to lead with a world-class customer experience mindset and equip students with essential skills for career success.

FMJ: How does security shape the way you are able to perform your day-to-day duties?

MILLER: SAIT maintains an extensive network of devices for the institution's security, surveillance, access control and emergency response needs. Our facility management and security team work closely together to ensure spaces are designed and operated in a manner that manages and mitigates risk.

As an urban campus, we invite not only students and staff into our facilities, but also the public. We can see tens of thousands of people visit our campus on any given day and they all have different access needs. Our facility management team has the expertise that allows us to best manage these varying needs through different technologies that promote automation and streamline our services.

Security solutions are evolving at a quick pace, as are our own operational needs, meaning that a critical part of our job is to remain aware of trends, evaluate against our needs, and integrate the latest security solutions into our operations when appropriate.





FMJ: What are some FM challenges you face at your venue that are common across the FM industry?

MILLER: Infrastructure continues to age and there continues to be economic pressures. Like many organizations, our facility management team is tasked with maintaining, and often enhancing, services while containing operating, maintenance and repair costs with no sacrifice to the quality or level of service. This challenge requires a team that is willing to take risks and implement unique solutions. It's not always comfortable taking those risks and there is always a chance of failing but often times the rewards are worth it. As an industry, taking risks is important — we need to test ourselves, realize new efficiencies, and utilize the strengths of our team members in order to ensure our buildings are managed effectively and keep moving the needle forward in our profession.



MILLER: Working in facility management provides the opportunity to continue learning every single day. No one day, problem, or solution is ever the same and there are always others willing to share their knowledge and expertise. FM is a career focused on collaboration, teamwork and continual improvement — it is a fast paced and rewarding career that provides a multitude of opportunities and a network of support.

FMJ: What do you like best about what you do?

MILLER: Working in FM in a post-secondary environment we are often behind the scenes, but our impact is great! To know that my teams' decisions and actions can positively impact the student experience is very rewarding. We were all students once — and I now have a much greater appreciation for the hard work FM undertook to make sure my own student experience was a positive one.





A Loss of Knowledge Strategies for replacing retiring FM workers BY JACK RUBINGER WWW.IFMA.ORG/FMJ 052







It is no secret that organizations are facing a labor shortage across the facility management industry, caused in part by workers accepting early retirement incentives while COVID-19 has made some people re-evaluate their life goals.

In the FM industry, retirement and attrition have a massive impact on the preservation of institutional knowledge, gained through years of working at one or more campuses in multiple industry sectors, including health care, education, public agencies, manufacturing and others.

Getting to know a campus well can take years of on-the-job training. Many FM teams will say goodbye to retiring key field technicians in the next five years, according to a LinkedIn poll conducted by David Trask, national director, ARC Facilities.

Training is a lengthy and time-consuming process. Typically, new hires spend hours shadowing more experienced team members, getting to know a facility's history, meeting building residents, learning the current state of affairs and daily to-do list – absorbing as much institutional knowledge and experience as possible.

FM is not the type of job someone can step into on day one and is immediately up to speed. Every day is different. FMs interact with different types of people, their communications skills are always used and tested, they get to know buildings inside while using some of the most advanced technologies developed in the built environment.

"Facilities teams are the lifeblood of any organization. If the building isn't functioning properly, the organization is out of business," said Trask. "That is why it is so important to start capturing that knowledge before it walks out that door."

While some have posed the idea of bringing in past workers in consulting roles to achieve a work-life balance for those who are not 100 percent ready for retirement, that proposition is more of a Band-Aid than a solution to a problem.

Retired facility team members do not want to be called weekly or while enjoying life with questions about shutoff locations or issues with an old air-handling unit that should have been decommissioned years ago.

Many believe the FM industry has an image problem. Consider IT against FM. Which sounds sexier to a college graduate? While some

may opt for IT, the FM industry has changed over the years with highly sophisticated technology in place, including system monitoring and temperature monitoring systems for refrigeration, so finding people with an electronics background is valuable.

Fortunately, FM professionals are developing strategies and tactics to replace and rejuvenate retiring workers.

St. Luke's Medical Center in Wisconsin, USA, created its own internship/apprenticeship program with the support and cooper-

ation of a local trade school and engineering association.

"If you wait for students to graduate from trade schools, then it's too late," said Cory Majszak, director of operations, facilities at St. Luke's. "It's tough to build a talent pool, so we decided to grow our own."

Instructors are veteran employees, and initially feared they were being replaced, but their attitudes changed once they realized that their legacy is teaching people, said Majszak. "We need talent and tribal knowledge," he said. "Students need a safe place to feel supported, empowered and ready to grow. We're keeping our tribal knowledge intact and we're helping

create the next generation of facility professionals."

Other organizations and FM leaders are recruiting from the military for trained technicians.

"Our new director of organizational resilience and emergency management was a fighter pilot and a graduate of West Point. He's a great hire. We're seeing more and more of that. I'm a big advocate for hiring from military resources who will have experience with cyber-security and other threats," said Bert Gumeringer, senior vice president of facility operations at Texas Children's Hospital in Houston, Texas, USA.

To keep facilities and other departments up and running, Texas Children's Hospital invested US\$150 million in employee salaries during the pandemic, which impacted all departments.

"Unfortunately, the pipeline is drying up," said Gumeringer. "We're having issues finding people today, so we're implementing a new hire

"Facilities teams are the lifeblood of any organization. If the building isn't functioning properly, the organization is out of business."







onboarding program and we've created a career ladders program for internal advancement in the hospital."

Gumeringer believes FM is a very good, broad career, encompassing everything from facility engineering to environmental services to construction management to supply chain.

"Everything is digital, there's less hard manual labor and salaries are competitive," he said.

"Fortunately, we're seeing more women getting into facility management than ever before and I'm glad to see that happening." He advocates recruiting new talent from unions and groups associated with the military. "Military people are job ready; they understand process and procedure," he said.

John D'Angelo, assistant vice president of facility services at the University of Chicago (Illinois, USA) also strongly believes in using military-sourced hires. After retiring from the U.S. Navy, he built a strong network to hire personnel leaving military service. The University of Chicago has created an internal community-focused apprentice program and fostered relationships with a local community college.

To recruit talent from the military, he recommends that facility managers explore two programs – the Tuition Assistance Program (TAPS) and Skill Bridge.

For example, in the U.S., approximately 200,000 men and women leave military service and return to life as civilians every year.

The Transition Assistance Program (TAP) provides information, tools and training to ensure service members and their spouses are prepared for the next step in civilian life.

The U.S. Department of Defense SkillBridge program is an opportunity for service members to gain valuable civilian work experience through specific industry training, apprenticeships or internships during their last 180 days of service. SkillBridge connects service members with industry partners in real-world job experiences.

For service members, SkillBridge provides an invaluable chance to work and learn in civilian career areas. For industry partners, SkillBridge is an opportunity to access and leverage the world's most highly trained and motivated workforce at no cost. Service members participating in SkillBridge receive their military compensation and benefits, and industry partners provide the training and work experience.

He also recommends contacting human resources at local military

"If none of these paths work, invent your own," he said.

James Zirbel, co-director at The FM Pipeline Team is fostering the next generation of FMs with programs that impact both middle school and high school students. Zirbel said that the FM industry's talent gap is the built environment's problem of the The Facilithon introduces high school and technical school students and their advisors to careers in facility management. The Facilithon competition tests a student's ability to thrive in a facility management environment through a 50-question common-sense quiz, a 10-minute FM role play and the FM Challenge, an emergency scenario that the student must react to immediately. Students that do well in the Facilithon represent excellent future FM professionals.

Facilithon graduates may move directly into entry-level positions or attend established facility management training, certificate and degree programs.

century. Through their SkillsUSA Facilithon program, Zirbel and his colleagues are addressing both technology and developing raw talent for the built environment.

"Of the 400,000 SkillsUSA students, nearly one in four is an ideal Facilithon candidate. It's just amazing," he said.

The built environment is so large and so much of the focus is on construction and building, which begs the question, "who's going to manage these buildings as more and more buildings are constructed?" he said. Unfortunately, these decisions are made — or not — after buildings are built.

Kelly Kupcak, executive director of Oregon Tradeswomen, believes apprenticeships deliver great ROI, but the application process should be easy and accessible.

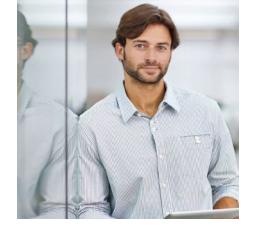
Oregon Tradeswomen was founded in 1989 on the principles that women can attain economic self-sufficiency by pursuing careers in the construction, manufacturing, mechanical and utility trades to build a diverse workforce.

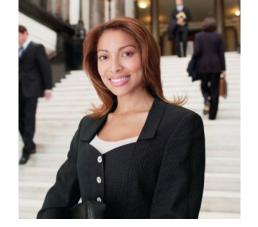
With a focus on apprenticeship, Oregon Tradeswomen's Pathways to Success program offers the Trades and Apprenticeship Career Class (TACC); a 192-hour apprenticeship and employment readiness training program to prepare adult jobseekers for a career in the skilled construction trades.

TACC introduces program participants to a variety of skilled trades through field trips, guest speakers, hands-on workdays and trades-specific training opportunities. The participants also learn about registered apprenticeship — an earn-while-you-learn model, which is often the next step to a career pathway in the construction industry.

Oregon Tradeswomen's training program is offered at no cost to job seekers meeting the program criteria.

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Additional resources:

U.S. DOL Apprenticeship Toolkit:

doleta.gov/oa/employers/apprenticeship_toolkit.pdf

List of Workforce Investment Boards (WIBs):

career one stop. or g/Local Help/Work force Development/find-work force-development-boards

American Association of Community Colleges:

aacc.nche.edu

Tradeswomen Organizations:

oregontradeswomen.org/links

Pre-apprenticeship Training Programs:

apprenticeship.gov/employers/explore-pre-apprenticeship

Despite the currents labor shortage, there are available resources to help the FM industry foster a new generation of professionals who are tech-savvy, culturally diverse and ready to embrace one of the most important jobs on the planet — keeping people safe, comfortable and secure in their own environments.

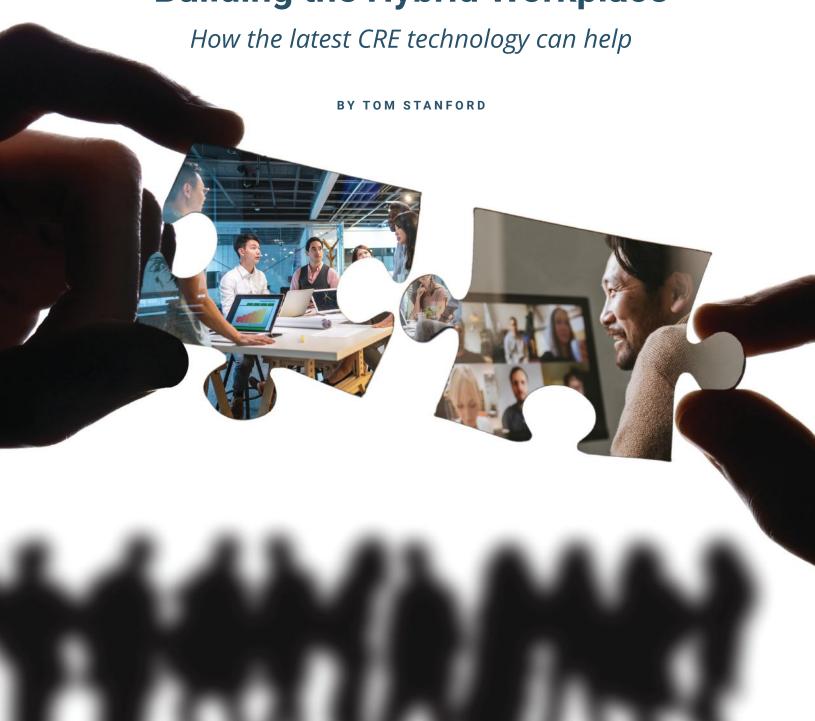


Jack Rubinger has more than 20 years of B2B writing, public relations and marketing experience. Rubinger earned a B.A. in Journalism from Binghamton University in New

York. He is a frequent contributor to facility management, construction, health care, and industrial safety publications and blogs.



Building the Hybrid Workplace



Since the onset of the COVID-19 pandemic, nearly every industry has at least partially pivoted from traditional office setups to distributed workforces with employees working fully from home or on a hybrid schedule. It is remarkable how quickly this shift happened — and it is perhaps more notable how rapidly the corporate real estate landscape has adapted.

ne of the biggest changes in the CRE sector is the rise of safety-focused building features and systems. Gone are the days of extraneous spending on flashy extras such as beanbag chairs or ping-pong tables. These office perks were once intended to attract and retain talent, but they are becoming bygone relics as new workplace elements are increasingly focused on preserving occupant health and well-being.

According to the Deloitte 2021 Return to Work survey, nearly percent of companies have returned to the workplace or are planning to return this year. That means it will take coordinated efforts between CRE and facility managers, space planners and other department heads to implement building solutions that help balance work operations with ever-changing space requirements and health concerns.

Leaders have a responsibility to understand the need for these new features and implement them. Otherwise, they risk alienating their current employees, repelling new talent and hindering their ability to do business.

This can be complicated. Fortunately, innovative software tools can make the entire process far simpler.

What factors should be addressed in a hybrid work environment? _____

To optimize operations for a hybrid office, leaders first need to be aware of potential challenges. It may be wise to assemble a cross-departmental team including representatives from HR, facility management, CRE and any other relevant business units to create a plan and address any major concerns.

This process will help identify challenges unique to each organization. However, there is also a set of universal factors that affect every enterprise making a transition to hybrid work — crucial considerations that leaders should keep in mind when formulating plans for a new or updated workspace, including:

Occupant safety and perceptions:

Going to work should not mean sacrificing one's personal health. Building occupants expect and deserve a safe, accommodating and thoughtfully designed workspace when they return to the workplace. People have become accustomed to social distancing, wearing masks and always having hand sanitizer available. These accommodations should be easily accessible in a hybrid workspace; otherwise, occupants may feel that they are at unnecessary risk.

Space utilization and management:

Most companies will not return to the workplace all at once. They will likely implement a phased approach with a portion of the workforce using the office on a part-time or as-needed basis. This raises a series of important space-related questions: How many people can be in the building at the same time? Will there be enough space to allow social distancing? How much personal protective equipment (PPE) is needed in each workspace?

In addition to these immediate logistical concerns, leaders may also find that the new space is no longer suited to the enterprise's needs. It may make sense to lease a smaller, more flexible space or implement a series of coworking spaces in locations near remote workers. Planning, managing and tracking these changes will require close collaboration between FM, HR, CRE teams and space planners every step of the way.





Changes to facility operations:

The pandemic has left many office buildings sparsely populated or vacant for months. FM teams will be responsible for getting normal operations up and running again so the workspace is clean and suitable for use. These teams will also likely be responsible for the logistical challenges of storing and replenishing PPE in the work environment. As this will be a new feature for many organizations, it will require new strategies and capabilities to ensure success.

How CRE Technology can help meet new challenges _____

In September 2021, Verdantix researchers outlined four critical elements that enable success in hybrid work environments. These include:

- Frictionless agile working that does not hinder task productivity
- Compliant and diligent occupancy management
- Tools that enable occupier collaboration and engagement
- Office design reflecting actual workspace usage preferences

Leaders must be able to achieve all of these while carefully considering the factors outlined in the section above. This requires lines of sight across every department, the ability to analyze space usage data and the addition of self-service applications that enhance the building occupant experience.

This is a brand-new set of circumstances, but fortunately, the workplace management software industry is rising to the challenge. A cloud-based solution such as an integrated workplace management system (IWMS) can help facilitate and streamline all hybrid workplace operations. The pandemic has accelerated the usage of these systems, and the innovation teams at IWMS companies have tailored their solutions to meet new demands.

Here are some key IWMS capabilities that can assist in return-to-work operations:

Space planning and reservations:

Creating and maintaining a hybrid work-place requires making the office environment more flexible than ever before. This can involve frequent reassignment of individual workspaces or the implementation of a hoteling system, in which occupants reserve and own a workspace for a designated period. To optimize these operations, organizations should know how, when and for how long space is being used. They also need the ability to quickly make changes to their floorplans. In addition, building occupants must be able to see and reserve available spaces, including desks, cubicles and conference rooms.

An IWMS can achieve all of this within a single connected system. Space reservation capabilities — complete with visual floorplan maps — can be made available to all building occupants via their mobile devices or desktops. Users can simply open their app, select a space and a time, and rest assured they have a guaranteed place to work. The IWMS system can capture that data (as well as building badge scan data) and generate reports that show CRE and FMs the full picture of enterprise-wide workspace usage. Plus, drag-and-drop features allow managers to easily reassign space for new people or purposes on a virtual floorplan map.

Interactive maps and wayfinding:

Hybrid workplaces will likely look quite different from the ones employees are used to. That is why floorplan visibility will be a crucial part of a successful transition. Building occupants need a way to physically navigate the redesigned — or in some cases, new — spaces they are using. They also need to be able to do this via their desktops and mobile devices. It is easy to foresee a situation in which an occupant has left their desk for another location, only to lose their way and be forced to awkwardly ask another occupant where to go (while potentially violating social distancing rules in the process).

An IWMS can address this problem as well. Interactive maps and a wayfinding system can allow occupants to easily see all company space on an interactive floorplan using any connected device. They can then select their desired space and reference the IWMS to guide them there. This can be particularly useful for locating PPE equipment like masks and hand sanitizer.

Automated work orders:

FM teams will have a challenging task in the new hybrid workplace. They will need to ensure that all usual building operations are running smoothly while also overseeing the new health-focused features and processes mentioned above. That means stocking and replenishing PPE, as well as maintaining a clean and sanitary environment to mitigate

safety concerns. To do this effectively, they need to understand which spaces are being used and when.

This is where an IWMS comes in. This type of software system can integrate space management solutions with facilities work order systems to automate common processes. For instance, when an occupant reserves a space, a work order can be automatically generated to clean and sanitize that space before and after use. Or in the case of PPE, replenishment work orders can be generated on a recurring schedule. This means that FM teams know exactly what to do, and workspace users gain the added peace of mind of knowing that their work environment is guaranteed to be clean and safe.

Building the Hybrid Workplace of the Future _

The world has never experienced a shift of this magnitude in the way work is done. Organizations transitioning to a hybrid workplace will face a new set of challenges requiring deep collaboration, data-backed decision making and an eye for innovation. How leaders respond will set the tone for their organizational success moving forward. By carefully navigating key concerns and utilizing innovative technology, they can implement thoughtful workplace features and amenities that provide an advantage in an increasingly competitive labor market.

Tom Stanford is the founder and CEO of Nuvolo Technologies and has more than 25 years

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The future of the workplace is here. Leaders are investing in back-to-office strategies that have longevity and are making decisions that will help attract and retain top talent. For many, the solution is a more flexible work environment that promotes in-office and remote work and makes it easier for employees to connect and perform digitally.



hile a distributed workforce and a hybrid work model are not new, they are happening on a much larger scale than ever before. Some of the biggest brands, often known for their in-office perks, are embracing remote roles and enabling employees to dictate where — and sometimes even when — they work. However, with change comes new challenges. Organizations adjusting to a flexible work environment must contend with:

- Updating or creating accurate occupancy reports
- Making data-based long-term space decisions
- Space planning, managing and maintaining shared workspaces

Digital Occupancy Updates

As organizations transition to in-office work, they have found a gap between the assumed state of workstations and the reality of their current office. Unregulated seating, multiple people assigned to a single workstation, past employee items left at workstations and missing equipment are some of the additional challenges that must be navigated before setting up a long-term office strategy.

Smart companies are looking to digitize the process to make it easier to have more control and visibility into occupancy reports, while facility managers, HR and occupancy planners manage these aspects of the office from anywhere. Major innovations in the commercial moving industry have seen these trends and are looking at leveraging technology to solve these challenges.

While the commercial moving industry is notorious for being slow to adapt to changes, major brands are excited to see innovation keep up with the evolving workplace. Enabling digital occupancy is just one step in the right direction to modernizing commercial activities.

Data-based Space Design

Understanding what employees really need to be successful in a space cannot be done without challenging the status quo. Whether companies are planning for a new space or reconfiguring a current office, implementing tools and technology to see how spaces are used can help ensure design for long-term success. Smart workplace design starts by asking the right questions, like:

- How much space do we need based on current use?
- Will life circumstances change how many people come into the office?
- Will we have a peak season for office use?
- What do employees need to do better

 work?
- Can new technology enhance performance?
- What are the desired experiences and outcomes in specific environments?
- What is most important in each space?

Tools like space utilization metrics, people-counting features and flow monitoring can help companies see what is really taking place in each space instead of relying on what they think is happening, and ultimately give companies a better picture of their overall needs.

"The way people work is changing so rapidly it's hard for employers to keep up. Right now, we're seeing an increase in tools and technology that help facilities with things like hotel desk scheduling, desk cleaning alerts and people counting," said Jay Morris, founder of Phase Integration, a workplace technology consulting and project management firm. "These tools are making it easier for organizations to keep employees safe and collect data that will ultimately help shape the workplace of tomorrow."

Design for Shared Workstations

To design better office spaces that meet employees' changing needs, many organizations are embracing different styles of shared workstations. With hotel desks, or hoteling, employees pre-book a space — this approach offers traceable utilization records and more control over spaces. Hot desks — allowing employees to sit in any available workstation when they arrive on site – have also become popular, lending less control to an organization but removing the need to manage a concierge service.

These adjustments can help reduce space needs and enable organizations to add different types of work areas throughout a building. However, the transition can be cumbersome.

For example, a major social media company recently made the switch from designated workstations to hotel desks and had to purge, pack and reset more than 3,000 workstations during the pandemic. The organization worked with a



New applications are making it easier for organizations to make better, more informed space decisions with easy-to-use technology that gives visibility into occupancy and space needs. (Image: Suddath)

commercial mover that used technology to digitally track items, making it easier to ensure all personal items were delivered to the right employees and all workstations were functional.

While smaller organizations may not see the same issues on that scale, all companies that are transitioning to a hybrid work model will need a system in place to execute the transition effectively and efficiently, and many can leverage technology to make the process easier while learning from the mistakes and successes of other companies.

Another part of the hybrid workplace that companies cannot overlook is what they will do with excess furniture. Switching to hotel or hot desks means an inevitable surplus of assets that will no longer be needed on the floor. Organizations must choose between storage or decommission and liquidation. Working with a modern commercial mover that offers inventory management technology can give companies more control and visibility in their stored items, making it easier to know exactly what is available and quickly pull items for scalability. If a company chooses liquidation, they can work with a provider that offers resale or eco-friendly options to help minimize waste going to landfills and help their bottom line.



Benefits of storage:

- Flexibility to pull items as needed
- Ability to manage inventory when working with provider that offers modern technology
- Easily scale during peak seasons or as business grows
- Benefits of liquidation:
- Potential to sell or donate
- Eco-friendly and sustainable options to ensure items do not end up in landfills
- Savings on storage costs if items are no longer needed

Thriving in the new workplace environment

In 2020, no one could have predicted the drastic change that would happen practically overnight. However, FMs have a better idea of where office spaces are headed. Forbes puts hybrid work as number one in a list of the five biggest workplace trends in 2022. However, much remains to be seen about how the workplace will continue to evolve. It will never be the same, and FMs should expect to continue to see trends of hybrid and remote work rise, and be ready to adapt, adjust and pave the way for the workspaces of the future.



Bob Papuga has more than 30 years of experience in the moving and storage industry

with a heavy emphasis on branch and sales management, and financial accountability. He has been part of Suddath's commercial moving division for more than 18 years and serves as senior vice president.







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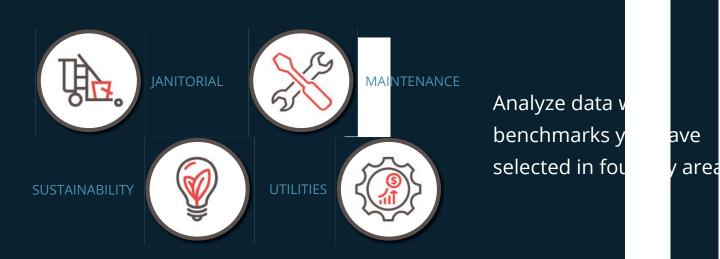
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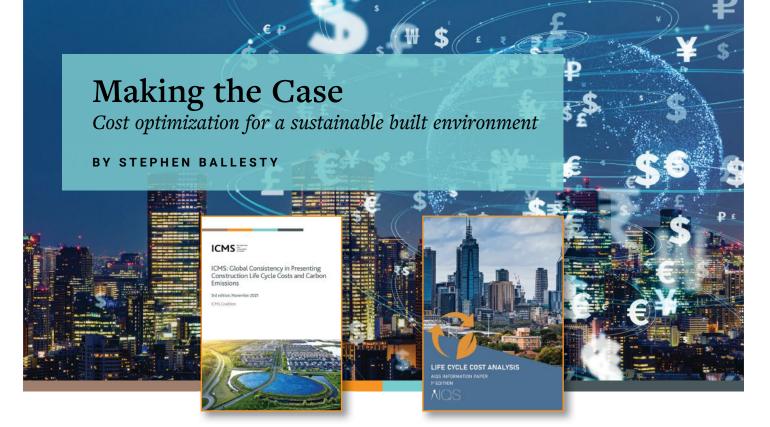
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Facilities are complex and challenging to compare and contrast, but one common metric often used to express or explain facility management performance is cost in all its forms (capital, operational, maintenance, /*-whole life, etc.). Cost, in combination with other indicators, is a major consideration for most throughout the facility life cycle. Hence, access to quality data and an understanding of cost management approaches is critical for FM to be part of the decision-making conversation and demonstrate FM's value.

ccurate, reliable and timely information is necessary for effective decision-making, whether these decisions are undertaken by individuals, communities, businesses or government organizations. Notwithstanding the range of key performance indicators (KPIs) available, cost performance remains an essential component of any effort to persuade others to make different decisions from the ones which they might otherwise make.

The same can be said for the design, delivery and management of the built environment in support of quality of life.

The absence of accurate, reliable and timely information can lead to ill-informed or bad decisions, as well as the inability to persuade or support others to make better decisions, or to be held fully accountable for the outcomes of various project and facility decisions. In short, information management is at the core of FM's ability to influence outcomes.

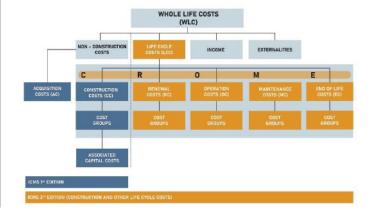
To truly achieve a sustainable built environment, the FM challenges include budgeting for long-term sustainability, resilience and adaptability planning. This requires decision-makers to have access to comparable and consistent data, improved cost prediction and enhanced life cycle cost (LCC) analysis to support cost-performance across a range of metrics.

In recent years progress has been made, with at least three separate global cost management initiatives from the ICMS Coalition, RICS and AIQS that FMs should be aware of and could adapt as appropriate to their situation. Are these in the FM toolbox?

The ICMS Coalition, founded in 2015, comprises 47 non-governmental, not-for-profit professional bodies focused on achieving consistency in construction project cost reporting and benchmarking. ICMS provides a high-level structure and format for classifying, defining, measuring, recording, analyzing and presenting capital and life cycle costs, intended to complement existing local/national standard methods of measurement.

This enhanced consistency and transparency across international boundaries is intended to lead to more confidence in global investment projects and reporting.

The first edition of ICMS (2017) focused on creating a standard approach for capital cost classification and reporting. The second edition, ICMS (2019), extended global cost classifications based on a new acronym CROME (groupings for Construction, Renewal, Operation, Maintenance and End-of-life costs) — all components that have a direct impact on FM outcomes. ICMS 2019 better connects FM to the project planning phases, investment decisions and construction cost management of the facility life cycle.



The third edition, ICMS (2021), recognizes the criticality of reporting carbon emissions consistently if the impacts of global climate change are to be averted. A common global reporting framework for capital costs, life cycle costs and carbon emissions will allow for their interrelationship to be more readily explored. Consistency in data management across the facility life cycle should provide decision-makers with improved transparency on the cost and carbon relationship, contributing to achieving a sustainable built environment.

In combination with other measures, the ICMS 2021 provides the potential for enhanced understanding and benchmarking of the metrics, which FM can utilize to add value not only for demand organizations but for society as a whole.

Cost prediction is dynamic, increasingly digital and relies on context, assumptions, data maturity, information completeness and risk management approach to achieve accurate, reliable and timely forecasts.

Across various markets, by location and sector, cost prediction is approached in different ways with the same goal, providing certainty. RICS' professional statement not only elicits the key principles from these various approaches but sets out minimum mandatory requirements for RICS professionals and RICS-regulated firms to follow when producing cost predictions.

This document provides an overview of global practices and the implementation of ICMS, 2019, and a reporting framework for construction and life cycle costs as a part of a whole life cost (WLC) approach. There is a recognition of the cyclical nature of the cost prediction process, and the importance of decisions on capital and longer-term costs that affect asset performance, longevity, resilience and sustainability — all issues which have a direct impact on FM outcomes.

Overheads and profit Prediction brief Risk exposure Industry standards Labour, plant, e.g. ICMS Analytical standards The Cost Prediction Professional Triangle iudaement and skills Client Health & safety interfaces Risk Project Environment Other factors Design e.g. logistics Engineering

There is a dual focus on project out-turn and life cycle costs regarding life safety and sustainability. This requires the management of expectations involving several integrated processes:

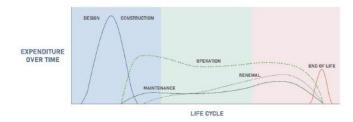
- definition of the project scope
- the setting of realistic/agreed goals
- a detailed plan with specified timelines
- budget agreement and adherence
- identification of common setbacks and
- regular communication.

Throughout the paper there is a consideration of data, its origin, completeness, validity, consistency, timeliness and accuracy, across the data structure, metrics, acquisition, sources, rebasing and digitization. Also, consistent outputs reporting is considered essential to fully understanding risks and minimizing biases at the different stages of the cost prediction process, each reflecting the maturity of the data inputs.

Access to quality data improves decision-making ability and prediction accuracy.

As early as "Management Aspect of Terotechnology" (1976), life cycle costs were simply defined as being concerned with the "cost of ownership." Even then, this was not considered a new or radical concept. With today's global challenges, this AIQS information paper provides essential guidance for the context and practice of LCC analysis across all the facility life cycle or project phases.

LCC analysis provides a valuable comparative and management tool that can influence the design, specification, construction, operations and sustainability performance. Increasingly stakeholders are seeking to apply responsible management principles, taking account of environmental, social and governance (ESG) criteria, for three broad areas of interest. These are stakeholders who consider it important to reflect their corporate values in their project objectives instead of merely the potential profitability and/or risk presented by an investment opportunity.



Cost management influence is throughout the facility life cycle at each project phase.

This LCC paper integrates elements of leading publications and relevant guidelines, specifically taking account of the latest in LCC thinking as a part of a whole life cost approach and drawn from:

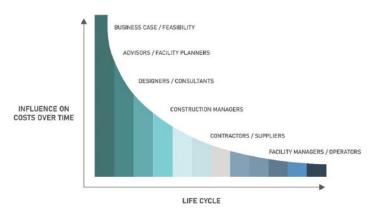
- ISO 15686-5: 2017 Buildings and constructed assets, Service Life Planning Part 5: Life-cycle costing.
- RICS' Cost Prediction, global professional statement, 1st edition (GPSCP 2020).

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FMJ EXTRA | Presentation Cost management initiatives

- International Construction Management Standard, Global Consistency in Presenting Construction Life Cycle Costs and Carbon Emissions, 3rd edition (ICMS 2021).
- ISO 41000 series of Facility Management standards and ISO 55000 series of Asset Management standards.

Moreover, the LCC paper takes account of the broad and integrated influences of a range of built environment professionals and decision-makers throughout the facility life cycle.



Additionally, multiple criteria and metrics are considered, and practitioners should be aware of project and facility risks, the circular economy concept, various types of obsolescence and the UN's 17 SDGs (sustainable development goals) — sdgs.un.org/goals.

The paper provides concise background and context, with specific advice on the relationship between WLC and LCC, the use of the ICMS' CROME. It also sets out the components and process of LCC analysis, details getting started including calculation methodologies, along with an overview of current technology and tools.

However, the risks and assumptions involved with undertaking LCC analysis can directly contribute to unrealistic expectations and/or failure to achieve desired outcomes. While the digitization of the delivery (design and construction) and management of the built environment holds great promise, the application of professional judgment does remain a determining factor in successful LCC analysis.

The paper provides a practical consensus on the key LCC issues. One attempt to demystify LCC analysis has been the preferencing of the term "service life" of a constructed asset or facility. This is considered as having the same meaning as economic, design, useful or effective life.

A significant contribution of the paper is its facility life cycle examination, for the first time combining the AIQS' Australian Cost Management Manual and the ICMS' CROME (2019). A detailed table depicts the full scope of LCC outputs and deliverables across the facility life cycle grouped into the three principal life-cycle phases of design, construction and asset/facilities management. These three phases are then further broken down into a 10-project life stage framework.

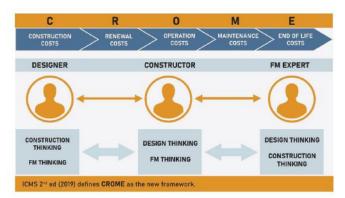
The LCC process requires a level of due diligence from all interested parties and involves assessing costs incurred and evaluating alternatives that have impacts on the total costs of the constructed asset or facility throughout its life cycle.

However, experience has shown life cycle data to be notoriously scant and that the matter of LCC analysis can be more complex than appears at first glance. Successful LCC analysis requires knowledge and understanding of:

- interested parties and stakeholders' ownership objectives.
- end users' operational objectives.
- design intent, functional requirements and variables.
- project scope, status and available relevant data/documentation.
- life expectancy concept and the related impacts that affect facility performance.
- LCC analysis techniques, databases, the necessary inputs and risk assessments.
- LCC analysis formulation, presentation and interpretation.
- consistent application of established terminology, standards and calculation methodology.

ACCEPTING THE CHALLENGE

Cost provides a vital FM tool to communicate value and integrate responsible decision-making across the facility life cycle to deliver a more sustainable, productive and livable built environment for all.



To truly achieve solutions for a sustainable built environment, organizations can no longer afford consistency of processes and terminology, rigorous cost prediction, WLC approach and LCC analysis to be seen as an add-on or optional activities.



Stephen Ballesty, FRICS, FAIQS, ICECA, CQS, CFM, IFMA Fellow is a director at In-Touch Advisory. As an industry leader, Ballesty has contributed to a wide range of

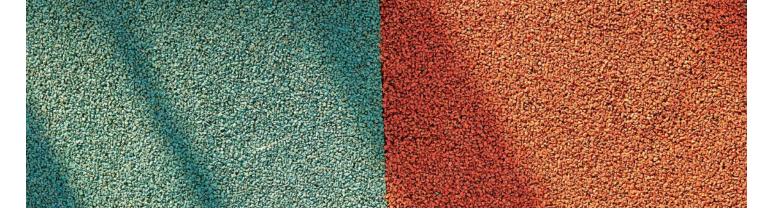
initiatives and guides, including FM, cost prediction and life cycle costing. He has also served in multiple roles on behalf of Standards Australia as part of ISO/TC 267 since 2012 developing the ISO 41000 series of FM standards.



Simple, Cost-effective Ways to Care for Carpets

BY BRIAN MILLER

Technology advancements and modern practices in the facility management industry drive FMs to spend more money on new services and tools to solve age-old problems. While shiny, new technologies and methods may seem innovative, their implementation is not always the best strategic move. Sometimes, going back to tried-and-true basics is still the best option.



his is especially true when it comes to carpet care. Take newer models of backpack vacuum systems as one example. Most of these tools are nice to use ergonomically: They are lightweight and fit well on the shoulders. But the vacuum attachment that actually vacuums is not very effective. Its Teflon-coated head glides easily over the floor making it easy to push, but it does not get deep enough within the carpet fibers to get all the dirt and debris. Many similar, more recent vacuuming technologies have been designed with an overemphasis on ergonomics at the expense of performance.

On the other hand, older models of beater-bar vacuums are much more effective. They might be heavier to push, but that is because they create better suction as they dig deeper into carpet fibers all the way to the backing to suck up dry particulate. A good beater-bar vacuum is around the same price as newer backpack systems but at least twice as effective at removing soil from carpets. In this case, the more efficient option is clear.

Do not Eschew Modern Methods Altogether

Of course, some modern practices can bring better results. Take the old-school methodology around planning carpet cleaning as one example. The traditional "four-two-one" approach — cleaning high-traffic areas four times a year, medium-traffic areas twice a year and low-traffic areas once a year — has grown outdated in light of new tactics.

A more modern strategy is frequency-visit programs that assess areas with a sharper lens to outline cleaning needs in entryways, transitions from hard to soft surfaces, breakrooms, cafeterias, etc. Cleaning is prioritized by where the soil is rather than mapped out based on a floor plan alone.

Once FMs plan a more modern approach, however, they should think about how they can simplify their cleaning practices and rely on established methodologies for more affordable and impactful results.

Making the Case for the Basics

FMs will not always have the easiest time convincing their employers or building owners that simple, basic, traditional methods can be more effective than new and innovative technologies or strategies. To start making the case, focus on outlining the best fit for the purpose.

Companies once developed cleaning technologies around a specific function, touting their performance ratings to prove their effectiveness. Now, marketing teams focus on other aspects by emphasizing various attributes of cleaning systems: noise, smell, ease of use, etc. As more competitors enter the scene, they try to market their top attribute or characteristic as the most important for that kind of product.

When FMs go back to the basics, they should also focus on what has the best functionality for the exact purpose they need, then prioritize other attributes deemed important on a weighted scale to see what really stands out as the most appropriate selection. Often, the effectiveness of basic tools and practices will outweigh the shiny attributes of newer technologies and methodologies.

Beyond highlighting fit for purpose when trying to make the case for going back to the basics, FMs can also bring up the cost question — both in terms of capital expenditures and ongoing maintenance. For example, modern technology might seem like it will be easier, cheaper and more efficient to repair over time, but it tends to be the opposite case for many tools.

Before the integration of complex circuits, software and mother-boards into carpet cleaning technology, technicians or FMs could usually repair their own equipment with simple nuts, bolts and wrenches. Ongoing maintenance for older tools tends to be much more financially sustainable because it can happen in-house. With newer carpet cleaning equipment, even opening the machine can be risky because it could void the warranty. Technicians or FMs must ship the machine and pay a mechanic who specializes in that piece of equipment. Not only does the repair cost more money, but it also means more time the tool is out of service and its intended purpose goes unfulfilled in a building.

Back to Basics for Carpet Care

Carpets are a prime example of building elements that benefit from many traditional methods. Instead of investing more money and time into innovative tools for cleaner carpets and seeing only mediocre results, FMs should also focus their efforts and attention on basic approaches to achieve cleaner carpets with extended longevity:



Dry soil removal with a beater-bar vacuum

As discussed above, older vacuum models with beater bars tend to be more efficient than the newer ergonomic backpack options. Beater bars are the fastest way to remove dry soil, like silicon sand, from carpets — and they are great at removing excess ice melt from entryway systems.

How often to vacuum will depend on the foot traffic of a specific area. In most buildings, high-traffic areas like entryways should be vacuumed at least once a day. High-traffic areas in busier establishments like hotels or retail stores, however, would benefit from vacuuming multiple times per day. Lower-traffic areas like storage rooms or unoccupied offices should be vacuumed weekly.



Routine vacuuming with a beater-bar device will ensure carpets stay as free of dry soil as possible, which is the first step to keeping carpets clean and extending their life. Vacuuming removes only dry particles, however, so interim and restorative deep cleans are still necessary on occasion to take care of the tougher grime.



Entry mat systems

New flooring materials marketed as low- or even no-maintenance hit the catalogs quite frequently these days. Such options might have some desirable attributes, but mats are the best way to remove excess soil before it is tracked farther into the building. Well-maintained entryway systems with strategically placed mats will always be a tried-and-true system for protecting floors.

Entry mats should be divided into three zones, one outside and two indoors. The mat outside should be in front of the building's entrance and should be able to scrape grit and heavy dirt particles from shoes. The next zone should be right inside the entrance with a mat that can scrape and absorb moisture. Lastly, the third zone should be farther inside the building, perhaps a walkway just beyond the second zone, and should include a mat capable of absorbing any additional moisture on shoes.

Remember, even the best-placed entry mats will not do their jobs well if they are not maintained. Think about how many people enter any given building in a day. Every shoe tracks particles and moisture from outside through the doors. Entry mats can catch the particles and moisture, but at some point, they become saturated and cannot hold onto any more. FMs must ensure proper cleaning to keep mats free of built-up soil. For the best results, use a counter-rotating brush machine to loosen particles, then perform a hot-water extraction to suck up the suspended soil.



Counter-rotating brush machines

Counter-rotating brush machines deserve a closer look. They are excellent tools for carpet cleaning because they pile lift carpet fibers at the same time they agitate them, all the way from the surface to the backing. It is the only machine that lifts while agitating, and although that might sound intense and abrasive, it works without damaging carpets, unlike some other spin bonnet machines that void the warranty.

FMs should ensure anyone servicing their carpets for interim or restorative cleans has a counter-rotating brush machine. It is an excellent old-school method that still does a great job of cleaning carpets. If FMs want to purchase counter-rotating brush machines on their own, they should look for well-made metal units with easily available replacement parts to mitigate high, ongoing maintenance costs and downtime. Brush stiffness (designated by color) is an important consideration, too, and depends on what is being cleaned: white brushes for wool, blue/green for standard floors, and yellow for ceramic tile or concrete.



Fans for proper drying

Leaving carpets damp for too long after cleaning is the surest way to quickly ruin them. This can create breeding grounds for mold and negatively impact the indoor air quality of a space. Companies market some chemicals as "no-wick" solutions that are supposed to leave carpets dryer than traditional alternatives, but even so, skipping the old-school fanning process is never a wise move. Fans are the only proper way to accomplish a carpet drying process after hot water extraction.

A dry polymer carpet cleaning method is an excellent option to consider in lieu of hot water extraction, as it provides a thorough deep cleaning but requires a fraction of the dry time.

Just because something is new does not necessarily mean that it is more effective than old-school practices. That principle is especially valuable when it comes to carpet cleaning, for which companies introduce new technologies and chemicals all the time. FMs should evaluate any new investments carefully to determine whether sticking to the basics might be a more affordable option with higher returns.



Brian Miller is a business support specialist at milliCare Floor & Textile Care. His career in the field began when he was attending Ohio University. In 2007, he took a job as a

technician while working toward his bachelor's degree in marketing and strategic leadership. After college, he continued to build his knowledge of floor and textile care on top of his expertise in strategy, and he has since worked in the floor and textile care industry in roles ranging from floor technician, technical sales rep and general manager for various companies across the U.S. In his role as business support specialist at milliCare Floor & Textile Care, his primary responsibility is supporting the company's franchises and helping them to improve their efficiency and productivity as they provide essential services to commercial facilities in their local markets.

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milliCare Floor & Textile Care | www.millicare.com/

Mohawk Group | www.mohawkgroup.com

Tarkett | www.tarkettna.com

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FM CONSULTANTS/SERVICES/PROVIDERS

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Facility Engineering Associates, P.C. | FEApc.com

Kyocera America Inc.- https://www.kyocera.com

Linc Facility Services. Doha. Qatar | www.abm.com

Office Depot | www.business.officedepot.com

Renaissance Services SAOG | www.renaissanceservices.com

SRACO Company | www.sraco.com.sa

Sodexo | www.sodexousa.com

Staples | www.staplesadvantage.com

Zurn Industries, LLC | www.zurn.com

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IAdea | www.iadea.com

FM SOFTWARE

Cartegraph | www.cartegraph.com Cloudbooking | www.cloudbooking.com FM:Systems Inc. | www.fmsystems.com

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Planon | www.planonsoftware.com

SpaceIQ | www.spaceiq.com

FURNITURE

CORT | www.cort.com

Davies Office Inc. | www.daviesoffice.com

Kimball International | www.kimballoffice.com

Versteel | www.versteel.com

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United Facilities Management | www.ufm.com.kw

JANITORIAL SERVICES/CLEANING PRODUCTS

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Excel Dryer | www.exceldryer.com

Square Care | www.squarecare.com

R-Zero | www.rzero.com

Tork, an Essity Brand | www.torkglobal.com

LANDSCAPE/MAINTENANCE/PLANTS/ SERVICES/SUPPLIES

Ambius | www.ifma.ambius.com

RESTROOM PRODUCTS

Kimberly-Clark Professional* | www.IFMAandChess.com

SECURITY

Kastle Systems | www.security.kastle.com Securitas Security Services USA | www.securitasinc.com

TECHNOLOGY SOFTWARE TOOLS

ARC Facilities | www.arcfacilities.com SCLogic | www.SCLogic.com

WASTE MANAGEMENT

Republic Services | www.republicservices.com Waste Harmonics | www.wasteharmonics.com



Behind the Brand

COMPANY NAME: R-Zero

EXPERTISE: Biosafety/Disinfection Solutions

CSP LEVEL: Gold CSP SINCE: 2020 WEBSITE: rzero.com



How is R-Zero responding to the ever-changing needs of the FM world?

R-Zero is the first biosafety technology company dedicated to making the spaces we inhabit safer and clinically clean. Founded to help organizations protect the health of the people they serve, R-Zero is committed to empowering facility managers to create safe, pathogen-free spaces for human occupants. R-Zero's suite of thoughtfully designed solutions combines the power of hospital-grade UV-C devices with an IoT platform and advanced sensor capabilities to create the world's first continuous, autonomous disinfection ecosystem. This intelligent system is designed to revolutionize how society deals with indoor environments and the risks they pose to human health while enabling facility managers to address those risks in the spaces they steward. With R-Zero's disinfection ecosystem, facility managers can automatically measure and manage their disinfection protocols while also demonstrating the efficacy of their stewardship. R-Zero's flagship product, Arc, enables a higher level of health and safety for hundreds of thousands of people across both public and private sector organizations without the use of chemicals.

What is R-Zero working on that will help FMs be more successful in their roles?

Researchers have found that humans spend at least 90 percent of their lives in indoor environments. Consequently, FMs play a significant role in facilitating human health through the ways that they oversee those environments. FMs, more than anyone, understand the challenges of keeping indoor spaces clean and healthy. R-Zero's connected ecosystem of biosafety technologies combines best-inclass efficacy with data science, sensor technology, and modern software. The R-Zero ecosystem automatically disinfects indoor air and surfaces in real time, effectively mitigating risk without the use of chemicals. Furthermore, R-Zero's sensor technology allows FMs to better understand space utilization and to make recommendations based on that utilization intelligence. When these sensors combine with R-Zero's UV disinfection solutions, they form the first system designed to actively keep building occupants safe and more productive while delivering measurable ROI. R-Zero's software platform, R-Zero Connect, provides a holistic view of all disinfection activity in your buildings from anywhere in the world. The connected nature of R-Zero's solutions and the back-end dashboard facilitate transparency for FMs by making the invisible disinfection process visible and auditable. With R-Zero

solutions, FMs can credibly communicate the care they are taking to render spaces safe.

How is R-Zero improving the FM industry?

R-Zero drives environmental and social responsibility by democratizing, decarbonizing, and de-risking disinfection in pursuit of a new disinfection standard that promotes better indoor environmental health through disinfected air and surfaces. In contrast to chemical disinfection, R-Zero's disinfection ecosystem leverages UV-C light to successfully inactivate surface-borne and airborne pathogens in indoor spaces. For example, R-Zero's flagship device, Arc, can disinfect the air and surfaces in a 1,000 square foot room in just seven minutes. This efficient disinfection solution enables significant time savings when incorporated into existing janitorial protocols. In addition to ease of use and implementation, Arc generates far less waste than traditional disinfection techniques such as manual chemical disinfection. Disinfecting a 1,000 square foot space for one year using Arc produces just 2 kg of waste, whereas manual disinfection of the same space over one year would yield almost 700 kg of waste. The inherent sustainability of R-Zero's UV-C disinfection solutions enables less carbon pollution, less acute hazard risk, and less waste overall compared to other disinfection options such as electrostatic spraying and manual chemical disinfection.

Tell us your "why" in the FM world.

R-Zero was born out of the COVID-19 pandemic. As the world went into lockdown, hospitals went into overdrive, and entire economies shut down, R-Zero's co-founders spent a lot of time contemplating why the world was grinding to a halt. They asked themselves, "How, in this day and age, has a microscopic pathogen been able to impact virtually every individual, community, and government across the globe?" It was clear that our global society was woefully unprepared for COVID-19. When faced with the COVID-19 pandemic in 2020, we were still using the same antiquated, harmful chemicals that we had used to fight the Spanish Flu pandemic in 1918. In the ensuing century, humans had walked on the moon and invented everything from antibiotics to the internet. Yet somehow, the industry standard for disinfection was still labor-intensive, often ineffective chemical protocols harmful to human health and the environment. Although pathogens had evolved, the tools we were using to fight them had not. At R-Zero, we recognized that combining the proven, hospital-grade efficacy of UV-C with IoT capabilities and modern software could deliver a powerful tool for any organization to fight COVID-19 and other illness-related threats that may come.

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COMPANY NAME: Tarkett

EXPERTISE: Flooring Installation/Maintenance

CSP LEVEL: Silver **CSP SINCE:** 2000

WEBSITE: commercial.tarkett.com/en US/



How can facility managers help people come back to the office and feel just as comfortable at work as they did at home?

In short, a successful return to the office will include giving people flexible options for their workspaces. Tarkett has partnered with HOK, a global design, architecture, engineering and planning firm, to understand how our offices can provide a variety of work environments that allow employees to find the workspace that best suits them and their workstyle preferences.

On top of the physical and emotional comfort this provides, it also helps support an inclusive culture, while attracting and retaining workforce talent. According to Kay Sargent of HOK, "As organizations continue to prioritize the recruitment and retention of a more diverse workforce, neurodiversity is an important consideration that should not be overlooked. There is a compelling human and business case to be made for understanding how the physical environment can impact the well-being of each employee in a workspace, thus impacting performance."

Tarkett and HOK have created an online tool to help designers and building managers understand people's different needs, and the ways purposeful design choices (like lighting, surface patterns and traffic flow) can help create more supportive and inclusive environments for a neurodiverse population. You can also learn more on this topic through our latest CEU: Designing In Belonging.

How can FMs simplify cleaning routines to keep the workplace safe for people to return to the office?

Tarkett offers several flooring solutions that simplify cleaning routines and minimize lifecycle costs. In areas that require more sound absorption, Tarkett's Powerbond is a hybrid resilient sheet flooring that provides a wall-to-wall moisture barrier, so leaks and spills can be easily extracted and never reach the subfloor.

Our Techtonic polyurethane coating provides best-in-class protection for the Contour and iD Latitude LVT collections, which prevents scratches up to 40 percent better than the leading competitor and helps eliminate these crevices where pathogens can hide.

For optimum infection control, continuous sheet products with welded seams, like Tarkett's iQ collections, are ideal. iQ technology is unique in that it doesn't require stripping or refinishing for the entire life of the floor—just a simple dry buffing is sufficient.

COMPANY NAME: ARC Facilities **EXPERTISE:** FM Software Provider

CSP LEVEL: Silver **CSP SINCE:** 2014

WEBSITE: arcfacilities.com



What is ARC working on that will help facility managers be more successful in their roles?

As a productivity tool for FM technicians and professionals, we are always looking for and developing ways to help FMs be more successful in their roles. This year, we will release productivity enhancements to our software that further simplify how FMs access critical building information. Technicians will be able to easily and quickly locate key information like all the electrical panels fed from a specific circuit, which shutoff controls a particular portion of the building, or other challenges like where a particular piece of artwork is displayed. Additionally, we are enhancing our offline capabilities so more information will be available to techs when they are in the field, without a Wi-Fi or Internet connection.

What's on the horizon in your field/industry, and how is ARC meeting those challenges and opportunities?

In addition to software, ARC Facilities team members are more active than ever in the industry, highlighting challenges, best practices, and solutions, or spotlighting key leaders. Our Women in Facilities spotlights have celebrated several amazing women this past year, and we are actively working to showcase several more. Our team will also continue to share best practices and solutions related to the critical issues facing our industry today as the greatest labor shortage in recent history happens at the same time as the great retirement.

How has the pandemic changed the landscape in terms of labor shortages across all industries?

Something that no one expected is the impact of pandemic, labor shortages, and retirement. In facilities this is a much bigger issue especially since a large majority who work in facilities are baby boomers who were looking to retire before the pandemic. Retirement in most other industries is routine course of business and can be managed with some advanced planning. In facilities management loss of institutional knowledge is irreplaceable – it takes years before a new facilities engineer comes up to speed with all the information on buildings. Labor shortages will also cause Operational Expenses (Op-EX cost) to skyrocket in 2022. It is critical that facilities leaders find ways to improve productivity to contain op-ex costs this year. Lack of productivity will not only impact the regular maintenance costs but also can turn simple accidents or maintenance issues into catastrophes which will in turn seriously affect business continuity.

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Behind the Brand

COMPANY NAME: Republic Services **EXPERTISE:** Environmental Services

CSP LEVEL: Silver **CSP SINCE:** 2020

WEBSITE: republicservices.com



Describe Republic Services and the products and services you offer. What differentiates you from the competition?

As an environmental services company, Republic Services offers everything from recycling and waste pickup, to equipment rentals and environmental solutions.

As a leading environmental services provider, we can help FMs identify opportunities, develop measurable goals, meet sustainability requirements and provide exceptional equipment — notably dumpsters, roll-offs and compactors and their service — to our customers.

Our records in safety and sustainability are what differentiate us in this industry. All Republic Services drivers receive annual defensive driver training and certification. Our safety performance is 39 percent better than the industry average, based on OSHA recordable data and our drivers are the recipients of 70 percent of the industry-wide Driver of the Year awards, year after year since 2009. For you, this means a safer facility for your employees and customers.

Republic Services is the first U.S. environmental services provider to have its emissions target approved by the Science Based Targets initiative (SBTi) as consistent with levels required to meet the goals of the Paris Agreement.

We are also the first in our industry to issue a comprehensive Task Force on climate-related Financial Disclosures (TCFD) report, identifying our Climate-related risks and opportunities reflecting our commitment to environmental leadership and sustainability.

What's on the horizon in your field/industry, and how is Republic Services meeting those challenges and opportunities?

The Environmental Services industry is projected to grow significantly in the coming years as companies seek ways to comply with environmental regulations and safely and responsibly dispose of all types of waste.

With the environment top-of-mind, we're accountable and dedicated to protecting it. To do this, Republic Services created bold, long-term sustainability goals in 2017, and we're on track to meet them. These goals include reducing our Scope 1 and 2 greenhouse gas emissions (by 35 percent by 2030), increasing our circular economy (by 40 percent by 2030) and investing in biogas reuse (by 50 percent by 2030).

COMPANY NAME: Corporate Floors Family of Brands **EXPERTISE:** Building Maintenance/Repair/Restoration

CSP LEVEL: Silver **CSP SINCE:** 2021

WEBSITE: corporatefloors.com



How is the Corporate Floors family of brands responding to the ever-changing needs of the FM world?

The role of the FM has continued to grow, and the services we offer have grown in response. What began as a small commercial carpet cleaning business in Grapevine, Texas, USA, almost 25 years ago is now a multi-brand, multi-service corporation that operates throughout North America and serves some of the world's most recognized brands and companies. The Corporate Floors family of brands includes Corporate Floors, a flooring installation contractor; APEX Surface Care, a specialty surface care company; APEX Property Services, a commercial cleaning company; The Elevated Cab, an elevator interior design and fabrication company; Square Care, a critical space cleaning company; and Whitman Global, a floor care provider based in the Pacific Northwest. We make things easier for busy FMs by providing multiple solutions under one MBE-certified vendor number.

How is the Corporate Floors family of brands improving the FM industry?

We don't just serve the FM industry; we support it. As a founding sponsor of Women in Facilities Management (WIFM), we are dedicated to helping women in the industry advance their careers. Last year, through WIFM, we sponsored two scholarships for FM professionals that assisted with education and testing costs for professional credentialing. Many members of our team are active within their local IFMA chapters, serving on boards and committees. We are committed to helping ensure today's facility managers have the tools, resources and training they need to succeed.

Tell us about your CSR and ESG efforts or projects.

As the only commercial interior company that is both a public benefit corporation and a Certified B Corporation, Corporate Floors and its family of brands use business as a force for good. In 2020, for example, APEX Surface Care established the Community Giveback Program, which provides pro bono cleaning and disinfecting services to select nonprofits, including women's shelters, family and child crisis centers, homeless shelters, and food banks. This allowed these vital community organizations to stay safe and open during the COVID-19 pandemic. In addition, our B Corp certification validates our commitment to sustainable practices that are good for both people and the planet.

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Robotization and automation are transforming many different labor markets. To date, no studies have examined the impact of robotization on the labor market in workplace and facility management. Physical robots are more visible in office environments, for services such as cleaning, maintenance and catering. Interactive virtual robots are seen in workplace management, security and service desks. But are these robots replacing or creating jobs? And what does this mean for competency development in higher education workplace and FM programs? Should they adapt their curricula to deliver future-proof young professionals?

esearchers in the Netherlands performed a study adopting Q-methodology to explore expert opinions on the impact of robotization on the labor market in workplace and FM. This study resulted in three distinct visions on how and where robots are becoming part of the workforce:

- minor impact on the labor market: focus on human interaction:
- major impact on the labor market: focus on efficiency, quality and productivity; and
- 3. balanced impact: cobotting, robots as colleagues.

In the past 20 years, robotization and automation have already had a significant impact on many different labor markets. In manufacturing, the job landscape has already changed dramatically due to increasingly effective and efficient robotics. These robots are also employed in physically demanding, repetitive or dangerous jobs such as offshore maintenance.

Similarly, automation has changed and replaced many administrative roles in organizations. Recently these two types of technologies have merged leading to a new generation of so-called semi-autonomous smart or data-driven (interactive) physical and virtual robots. Tech companies in Japan, the United States and China have heavily invested in these innovations, with local governments stimulating business adoption of this new generation of robot systems. As a result, a growing number of robots can be observed in hotels, restaurants, e-retail and delivery services, but also in elderly care and office environments. In this Fourth Industrial Revolution, physical and virtual robots both replace and create jobs; however, the exact impact on the labor market remains unclear. Some quantitative studies show that millions of jobs will be lost in the upcoming decade; other studies show a shift in jobs, with some jobs disappearing and new jobs emerging at a similar or even faster pace, for instance in robot design, programming and maintenance.

For the professorship Sustainable Experience Design at Breda University of Applied Sciences (BUas) in the Netherlands, this was the reason to investigate the impact of robotization on the labor market specifically for workplace and FM. The purpose of the study was not so much to explore how many jobs will disappear or be created, but to understand how robotization impacts the skill

set needed to be successful in the labor market in the upcoming decade(s) in relation to the reasons for adopting different types of robots in different types of companies. For this reason, next to reviewing available literature, the research first explored more than 100 types of robots and robot prototypes and their business cases in the service sector. This information was used in interviews with experts from a variety of FM businesses and their suppliers and investors. Preliminary research was used to formulate statements for a Q-study with a wider group of experts from business, education and academia. Q-methodology is a scientific method for studying human subjectivity — it allows for understanding how respondents construct their vision on a particular topic by exploring their arguments for that vision (Boom et al., 2020). For this study, respondents were asked to rank 48 statements (arguments) in a Q-grid. Through factor analysis, a specific type of statistical test, three distinct visions on the impact of robotics on the workplace and FM labor market were distilled from this information.

Vision 1:

Minor impact on the labor market, focus on human interaction.

VISION 1

focuses on the importance of personal interaction in services.

Respondents with this vision see the added value of robots in services but not as a replacement for human interaction. Robots in this vision should perform repetitive standardized tasks that allow staff to invest more time and energy in personal attention to guests and tasks that require empathy and creativity. Robots in this vision play a supporting role that can help boost productivity and extend opening hours such as food services. However, these robots are not necessarily of marketing value. Respondents do not believe that the arrival of these innovations will lead to a growth

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in jobs or that robots will fully replace human beings, especially in organizations where service experience and hospitality are of vital importance. Rather, they see that robots provide opportunities for hospitality-related services by creating time for staff to focus on other tasks or supporting them with language issues, thereby indirectly positively influencing service experiences. As a result, these respondents believe that the business case for robots is only attractive for a limited number of companies. In this vision, young talent should be supported in developing their creative, social, digital and communication skills as these are growing in importance.



In **VISION 2** robotization primarily creates opportunities for productivity, efficiency and effectiveness. Respondents who hold this perspective believe robotization will have a considerable influence on the direct workplace and FM labor market for people of all levels of education. Data-driven cleaning and maintenance with robots, staffless production kitchens and self-check-in receptions will decimate jobs in operations and management. However, new businesses and suppliers of this technology will have new jobs, roles and departments looking for talent not just with technical skills and knowledge, but also with knowledge of FM services to keep innovating. The business case for investing in robotics focuses on minimizing human error in production processes, efficiency through smart data and increased business hours at low cost. These respondents believe educational programs in the workplace and FM must change and pay more attention to technology and data science rather than more traditional business administration. Respondents with this vision also believe that FM businesses are prepared, and continue to prepare, for the Fourth Industrial Revolution by developing new services or by acquiring or partnering with technology companies.

VISION 3 focuses on the collaboration between people and machines. Respondents who hold this perspective believe that robotization and automation will ultimately improve both customer and staff experience. Customers will benefit from improved efficiency and effectiveness of services while paying a lower price, while staff has time to provide personal attention. Smart CRM systems will support staff by tracking preferences, complaints and personal information. Furthermore, robots can take over repetitive and physically hard or dangerous tasks, improving sustainable employability of staff in areas such as cleaning and maintenance. Staff is not replaced by these robots but have a different role in deciding which areas to clean based on smart building data, programming the robot for the tasks and executing specialist tasks robots are unable to perform. For instance, vacuuming and scrubbing robots can cover large open spaces and hallways but not higher surfaces or underneath or around furniture. Similarly, security robots and automated systems (e.g., facial recognition and biometric sensors) support security teams in keeping everyone safe without necessarily needing turnstiles and chipcards, creating a more hospitable environment. This phenomenon is also known as coboting, which refers to the collaboration of people and robots or automated systems. In this vision, the role of education is to prepare talent to engage with and innovate through technology, while also understanding change management processes in relation to technology adoption.

WHAT NOW AND WHAT IS NEXT?

The visions identified through the Q-study are not mutually exclusive. Elements of all three are already visible in many organizations but their implications depend on the size and scope of the organization and the operation. Robotics has already proven its value in manufacturing, food production, e-retail and airports. The common denominators in these fields are quantity, speed and minimal human error. For similar reasons, security and hospitality robots are increasingly visible in many office buildings. They are never tired and do not mind repetitive and dull tasks. For the same reason, service desk chatbots learn to solve more issues every day, and maintenance robots are reducing the number of accidents and fatalities on the job every year. Sensors

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help improve air quality, temperature and daylight in buildings, and alert cleaning staff (or robots) to which floor is slippery because someone spilled their coffee.

Robots and automated systems are already part of our workforce and are replacing and creating jobs in different ways, both in daily operations and in management. It is also clear that robots come in many forms and shapes depending on their purpose and that each comes with its own business case and limitations. In most cases, robots cannot yet fully replace human staff members, and a cleaning robot cannot replace a hospitality robot under repair. Although the researchers found some of the barista and salad robots very convincing, in most cases in the services sector human flexibility, empathy and creativity will still be much needed in the future. Robotics and automated systems will support further improvement of productivity, efficiency and quality in many ways.



Nadine Oosterman, BSc. is a junior consultant in health care for CBRE. Previously she was a research assistant at BUas focusing on applied robotics in facility management.



Bert Smit, MSc is principal lecturer in workplace experience design at Breda University of Applied Sciences. In addition to pursuing a Ph.D. in system engineering for experiences, he is

part of the DigiREAL project, focusing on how technology can enhance workplace experience and how to translate this knowledge into the BUas curricula.



Lauren Voogd, B.A. is pursuing a master's degree at Erasmus University Rotterdam. Previously she was a research assistant at BUas focusing on cultural influences

on technology adoption in hospitality services.



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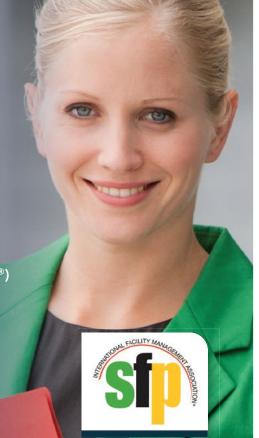
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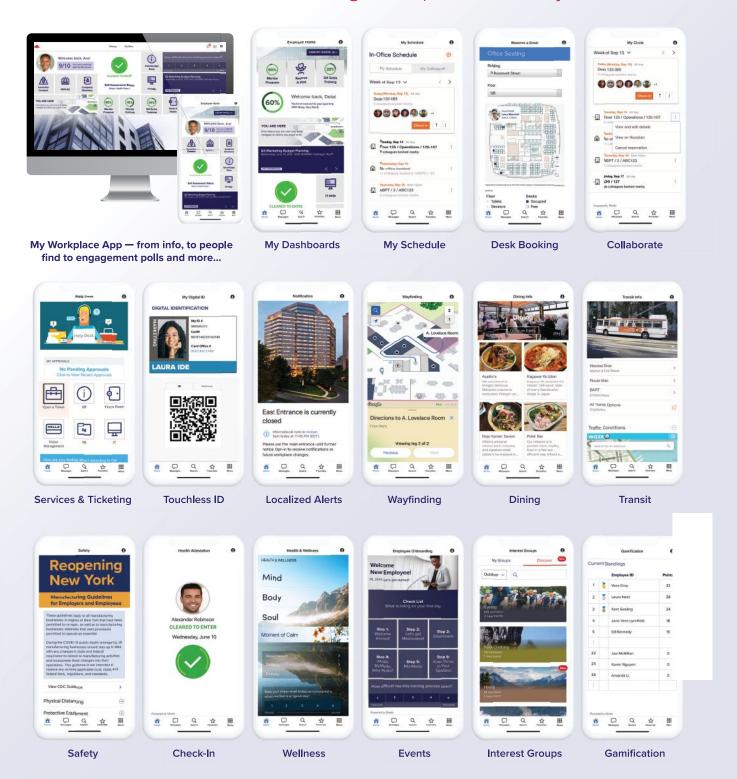
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FORM MEETS FUNCTION

Ask the Experts

In each issue of FMJ, IFMA's Facility Management Consultants Council shares some commonly asked FM-related questions accompanied by advice from top FM consultants. The questions and answers presented in this section align with IFMA's core competencies following the themes outlined for the given edition of the magazine. While the following answers are intended to be helpful, these responses should not be deemed complete and are limited in context by the space allocated. Please contact the individual consultants directly for further explanation of the opinions expressed.

CONTRIBUTED BY



The Facility Management Consultants Council (FMCC) represents more than 300 FM consultants from various countries around the globe. Its mission states, "The FMCC is the resource and voice for facility management consultants worldwide to leverage our collective expertise to benefit IFMA members, and the facility management profession."

What functions will determine the form of the post-pandemic office?

"No Looking Back: The New Design of the Workplace"

BY RICHARD FANELLI

Most companies are holding their breath when it comes to making major decisions to retrofit their office space to accommodate the post-COVID-19 space needs of their organizations, and rightly so. Unless you have an FM crystal ball, there are too many unknowns at this time to have a clear picture of how all the variables will play out. What we do have are some general design guidelines, which may help to frame future design initiatives:

TELEWORK POLICIES UPDATED:

There will be a reduced need for dedicated office space for organizations that have developed a telework policy linked to assignment of dedicated versus shared office space. According to a number of commercial real estate brokers, many industries are anticipating a 20 to 40 percent overall reduction of their real estate footprint. Creating a clear policy of who gets dedicated space, based on days per week in the office or job description, needs to be clearly defined as part of an updated telework policy. The quantity, type and locations of shared space, or hoteling space, will also need to be defined. We are seeing a trend to increase the percentage of closed office space and a reduction of open office space, perhaps inspired by the early days of COVID-19 when physical separation was important.

FLEXIBLE SPACE, FURNITURE AND CONSTRUCTION STANDARDS:

The ability to reconfigure space easily and cost effectively with a minimum amount of time and disruption will be more important as organizations fine-tune their post-pandemic work environments. Modular space standards, limited variations of office and workstation sizes, limited furniture components that can be used in a closed and open office standard, and pre-fabricated

construction components (i.e., demountable partitions and glass office front systems) are just some of the approaches that need to be considered to create a nimble work environment.

EMPHASIS ON UPGRADING SHARED COLLABORATIVE SPACE AND AMMENITIES:

Luring staff back to the office will be a priority for many companies. The advantages of working at the office versus working from home will need to be a clear choice. The social aspect of work – and providing the proper environment to encourage social interaction – will be an important element of most renovations. Creating an exciting and stimulating work environment, as well as having better technology tools at the office, will also help attract reluctant teleworkers back to the office. The cost per square foot for collaboration and amenity areas will be a large part of most build-out budgets.

BRANDING AND MESSAGING:

Keeping the staff engaged and creating a strong organizational culture will be extremely important in creating a dynamic work environment. Two years of pandemic separation has damaged many organizational cultures, but it also has created an opportunity for organizations to redefine their desired culture, along with their mission, vision and values. A company with a strong culture, and the physical branding that supports that culture, will have an edge in recruiting and retaining talent. Inspired leadership that supports the desired culture, empowers their staff to live the mission, vision and values of the organization, and encourages staff to have the time and tools to pursue innovation will lead their industry in the post-COVID-19 era.



Rich Fanelli, AIA, CFM, FMP, IFMA Fellow is the principal of FMStudios, a commercial interior planning and design firm located in Fairfax, Virginia, USA. He has

been an active member of IFMA since 1986, serving as president of the Capital Chapter of IFMA, president of IFMA's FM Consultant's Council and serving on the IFMA board of directors. Fanelli has spoken about workplace design topics at numerous IFMA's World Workplace and Facility Fusion conferences. He is also an author of several e-books on change management and project management.

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Community Building THE FUTURE OF FM

BY JEFFREY SAUNDERS



Click the screenshot above to watch Jeffrey Saunders' interview with Ryan Anderson (left).

Research & Insights team at MillerKnoll, the new collective of modern design brands that includes Herman Miller, Knoll, Hay and a host of other brands. MillerKnoll is known for using modern design to create great spaces for people to work and live in, and it is the job of the research team to determine how to make those spaces as effective as possible. The goal is to provide a higher quality of life for everyone.

"We work with the knowledge that no matter where a person is, that the space they inhabit is affecting their life activities. We deeply consider what it takes for these spaces to support working, but also socializing, learning, growing, contemplating, healing and playing. Our spaces can hinder or enable these activities to occur,"

- Ryan Anderson

The desktop era cast a long shadow, which took a pandemic to escape

The world is experiencing a 15-year acceleration to catch up to where offices should have been, and the industry is trying to anticipate what is coming next. The challenge is to escape the long shadow cast by the desktop computing revolution. Organizations are struggling to come to terms with the fact that work is mobile, untethered and distributed. Workers were, in theory, freed to work anywhere many years ago. Spaces are now on-demand.

There is a fundamental interaction between technology and society where "we shape our tools, and thereafter our tools shape us." The desktop revolution is a classic example, and it transformed the way people work. The desktop revolution hijacked office design for 20-30 years and cemented many assumptions about how office workers should work among many employers and workers to everyone's detriment.

EDITOR'S NOTE: In 2021, IFMA announced the creation of its Research Advisory Committee, an international panel of world-leading, multidisciplinary subject matter experts keen on helping reshape the built environment to improve people's well-being and buildings' sustainability. As part of this initiative, IFMA is conducting a series of interviews with the members of the Research Advisory Committee. These interviews will introduce readers to this fantastic and inspiring group of thought leaders, their passions and how they see the facility management industry evolving during this period of tremendous societal transformation. Click here to read the first interview in the series.

FMJ EXTRA | *Industry News*

IFMA's Research Advisory Committee



In earlier design eras — the emergence of Bürolandschaft (Literally, "Office Landscape" in the 1950s) and of Herman Miller's Action Office (1960s) — "they offered a very dynamic model that assumed that people were doing a wide array of activities in a variety of spaces — and then desktop computing sidelined that for a good 30 years," said Anderson. No one in the 1980s realized that digital computing would come to dominate work lives and design assumptions. These design assumptions include that:

- all work needs to be done in the office
- individual work needs to be done at a workstation
- individual workstations should be assigned to the user of the technology
- collaborative activities happen in designated meeting spaces
- a manager should supervise workers on site
- presenteeism was a means of measuring a person's productivity.

Desktop computing fixed people to their desks and workstations through the 1980s and 1990s, and then mobility emerged in the 2000s through the introduction of Wi-Fi, cloud computing, smartphones, etc.

"Distributed working — the spreading out of work — has been emerging for the last 15 years, which is why we saw decreasing utilization rates for desks for 10 consecutive years, leading into the pandemic," said Anderson. "I just don't think most organizations ever sat down and said, what does it look like for us to support distributed working? I'm not even sure that term would have been or is now on the tips of people's tongues. Instead, organizations saw things in very binary terms. We've got remote employees, and we've got office employees. I think the world is still having a tough time shaking that binary worldview."

Due to the changes wrought by the pandemic, FMs should ask themselves how can they design for distributed working; how will the assumptions behind these designs shape organizational cultures, reinforce working patterns and affect working conditions for all?

In distributed ways of working the office becomes a resource

As organizations consider hybrid strategies to better support distributed working, offices are on-demand and become almost benefits or amenities that should foster productivity and better community experiences. This acceptance is causing many organizations to reassess and ask themselves: "Why do we have offices? What's the return on these investments?"

This reassessment process will have several implications and cause a reckoning for those who work in the facilities and corporate real estate worlds. For far too long, "it was viewed as a given that workers need a certain amount of space, creating a level of predictability." Pre-COVID-19, this predictability had benefits for

those involved in the creation of office spaces. "It was beneficial financially because you were fairly certain that an organization might invest in space, despite not knowing what value they got out of those investments," he said.

Organizations are reexamining their spaces, including how they are used and function, with CEOs now asking: "What is the value of our physical environments? How do they help? How do these spaces complement or, in some cases, compete with other places where people work?"

"I don't think that's a bad thing. I think it's a path towards better delivery of value, a better understanding of the return on these sorts of investments, but organizations are trying to fit 10 to 15 years of conversation into the last year or two," Anderson said.

To accelerate their learning, Anderson said the Global Research & Insights team at MillerKnoll has focused on:

- 1. Reviewing historical insights from organizations that have supported distributed work
- Identifying best practices that can be applied more broadly in the future
- Developing new research insights via Future Forum, a research consortium that includes Slack, MillerKnoll, Boston Consulting Group and Management Leadership for Tomorrow
- 4. Studying early learnings from organizations who have evolved their workplace strategies

They use the insights derived from this process to inspire organizations with new uses for their spaces in the future.

Workplace experience is the subset of employee experience as HR takes the lead

IFMA's Experts' Assessment (October 2020) predicted that human resources should set organizations' workplace strategies with the intimate support from other functions like facility management. Anderson said he and his team are seeing the trend of the influx of human resources as a function into the workplace conversation. "[This trend] is one that I am thrilled about and one that is long overdue," he said.

The switch to hybrid work strategies has a host of HR implications. HR leaders have entered the conversation and are asking new questions that are shaping the workplace debate now and well into the future.

"What I love is that they're asking very human-centric questions. They are seeing workplace experience as a subset of employee experience, and I wouldn't be surprised if increasingly FM teams found themselves reporting into HR or partnering closely with them,"

- Ryan Anderson

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Other vital conversations involve how knowledge workers can work effectively as distributed teams and the role that the office plays in supporting them. "These topics have been democratized and are discussed in webinars and across the dinner table among people who would not have thought about these issues in the past," said Anderson. "People are becoming more enlightened about the control they have over their productivity, leading to more autonomy. People are now thinking: "What does it take for me to be more effective?"

These transformations will change the employee and employer relationship.

"Organizations will realize that hybrid working strategies are not a one-way street or concession where they're simply granting employees a lot more flexibility. Employees will also need to become more accountable for hitting their goals, taking charge of their productivity, and communicating across time and distance," Anderson said. "An exciting balance will emerge in the coming years where organizations realize a win-win for delivering employees more autonomy and achieving better organizational outcomes. Offices will play a critical role in supporting this, but differently than they once did. It's going to be a significant transition that we'll probably still be talking about 3 to 5 years from now."

Placemaking and maintenance will change the boundaries between designers and facility managers, leading to a focus on end-user data

The ongoing emergence of placemaking — mainly through initiatives like Baukultur and the New European Bauhaus movement² — requires a reconsideration of place maintenance and FM. In placemaking, designs are put together and handed over to FMs but often without thinking about the service component.

With the emergence of placemaking and a focus on employee and workplace experience, the service component will become more important and change the relationships between designers and FMs.

"Really understanding the nature of community, what it takes to build community, and how our physical environments have historically shaped communities are probably the most important conversations that people involved in facilities management should be having. Of the many value propositions that office space can offer, the ability to strengthen and bring together the workforce as a community is probably the single most important one," said Anderson.

Over the next several years, there should be a reevaluation of how projects and FM are done. He said "The Office: A Facility Based on Change," a book by Robert Propst, head of Herman Miller's research team in the 1960s, predicted today's transforming climate.

"His idea was that facilities need to change and adapt based upon the dynamics of how people and work are changing. I do not know that we have yet achieved this as in most organizations, the facility remains quite static. People have to change their work processes around the physical environment."

Designers and FMs should be inspired by how software as a service (SaaS) companies focus on their customers. Traditionally, designers and FMs acted like product managers, and they looked at how the product grew: it was not particularly active in understanding end-user needs daily. Emerging SaaS companies' models show the importance of a deep, data-driven understanding of end-users.

"If you look at business models from SaaS companies, the key to these models is that the people who lead the product are deeply involved in data that helps them understand how the users are doing. That's where facilities management has to go,"

- Ryan Anderson

This will change FM because the profession will not only manage the space in terms of its operational efficiency, but will manage its effectiveness over time as well.

"It's about monitoring the work and communicating with the people there and understanding what's changing," he said. "How are their work and their team dynamics changing? What's the nature of the projects they are doing? And what does it look like for these spaces to evolve in a much more rapid way to bridge the clock speeds between the building architecture and the actual work being done."

This transformation requires overcoming barriers in accounting, feedback mechanisms and data analytics

Anderson envisions offices where organizations would see fewer of the big projects every seven years replaced with budgeting and management processes that enable ongoing intelligent tweaks.

"After five to six years, the facility would look and feel very different because that's what the work required. I think management will be an ongoing evolution of what that design looks like at a micro-scale based upon the demand patterns that we see among the users," he said. To achieve this vision, barriers to capital budgeting processes, feedback mechanisms, and workplace data analytics capabilities must be overcome.

Capital budgeting requirements are a barrier to an evolutionary approach to workplace management. With some 55 percent of corporate real estate leaders reporting to the CFO, a change of

internal stakeholders or reporting lines could change how to assess workplace budgets.

"If we start to see HR and other functions strongly influence the workplace function, I could see a move towards an annual expense budgeting for the evolution of space and services," said Anderson. Feedback mechanisms are lacking.

"We lack a feedback mechanism
for facility managers and workplace
strategists to understand how the
workplace is doing, whether or not its
effectiveness has improved or decreased in the
last nine months. We need something
consistent and longitudinal."

- Ryan Anderson

The lack of an actionable feedback mechanism links to a challenge that Anderson sees — the struggle with workplace data analytics and identifying the right data to make sense of the workplace experience in an actionable way. While the amount of data that is available is expanding exponentially, FMs face a problem similar to what marketing departments met over the last several years.

"If we go to the marketing world, there was a period where there was this explosion of data analytics for marketers to try to understand how they were doing. It was too much — until you had the emergence of data like Net Promoter Scores (NPS), which boil down a complex array of marketing data to something simpler that organizations could track over time. We need something similar for organizations to track how spaces serve specific user groups," Anderson said.

FMs need common standards and the ability to normalize data to enable them to ask meaningful questions and make changes. According to Anderson, "there isn't even a shared industry definition of what 'space utilization' means. If you look at utilization data and ask, 'how is it calculated?,' it can be wildly different. Everyone should know that."

Space utilization data has become strategically crucial because, unlike just two years ago, most offices will not function as places where managers can expect people to be from 9-to-5, Monday through Friday. With greater detail about what sort of spaces are they using, FMs can ask better questions: "Where are people gravitating? What spaces are they spending more time in — at their desks or in community areas? Are they using project spaces? Knowing what types of spaces are used helps us to get a clearer sense of the actual work being supported," he said.

With this baseline dataset, FMs can have meaningful conversations with members of teams about the spaces they use and need. In these conversations, Anderson cautions that how often

employees use an area does not always correlate to importance.

"There may be that space for one-on-one conversations between an employee and a manager that only gets utilized 10 to 15 percent of a week, but if you tried to take it away, people would be distraught if they didn't have access to a space like that," he said. "The amount of time an office or space is used is only one facet of its value."

Without having access to good baseline data, it is difficult to imagine a more evolutionary approach to workplace management at scale. It will be hard to see how FMs could holistically identify if there is a return on investments of specific physical work settings. Are spaces contributing to increased well-being and a sense of community? "As an advocate for facility managers, I do not want to see us focus solely on the efficiency side of the equation," said Anderson.

Facility management's future direction

The FM industry faces several challenges, and Anderson is concerned about their effects on the industry. He joined IFMA's Research Advisory Committee because he believes it is beneficial to begin creating alignment on the major goals for future facilities.

"If it were me as a director of facilities or corporate real estate, I would begin by identifying key goals for our facilities and resourcing my team members based on those goals," he said. "There should be a member (or members) of each facilities team that has deep expertise in, for example, sustainability, including issues like embodied carbon and indoor air quality. The same should occur for understanding user needs so that the FM team can uncover and meet those needs. This type of forward-thinking organization could help facilities be less reactionary and more proactive in achieving organizations' long-term goals business goals. This way of thinking can enable facilities management professionals to lead with a visionary voice of 'This is how we're going to create spaces that enable our organization to be successful."

The proactiveness of FM is not only a challenge that the industry is facing, but it is one that many organizations are facing. "This is one of the benefits of hybrid working strategies. Organizations are becoming much more goal-oriented in their performance metrics," he said.

"You should be able to look at the organizational chart and follow the goals right through it. What are the three to five priorities that the company is trying to accomplish? How is each department responsible for contributing to these goals? What does each person need to do to contribute to that goal? Facilities management is in that mix."

- Ryan Anderson

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FMs should consider what the organization is looking for from its facilities and how this impacts the organization's talent goals.

These transformations — especially the focus on using facilities to build community — will require FM to become more informed by other fields like the social sciences.

"At MillerKnoll, we look to the social sciences like sociology, environmental psychology and organizational psychology to help understand the power of our workspaces. Urban planning also influences our thinking. We can learn a lot from how organizations outside the world of work — schools, clubs or hobbyists — self-organize and use space to innovate and create a community in new ways,"

- Ryan Anderson

MillerKnoll's research team focuses on understanding how space influences interpersonal ties — especially weak ties as they are more instrumental than strong ties in new ideas and information.³ Herman Miller highlighted this topic in an episode of its Looking Forward podcast about on the future of work. The concept of interpersonal ties suggests that people close to us constitute our strong ties — our family and friends in private lives and our team members at work. We interact with them a lot throughout the week. Weak ties are our extended networks, and these are the friends or colleagues that you do not get a chance to talk to all the time, and you do not necessarily have a reason to have a Zoom call with them over the week.

Anderson said, weak ties are critical to a sense of community, innovation and belonging.

Since the COVID-19 pandemic, organizations have struggled to create common cultures and innovate across teams as organizations have become siloed. It is as if each organization is behaving as many smaller organizations within it due to strengthening strong ties within teams at the cost of weak ties among teams.⁴

While workers in teams have closer relationships with their nearest colleagues, they have also become detached from other parts of the organization. According to Anderson, "This challenge creates an opportunity for designers and FMs. This is where the physical environment can bring an organization's disparate groups together by giving them the chance to experience each other's work and bump into each other. The physical environment allows colleagues to speak with one another and say, 'Oh, you are working on that challenge? That relates to something I did 18 months ago. Or did you know that Sue is working on something similar? You should talk with her.'"

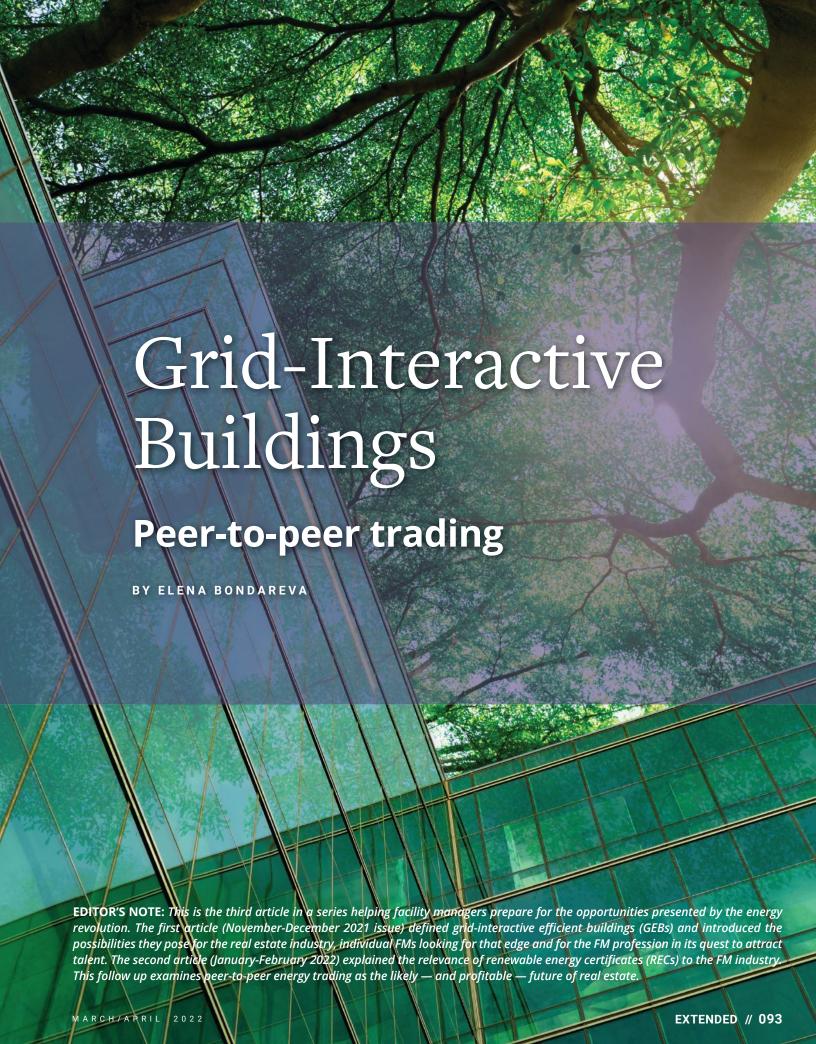
Working purposefully with serendipity and strengthening weak ties are probably the most challenging aspects for those managing a distributed workforce. This is what corporate office spaces must do effectively in the future. "I see very few spaces that I look at and say, 'that is a space designed to help strengthen community.' I most often see rows of open workstations and generic conference rooms that support a very limited range of activities and that were designed with the assumptions of the desktop computing era," said Anderson "We need to design and maintain places to foster and strengthen community with the understanding that offices can be highly valuable in a work-from-anywhere world if they support experiences employees cannot find at home."



Jeffrey Saunders is an expert in strategic futures studies and foresight. He is CEO of Nordic Foresight. Saunders formerly served as Director, Copenhagen Institute for

Futures Studies, Chief Consultant and Head of SIGNAL Arkitekters Workplace Analytics team.

- ¹ Pertti Hurme and Jukka Jouhki, "We shape our tools, and thereafter our tools shape us." Human-Technology, Volume 13(2), November 2017, 145–148. This is a twist on Churchill's 1943 quote that "we shape our buildings and afterwards our buildings shape us." parliament.uk/about/living-heritage/building/palace/architecture/palacestructure/churchill/
- 2 Baukultur refers to a European movement emerging from Germany, Switzerland, and the Netherlands. Baukultur focuses both detailed construction methods and large-scale transformations and developments, embracing traditional and local building skills as well as innovative techniques.
- 3 New European Bauhaus movement is a creative and interdisciplinary initiative that connects the European Green Deal to our living spaces and experiences. The New European Bauhaus initiative calls on all of us to imagine and build together a sustainable and inclusive future that is beautiful for our eyes, minds, and souls. Beautiful are the places, practices, and experiences that are enriching, sustainable, and inclusive.
- 4 Granovetter, M. (1973). The Strength of Weak Ties. American Journal of Sociology. 78:1360-1380.
- 5 Yang, L., Holtz, D., Jaffe, S. et al. The effects of remote work on collaboration among information workers. Nat Hum Behav 6, 43–54 (2022). doi.org/10.1038/s41562-021-01196-4





What is peer-to-peer? Peer-to-peer energy trading, commonly referred to as P2P, is the buying and selling of energy (often solar) between two or more entities on the same grid.

hink of P2P as the Etsy of clean energy: a marketplace where buyers can buy energy directly from sellers, with laws of supply and demand governing both prices and quality.

In P2P environments, those selling excess energy usually make more than the grid would pay them, and those buying it usually pay less. This is because they split the savings they create for the

grid when they reduce its burden to generate and transmit energy.

 Prosumer: in the context of energy trading, a prosumer is an entity that both generates and buys energy. A prosumer can be a company with on-site renewable energy generation that, at times, produces excess that is injected back into the grid and, at other times, tops its supply from the grid.

While microgrids readily support P2P, they are not required. Where clean energy is at play, energy storage (i.e., batteries) are a key P2P asset because they allow sellers to charge up when, say, solar is abundant, and dispatch it when it is not. However, P2P does not have to focus on clean energy to advance the clean-energy future: local energy markets reduce demand on today's overwhelming dirty centralized utilities, inherently reducing carbon emissions. Furthermore, market demand will dictate how clean the energy on offer.

 A microgrid is an independent energy system serving a local area. Microgrids often aggregate several clean energy assets and can operate both as part of the traditional grid and autonomously.

Importantly: a P2P participant does not have to bring any renewable energy to the table: even those who enter P2P exclusively as buyers support local energy markets.

Here is a business case for P2P through a conservative Australian example.

- Selling price to grid (via feed-in tariff): 7 cents/kWh.
- Selling price to participant: 8 cents/kWh
- Buying price from grid: 21 cents/kWh.
- Buying price from participant: 19 cents/kWh (incl. 11 cents/kWh network fees for that location).

Selling within P2P earns 1 cents/kWh more, and buying within P2P saves 2 cents/kWh, adding up to a small fortune over the course of each year.

The benefits of P2P: Win x 5

The reason that peer-to-peer is at the core of clean-energy markets is because it delivers benefits at every turn.

- 1. The owner of a renewable energy asset effectively sits on a source of liquid funds, able to sell energy whenever the neighbors have demand.
- 2. The buyer gets to decide where their energy comes from how clean they need it to be and usually still get it for less than the grid rate.
- 3. The community wins on at least 3 levels:
 - a. The extra income to the seller and the savings to the buyer land within the same community. At scale, boosting each community's buying power by 1 percent makes a material difference in economic terms; the kind of difference that is made possible in the clean-energy economy.
 - b. Equity and environmental justice gains, especially if it decides to offer P2P discounts to the disadvantaged.
 - c. Increased local resilience and self-sufficiency.
 - d. Improved grid reliability (e.g., reduced risk of black-outs).
- 4. The planet wins through reduced greenhouse gas emissions.
- 5. The grid benefits from P2P because without effective P2P, distributed renewable energy assets can feel like a poisoned chalice: they create grid congestion at peak production times without solving the peak demand problem. In geographies suitable for renewable energy generation, P2P can

nearly eliminate the need for transmission infrastructure as well as for peaker plants (which come on for the few hours of the worst peaks and are ludicrously expensive and often incredibly polluting), saving millions of dollars in both investment and maintenance as well as reducing the risk of black-outs. It is like the relief parents feel when siblings sort out their squabble on their own.

What can P2P do for real estate?

In a P2P environment, the owner of the energy assets (generation or storage) has more choices:

- Use the clean energy.
- Sell the clean energy to the members of the P2P community.
- Use the energy but sell its "cleanness" (such as through renewable energy certificates).
- Donate excess clean energy to local schools, non-profits, etc.
- Export excess clean energy onto the grid; even where that means selling, the price is usually lower than what a member of the P2P community would be willing to pay.
- Sell excess energy to the grid during peak for several times its usual cost (the term for this is arbitrage).

Importantly, through P2P, any real estate asset can directly advance the clean-energy future, regardless of whether it has on-site generation or storage. Even when a building participates in P2P exclusively as a buyer, it makes a profound difference. Add EV charging stations to the mix, and a precinct can use its EVs as "batteries on wheels," storing excess by encourage, via price signals, EV charging in times of plenty — aka, when the prices are low — and discharging when needed.

In this case, P2P casts a wider net than RECs. Not only does it allow those with no renewable energy generation to contribute, but it further expands the options for the owners of clean-energy assets.

P2P is a game changer because they can

- Turns any clean-energy asset into a revenue center.
- Activate self interest in pursuit of win-win-win.
- Boost both grid and community resilience.

Using clean energy when and where it is generated maximizes the benefits because it eliminates transmission losses or the need to maintain (or develop more) traditional, dirty centralized power plants, with its embodied and ongoing carbon footprint.

What is under the hood?

Most likely, it is blockchain technology. That is because achieving real-time tracing of energy providence, dynamic price signals, infallible validation of asset legitimacy, one-click contract execution, instantaneous settlement of transactions, and absolute transparency are not cost-effective without blockchain even where it is possible. Back to the Etsy analogy, blockchain technology eliminates the "middle man," putting all the power (and savings) into the hands of the transacting parties.

 The blockchain is a digitized, decentralized, distributed ledger recording all energy transactions taking place on a P2P network

Thankfully, understanding blockchain is not a prerequisite for unlocking P2P benefits any more than understanding a smartphone's operating system is to use it.

CASE STUDY

The world's largest P2P trading community T77 Precinct. Bangkok, Thailand.

The project began in 2018. BCPG, a Thai renewable energy business, and the Thai utility Metropolitan Electricity Authority (MEA) are demonstrating P2P tracking and trading between what started as just four entities: an apartment complex, an international school, a shopping center, and a dental hospital (the latter has no onsite energy generation and participates only as a buyer). The tracing of the sources of energy as well as its trading within the P2P precinct is enabled by Powerledger's software platform.

Total renewable energy generation accounted for only about 18% of the precinct's total demand. Still, P2P trading was delivering an average annual energy cost saving of 25%.

In 2021, O77 precinct, Hasu and Mori buildings were added, resulting in a 1.2MW marketplace that includes 10 commercial buildings.

All entities are connected to an energy storage system (ESS) connected to the grid of the MEA. Electricity generated is first used in the building that generated it. Any entities with excess energy will then sell it via Powerledger's P2P energy trading software to the other participating entities at the highest bid; alternatively, any entities in need of electricity will buy from those with excess energy at the lowest price possible. If there is a surplus from all 4 entities, the excess will be sold to the ESS, and if there is still a surplus, it is sold through the grid to MEA. If all 4 entities consume more than they produce, trading is done via P2P, ESS, and MEA respectively.

In addition to bring power generation capacity and peer-to-peer power trading platform, solar rooftop installation is a value addition to each building and house and increase opportunity for seeking loan.

- BUNDIT SAPIANCHAI
PRESIDENT AND CEO AT BCPG PUBLIC COMPANY LIMITED

The success of this project has led Thai Digital Energy Development (TDED) to licensing the Powerledger platform for broader application as well as paved the way to transformational projects in India, Malaysia and Philippines.

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P2P sounds great, but where is it all?

Let's be clear: both the technology and the systems required for thriving P2P environments are tried and proven. If this article is the closest you have come to P2P, it is for other reasons.

AWARENESS

Buildings have remained a largely passive consumer of energy: they use the electricity they need whenever they need it, disconnected from the rhythms of renewable energy and blind to the stress inflexible loads create for the grid. The passive approach impedes the transition to the clean-energy future and misses significant opportunities to engage customers and to align operations with organizational commitments to climate action. Moreover, it leaves money on the table: P2P offers both savings and new revenue streams. Raising awareness is why FMJ is publishing this series.

INSTITUTIONAL INERTIA

Most utility companies are huge institutions led by conservative investors who, if for no reason rather than their proximity to retirement, rarely prioritize future-proofing today's operations. Curiously, this may be why P2P is so well embraced across the developing countries that have the chance to leapfrog centralized solutions and go straight to decentralized, resilient, clean grids.

"Peer-to-peer energy trading frees emerging economies like Nigeria from dependency on the entrenched, inefficient, often corrupt institutions of colonialism. It puts power into the hands of the people, people who want to have a better life — a great motivation to invest into clean energy you can convert into value with a single tap."

Jude Ogene
Founder and Chief Executive Officer
at Charles Winnsboro Corporation

REGULATION

In most places in the world, P2P is not allowed yet. There, neighbors couldn't trade with each other unless the energy retailer facilitated it. However, this is not as big an obstacle as it appears.

What can you do?

• First and foremost, identify your behind-the-meter opportunities for P2P. Even where regulation is unfavorable to P2P, it is no obstacle to what can happen within a development. This means that the benefits of P2P are already within reach for office buildings, business parks, campuses, airports, shopping centers, and any other types of real estate where different entities co-exist.

• Become (or enlist) a clean-energy asset developer to activate a P2P environment. That is exactly what BCPG did in the T77 project.

"Aggressive distributed renewable energy targets such as India's 40 GW require incentives to make them a reality. Blockchain enabled P2P market mechanism shakes off the split incentives and activates local energy markets to deliver the clean-energy future where everybody benefits."

Vinod Tiwari Global Head of Business Development & Partnerships at Powerledger

• Track P2P regulation relevant to you, as it is rapidly evolving. P2P is already prolific in Australia, and in the U.S., American PowerNet is a scalable use case. More recently, of the countries within the European Union are required to allow peer-to-peer as of July 1, 2021. On the other side of the world, a pilot project with Powerledger, the world's leading technology company in energy trading, has led to P2P now being allowed across Uttar Pradesh, India's most populous state. This change extends affordable clean energy to millions more people across unelectrified rural areas, and has garnered the prestigious World Summit Award for Powerledger's demonstration of "how content-driven digital solutions decisively support societal challenges and assist to achieve the UN Sustainable Development Goals (UNSDGs)."



Elena Bondareva WELL AP, WELL PTA has a solid record of transformative innovation around persistent problems, which is the focus of her advisory practice, Vivit Worldwide.

Bondareva has held public, private, teaching and board roles in Australia, New Zealand, Russia, South Africa, India, and the United States; delivered CPD training to thousands of professionals; participated in globally significant events such as COP17, G20, and the World Green Building Council Congress; published in peer-reviewed and public journals; and presented at countless international conferences.

Resources:

Animation explaining the T77 project: youtube.com/watch?v=X-k44NQdmG8

The Uttar Pradesh pilot: powerledger.io/clients/uttar-pradesh-government-india



A Review of IFMA's Sustainability Initiatives

BY JOHN MCGEE & ERIC TEICHOLZ

Facility managers play a unique role in all phases of the life cycle of a building, including design and construction, operations, building renovations and upgrades, and end-of-life management.









FMA has widespread support initiatives and beneficial resources for FMs as they operate their buildings in ways that improve the building's performance and support climate change management.

IFMA Initiatives

IFMA is the world's largest and most widely recognized association for facility management professionals, supporting more than 20,000 members in 135 countries. IFMA's Vision is to lead the future of the built environment to make the world a better place. Among the values that drive the association — guiding staff and stakeholders in everything they do — IFMA believes in the benefit of global diversity, inclusion and social equity, recognizing that sustainability, resilience and responsible environmental stewardship are paramount.

IFMA's Environmental Stewardship, Utilities and Sustainability Community (ESUS)

IFMA communities meet members' networking and information needs specific to FM core competencies. ESUS facilitates IFMA's performance as a sustainable organization, with the following strategic objectives:

- to become the leading advocate for global environmental stewardship and sustainability;
- to increase corporate social responsibility adoption with a specific emphasis on environmental, social and governance (ESG) criteria along with the required SEC financial reporting;
- to provide leadership in establishing the direction of sustainability-centered education;
- to report on technology advancements that are focused on sustainability (with a specific emphasis on greenhouse gas reduction); and
- to develop and maintain global partnerships that will augment the activities of ESUS and advance IFMA's sustainability goals.

All IFMA members are invited to join the ESUS Community. Additional details on ESUS' current activities can be found here.

Networking Opportunities

IFMA CHAPTERS

Globally, IFMA has 139 chapters, many of which engage in sustainability initiatives at the local level. IFMA provides support to these local initiatives. Members who have not yet engaged with a chapter should locate the nearest chapter on IFMA's online map, visit their local chapter's website and learn how to get involved. Most chapter websites post helpful sustainability information.

IFMA COUNCILS

IFMA supports 16 councils that span the breadth of the FM industry. Members can network within councils that correspond to the types of facilities they manage, regardless of their location to share knowledge, trends and best practices in their specific area of the industry.

IFMA ENGAGE

Through Engage, IFMA members can ask questions, seek advice and view solutions for challenges that other FMs have previously faced. From paperwork issues to capital strategies, members are quick to respond with their expertise and experience in specific circumstances in an open forum.

IFMA CONFERENCES AND EXPOS

All IFMA global conferences include presentations that focus on how FMs can contribute to improving sustainability performance in buildings and have a positive impact on climate. The 2022 schedule of upcoming events continues to focus on these subjects.

Sustainability credential courses

IFMA supports two educational programs directly related to sustainability — the Sustainability Facility Professional® (SFP®) and IFMA's Sustainability Course.







The SFP credential focuses on enabling FMs to think strategically about sustainability. SFP focus areas include:

- strategy and alignment (how to align, implement, review, measure and communicate sustainable strategies),
- managing sustainable facilities (identification of goals, metrics and tools to measure program performance), and

• operating sustainable facilities (tools and strategies to improve the sustainability of facility practices).

IFMA provides a video overview of the SFP program on its website.

IFMA's Sustainability Course is a high-level overview of sustainable practices that helps students understand resource management. The course takes about five study hours to complete (compared to the 60-90 hours of commitment estimated for the SFP) and promises FMs a working knowledge of various aspects of sustainability including workplace and site management, energy, water, materials and consumables, and waste management.

Global initiatives

In July 2021, IFMA formed IFMA Europe, Middle East and Africa (IFMA EMEA). Headquartered in Brussels, this association is a separate entity with its own formal professional board dedicated to serving the needs of local chapters and regional IFMA members.

IFMA EMEA partners with industry-related stakeholders and associations in these geographic regions. It is developing additional relationships with the European Commission and other relevant institutions that can have an impact on policy makers.

IFMA EMEA develops initiatives for its constituency that educate FMs about sustainability, incorporating IFMA's educational resources (e.g., its sustainability courses), as well as those developed for and by IFMA EMEA.

A major sustainability project of IFMA EMEA is the European Union's Green Deal initiative whose primary goal is to transition Europe's economies to a more sustainable model. This initiative will initially result in the EU becoming climate neutral by 2050. More than €1 trillion is committed to this effort. Current goals include strong energy efficiency measures focusing on carbon removal, which provides a framework for decarbonizing

the gas market and moving to electrification via green non-CO2 power. IFMA EMEA believes that the EU will soon be imposing legislation (under

development) on CO2 emissions, which will include an increase in CO2 emission taxes.

A second global association, APAC (Asia-Pacific), is organized differently from IFMA EMEA in that EMEA chapters are consolidated under IFMA Europe. APAC consists of IFMA China, IFMA India, and IFMA's Hong Kong and Singapore chapters, operating independently; however, each relates directly to IFMA. They do not officially report to an existing Asian Advisory Board.

IFMA leaders are active in Macau; however, no chapter has been established there. IFMA has entered into a strategic partner agreement with the Macau Institute of Management (MIM), which has a strong relationship with the local government. MIM sponsors committee members that attend Train-the-Trainer programs in Hong Kong, and there are IFMA instructors in Macau. MIM has close relationships with IFMA China and the Hong Kong Chapter.

These Asian entities are actively involved in a variety of sustainability initiatives related to awards, legislation, training, standards and partnerships.

Sustainability awards and scholarships

IFMA's Awards of Excellence recognizes member achievements. One such award is the Sheila Sheridan Sustainable Facility Operations and Management award. Recipients are recognized at IFMA's annual World Workplace event.

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The award recognizes an individual or team that has provided an outstanding example of strategic sustainable operations and management initiatives leading to successful tactical and operational adjustments in the management of a facility including stakeholder engagement, overall performance, energy efficiency, innovation, audits and reporting, and long-term solutions for facility management success.

Strategic partnerships

The past two years have showed us that collaboration between all building professionals is essential to business continuity, occupant safety and facility well-being. IFMA believes this multidisciplinary approach will not fade post-pandemic but will only grow stronger — especially in meeting critical climate objectives.

IFMA actively exchanges knowledge and practices with other industries, associations and government entities. In partnership with other well-respected organizations, IFMA is able to deliver informational, educational and networking resources necessary for our members and the larger built environment industry to create smarter, safer, more sustainable and resilient facilities.

IFMA has partnered with trusted organizations to provide upskilling opportunities for crucial aspects of facility management. A single source for interdisciplinary knowledge- and skill-building training, Partner Courses address a range of mission-critical roles in the built world.

Also in support of critical knowledge and practice exchange, ESUS has established partnerships with the U.S. Dept. of Energy, the U.S. Green Building Council (USGBC) and the Circular Economy Institute.

IFMA Foundation initiatives

The IFMA Foundation is a 501(c)3 charitable organization separate from IFMA. Its activities primarily relate to education and facility management advancement.

The Foundation develops and supports a number of registered and accredited degree programs, publications and credentials that have sustainability components.

Sustainability scholarships

In May of 2020, the IFMA Foundation established the Eric Teicholz Sustainability Facility Professional Scholarship program, open to young professionals interested in earning the SFP credential. Awardees are young professionals selected based on their sustainability achievements, diversity, financial need and the impact that the scholarship is expected to have on the applicant's career and local community.

In March of 2021, the IFMA Foundation expanded the scope of the Scholarship Program to include corporate partners, and in June of 2021 the scholarship was extended to include a partner component. The initial implementation of the program will be dedicated to the use of FM technology as it relates to climate change.



John McGee is an IFMA Fellow and a past chairman of IFMA's global board of directors. He has held executive roles in the facility management, building controls and

sustainability sectors, at Fortune 500 companies ABB, EMCOR Facilities Services and Johnson Controls. He has worked in Ireland, Italy, Germany, the U.K. and the U.S.



Eric Teicholz, IFMA Fellow, is president of Graphic Systems, a past member of IFMA's global board of trustees and a trustee of the IFMA Foundation. He is the author/

editor of 17 books on facility management and technology and a past associate professor at Harvard University's Graduate School of Design.

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PURPOSE I | |



Creating spaces that fit organizational needs

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Facility managers are entering another year of unknowns driven by the ongoing pandemic, global economic (in)stability, inflation and the Great Resignation. Creating a workplace that supports productivity, employee retention and recruitment, and cost efficiency is a tough task.

nfortunately, there is no universal answer to the question of right size. Some organizations will need more space and some will need less — and their reasons will be very different. Within that, the layout of the space must be purpose-built to accommodate the unique needs of that business and the preferences of its employees.

While that means more work must go into figuring out where to go from here, a framework does exist for getting answers to these tough questions.

Space Must Support the Mission

This may seem obvious, as most organizations recognize that physical space — their second largest cost center after salaries — should be purpose-built to support the mission of the organization. This is why the first step is to establish that an organization's real estate must support three complementary goals:

- 1. Maximize productivity to drive revenue
- 2. Optimize the employee experience, especially in the context of the Great Resignation
- 3. Achieve goals one and two at the lowest possible cost

Naturally, the formula for achieving all three goals gets a lot harder to compute in a hybrid work reality where space requirements for each user — employees, contractors, patients, students, etc. — fluctuate on a daily basis.

Safety first, but not alone

In response to the first goal, it has become clear that productivity can remain high without in-person collaboration. Yet, most employees and businesses are still eager to provide in-person collaboration opportunities to optimize productivity and results.

Another factor to consider is that the rationale for providing in-person space has changed. Pre-GOVID-19, retaining and attracting talent was all about establishing a dynamic workplace with lots of amenities. That is still partly true. But employees have elevated their expectations for the in-office experience. In response, organizations must create spaces that are, in priority order:

- **SAFE:** Employees have to feel safe and comfortable in the office. Miss the mark here and the physical workplace investments will never return value as people will simply stay home. On the other hand, make them come into an office they do not want to be in, and they will quit.
- **USEFUL:** Even if employees feel safe at work, if the office does not offer something they cannot get at home, they may opt for the comfort of their own couch. The one benefit no one can get at home is in-person collaboration with teammates. The office of the future must be optimized to foster collaboration above all, with other amenities playing a supporting role.

• **APPEALING:** Office appeal is no longer just a way to differentiate from the competition. Again, it has to provide an emotional and social experience that they cannot get at home.

Welcome to the Neighborhoods

One valuable way to ensure these goals are met is to establish workspace neighborhoods. In the office context, a neighborhood is a working environment — a section of the office — intended for a specific segment of the workforce. Traditionally, this has been done by separating teams by function, or department. But as long as there is a reason why a certain person (or group) sits where they do, a neighborhood exists.

A neighborhood can also serve to support a specific type of activity (e.g., collaboration, focused work) or focus on a specific set of amenities (e.g., breakrooms with games, conference rooms with expensive tech). In full acknowledgement of the alwaysevolving nature of work, project-based neighborhoods to support short-term campaigns such as product launches can bring cross-functional teams together in a given space to achieve a specific goal.

When done right, they achieve each of the three mission-critical goals stated above. The question is, how does an FM leader know which neighborhoods serve the mission best, how should they be set up, and how often should they evolve to keep pace with changing employee requirements and expectations?

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Prescriptive real-time insights now required

Answering those questions is when the real fun begins — and the real value starts to emerge. It all comes down to having access to comprehensive, actionable data.

No one can understand how much space they need until they know how many people are in the office on any given day and where they tend to sit or congregate when on site. Tracking space utilization, employee density and mobility flows with sensors provides a more accurate and predictive understanding of employee preferences than simply asking teams how, where and when they like to work.

But sensors are not enough. Businesses should take advantage of every possible data source. For example, data from employee-enablement tools such as desk- and roombooking software enables businesses to evaluate behavior trends much more clearly than simply checking to see if rooms are generally full. Environmental data from sensors that track indoor air quality, light and noise levels can enhance an understanding of why a certain space may be more heavily utilized than another.

Add information gleaned from sources such as visitor management solutions, badge data and Wi-Fi connectivity and an authentic picture of the human-building relationship emerges. Even better, once all this data is collected and analyzed in a unified context — ideally in a single platform to keep things simple — businesses can make highly informed decisions that make it possible to optimize their space for their current and future needs.

With the right mindset, technology and data, the question of "how much space is right for me?" will become clearer, ...

Commit long term

No business should expect to instantly find a perfect long-term solution to their space questions from a quick exercise. Rationalizing and refocusing space is an ongoing process that will yield early successes. But the real value emerges through continuous analysis of complete and evolving data.

With the right mindset, technology and data, the question of "how much space is right for me?" will become clearer, and both employees and bottom line will appreciate the effort.

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Travis Kemp is vice president of product at FM:Systems. He is an experienced technology leader with

a demonstrated history of working in SaaS, media, health care and automotive industries. With a strong entrepreneurial mindset, Kemp is professionally skilled in product development, manufacturing, operations and supply chain. He earned his bachelor's degree in computer network and system administration (CNSA) from Michigan Technological University.

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There's only one chance to make a first impression, and, according to psychologists, it only takes seven seconds for that first impression to solidify. So, when tasked with creating the best possible initial experience between an individual and an entire property, the stakes are high — there is so much to convey, so little time to do so and, quite possibly, a lease at stake.

hen it comes down to it, that first impression informs a potential tenant's idea of what it would be like to live on the property. Luckily, there are ways to make sure that, aside from any unpredictable external factors, the first visit goes off without a hitch.

When it comes to the leasing process for multifamily housing, there are many components that facility managers should consider as best practice when looking to cultivate the best possible first impression of a property for any visitors. First impressions are created by a number of things — what was heard, time experienced on property and the overall atmosphere



Making a property appeal to what potential leasers want to see

When a potential leaser views a property for the first time, there are a number of things they are looking for as they start to view and get a feel for the space. These may be elements that are consciously sought out by the inspective eye of a potential leaser, but sometimes it is a feeling that tourer receives, without knowing the direct source. FMs must factor in these elements when manufacturing the ideal first impression at a property.

Help them see that they would be safe living here

First and foremost, potential residents are looking for a safe place to live and safety is typically their top priority. Security, traditionally, has encompassed measures such as the presence of security cameras, gated entrances and security guards at the door. But, in 2022, safety is also far more centered around health and cleaning protocols due to the COVID-19 pandemic. While some measures may not be immediately visible, clean-looking premises along with

readily available hand sanitizer and mask-mandate-compliant staff and residents can show how seriously a facility is about keeping everyone safe and healthy.

Show them they would be comfortable living here

Furthermore, potential residents are also often looking for a space that fits their ever-changing needs regarding comfort. Following the pandemic, space has become an amenity within itself. With this in mind, FMs may consider redesigning properties to provide each individual with the private, safe spaces (as opposed to large, shared spaces) they are looking for.

Let them see that life would be convenient (and even a tad luxurious) living here

Finally, a potential resident is looking for a convenient place to live. When it comes to amenities, what was once considered luxury amenities are now often considered standard and necessary. These amenities being: gyms, pools, computer labs, pet-friendly protocols — they are now more common in residential living as they make a resident's lives easier. Not to mention that they are an impressive and a welcoming sight during a tour.



How to make a property inviting, through what potential leasers hear

Another one of the most immediate senses to be actively engaged is a potential leaser's hearing. When they enter the property, the sounds that greet them can be welcoming or an encouragement to not stay too long. Therefore, it's important to make that initial exposure a positive one.

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Let them hear that an environment can be lively, without being too loud.

It is important for FMs to cultivate an environment that is inviting while not being too loud or disruptive to live in. Without instilling total silence, properties should not overwhelm a visitor's senses with the sounds of the current residents. A potential leaser should feel that they can live in the space, whether they require a quieter environment or not.

Make sure that word-of-mouth buzz is positive.

What a potential leaser hears can also begin before they enter the premises — in a sense, they are looking for a place that they have heard good things about. If the first seven seconds of exposure to a property is a few words from a friend about an undesirable experience, that could be what is thought of every time the property name is brought up. For those who have lived in the area or know someone who previously has, their first impressions may be what they hear from others or see first-hand from a visit — this is hard to avoid or change. By keeping an ear to the ground, property teams can have a better understanding about what is being said and, therefore, the best response to it. Additionally, by treating current tenants in a positive manner (creating an excellent customer experience) they can better influence many prospective tenant's first impressions.



Creating the best, overall experience for potential leasers

The overall goal is to positively impact how a potential leaser is left feeling after a visit to the property. For potential leasers, their experience begins the second the step foot on the property including how the building looks from the outside, entrance way, the surrounding neighborhood and more. These elements all factor into how the customer feels about the property they are viewing — overall dictating how they envision themselves living in the space. There are a few initial ways to instigate this process.

Make sure that customer service leaves a lasting impact One of the most important things that property managers can control is how they work with their tenants. The first impression can deeply impact how a potential tenant feels — this can be anything from the managers presence, demeanor, responses and other behavior, including their interactions with the property

staff. Whether it is in person, through email, or over the phone, positive customer communication must be a top priority for managers because it gives potential leasers a taste of what their regular interactions with their property management team and the staff would be like.

Imagining what it would be like to call the property home This final component may be the most difficult to accomplish, and yet, possibly the most important to achieve. A space needs to feel like it is fit for long-term living, even if the lease is only a few months. One way to accomplish this is through thoughtfully staged apartments that are used for property tours. By creating a visually compelling first experience, facility and property managers can help future residents visualize what their daily lives could look like if they lived at the property. In addition, nicely designed spaces encourage people to not only want to live there, but to also encourage residents' friends to move to the property too — bringing it full circle to create a positive buzz.

FMs play an important role in creating the best experience for all current and potential residents. If considered and incorporated properly, those elements pertaining to first sights, sounds and experiences can work together to generate an incredible first impression that encourages a potential tenant to not just come back, but invest their money and time in the form of a lease.



Miles Orth serves as principal, senior vice president and chief operating officer of Campus Apartments, Inc. Orth is responsible for the company's overall business operations,

which includes an extensive portfolio of purpose-built student housing and conventional multi-family properties along with mixed-use developments. He has 15 years of experience in real estate development and management, including student housing, conventional apartments and commercial properties. Orth serves on the board of directors for the National Multi-Family Housing Council, is an advisory board member for the National Apartment Association's Student Housing Task Force and a member of the Urban Land Institute, International Council of Shopping Centers, The Pennsylvania Society and the World Affairs Council of Philadelphia.

Vendor Profiles

The following product and service providers offer solutions for your everyday and specialized facility management needs.

ACCESS CONTROL



Kastle Systems

Kastle is the industry leader in providing smarter technology to protect the built environment nationwide, creating secure spaces and distinctive experiences. We offer superior access control, visitor management, video surveillance, data management and more, to clients at over 40,000 businesses in over 2.300 properties in 47 states. All delivered with Kastle's award winning customer service.



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BUILDING CONSTRUCTION/DESIGN



Gordian

Gordian provides innovative products and services to organizations pursuing efficient and effective procurement and information solutions that deliver rapid deployment and long-term cost savings. Gordian is the pioneer of Job Order Contracting and a number of related construction-procurement systems. Gordian employs the most respected construction cost estimators and engineers in the world to its team of construction data experts who build the RSMeans database. Sightlines, a Gordian company, is changing the conversation in facilities management. Our industry-leading solutions provide tools for facilities planning, reporting, benchmarking and analysis.



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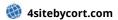
Vendor Profiles

BUSINESS SERVICES



4SITE by CORT, A Berkshire Hathaway Company

No matter what size your workspace, 4SITE works for you. Overhead costs, renewing a lease...or not, employee productivity and even more important, their safety. These are the tough decisions you are having to make on a daily basis, which can be challenging without all the information. At the heart of 4SITE is a desire to empower businesses to make better decisions. By harnessing data collected from your workplace, you now have insights into planning, operations, space usage, and employee utilization like never before.



FIRE PROTECTION SYSTEMS



AGF Manufacturing, Inc.

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FM SOFTWARE



AkitaBox

AkitaBox

AkitaBox is a one-stop shop for data collection, location-based asset mapping, preventive maintenance scheduling and work order management. With an à la carte service offering, AkitaBox works with you to identify the best solutions to meet your individual facility's needs. With custom-tailored training and support, their team of success managers will guide you through the entire process from start to finish in as little as 90 days. Learn how you can simplify your facility management at AkitaBox.com.



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Modo Labs

Modo is the only low-code app building platform specifically designed for the hybrid workplace. Trusted by global Fortune 1000 brands and over 300 universities, the Modo platform powers unified app experiences that go beyond engaging to driving behavior and elevating each user to succeed. Modo's Workplace solution provides the agility for customers to quickly build, deploy, evolve, and scale tailored and branded experiences that keep everyone secure and connected.



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LANDSCAPING



The Davey Tree Expert Company

The Davey Tree Expert Company's more than 10,500 employees provide tree care, grounds maintenance and environmental consulting services for the residential, utility, commercial and government markets throughout the U.S. and Canada. Davey has provided Proven Solutions for a Growing World since 1880 and has been employee-owned since 1979. For more information, visit www.davey.com or call 813-629-3499



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SOFTWARE SOLUTIONS



FlowPath Facility Management Software

Your facilities and operations program is complicated. FlowPath automates work orders, maintenance, events, notifications, projects, and reporting in a simple to use platform. Effortlessly get ahead of your facility's work with FlowPath.



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ROOFING



Crazy Seal Products, Inc.

Crazy Seal offers custom-fit roofing systems shipped directly to your door! Our revolutionary and sustainable roofing system is designed to seal all types of flat roofing applications. Our liquid-applied system is seamless, permanent, and backed by a fifty-year product warranty. Crazy Seal takes the complex world of roofing and simplifies it so that it can be installed by just about anyone for a fraction of the cost of other roofing types.



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- → Behind-the-scene facility tours and insightful research tracks
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Arash AazamiFuturist, inventor, thinker, musician and entrepreneur.



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