Digital Twin Technology and Advanced BIM

By Pamela O’Reilly, Procon Consulting

Over the last five years technology has grown at a rapid pace and nowhere is that more evident than at the building management level. Although the term “intelligent building” was first coined as early as 1981, it has become more widely used in the last 10 years as technologies like Building Information Modeling (BIM) and Computerized Maintenance Systems (CMMS) take root. One facet of the smart building that is not so widely known is the Digital Twin technology. Very simply, a Digital Twin is a virtual representation or replica of an actual physical object. The technology as it’s being used is somewhat more complex.

Igor Starkov, Founder and CEO of EcoDomus, sees the future of BIM and Digital Twin applications as the combination of multiple technologies, all of which are trying to provide a full picture of how a building operates—what is happening now, the history of the building, and what will happen in the future.

A Special Note from the Capital Chapter of IFMA:

As the Coronavirus disease (COVID-19) continues to spread globally, we would like our members to know the Capital Chapter is here to support you during this uncertain time. As we distance ourselves physically, it is important that we continue to share knowledge and work together virtually to share ideas and develop solutions to new challenges. Please use our forums to share your concerns, experiences, ideas, best practices and expertise. Remember that you can always count on your Capital Chapter of IFMA community for support in stressful times— it’s why our organization exists! Now is a great time to leverage relationships as you work to determine the best possible solutions for your challenges.

Let’s continue to support one another...

we are Stronger Together.

Here are a few resources you can take advantage of during this time:
Visit Capital Chapter of IFMA COVID-19 Resource Center
Visit the IFMA Coronavirus Preparedness Resource Center
Visit the Capital Chapter Group page on LinkedIn
Visit the Capital Chapter Events page for upcoming webinars
From the President

I sit here writing this message with a new daily reality - COVID-19, or the Coronavirus, has brought the world to its knees. The Capital Chapter has cancelled in person programs for the time being, have migrated to virtual networking/programs, where possible, and postponed those that may not be conducive to virtual delivery. We did this quickly and in response to the Centers for Disease Prevention and Control (CDC) guidelines and how local and state governments were addressing the situations. All around us, countries are under quarantine, school systems are shutting down (maybe going virtual), businesses have been closing or going the telework route. But what of facilities? For us, it is an even more challenging task at hand. While others can work from home, we certainly can’t take work home with us. We’re still tasked with keeping the buildings running to support the organization’s mission, so our building engineers and tradespeople still report to work. How do we protect them? How do we protect their families? All very hard choices to make. Curious, how many of you had business continuity plans in place to deal with such a situation? Have you thought of the possibility of having to send people home and getting a different crew to continue to support that facility? It may not be that simple if you have federal facilities where clearances are required. Do you maybe go into A/B days? That way you keep representatives from each department and/or trade on each day, so you don’t have the expertise go down with an illness all at once?

Personally, every day has been a new development, an added guideline to our everyday routine in facilities, a new case that hits home and requires communication and risk assessment for our people. We’ve taken the CDC guidelines and created an operations-centric guideline for our trades to use. And while I hope things are better by the time you are reading this, I wanted to share some of our key points, in case you are still looking for something to share with your teams.

1. Keep Your Distance – Leave about 6 feet of space between you and another person.
2. Don’t Congregate – Groups of more than 10 people are discouraged. If you must meet, do this in big areas or outside where everyone can have their 6 feet of space.
3. Hands Off – Avoid touching your eyes, nose, and mouth.
4. Stay Home if Sick – If you’re sick or feeling ill, stay home and let your supervisor know. See a physician, and if you are diagnosed with COVID-19, please report to your supervisor ASAP. Remember the three symptoms: fever, cough, and shortness of breath.
5. Ramp Up Your Hygiene Practices – Wash your hands regularly, especially after touching objects and surfaces while working in the facility. Always wash your hands before and after using the bathroom, before and after eating, or after blowing your nose, coughing, or sneezing. Have wipes or small hand sanitizer bottle on hand, if available, to keep your hands and equipment clean. In the absence of wipes and hand sanitizers, please make sure you are washing your hands regularly.
6. Keep Your Spaces Clean – Work areas should be cleaned regularly. Areas that require regular cleaning/disinfection include: work areas, break areas, portable devices, door handles, and handrails.
7. Do Not Share PPE – After all, it is personal protective equipment.
8. Do Not Share Tools – Should there be equipment or specialized tools that must be shared, wipe these clean before and after use so that it is sanitized prior use.
9. Work Smart – As you continue to provide services by performing preventive maintenance (PM) and responding to service calls, keep not only the above in mind, but the following:
   • PMs – If you need assistance of a second person to perform a PM, talk to your site lead to get direction to either find an alternative way to complete the task or defer the work.
   • Service Calls – If there is an occupant in the space where service needs to be provided, please ask that person to leave the area until you can complete the work.
   • Emergencies – We still need to respond to emergencies if it is a threat to life, even if it means breaking with the guidance of social distancing.

10. Communicate with Subcontractors – Ensure they are aware of current policies, that they are following them, and that they too communicate with site leads regarding their own status to continued services or identified cases of COVID-19 that may have come into contact with your facility and your staff.
11. Get Informed – Information is changing, so keep informed by visiting the CDC website.

We’re all in this together. Be smart, stay informed, and exercise patience. We will get through this.

Best,

Mayra Portalatin, SFP
President Capital Chapter of IFMA 2019-2020
future. BIM gives us what is happening now—information about static objects. Sensors and things like past work orders provide you with historical information on how the building operates and how its occupants behave. The future deals with scenarios and simulations. What happens if I make changes to this damper? How will that impact the temperature of the building? Digital Twin and its accompanying applications have the ability to integrate BIM, CMMS, and Energy Simulation tools, while utilizing Internet of Things (IoT) to create a complete view of the building, past, present, and future.

There are challenges to implementing this technology. The sensors in a building provide one avenue through which data is collected. Most buildings in the last 50 years have been equipped with some sort of sensors, but they may not be in use. The Federal Government, however, manages a large number of historic buildings that are not equipped with sensors or more modern technologies. The General Services Administration (GSA) preserves and oversees approximately 350 buildings that were constructed before 1970. The challenge is with collecting that data, as even the most meticulous of building managers miss equipment or are not aware of what is installed in their facility. The first step towards effective Digital Twin integration is having reliable data, and understanding that data—How does this valve work? What is this pipe for? What are the electrical systems and how do they work? All of this data provides a digital snapshot of the building.

According to Starkov, another challenge lies with the FM workforce. Many facilities managers who have been in the industry for 30 years or more have seen huge changes in the way buildings are constructed and managed. Thirty years ago, buildings were simpler to maintain, but have become much more complex with increased automation. More seasoned building managers maintain much of the historical knowledge of their facilities in their heads, not relying as much on technology as those just entering the FM workforce. It is crucial that their institutional knowledge transfers from the older generation to the younger, and technology can facilitate that transfer if used to its full capacity.

Right now, Digital Twin and advanced BIM technologies are only being implemented by advanced users. The reliance on this skill set is in its infancy, but in the next five years, Starkov predicts that more and more people will be educated about it and budgeting for it. Implementing new technologies relies on updated procedures and training the workforce, and for many who have been working a specific way for many years, it means a complete culture change.

In the next 10 years, Starkov foresees a trend in web services and the ability for different systems to talk to each other, especially in open protocols. He sees the growth of automation and IoT continuing as we usher in a world of 5G, faster networks, faster hardware, and less expensive sensors. Virtual and augmented reality will become more popular—at the moment, equipment for those technologies is bulky and heavy. In the future, AR headsets will be incorporated into tools such as glasses and will be more affordable and widely accessible.

Starkov’s recommendation to organizations is not to wait to implement Digital Twin and BIM technologies. He says to “start with baby steps” slowly and consistently. Instead of starting on a large-scale project, use it for multiple, smaller projects in a consistent way. He says to remember that BIM and Digital Twin don’t have to be 100% complete with all building elements at the beginning. Having just the core and shell of the building is helpful, even if all the smaller elements are incomplete. Every day you’re not collecting data, you’re losing data points.

Author note: Interview with Igor Starkov, CEO and Founder of EcoDomus

An example of a Digital Twin model of an Airport provided by EcoDomus

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Author note: Interview with Igor Starkov, CEO and Founder of EcoDomus
Celebrate World FM Day 
Virtually  
May 13, 2020 • 9:00am - 5:00pm

FMA is gearing up to celebrate World FM Day in a big way, but our current global circumstances prevent them from doing that in-person. It is so important for us to share with the world the vital work FMs do every day and in these days of global crisis. Click here to pick one of the talking points on the World FM Day website and help us highlight the FM profession with a virtual celebration message.

Capital Chapter 
Announces 
Scholarship Winners

The Capital Chapter congratulates Brian England, CoreSite Realty Corporation and Edgardo Pubill, CBRE, recipients of the Scott Hulick Professional Development Scholarship! The scholarship was established to provide financial support for current students in advanced education in the profession of Facility Management. Best of luck in your educational endeavors!

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Annual 
Golf Outing

Save the Date!

September 14, 2020
International Country Club
13200 Lee Jackson Memorial Hwy, 
Fairfax, VA
Members Learn the Latest in Building Energy Performance Standards

CIFMA teamed up with USGBC for a joint event on February 11th at Gensler’s Washington, DC office for an educational session covering DC’s new Building Energy Performance Standard (BEPS). Members learned how this standard may affect their facility and how they can prepare by following strategic energy management planning processes. The session included speakers from the DC Department of Energy and Environment, ACEEE’s Strategic Energy Management Collaborative and a local facility manager. Thank you to the speakers and sponsors of this event! For more information on the new standard, please visit the BEPS page on the Department of Energy and Environment website.

Capital Chapter Supports the Community

Members of the Capital Chapter of IFMA gathered on March 4, 2020 at the Haworth DC Showroom for a community service event with SOME (So Others Might Eat) to host a mock interview event. The event goal was to prepare students graduating from the SOME Center for Employment Training (CET) for job hunting and interviews after their graduation from the program this May. This is an annual community service event where Capital Chapter of IFMA members can give back by sharing their time, business expertise and knowledge.

The SOME CET is a tuition-free adult workforce training program that prepares learners for national, industry-recognized certifications for careers in the building trades and healthcare. SOME CET empowers people to move themselves out of homelessness and poverty and into living wage careers through hard and soft skills training, adult basic education and career development.

This year’s event was attended by 25 students from the program and 20 volunteers from the Capital Chapter of IFMA. The volunteers were assigned to scenarios including 1-on-1, panel and online interviews as well as elevator interviews. Other volunteers helped with resume building and dress for success. It was an excellent event and the expressions of gratitude from the SOME staff and students at the end of the evening was heartwarming. Thank you to Haworth DC, Hitt Contracting, Geppetto Catering and all of the volunteers who helped make this a successful event for everyone who attended.

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**FMP Spotlight:**

**Pam O’Reilly,** FMP, Senior Space Planner/Program Manager, Procon Consulting

*Where do you currently work and what is your title?*

I work at Procon Consulting, and I am the Senior Space Planner/Program Manager. I am not doing a lot of FM stuff now, but was a Facilities Analyst on one of my last projects for GSA.

*How did you find your path into facilities management?*

I started doing more facilities related work while I worked as the Core and Shell Design Manager for the Pentagon Renovation from 2007 to 2009. Just because I was dealing so much with building systems, I started working with the various trades during construction and learned a lot about electrical, plumbing, HVAC and IT systems. I also worked closely with the Fire Marshal on Code Compliance and egress issues, which are unique to that building. It gave me a good foundation for other facilities work that I’ve done since for Department of Education, NIH, and GSA.

*When did you get your FMP or CFM?*

I earned my FMP in 2017.

*What do you enjoy most about the FM industry? And/or what do you find most challenging?*

I really enjoy learning how buildings work and how to make them more efficient, more comfortable, and healthier. I love how technology is starting to develop to facilitate all of these things. I think the future of FM is exciting, with all the technologies available—we’re just starting to scratch the surface of what will be possible. The most challenging part of FM is that it’s still largely a male-dominated field. I’ve run into some issues being a woman in FM and not getting the respect due to men in the same position. I also find that some of the Facility Managers I run into—people who have been in FM for many years and are used to doing things a certain way. They are reluctant to embrace technology, so that hinders the adoption of things like BIM and CMMS.

*What are your ultimate career goals?*

That’s a good question. I like the variety of what I do, so I’m a little all-over-the-place. I’m pursuing my certification in Change Management, and I’m also passionate about building wellness and how that impacts occupants’ physical and mental health. I’d love to pursue becoming a WELL AP in the future. I think continued variety and continuous learning are my career priorities.

Continued on page 7
What do you like to do in your spare time (hobbies, interests, etc.)?

I have a 14-year old daughter, so a lot of my time is taking her to band practice and being a marching band parent. When I’m not doing that, I volunteer at the food pantry at my church, try to play golf at least once a week and I am involved with the Women’s Golf Association. I also write fiction as much as I can (trying to get the book I wrote published, too) and I’m on the Board of Governor’s for my high school. I also went to cooking school, so I love to cook.

Where is your favorite place that you have traveled?

That’s tough. I went to school in France, so Paris feels like my second hometown. Recently, we went to Jamaica and I loved it so much—anywhere with a beach where I can do nothing but read and have drinks delivered to my chair. I would live in Chicago if it didn’t get so cold in the winter.

What do you enjoy most about being an IFMA member?

I love the people. Everyone is so nice. The programs are great, well-organized, and very relevant. There’s a lot of support from the community and opportunities for learning and career development. I’ve been part of other professional organizations, and this one is the best.

What advice would you give to someone new to the field?

You need to study and learn as much as possible, ask questions, and develop a solid knowledge base. I did a lot of research on my own time so I could speak intelligently on FM-related topics, and that helped me gain the respect of my colleagues. Have confidence that you deserve to be where you are.

Where do you see the industry going in the next few years?

I think we’re going to become more technology focused as the years go by. As the existing workforce ages out, we will get younger FMs that are more comfortable with technology. Buildings are going to become more interactive, with occupants able to control more within their space—lighting, thermal comfort, etc. I’m sure there will be more technologies focusing on sustainability and net-zero, and I’m excited to see how those are going to be utilized in FM.
Get the Most from Your Membership with CFM, FMP and SFP Designations

A key benefit of IFMA membership is maintaining professional growth through the facility management professional program which offers three designations: Certified Facility Manager (CFM), Facility Management Professional (FMP) and the Sustainability Facility Professional (SFP).

The CFM credential sets the industry standard for continuing the knowledge and abilities of practicing facility managers.

You can also earn the Facility Management Professional (FMP) designation, a knowledge-based credential demonstrating a proven comprehension of the basics of facility management. The FMP designation can be completed in approximately 12 months, and FMP candidates may customize their training to build the specific knowledge they need to meet individual goals.

The following individuals recently earned FMP credentials:

- **Travis Younker**, Project Manager, Complete Building Services
- **Rachel Fernandez-Murga**, Business Development Coordinator, Complete Building Services

IFMA’s SFP is an assessment-based certificate program delivering a specialty credential in sustainability. By earning your SFP credential, you will develop and gain recognition for your expertise in sustainable FM practices while impacting your organization’s economic, environmental and social bottom lines.
Currently our society has been brought to a halt and concern for the health of loved ones is on everyone’s mind. Therefore, the IFMA Foundation Board of Trustees has extended the scholarship application deadline to Friday, May 15, 2020. Learn from previous recipients the value of the IFMA Foundation Scholarship. Check out a short video posted on the website and hear from some of last year’s winners.

Party like a Gatsby with the IFMA Foundation at World Workplace 2020

We invite you to join us at IFMA’s World Workplace on September 29, 2020 in Chicago, IL for a Roaring 20’s Affair. A party worthy of Jay Gatsby, guests are encouraged to wear their spats and fedoras, flapper dresses and cloche hats and prepare to dance the Charleston to ragtime jazz. Enjoy food, drink (no bathtub gin), mingling and celebrating the foundation’s 30-year anniversary.

Do you like putting together parties? The Gala Committee is always looking for members to offer their time and talent to make this event successful. Please contact Christina Gonzales, Program Support Specialist, at christina.gonzales@ifma.org, if you are interested in joining the committee.

When you shop, AmazonSmile will give to the IFMA Foundation

When you shop on AmazonSmile, the AmazonSmile Foundation contributes 0.5% of eligible purchases to the charity of your choice. What a great way to give back to the IFMA Foundation in four easy steps:

**STEP #1:** Visit [https://smile.amazon.com/](https://smile.amazon.com/) and login with your existing amazon account.

**STEP #2:** A prompt will ask you to choose a charity to support, please select “IFMA Foundation” Houston.

**STEP #3:** Once your charity is picked AmazonSmile will track your eligible purchases and send the contribution to the IFMA Foundation.

**STEP #4:** Please log on to [https://smile.amazon.com/](https://smile.amazon.com/) for future purchases, only AmazonSmile purchases qualify for contributions.

Invite the organization you work for, your friends and family to help support the IFMA Foundation.
**Capital Chapter’s Career Center**

Looking for a Job? Looking for a great candidate to fill a vacancy? Visit the Capital Chapter’s Career Center and access jobs and candidates in the metro-DC area. The most recent job postings are listed below:

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<tr>
<th>Title</th>
<th>Company</th>
<th>Location</th>
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<tbody>
<tr>
<td><strong>Operations Manager</strong></td>
<td><strong>Sinclair Broadcast Group</strong></td>
<td>Arlington, VA</td>
<td>March 10, 2020</td>
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<tr>
<td>Do you have a passion for digital media, a commitment for problem solving, and leadership skills? If so, look no further. Sinclair Digital is looking for a Digital Operations Manager to join our cross-country team of digital experts. This position will report directly to Senior Manager, Sales Operations. With over 200 properties across the country, Sinclair Digital supports the digital efforts of 160+ Local News and Entertainment stations (CBS, ABC, NBC, FOX, MyTV, CW) and 30+ Local and National Sports networks. This team is responsible for supporting the digital sales efforts and ad development for the company. In this role, you will manage a team of digital experts that specializes in campaign and inventory management for our News and Entertainment stations all over the country.</td>
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<td><strong>Operations Manager</strong></td>
<td><strong>TKC Holdings</strong></td>
<td>Chatham, VA</td>
<td>March 13, 2020</td>
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<td>The Operations Manager is responsible for hiring and training Keefe Commissary Network (KCN) staff, ensuring compliance with policies and procedures and acts as the liaison for the on-site staff, customers, and KCN for assigned territory and on-site locations. The candidate will possess full working knowledge of the KCN Best Business Practices Guide; have an understanding of Centric Group policies and benefits (attendance, medical, vacation, etc.); work with Regional Vice President to improve labor efficiencies at assigned KCN operations; assist the KCN Regional/Group Vice President in the managing of the new account start-ups and schedules; and more. This position has supervisory and non-supervisory direct reports including Regional Commissary Managers and Commissary On-Site Staff.</td>
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<td><strong>Operations Manager</strong></td>
<td><strong>Leidos</strong></td>
<td>Herndon, VA</td>
<td>March 15, 2020</td>
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<td>The Leidos Health group currently has an opening for an Operations Manager, in support of US Department of Health and Human Services (HHS). This position is contingent upon contract award. Leidos is looking for an experienced Operations Manager to assist the Program Manager with successful Operations and Maintenance for production and non-production environments. The systems Operations and Administration (SOA) team provides Leidos and our HHS customer with situational awareness and performance indicator and trends to ensure successful program operations. The Operations Manager will provide input, recommendations, and assistance to the Program Manager, regarding operations, service delivery, tasking, risks, issues, and assignments. Required qualifications: BA or BS degree with 12 years of prior relevant experience, or Masters with 10 years of prior relevant experience.</td>
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Capital Chapter Upcoming Events…

Apr. 16: **Capital Chapter of IFMA Virtual Happy Hour**
Your Computer

Apr. 21: **FM Roundtable: Facility Management During COVID-19**
Your Computer

Apr. 23: **Going Paperless: Simplifying the Process for Digitization**
Your Computer

Apr. 29: **FM Roundtable: Facility Management During COVID-19**
Your Computer

Apr. 30: **Capital Chapter of IFMA Virtual Happy Hour**
Your Computer

May 13: **World FM Day**
Your Computer

Sept. 14: **Annual Golf Outing**
International Country Club, Fairfax, VA

Sept. 30-Oct. 2: **IFMA’s World Workplace**
McCormick Center, Chicago, IL

For more information, or to register, visit the Capital Chapter website or call 703-691-IFMA.