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**Program
Prioritization**



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Understanding IPEDS
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PROGRAM PRIORITIZATION

COVER STORY

22 Planning Tool Resets Priorities, Reshuffles Resources

By Anita Blumenthal

The academic or program prioritization process is a comprehensive “question everything” planning tool developed to rethink the extent of an institution’s academic programs and their value to its mission and identity.

28 Understanding IPEDS and APPA

By Ken Redd and Kristin Witters

This article provides a basic overview of the IPEDS data and answer some key questions about this well-used and valuable set of public data on higher education students and institutions.

32 Closing the Gap: The Benefits of Capital Planning and Facility Management Data Integration

By Tim McLean

Capital planning looks at the long-term use of a building, whereas facilities management is focused on the maintenance of those buildings. However, if both of these teams and systems are not connected and integrated, costly mistakes can be made.

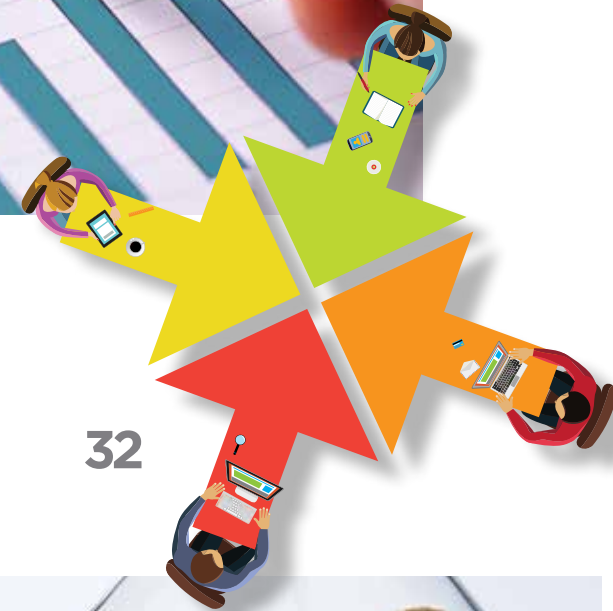
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By Tim McDonald

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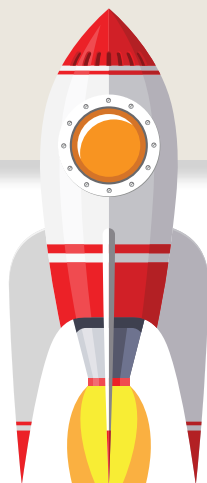


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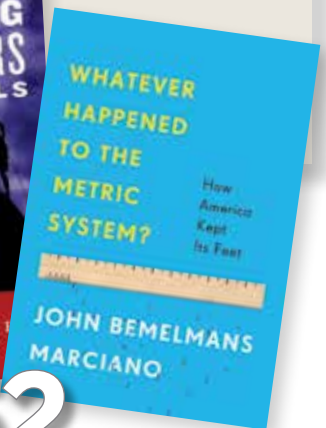
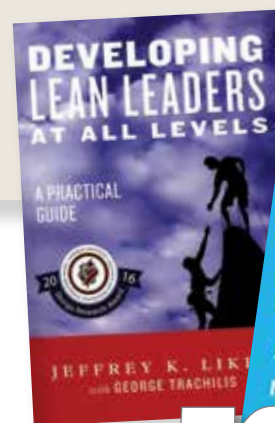
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Much to Learn in Nashville

If you have not yet registered for the APPA/SRAPPA/TNAPPA 2016 conference in Nashville, Tennessee, the time to act is *now*. Hotel rooms are going fast, and you'll want to register and make your travel plans as soon as possible.

Following is a sampling of the excellent concurrent educational sessions already planned for the conference, which runs July 12-14. July 11 is reserved for our preconference Emerging Professionals (EP) and Senior Facilities Officers (SFO) summits. Register today!

An Innovative Methodology for Auxiliary and E&G Maintenance Consolidation
Glen Haubold, Patricia Hartell, and Al Flores Jr., New Mexico State University

Building an Environment for Student Success
Malin Francis and Mary Jane Thompson, Salt Lake Community College

Building Trust in the Organization
Michelle Frederick, American University

Changing Pedagogy and Instructional Space
David Singel, Marilyn Lockhart, Walter Banziger, and Randy Stephens, Montana State University

Communicating in the Trenches
Michael Dixon, Ohio State University

Connecting the Dots: Streamlining Systems for Effective Planning and Decision Making
Kate Haenchen and Brandon Hennington, Texas Tech University

Driving Operational Intelligence with Data
Karen Powell and Joseph Fullerton, San Mateo County Community College District, and Rob Barthelman, Steinberg

Emergency Mass Notification Best Practices
Tim Pridemore, University of Tennessee Chattanooga

GIS for Modern Campus Management
Scott J. Compton and Leo R. Scott Jr., Entech Engineering Inc., and William V. Anderko Jr., Haverford College

Implementing APPA's Thought Leaders Series Findings in Your Organization
Jack Colby, North Carolina State University, and Keith Woodward, Quinnipiac University

Key Facilities Metrics: Partnering with Finance Leaders
James A. Angelosante, University of Washington; Sally Grans Korsh, National Association of College and University Business Officers; and Christina Hills, APPA

Leveraging APPA's FPI: Understanding the Advantages of Long-Term Participation
Ted Weidner, Purdue University, and Clay Shetler, Goshen College

Strategic Stewardship and the Preventive Maintenance Master Plan
William J. Roess and Bruce A. Meyer, Bowling Green State University

Vertically Integrated Maintenance Cost Results
Dennis Bailey, Florida State University, and David Geaslin, The Geaslin Group

Multiuse Facilities: Town Within a Town
Mike Parker, Clemson University, and Drew Yantis, Holder Construction Company

Mobile GIS: An Administrative and Technician's Dream
Ray Mirizzi and Chris Charnegie, Northern Kentucky University

Management vs. Leadership: What Category Do You Fall Into & Are You Meeting Expectations?
Paul Wuebold, University of Alabama

Interdisciplinary Research: Unique Challenges for Facilities
Dawn E. Cisek, and Autumn C. Timpano, Virginia Tech



COMING IN JULY/AUGUST 2016

- Total Cost of Ownership
- APPA's Mentoring Program
- Annual FM Salary Study

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About APPA

APPA promotes leadership in educational facilities for professionals seeking to build their careers, transform their institutions, and elevate the value and recognition of facilities in education. Founded in 1914, APPA provides members the opportunity to explore trends, issues, and best practices in educational facilities through research, publications, professional development, and credentialing. Formerly the Association of Physical Plant Administrators, APPA is the association of choice for more than 13,000 educational facilities professionals at more than 1,500 learning institutions throughout the United States, Canada, and abroad. For more information, visit us at www.appa.org.




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APPA/SRAPP/ TNAPPA 2016 Annual Meeting & Exposition

July 12-14 2016

Mark your calendar to attend next year's meeting and exposition. You won't want to miss this exciting gathering of fellow facilities professionals and exceptional speakers! Co-located with SRAPP and TNAPPA 2016 in downtown Nashville, Tennessee.



APPA 2016-2017 Election Results

We are pleased to announce the newly elected President-Elect for APPA's 2016-2017 administrative year:

President-Elect

Chris Kopach, University of Arizona

Kopach and other new Board members will take office at the APPA 2016 conference in Nashville, Tennessee July 12-14, 2016.

Many thanks to the Tally Committee for counting and verifying the votes:

- Al Stearns, Chair
- Mike Sofield



APPA Membership Renewal Notices Sent— Pay by Mail or Online

The 2016-2017 APPA membership year began April 1, 2016 and runs through March 31, 2017.

APPA accepts dues payments by major credit card through the APPA website at www.appa.org via myAPPA, your personalized APPA website account.

Renew your organization's membership today to continue receiving valuable APPA benefits.

APPA Welcomes New Staff Members

On behalf of EVP Lander Medlin, we're pleased to announce four new APPA staff additions:



Direna Cousins joins us as APPA's new membership coordinator. She is a communications graduate of Montreat College in North Carolina and has worked as a news video producer. Before joining APPA she worked at a GAO child development center and at the National Association of College and University Business Officers.



Jeannine Fischer has joined the staff as bookkeeper and accounting services manager. Jeannine has more than 30 years of experience as a bookkeeper for a number of organizations. She is a native of Alexandria, Virginia, attended Northern Virginia Community College, and served as a budget analyst for nine years with the Naval Intelligence Command.



Kelly Ostergrant has joined APPA as certification coordinator. She is a graduate of Cisco College in Texas and previously worked in the facilities department at Middle Tennessee State University and at Southwest Airlines. She also has served as the elected vice president for communications for APPA's Southeastern region.



Billie Zidek joins us as APPA's new standards and codes administrator. Billie is a graduate of Williamsport Area Community College and comes to APPA with extensive knowledge on standards and codes processes. Billie has a passion for codes and will be a huge asset to APPA as we continue to move forward in this area.

APPA EVENTS

Jun 6-9, 2016

APPA/ACUI Essentials of Facilities Management Training Seminar, Minneapolis, MN

Jun 6-10, 2016

Supervisor's Toolkit, Charlotte, NC

Jul 11, 2016

Emerging Professionals Summit, Nashville, TN

Jul 11, 2016

Senior Facilities Officers Summit, Nashville, TN

Jul 12-14, 2016

APPA/SRAPPA/TNAPPA 2016, Nashville, TN

Sep 11-15, 2016

APPA U, Orlando, FL

Oct 24-27, 2016

ACUHO-I/APPA Housing Facilities Conference, Scottsdale, AZ

For more information or to submit your organization's event, visit www.appa.org/calendar.

New Report Projects Shortfall in K-12 School Funding

The *State of Our Schools: America's K-12 Facilities* report, released by the Center for Green Schools at the U.S. Green Building Council (USGBC), the 21st Century School Fund, and the National Council on School Facilities, shows that the nation faces a projected annual shortfall of \$46 billion in school funding.

The analysis found that the federal government provides almost no capital construction funding for school facilities, and that state support for school facilities varies widely. Local school districts bear the heaviest burden in making the investments needed to build and improve school facilities. When school districts cannot afford to make these significant investments, they are often forced to make more frequent building repairs from their operating funds—the same budget that pays for teacher salaries, instructional materials, and general programming.

The report features an in-depth, state-by-state analysis of investment in school infrastructure and focuses on 20 years of school facility investment nationwide, as well as funding needed moving forward to make up for annual investment shortfalls for essential repairs and upgrades. The report also proposes recommendations for investments, innovations, and reforms to improve learning environments for children in all U.S. public schools.

To download the full *State of Our Schools: America's K-12 Facilities* report and to learn about the conditions in your local school district, please visit www.stateofourschools.org.





APPA U

Credentialing Exams Offered Online

The APPA credentialing curriculum and exams are now offered exclusively online. This enables self-paced study and eliminates the need for travel budgets and days away from the office. The platform provides an exciting array of online testing options to suit test-takers' needs. Learn more about this exciting new option at <http://credentialing.appa.org> and prepare for your CEFP credential today!



APPA U OFFERS GRADUATE PROGRAMMING TO INSTITUTE AND ACADEMY GRADUATES

Next APPA U:
September 11-14, 2016
Renaissance Orlando at SeaWorld
Orlando, Florida

The most fundamental mission of APPA is the delivery of professional development courses that address the needs of the facilities management community—from that of the frontline supervisor to the most senior of our facilities officers. To that end, we are pleased to announce the addition of a new program to our portfolio: APPA U Graduate Programming.

The offering will provide graduates of the APPA Institute for Facilities Management or the Leadership Academy an environment in which to engage at a higher level of planning and strategic thinking. The program is delivered in a framework that allows for real-world challenges and diverse issues to be addressed in a collaborative setting, thus allowing for the opportunity to put into play the strategic solutions learned in

previous APPA programs.

Participants will receive firsthand experience in broad scope analysis, decision making, collaboration, and presentation at a senior administrative level, including:

- Critical thinking
- Systems thinking
- Clearing the path/setting the stage
- Negotiating
- Strategic communication to leadership and staff
- And much more.

For additional questions prior to registration opening, please contact Suzanne Healy, APPA's director of professional development, at suzanne@appa.org.

2016 Member-Get-A-Member Campaign

Do you know potential institutional members for APPA and the regions? Do you want to help spread the word about APPA and facilities management? Current, active, institutional members may recruit new institutional members by participating in the 2016 APPA Member-Get-A-Member Campaign. The campaign will run through August 31, 2016. If you have questions, please contact membership@appa.org, or check out the APPA website at www.appa.org/membership/member_get_a_member.cfm for additional information on this new APPA incentive.



Mexico Initiative Update: APPA Attends CONPEHT Conference

As part of the APPA Mexico initiative, APPA has been working closely with two major Mexican university systems: Universidad Panamericana and Tec de Monterrey. Through this partnership, 67 different Mexican institutions are now core members of APPA International.

The activity has not stopped there. At a November 2015 visit to ESDAI/UP, APPA members were guests at a joint APPA/CONPEHT meeting. Additionally, ESDAI/UP is preparing for an APPA Award for Excellence, and graciously hosted a meeting to introduce a number of other institutions to the benefits and values APPA has to offer Mexican and other Latin American institutions.



David Button, center, of the University of Regina, represented APPA at the CONPEHT meeting in Mexico.



2014-2015 FPI REPORT NOW AVAILABLE

The 2014-2015 Facilities Performance Indicators (FPI) Report is now available to help you assess, measure, and lead your institution to success. With over 288 learning institutions now participating, the report will empower you with the vital data, statistical references, and reporting tools needed to measure operations and performance. The report will also help identify capital asset realities and help you

lead a successful facilities strategy that supports your institution's mission and vision.

The FPI report answers to the following questions, and more:

- How well is your facilities portfolio in alignment with your institution's strategic direction and academic focus?
- What are your facilities inventory, square footage, and building ownership costs?
- How efficiently do your facilities operate?
- How does your campus's facility performance contrast with that of its peer institutions?
- Is your campus adequately funding the facilities annual management budget?

To access the report, log in to your myAPPA account page, go to the myResearch heading, and under it, click on the "FPI Report Access" link.

The report is free to APPA members who participated in the survey, or it can be purchased:

- APPA Member/Nonsurvey Participant Report: \$500
- APPA Nonmember/Survey Participant Report: \$895
- APPA Nonmember/Nonsurvey Participant Report: \$1,000

For additional information or to purchase the FPI report, please visit <http://www.appa.org/research/FPI/index.cfm>.



Challenging Estates and Estates Challenges

By Sue Holmes

Association of University Directors of Estates (AUDE)

Change is the only constant, and no matter how we plan for tomorrow and strive for quality, flexibility, and a little headroom in our estates, the challenge changes rather than being achieved. This applies to educational facilities in the United Kingdom as much as it does elsewhere in the world.

The UK estate sector size is just over 20 million square metres of gross non-residential space, with a further 6 million square metres of gross wholly owned residential in a sector worth over £73bn to the UK economy. Home undergraduate student

numbers are steady in an increasingly competitive sector with more intensive research and more and growing external benchmarks. We have seen a reduction in postgraduate and international applications. Staff salaries make recruitment a challenge in a number of areas of the UK across a number of work areas.

We saw over £2.5bn invested in non-residential estates projects in 2013-14, with almost 80 percent of the estate reported in excellent or very good condition. There has been an increase in the number of refurbishment projects rather than a focus on just new build.

We also see that students learn differently and have fewer boundaries and a more imaginative, integrated, and open approach to formal and informal learning. Expectations start at, or before, open

day and only increase. We all aim to be the student's "university of choice," with more of us focusing resources on recruiting.

We aim to provide all of our students (and staff) with an excellent experience and high-quality facilities and services. We know from a recent AUDE report that 77 percent of students say that facilities play a role in their university choice, with the only factor marginally more important reported as the course itself.

Amongst the current sector challenges and conflicts we are working with an 8 percent drop in fees, whilst wages, services, products, and utility costs have all risen at a higher rate. Demographics show that the number of 18 year olds will decrease until 2030—creating a smaller pool of home students. Quite how many international students are put off by visa requirements and the politics within the EU is not clear.

The reality for UK's estate and facilities directors is the need to deliver a sustainable estate within an environment of increasing revenue and capital costs. Our day jobs are becoming more complex, and we are required to juggle expectations and manage costs. That must sound familiar to most.

Driven by the need to demonstrate efficiency and effectiveness, we need to scrutinise our total property costs and compare our own data with other public data. In the last year, although our 40 percent reduction target to 2020 is looking very challenging, we know that carbon emissions were down by 8 percent from the previous year. This has been a real estate success story—innovation and development to make savings, improve environmental sustainability, and help meet carbon targets. However, energy costs have increased per kWh, and a proportion of staff and students are calling for more control of more natural environments.

As a sector we geekily analyse positive trends in energy efficiency—looking to see what works best



Photos are of the John Henry Brookes Building at Oxford Brookes University.

and where we can improve. As a sector we do trial new technologies as well as approved and tested solutions and share our feedback, both positive and negative, and champion reuse and retrofit. Buildings are being built for a 40- to 50-year life, creating more challenges with usually higher development costs.

Another AUDE development in the last year has been the Green Scorecard; a system that will allow us to demonstrate more effectively the choices we make on a daily basis on elements such as carbon emissions, utility costs, transport, waste biodiversity, or procurement, with each of us able to set realistic, albeit stretching, targets that fit into other business requirements and still demonstrate improvements. If we develop a large research area that is power hungry, what matters is that the research adds value and the energy is as green as we can make it, not that we are simply using more power. We think about whole life costing—how long does equipment last, what is the cost of maintenance, is Product A more reliable and easier to maintain than Product B?

Who of us hasn't tripped over students' charging devices from cleaner's sockets on corridors? I've been challenged by my own senior colleagues on how I reduce usage of utilities. I could fully control environments to reduce usage, but that reduces personal choice. It's not an easy or comfortable choice.

Space is an emotive subject, and we may reduce space by better design, using space guidelines, creating more shared office spaces, or looking at how we increase income per square metre. We need spaces to be adaptable with a long life/loose fit approach as we see spaces being used 24x7 (with the wellbeing and security challenges that may bring) and development of additional spaces for social learning or flipped teaching. Somehow the older designed spaces don't disappear.

Some universities make better use of office spaces by sharing with commercial partners or developing more shared spaces between departments or staff who would not have historically shared. The community of research often leads the way on this, but if we want to maintain single offices we need to generate an income to support this model. Universities with shared office spaces often release additional funding to improve other elements such as materials, additional staff, or research time. Whilst we value our differences, there are examples that will help many of us be more efficient and effective by using some variations of the developments we see.

AUDE is developing a database of good practice that will allow colleagues to look at financial savings,

but linked to development of opportunities, service improvement, or cost reductions. We hope this database will illustrate good practice to government and allow us to continue to learn from each other.

We continue to see strong demand for residences provided either in house or via external partners. Again, there is great variation in the sector. Some universities are able to manage all needs through partners, and others are restricted by planning and



land values. Students want quality, value, and convenience. The private sector is less well regulated.

Many of us manage facilities such as soft FM, catering, conferencing, shops, commercial leases, sports, and transport. These need a different set of skills and require that the role of director of estates and facilities management is varied and challenging. Is that why I love it? ☺

Sue Holmes is director of estates and facilities management at Oxford Brookes University, Oxford, United Kingdom; she can be reached at sholmes@brookes.ac.uk. She is chair of the Association of University Directors of Estates (AUDE), an international strategic alliance partner of APPA. This is her first article for *Facilities Manager*.

Visit AUDE at: www.aude.ac.uk



Enhance Your Career in 2016

By Ruthann Manlet
Vice President for Professional Development

As I work toward the end of my first full year this July as APPA's Vice President for Professional Development, I am excited to continue the work of my theme, Enhance Your Career in 2016. It doesn't matter if you have been to prior APPA professional development offerings, or if you're looking to book yourself for training in the coming year, we know that the programming offered will be presented by peers and experts in the field, and help advance your career development.

ANNUAL CONFERENCE

The unique and unprecedented event that you absolutely cannot miss is the **APPA/SRAPP/TNAPPA 2016 Annual Meeting & Exhibition July 12-14 in Nashville, Tennessee**. We are very excited to be partnering with the leadership of the SRAPP and TNAPPA communities to offer this event, and it will prove to be a great collaboration. APPA/SRAPP/TNAPPA 2016 will welcome more than 500 facilities management profes-

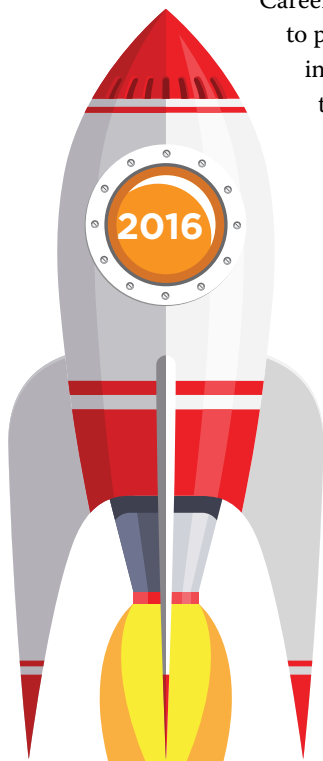
sionals from around the world to meet and discuss current issues and challenges facing educational facilities and to determine the best course of action to address these issues.

We will offer a comprehensive agenda discussing all aspects of our industry, including Preventive Maintenance for People, Space: The Ever Changing Frontier, Economy, Innovation and Technology, and the Future of the Built Environment—plus some new and exciting topics that we think you will find to be timely and informative.

You will not want to miss a presentation by Dr. Stuart Robertshaw (Dr. Humor) on *The Healing Power of Humor*, where he will discuss the psychological and physiological benefits of humor and laughter as they relate to taking care of ourselves, our friends, and our loved ones.

We will again offer the Facilities Buzz sessions—a great interactive session, providing an excellent opportunity for open dialogue with our leaders. In addition to the core curriculum, we are offering a special program for APPA's Emerging Professionals and Senior Facilities Officers on July 11, the day before the official start of APPA/SRAPP/TNAPPA 2016.

“Even the most experienced facility management professional will come away from the conference with a better understanding of current issues.”



recognized as the premier international event for networking, discussion, and information sharing for educational facilities professionals. Over 100 of our profession's most recognized leaders will be onsite to share their experiences and discuss best practices. Even the most experienced facility management professional will come away from the conference with a better understanding of current issues facing our industry, and a renewed sense of purpose on the important role that facilities management plays at their universities and schools. Visit us today for the latest on programming information at www.appa.org/training/APPA2016/.

APPA U

In the fall, I encourage you to attend **APPA U** which will be held **September 11-15, 2016 at the Renaissance Orlando at SeaWorld in Orlando, Florida**. The APPA U event comprises the Institute for Facilities Management and the Leadership Academy.

The Institute curriculum is composed of four core areas: General Administration & Management, Operations & Maintenance, Energy & Utilities, and Planning, Design & Construction. Students at the Institute select one core area to be the focus of their classes for that week. Morning classes consist of required courses, focusing on the core area selected, and afternoon classes will be electives and may be a combination from any of the four core areas.

The Leadership Academy is constructed in a four-level format: Individual Effectiveness Skills, Interpersonal Effectiveness Skills, Managerial Effectiveness Skills, and Organizational Effectiveness Skills. Content here focuses on educating participants in gaining awareness of industry issues, skills necessary to handle today's changes, and discover their own leadership potential—at every level. Registration for APPA U begins on June 1, 2016. Mark your calendar and make the investment!

I also encourage you and your staff to visit APPA Training Calendar at <http://www.appa.org/training/trainingcalendar.cfm> for the latest offerings of our popular Drive-In Workshops and Supervisor's Toolkits that are often right in your backyard.

As you can see, there are educational op-

portunities available for professionals with all levels of expertise and experience. I encourage each of you to take advantage of these unique and challenging courses, which will enhance your career in 2016! 💰

Ruthann Manlet is APPA's Vice President for Professional Development and facilities manager at the University of Minnesota-Twin Cities, Minneapolis, MN. She can be reached at manle001@umn.edu.

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Reflections on APPA

By Sam Waymire

Unlike the many authors who have penned this column before me, this article may well be my final project as a member of the APPA community. I write this column now in my last week as an APPA staff member, and these final days in my position have presented a natural opportunity to reflect on my time within our organization, and what I learned as a part of this family. Looking forward to future opportunities, I could write about how I have personally grown during my time spent at APPA, or how APPA has prepared me for bigger and better things down the road, but what I'm most compelled to remark on is the amazing community I have had the privilege to be a part of for these last couple of years.

TWO WORLDS

When I joined the APPA staff in September of 2014, I was hired with the title of membership and standards council administrator, a role that placed me firmly in two very different worlds within the membership. Per my responsibilities to the APPA membership department, I served as the frontline support contact for general inquiries, and have probably spoken to many of you over the phone. Additionally, I supported our director of membership and outreach in developing member-facing informational and promotional materials for print and online distribution, and updating our website with new membership information. The standards and codes aspect of my job offered a uniquely different set of responsibilities, and placed me in an administrative role among several of our association's codes-focused work groups.

Over the course of my time at APPA, I also picked up the responsibility of creating content for our several social media profiles, and engaging with all the members who interact with us on Twitter, Facebook, LinkedIn, and more. Oh, and as the person sitting behind the reception desk, I buzzed many of you in during visits to the APPA offices. I share all this to give you some perspective on the many different hats my role at APPA required me to wear, and this diversity of experience has given me a peek into the average APPA member experience, as well as a view into how APPA functions across many levels.

THE APPA MEMBERS

Over my countless interactions with APPA members of all kinds—from phone calls with new members setting up their account for the first time, to exchanging e-mails with committee members, to speaking in-person with the Board during the annual meeting—I've been continuously struck not only by how reverent and gracious our members are to the staff, but by their desire to grow in their positions, their hunger for new and better solutions



Photo by Anita Desik

Holly Judd, Sam Waymire, Kristin Witters, and Karen Aguilar on their way to the APPA December Committee Meeting.

they can take back to their home campuses, and for their unwavering dedication to the educational facilities management profession itself. From the staff perspective, I can say that nothing empowers us more than to know that our work and support goes into creating successful opportunities for our members to learn and develop themselves professionally. It has been immensely gratifying to witness the power of the “APPA Advantage” firsthand.

STAYING ENGAGED AND INVIGORATED

To those of you who might be new to APPA, I strongly encourage you to let this association guide and support you as you progress through your career. Having worked so closely with many of our programs, I’m constantly reminded of the benefits they can bring members who are able to stay engaged and invigorated in their work. For members who have perhaps attended APPA U or achieved their EFP or CEFPP certifications, and are unclear on what to do next within our association, I urge you to lean on staff and other APPA leaders.

We are an international network of colleagues and peers, and there are individuals within every level of the association who are here to help and eager to offer advice to anybody who aims to get more out of their APPA experience! Most members would be surprised by just how many of their challenges, questions, and experiences are shared by others within the APPA community, and by how much knowledge there is to be gained by engaging with these individuals.

Within APPA there truly is something for everyone, regardless of one’s role in their organization or level of industry experience. I firmly believe that APPA membership can take you as far as you want it to, and I invite each and every one of you to explore a few of the

member benefits you may not have previously engaged with. ☺

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 Sam Waymire was membership and standards council administrator with APPA, and is now exploring a music career in Asheville, NC.

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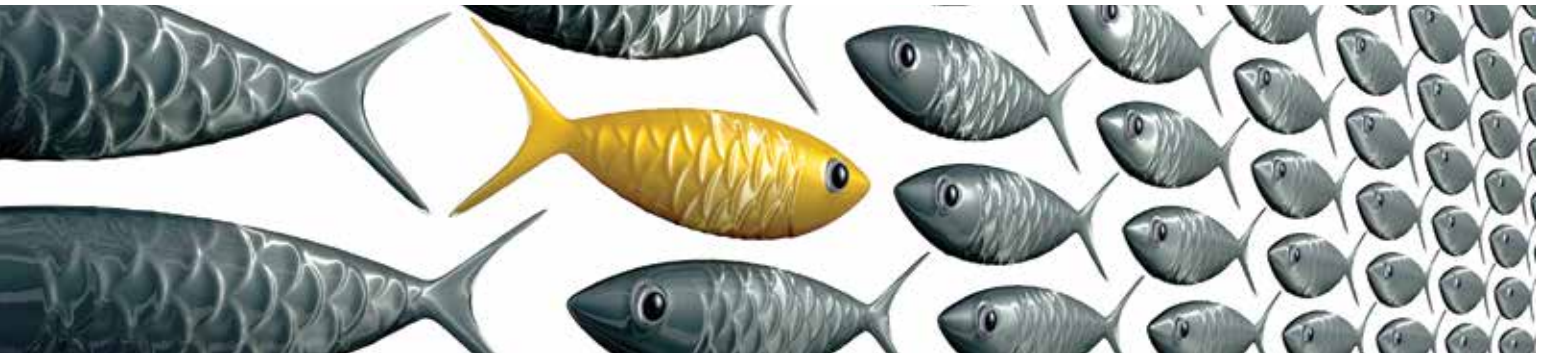
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Leadership and Virtues—Courage

By Joe Whitefield



Today, I want to continue the conversation we began in the previous article concerning the role of virtues in leadership. I asked you to consider that the character of a leader should consist of more than a simple set of values that are promoted and adhered to on a situational basis. In a sense, some of today's most popular values often compete with one another—individual privacy versus local or national security, personal freedom versus health, freedom of expression versus freedom from offense, and so on—setting up a morality minefield for our organizations. With that, I put forward an old idea that the cardinal virtues are superior to and more stable than our modern-day values and that they could be useful to us once again.

After discussing the nuanced and important aspects of prudence, it is time to take up the next forgotten virtue: courage.

Before we get into the specifics, ask yourself this question: What is the most courageous thing you have ever done? Think about it. It is one of the most penetrating questions I have ever considered. You may have military experience, or you may have faced an illness or another personal situation requiring decisive action or resolve in the presence of fear and uncertainty. You may have walked through uncertain situations with a family member or close friend. If

so, you know what courage is and how it can change your perspective and even your life.

If you don't have a great answer for this question, why not? Either you haven't been placed in a position requiring much courage, or perhaps you have shied away from a fearful situation. Whether you have acted courageously in the past or not, there will be future opportunities demanding it from you.

GO FEVER

Let's consider courage in the professional arena. No doubt there are a number of risks facing your organization right now. Most have financial implications. Some may even include threats of job loss—real risks and real consequences. How are decisions made in this environment? Many people avoid making decisions so that they cannot be blamed if something fails. Organizations feed this environment with an ever-present fear of failure that paralyzes their people. This is a common picture of many organizations. It definitely requires courage to overcome this environment, scuttle the status quo mandate, and produce great work.

There is another picture to consider, representing the other end of the spectrum. It is the opposite of the status quo mandate, but is equally as dangerous. It is called "go fever." Go fever is the condition when a project has so much momentum that no

"Go fever is the condition when a project has so much momentum that no one wants to say or do anything to slow it down for fear of being labeled a naysayer or a poor team member."

one wants to say or doing anything to slow it down for fear of being labeled a naysayer or a poor team member. In *Think Like a Freak*, Steven Levitt and Stephen Dubner write about a well-known project that suffered from go fever—the space shuttle Challenger mission.

Many of us remember seeing the Challenger blow apart on our TV screens within two minutes of the launch on January 28, 1986. We may also remember the beloved astronaut and civilian school teacher who was aboard the shuttle, Christa McAuliffe. But do we remember the cause of the accident? O-ring failures on shuttle boosters allowed the gases to escape and ultimately ignite. If only someone had suspected the potential for failure and recommended delaying the launch.

As it turns out, someone did. Allan McDonald of Morton Thiokol saw the potential for O-ring problems given the subfreezing temperatures predicted during the launch window and recommended delaying the launch. His recommendation was rejected and when he refused to sign off on the decision, his boss signed off, approving the launch. Why was McDonald overruled? He describes a situation in which the National Aeronautics and Space Administration (NASA) had a serious case of go fever for this launch. Given the press coverage, the unique crew, and the other delays that had occurred, there was serious pressure to launch. Anyone giving reasons to delay at this late stage was apparently viewed as an obstructionist. According to Levitt and Dubner, “Once a boss gets ‘go fever,’ it takes a lot of courage to focus on potential failures. Institutional politics, ego, and momentum are all conspiring against you.” That certainly seems to be true for the Challenger mission.

FINDING COURAGE

Perhaps you are involved in a project or initiative at your institution or organization that has a serious case of go fever. I know many institutions who are fully engaged in projects suffering from this condition. The first step in dealing with this problem is to recognize it. Seek to define the problem(s) in terms of impacts to the institution as a whole. Develop alternatives. After that, you may need to find the courage to state

your concerns and objections to the appropriate people.

These concerns should be supported with as much information as possible. Since you may be the local expert on the specific subject, you may have to go to great lengths to translate the problems into language your audience can understand. Remember, you are probably fighting politics—choose diplomacy. But don’t back down—it will take courage to risk going “against the grain”—but it will be worth it.

Leadership today demands character no matter how talented or intelligent the leader. I submit again that character should be more than a simple set of values that are promoted and adhered to on a situational basis. Virtues are at a higher level than situational values. But if you decide to embrace them and stand up for your convictions, be prepared. It will definitely require some courage. (S)

Joe Whitefield is assistant vice president for facilities at Middle Tennessee State University, Murfreesboro, TN. He can be reached at joe.whitefield@mtsu.edu.

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Setting the Course through Stormy Seas

By Richard W. Robben, P.E., CEFP, MBA



Message Priority High

To: Facilities Director APPA Institution

From: University President

Subject: Ship's Movement

Make best possible speed to rendezvous with Task Force (TF) Stakeholder Expectations before start of classes in 2017. Coordinates: CHG.MGMT.

With these instructions you order a change in course and speed toward the rendezvous point, and your ship (the facilities department) turns to its new heading and speed. You assemble your department heads and work out the details of heading and speed to account for fuel on board, condition of equipment, status of the crew, and the weather for the transit. The navigator reports that you will have to sail directly through a storm that is traveling in the same direction as the ship. The engineer reports there is not enough fuel to make the trip, and one of the ship's boilers is down for repairs, which will reduce speed. The executive officer reports half of the crew is down with the flu. It seems unlikely that you can make the rendezvous with TF Stakeholder Expectations.

INTO THE STORM

Doesn't it sometimes feel this way in your daily efforts? The stakes are high. The requests seem too great, the time too short, the resources too little, the obstacles too much, and yet you have to somehow satisfy your superiors without (figuratively speaking) losing both your ship and your crew (your workforce).

The challenges at first seem to be overwhelming, but in reality can be corrected along the way with modest additional resources: Your ship can meet with a fleet oiler and replenish the bunkers at sea, the boiler can be repaired, and your vessel is made to operate in heavy seas. The real challenge in this vignette is how well your crew will accommodate change. Can they deal with the stress and fatigue of operating in

turbulent waters with less rest for extended periods? How far can the crew go before it breaks down, despairs, or abandons ship?

It is your workforce that allows for changing the strategic direction of your departments. So how is this achieved? It's all about the quality of your workforce and its willingness to pursue excellence. We have seen our workers respond to emergencies. During floods, fires, and power outages, they are energized for restoring the situation to pre-hazard conditions. Their level of commitment to the institution seems higher than during normal operations. There are good reasons for this: They have a clear objective and vision for restoring normal operations to the stakeholders, and there are usually clear accolades and recognition by the campus community for their efforts, as well as a sense of pride, because to them, it's "my space, my work home."

THE THIRD ELEMENT

This reaction to emergency situations illustrates three important aspects of change management. The first is a clear and compelling vision of your goal; it's hard to argue against getting things back to normal. The second is the recognition of success. The change management process calls for celebrating initial wins. It's very clear when you have achieved the goal. Everything is back to "steady cruising," and the stakeholders are grateful. But there is a third element. What if the workers did not know how to restore the power, did not have the necessary equipment, or were simply exhausted from continuous operations? This hidden element is a competent, well-trained workforce that is able to execute what is asked of them.

Let's go back into the "storm" to illustrate another point. Your ship has rendezvoused with the oiler and filled its bunkers, the boiler is repaired, and the ship is back on course. Although the storm is not violent, the continuous pitching, rolling, and heaving combined with illness and fatigue have degraded your crew's efficiency. You're aware of the relationship of ship's motion to fatigue and the increase in mistakes committed

by the crew, and you realize the need to take action.

HAVING ALL THE FACTS

But what should you do? If you stay the course and endures the effects of the storm, there is a distinct risk of mishap, injury, and possible damage to the ship, but doing so may get you to your destination faster.

Another option would be to move out of the storm, but this will take you off course, extend your transit time, and possibly cause you to miss your rendezvous with TF Stakeholder Expectations.

Yet another approach is to zigzag around the heading. This will keep the ship traveling in the correct direction, but gives the crew an opportunity to recover from the effects of the sea while on the less turbulent legs of the course.

In order for you to make a wise decision, you need some information: What is the current condition of your crew? Is their morale sagging or is it high? Are they well-trained enough to operate under these conditions? How long have you been operating in turbulent conditions and how much longer do you expect to be?

IT'S 90 PERCENT CREW

Planning for change is at the heart of any effort to be smart about facilities services. But in the final analysis, it's 90 percent crew and 10 percent machine that gets you to your goal. If you don't have a well-trained, motivated, dedicated, and recognized staff, you are not likely to be successful. Some leaders forget the need to "feed and care" for those that make it happen. This is where your priority should be, your real bottom line.

Train your staff well, empower them, engage them in their mission, recognize their accomplishments, provide job security, and show concern for their welfare, and your crew will follow your vision—even if it takes you into the storm. As the "captain," that should be your standing order: Take care of your crew; the ship doesn't work without them! 💰

Richard Robben is executive director of plant operations at the University of Michigan, Ann Arbor, MI, and can be reached at rrobben@umich.edu.

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PLANNING TOOL

Resets Priorities,
Reshuffles Resources

By Anita Blumenthal



For

years, colleges and universities have grappled with ways to cut costs in the face of shrinking budgets and yet retain quality and remain true to their mission. One approach to this challenge is to undergo an academic prioritization process, also known as a “program prioritization process” (PPP). In this context, PPP (not to be confused with public-private partnerships) is a comprehensive, “question everything” planning tool developed by Robert Dikerson and explained in his book, *Prioritizing Academic Programs and Services: Reallocating Resources to Achieve Strategic Balance* (1999, second edition 2010).

To “question everything” through PPP includes rethinking the breadth of the institution’s mission, the extent of academic offerings, and the relative value of programs, including such measures as setting the minimum number of students needed to retain a program or the minimum number of faculty to constitute a department. To help academic institutions solve funding problems internally, PPP promotes the idea that the most available source of funding comes from reallocating existing resources through prioritization.

PPP prioritizes every program within every academic department and administrative unit. Each program submits extensive reports and data that focus on such issues as centrality to mission, quality, internal and external demand, income and costs, and barriers to improvement. Dikerson lists 10 criteria for each program to report on, calling for dozens of indicators to measure value and performance. However, individual institutions might reduce these numbers and also tailor them to their own needs and culture. For example, Boise State University (Idaho) used only five criteria.

What makes PPP unusual—and controversial—is not so much the type and quantity of data required but rather the

way the results are scored, aggregated, ranked, and divided into quintiles, each quintile indicating a different level of recommended action. All academic programs are ranked against one another, likewise all support programs. This method has attracted many supporters and many critics.

WHY UNDERTAKE PPP?

“The least inflammatory reason to undergo PPP is that it is a good way to get information to inform strategic planning,” says **Dan DeNeui**, director of social studies and coleader of PPP at Southern Oregon University, Ashland, Oregon. “Unfortunately, many institutions wait until they are in financial difficulty to take this on.”



Dan DeNeui

Sometimes conditions change part-way through the process. Back when the state’s economy looked good, the University of Alaska Anchorage (UAA) announced it would undertake PPP to align its academic programs and administrative functions with its mission and the needs of its students and state. “We had time for an introspective look that allowed extra analysis,” says **Ryan Buchholdt**, UAA’s facilities business manager and sustainability director. Then came the severe economic downturn, aggravated in Alaska by oil prices plummeting and continuing to drop—and so did the state’s funding to the university.



Ryan Buchholdt

One argument for a college, university, or school to choose a PPP is fairness, because both the academic and the support sides are involved, observes **Drew Gilliland**,



Drew Gilliland

southern Oregon’s director facilities management, planning and sustainability. At many institutions, cost cutting has long been restricted to the support side in order to save the academic core. However, Gilliland says that during a strict retrenchment four years previously, the facilities department had lost 20 percent of its staff, and the campus started physically reflecting the financial struggle, a fact that was

not lost on prospective freshman and their parents. When more budget cutting was needed, there was little slack on the support side, but with PPP implemented, the academic side was included as well. At other institutions, perhaps for similar financial reasons or for political ones, only the academic side undergoes the process.

“This is a form of strategic planning that the support side often does yearly but the academic side does not,” DeNeui says. “The support side is used to reporting and budgeting—although it is not used to seeing the full institution-wide picture the PPP reveals. Previously, different departments did this in a vacuum

and had developed their own processes.”

FIRST CHALLENGE: FIND ALL THE PROGRAMS

One challenge of PPP is to identify all programs, units, and courses. On the academic side, where programs can proliferate and stay on the books, data has to be provided on every concentration in every major and on every minor and other type of undergraduate or graduate academic program. Regarding Southern Oregon’s PPP, DeNeui admits that it was hard to identify every program on the support side, because “once it gets under a department, it is harder to track how much time an individual spends on a task or suite of tasks and then compute costs to attribute to that program. Without clear accounting procedures for that task, any figure is an estimate.”

Throughout Southern Oregon’s campus community, DeNeui says, “Departments were asked questions they had never had to know and asked to gather data they were not used to analyzing. The value of PPP,” he says, “is that it was a standardized process over all programs, with adaptations so that different programs achieved apples-to-apples comparisons.”

On the other hand, critics argue that using the same set of metrics for, say, English and chemistry programs, is not reasonable—much less using metrics that would apply to a facilities department.

THE PROBLEM OF RANKING

Under the PPP, generally speaking, the academic program reports go to a review committee of faculty, and the academic support (or administrative) program reports go to a committee of deans, directors, vice chancellors, and sometimes faculty. These committees

consider the comparable data on all programs, score the results, and aggregate the scores. On that basis, the committees rank the programs and recommend actions for the programs themselves to take (e.g., present improvement plans) and for the institution to take (e.g., fold into other programs, restructure, eliminate). But the idea of ranking and dividing into quintiles is often controversial and unpopular, especially since by definition, 20 percent of the programs have to land in the lowest quintile.

The culture of individual institutions makes a difference here. To take just one example, at Boise State, placement in all but the top quintile meant that programs needed to formulate action plans. The programs in the middle three quintiles were directed either to 1) develop specific plans to improve productivity and/or efficiency, 2) improve quality and/or relevance, or 3) improve in both categories.

According to the Final Report on Program Prioritization presented to the Idaho State Board of Education, the programs in the lowest quintile needed substantial change (e.g., reinvent, redesign, restructure, phase out) and also needed to develop action plans. Ultimately, the PPP findings called for only four of the 29 lowest-quintile programs to be discontinued. The others were to be restructured or consolidated, or their enrollments

were to be increased, or assessment of learning outcomes would be improved.

In any case, a low position in the rating does not dictate a certain fate for the department or unit; these ratings are recommendations for approaches to perceived difficulties or shortcomings. Ultimately, the president and senior officers will consider whether these recommendations are best for the institution and should be pursued. In fact, they might disagree with the ranking and recognize that some units in the lowest quintile are actually mission critical. Nevertheless, critics say that this is the foundation for a “rank and yank” approach—eliminating the lowest-rated entities.

Finally, any decision to actually eliminate academic programs, for example, must follow university protocols and procedures, such as action by the Faculty Senate, and this can take a year or more.

PPP ON THE SUPPORT SIDE

Associate Vice President for Facilities Planning and Management **Norman Young** cochaired the administrative programs review committee at the University of Hartford in Connecticut. He explains, “Each administrative program was put into one of four buckets: Those the university should invest in and give more opportunities to, those running as they should (maintain), those that we need but should restructure, and those we should not



Norman Young

run anymore (divest).” The academic committee and the administrative programs committee were each a financial target to create investment dollars for the Bucket One programs.

Still, Young says, a three-quarters majority decision was needed to decide on the bucket. On his committee, most programs were voted to be either maintained or restructured. And even in the “divest” group, some programs got a chance to make themselves more valuable to the institution—and succeeded. Others faded through attrition or were folded into another department.

While the issue of ranking is particularly controversial on the academic side, it can also be distressing on the support side. Southern Oregon’s Gilliland recounted how demoralizing it was for his department—which had already suffered rounds of severe

cuts prior to PPP—to find that the lowest quintile included the Lock Shop. While the shop manager’s report might not have been so expertly written or data rich as others, the shop’s essential function was obvious.

Similarly, in its findings report, the University of Alaska Anchorage noted that a program ended up in the bottom category because its functions had been too narrowly defined; in fact, it was a key element of a larger, essential program.

EYE-OPENING EXERCISE

The PPP “was an eye-opening experience,” says **Chris Turletes**, CEFP, associate vice chancellor for facilities and campus services at UAA. “We had to boil down what we do and explain our value to the campus community. We were impressed with what we did with the resources available.” Facilities management had one department in the second quintile and the rest in the top section. Further, he says one department found that activities it had thought were important were not considered to be so by the university overall, so these were dropped.



Chris Turletes

Another result of the PPP, Buchholdt says, was that “every unit of the administration had to explain what they did and how. This served to ‘undemonize’ the administration by detailing how each activity contributes to the university.”



Ivan Lybarger

Ivan Lybarger, director of facilities, operations, and maintenance at Boise State, calls PPP a positive learning experience that “helped us identify what was mission critical, mission essential, and mission support. We were able to identify blind spots, such as work order backlogs, and to identify how we could meet some university goals, such as increasing the number of student employees in our workforce.”

At Hartford, Young says, “We realized how important we are to the institution—there were no votes for restructuring or outsourcing.” Addressing the criterion of quality, he says, “Our department had been using benchmarks and APPA standards, so with these credible sources, we were able to tell our story. Our



funding, staffing, and capital projects were below our peers—and we could tell exactly what we could do with additional money. In fact, our capital projects program was voted into the ‘invest’ bucket. You need data to get into the first bucket.”

SPACE—THE GAP IN THE PROCESS

“One problem with PPP,” Turletes says, “was that it looked at resources allocated [to programs] but not at space. It is important to consider the space impact as well as funding in decisions.”

Young found the same problem. “I wish we’d had better data on the cost of space for both academic and administrative departments,” he says. “We needed that data as we made decisions about programs. If we’d had more data, we could have pointed out capital improvements or energy efficiency projects in a department that would have improved its costs.”

As a result of this finding, Hartford is now developing a space management program and introducing software to collect space data so that it will be part of the analysis when the university considers the cost of growing or shrinking programs. “We need to understand the costs of a building in granular detail,” Young says, including having an energy profile density of use, and hours of use.

At Southern Oregon, the facilities department found that the university could handle 10,000 students; it now has 6,000. So the university doesn’t need new buildings, even though PPP called for the addition or expansion of some programs as well as elimination of others. Instead, Gilliland explains, they need to do internal remodeling, designing, and equipping flexible-use classrooms. “We need to use the buildings more intensively, as well as with an eye to sustainability and carbon neutrality,” he says. “That would include scheduling lab classes between 7:00 a.m. and 8:00 p.m., so that rather than install more pieces of expensive science equipment, more students can use the same pieces at different times. Currently, most classes occur between 9:00 a.m. and 4:00 p.m. PPP forced that conversation.”

SMALL CHANGES, SOLID GAINS

Within facilities departments, PPP triggered a number of changes for efficiency. For example, Hartford eliminated a layer of management in their transportation department.

Facilities and Campus Services at Anchorage took over emergency management from the police group and also took on the Sustainability Office, dealing with facilities and building components and with students regarding sustainability issues.

Several innovations at Boise State that cost little or nothing have already increased efficiency. For example, Lybarger reports that the Facilities Operation and Maintenance Department launched a TXT-n-Fix program to connect directly with the student population, which is more inclined to text than to e-mail or phone. Also, they formed a rapid response crew, which addresses all short-duration (under 30 minutes), low-cost (under \$50) service calls. No work order is required, and there are no charge-

back fees. This program has had great success. Of 1,027 recent customer reviews, 1,001 gave it the highest five-star rating.

WORDS OF ADVICE


Asked to give advice to universities that might undergo PPP in the future, UAA’s Buchholdt stresses that the institution should take a lot of time to adapt the structure of the process to the needs to the institution. “We did this during the last two-thirds of the program,” he says. “Even renaming the quintiles would have been a good idea.”

Young underscores the need for the facilities department to be involved at the institutional level of the process—to have a high-level member of the department sitting on the ranking committee, not to champion the department (that isn’t allowed) but to be part of the process and understand where facilities fit into the institution. At UAA, for example, some of the facilities staff participated in the Prioritization Administration, which created the rubric and took part in the evaluation.

As for advice to individual facilities departments, Lybarger says the exercise “must be taken seriously; otherwise the results could be skewed or inaccurate. Take the time to do it right. It’s also beneficial to compare peer institutions to see what they do and how your university compares. APPA was also a valuable resource.”

Finally, Young advises, “Have as much data as you can to show people that you have already looked at issues such as outsourcing.” His department was able to show that they already outsource activities they consider most efficient to contract out, such as elevator operations and trash collection—even their IT needs—but also that they had already determined that outsourcing custodial services would be more expensive.

Looking back, DeNeui says, “I think we could have done a better job communicating how the end results would be used—more specifically, that the results of our PPP process would be used as a part of a larger strategic planning process.” As with all institutions, nothing stands still or happens in a vacuum. “We have undergone a major reshuffling at the top of our organization,” he says, “so a lot of processes that would have happened after the PPP have been postponed until new leadership takes over. Still PPP has been beneficial to individual programs, and it has been used to inform subsequent planning processes.”

“PPP was tough love,” Turletes declares. “This is something we should do every four or five years.” 

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By Ken Redd and Kristin Witters

IMPEDS

Understanding IPEDS and APPA

How many students are enrolled in higher education institutions? How much do students pay to attend college? Where do public colleges and universities get their revenue and how much do they spend? And how many faculty and administrators are employed by higher education institutions? These and many other questions have long been on the minds of students, families, policymakers, and others who are interested in higher education issues. Fortunately, answers to these and many other questions are available from a convenient source: the federal Integrated Postsecondary Education Data System (IPEDS).

But what is IPEDS? Many APPA members may not be fully familiar with this database. In this article, we provide a basic overview of the IPEDS data and answer some key questions about this well-used and valuable set of public data on higher education students and institutions.

WHAT IS IPEDS?

IPEDS (<http://nces.ed.gov/ipeds/>) is a system of surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES). Prior to the adoption of the IPEDS surveys, data on higher education in the United States was collected via the federal Higher Education General Information Survey (HEGIS) Series. HEGIS data, collected from 1966-67 through 1985-86, were designed to provide comprehensive information on various aspects of postsecondary education in the United States, U.S. territories, and Department of Defense schools outside the United States.

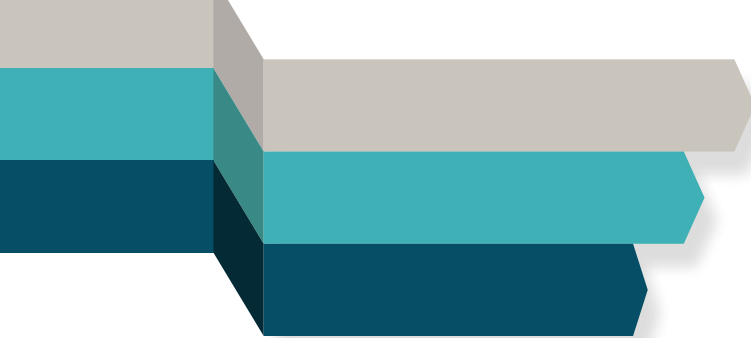
HEGIS reported data collected from public and private two-year and four-year institutions and included eight component

surveys: Earned Degrees/Completions, Employees, Finance, Residence and Migration, Salaries, Fall Enrollment, Institutional Characteristics, and Libraries. For further information on HEGIS, see "The History and Origins of Survey Items for the Integrated Postsecondary Education Data System" (available at <http://nces.ed.gov/pubs2012/2012833.pdf>), a report produced by the National Postsecondary Education Cooperative (NPEC).

Beginning in 1985-86, IPEDS replaced HEGIS and has since become the major federal source for data on college enrollments, degree completions, graduation rates, and other information. Various federal statutes (such as Title IV of the Higher Education Act of 1965, as amended, and Title VI of the Civil Rights Act of 1964, as amended) require that nearly all postsecondary education institutions in the United States and its territories participate in the IPEDS surveys. Due to this mandatory requirement, IPEDS has data on more than 7,000 public, private for-profit, and private nonprofit colleges, universities, and vocational/technical schools.

The IPEDS surveys are completed in three cycles (fall, winter, and spring) beginning in early August of each year. The fall cycle includes the surveys that collect data on Institutional Characteristics, Completions (number of degrees and certificates awarded by your school), and 12-month student Enrollment. The winter collection will include surveys on Student Financial Aid, Graduation Rates, Admissions, and Outcome Measures—the newest IPEDS survey, which provides additional measures of student success. And the spring survey cycle includes Fall Enrollment, Finance, Human Resources, and Academic Libraries.

The data collection for the 2015-16 academic year opened on August 5, 2015. Data from the 2015-16 cycle will generally be



come available for public use within 18 months after the survey data collection begins. IPEDS data are typically reported by each school's institutional research office. Many public and private nonprofit institution systems have an IPEDS coordinator who assists in data reporting efforts.

WHAT DATA DOES IPEDS COLLECT?

Each IPEDS survey component collects valuable U.S. post-secondary data. For example, the Institutional Characteristics survey provides information on institutional location (city, state, urban, rural, etc.), control (public, private nonprofit, or private for-profit), tuition and fee prices by student level (undergraduate, graduate, and professional), and other important identifiers. Human Resources surveys collect the number of faculty and administrative staff employed at postsecondary institutions, by level, race/ethnicity, gender, and other factors.

The Fall Enrollment collects the number of students enrolled on campus by gender and race/ethnicity and by attendance status (full- and part-time). Finance is used to report institutional revenue and expenditures by types and sources—such as state and federal appropriations, private gifts and contracts, etc. Student Financial Aid provides the financial aid and average net prices of college paid by first-time undergraduate students who are enrolled full-time for the full academic year.

WHO USES IPEDS?

By federal law, all IPEDS data must be made available to the public once it is approved for release by NCES. Due to the public nature of IPEDS data, and because nearly all schools are required to complete the surveys, they are useful for a variety of needs. Increasingly, IPEDS serves as a source of consumer information about higher education. Prospective college students and their families can view IPEDS data on NCES's College Navigator website (<https://nces.ed.gov/collegenavigator/>) to compare colleges by enrollment, prices, financial aid, and other factors.

Additionally, policymakers at all levels use IPEDS data to examine schools for their progress toward certain college goals. The Fall Enrollment data, for instance, may be used by policymakers to see if schools are enrolling students of different gender or ethnic groups, while the data from the Graduation Rate survey are sometimes used to see if schools are meeting state goals for enrolling and graduating students within four or six years of entering college.

Many higher education researchers also use IPEDS. Researchers can get data on any school within the IPEDS universe by going to the IPEDS website and searching the Use the Data portal

(<http://nces.ed.gov/ipeds/Home/UseTheData>).

This free service allows researchers to look up and download data for an individual school or a group of schools of any size and type. Researchers can analyze national, state, local, and other trends for the schools they are studying.

IPEDS data are also often used by associations. The National Association of College and University Business Officers (NACUBO), for instance, uses the data annually in order to calculate membership dues and to conduct research on enrollment, financial, and other trends for schools in our membership. For example, the IPEDS data allow NACUBO's staff to produce research without having to send a number of individual surveys to members, thus saving time and providing added benefits to chief business officers and others within the membership.

APPA INSTITUTIONS AND IPEDS

Now that you have an understanding of the definition of IPEDS, the history of the data collection, and the impact on your institution, let's explain the impact it has on you and your institutional membership with APPA and your region.

There are several higher education niche associations that use IPEDS data in various aspects. The majority of these associations use the data to calculate membership dues and for research purposes. In the future, APPA will use it to offer members an enhanced member experience, but for the time being we will use it to calculate dues and for benchmarking such as the Facilities Performance Indicators (FPI) survey and report.

Membership in APPA is organizational for our institutional members. This means that if your institution holds a membership, all staff at your institution may receive member benefits. In our database, each institution has a unique identifying number called a "unit ID." This is how we are able to match your data to your institution each year. Each institutional member, if they are self-reporting and hold their own accreditation, must hold its own membership with APPA and its corresponding region. Membership is not held by the system/district/main office and extended to the institutions or branch campuses within their district.

The IPEDS data does not apply to APPA's Canadian, Mexican, or international, or K-12 institutional members, so those schools provide comparable data to APPA.

APPA FOUR-YEAR AND TWO-YEAR INSTITUTIONAL MEMBERSHIP

As a nonprofit educational association, APPA uses the selected fields of the available dataset that your institution has reported to the U.S. Department of Education and uploads it to our database. If you are a four-year institution, your full-time equivalent enrollment (FTE) and gross institutional expenditures (GIE) are then applied to the dues matrix accordingly. If you are a two-year community or technical college, we simply use your GIE data. In the past, APPA used a range for the FTE and GIE information to calculate your dues. All current members renewing for the 2017-18 membership

year will have a specific data point (FTE value and GIE value) applied to the matrix.

For this year (2016-17 membership year), if you are a two-year institution, you might have noticed a change in your dues structure. In response to a request by the APPA Community College Engagement Group and a discussion by the Membership Committee, we created a separate dues matrix based solely on the GIE and applied it in our 2016-17 dues renewal procedures.

Over the next few months, APPA staff will be reexamining the current four-year dues matrix and the ranges and rates to better reflect the current status of higher education. Currently, APPA has been using FY 2008-09 data. Moving forward, however, we will be using the most recent data available to us from IPEDS in January of the corresponding year. The data is typically delayed by one to two years, so it will generally not be the current (fall) fiscal year data. This means that although we cannot guarantee a change in dues rates next year (increase or decrease), it will set the foundation for us to move forward more effectively as an association to better serve our membership.

APPA RESEARCH AND IPEDS

Higher education institutions are always trying to strive to be the best and benchmarking their institutions with comparable institutions. The IPEDS data will aid APPA in comparing and contrasting data between institutions that are members and nonmembers. In addition, it will provide your institution with the data output to make decisions on a daily and yearly basis.

This data will be used specifically for the Facilities Management Evaluation Program (FMEP) and the FPI. Using this data as a benchmark can assist in justifying increased funding in regards to facilities on a campus. Updating the IPEDS data in the APPA database assists members in completing a successful benchmarking report. We hope that having this large volume of data will provide our members with a more seamless experience as the end user.

In addition to the tools provided by APPA, NCES provides institutions with the opportunity to use their own data. IPEDS produces a premade Data Feedback Report for each institution yearly, using the latest reported data. This report saves institutions from creating their own graphs and tables; online training tool videos are available to you and your institution by visiting the Use the Data Web page on the IPEDS web-

site (<http://nces.ed.gov/ipeds/Home/UseTheData>) and clicking on the first link, Overview of IPEDS Data.

OTHER QUESTIONS?

The data can be a bit overwhelming if you do not interact with it on a frequent basis. IPEDS comes with a user-friendly help desk to assist you in answering any other questions about the various IPEDS surveys. Questions may be sent by e-mail to ipedstools@rti.org or asked over the phone at 866-558-0658.

Also, APPA staff is always available to assist members and nonmembers in understanding the data collected by APPA for your institution, how APPA uses the data to calculate your membership dues, or how the data is translated to the FPI or FMEP. Questions regarding APPA membership or surveys can be sent to membership@appa.org. ☎

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CLOSING THE GAP

BY TIM MCLEAN





Capital planning by definition is more strategic in nature than facilities management. That's because capital planning looks at the long-term use of a building, whereas facilities management is focused on the maintenance of those buildings. However, if both of these teams and systems are not connected and integrated, costly mistakes can be made.

Let me tell you a story: A large public sector organization in Canada had a building that needed its roof repaired. The facilities team did their job—they submitted the work orders, received bids from vendors, and ultimately repaired the roof. What the facilities team didn't know, however, was that the capital planning department had different plans. Just six months after the roof had been repaired, the building was torn down. The cost of the roof repair was in the hundreds of thousands of dollars and all of that money was thrown away. Why did this happen?

The Benefits of Capital Planning and Facility Management Data Integration

Robust capital planning helps ensure that organizations can optimize their building assets—getting the most out of the buildings they have and determining when to remodel or replace. By that same token, a facilities management team using a quality computerized maintenance management system (CMMS) is crucial for educational facility managers to not only efficiently and effectively handle reactive maintenance requests, but to provide preventive maintenance on facility assets. However, if these two groups are not integrated and don't have visibility into each other's dataset, organizations can face significant operational inefficiency and risk spending in areas that don't return the greatest value.

EXPENSE AND INEFFICIENCY

No matter what industry you're in, what country you're in, or what size your organization is, real estate and facilities are going to be your second-largest expense and your largest long-term obligation. And for some they are also the largest capital expense and the largest source of revenue growth. Real estate and facilities are a huge financial lever for every organization on the planet—and the cost to organizations caused by delays and mistakes in this area is in the hundreds of billions of dollars. Added to this, organizations spend \$100 billion in capital renovations and renewals every year. Yet based on customer research, we're seeing organizations wasting 5 percent of their capital budgets on average. So if you do the math, organizations are throwing away \$5 billion annually.



OPERATIONAL CHALLENGES

If we look inside organizations, we can get a sense of the complexity of the problem. Organizations often have four or five different groups managing different functions in real estate and facilities. There's a capital planning

group that creates the plans and defines and funds the project to pursue. There is a separate group to execute the approved capital projects. The facilities group has to maintain those capital assets, and there are other groups that manage space and occupancy, energy management, and so on.

Between all of these groups, there could be a litany of systems that contain information for all the various facets of the organization. Keeping the data up-to-date is crucial to making better decisions on capital expenditures. How does an organization know what to do if the information is inaccurate? How does an organization know they are fixing what is most important?

In order for these groups to attain a true alignment of purpose and resources, each group needs visibility into the data being gathered by other departments. Once groups are aligned in this manner, delays and mistakes can be avoided, especially the huge costs incurred when assets are managed inefficiently.

On the one hand there is the capital planning department that looks at strategic decisions and capital reinvestments for the short, medium, and long term. On the other hand there is the facilities department that ensures the facilities remain operational and are safe for occupants. Both groups have their own data in their own disparate systems, and they are in separate departments that run independently of one another. Communication can get locked, and then the left hand doesn't know what the right hand is doing. These conditions are ripe for costly mistakes. Without integration, time and money is wasted on projects that are not providing maximum value to the organization.

BUILDING A TWO-WAY STREET

Typically, capital budgeting is done at a strategic level. Capital planners are not immediately concerned with how much one length of pipe costs, for example. But on the maintenance side, budgetary dollars need to be translated more explicitly, particularly for mechanical systems.

Although a quality facility assessment is invaluable to forming a capital plan, an assessment is just a snapshot. Five years from now that snapshot is naturally no longer a perfectly accurate representation of the state of an organization's facilities. Buildings have degraded, repairs have been made, and after a given period of time, facility managers are left to

reference data that is out of date and can therefore lead to misallocation of time and resources.

Capital planning already allows for unbiased insight into how funds are allocated. But while a capital planner is thinking five years ahead, the facility manager is dealing with any number of reactive maintenance issues today. An integration of capital planning data with facility maintenance data allows for real-time visibility into the immediate needs of an asset or building.

Instead of information only flowing in one direction at a time, we need to have a two-way street. Capital planning data says, "Go do this," while facilities data says, "I did this." If an exchange of knowledge can be achieved between the two entities, much of the inefficiency we mentioned can be eliminated, and we can fuse the diligence of long-term planning with the here-and-now realities of maintenance management.

Consider another example: When a boiler breaks, the facilities team is likely only replacing individual components as they fail. But being able to cross-reference capital planning data might tell them that the more cost-effective decision would be to replace the boiler entirely. Conversely, capital planners may have intended to replace a boiler after five years of use based on assumptions about its useful life from the initial facility condition assessment. But with access to maintenance data, they can see how well an asset has been maintained and add additional years to the life of that asset. The capital plan can be adjusted every day instead of every five years, which immediately translates to the ability to make better repair-versus-replace decisions.

PRIORITIES AND PREDICTION

A large corporate bank was wasting about 5 percent of their capital expense per year. They spent hundreds of thousands of dollars renovating bathrooms in their buildings rather than addressing serious issues with power transformers. As the bathrooms had more visibility with the employees and executive team, this repair project was prioritized over the more serious power transformer problems. Why did this happen? The bank did not have integrated capital planning and facilities and work order systems, and therefore did not have the proper visibility to make the right decisions.

Although work order systems do projections for maintenance (i.e., via maintenance schedules), there's no prioritization of the work. Facility managers want the ability to prioritize these items along with other requirements. The cross-departmental knowledge gained from an integration of data makes this possible.

Data integration leads to other benefits as well. Facility managers already have details on things like components in their CMMS and don't want to have to double-enter it in a capital planning system, or worry about the two systems synching. Which data is correct? They'd rather pull key

“But while a capital planner is thinking five years ahead, the facility manager is dealing with any number of reactive maintenance issues today.”

insights from the maintenance data to inform capital planning, and vice versa.

Integration provides the opportunity to flag costs that are out of line based on history. For example, if an asset with a 10-year life had 75 percent of its replacement cost spent in the first five years, the application would flag the asset as potentially needing earlier replacement. This kind of information also presents the opportunity to predict failure or a need for renewal based on historic data for similar systems and components.

THE COSTS OF DOING BUSINESS

To get a better sense of just how much complexity and time can be saved by integration, we can take a closer look at some of the cost centers for facility managers and planners. The two cost categories at hand (capital and maintenance) form part of a complete cost picture of which facility managers need clear visibility. That includes:

Birth and burial expenses—One-time costs from concept to bidding, financing, construction, and installation, and projection of expenses for eventual decommissioning, demolition, and disposal.

Annual recurring expenses—Associated with day-to-day maintenance and operations, including utilities and expenses involved in equipment maintenance, custodial services, grounds upkeep, and security.

Recapitalization costs—Include periodic recurring expenses such as retrofits or improvements, and projects such as remodeling or equipment replacements.

Obtaining visibility into the events that lead to these costs escalating is a primary driving force behind the need for unity between strategic and operational systems.

UNIQUE CHALLENGES FOR INSTITUTIONS

All organizations have baseline standards that must be met. State and local building code compliance is one example. Integrating those kinds of specific requirements into your facility capital planning, while simultaneously allowing visibility to facility managers, can ensure that any investments you make to your facility portfolio adhere to these parameters and are properly maintained over the years.

But the education and public sector industries also face another, more specific issue: an aging infrastructure. Many buildings, which were built decades ago, are now in need of major renovations in order to ensure optimal operation of key

functions. But the decreased availability of capital for local governments and universities across North America has created a large maintenance backlog for facility managers—increasing risk and creating challenges when it comes to prioritizing departmental needs. By integrating capital plan and maintenance databases, organizations can optimize their budgets to ensure that their buildings meet the needs of occupants, either in the long or short term.

MAKE BETTER SPENDING DECISIONS

The benefits of an integrated system are clear: You can have an operational *and* strategic view across your portfolio, and you can align those investments with organizational needs. From there, department leaders can match operational investments with strategic priorities, maximize their budgetary spending, and enhance communication between departments. All of this is a result of streamlining the exchange of information. Facility managers can both contribute to and benefit from the free flow of information—sharing the data they have with others as well as taking advantage of the data from other departments. This allows for a standardization of data across systems.

So instead of having stand-alone systems with disparate data, university and government organizations can unlock the power of bringing these systems together. Capital planning and facility managers gain the ability to have data flow where it is needed, from requirements and work requests to maintenance data and condition information, leveraging the right information at the right time for the right decisions. 💰

Tim McLean is the associate vice president of strategic accounts at Accruent, which is based in Austin, TX. He can be reached at timm@accruent.com. This is his first article for *Facilities Manager*.

Deferred Maintenance

Data Gathering and Presentation

By Tim McDonald





APPA's online glossary defines deferred maintenance as the total dollar amount of existing maintenance repairs and required replacements (capital renewal) that were not accomplished when they should have been, not funded in the current fiscal year, or otherwise deferred. Related terms include deferred capital renewal, accumulated capital renewal/deferred maintenance, maintenance backlog, and asset needs index.

We often begin our discussions on the topic of deferred maintenance at a high level with some questions: How much of a deferred maintenance liability do we have? How do we present the facts so that we can receive funding to reduce deferred maintenance? What are the effects of increased deferred maintenance on our long-range planning? However, in the words of Sherlock Holmes, "It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts."

But there are other questions that are just as important for us to ask: How have we gathered our deferred maintenance data? How is it tracked? What steps are we taking to ensure that our managers receive data that they can act and plan on?

As a person who does not make the high-level decisions regarding deferred maintenance, but rather one whose job it is to provide information to my supervisors at the University of Alberta, the above questions are important to me and should be important to every

postsecondary institution facing the issue of deferred maintenance. In this article I will discuss some strategies and practices that can help your managers make those all-important decisions and plan effectively to manage your campus deferred maintenance.

LET'S MAKE AN INVESTMENT IN DEFERRED MAINTENANCE DATA GATHERING AND REPORTING

To obtain solid, useful deferred maintenance information from which both short-term and long-term decisions can be made requires some level of investment by the institution. There is always that fine line that managers need to tread between *investment in information* and *investment in actual remediation* of deferred maintenance problems. In some cases the funding may be coming from the same source, thus making it a tough call for managers as to how much of an investment should go toward data gathering.

There are three main investment areas when thinking of a long-term deferred maintenance tracking strategy.

1. Building evaluation studies.

How do we know the condition of our buildings without a proper and thorough evaluation of all of their systems—structural, architectural, mechanical, or electrical? Whether via outside consultants specializing in building evaluations or via internal evaluations from staff, it is important to get a clear picture of the condition of our facilities. Core buildings should be evaluated at reasonable intervals and on occasion before or after major renovations or upgrades. If a long-term plan or rotation of building evaluations can be established, all the better.

2. Deferred maintenance tracking software.

How do we organize and maintain the data we have acquired from evaluating our facilities? Some sort of specialized commercial software is often used for larger institutions with many buildings and many maintenance issues. Small institutions may use commercial software or even something as simple as a spreadsheet. Other institutions, such as those with specialized programs or primarily a research focus, may create their own internal software solutions. Regardless of which route is chosen, these institutions must invest in software and often in the accompanying computer hardware as well.

3. People to maintain data and produce reports.

Once we have valid, up-to-date data and a method for tracking

it, producing reports, and generating scenarios regarding deferred maintenance, we will need someone reliable and informed to look after it. It is advantageous to have a person who knows the significance of the data they are looking after; they can give their supervisors valuable information that will be helpful in planning, and they will be able to spot particular success or trouble spots in our long-term deferred maintenance tracking. It is a wise investment to make the duties of deferred maintenance tracking a core part of an employee's job, rather than just an ancillary part of their duties or part of the duties of a high-turnover position.

LET'S ALL SPEAK THE SAME LANGUAGE

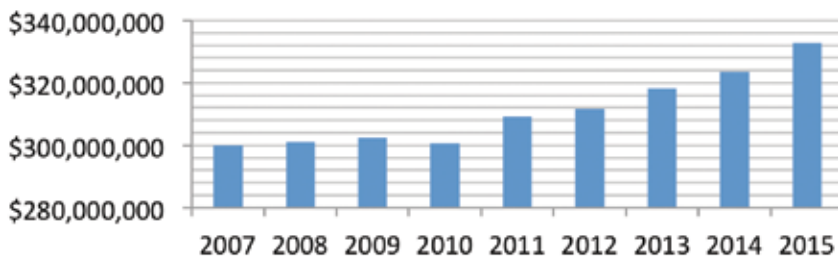
One important thing to consider in regards to the reporting and presenting of deferred maintenance data is to ensure that all stakeholders are on the same page as far as the definition and relevance of the data. There can be an assumption that everyone has the same definition of what deferred maintenance is and how it should be reported, but this is not always the case. In addition, there can be differences of opinion on what kind of data is most relevant to all parties involved: How relevant is a building's Facility Condition Index (FCI) versus actual dollar costs of deferred maintenance attributed to that building? Are certain categories of deferred maintenance deemed a higher priority than others?

It is important for those responsible for the actual deferred maintenance data to have a clear understanding of what data their managers or supervisors require on an ongoing basis. Clear, consistent information will allow the manager to make the best decisions as to how to allocate funds for deferred maintenance remediation and for making the case for increased funding when it comes to deferred maintenance. It is also important that the manager and the person to whom he or she is presenting the funding needs are on the same wavelength as far as what is considered relevant data and how various data points are defined.

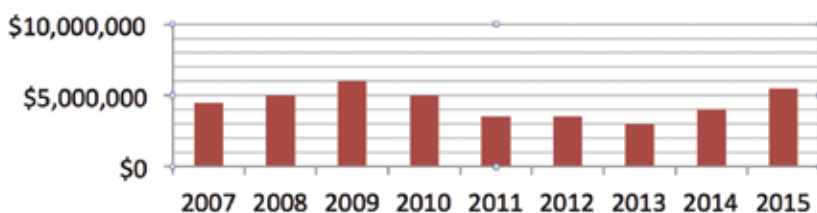
LET'S BE CONSISTENT IN HOW WE TREAT DEFERRED MAINTENANCE DATA

The more that data is handled and reported in a consistent manner from year to year, the more valuable that data can be for benchmarking, long-range planning, and historical reports. Data tends to be more meaningful if you arrange it within the same parameters over time. Collecting data and running reports on it not only with the same parameters but also within a consistent time period is also helpful.

Historical Deferred Maintenance
(sample data)



Historical Deferred Maintenance Reduction Funding
(sample data)



To achieve this we need to ask ourselves another series of questions: Do we run reports at the same time each year? Just before or just after a fiscal year end? Do we store this information in a secure consistent location so that it can be accessed when required by more than one person?

Data that is mined on a consistent basis often holds more clout and paints a better picture of deferred maintenance trends than a series of different or one-off reports. If your manager asks you for deferred maintenance numbers over the last five years just prior to year-end, will you be able to provide that data? Can you effectively create trend-based multi-year reports that are meaningful because you have used the same parameters to calculate your deferred maintenance values?

LET'S INVESTIGATE AND VALIDATE OUR DEFERRED MAINTENANCE DATA

As you analyze and examine your deferred maintenance data over time, sooner or later numbers will crop up that don't seem to make sense or are unexpected. I recall taking an organic chemistry lab class years ago in which the instructor told the class that it is okay to get results you do not expect as long as you can document why you ended up with those results. Deferred maintenance tracking is similar. There is almost always a valid reason why the numbers are not what you thought or hoped they would be, and the reasons may be out of your control. For example, let's look at the FCI, a standard by which we look at overall building condition.

This index represents the current replacement value of a building *divided by* the building's estimated deferred maintenance. We often focus on the maintenance issues and the calculated FCI percentage, but what happens if adjustments are made to the current replacement value of the given



University of Alberta data via 2014-2015 Facilities Performance Indicators (FPI) Survey

Gross Square Footage of Facilities: **13,040,562**

Replacement Cost of Facilities: **\$7,360,226,819**

Number of Buildings: **319**

Average Age of Mission-Critical Buildings: **34.7 years**

Number of Facilities and Operations Employees: **481**

Needs Index: **21.71%**



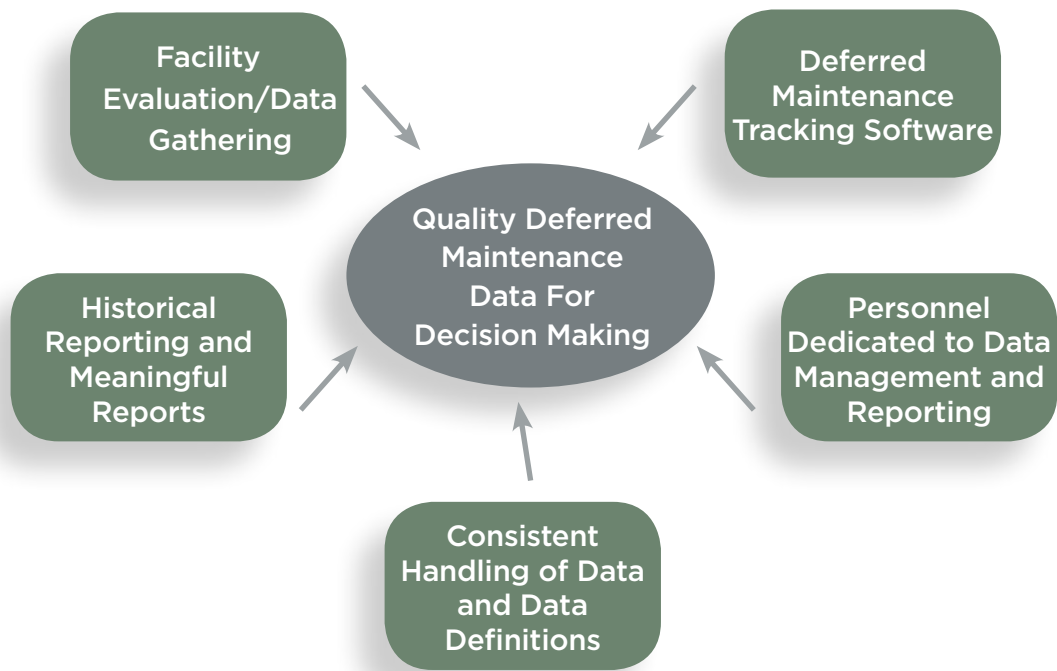
Above: University of Alberta Corbett Hall.
Left: University of Alberta Arts Building.

Photos courtesy of University of Alberta.

building? The FCI will be changed without any real change to the condition of the building or the deferred maintenance estimates. There are a number of measures you can take that can make these kinds of data investigations easier.

Run a full set of your favored reports before and after any potential mass data changes. Examples of ideal times for this would be before and then after buildings have had condition assessments; before and after the fiscal year ends, when elements such as inflation may be applied; and at set points during the year (an example of this may be quarterly reports). If

Decision-Making Flowchart



you clearly understand all the things that can affect your data, it will make any investigation into that data easier.

Deferred maintenance data can be a big picture (total deferred maintenance data for all of your facilities) separated into many small pictures (deferred maintenance for each of your facilities) and should be looked at as such. You can certainly have a trend of increasing total deferred maintenance for your institution due to increasing age or cost inflation and still have some great individual building success stories as far as deferred maintenance reduction is concerned. It is important to search out and document these successes so they do not get lost in the big picture.

LET'S GIVE OUR SUPERVISORS THE INFORMATION THEY NEED TO MAKE GOOD DECISIONS

Often the people who make decisions based on deferred maintenance data are not those handling the data and providing the reports based on that data. Decisions based on data are only as good as the quality and clarity of that data. Decision makers are more than ever so busy that they need to be able to rely on their staff to provide clear and concise data. Providing too much data can be nearly as bad as not providing enough.

I tend to follow a habit of providing my supervisors only the data and reports they need to answer the question posed or the request they have made, but at the same time letting them know that I can provide more data or delve deeper if requested. Handing them a huge mass of data to answer one question can do

more harm than good and can cloud an issue.

You can still feel free to inform supervisors of small data points or changes you feel may be of interest to them even if they do not request it. You do not want to inundate them with data and reports, but in most cases they will appreciate a heads-up regarding deferred maintenance data whether it is of the “good news” or “bad news” variety.

Be responsive to your supervisor's requests. Try to have your data organized in such a fashion that you can respond quickly to deferred maintenance data requests. If you are having problems in this area due to workload or other responsibilities, let your supervisor know and get clear directions as to what is to take precedence.

If you follow the majority of the points listed above, the net result will be solid deferred maintenance data arranged and accessed in an efficient manner and presented to the decision makers in a way that will allow them to make good decisions. In the long run, investments in data gathering, data storage, reporting, and people to look after and process the data will be seen as a worthy investment. You will indeed have facts to base theories on rather than insufficient data that can be twisted to suit theories. 💰

Tim McDonald is deferred maintenance specialist at the University of Alberta, Edmonton, AB, Canada. He can be reached at tim.mcdonald@ualberta.ca. This is his first article for *Facilities Manager*.

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We will offer topical content in the following areas:

Preventive Maintenance for People

- Check Mate – Matching the Right People for the Right Job
- What Are You Worth? – Recognizing Your Value

Space: The Ever Changing Frontier

- Your Space, My Space, Our Space – Partnering With Academic Colleagues
- It's All One Big Sandbox – Best Practice In Flexible Space Usage

Economy

- Where Did My Tuition Go? – Funding Usage and the Impact on Facilities
- My Piggy Bank Is Full – Understanding the Benefits of Energy Credits

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Leave them Laughing!

APPA/SRAPPA/TNAPPA are pleased to announce our opening breakfast speaker, **Dr. Stuart Robertshaw**, who will kickoff our 2016 historic event with the Healing Power of Humor. Robertshaw, professor emeritus of psychology and education at the University of Wisconsin-La Crosse and an attorney, will share his personal insights on the benefits of humor. He will also share what he has learned about the psychological and physiological benefits of humor and laughter as they relate to how we take care of ourselves, our friends, and our loved ones.



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PLUS BONUS PROGRAMMING

Emerging Professionals Summit (EP Summit) and our Senior Facilities Officers Summit (SFO Summit)

As APPA continues to ensure the strength of our organization's future, we bring together our future and our legacy through the unique formatting of the EP Summit and SFO Summit. Programming this year for these distinct constituency groups will deliver content specific to their needs as professionals, while offering critical topics for crossover learning. The 2016 'Crossover Networking' opportunities are:

Remaking the Facilities Organization

Join us for our breakfast presentation to discuss the realities of today's facilities organization as the world is rapidly changing around us. How will we meet the challenges/opportunities brought on by the changes in workforce demographics, innovative pedagogy, and even more rapidly changing technology? Is the current hierarchal organizational model still relevant? Will our emerging professionals embrace the same old way of doing business? This joint Senior Facilities Officers (SFO) and Emerging Professionals (EP) session will dive into the issues of the organization of the future. After the presentation, join in group discussions to further explore the topic, and share your thoughts with all summit participants.

BONUS: Jack Colby, APPA's Thought Leaders Chair, will deliver an executive update as part of this session.

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You have heard of speed dating, so join in as we make a twist to this phenomenon, and spend time with the SFOs sharing lessons learned and gaining a better understanding of today's rising facilities professionals. This fast-paced, knowledge-transfer activity will not only be informative, but also a lot of fun. Come prepared to share your love of our profession, and learn something unexpected.

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Seats are limited for both these pre-conference sessions that will be held July 11, 2016 from 8am – 5pm. We encourage you to register early. As a reminder, your registration for either summit will also provide you full access to the APPA/SRAPPA/TNAPPA 2016 Annual Meeting and Exposition.

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For reservations please call 615.255.8400 and mention APPA to receive the special conference rate.



Growing Grassroots Green Teams

By Shannon Bunsen and James Harrod

At UW Health, the University of Wisconsin-Madison's integrated health system, environmental sustainability is part of our mission for social responsibility—doing what is best for the communities we serve. We recognize that sustainability is not only good for the community, but for the institution as well. It can be a mechanism for transforming culture and achieving organizational success that can benefit everyone. We also recognize the influential power of passionate change agents, and we're reaping the benefits of tapping into that power.

Our sustainability committee and subsequent programs started as grassroots efforts; they were formed in response to staff's recognition of an unmet need. Progress has been made primarily due to our employees' desire to create a healthier and more environmentally sound UW Health community.

The first seed was planted in 2009, when three UW Health employees created an initiative to promote sustainable practices at our University Hospital, using Earth Day as their platform. Over time, the group expanded its efforts, scope, and presence by meeting with department leaders to build support and recruit members.

In 2011, the Green Team program was given the charge to expand sustainability efforts to other UW Health facilities. All employees were invited to get involved if they were interested and able. The program was facilitated by visiting clinic managers, surveying interest among their staff, and scheduling a kickoff meeting. In 2014, we changed our strategy and sent an e-mail to all directors and managers, inviting them to encourage their staff to start a Green Team. We now have more than 20 teams, with a goal of having at least one at every UW Health location.



WHAT ARE GREEN TEAMS?

Green Teams are groups of employees who work together to introduce sustainability to their workplace and improve current practices or processes. They are the champions for sustainability and encourage environmentally conscious behaviors among colleagues each and every day. The purpose behind these groups is to provide an outlet for change agents, inspire new ideas, increase efficiency and reduce waste, engage staff and develop leaders, have fun, and contribute to our culture of sustainability. New teams attend an orientation in their area where they are introduced to project examples, available resources, and tips on how to be an effective team. Although the specific function of a Green Team is flexible and can take on different roles in the organization, all teams start out by evaluating the current state of their workplace and by performing surveys, trash audits, and recycling rounds. Establishing a baseline has led to projects such as break room composting, employee gardens, and energy improvements.

Some teams are multidisciplinary, such as our perioperative team; they are working to reduce the



The UW Health Green Teams at work.



Used with Permission.

environmental footprint of operating room waste and anesthesia waste gas through education and simple changes in practice. Another team is made up of nurses on a single unit who bring photos of nature into the hospital for the benefit of their oncology patients. Many of our clinic teams hold donation events where staff can drop off unused items that can benefit someone else. Green Team projects may be site-specific or spread across the entire organization, such as the automated double-sided printing initiative. The ideas are endless.

HOW TO CREATE A GREEN TEAM

To help your Green Team be successful, we offer the following tips:

- It starts with ensuring management support; if you can connect sustainability work to the organization's mission and strategic goals, you will get leadership buy-in. You should also be specific about what you are seeking. For example, say that you need support for dedicating X work hours per month to Green Team efforts. By including a manager on the team, you can streamline the decision-making and approval process.
 - Invite all employees to participate by utilizing existing communication avenues paired with some strategic recruitment tools, such as personal invitations to existing environmental stewards.
 - Have clearly defined roles for participants based on *how they want to contribute and what skillsets they possess*. Be mindful that you do not let all responsibilities fall on the leaders so that sustainability work becomes a burden to them.
- Engage partner resources such as those offered by your city or local nonprofits.
 - Meet regularly, and when time is a barrier, consider lunch meetings or a less frequent meeting schedule.
 - Pursue low- or no-cost projects first to prove their efficacy. Try setting up a sustainability budget by reclaiming funds from programs that incentivize energy efficiency work.
 - It is imperative that Green Teams measure the impact of their efforts whenever possible, and remember that failure to achieve perfection should not prevent progress. When goals are met, celebration should follow.
 - Consistent communications should be maintained with each other and the rest of the workforce—and *message delivery is just as important as content*. As champions of sustainability efforts, Green Teams are interacting with and influencing others directly every day. While many people are keen to jump on board with green practices, others may be apprehensive and resistant to change. We encourage Green Teams to keep the following in mind:
 - » *Know your audience*. Think about what is important to each person and try to frame the benefits of sustainability appropriately. When talking to your finance department, highlight the cost savings of your sustainability work. A person with children may react better to understanding that sustainability is a responsibility to the next generation.
 - » *Commitment leads to action*. Awareness and

education alone do not change behaviors. People who commit to an action are more likely to follow through on it, so ask for a commitment. It could be as simple as turning off computer monitors each night.

- » *Keep it simple.* People are more likely to engage in green practices when it's easy to understand and convenient. If you tell them too much, they will do nothing. For example, rather than posting a long list of recyclables, try to highlight a different item each week.
- » *Explain the why.* Behavior changes occur when people understand how the benefits outweigh the barriers, and how the benefits can affect their lives and community.
- » *Recognition goes a long way.* Interpersonal communications and social norms *do* have the power to influence behavior, and people are more motivated by love than by fear. Provide positive reinforcement for being a sustainability champion.

At UW Health, we recognize that sustainability work is part of everything we do; it is not in addition to our jobs, but rather *how* we do our jobs. If we look through a lens of sustainability, we can evaluate how to do our daily work with a better environmental impact. Everyone contributes to our sustainability initiatives, as we all generate waste, use energy and water, make purchases, and engage in other decisions that affect environmental outcomes. We encourage our staff to find a meaningful connection to sustainability, whether it be a desire to protect the area's lakes or promote public health and wellness. We have made great progress in our sustainability efforts, but we still have a way to go. ☺

Shannon Bunsen is sustainability specialist at UW Health, Madison, WI, and can be reached at sbunsen@uwhealth.org. This is her first article for *Facilities Manager*. James Harrod is business and operations manager at UW Health and can be reached at jharrod@uwhealth.org.

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Why Microgrids? Why Now?

By Edward “Ted” Borer, P.E., CEM, LEED AP

You’re already managing a big facility. Why add responsibility for operating a miniature power grid, too? First, let’s agree on what a microgrid is and isn’t.

WHAT MICROGRIDS ARE

Microgrids operate as subsets of the larger regional electric power grid. They include at least some power distribution cables between the utility interconnection point and the buildings or other loads being served.

Microgrids include some form of controllable power generation on the customer side of the utility’s meter, too. When the utility grid is in service, a microgrid can operate its generator synchronized to the utility grid. When the utility grid fails, the same microgrid can operate autonomously.

Microgrids typically have a single interconnection point with the utility grid and a contract governing such things as technical requirements for safe interconnection, capacity limits for exporting and importing power, maintenance responsibilities, communica-

tion protocols, applicable tariffs, and billing terms.

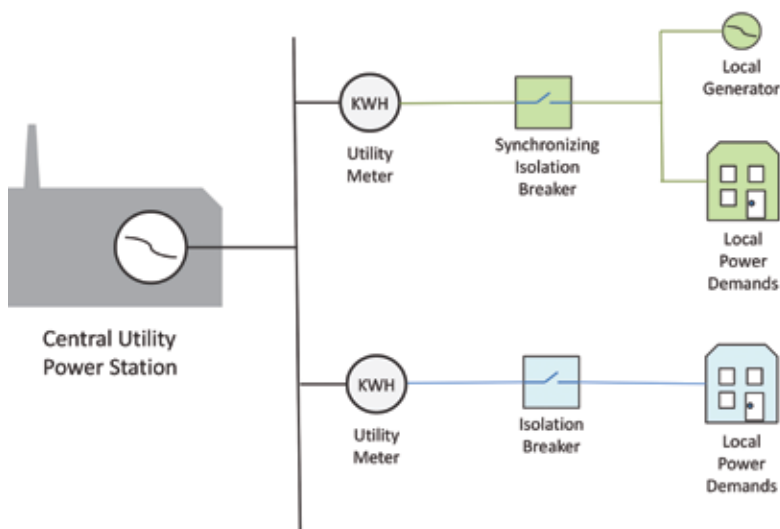
Microgrids are common on university campuses, military bases, at hospitals; and airports, and in large industrial facilities. Some municipalities, resorts, and planned communities include microgrids. It is the microgrid’s key capabilities, not the form of ownership (private, cooperative, government, or utility) that define it.

WHAT MICROGRIDS ARE NOT

What wouldn’t meet the definition of a microgrid? A diesel generator that is only permitted for emergency use, can’t synchronize with the utility grid, and supports only life-safety and emergency loads is not a microgrid. Since it can’t synchronize with the utility grid and doesn’t support even a pared-down version of normal operations, it’s lacking important microgrid features.

Similarly, a solar photovoltaic (PV) array that does not include batteries with advanced inverters or some additional form of controllable power generation cannot be considered a microgrid. It lacks the ability to match power production to real-time demand and cannot operate autonomously.

Simple Microgrid Concept



MAINTAINING MISSION-CRITICAL LOADS

Microgrids are designed to maintain an organization’s mission-critical loads in service when the utility fails. Many can support all loads, or all but nonessential and deferrable loads.

Microgrids can save money. A microgrid’s onsite power generation is often part of a cogeneration and district energy system. Combined heat and power (CHP) systems are often twice as efficient as central utility stations that are not designed to take advantage of the heat that is a byproduct of power generation. When thermal energy (heating and/or cooling) is needed along with electricity, it can be significantly less expensive to generate them together rather than separately. Microgrids with CHP reduce air emissions, too. The same fuel efficiency that reduces the cost of heat and power also reduces net emissions.

Microgrids benefit not just the owner but the surrounding community in multiple ways. Industrial and commercial customers paying real-time power rates can benefit from nearby microgrids even if they don't have a system themselves. Microgrids that are "economically dispatched" increase power output when they can generate power less expensively than buying it from the utility grid. They decrease power output when their "marginal cost to generate" is higher than purchased utility power. This obviously results in savings to the owner. But it effectively reduces neighboring costs by displacing more expensive power across the grid.

Real-time power is most expensive at times of greatest demand, when the grid is most stressed or there is "congestion" in the local power distribution zone. By generating power and minimizing their demands on the grid during peak times, microgrids can help reduce the requirement for additional utility generation, transmission, and distribution assets—costs that are passed on to the ratepayers.

During regional emergencies, microgrids can become islands of refuge. If utility service is interrupted by a large storm, the presence of even one microgrid in a community can make an important difference. During Hurricane Sandy, several central-Atlantic microgrid operators opened their facilities to first responders and community members to allow them a place to meet, dry off, and charge telephones and radios.

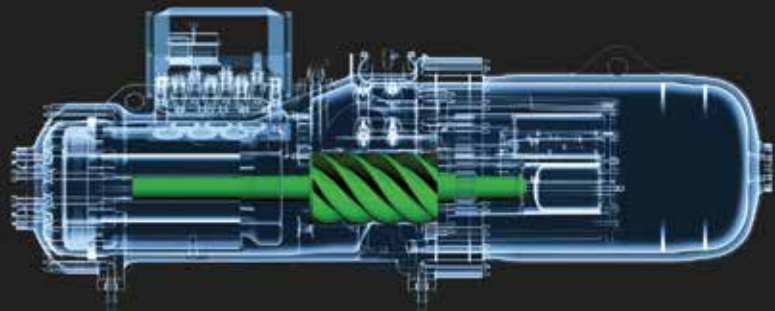
A NEW REVENUE STREAM

Microgrids offer the opportunity for new revenue streams. Some more advanced microgrid operators sell ancillary services to the independent system operator (regional power grid operator). Ancillary services may be such things as additional power generating capacity, black-start capability, power-factor correction, or frequency and voltage support. Selling these services takes a higher degree of contractual sophistication and controls, but does not always require huge additional investments in equipment.

Like any other large project, establishing a microgrid in an existing facility can be technically complex and requires managing a daunting level of administrative details.

But facility owners who saved money while reducing emissions and kept the lights on through just one large storm while the rest of the town was dark consider microgrids among their most important assets. ☺

Ted Borer is energy plant manager at Princeton University in Princeton, NJ. He can be reached at etborer@princeton.edu. This is his first article for *Facilities Manager*.



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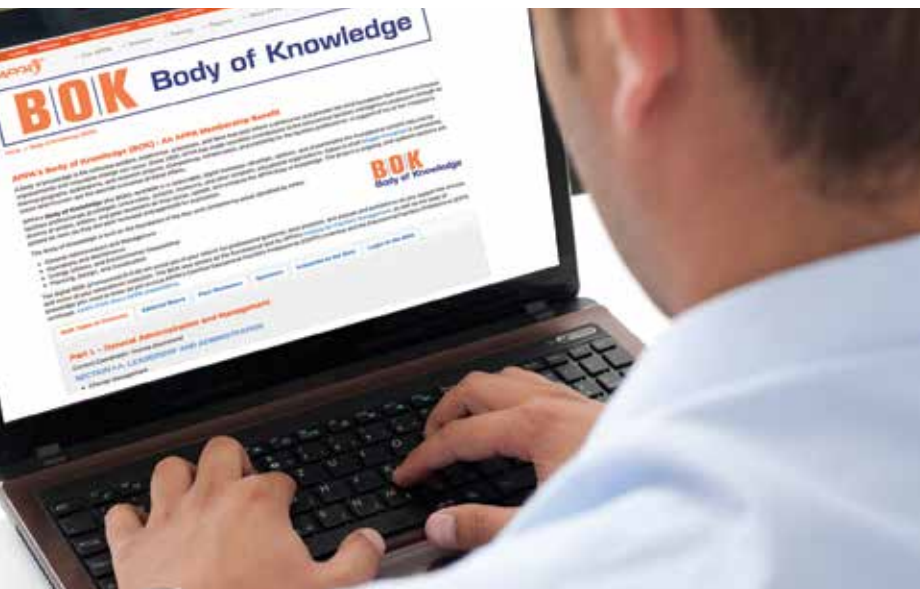
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Make the BOK Yours

By Victoria Drummond, AICP, CEFP



While change is inevitable and often painful, it is also necessary for solving problems. As facilities management (FM) continues to evolve and change, we need to be prepared. Ushering in creative change involves continual professional development. APPA makes it easy to take responsibility for your professional growth in FM.

APPA has the resources to inform you and prepare you and your facilities operation for change. A readily available online resource is the Body of Knowledge. The BOK categorizes information into four parts:

- Part 1—General Administration and Management
- Part 2—Operations and Maintenance
- Part 3—Energy, Utilities, and Environmental Stewardship
- Part 4—Planning, Design, and Construction

The BOK is a collection of dynamic readings relative to FM, data on trends and emerging technologies, and case studies that demonstrate applied excellence in the various realms of facilities management and administration.

THE CURRENT BOK

New to the role of Content Coordinator for *Part 1: General Administration and Management*, I am impressed with its extensive coverage and descriptive chapters, as well as its potential for including additional material. As academic disciplines, administration and management are social sciences that study how organizations direct resources according to priorities, data, policies, procedures, and effective interactions with stakeholders. Applied to FM, the BOK Part 1 includes chapters on accounting, change management, leadership, financial analysis and control, talent management, communications, ethics, and staff development under the auspices of administration and management.

New subjects currently being developed as possible chapters include budgeting practices and strategies and customer service. Other subject areas could include:

- Information management technology's impact on management operations
- The impact of hand-held devices on FM jobs and their role in improving customer service
- Incorporating succession planning into onboarding programs for emerging professionals
- FM records storage and archival processes that begin with managing digital correspondence
- The value and challenge of managing national historic buildings and historic districts on campus
- The role of the administration in space management and capital project development, including "fee for use" policies in negotiating space assignments
- Topics from other BOK sections with management and administration crossover

Another topic gaining increasing attention is how to manage cultural change within your administration. Community culture can be cultivated from the grassroots to the administration, or vice versa. Regardless of the direction, affecting the culture

of an institution requires a plan, political will, and stakeholder participation. One example of a successful cultural shift is campuses that previously did not take a stand on tobacco use now formally establishing a tobacco-free campus. Several institutions are interested in the methods and management commonalities of campuses that successfully transitioned to tobacco-free status and are searching for guidance to help them introduce the change on their own campus.

Managing cultural change also includes expanding inclusiveness and gender neutrality, and encouraging programs that develop leaders at all levels of the institution. These topics are not without controversy, but they are current issues and can affect change within FM and institutional administration and management.

YOUR INVOLVEMENT IS CRITICAL

Make the BOK yours. Let it serve you and your operations. Refer to it and use it as a reference for APPA's EFP/CEFP exam preparation.

As a way of taking personal responsibility for your professional development, consider writing a chapter for the BOK. Chapters do not have to be written by an individual author; they can be a joint effort. Consider forming a team with colleagues or let me introduce you to others with the similar expertise on a topic. Just as in live presentations, panels tend to be livelier, and collaborative approaches ensure diverse perspectives.

You can contact me to discuss research you have collected, the colleagues you want to interview, or a successful process you know will benefit others. Send me an e-mail about areas of administration and management you feel are underrepresented in your vision of FM for the future, or about how your operation is responding to the exodus of baby boomers and the increase of digital natives and short-term professionals into FM. Or send me your ideas on how advancing technology can positively influence FM, institutional administration, and higher education management.

Let the BOK and your participation in

it be educational and transformative, both to you and our industry. ☎

Victoria Drummond is associate university planner at Montana State University, Bozeman, MT, and can be reached at victoria.drummond@montana.edu.



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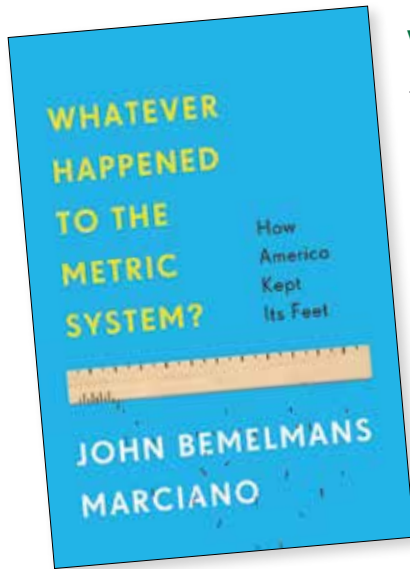
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Book Review Editor: Theodore J. Weidner, Ph.D., P.E., CEFP, AIA

There's more to books for facility managers than the dry, technically focused tomes that often serve as reference volumes for the office bookshelf. That said, it is important that I continue to provide recommendations of a technical nature. To accomplish that goal, this column looks at two books of very different focus and approach. One is good summer reading, the other mandatory for future survival.



WHATEVER HAPPENED TO THE METRIC SYSTEM? HOW AMERICA KEPT ITS FEET

John Bemelmans Marciano, Bloomsbury, New York, NY, 2015, 185 pp., hardcover, softcover, and Kindle.

I have been an advocate for the use of the metric system, or International System (SI), for many years. In the 1970s I purchased the *VNR Metric Handbook*, a reference similar to *Graphic Standards* or *Time-Saver Standards*, books used by architects to facilitate planning and design projects. I also subscribed to the National Institute of Building Sciences periodical *Construction Metrication* until it ceased publication in 2001. For a while, I was preparing a department that I led to utilize SI units instead of English or Imperial units. Indeed, the entire country was headed that direction until the movement to go metric was brought to a halt.

What happened? What went wrong? Why is the United States the only major industrial nation stuck in a pre-Industrial Revolution measurement system? To some extent, *Whatever Happened to the Metric System?* has some answers. Sad to say, not all the answers, but enough so that it is an informative and enjoyable read.

First, recall that the Age of Reason, which brought about the French Revolution, numerous scientific discoveries, and spawned the Industrial Revolution, sought to find a measurement system based on nature and not on the size of the king's foot or another variable unit. There was also an effort to standardize how things were measured so that a bushel in one village was the same as a bushel in another village. Previously, such a uniform system hadn't been very important because commerce was conducted by knowledgeable traders. But after the development

of the steam engine, people could move farther and faster, and trade increased, so that local measurements needed to be standardized for fairness and better commerce.

The last big attempt to move the United States to metric occurred in the late 1970s and 1980s. Canada converted to metric, and now even England has, for the most part (remember that feet and inches are English units). But the United States stopped its efforts, at least the efforts that normal citizens feel. We still measure in feet, inches, and miles; the British retained miles, but not feet—go figure, but you can still get a pint of beer! (If you think about it, the United States uses multiple units too: soda pop comes in both ounces and liters. We all use watts, lumens, ohms, seconds, and degrees (geometry), but we don't all use meters, joules, or newtons.)

The point of *Whatever Happened to the Metric System?* isn't to make you worry about what units you're using. Whether you're on SI or Imperial (English) units doesn't generally matter—being familiar with the units you are using is more important. The most interesting part of the book may be what it tells us about the history, political intrigue, and social relationships of the late eighteenth and early nineteenth centuries. I learned plenty about the development, ascension, modification, and implementation of the metric system over nearly 200 years. I also learned a great deal about the social and political history of France, the United States, and other nations.

Whatever Happened to the Metric System? is a good summer read that has something for everyone. If you enjoy history, physics, or engineering, you should enjoy this book.

DEVELOPING LEAN LEADERS AT ALL LEVELS: A PRACTICAL GUIDE

Jeffrey K. Liker, with George Trachilis, Lean Leadership Institute, 2014, 265 pp., softcover \$29.95.

We've all heard the phrase "doing more with less" probably too often, particularly if we've just been through another round of budget cuts in preparation for the next fiscal year. However, the days of doing more with less have long passed—we need to think differently; we need to think *lean*. That's where *Developing Lean Leaders at All Levels* comes in. We need to find the places where we're doing things that don't make sense, don't add value, or don't keep people focused on producing what is needed as opposed to "doing it the way we always have." Because, frankly, the way we have always done things is changing.

I've reviewed books like *Who Moved My Cheese* and *What is Six Sigma?* but seen nothing as detailed or that focuses on lean the way *Developing Lean Leaders* does. As with so many books of this kind, there are numerous stories and scenarios used to demonstrate the value of leadership, and in this case, lean leadership. But what's different and significant about *Developing Lean Leaders* is its focus on Toyota's lean methods. The book focuses totally on Toyota's methods and includes several sample forms and detailed descriptions of the techniques Toyota uses.

Rather than spending time outlining the details of the book, which is excellent but requires significant time to fully analyze, let's focus on the need for more than just a few people in an organization to familiarize themselves with becoming a lean leader. A recent article, "American Workers Rank Last in Problem-Solving with Technology," says it all (*Wall Street Journal*, March 10, 2016). Though there are a select few who develop some terrific solutions in U.S. industry, which are then marketed throughout the world at significant financial gain, the problem-solving skills of everyday managers and supervisors seem to be stuck in the same old, "we've always done it this way" mentality, rather than engaging in deeper thinking to find the root cause of a problem.

Sadly, as the article reports, we're spending too much time "fixing" perceived problems and not enough time thinking about where and what the problems really are, then using the appropriate technology for a real fix. We seem to think lots of action or computation means success, when in reality it simply means we're expending energy without paying attention to the amount of energy really required. It is an unsustainable process that we keep trying to sustain because we haven't learned lean problem-solving skills at many levels within the organization.

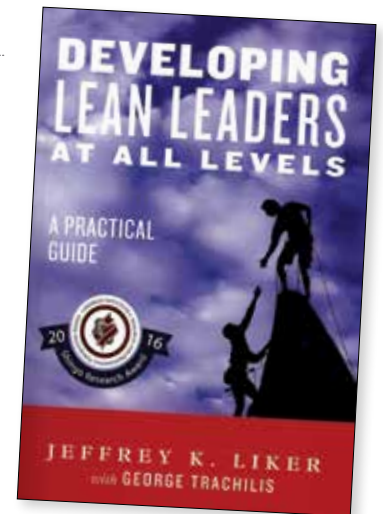
I see this issue at institutions, businesses, and organizations; it's perpetuated by people who claim to be smart and who really should know better.

Lean is not just a different way of tackling problems. It's a different way of living and working. It also means continuous learning for self and others. Too often, we think a seminar will teach us everything we need to know to return to work and "be lean." Just as with diets, you don't stay lean by applying the diet once; it is necessary to change the way one eats.

Lean is a way of life and an attitude for solving and looking at how things are done. The day when applying lean to facilities becomes the norm is getting closer than previously thought, as U.S. and international representatives work to develop International Organization for Standardization (ISO) standards for facility management. These standards will utilize many of the tools and techniques used by APPA, including lean.

It's time to stop rushing to solutions and to start taking time to find the problems first. Utilizing PDCA (plan-do-check-act/adjust) cycles and recognizing improvement isn't a one-off effort; it is a process requiring patience and diligence. Reading and using *Developing Lean Leadership at All Levels* will help the senior financial officer (SFO) and many others in an organization deal with the many problems we face with reduced operating funds and growing capital renewal needs. ☺

Ted Weidner is an associate professor at Purdue University, West Lafayette, IN, and consults on facilities management issues primarily for educational organizations. He can be reached at tjweidne@purdue.edu.



If you would like to write a book review, please contact Ted Weidner at tjweidne@purdue.edu.



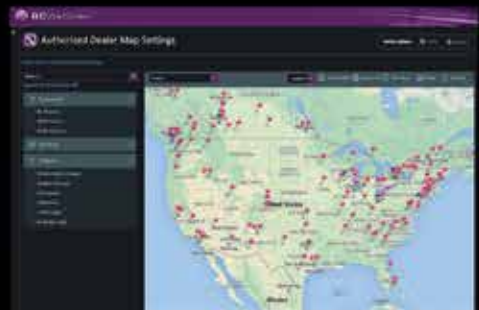
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new products

Compiled by Gerry Van Treeck



AMERLUX introduces Cylindrix IV (C4) LED Accent for higher-ceiling, large spaces as a workhorse delivering amazing output and visual drama while punching through ambient light levels to showcase sales displays. Now passively cooled, Cylindrix IV offers various beam spreads and color temperatures

that allow specifiers and end users to place the precise light exactly where they want it. Cylindrix C4 46w LED Accent is the ideal replacement for 70-W ceramic metal halide fixtures. C4 is engineered with a passive cooling light emitting diode (LED) optic with three beam spreads: Spot (15-degree), Flood (25-degree), and Wide Flood (36-degree). Spun aluminum reflectors are interchangeable in the field. For greater detail contact Amerlux at www.amerlux.com.

ENLIGHTED, INC.

launches its new Plug Load Controller, designed to significantly reduce unnecessary outlet energy use through intelligent control. The Plug Load Controller works with sensors in the Enlighted System to transform outlets into smart receptacles controlled through occupancy or schedule-based on/off control. As facilities continue to work toward net zero goals, Enlighted provides a networked system that maximizes energy savings beyond lighting alone. For additional information on Enlighted, Inc. products visit www.enlightedinc.com.



ARMSTRONG COMMERCIAL FLOORING announces the addition of the Safety Zone Sheet to its current safety tile offerings. This new slip-retardant sheet provides a through-pattern construction in a dense, deaerated

formulation for lasting safety underfoot, an easy-to-clean surface, and durable wear and stain resistance in high-traffic conditions. The formulation also improves flexibility of the floor for ease of installation. The through-pattern wear layer of Safety Zone Sheet incorporates aluminum oxide and quartz particles, which give the sheet its slip-retardant performance. The silicon carbide particles found throughout the surface layer provide additional initial grab when walking. For more information on Armstrong Commercial Flooring products visit www.armstrong.com.



IPS CORPORATION

PLUMBING DIVISION has introduced two new products for use in a range of plumbing applications—the Soft Guard Plus Disposal Sink Cover for under-sink protection and the Water-Tite Utility Box to recess virtually any plumbing connection. The Soft Guard

Plus Disposal Sink Cover is an Americans with Disabilities Act (ADA)-compliant cover that protects wheelchair users from possible burns and abrasions. The antimicrobial, antifungal, and ultraviolet (UV)-inhibited cover is designed to insulate the disposal under a kitchen sink and meets both ADA and Uniform Plumbing Code (UPC) standards. The Water-Tite Utility Box provides convenient access to main water supply shutoff, but can also be used as an angle stop, ice maker, washing machine, dishwasher, gas outlet box, or for many other applications. For more information regarding IPS Corporation Plumbing Division visit www.ipscorp.com/plumbing.

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a smartphone or other remote device. With the Simplicity SE Controls Mobile Access Portal (MAP) gateway, alerts can be viewed on a Web browser. Available exclusively with Simplicity Smart Equipment (SE) Controls, FDD allows contractors to configure, commission, and troubleshoot packaged units faster. For further information on Coleman products visit www.colemanac.com.



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