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LEADERSHIP CHANGE

Despite the slow-to-recover economy and continued spates of large-scale reorganizations and staff layoffs, campus facilities management leadership continues to be fairly solid and consistent. It's a common trend to see changes in president, provost, and even the chief financial officer every few years, but their success at a new institution involves not only the fresh leadership and strategies that they themselves bring, but also how well they know and leverage the consistent backbone of longtime employees in facilities, procurement, student affairs, environmental health and safety, institutional research, and many other critical campus functions.

But what are the qualities you need to possess as a new leader to an organization that has seen difficult or entrenched policies and practices? How do you enhance your own leadership skills and those who work with you? Reading the articles by Darcy Loy and Larry and Janet Klumas will give you an excellent head start on the key factors to help you succeed.

You will also want to attend APPA's four-track Leadership Academy offered twice each year as part of our APPA U programming. The Academy takes you on a journey that begins with focusing on your individual effectiveness skills, followed by interpersonal effectiveness, managerial effectiveness, and concludes with organizational effectiveness. The next sessions of the Leadership Academy are January 22-26, 2012 in Hilton Head, South Carolina, and September 23-27, 2012 in Vancouver, British Columbia. For more information and to register, visit *www.appa.org/training/academy*.

As a new or longtime leader in campus facilities, you will also want to acquaint yourself with APPA's Thought Leaders Series. Since 2006, APPA has

convened an annual facilitated symposium of leaders in higher education—presidents, provosts, business officers, trustees, student affairs and housing officers, facilities professionals—and consultants and experts in information technology, human resources, procurement, and other campus areas.

Become familiar with the topics, themes, and questions generated by each year's Thought Leaders report. Make the connections between the issues having an impact on the campus as a whole and how the built environment might be affected, and utilized, in the planning and programming of campus facilities.

The 2011 Thought Leaders report, *Workplace Demographics and Technology: Challenges and Opportunities to the Campus Mission*, is available at no charge to APPA member institutions through the APPA bookstore at *www.appa.org/book store*. You can also access past Thought Leaders reports at *www.appa.org/tools/measures/tls.cfm*.

Leadership is everyone's role and responsibility, both personally and professionally. APPA has numerous resources to help you help your facilities operation and your educational organization. Don't hesitate to call on us to assist you. 🌀

[signature]

Coming in Jan/Feb 2012

- Technology in FM
- State Tax Appropriations for Capital Needs
- Regional Conference Reports

facilities digest

By Anita Dosik

IN THIS ISSUE! THE 2011 THOUGHT LEADERS REPORT

Part 2 of the 2011 Thought Leaders report is included in this issue of *Facilities Manager* (Part 1 appeared in the September/October 2011 issue).

The purpose of APPA's Thought Leaders Series is to assess how higher education trends will shape campuses, as well as pose strategies that leaders in the profession can use to address coming challenges. The ultimate goal is to help institutions prepare themselves and their facilities for the future.

For more information about the Thought Leaders Series, contact Lander Medlin at *lander@appa.org* or Steve Glazner at *steve@appa.org*.

APPA 2012: Annual Conference and Exhibition

SAVE THE DATE FOR APPA 2012
July 17-19, 2012 * Denver, Colorado

If you didn't make it to APPA 2011, you missed the profession's major go-to event for career enrichment and advancement, a chance to discuss current topics with other thought leaders in educational facilities community, and much more. Plan now to attend APPA 2012 to be held July 17-19, 2012 in Denver, Colorado. Work APPA 2012 into your professional development and travel budgets. Registration will open in December.

NEW! APPA'S OPERATIONAL GUIDELINES TRILOGY

APPA has updated its popular *Operational Guidelines* trilogy of publications on Grounds, Custodial, and Maintenance. The new books incorporate leading-edge topics related to technology, service innovations, benchmarking, outsourcing, and sustainability. Just go to the APPA bookstore at *www.appa.org/bookstore* and order the books (singly or as a trilogy).

Workplace Demographics and Technology: Challenges and Opportunities to the Campus Mission

Including the Top Facilities Issues

APPA THOUGHT LEADERS 2011

Part 2
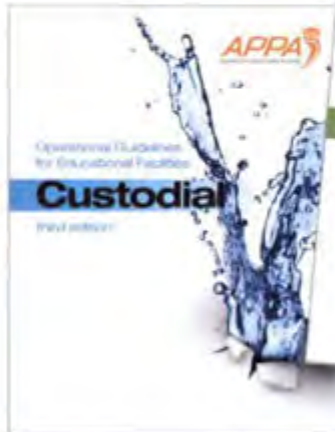
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ACCESS THE APPA 2010-2011 ANNUAL REPORT

APPA's *2010-2011 Annual Report* is a comprehensive resource to update you on APPA's 2010-11 fiscal year accomplishments. In it you will find:

- A president's report from Darrel W. Meyer in which he discusses: APPA's strategic planning process, APPA/Regional Relationship Task Force, the success of APPA Facilities Drive-In Workshops, how APPA leadership is engaging community colleges, and APPA's financial position.
- A Secretary-Treasurer's report highlighting that in the year ending March 31, 2011 APPA posted a surplus of $224,596 and giving the reasons for this success.
- The report of Vice President for Information and Research Randolph Hare who discusses the innovations in the FPI Survey/Report; the accomplishments of the APPA Web Subcommittee, the FPI Energy Module Subcommittee, the Marketing/Communications Subcommittee, and the Center for Facilities Research (CFar).
- Strategic insights from Immediate Past President Polly Pinney, President-Elect David Gray, Vice President for Professional Affairs David Cain, Vice President for Professional Development Glenn Smith, and Executive Vice President Lander Medlin.

Read the APPA *2010-2011 Annual Report* at http://appa.org/board/documents/FINAL10-11AnnualReport-Web.pdf.

EVENTS

APPA EVENTS

Dec 8 APPA Drive-in Workshop, *Boulder, CO*
Jan 22-26 APPA U Institute & Leadership Academy, *Hilton Head, SC*
Apr 16-17 7th Annual Smart & Sustainable Campuses Conference, *College Park, MD*
Apr 18 APPA Drive-in Workshop, *Cleveland, OH*
Jul 17-19 APPA 2012 Annual Conference, *Denver, CO*
Sep 23-27 APPA U Institute & Leadership Academy, *Vancouver, BC Canada*

OTHER EVENTS

Dec 4-7 Women's Leadership Institute, *Amelia Island, FL*
Jan 21-25 ASHRAE's 2012 Winter Conference, *Chicago, IL*
Dec 5-9 Ecobuild America, *Washington, DC*
Feb 6-9 IDEA's 25th Annual Campus Energy Conference, *Arlington, VA*
Mar 7-8 NCAPPA Conference 2012, *Charlotte, NC*

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

BECOME AN APPA ELECTED OFFICER: NOMINATIONS FOR 2012 NOW OPEN

APPA's strong and steady volunteer leadership is one of the core forces making it the "association of choice" for educational facilities professionals. Consider becoming a candidate for an elected office in APPA. Elected officers gain enormous leadership skills and a chance to develop professionally in many meaningful ways, as well as a major opportunity to give back to the entire profession. Being an APPA elected official does require a personal commitment of time and energy. However, past elected officers will tell you the personal rewards and professional benefits outweigh the costs of engagement and time commitments. There are five elected officer leadership positions. Consider nominating yourself or others for the one that best matches your passion and areas of expertise. Learn more at www.appa.org/board/electedofficers.cfm.

All applications and nominations for APPA office are due no later than December 15, 2011.

TAKE THE EMERGING FACILITIES PROFESSIONALS SURVEY TODAY!

APPA's Emerging Facilities Professionals Task Force invites you to complete a quick and simple survey that will assist APPA in the recruitment and retention of emerging facilities professionals. The survey is open to anyone involved in educational facilities, regardless of your length of service. It should take only 10 minutes to complete. When you're done, you can enter your name in a drawing for one of three forthcoming APPA books—the revised *Operational Guidelines for Educational Facilities* trilogy covering Custodial, Grounds, and Maintenance. Access the survey today at: www.surveymonkey.com/s/GKK73P6.

We Are APPA

By E. Lander Medlin

International APPA and its six regional organizations have been engaged in a substantive dialogue around the roles, goals, and mission of each organization which will ultimately achieve greater alignment and synergy.

In the spring of 2010, APPA and our regional associations agreed to jointly convene a task force to define and identify joint international APPA-regional association goals, with regard to mission and roles, program content and delivery, and overall leadership development. In addition, APPA's changing role in higher education (as well as to a lesser degree with K-12 schools) and the expanded role of the senior facilities management professional (SFO) begged the question of how to specifically deal with the emerging role of the SFO. This was particularly the case with regard to program and mission focus whereby the needs of other important—yet different—constituency groups (e.g., specific program area directors, mid-level managers, and supervisors, etc.) must be met. Certainly engagement is key at all levels—but we realize that the dilemma is how to do this effectively, across the entire delivery system.

Among the compelling questions that the taks force was asked to study were: Who does each organization serve? What are their needs? And how should each fulfill those needs? It was clear that we needed the task force to review the current situation, investigate overlaps and duplication of services, and make recommendations that would serve to increase engagement and participation across the entire association network.

THE CHARGE

To develop its recommendations, the task force utilized past and new member survey data, performed a comprehensive SWOT analysis at all levels in the organization, evaluated existing programs, and freely exchanged ideas. The summary charge of the task force was both comprehensive and complex, consisting of the following:

- Determine individual member needs (chapter, regional, and international) and who consistently provides for those needs at the present time.
- Identify areas of overlap in meeting various members/constituent groups' needs.
- Develop SWOT analysis of current situation.
- Investigate current best practices of engagement and participation.
- Define/re-define roles of international APPA, regions, chapters, and their requirements to avoid competition and/or duplication of services.
- Explore alternative delivery models to meet member needs.
- Determine feasibility of offering one membership package.

The complexity of the charge generated numerous questions and challenges. However, broad-based constituency input from the regional boards' SWOT analyses and a member-based survey generated the following critical few elements for all levels in the organization to address:

- Engagement
- Alignment
- Roles & Services
- Competition (& Duplication)
- Communications (& Marketing)

The APPA Board recognized the importance of each of the elements and included them specifically in APPA's new strategic plan (launched in July, 2011).

FINDINGS AND RECOMMENDATIONS

Although the task force noted overlaps, they came to the realization that the focus and potential target audience was slightly different at each level of the organization. For example, APPA provides members the structural "gateway" to a plethora of resources, research, recognition, and outreach on a global scale. The regions represent the delivery "network" for relationship-building, networking and mentoring, and educational opportunities. And, the chapters provide front-line supervisors and managers with "geographic proximity" to basic training/workshops, information-sharing and social networking, and individual mentoring.

The task force provided a number of recommendations such as:

- Provide centralized website management.
- Develop broad-based communications and marketing plans.
- Recognize the emerging theme of "We are APPA."
- Study feasibility of regions utilizing APPA's conference registration 'app' (database/ system.)
- Establish a guideline roles and responsibilities "matrix" for inclusion in membership materials and communiqués.
- Provide briefing at fall 2011 regional meetings.
- Consider the feasibility of an integrated/exclusive membership (i.e., APPA membership affords the institution regional and/or state membership and vice versa.)

FURTHER STUDY

Although many of the recommendations are being implemented or explored at this time, the complexity of the task requires further work. Therefore, the APPA Board approved formation of a newly constituted task force in September, 2011 to further study the implementation of the recommendations from the final report. Particular emphasis by this new task force is focused on the few items noted in the re-constituted charge below:

- Review the recommendations as presented and determine additional actions(s) required for implementation.
- Consider the feasibility of an integrated membership.
- Define the roles and responsibilities of a 'matrix' in "actionable" terms.
- Relate the various activities and services of international APPA, regions, and chapters.

The goals are:

- Promote/create synergy between international APPA, the regions, and chapters.
- Keep APPA and its regions/chapters as the "associations of choice" for all educational facilities professionals.
- Discuss structure that encourages participation and provides support for all membership categories.
- Maintain and further enhance opportunities for relationships with business partners.
- Align the regional leadership and international APPA activities to promote leadership, succession planning, and the value of ongoing efforts of the APPA staff and volunteer leaders.

ACTION PLAN

The APPA Board has asked the new task force to provide a final report and action plan to the executive committee/ board of directors by July 2012 which is to include:

- "Actionable" guidelines for roles and responsibilities for international APPA, the regions, and chapters

- A statement of impacts to international APPA, the regions and chapters' membership dues (including business partners and other stakeholders as appropriate)
- An implementation plan.

The challenge will be to get it right, and ensure we have concurrence and collaboration at every level in the association network. ⑨

Lander Medlin is APPA's executive vice president; she can be reached at lander@appa.org.

You Are Not Alone

By Peter Strazdas

Have you ever felt like your job consumed your day and you didn't get a chance to reflect on the goals of your institution? And if it happens often, have you ever thought you were alone with this challenge? Surely, your facility management peers must be more organized and have the time and resources to stay ahead of the daily grind. I think all facility professionals need a reality check, and the best way to do it is to talk to their peers. Listen to them share their daily challenges and issues. After a few of these conversations, you quickly learn that you don't have it that bad after all and that they have similar problems and challenges. Someone once told me that conversations with their peers are better than talking to a psychologist. These conversations in a social environment reveal success stories as well as struggles that you can empathize with.

FINDING YOUR PEERS

So, if networking with your peers can help keep your sanity and support your growth, how can you connect with your educational facility peers? APPA is the answer. Membership in APPA provides the networking opportunity that you need. You can meet your peers locally at a Drive-In Workshop, or at a state chapter meeting. You can be exposed to a broad-er group of peers at an APPA regional meeting or the annual conference.

JOIN IN

For those of you who get it and need your regular reality check-up by attending your APPA conferences, I urge you to call one of your peers at a neighboring school and invite them to a meeting. It's a great opportunity to mentor a fellow facility professional—or at least expose them to the value of participating in APPA. Remember the first time you attended an APPA conference, or when you first talked to a group of your peers? You had the feeling that you were not alone, you learned a few new things, and you left the conference saying to yourself, "I don't have it that bad after all." APPA gave you the opportunity to be a better facility professional, and you now have an obligation to share the wealth by helping others experience the same thing.

EDUCATION IS KEY

Of course APPA is more than networking. We all need to "sharpen the saw" on a regular basis, and APPA has the best professional development programs and opportunities. The APPA U program was developed specifically for professionals in the educational facilities industry. APPA U also provides a forum for the foundational credentialing

programs—Educational Facilities Professional (EFP) and Certified Educational Facilities Professional (CEFP). The goal of APPA U is to expose facilities professionals to the vast offerings that can be found through APPA.

Finally, all six APPA regions offer generous scholarships each year to individuals who have achieved a notable level of professional growth and are looking to take the next steps. I know that our facility budgets are tight, but that should not be a deterrent to your professional development.

THE UNSUNG HEROES

I know and appreciate that so many educational facility departments are performing at a high level. You are the unsung heroes of our campuses. You are deserving of proper recognition at your respective institutions and among your peers. APPA understands this need and

offers several awards and recognition. The newest award is the Sustainability Award in Facilities Management. It is designed to recognize and advance sustainability excellence in educational facilities. Many institutions have received APPA's Effective & Innovative Practices Award. It recognizes programs and processes that enhance service delivery, lower costs, increase productivity, improve customer service, generate revenue, and otherwise benefit the educational institution. There are several other awards, but the Award for Excellence is APPA's highest institutional honor and provides educational institutions the opportunity for national and international recognition for their outstanding achievements in facilities management. As an APPA member, you can take advantage of awards and recognition that you deserve.

So, if you feel like you have been in the salt mines too long and need time away

to recharge your professional batteries, APPA has exactly what you need. The therapy of networking, the stimulation of new ideas with educational programs, the stature you deserve with credentialing and certification programs, and access to the best research and publications for education facility professionals—these are all part of the full package you get with membership. The value of your APPA membership will pay dividends over and over. We need to expose everyone in educational facilities to APPA, and the infection of its value will be clearly demonstrated and spread to others. ⓙ

Peter Strazdas is APPA Secretary-Treasurer and associate vice president, facilities management, at Western Michigan University, Kalamazoo, MI. E-mail him at *peter.strazdas@wmich.edu*. This is his first article for *Facilities Manager*.

Music to the Ears

Orchestrating Successful Leadership Change

By Darcy Loy

transition can be defined in numerous contexts: Evolution. Shift. Alteration. Changeover. In music, transition can be "a progression from one key to another in a piece of music." Michael Watkins, author of *The First 90 Days* states, "Transitions are periods of opportunity, a chance to start afresh and to make needed changes in an organization." (Watkins, 2003, p.1) For those of us in the facilities world, transition can often refer to a change of leadership; which more often than not results in a change in vision, perspective, leadership styles, and practices.

Not all perceive leadership transition in a positive light. Some team members view the prospect of change as being a negative and daunting concept and would rather change not take place.

TRANSITION IN HARMONY

Perhaps we could convince these individuals to see change in the perspective of the above musical definition: the complete musical piece being our entire organization; the "keys" being individual team members; and the new leader conducting the piece of music so that it flows smoothly through the changes in time and tempo. When all of the notes are properly in tune, they blend together to reach that final outcome—harmony. If your team could look at it in that context, maybe they could perceive that surviving leadership change doesn't need to be daunting; that as members of the team they play a valuable role with regard to the success or failure of said change.

As effective facilities leaders it is our responsibility to provide our employees, as well as the incoming leader, with the information and support necessary for a successful leadership change. We need to communicate the whys, whos, and whats of the change. Why are we experiencing the change? Who is going to fill the leadership role? What is going to be needed by both the employees and the leader to survive the change and be successful? Communicating vital information and answering the many questions that will arise are imperative to successful leadership transition.

WHY ARE WE EXPERIENCING THE CHANGE?

Organizations seek new leaders for a variety of reasons. How teams respond to and transition through a change in leadership will be somewhat dependent on the nature of the change itself. A pending retirement within the organization allows the luxury of time to plan how the transition will materialize. It allows everyone to adjust to the concept gradually. If an internal candidate is being prepared to step into the position, the opportunity exists for job shadowing. However, a new leader might suddenly be needed to replace someone that departs due to a serious illness or injury. Or, worst-case scenario, a director may be asked to leave because they weren't performing up to task. These examples have totally different effects on how transition might flow.

Sudden departures leave units little time to prepare, hastening the search for a suitable candidate. Troubled work relationships resulting in the termination of an individual in a leadership position can create another set of challenges. Involuntary separations such as a firing are likely to evoke a great deal of emotion. The team as a whole may not be privy to the reasoning behind the dismissal, which in turn has the potential to lead to trust issues within the organization. If the director had a strong bond with the team, alliances will have been formed making the acceptance of a new leader more difficult.

PLANNING FOR TRANSITION

Regardless of what brings about leadership change, organizations can implement the change more effectively if they have a transition plan in place prior to a needed transition. Deb Marshall, author of *Succession: Planning for a Leadership Transition*, writes, "We strongly encourage boards to include CEO transition planning in their strategic planning process at least every three years." (Marshall, March 2010, p. 1) A transition plan can assess the necessary skill sets and character traits that are needed to fill a particular leadership role. It allows the organization to analyze their vision statement; focus on where they are today and where they need to be tomorrow in order to be successful.

Assessment can also include employee relations and define internal candidates that have the potential for moving up within the department. Succession plans should be revisited often. Leadership skills that are needed today will change significantly

and probably won't address challenges in the future. As stated in the article "Best Practices in Succession Planning," we need to "look through the windshield rather than in the rearview mirror to understand the leadership skills required of the next CEO." (Bennett, Miles, November 2007, p. 1)

> "The actions you take during your first three months in a new job will largely determine whether you succeed or fail."
> —Michael Watkins

WHO IS GOING TO FILL THE LEADERSHIP ROLE?

So many questions surround the "who" of a leadership change. What will the expectations of the new leader be? What will their management style be—the values and perceptions that they will bring to the table? How well do they know the culture of our organization and will they be able to move the team forward? It could possibly be the most daunting piece of the transition puzzle because we deal with personalities of people. One of the most significant questions asked in this process is, "Do we hire from within our organization or do we seek an external candidate?" There are advantages and disadvantages to each scenario.

INTERNAL CANDIDATES

Author Kellye Whitney states, "Internal candidates have an edge, because an organization has the opportunity to proactively assess what development and experience candidates are missing, provide these and subsequently mitigate risks well in advance of a proposed transition or succession."(Whitney, November 2007, p. 2) Internal candidates bring familiarity. They understand the culture of the organization and are aware of the characteristics of the employees they have worked with. Internal candidates are well versed in the vision and mission of the unit and have invested themselves within the organization. Promoting from within shows team members that they are valued and that opportunity for advancement exists.

With advantages come disadvantages. Internal successors often struggle with their new leadership role; finding it difficult to transition from coworker to "boss." Existing friendships might lead to a sense of entitlement by the former coworker; that special treatment is expected as a result of that friendship. There perhaps are team members that had also applied for the management position and didn't get it that harbor resentment. Sometimes internal candidates have been working within the organization or with a specific team for a long period of time. Failure to see flaws of the team that need corrected is a definite possibility and the success of the team will be jeopardized.

EXTERNAL CANDIDATES

Hiring an external leader can add value to the organization. They bring a new viewpoint and perspective; a new way to look at the culture of the organization. An external candidate can provide a different approach to problem solving and innovation; a useful tool for a department unable to solve issues themselves due to lack of resources. They bring with them an established network of outside resources and contacts. Hiring externally is also a solution for units that might not see potential for leadership within their teams; or don't have the financial resources to train and groom their employees. Most importantly, external hires have the potential to bring new vision and motivation, resulting in creation of momentum to a team that has become stagnant as a result of the current culture.

On the down side, research has shown that the failure rate for external hires is greater than promoting within. Ron Garonzik states, "Outside CEOs tend to get the boot quicker. They're at a disadvantage, because it's harder for them to read the people, culture, and nuances of working within the organization." (Whitney, November 2007, p. 1) Being unfamiliar with how the organization functions means they start from scratch. It may be harder for team members to accept a leader from "outside" making the adaption time for cohesion considerably longer. The external hire will have to spend significant time gaining trust within the team.

WHAT IS REQUIRED FOR SUCCESSFUL LEADERSHIP TRANSITION?

Successful leadership transition cannot rest solely on the shoulders of the new leader. All members within the organization must be accountable. Employees, upper management, and the new leader will each play an essential role in how they interact and respond to one another. While having a solid succession plan in place is essential to ease the transition process, there are many other processes that can be implemented to achieve harmony.

Communication throughout the organization's structure is vital. Foremost, a new leader needs communication from superiors in regards to expectations of their new role will be. Many new leaders fail because the demands of employment haven't been articulated. They lose their way because they were unable to figure it out.

Upper management must address key questions and concerns that team members have in order to establish trust. Not only will this help relieve the uncertainty that a change evokes, but it will also give them a sense of value—that they are being heard

and that their opinions matter. The new leader needs to communicate his vision for the team; what his hopes are for the future as well as his expectations of each team member.

A strong support network is vital to the survival of the incoming candidate. Upper management must remain engaged throughout the transition period providing insight and mentoring as the new leader acclimates to the culture of the organization. Support from superiors during reorganization will be instrumental in the development of relationships between staff and the new director. Front-line employees are a significant piece of the transition puzzle. Those eager for change will embrace the new leader and be supportive. They will assist in spreading the message of how transition will be beneficial to those that see change as detrimental. The new leader needs to establish alliances early in the transition period, with those that they can trust to assist in promoting the value and importance in the changes that are to come.

Lastly, a new candidate needs to establish credibility quickly in the transition process. This means setting small, easily attainable goals at first that will allow the team to experience success under the new leader. Not only will this act as a motivational tool and create momentum for the team, but it will help influence those that were so opposed to the change.

CONCLUSION

Who doesn't want to be a part of a successful organization? Issues that the employees deem to be important are a good starting point. Swift implementation of solutions to these specific problems display to the team that they are being heard, and that their ideas and concepts are valued.

Leadership transition isn't easy. There is no such thing as a "ready-now" candidate that can be "dropped" into an empty slot within an organization. Successful leadership transition is hard work and is the responsibility of the

> "In order to reduce succession risk, some industry thought leaders say the safe bet is to groom internal successors rather than venture outside an organization to find needed talent."
>
> —Michael Watkins

entire unit. Alfred North Whitehead, a British mathematician and philosopher, once said, "In every age of well-marked transition, there is the pattern of habitual dumb practice and emotion which is passing and there is oncoming a new complex of habit."

If we put best practices and processes in place before a critical leadership shift occurs, surviving leadership change will be less daunting to those involved and can result in a successful outcome for the organization as a whole.

NOTES

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5. Whitney, Kellye. (November 16, 2007, Volume 2, Issue 9) "Internal Versus External Succession May Be Best Long-Term Talent Bet." http://finance.groups.yahoo.com, p. 1.

Darcy Loy is assistant director of grounds at Illinois State University, Normal, IL. She can be reached at daloy@ilstu.edu.

DEFINING LE

ADERSHIP

WHEN YOU ARE THE NEW LEADER

When coauthor Larry Klumas was in charge of a traveling management assistance team at Headquarters Strategic Air Command (SAC), he visited 16 bases in a year. He traveled with 8 to 20 persons assessing every aspect of the facilities organization. He saw some great organizations and some poor ones.

Invariability those organizations that were great had leaders with experience and vision, and who could impart that wisdom to the organization. Those that were bad had poor leaders who:

- micro managed because they did not know how a properly lead organization should function, were afraid that others might make wrong decisions, or were skittish that others might embarrass them (a lack of experience), or
- had no clue as to what was happening, how the components of facilities management interrelated, or where the organization was going (a lack of vision).

It is clear that Leadership is the driving force of a well-operating organization.

BY LAWRENCE J. KLUMAS, CPE, AND JANET L. KLUMAS, PH.D., J.D.

THEY WANT DIRECTION

Too often a facilities organization lacks leadership. There are many reasons, but most of these involve the person in charge—the director, or another office above the organization, or those who hire the foregoing. Too often they are qualified technically or professionally in some specific area, but they lack the primary ingredients, experience and vision! Leadership means knowing who you are (the experience component) and where you are going and how to get there (the vision component).

When Larry arrives at a facilities management organization, he thinks, "What do coworkers want to hear, to see?" For what he says to them, and how he acts, is remembered.

If the new leader offers nothing, that is exactly what is remembered–nothing! It is important to give coworkers something to remember immediately.

We have developed an answer to the question of "What is it coworkers would like to hear?" Simply put, they want direction. That direction has three components: who they are, where they are going, and how they are going to get there.

In this article those three components are explained. These three areas establish credibility and begin the building of trust, the binding ingredient of leadership. Leadership prepares and guides performance on the stage where the individual and organization can succeed.

THE STARTING VIEWPOINT, "WHO YOU ARE!"

Before you can answer the first question "who they are," you need to know who you are. You need to understand your leadership style. You need to know how you problem solve. Those who do not reflect on who they are lack experience and have no clear vision of where they are headed. Reflection on who you are produces insight and insight produces results.

Engineer-leaders think linearly. They go from point A to point B in the most direct way possible, and don't take much time getting there. They feel a need to be efficient. This puts a premium on a focus, the end point, and the means of getting there as rapidly as possible.

Use the following problem solving technique to produce the straightest line from point A (where you are) to point B (where you are going). This technique is not new, but often is not used in the deliberate disciplined way as it should be. Its benefit is that it causes one to think, not simply react. This structured method includes the following steps:

- Problem definition
- Problem analysis
- Generating possible solutions
- Analyzing each solution
- Selecting the best solution(s)
- Planning the next course of action (next step)

An engineer-leader doesn't simply discuss matters unendingly; he or she discusses in order to arrive at the next point of action, the plan, the solution. It is not an exercise without an anticipated outcome—an outcome is what is demanded. Using this structured discipline method gives you a focus for being both efficient and effective.

Leaders in the facility organization, at a college, university, or school, come from all disciplines. It really doesn't matter whether you are an engineer, an architect or planner, or some other qualifying discipline, the way you make decisions affects the organization. Your decisions as leader dictate how *you* will set the organization on its path to the future.

The facilities function on a campus is basically problem solving, whether it is a space need, a repair, some repetitious maintenance, or a service. You are now armed with a practical decision-making tool.

You can now answer the first question, "Who they are," because you know who *you* are.

WHO THEY ARE?

Too often there is a tendency to rely on a job description to define who we are. Job descriptions are important as a general guideline. Well-written ones list clear and simple duties and responsibilities. But we are more than our job description! It is how we perform those duties and responsibilities that creates who we are.

Most importantly, we are a critical and important element of the mission of our institution. Here's a story illustrating this point.

Larry was a commander of the facilities unit at Dyess AFB in Texas, a SAC base. The facilities compound was close to the flight line. From the conference room you could see the B-52s on alert. At a weekly newcomers meeting he would point out the window and say, "See those aircraft on alert – they don't fly unless you come to work!"

Likewise, in education, students don't graduate unless we in the facilities department come to work and do our jobs. We make the teaching and learning environment conducive to study for the faculty and student and create comfortable and safe working condition for the staff.

It is clear that if we do not perform with the customer in mind, we compromise that for which we are responsible. We are important, whatever job we have been hired to perform, and we are integral to the student's education. The education mission depends on us.

WHERE ARE THEY GOING?

Knowing who you are, and knowing who they are, enables you to answer the next question posed, "Where are they going?" The following story illustrate this point.

Larry completed his last military assignment at Vandenberg AFB in Lompoc, California. His office was a mile from the headquarters building. The commanding two-star general would call and say, "Get up here; I want to talk with you." And so, he would drive up to the general's office.

Between his office and the general's office there was one stoplight. After making this trip a number of times he was perplexed as to why he always seemed to hit the light when it was red. Why couldn't he hit the light when it was green? He decided to keep a log of how many times the light was red and how many times the light was green. After a month he tallied the marks and discovered there were the same number of green as there were red.

He concluded that when the light was red, the experience was for 15 seconds. When the light was green he sailed through it and experienced the green for three seconds. Red was in his mind's eye five times longer than green.

Relating this discovery to the mission of the facilities organization, he realized that customers see the work and services provided as a red light/green light situation. If something is wrong in their world for which facilities is responsible (a light fixture is broken, the drain is clogged, a sign hangs crooked, it's too hot or too cold), they experience the red light.

The broken element required to be fixed is in front of them for the longer duration. If the light fixture works, the drain is clear, the sign hangs straight, or it is just the right temperature, they experienced the green light. The positive green light experience is cumulatively of shorter duration than the negative red light experience, and thus is less memorable.

The job of all facilities personnel, and each of us who provide work or service, is to shorten the more memorable red light feeling by keeping the customers' environment working right. When things are tended to and fixed rapidly, the customers will have a more positive feeling then they would ordinarily under the actual downtime scenario.

This answers the second question, "Where are they going?" We are re-sponsible for the facilities environment for all campus personnel. Keep the experience green!

HOW ARE THEY GOING TO GET THERE?

There are many "how to" suggestions to accomplish those duties and responsibilities for which each of us is responsible. In facilities it doesn't matter whether you are a custodian,

groundskeeper, auto mechanic, plumber, lead, supervisor, or manager. It's our collective responsibility to provide the green light to our customer. We can do this with a set of principles and guidelines to guide us.

We must focus on those principles or guidelines to produce results. There are many, but these five lead to success in the personal and organizational workplace:

Number 5 – Don't scrimp on training and professional development. Training provides the mechanism for acquiring new skills. Training can be formal or informal (on-the-job). Obtain as much training as possible. Document training received. The right equipment allows for greater effectiveness and efficiencies, no matter what the skill, and it makes the workplace safe. Both training and equipment are paramount to achieving success.

Number 4 – Be conscious of your influence. An organization is the aggregation of the skills, talents, and experience each person brings. When one person enters or one person leaves, the organization changes. It changes because of the influence each person has on another. Recognize that your influence can be positive or negative. How you perform technically and personally makes a difference in the work place. Make sure your influence is positive!

Number 3 – Be scrupulously honest. First, what does scrupulous mean? Scrupulous is a principle of action. It is intrinsic in your actions; it is second nature. It is a basic core value. This also means you do not lie, cheat, or steal in any measure, nor do you tolerate anyone else who does. Avoid these actions and confirm the principle of scrupulous honesty in accomplishing your daily tasks. Honesty breeds trust.

Number 2 – Do whatever job is given to the best of your ability. Sometimes you are given a job that you feel is beneath you. It is not challenging—you don't like it. Nonetheless, it is always important you perform that job to the absolute best of your ability. Find out what is needed, give it full effort and seek out more to do. You are gaining experience. You do not say, "That's not my job!" Whatever is given to you, *is* your job! Rewards will result.

Number 1 – Seek out and create meaningful professional relationships. Good strong professional relationships are based on mutual trust. One can count on the other without worrying that the job won't be done and know that the project won't be compromised. It is important to seek out these opportunities. Professional relationships exist at your same level, at a higher level and at a lower level. Do not wait for someone else to initiate a professional relationship, seek it yourself. Positive professional relationships are the foundation of personal and organizational success.

SUMMARY

When there is a new leader in the organization, the organization will change. Coworkers want direction as to who they are, where they are going, and how they are going to get there. There are a number of ways to illustrate those answers to coworkers.

Good leaders call upon their experience and vision to guide the organization. It is important that a leader recognize who he or she is, and provide the principles and guidelines needed for personal and organizational success.

It is equally important this direction be given as early as possible. Do not wait; the organization waits for your direction. Make it positive. You are the leader! ⑨

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Utilizing Interns in Facilities Management

By Clarissa Judkins,
John P. Morris, and
Chuck Molocznik

F acilities management is rapidly changing and developing from a position you stumble into—or work your way up through—to a discipline and vocation all of its own. There is a need for a collaborative strategy among leaders in practice, education, and research to share knowledge and experience and to establish professional and ethical standards. In organizations, this involves developing systems and developing people – to nurture leaders, improve quality, and develop the knowledge and skills base – to secure the future (Alexander 2003).

According to the most recent U.S. Census Bureau report, there were 77 million baby boomers either retiring or getting ready to retire. The baby boomer generation (people born from 1946 to 1965) accounts for approximately 26 percent of the total U.S. population. More than one-third of the baby boomers are over age 50, and many of them will be retiring in the next 10 to 15 years. The retirement of baby boomers is of particular concern because they represent a large percentage of the workforce and a large proportion of an organizations' leadership. When this group of workers begins to retire in earnest, there will be a workforce crisis in terms of having the right talent to perform needed work unless proactive workforce planning begins immediately.

As the number of retirees continues to increase and budgets continue to decrease, many facility managers are looking for ways to optimize their staff without losing quality or production. One recommended solution is to hire an intern. While hiring an intern offers many benefits to a company, it also brings responsibility and a commitment on the part of the organization.

Student internships provide the student with significant professional opportunities to hone skills and to develop an understanding and appreciation for organizational culture. Interns can also provide a temporary solution for an extra time-consuming project or necessary research. Although all interns expect to perform clerical work in support of their jobs, an intern's job responsibilities should consist of pre-professional or professional level activities. As with any professional position, it is recommended that supervisors create and monitor goals, coach and train, evaluate the intern's work performance and provide feedback (Baltimore 2011).

In 2008, the National Association of Colleges and Employers found that 50 percent of graduating students had held internships (Greenhouse 2010), a percentage that has increased in the past few years and remains even higher in hands-on fields such as engineering. As young professionals begin to perceive facilities management as a professional opportunity, the number of internships should increase due to the mutual benefits they provide (see Figure 1).

Aramark, an international professional services business, has been quick to catch on to the intern benefits. They travel to colleges and career fairs giving information sessions and interviews and end with employing more than 130 interns for a period of 8 to 12 weeks every summer. During that time, the interns are involved with engineering or operation-based internships and

become familiar with Aramark's culture and processes. Aramark prefers to promote internally, and because of the invaluable training the interns receive, it is Aramark's goal to convert talented students into full-time positions. In 2010, 55 percent of their new hires had previous intern experience with the company (Lewis 2011).

There is an opportunity for APPA members to capitalize on this concept as well. One of APPA's recently developed Five Leading Strategies is to "Develop Future Leaders," and offering an internship is one means of accomplishing this goal. Internship opportunities can be posted on the APPA website at http://www.appa.org/JobExpress/internships.cfm.

THE PROCESS

CREATING AN APPLICATION

Coauthor John Morris, director of facilities operations at the University of Colorado Boulder, decided to hire an intern for the summer of 2011 to analyze the university's warranty process after

Figure 1

Benefits to the Employer	Benefits to the Intern
Inexpensive semi-professional labor	Gain work experience
Receive fresh perspective on operations	Apply classroom knowledge
Introduced to new technology and best practices	Receive networking opportunities
Possible easy transition to full-time employee	Possible easy transition to full-time employee

complaints from staff of its ineffectiveness. With that, Morris created an internship application stating necessary information such as:

- Facility information and background
- Specific project description
- Expectations and project outcomes
- Time period and location
- Requirements and qualifications
- Available hours
- Pay rate and housing options

ADVERTISING INTERNSHIP AVAILABILITY

There are several ways to advertise an internship opening, and Morris chose one of the most effective: utilizing his contact with APPA Student Chapter representative Allen Merrell at Brigham Young University to contact all interested students within BYU's undergraduate Facilities Management program. In addition to BYU, there are four other accredited Facilities Management undergraduate programs in North America:

- Conestoga College, Kitchener, Ontario
- Cornell University, Ithaca, New York
- Ferris State University, Big Rapids, Michigan
- Wentworth Institute of Technology, Boston, Massachusetts

All of the above programs require at least one internship of 400 hours or more and are eager to find more internship opportunities for their students. Contacts can be found at *http://www.ifmafoundation.org/scholarships/degree.cfm*.

INTERVIEWING AND CANDIDATE SELECTION

Interviewing interns is much like hiring any other applicant. It is essential to develop thoughtful, behavioral-based questions that identify the qualities you are looking for in a successful candidate. The interview questions ranged from "Tell us about something you have completed that you thought was a very innovative or creative solution to a problem," to "It is your first day on your new job and your supervisor is pulled away for two to three hours on an emergency. You have been left alone to acquaint yourself with your new job and department. What would you do? What kind of information would you seek to better understand your new job?"

The interview team was pleased to find that the three interested candidates were all qualified and interviewed well, making the final decision difficult. After a lengthy discussion, the interview team selected Clarissa Judkins as the final candidate. Morris then assigned Judkins to the Work Management Services group, under Chuck Moloznik, work management services manager.

PREPARATION

After selection of the intern, it is important to maintain open communication as the start date approaches because, as Mor-

ris and Judkins learned, there is a lot of information and arrangements to transfer back and forth, including:
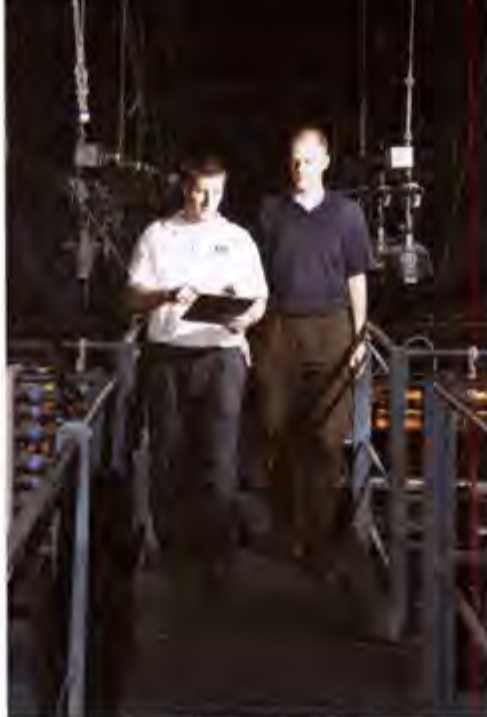
- Official arrival, start, and end dates
- All necessary information and arrangements to set up housing, if applicable
- Information for payroll and system access
- Exact office location, work space, and expected report time
- Dress code requirements and other office standards

START OF THE INTERNSHIP

The first few days of the internship are extremely important for both the employer and the intern. First impressions have an influence and help to set the tone for the whole internship experience. To help things go smoothly, the employer needs to complete a few things within the first few days:

- Set up with workspace, passwords, company ID, and keys
- Introductions to the supervisor and coworkers
- Discuss expectations and assigned project
- Familiarize with location – bathroom, food, office supplies, and the campus
- Supply with maps and directories

EVALUATION AND CLOSE-OUT PROCESS

Keep an eye on the intern. This does not mean to watch their every move, but do make certain to know what is happening with their daily tasks. Watch for signs that the intern is confused or bored. Silence may mean that an intern is busy; however, it could also mean that they are confused and shy or uncertain about how to address this issue. As with all employees, monitor their work and provide regular feedback.

Finally, to complete the internship, most interns are required to complete a final report on their work and receive an employee evaluation to receive credit for their time. It is also advantageous to perform a formal exit interview. Through this process it can determined if the intern had a good experience, and it provides valuable feedback to managers for program planning in the following year.

THE EXPERIENCE FROM A SUPERVISOR'S PERSPECTIVE

The Educational Facilities Management internship program can provide a great opportunity for supervisors or managers with limited time or resources to research and develop work processes and associated procedures needed by the organization. Besides the ability to assist with specific projects, interns provide insight and an opportunity to capitalize on a fresh perspective of the organization. Utilizing the intern's strengths and providing a

clear and concise blueprint of the desired results play a key factor in a positive outcome for the internship and the project.

It is important to work with the intern to get feedback, provide course correction and brainstorming while sidestepping the tendency to "micro-manage" or "baby-sit" the intern. Putting aside preconceived ideas and a "doomed to failure" outlook is required. It is essential to give the intern "room to run" with their ideas, while providing necessary resources and removing any roadblocks to their success. Using these guidelines will allow the intern to provide a quality product, as well as challenge your personal preconceived notions of what your department can accomplish.

THE PROJECT

Often, one of the most difficult portions of any construction project is the final closeout including the delivery and hand-off of O&M manuals and warranty information. Warranty information is not simply limited to construction projects; it is also essential to track and record warranty information for routine R&R of building components and building systems.

The facilities department at the University of Colorado Boulder recognized that tracking warranty information is a cumbersome task and often overlooked, resulting in replacement or major repairs on equipment that may still be under warranty. There was a desire to develop a process that tracked and recorded warranty information into the work order management system as opposed to paper files that are seldom accessed. Recognizing the need to develop a process, Morris felt this would be the perfect project to assign to an intern.

Initially Judkins set out to understand the current operating process pertaining to warranties. Judkins found that approximately 95 percent of warranties last for one year, and that contractors working with the university were required to guarantee their work for that period. The difficulty was not in obtaining warranty paperwork, but rather making technicians aware that a piece of equipment was still under warranty.

Judkins developed a two-fold process to alert technicians that an item may still be under warranty:
1. A redesigned equipment label including the installation date
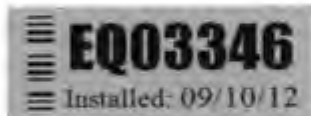
2. Modification to the CMMS system to alert the user if a piece of equipment referenced on a service request or work order is still under warranty

While developing the latter process it was found that warranty information was rarely entered into the work order management system, leaving no indication that a piece of equipment may still be under warranty. This discovery led to a

reexamination of the process for collecting all original equipment information and a redefinition of Judkins' task. The new emphasis was to gather new equipment information, enter it into the work management system, and post warranty information along with the equipment data.

After creating a new process with accompanying data collection forms, Judkins provided training to the maintenance shops and service center on the new processes and procedures. In order to manage these new processes, Judkins and Molocznik implemented as many changes as possible by shifting and adding to responsibilities of already existing positions within the department.

CONCLUSION

By the end of the internship, the facilities department had a new equipment information process and a potential job candidate. Judkins gained work experience, an understanding of educational institutions and valuable professional contacts. The experience was rewarding for both the intern and the Facilities Management department at the University of Colorado Boulder. APPA institutions are encouraged to develop and advertise similar internship opportunities. (§)

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Photos by Mark A. Philbrick/BYU

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Process Problems? Why They May Be Worse Than You Think

The Dependency Dilemma

By Joe Whitefield

Hurry up and wait. That's life, when you are involved in something that has several steps to reach completion. We have all experienced the frustrations that accompany any process that drags out indefinitely or breaks down at various stages – for example, driver's license processing at the Department of Motor Vehicles. Facilities management is an industry that also relies on numerous processes.

THE DEPENDENCY DILEMMA

For simplicities' sake, a process is a series of steps dependent on each other, and leading to a final result. Projects have design and construction processes. Maintenance and operations have work control and accounting processes. There are processes involving compliance for practically everything. In fact, most of our work products are part of a process at some level whether we realize it or not. These processes typically involve some form of planning, execution, and reporting. We should ask ourselves, "How well do our systems and processes serve our organization and our customers?" Are they arduous and frustrating, or easy and useful, leading to advertised deliverables? This article will explore the nature of processes and the critical role dependency plays in their success or failure, known as the dependency dilemma.

The common denominator for different processes is that they are embedded with multiple levels of dependent steps. Step 2 cannot be completed until step 1 is completed. Step 3 cannot be completed until steps 1 and 2 are completed, and so on. Ultimately, the success or failure of the process will be determined by the final product or service that is delivered, and the final product is dependent on each step. Two things we know about process flow are (1) each step/event has an individual expected level of performance to be successful, and (2) every step/event downstream in a process is affected by the performance of the steps/events upstream. Another thing that is typically known, but often grossly underestimated, is the degree to which the downstream steps/events (and ultimately the final product) are affected.

BREAK IT DOWN

Every step in a process is subject to the normal variations and risk factors that impact its performance relative to the expectation. Something as simple has having an approval signature on a document is subject to the availability of the responsible party. Weather events, utility outages, individual vacation and work schedules, system errors, individual mistakes, and Murphy's Law are a small sample of things that can negatively impact any activity, thereby endangering its successful completion.

Financial ramifications often follow inefficiencies and breakdowns in individual process steps. However, the negative impacts are most often felt initially in time delays. Something that should take two days takes four days. That adds pressure on all of the downstream events—not only

C	Completion
O	Organization
I	Innovation
N	Being Nice

to be effectively executed, but also make up the lost time (two days) if an adequate margin has not been built into the schedule of events.

The essence of the dependency dilemma is the problem of compounding. Problems in step 1 are passed along to step 2. Step 2 may add some of its own problems, and a compound set of problems is then passed on to step 3. Additional steps in a process lead to a even larger snowball of problems at the end of the line, thus affecting the final product. Even if you are aware of the process problems, they are probably worse than you think. Problems such as delays and quality issues reflect poorly on the responsible organization, and establish a platform for customer frustration and criticism.

The more bureaucratic and organization is, the more susceptible it is to process problems. By nature bureaucracies have more regulations and requirements to meet. These add additional steps to many processes. Additional steps increase risk and opportunities for poor

performance and problems affecting the final product. Results and output matter. Customers expect a successful delivery of the final product/service. They rarely concern themselves with the internal workings of the process itself. Success is shared when a process leads to a successful final product/service. Failure to deliver a successful product reflects poorly on everyone involved in the process whether they were specifically at fault or not.

IMPROVE THE PROCESSES

First, decrease the dependency problems by simply eliminating unnecessary or low-value steps in a process. One less signature can help, two less can really help. Since most steps (and participants) in a process are intended to add some value, there may be some risk (or perceived risk) to eliminating them. Be an optimizer. The question to ask is not "does it add some value?" but rather "is it worth it?"

Second, check for specific steps that consistently bog down and choke the process. Often improving one small step will increase the flow throughout the entire process. Learn from history. It is better to address thwe specific problem area than to compound the problem further by subjecting all of the personnel and steps in the process to additional requirements.

Third, seek to minimize the variations that often affect critical steps. This is where aggressive scheduling and a deep bench can help. Plan activities when people are more likely to be available – say Wednesdays instead of Fridays. Advertise deadlines well in advance. Have a knowledgeable substitute and/or qualified signatory. Incentivize people to finish their work early. There are many ways to improve in this area if you are open to some changes. Chances are it may require a little more trust and delegation and a little less control.

Finally, where possible, add some margin (time in the schedule, or contingency in the budget) at key places within the process to allow for recovery should problems arise. Contingency planning is a key to effective risk management.

Facilities managers are inundated with processes. Some are streamlined and effective, some are not. If you find frustrations and poor results throughout a process, you are probably suffering from severe dependency dilemma. If your processes are managing you rather than the other way around, develop a plan to address the dependency dilemma that is undoubtedly present. A little relief can go a long way for you and your customers. ⑨

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Focusing on The BOK: Energy, Utilities, and Environmental Stewardship

By Darryl Boyce

O ne of the most comprehensive and ambitious initiatives undertaken by APPA has been developed through the online Body of Knowledge (BOK). This online resource represents the most authoritative and up-to-date guide to the Arts and Sciences of Educational Facilities Management, available 24 hours a day, seven days a week. As an APPA member you can access this resource through an annual subscription, which also provides online access to every staff member of your institution! The current BOK builds on the foundation provided by the four-volume printed desk reference Facilities Management: A Manual for Plant Administration, which was last published in 1997. To learn more and to subscribe, visit *www.appa.org/bok*.

THE BOK: PART THREE

This article will focus on Part Three: Energy, Utilities, and Environmental Stewardship. This section is significant as it covers areas of responsibility not normally associated with traditional facilities management, but are a normal part of the management of educational facilities that usually involves the management of complex utility distribution systems similar to a small city.

The chapters within the Energy, Utilities, and Environmental Stewardship section are structured to support the operation of multiple facilities within a campus environment and are arranged in three sections: Energy Utilization and Environmental Stewardship, District Energy Systems, and Other Utilities.

> ## THIS SECTION IS SIGNIFICANT AS IT COVERS AREAS OF RESPONSIBILITY NOT NORMALLY ASSOCIATED WITH TRADITIONAL FACILITIES MANAGEMENT...

Many of the chapters that were contained in the third edition have been completely rewritten. Significant changes have been made to the following chapters:

- Campus Utility System Master Planning, Domestic and Fire Protection Water Supply (replacing Water Supply and Distribution Systems)
- Sanitary Sewer and Stormwater Management (replacing Sewer and Storm Drain Systems)
- Data and Voice Network Infrastructure (replacing Telecommunication

Systems), Cooling Systems and Thermal Energy Storage (replacing Central Cooling Systems)
- Energy Supply Alternatives.

The Electrical Distribution Systems chapter received some updates, and a new chapter titled Roadmap for Campus Environmental Sustainability was created to address the emphasis on sustainability and the reduction of energy use. A few chapters are still being worked on, and the new versions of those chapters will be online soon.

WHAT WE FACE TODAY

As part of the development of this latest version of the Body of Knowledge, we asked the authors to provide information on the application of current technologies, regulations, and issues that facilities management professionals are facing today.

An example is the development of the new chapter by Jiri Skopek and Walter Simpson, Roadmap for Campus Environmental Sustainability. This chapter provides a structure for the assessment of sustainable practices and energy use for a complete campus operation and also provides effective concepts to support the ongoing monitoring and identification of initiatives to improve the environmental impact of the campus. The chapter covers the topic through use of an action plan format from establishing senior management support, creating baseline, setting goals, implementing initiatives and finally monitoring results. The chapter includes examples of tools that assist in the documentation of the current state, opportunities for improvement and ongoing monitoring. This chapter also includes many Web links to other resources, and is sponsored by SRAPPA.

In the Data and Voice Network Infrastructure chapter, Denis Levesque has outlined strategies for the facilities management professionals to work with the information technology professionals to jointly provide effective information technology services to the campus community.

In the Campus Utility Systems Master Planning chapter, the authors provide a high level overview of the issues and approaches that should be considered when developing or expanding a campus utility system. You will learn why master planning is important, how utility master planning connects with the overall institutional master planning, what variables need to be considered during the planning process along with the funding implications.

In the Cooling Systems and Thermal Storage chapter, Kent Peterson walks us through the advantages and disadvantages of central cooling systems, including the fundamentals of central plant design covering refrigerants, chillers, prime movers, pumps, piping cooling towers and auxiliary equipment. The chapter also reviews the topics of system design consideration, system performance operations and maintenance and thermal energy storage. ⑨

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FEMA Resource Typing and Credentialing Guidance from the National Incident Management System Public Works Working Group

By Rochelle Ferguson

I n a moment, disaster can strike, tearing families apart and destroying communities. In the midst of catastrophe, will emergency response personnel know where to go to access resources critical to response, mitigation, and recovery? All communities are vulnerable to disaster, and it's only a matter of when, not if, an incident will occur. FEMA, the U.S. Federal Emergency Management Agency, encourages communities to focus on *preparation* to ensure readiness for any disaster or emergency.

BACKGROUND OF THE NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS)

As part of its response to Homeland Security Presidential Directive-5, FEMA continues to establish, implement, and improve a comprehensive approach to managing domestic incidents through the National Incident Management System (NIMS). The NIMS is a framework for guiding departments and entities in working together to prevent, respond to, and recover from all types of incidents.

To improve coordination efforts, FEMA's National Integration Center (NIC) oversees 12 discipline-specific working groups whose primary purpose is to provide recommendations on personnel qualifications and resources most commonly requested and deployed during disasters through mutual aid agreements and the Emergency Management Assistance Compact (EMAC).

The primary initiatives of these working groups are to:
- Type resources (teams and equipment) for ordering and tracking assets (resource management)
- Define skills, experience, and training in qualification charts for positions most frequently requested (credentialing)

- Produce job aids/suggested checklists for identified job titles (qualification charts)
- Develop guidance aids to supplement resource typing tables and qualification charts
- Engage speakers to provide outreach information at national conferences and trade-specific events

The working groups submit draft guidance documents to a pre-selected group of peer reviewers. Reviewers comment on and make recommendations before documents are submitted to FEMA for technical editing in preparation for posting to the *Federal Register* for public review. All states and local jurisdictions are encouraged to view FEMA's published guidance available on FEMA's Resource Center website at *http://www.fema.gov/emergency/nims/ResourceMngmnt.shtm*.

OVERVIEW OF THE NIMS WORKING GROUPS AND THE PUBLIC WORKS WORKING GROUP

Working Group members consist of practitioners from discipline-specific backgrounds with an all-hazards viewpoint, such as the Emergency Medical Services Working Group (EMSWG), the Fire and Hazmat Working Group (FHWG), and the Public Works Working Group (PWWG). The NIMS PWWG is made up of a variety of public works professionals with large-scale incident experience from federal, state, local, and tribal governments and partners in the public, nonprofit, and private sectors.

For the past six years, the PWWG has offered recommendations to FEMA for defining resources and personnel qualifications in support of public works mutual aid response. This working group draws on the personal experience of members and a review group member/stakeholder network to offer thoughtful advice on guidance and tools FEMA should consider supporting. The PWWG has focused efforts on defining the minimum resource, team, and personnel qualifications necessary to support mutual aid during times of disasters.

ACCOMPLISHMENTS

CREDENTIALING (JOB TITLES AND JOB AIDS)
Credentialing supports early identification in response to interstate mutual aid requests. The goal of credentialing is to get the right person to the right place at the right time. Credentialing helps

receiving jurisdictions determine if the person is who he or she claims to be, has the skill and competency to perform the work, and has been deployed in response to the request for help.

Credentialing is for:
- Requested personnel (not self-deployed)
- Voluntary personnel (those who choose to deploy and don't need to stay behind to handle daily operations)
- Credentialing consists of:
- Identity
- Qualification/affiliation
- Authorization for deployment

JOB TITLES

The PWWG has defined recommended education, training, and experience for over 20 titles, including Civil/Field Engineer, Debris Removal Manager, Debris Site Manager, and Engineering Branch Manager.

JOB AIDS

The working group has also created job aids to accompany job titles. Job aids include responsibilities, references, general guidance, and suggested checklists for all positions.

RESOURCES AND TEAMS

- The PWWG types resource definitions to address staffing and equipping standards for general public works functions during a natural disaster, critical incident, or terrorist act. New resources have been added to the original 120 Typed Resource Definitions for Public Works, and over 40 public works teams have been developed to include personnel and typed equipment.

The Resource Typing Tables list sets of equipment or teams with defined capabilities that might be shared by requesters and suppliers of resources. Resource typing can also:
- Help a community understand their capacity and capability to send equipment and personnel and identify

gaps, e.g., personnel and equipment that needs to be budgeted for and/or borrowed.
- Allow state and local jurisdictions to rely on the same minimum definition and use the same terminology when typing equipment. This ensures appropriate resources are dispatched to fill requirements at the incident, critical to a successful response and recovery operation.
- Simplify and speed the process of ordering and sending public works mutual aid from state to state by requesting assistance for pre-typed resources.

The NIMS Resource Typing has also been fully integrated into the EMAC Operations System, and states have the option to request and track resources by NIMS type. EMAC has defined Mission Ready Packages, specific response and recovery resource capabilities organized and developed prior to an emergency or disaster. For more information, visit EMAC's website at *http://www.emacweb.org*.

SUMMARY

It is critical that the public works community participate in plans and exercises to adequately address public works issues, including best practices, safety, coordination of efforts, and reimbursement. The PWWG has been working on behalf of the profession to develop tools to assist in emergency response and the restoration of lifelines for communities.

If you have questions or input for FEMA on these or any other public works emergency preparedness issue, please contact Diane Linderman, subject matter expert, Cabezon Group, at *dlinderman@vhb.com*. ⑤

Rochelle Ferguson is executive director of Palmetto Breeze, Bluffton, SC, and FEMA Public Works Working Group Member. E-mail her at *llrta@hargray.com*. This is her first article for *Facilities Manager*.

Siemens Strengthens Texas A&M's Tradition of Energy Management

Of the many trends impacting U.S. colleges and universities in the next 10 years, two are converging at a rapid pace. The steady decline in the number of high-school age students, from 21.5 million in 2009 to less than 20 million by 2020, is dove-tailing with the rapidly increasing value 18 and 19 year-olds place on global responsibility. To attract smart, young students, institutions are finding they need to be seen as leaders in energy conservation and other areas of sustainability. Texas A&M University is one institution that has taken this bull by the horns.

As one of the nation's oldest and largest universities, Texas A&M is recognized as a leader in all facets of higher education, from academics to athletics to scientific research. The university has also been a leader in campus energy management, dating back to 1893 when it first began generating a significant portion of its own electricity. Texas A&M continues to look forward, with a new $15 million performance contract and the help of Siemens Industry, to upgrade the efficiency of over 20 campus buildings.

Decreasing Costs While Increasing Enrollment

Texas A&M's proactive approach to managing energy consumption on campus targets two important goals. It wants to further control energy costs and provide a greener, more energy efficient campus for a more environmentally-conscious student body. This effort, spearheaded by the university's Department of Utilities and Energy Management (UEM) team — led by Jim Riley, Director of Utilities and Energy Management, and Les Williams, Associate Director of Utilities and Energy Management — has been a proven success. Since 2002, Texas A&M has been able to reduce energy consumption by 25% despite the fact the campus' total square footage grew by 18%.

Staying Ahead of the Curve

Today, the campus is embarking on an ambitious upgrade of 24 campus facilities to further improve energy management.

To do this, it is leveraging a $15 million performance contract made possible through ARRA stimulus funds secured by the Texas State Energy Conservation Office (SECO). The contract allows Texas A&M to fund facility improvements through a low-interest loan paid for by future energy savings.

To implement the performance contract, Texas A&M partnered with the Building Technologies Division of Siemens Industry, Inc. a global leader in building automation and energy efficiency solutions. Siemens was selected in part because of their past successes with Texas A&M energy management initiatives. Additionally, the university felt confident in the ability of Siemens to complete all project work by the end of 2011, a key condition of the funding, according to Riley.

Creating a Better More Efficient Campus

In defining key elements of the building upgrades, Siemens and Texas A&M identified solutions that both reduce energy consumption and create buildings that better meet the needs of its students, according to Williams. The final list of projects calls for improvements to 24 campus buildings. These improvements include:

BAS Building Optimization —
Optimization of the campus' building automation system (BAS) will improve energy efficiency and enable better HVAC control in buildings representing over 1.6 million square feet.

Occupancy Sensors —
Occupancy sensors will be installed in offices, classrooms and common areas to reduce energy consumption and eliminate the wasteful practice of conditioning and lighting spaces when not occupied.

Lighting Retrofits —
Replacing older inefficient lamps will reduce energy consumption dramatically. Texas A&M's 700,000 square foot library will benefit greatly from this upgrade as will campus parking garages, which must remain lit 24/7/365.

Top: Rudder Tower is one of 24 Texas A&M buildings undergoing energy efficiency upgrades.

Bottom, from the left: Jeff Murray, Siemens; Jim Riley, Director Utilities & Energy Management, Texas A&M; Jacob Richardson, Siemens; Les Williams, Associate Director Utilities & Energy Management, Texas A&M

The Impact of Performance Contracting

Once the project is completed in 2011, these building improvements are estimated to generate $1.1 million in annual operations and utility savings. The university and Siemens are working closely with an independent third party assessor, selected by SECO, to ensure performance and savings goals are met. The end result is a more efficient, sustainable campus benefitting the students, budget and the environment.

usa.siemens.com/tamu

SIEMENS

Why Do They Do It?

By Matt Adams, P.E.

Why do they do it? Why do the thousands of professional and trades people work in facilities? There are almost too many skills required to keep up with. There are architects, engineers, planners, accountants, members of every trade, housekeepers, movers, landscapers, human resource managers, planners, storeroom operators, motor pool managers, project managers, and another ten or more skills I can't even remember. Don't all these people realize that there will NEVER be enough money for their department and nobody is ever going to get rich quick? Not only that, but most of the time, their work is not recognized by the very institution that they serve. So, then, why do they do it?

A JOB WELL DONE

Some of our wise grandparents used to say that there are two types of people in the world: there are those that work, contribute, and produce—and then are those that live off of the production of others. The people that choose to work in our industry are the former. They are the ones that give to the world instead of take from it.

For those who work in facilities departments, there exists an intrinsic desire to do hard work and serve others. This is a dramatic distinction from others that are satisfied only from work that results in large amounts of money and what it can purchase to demonstrate success. Clearly, someone who can find professional satisfaction from the work itself—and not the rewards—is more humanistic and emotionally secure than those needing material things and recognition. If you were to ask a painter why they like their job, the likely answer will be akin to: "I like to improve the campus through my work and see the work when it's complete." You won't find too many on Wall Street that share this kind of professional sentiment.

If humility is a virtue, then our peers are some of the most virtuous people around. Unfortunately, there isn't much recognition given for the hard work and silent determination that takes place within our departments. Some would say that it's a thankless job. However, once again, I would ask: Isn't a person who can do the good work that must be done, without all the accolades, a more virtuous person? Isn't a person more fulfilled in life if he or she can find satisfaction in the act of doing the good work?

Perhaps this kind of quiet determination is slipping away from our value system, but I hope not. At least it's still alive and well in the facilities profession. Our people still do the work well because that is enough of an accomplishment. The individuals and their peers know good work when they do it and see it, and that is enough recognition for them. Unfortunately, the majority of the other members of the institution will never fully understand or appreciate the nature or difficulty of the work. But this is old news, and the work always goes on.

FINDING EVERY (AND ALL) WAYS

Now, given that there are so many skills required and their associated tasks, how can anyone do this under the pressure of a continually declining budget? Ultimately, our budgets adjusted for inflation and the square footage managed has declined for decades. Yet, somehow, the buildings do not fall down, and rarely does a student or faculty member suffer from our lack of attention. This seemingly impossible achievement of always doing "more with less" is the result of values shared by our peers.

Ultimately it's not about the money – it's about the institution and the students – and that is why the job always gets done, despite continually declining resources. The last thing that any plant staff member would want is to be responsible for is a missed event, class, or research project as a result of inadequate effort. So every year, the work continues and the staff makes do. Much of the time this is a result of a determination to become more effective and find every (and all) ways to maximize the utilization of short resources.

THEY DO IT BECAUSE...

Every once in a while, when the economy is suffering like it is now, we feel good to have a job at all. Despite this, the economy will eventually improve and the pay scales offered to our professions will be below most in the private sector. Even then, the work will continue and progress will be made in support of the educational mission.

Why do they do it? They do it because it is work that has meaning and it is a part of a larger mission of education and service. They do it because they are the kind of people that can find personal and professional satisfaction from within. They do it because there are some people that still see work as service and creation, thereby adding to the world. They do it because they liked the idea of being among those who "contribute and produce" and find satisfaction in that alone. ⊙

Matt Adams is president of Adams FM², Atlanta, GA. He can be reached at matt@adamsfm2.com

APPA U

By Suzanne Healy

WRAP-UP

September 2011 welcomed an inaugural event for APPA: the first offering of APPA U, our next generation in professional development for the facilities community.

During our time in Fort Lauderdale, Florida – the heart of the SRAPPA region – we offered the foundational programming of the Institute for Facilities Management, along with the Leadership Academy, which offered simultaneously, is now called APPA U. This co-located event provides many opportunities, allowing facilities professionals from all levels of institutional hierarchy, and from around the globe, to network with each other across several program areas.

The success of these offerings would not have been possible if not for the dedicated faculty. A special note of thanks goes to the Institute Deans: Mary Vosevich, Jay Klingel, Lynne Finn, and Don Guckert; and our Academy Deans: Glenn Smith, Ann Jenkins, Matt Adams, David Judge, Doug Christensen, and Jack Hug. Additionally, a very special thank–you goes to Tony Todaro of Nova Southeastern University and his team, for a wonderful tour of their world-class ice storage facilities and central energy plant operations. This tour truly provided hands-on learning!

Throughout the week, students had the opportunity to interact with experts who brought their knowledge and experiences from vast backgrounds, providing a rich environment for all attendees. As the week drew to a close, we celebrated with ceremonies for the Class of September 2011.

Kudos to all those institutions that supported the professional development of their staff! The professional development of any individual must be as customizable as the individuals themselves—and APPA is here to help everyone achieve their personal, departmental, and institutional goals.

Please visit *www.appa.org/training* for more information on all of APPA's program offerings. We look forward to seeing you and your staff at the next APPA event! ⑤

Suzanne Healy is APPA's director of professional development and can be reached at *suzanne@appa.org*.

Academy Graduates

Bill Elvey, *University of Texas/Dallas*
Skip Learned, *Barrington Public Schools*
David Reiber, *University of Arizona*
Robert Wiltsie, *Michigan State University*
Thomas Yopp, *Choate Rosemary Hall*

Institute Graduates

Corey Berman, *University of Vermont*
Mary Bierer, *Edinboro University*
Mario Boileau, *University of Ottawa*
Chad Brimley, *BYU/Utah*
James Byrd, *Wake Forest University*
Keith Callahan, *Wake Forest University*
Vince Callanan, *Lehigh University*
Phil Campbell, *Maryville University*
Doug Carter, *University of Kansas*
Richard Covington, *University of Virginia*
Neil Crump, *University of Texas/Austin*
Greg Davis, *Santa Clara University*
Mazinn Eelya, *American University of Sharjah*
Kurt Fink, *Penn State University*
Bobby Flores, *Texas Tech University*
Matt Frericks, *Miami University*
Kimberly Fuller, *University of Alabama/Huntsville*
Alfred Gonzales, *Glendale Community College*

Yvette Halverson, *University of North Dakota*
Joel Hauff, *University of Arizona*
Jolene King, *Purdue University*
Alex MacNamara, *University of Miami*
Upendra Malani, *Marymount University*
Mike McCann, *Saint Mary's University/Canada*
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Rick Wade, *Weber State University*
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Steve Walters, *Meredith College*
Joseph Westbrook, *SUNY Cortland*
Chris White, *Old Dominion University*
Judy Witter, *University of Michigan*
Bill Yost, *Wake Forest University*

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

The last of my summer reading,

an indication of how far ahead this column is written, brings me to write about two very different but also similar books. The first, a facilities book designed to introduce young people—or recent career transfers—to facilities management. Considering APPA's concerns (and many grey-beards, myself included) about the lack of new blood in the organization, it is a welcome addition. The second could be read by a near or recent graduate, concerned about developing a successful career in any field, facilities management included. Regardless of your reasons for choosing to read either book, I recommend you enjoy the end of the year with a good book.

FACILITY AND PROPERTY MANAGEMENT GUIDEBOOK

Jeffery L. Campbell, Campbell Consulting, Orem, UT, 2010, 370 pages, softcover, $69.95.

There are several general books on facility management, but most of those books are large tomes that are dense and attempt to answer most, if not all, facility questions. By contrast, this is a general book that doesn't attempt to answer everything, yet provides an excellent overview of the industry.

Facility and Property Management Guidebook is a course text for introductory courses in facility management. Beginning with a general background of facilities through history, the *Guidebook* outlines the forces that have formed the constructed world, leading to the need for facility professionals. The major employers of facility professionals are reviewed, why they need facility professionals, and what is interesting about the jobs.

This is followed by a review of the technical aspects of facilities management, including a description of the process from design through operation. Facilities are described from the outside-in: structure, envelope, interior, MEP systems, and special equipment.

There's also some discussion about site infrastructure, hardscape and utilities. As an introductory book, treatment of these areas is general and not very detailed—but there's enough information to spark some interest and lead to further study. The discussion about the project delivery process provides enough information for a novice to assemble a basic program statement, oversee the design, and make an informed choice about the construction contract. Again, additional details are needed for professional practice, but that knowledge is clearly left to an upper level course or internship.

The discussion about operation of facilities covers the essentials, types of maintenance, management systems, energy conservation, sustainability, and regulations. There's a nice discussion about energy costs and some demand side-management techniques. Reflecting issues of the time, there's a separate chapter for security and disaster recovery. (Facility officers must be prepared for these issues, and an introductory course is an ideal place to introduce these subjects.) Finally, several chapters discuss leadership, budgets, and property management. These chapters cover facilities management issues that are often left for committed facility officers.

Facility and Property Management Guidebook is a comfortable read, designed for young people considering facilities management as a career. While used in only two university programs on facilities management, it ought to be used more widely including outside the classroom.

THE 11 LAWS OF LIKABILITY: RELATIONSHIP NETWORKING . . . BECAUSE PEOPLE DO BUSINESS WITH PEOPLE THEY LIKE

Michelle Tillis Lederman, AMACOM, New York, NY, 2011, 215 pages, softcover, $16.95.

Whenever presented with an opportunity to review a book about relationship building, I think back to my early teen years when I was

given a Dale Carnegie book. While the times and settings may have changed, the message is still true. The message in *The 11 Laws of Likability* is the same as Carnegie's *How to Win Friends* message: be liked and you'll get business (through friendships). So what makes this book stand out?

The 11 Laws of Likability presents its

> HAVING SUFFICIENT SELF-AWARENESS OF ONE'S CHARACTER-ISTICS AND THE CHARACTERISTICS OF OTHERS CREATES OPPORTUNITIES TO SUCCEED.

message following a standard pattern in each chapter. Each *Law* is presented in the chapter title: Authenticity, Self-Image, Perception, Energy, Curiosity, Listening, Mood Memory, Familiarity, Giving, and Patience. There are several examples and corollaries to each law that emphasize the law and provide a path to achieving the law in action. Each chapter has at least one example form the author's experiences which illustrates the points of the chapter. Then each chapter ends with a summary of the law with key points to remember.

While there are a lot of similarities to previous books about building relationships, this one is different and unique. Similar to *Build on Your Strengths*, Lederman recognizes that one cannot be all things to all people (or customers). Rather, there are some innate characteristics each of us has, and there are opportunities for us to leverage them on our own or with others. These characteristics make a person successful in their career. Having sufficient self-awareness of one's characteristics and the characteristics of others creates opportunities to succeed. In this case, the characteristics are called "likability" but they could also be called many other things.

This is an enjoyable book. It is easy to read from start to finish, but also organized so it can serve as a reference when one needs a refresher about a business situation and how the *Laws* can be applied. I'll add this book to my set of business references and refer to it periodically when confronted with new, potential long-term relationships. Ⓢ

Ted Weidner is assistant vice chancellor of facilities management & planning at the University of Nebraska–Lincoln; he can be reached at *tweidner2@unlnotes.unl.edu.*

Compiled by Gerry Van Treeck

Coolerado Corporation introduces its patented heat and mass exchanger technology. Capitalizing on natural, clean energy found in our atmosphere, Coolerado air conditioners provide percent fresh, filtered and comfortable air with no added humidity. With the fan being the only component being powered within the system, energy consumption is reduced 90 percent, making it the most energy efficient air conditioner in the world. For more information visit Coolerado Corporation at *www.coolerado.com*.

SnowEx debuts the V-Maxx 8550 High Output spreader. Featuring higher material feed rates, the new unit is ideal for snow and ice professionals looking to spread high volumes of sand in one pass, rather than making multiple passes to achieve a heavy application. Designed to spread sand, the V-Maxx 8550 comes standard with a patented multi-angle hopper, an inverted-"V" baffle and an attached vibrator. For reduced maintenance, the spreader's hopper is made from corrosion-resistant polyethylene, and there are no engines, pulleys, sprockets, belts, or chains to maintain. The unit is completely electric-powered with a high-torque, ½-horsepower motor, and all electrical components are fully sealed for weather protection. For greater detail visit SnowEx at *www.trynexfactory.com*.

Camfil Farr has released LCC 2010, the latest version of its proprietary Life Cycle Costing software for air filters. LCC 2010 allows customers and HVAC engineers to achieve the lowest life-cycle cost for an air handling unit ("AHU") while achieving the highest indoor air quality (IAQ) through the use of Camfil Farr air filters. Instead of using theoretical averages, the software calculates the pressure loss of filters, and their actual lifespan using real-life data collected from thousands of installations and tests. This information guides users to the choice of the best-performing filter with the lowest possible energy consumption and environmental impact. For additional details visit Camfil Farr at *www.camfilfarr.com*.

Larson Electronics, manufacturer and distributor of industrial lighting equipment, announced today the addition of the EPL-50-120x12-EHR incandescent work light to its line of explosion proof and hazardous location drop lights. The EPL-50-120x12-EHR incandescent work light produces an effective spotlight beam that is valuable for jobs requiring the ability to project illumination across significant distances in the hazardous workplace. Ruggedly constructed and approved for Class 1 Division 1 hazardous locations, this work light is paired with a cord reel holding 50 feet of explosion proof cord for convenient and trouble free operation. For more information, please visit *www.magnalight.com*.

Arrow Lock announces the latest addition to its E Series Deadbolts with the Arrow Occupancy Indicator, available on the E Series Grade 2 Arrow Deadbolt, which provides secure privacy control in areas requiring visual notification of use, particularly restrooms, darkrooms, and clean rooms. The Arrow Occupancy Indicator deadbolt utilizes a large external

viewing window to signal when a room is in use or vacant. Under emergency circumstances, an emergency key has override capability to unlock a door from the outside via an exposed external slot. For in-depth information please contact Arrow Lock at *www.arrowlock.com*.

FMC Professional Solutions launched FireAnts101.com, a new website teaching schools the latest ways to expel fire ants. Fireants101.com provides tools to help school facility managers and pest professionals understand fire ant biology and control, prioritize treatment areas, and calculate costs. And while supplies last, the site is offering schools a free sample of the new Talstar® XTRA granular insecticide, which eliminates fire ants in as little as minutes while providing three months or more of residual control.

Talstar XTRA also controls other surface-feeding pests like fleas, ticks, chinch bugs, earwigs, scorpions, and more. For further information visit FMC Professional Solutions at *FireAnts101.com*.

New Products listings are provided by the manufacturers and suppliers and selected by the editors for variety and innovation. For more information or to submit a New Products listing, e-mail Gerry Van Treeck at *gvtgvt@earthlink.net*.

Index of Advertisers

Workplace Demographics and Technology

SECTION III: Critical Issues Facing Higher Education: Technology

Participants at the Thought Leaders symposium agreed that the technology conversation in higher education is no longer about technology. In other words, the discussion has moved away from earlier questions about the importance or role of technology—today, technology has been accepted as an integral, ubiquitous component of higher education. The discussion has moved on to new questions: How do higher education institutions pay for upgrades to their IT infrastructure? How do they make better use of their data? How can they keep up with ever-changing technological innovations and satisfy the demands of students, faculty, and staff?

Critical Technology Issues

Planning, policy, and resources. Issues of planning, policy, and resources will increasingly challenge institutions, according to Thought Leaders participants. EDUCAUSE recently included strategic planning on its list of Top Ten IT issues of 2011; smart, effective planning has become critical as colleges and universities realize the limitations of their previous IT planning efforts. Technology moves fast, and IT plans need built-in flexibility—just ask those campuses that planned to wire all of their classrooms only to be overtaken by wireless technology. Effective IT plans include a measure of flexibility to adjust as needs, goals and technologies change. Other elements of successful IT plans, according to a recent article in *EdTech Magazine*, include the following:

- **Integration with the institution's mission and goals.** Planners need to understand the implications of their college or university's strategic direction and align the IT mission and goals with the institution as a whole.

- **A focus on need rather than technology.** Today's big tech thing may be forgotten tomorrow, so it is important not to focus on technology for technology's sake. Instead, professionals must focus on the needs and goals of the campus and craft a plan to meet those needs.

- **Coordination with other groups, especially facilities.** IT does not operate in a vacuum. Increasingly, IT plans need to be integrated with the plans for the entire institution, from libraries to labs. They especially need to be coordinated with facilities plans to ensure that both new construction and renovation accommodate IT needs.

- **Collaboration with academic leaders.** The success of IT and facilities managers will be affected by the ability to collaborate effectively with academic leaders.

IT policy is another area of emphasis, one that is sometimes neglected. All too often policy is not addressed until a crisis arises. Savvy institutions are evaluating IT policies on an ongoing basis, since, as technology changes, so must policies about its use.

According to experts Lisa V. Trubitt, Assistant CIO for Policy and Communication at the University of Albany, SUNY, and Kent Wada, Director of Strategic IT and Privacy Policy at UCLA, in a presentation at the 2010 EDUCAUSE conference, IT affects everyone at the institution. So the IT policy process needs to incorporate input from a wide range of parties including non-IT senior administrators. The emphasis should be on achieving consensus on policy issues across the institution. Trubitt and Wada also emphasize the following points:

- Drafting a policy requires an understanding of the issues.
- Without adequate commitment of senior administrators and adequate resources, policy work will languish.
- Professionals should do their best, and test the policy against reality. After a year they should review their work and revise elements as necessary.

Managing flat or decreased budgets is a challenge familiar to every college and university department, and was number one on the EDUCAUSE 2011 Top Ten IT

issues list. IT has shared the pain along with the rest of higher education, although research indicates more in-depth and significant cost measures are still to come. In 2010, the EDUCAUSE Center for Applied Research (ECAR) investigated the impact of the recession on higher education IT with both in-depth interviews and a web survey of member institutions. Surprisingly, the survey found the impact of budget cuts on IT has been

Data Point: Technology budgets on the rise?

An improving economy lessens the strain on IT departments—except for community colleges

"The budget cuts that have wreaked havoc on college and university IT units and resources in recent years may be abating. New data from institutions participating in the 21st annual Campus Computing Survey reveal that two-fifths (41.6 percent) of colleges and universities experienced a budget cut in central IT services for the current academic year (2010-11), down from fully half (50.0 percent) last year.

"Private/non-profit institutions generally fared better than their public counterparts; the proportion of private universities reporting IT budget cuts fell by more than half this past year, from 56.9 percent in 2009 to 24.4 percent in 2010. Among private four-year colleges, the proportion experiencing IT budget reductions dropped from 41.9 percent last year to 31.9 percent this fall.

"Although the proportion of public four-year colleges and universities reporting IT budget cuts also declined compared to 2009, the numbers actually went up for community colleges. Almost half (46.2 percent) of community colleges experienced reductions affecting central IT budgets this fall, compared to 38.0 percent in 2009. In contrast, fewer public universities suffered IT budget reductions this year than last (59.8 percent, compared to 67.1 percent in 2009), as did fewer four-year colleges (46.6 percent this fall compared to 62.8 percent in fall 2009)."

—*"IT Budget Cuts Are Down; LMS Strategies Are in Transition,"* **The Campus Computing Project,** *October 2010.*

relatively small. Only 53 percent of respondents reported a decrease in IT operating budgets, many less than 5 percent. Of course, some institutions faced much harder times—10 percent saw budget cuts of 15 percent or more. (ECAR also noted that cuts might be worse in FY2010-2011 and going forward, particularly for state institutions.) The greatest challenge identified by respondents to reducing IT costs was the unacceptability of reducing service levels. Other challenges included resistance to change outside the IT organization; lack of funding needed to induce savings; lack of executive sponsorship for change; and the decentralized nature of IT management. In fact, most cost-cutting measures had little to do with IT infrastructure or systems; departments reduced their budgets by limiting travel, implementing hiring freezes, and reducing training as well as implementing cost-cutting measures within IT financial management and portfolio management. According to an ECAR research report, "Higher education IT organizations should strive to sustain their focus on IT cost management and prepare for budgets that will grow slowly and may endure additional cuts. However, the coming years need not be a period of decline and retrenchment for IT."

Data management and analysis. A recurring theme of the Thought Leaders symposium was the need to make better use of data. Higher education IT observers agree: EDU-CAUSE has published in recent years more research findings on institutional data management. Colleges and universities lag far behind the private sector in capturing, categorizing, and mining data. Wal-Mart, for example, has been cited as owning the largest civilian databases in the world; the company relies on extensive data analysis to refine the product offerings at each store to satisfy local trends, provide seasonal favorites or even address unique situations. When a hurricane was predicted to hit Florida, Wal-Mart ran the numbers on previous sales at stores in the paths of storms and saw a run not just on tarps and batteries but also beer and pop-tarts. Both were well supplied before the hurricane hit.

Higher education is a long way from making such powerful use of its data. The type of information colleges and universities might glean from their data is impressive: identifying students at risk for dropping out or failing, analyzing participation levels in online courses, tracking performance of sustainability initiatives, and

delivering financial information to key decision-makers. Yet recent research by ECAR found that colleges and universities have a hard time analyzing and drawing useful information from their data. When asked by ECAR if they agreed or disagreed with the statement "We get maximum business value from institutional data," on average answers fell between "disagree" and "neutral." Those institutions that had invested in analytics systems generally felt they got greater value from their data than those who did not. In fact, ECAR's 2009 data management study report frequently states that there is a strong association between the use of advanced analytics and getting business value from institutional data. One of the most significant factors in an institution's use of data was the support of the senior administration; on campuses where respondents strongly agreed that leadership was committed to evidence-based decision making, the value derived from data was stronger.

ECAR recommends institutions invest in analytics, noting that "given the enormous investments institutions have made in creating powerful integrated administrative systems, it's remarkable how little progress they've made toward building the infrastructure and culture necessary to put their business data to management use." Institutions also need to build a culture that believes in the value of data and supports data management and analysis. Colleges and universities need to strive to decrease resistance to change and embrace decision making based on solid data.

Keeping up with trends and meeting user expectations.
College students walk onto campus with high expectations for technology. They see themselves as consumers whose demands should be satisfied; they expect to get WiFi everywhere, access any institutional resource any time, and work their way using their preferred tools.

As institutions struggle to keep up with these demands—as well as the demands of faculty and staff—colleges and universities also fight to keep up with technology trends. Participants at the Thought Leaders symposium expressed concerns that higher education was falling behind the technology curve. Research supports these concerns. The 2010 21st-Century Campus Report: Campus 2.0 by CDW Government, LLC surveyed more than 1000 students, faculty and IT professionals. The study found that up-to-the-minute technology was considered essential to students; 63

Data Point: Using academic analytics to identify at-risk students
Purdue's Signals program mines student data to track progress in a course

One of the most promising uses of data on campus is academic analytics, where the growing amount of information about students generated by course management systems is analyzed for trends in behavior. Purdue and SunGard Higher Education have pioneered a program that makes smart use of this data to alert both students and faculty of potential problems.

Signals applies statistical techniques to the data collected by instructional tools to measure the effort students are putting into a course. The system looks at a number of factors: attendance, quiz and test grades, participation in online discussions, completion of practice assignments, downloading of online course materials, etc. As early as the second week of class, when students log in to the Purdue student website, they see a series of "traffic lights" notifying them if they are in a green (looking good), yellow (at some risk) or red (in danger of failing) group. At-risk students also receive e-mail and text messages and automatic referrals to academic advisors and resource centers.

Signals has achieved significant results; most students, when aware of their risk level, take steps to become more successful. In one course of 220 students, early Signals data showed 45 students in the red level; over the following weeks, 55 percent moved to yellow and 24.4 percent moved to green. In another class, a large Biology course, sections using Signals had 12 percent more B and C grades and 14 percent fewer D and F grades than sections not using Signals. According to Purdue CIO Gerry McCartney, "We found in our research that this can improve student [achievement] an average of one letter grade for many students."

SunGard began marketing Signals to other colleges and universities in 2010; it was named one of the top ten higher-ed tech stories of 2010 by eCampus News.

TLS
19

percent said that an institution's technology offerings were extremely or somewhat important in selecting a college or university. More than half of students use social media including Facebook, Twitter, blogs and wikis at least several times a month for discussion, collaboration and content-sharing with classmates. However, students, faculty and IT staff see a gap between the potential of technology and its implementation on campus.

IT professionals cite lack of budget as the biggest impediment to technology in the classroom (39 percent of respondents). However, IT staff also point to lack of technical knowledge by faculty and occasional faculty resistance as also hindering the adaptation of technology, with 26 percent citing "professors don't know how to use technology" and 18 percent "professors won't use technology." Faculty agreed that lack of knowledge on how to use technology contributed to the problem (with 18 percent agreeing) but also pointed to lack of technical support resulting in technology not always working (14 percent). Overall, the survey paints a picture of students asking for technology that the IT department and most faculty want to provide, yet budget constraints, lack of technical knowledge and gaps in technical support often get in the way.

Online and blended education delivery strategies may actually change not only the way we use space but how much space we build. This issue absolutely requires the inclusion of Facilities, IT, and Academic leaders at the same table.

Response from the Thought Leaders Symposium

While significant challenges could get in the way, participants at the Thought Leaders symposium were optimistic that technology offered huge opportunities for higher education. By addressing the challenges head on and applying innovative thinking to the opportunities, colleges and universities could see major new benefits from technology in the next ten to fifteen years.

How has technology been successfully applied in higher education? Thought Leaders participants began by considering where technology has succeeded in the past. They identified successes including the following:

- **Student services.** Symposium participants remembered lining up in gymnasiums with punch cards to

Data Point: Keeping up with mobile technology
Institutions look to create new apps to engage students

Walk across any college or university campus, and every student seems glued to his or her mobile phone, as often as not texting or using a mobile app rather than talking. Today's generation of students relies on their phones—half of all students reported owning a handheld device and accessing the Internet from it, according to EDUCAUSE. Of these, more than half used the device every day.

Yet colleges and universities have been slow to provide digital content specifically designed for phones. It's a challenge: technology moves fast, resources are scarce, and the technical challenge is significant, since institutions would need apps for all of the major phone platforms, iPhone, Android, and Blackberry. An iPad-specific app might be wanted as well.

However, some colleges and universities are taking the plunge. Loyola University, for example, launched Loyola Mobile in Fall 2010; the system allows students to access grades and assignments, search the library catalog and check the University calendar. Loyola has also sought feedback and has developed new resources to meet requested needs, including a system that allows students to arrange transportation to and from campus and a direct connection to campus emergency services.

Other institutions have unveiled their own mobile apps. Ohio State, for example, recently launched an app for sports fans that provides detailed stats, running commentary and instant replays; it's popular with football fans, who use it to get detailed information about games right from the stands. As mobile phones become an ever-more essential tool, more institutions are likely to get on the app bandwagon.

register for classes; now, the whole system is automated and streamlined, takes less time and fewer personnel, and results in few errors.

■ **Libraries.** The ease with which students and faculty can identify research resources is remarkable. Online reference databases, fast and intuitive catalogs and easy access to experts has transformed the old university library into a modern research hub.

■ **Online learning.** Online courses have gone from a tiny subset of higher education to a critical part of the college experience. More than 5.6 million students took at least one online course during the fall 2009 semester, an increase of nearly one million over the previous year, according to research by the Sloan Consortium; nearly 30 percent of students now take at least one course online. The quality of these courses continues to rise as professors learn how to work with the new medium, and a majority of institutions report increasing competition for online students.

■ **Smart buildings.** Adding information and communications systems to buildings has made the job of managing campus infrastructure easier and more efficient. As buildings are connected to an integrated network, facilities staff can monitor and troubleshoot problems from a central location rather than running all over the campus or waiting for someone to call with a problem. Smart buildings also provide powerful built-in energy management services.

■ **Automated workflows.** Using technology to automate tasks such as personnel processing, contract management, scheduling, finance and accounting has streamlined many day-to-day operations on campus. While opportunities to increase automation remain, most colleges and universities have made strides in using technology to get information from point A to point B, speeded up routine transactions, and reduced errors and headaches.

What are the most daunting technology issues and challenges facing higher education today? There's no resting on one's laurels in technology—another challenge is always right around the corner. And that very fact is one of the major challenges facing higher education: the **rate of change**. New systems, solutions and software are introduced every day, each promising to change the world, each claiming the user cannot do without it. Even discounting those that turn out to be hype, an astounding

number of promising innovations are routinely unveiled and enthusiastically embraced by at least a portion of the campus population. Even before the recession cut budgets to the bone, no institution could afford to invest in every exciting new development. The blinding rate of change also poses challenges for existing infrastructure, which seems to be obsolete by the time it is installed.

Another major challenge is the integration of data and systems across the campus. Colleges and universities often host a bewildering variety of databases and networks, some of them centralized and carefully managed, others ad-hoc and purely local. Only 11.5 percent of respondents to the 2009 ECAR study of higher education data management said they had an integrated enterprise content management system. High-powered, cutting-edge supercomputers have popped up in individual labs as the cost of systems has decreased. But there is a drawback to all this diversity in terms of inefficiencies, security risks, and facilities costs (servers are energy-intensive systems). It is hard to consolidate and analyze data captured in different ways and stored in different systems, and one-off systems are more likely to be out of date when funding to replace them runs out. Consolidated networks and systems, on the other hand, are easier to maintain and secure, can be mined for insights, and allow for wider integration. A campus cyberinfrastructure that uses established applications, infrastructure, and standards can easily interact with other institutional, regional, or national cyberinfrastructures, facilitating cross-institutional research. Higher education faces challenges in insisting on a common platform because of its tradition of academic independence. Faculty have strong opinions about what they want and often resist the advice of others. IT must make a case for integration and get buy-in from both faculty and senior administrators to succeed.

Colleges and universities must also confront the challenge of developing a long-term funding model for IT. As previously noted, IT has struggled in the face of the same budget cuts that have affected every university department. A greater long-term challenge for IT is that colleges and universities have yet to develop a sustainable budget model for the department. IT departments have turned to short-term solutions such as hiring freezes and training cut-backs to address what is turning out to be long-term budget constraints. In fact, what is needed are structural changes to the way IT provides services to the

Data Point: Budget strategies for IT
Developing a model for evaluating the merits of cost-savings measures

An ECAR fellow recently developed a model to assess different IT budget-cutting strategies, noting, "Those approaches with high cost-savings potential but low sustainability are characterized as 'temporary relief.' They will provide some savings in the short term, but they are probably not the best long-term solutions. Those approaches with high cost-savings potential and high sustainability are 'game changers' capable of creating long-term changes to the cost equation. Those initiatives with high sustainability but low cost-savings potential should be considered, as small savings can certainly add up. . . . Those approaches that have both low sustainability and low cost-savings potential are probably to be avoided, except as a last resort."
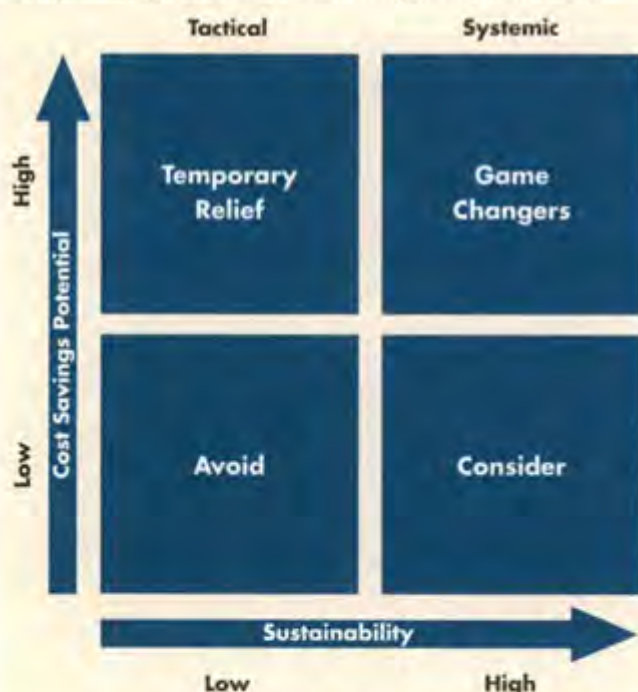
—John Voloudakis, "A Systemic Model for IT Economic Sustainability," ECAR Research Bulletin, 2010

entire campus. Making such changes can be challenging, but it promises sustainable cost savings that can have lasting benefits. In a recent study of IT budgeting, ECAR listed several strategies that are fertile ground for uncovering cost savings, including prioritizing services for their importance to the campus, reviewing services to uncover cost-savings using new technology (such as cloud-based computing), standardizing systems to ease maintenance, consolidating hardware, negotiating better contracts with vendors, and communicating changes widely. An overall goal should be for IT "to help reduce operational costs and enable new services across the institution."

Finally, a critical issue for higher education is the **lack of strategic planning and coordination between facilities and IT**. The work of these two groups should be closely coordinated—ask anyone who has tried to cram modern IT systems into a building designed without them—yet too often IT is only brought into a construction or renovation project after key decisions have already been made, or facilities only involved in an IT project after crucial choices have been set in stone. Integrated facilities and IT planning most often take place when designing showpiece smart classrooms or landmark buildings, but they need to be embraced all the time, for every project. Research published by ECAR points to four areas where IT and facilities fail to connect:

- **Governance.** Campus facilities projects must go through a formal process of seeking input, review, and approval, and IT professionals should be part of the process. Requiring the campus Chief Information Officer (CIO) or his or her delegate to be part of every project review process keeps technology concerns in the foreground of decision making.

- **Approval.** Currently, the CIO is rarely involved in approving facilities projects. ECAR suggests requiring CIO approval of project plans as well as CIO review of projects at their close to ensure that technology is working as expected.

- **Planning.** To ensure that IT needs are communicated to the facilities team and design professionals, IT experts need to be involved in individual project planning. In addition, long-term strategic facilities and IT plans should be coordinated to ensure consensus from the start.

- **Communications.** Even if IT and facilities communicate well during projects, they need other venues. Rarely is there an extended conversation between IT

and facilities—an ongoing effort to understand the needs and concerns of the other party. Both formal and informal communications efforts need to be implemented to increase awareness, build relationships, and form alliances.

How is the technology environment likely to change in the next five to ten years? Participants at the Thoughts Leaders symposium anticipated several key issues to grow more challenging in the next five to ten years. **Energy management** will grow increasingly more pressing as the days of cheap fossil fuels disappear and energy becomes more expensive. IT systems demand enormous amounts of energy, and colleges and universities will need to develop new strategies for obtaining and managing that energy. IT plans must begin to take energy conservation seriously, and facilities managers will need to work with IT managers to find new ways to deliver cutting-edge technology within energy constraints.

A second growing challenge will be **shifts in the way that higher education provides degrees**. Online learning has already changed one aspect of higher education

by introducing a new way of taking courses and even getting degrees. The rising cost of four-year colleges and universities also points to another anticipated shift: a move away from the four-year degree at one institution. More students are expected to take courses at community colleges for two years, and then transfer to a four-year school; calls are also going out for three-year degree plans that would provide the same education with less time and expense. Technology will undoubtedly be critical to ensuring the success of these degree plans.

Security will also increase as a demand on colleges and universities. Risks will continue to grow—including risks we cannot even anticipate today—and technology will be critical to preventing, mitigating and communicating those risks. Cybersecurity will also grow more important. The more value institutions place on their data, the more critical security for that data will become.

What strategies might be employed to respond to technology challenges? Participants at the Thought Leaders symposium identified several strategies to address upcoming technology challenges, including the following:

- **Build alliances across disciplines.** Increased collaboration between different academic and operational units will be critical to institutional success. IT needs to partner with facilities, facilities with HR, and HR with finance. Turf wars need to give way to partnerships.

- **Outsource to private industry.** The institution is not going to be able to accomplish everything on its own—nor should it. Colleges and universities should turn to contractors and consultants who are experts in their fields; when done right, outsourcing has the potential to improve service while decreasing costs.

- **Focus on your strengths.** At the same time, institutions should concentrate on what they do best. Colleges and universities need to identify their niche—their unique role in the educational marketplace—and then use all the tools at their disposal to refine and perfect their educational offerings in that niche.

- **Manage expectations.** The student as a consumer can only push colleges and universities so far. At some point, the demands of students will become too much

Data Point: Integrating IT and Facilities
The new demands on facilities managers

"Real problems can arise when facilities doesn't have input at the building design and procurement stages. 'Hopefully, facilities managers are sitting at the table when construction is planned and designed, but it doesn't always happen,' says Judy Marks, director of the National Clearinghouse for Educational Facilities. 'Facilities inherits the buildings and then has to manage them.' . . .

"How institutions structure the relationship between IT and facilities varies from college to college, but one thing is clear: Gone is the nuts-and-bolts image of the old facilities department. Today's facilities managers must be as knowledgeable about the flow of systems data as they are about the flow of water on campus."

—*Barbara Ravage, "Tech Gets Physical,"*
Campus Technology, February 8, 2011.

for institutions to bear financially. Campuses will need to start managing expectations of students, parents, faculty, and staff.

How can innovation be applied to address technological challenges? Throughout the Thought Leaders symposium participants focused on the idea of innovation and looked for ways to apply innovative thinking to the challenges facing colleges and universities. When considering technology challenges, participants believed **leadership skills** will be critical to future success. Institutions need to develop smart, creative leaders who can assess changing situations, quickly strategize solutions, implement plans, and then adjust those plans as necessary. Institutions should look at providing leadership training for their administrators as well as creating HR programs that identify those with leadership potential.

Another innovation strategy draws on a point already explored in this report: **operate from data**. Savvy institutions will look for opportunities to gather data, invest in systems for analysis and seek to draw out meaningful information on which to make decisions. The better the data and the more in-depth the analysis, the more institutions will be able to make creative leaps, knowing they have the data to back up their decision.

Virtual systems and cloud computing can also become tools for innovation. Technology has the potential to level the playing field, provide cost savings, expand opportunities for collaboration, and enable advanced services for students, faculty and staff. Cloud computing

Data Point: Cloud computing and IT innovation
Westmont College turns to the cloud to cut costs and improve services

In 2008, Westmont College of Santa Barbara, California found itself in the same situation as many institutions: a tight budget, an aging infrastructure and an overwhelmed staff. The CIO, Reed Sheard, starting looking for innovative solutions to its problems and hit upon the concept of cloud computing.

The challenges facing the campus all had traditional solutions. A reduced budget could be addressed with layoffs, the complexity of infrastructure could be managed by increasing redundancy and the need for updated systems could be solved by performing triage to identify the greatest needs and replacing systems as the budget allowed. On the other hand, the same challenges also could be tackled with innovative, even disruptive solutions. The reduced budget could be addressed by changing the business model, the complexity of infrastructure could mean eliminating the infrastructure altogether and the need for updated systems could be handled by replacing those systems with cloud-based solutions.

So Westmont began the process of building partnerships with vendors. Several key systems needed updating or complete overhaul, including e-mail, e-mail storage, network infrastructure, educational software and college advancement encompassing fundraising and college relations. Over time, the college moved all of these systems off campus. The e-mail and calendar system was moved to Google, the wireless network was turned over to a cloud-based controller, and a new college advancement system was built on cloud-based customer-relationship management program Salesforce.com. With the savings in time and money from these projects, the college had the resources available to make other improvements to its IT system, including developing an iPhone/iPad app.

The results have been significant. Overall, the college saw a 65 percent cost reduction upfront over traditional deployments, and 55 percent cost savings over the lifetime of the solutions. The money saved by lowering procurement and deployment costs provided enough funding to pay for the services for five years. At the same time, IT management time decreased and user satisfaction increased. As CIO Sheard noted, "In these times it is tempting to go with the safe, traditional solutions, but as we at Westmont have found, once you examine the seemingly riskier cloud alternatives, the rewards can sometimes far outweigh the risks."

in particular creates opportunities to transform the entire model of higher education IT by moving key systems and services to "the cloud"; instead of buying software and hosting it on the campus's servers, the institution partners with a vendor who hosts software on their servers and provides services remotely via the internet. Updates are automatic, costs are transformed from capital expenses to operating expenses, and increases in capacity can be added as needed. Cloud computing cannot solve all of IT's problems, but it promises to be a technology with innovative possibilities.

Facilities leaders respond to technology challenges

Participants at the Thought Leaders symposium considered the multiple trends and issues in technology and then evaluated ways facilities departments should respond.

How is the current campus built environment able to respond to expected technology changes? Symposium participants began by considering where facilities are today. One critical factor that will help institutions respond to changing technology is the investment in future flexibility. Colleges and universities have made great strides in the last ten years in designing buildings and infrastructure with built-in flexibility. New structures are less likely to be tied to one use and more accommodating of changes in both technology and purpose, teaching style, research focus, and other areas. These buildings will serve campuses well for years to come.

Other advantages on today's campuses are **smart buildings, systems, and classrooms**. The move toward increased technology in buildings is long-standing and paying off in terms of reduced energy costs and more efficient management. High-tech classrooms, once isolated examples full of technical experiments, are increasingly commonplace and frequently designed with future innovations in mind.

The emphasis on **energy efficiency** in facilities departments is paying off for IT as the overall campus energy footprint is diminished. IT can be an energy hog, but efforts by facilities departments to find energy savings are moving IT groups toward solutions that are less energy intensive. Often, these more energy-efficient approaches have added advantages. For example, the costly practice of locating servers in each and every building where they must be constantly cooled even if the rest of the building is empty is being replaced by centralization in which servers are grouped in special-purpose buildings. Not only are the energy costs lower, IT departments also find these central server banks easier and cheaper to maintain.

What changes need to occur to ensure current and future investments in facilities are capable of supporting future technology changes? In other words, how can senior facilities officers develop buildings today that will work flawlessly with technology tomorrow?

The first step is to **improve coordination between IT and facilities.** Facilities professionals cannot be expected to have a broad sense of technologies looming on the horizon, but it is in their own best interests to engage IT early in the process. IT needs to bring its that knowledge to facilities. This coordination should not be optional—it should be a critical part not only of planning for individual new buildings or renovation projects but also of long-term strategizing. The master plans of the two groups need to be integrated so that they include shared goals, approaches, and vision.

Institutions also need to **improve building flexibility**. While many new structures are more flexible, new structures are still built without consideration for technology trends. Buildings need to be more modular and reconfigurable so that they can be adapted no matter how the needs of the institution change. Flexibility needs to encompass not only individual buildings but also the entire campus infrastructure. Communications and energy systems will continue to evolve in the next decades, and smart institutions will be ready for that evolution.

Finally, colleges and universities need to apply the concept of **total cost of ownership** to all of their campus facilities projects. Total cost of ownership means evaluating not just the cost to build a structure but also the cost to maintain it over time, including energy costs, program retrofits, IT upgrades, and, eventually, the costs to decommission and dispose of the facility. Adaptable, easily-upgradeable buildings might cost more to build in the beginning, but they will actually cost less over time if they do not require expensive renovation or retrofit every time technology evolves or the institution's needs change.

fig 25

The strengths and weaknesses of higher education when confronting technology transformations, and strategies institutions should use to respond

The success or failure of institutions addressing technology will depend greatly on the strengths and weaknesses of those institutions. Symposium participants considered strengths and weaknesses along with strategies for success.

Strengths of higher education. The advantages that college and university facilities bring to the table include the following:

- A structured design process. Facilities departments have in place a detailed process for soliciting input on the design of new buildings. This process can easily be adapted to include IT considerations.

- Openness to and familiarity with technology. Facilities staff work with advanced technology every day. New smart buildings and structures designed to meet high LEED standards (U.S. Green Building Council's Leadership in Energy and Environmental Design) require sophisticated technology, which facilities employees have mastered.

- A well-constructed campus. Colleges and universities generally build for the long term. Most campuses were constructed following strong design guidelines that have held up over time. Even buildings designed before the era of modern technology have remarkable integrity.

Weaknesses of higher education. Factors that will limit the ability of institutions to meet future technology challenges include the following:

- Aging infrastructure. Despite the integrity of many older buildings, outdated buildings and systems nevertheless pose a challenge for colleges and universities. Adding new technology to these buildings can be an expensive hassle, and the expense of maintaining these buildings puts a drain on facilities resources.

- Piecemeal approach to planning. Few institutions integrate IT and facilities planning. In fact, some institutions fail to prepare and follow effective plans for either department. Without a clear sense of direction, institutions struggle to find the right path.

- Risk-aversion. With respect to their campuses, colleges and universities are generally cautious and conservative. Costs are high, resistance to change is high, and allegiance to old buildings runs deep. New or different approaches to campus structures go against the instincts of many within the campus community.

- Outdated structures. Teaching and learning models in higher education need to change both because technology opens up new possibilities, and cost models of delivery need to change if institutions are to survive. Cutting-edge science laboratory/teaching buildings (such as the University of Minnesota's new biology building and St. Cloud State University's Integrated Science and Engineering Laboratory Facility) are good examples of the change that is needed. Other disciplines have been slower to embed new learning, and outdated structures are making the implementation of essential innovations difficult to achieve.

Strategies higher education can use to respond. Finally, symposium participants considered the best approaches to technology challenges.

- Integrate IT and facilities planning. This one step would solve numerous problems and create new opportunities for smart IT and facilities joint efforts.

- Increase professional development and IT training. Facilities staff need to keep up with technology trends. The best way to keep skills fresh is to provide regular training with capable, engaging trainers.

- Plan for flexibility. Those responsible for new buildings and building renovations should make flexibility a goal. Buildings should be designed so that, even as pedagogy evolves and technology changes, the structures remains functional.

- Use data to make decisions. Transforming higher education into data-driven organizations will take time, but it will increase the effectiveness of institutions.

- We must recognize the scale of the challenge and the changes that we will have to make in how we discover new possibilities and make decisions. More attention needs to be given to environmental scanning and making a way for outside ideas to penetrate our planning.

SECTION IV: Top Ten Higher Education Facilities Issues

How the top ten issues were identified. The premise of the Thought Leaders Symposium is that facilities leaders have an important role to play in solving the challenges facing higher education. Ten issues were identified by symposium participants which are expected to be the most significant in the next five to ten years. In addition, participants developed critical questions related to those issues. The questions are the heart of the exercise: they are intended to guide facilities managers and university leaders in discussions of these issues on individual campuses.

One important point: readers of the previous Thought Leaders reports might notice some changes to the list. Issues not carried over from the previous years have not gone away as priorities. Instead, the issues identified each year are those that arose in discussion as the most critical at this time.

1. Establish a culture of innovation and collaboration.

The Issue: Higher education needs to transform its employees to be more open to innovative thinking and collaborative processes. This can lead to a change in culture.

Strategies:
- Take a close look at your organization and assess the current acceptance of innovative and collaborative thinking.
- Identify policies, practices, structures, and beliefs that are getting in the way of innovation.
- Start with small, manageable, measureable projects, then build on your successes.
- Include the academic community in planning and programming discussions around the pedagogy as it relates to the built environment.

While many great innovations in science, engineering and business have emerged from colleges and universities, institutions are frequently some of the least innovative and collaborative places. Administration on most campuses can be stifling, bureaucratic, obsessed

with detail and skeptical of change. A lot is at stake—money, time, reputation—and institutions respond by growing increasingly risk-averse.

But change is needed on today's campuses to address the serious problems facing institutions, problems including drastic cuts in state support for public schools, resistance to high tuition, and shifts in the expectations and needs of students. Bureaucratic, risk-avoidant decision making will not get the job done. Institutions need to embrace creativity, innovation, and collaboration.

Unfortunately, some of the barriers to innovation identified by industry experts are too complex to be tackled in a single department or even on a single campus. One recent paper, "Barriers to Innovation in Higher Education", by Dominic J. Brewer and William G. Tierney, pointed to the following as the most significant limiting factors for innovation:

- **Current funding mechanisms provide weak incentives for innovation.** State subsidies are loosely tied to enrollment and not linked to results, and there is no financial reward for innovative strategies. In addition, state funds are tied to operational requirements—there is no higher education equivalent to K-12 charter schools.

- **Federal/state regulations can provide important consumer and employee protections but also dampen innovation.** Regulations hinder new entrants to the field and obstruct the spread of online education.

- **Accreditation has evolved slowly.** Accreditation tends to foster risk-aversion and standardization. It is largely process-based versus outcomes-based—that is, it measures credit hours rather than learning.

- **Faculty governance and contracts may no longer be a source of strength.** Shared governance has become a tedious process akin to labor negotiations. In addition, if faculty do not benefit from an innovation, it is tough to sell.

So what can an individual or small group do when faced with such systemic challenges? The only solution is to start small but think big. A small step toward collaborative, innovative thinking may provide the confidence for greater risk-taking and teach important lessons on how to make innovation succeed. Consider a persistent problem, a point of contention or frustration that has long been a campus headache. How can you think about this problem in a new way? Who on campus can come together to look at this problem from different perspectives and come up with creative solutions? How can you remove the long-standing constraints that have gotten in the way of managing the problem?

An important step is to understand where you are today. Institutions need to take a close look at the practices, policies, beliefs and traditions of their organization and ask how they are either encouraging or inhibiting innovation. Think about innovative proposals in the past—how did they fare? What enabled successful projects to move forward, gain acceptance and thrive? What got in the way of other innovations finding success?

Another critical step is to develop measurable goals. Broad goals such as "increase collaboration between IT and facilities" sound great on paper, but how do you know if you have succeeded? Consider ways to measure progress and include periodic reviews in your plan.

Questions for institutional dialogue:
- How do we define collaboration? Innovation?
- How does the campus organizational structure and/or policies encourage or inhibit collaboration and innovation?
- How do values and beliefs encourage or inhibit collaboration and innovation?
- What mechanisms are in place for idea exchange?
- How do we move from concept to execution?

Data Point: Innovation on campus
Questioning long-held assumptions about the purpose of higher education

A recent report for the Center for American Progress and the Innosight Institute looked at how the structure of higher education discourages innovation and asks some hard questions about the purpose of colleges and universities.

For example, is the primary mission of the institution to educate students and move them toward a degree or is to produce research? Analyzing the structure of traditional institutions, the authors assert departmental organization is intended to "optimize the ability of faculty to publish." In contrast, for-profit, online institutions are designed to "optimize the flow of students through the university." While noting the significance of research institutions, the authors point out the traditional structure is far less efficient in terms of getting students to a degree:

A typical traditional university incurs operating deficits of 10 percent of revenues, even while Laureate [owner of Walden University] and Apollo [owner of the University of Phoenix] both report operating profit as a percentage of sales to be roughly 30 percent. The cost advantage of these disruptive low-cost universities, in other words, is more than 40 percent even as they often charge roughly the same tuition as those four-year traditional universities.

Another important question, particularly for state legislators, is whether their responsibility is to "facilitate the best possible postsecondary education and training for the people in the state or whether they are appointed to be the caretakers of the specific institutions that have historically provided higher education." Historically, these two goals were seen to be synonymous, but that might not always be the case. Should a historic institution with passionate alumni but poor track record be preserved? Or should that money go elsewhere?

—Clayton M. Christensen, Michael B. Horn, Louis Caldera and Louis Soares, "Disrupting College: How Disruptive Innovation can Deliver Quality and Affordability to Postsecondary Education," The Center for American Progress and Innosight Institute, February 2011.

- How do we know we've improved? What sort of benchmarks and metrics can we put into place to measure progress?
- How do we engage the academic community in innovative ways of delivering learning?

2. Improve productivity with level or decreasing resources.

The issue: Colleges and universities need well-considered, measurable, and transparent strategies to get more done with less.

Strategies:
- Understand your institution's core mission and focus your efforts there.
- Develop metrics to measure your progress.
- Look for advantages from technology.
- Empower your employees by increasing flexibility and accountability.

Economists say the recession is ending, but budget woes for colleges and universities are not going away. State appropriations for higher education will be even lower in some states in the next few years as federal stimulus funds run out. The National Governors Association and the National Association of State Budget Officers predict state shortfalls for 2011-2012 to reach $127.4 billion. At least 31 states predict budget gaps, according to the National Conference of State Legislatures, with nineteen states expecting gaps of 10 percent or more of their general fund budgets. Proposed cuts to higher education range from $314 million in New York, to $325 million in Arizona, $660 million in Pennsylvania, $969 million in Texas, and $1.4 billion in California.

Meanwhile, most private colleges and universities (79 percent) expect to see increases in their tuition revenues for FY 2011-12, but the rates of increase are generally flatter than in previous years and often offset by significant tuition discounting. A 2011 report by the National Association of College and University Business Officers found that discounting and financial aid reached unprecedented levels for private institutions. The average tuition discount rate for first-time, full-time freshmen was 42.4 percent in 2010, a jump from about 39 percent in 2007, while a record 87.5 percent of all first-time, full-time freshmen received financial aid compared to around 80 percent in the seven years preceding 2009. As a result,

net tuition on average grew by less than 2 percent in 2009 and just under 3 percent in 2010, a significant drop of the average increase of 4.2 percent from 2001 to 2007. "That means that institutions did not gain nearly as much revenue as their tuition increases would suggest, and that many institutions saw gains in tuition revenue that lagged the inflation rate," noted *Inside Higher Ed.*

Facilities departments will take the hit along with everyone else—so what are they to do? Many are already smarting under several years of budget cuts, hiring freezes, and delayed maintenance. The key will be to increase productivity.

This sounds like an overwhelming proposition, but in fact it is an opportunity to focus your efforts and embrace innovative thinking. A critical step is to assess your mission. It is easy for organizations to take on tasks over the years that then become routine and expected—even though they do not contribute to the mission. Senior facilities officers need first to clearly understand what is required of them and ensure that those requirements are aligned with the institution's mission and vision. Then they can prioritize the work of their employees based on their contribution to that mission.

A second important step is to establish metrics that will allow you measure your progress. Can you find new ways to assess how well you are fulfilling your mission? With new metrics and a steady source of data, you can see where you're falling short as well as where you're succeeding. Technology can be an important tool in the search for and use of metrics, and facilities professionals should also look to technology to improve productivity. Investments in smart building systems, for example, can improve building efficiency, provide critical data on building performance, and save workhours in maintenance and monitoring.

Finally, senior facilities officers should look for ways to increase employee accountability. Employees should be empowered to have more flexibility in how they get their jobs done and given more opportunities to speak out about opportunities for cost savings or improved productivity. Those employees who step up to the challenge and find ways for the institution to get the job done should be rewarded.

Questions for institutional dialogue:
- What are the requirements and expectations of facilities to support the mission of the institution?

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Data Point: Budget woes for state colleges and universities
Situation not improving any time soon

"While fiscal 2012 may mark a turning point in state fiscal conditions, spending and revenue collections are unlikely to return to prerecession levels for a couple more years in a number of states. The slow economic recovery and the wind-down of Recovery Act funding in fiscal 2012 will continue to present states with an environment of tight fiscal conditions even after significant cuts and the enactment of new taxes and fee increases."

—"Preliminary Summary: Spring 2011 Fiscal Survey of States," The National Association of State Budget Officers, May 31, 2011.

- What is the targeted/desired outcome?
- What metrics best quantify facilities requirements and expectations? What should be monitored and how?
- What resources are available to start?
- How can we use technology to improve productivity? Where will technology investments have the greatest payoff?
- How do we empower employees to contribute to the process? Can we increase accountability as well as flexibility?

3. Leverage technology to improve decision making.

The issue: Colleges and universities need to do a better job gathering and analyzing their data to make solid and consistent business decisions.

Strategies:
- Promote the concept of data-driven decision making to campus leaders.
- Identify business functions and decisions that could be supported with better data access and analysis.
- Determine current sources of data and evaluate any barriers to using that data.
- Support employee training for data evaluation.

Participants at the Thought Leaders symposium believed that data is the great untapped resource of colleges and universities. Institutions automatically collect vast amounts of data, but they make little use of it to drive business decisions. Even more data is uncollected and unusable. The savviest and most successful corporations rely on their data to understand their customers, deliver the best products and services, and streamline their operations. Colleges and universities that embrace this same attitude would have a powerful tool to help them compete in the increasingly tight higher education market.

Some institutions have seen the value of their data and made investments in data management and business intelligence systems that have achieved significant results in cutting costs, identifying trends and supporting business decisions. Consider the following examples:

- Miami University of Ohio used business intelligence tools to improve the financial viability of its summer academic programs. By combining information from accounting, registration, and financial aid systems, the university gained a big-picture view of summer students and courses and was able to make critical decisions to cut the budget.

- Johnson County Community College in Overland Park, Kansas, implemented a project management system for its IT department that has resulted in more efficient project development and management. Proposed projects are prioritized to ensure those with the greatest impact get the most attention.

- Lincoln Memorial University in Harrogate, Tennessee, used advanced statistical tools to determine the most successful recruitment strategies for the institution. Strategies believed to be sure-fire hits turned out to be duds, while unexpected efforts had remarkable results.

For all these institutions, the first step was to embrace the idea of data-driven decision making. Without a high-level commitment to data as a critical tool, these projects will never get off the ground. One way to build support is to start small with a manageable project that can have solid results. That's why Miami University began by looking at summer session data. "Having a real-life example of how we could use data to support decision making helped the general university community understand the value of business intelligence," said

Beverly Thomas, associate VP of finance and associate treasurer. "It made it less theoretical." Another important early step is to identify areas that could benefit from better data. These will often be activities or functions where the institution needs to cut costs, improve productivity, or solve a problem. For Johnson County, that meant tackling widespread frustration with the IT project management process; for Lincoln Memorial, this meant focusing on recruitment, where the institution had set a goal to become more selective and enroll more high-achieving students.

Data Point: Making smart use of data
Adapting the ideas of today's savviest online companies

Colleges and universities are looking to the world's most successful companies to improve their interactions with students.

For example, Austin Peay State University in Clarksville, Tennessee recently unveiled a system that recommends courses to students based on their major, past academic performance and performance of other students in the class. The system operates a lot like the recommendation systems used by Netflix and Amazon to promote books and movies, and in early tests it has shown to lead to higher grades and fewer dropped classes.

Meanwhile, the University of Phoenix recently rebuilt its entire learning platform from scratch, incorporating many of the innovations of social networking sites as well as a complex, in-depth data platform. The goal is to create a system that profiles student behavior and personalizes how individual students are taught. Recommended learning activities will be based on how students learn, what they're struggling with and where they need help.

— Jeffrey R. Young, "The Netflix Effect: When Software Suggests Students' Courses," The Chronicle of Higher Education, April 10, 2011 and Josh Keller, "Borrowing From Tech Industry, U of Phoenix Rebuilds Its Learning Platform," The Chronicle of Higher Education, February 6, 2011.

Often colleges and universities have the data they need to make better decisions, they just aren't using it. Institutions need to identify their stores of data and find ways to get it out of its silos and into a form that makes sense for users. This can be a technically challenging task, and rarely will institutions have the right staff on hand to do it all themselves. Finding the right vendors with whom you can partner is essential for most colleges and universities. Data experts can help identify barriers to data integration and point the institution to more efficient capture and use of information.

Questions for institutional dialogue:
- Who on campus supports the idea of data-driven decision making? Who is skeptical? What core group of advocates could promote the concept across the campus?
- Where is the institution already using data effectively? Can these programs be expanded?
- What critical issues or problems could be addressed with better data analysis? Are these issues essential to the institution's goals or mission?
- What data is the institution already collecting? Where is this data stored? What barriers are getting in the way of making use of this data?
- Do we have trusted vendors to guide us through the process of adopting business intelligence systems?

4. Align IT and facilities.

The Issue: Information technology and facilities departments need to do a better job of coordinating their goals, plans and projects to improve the success of both groups.

Strategies:
- Determine what is getting in the way of facilities and IT working more closely together.
- Reach out to IT managers and staff to gain agreement on the importance of better coordination.
- Develop processes that will improve alignment.

Throughout the Thought Leaders symposium, the importance of better coordination and alignment between IT and facilities kept returning as a theme. Most attendees could cite a project where lack of coordination had costly, time-consuming, stress-inducing results. Participants described having to drill through concrete walls to add conduits and fighting over closet space needed both

for maintenance staff and for servers. No one expects a 60-year-old building to be technology ready, but there is no reason new construction or renovation projects should have these problems. Some simple communications and coordination would make both IT and facilities more successful.

One area of emphasis that could benefit from increased IT/facilities coordination is energy management. Technology in general and servers in particular are energy-intensive systems, requiring not just electricity but also expensive air conditioning. Lack of coordination makes the situation worse. Facilities managers complain that either IT or individual academic units sticks servers in closets, taking away much needed space and requiring an entire building to be air-conditioned to keep that one closet cool; these server closets often require 50 percent more energy than the same amount of resources at a centralized data center. Facilities staff also argue that IT is only responsible for the upfront cost of servers and other IT infrastructure, not the electric and cooling bill, so there is no incentive for IT to invest in more efficient systems. On the other hand, IT managers point out they often have no way of measuring their power use since data centers are not individually metered.

The root of the problem is often neither IT nor facilities but rather faculty and research groups eager to have physical control of their own servers, but the situation poses an ideal opportunity for facilities and IT to work together for a better solution for the entire campus. Many institutions are turning to data center consolidation, where servers are grouped into one or a few specially designed locations that feature best practices in energy management and air handling and include only the most up-to-date, energy-efficient systems. A recent survey by CDW found that 79 percent of colleges and universities either had or were developing a data center consolidation strategy with the goals of both reducing expenditures on hardware, software and operations and reducing energy consumption. Other key steps that can help in this process include:

■ Coordinate to develop metrics for IT energy use. Some data center functions can easily be measured with free tools provided by the EPA and the U.S. Department of Energy—CDW found that only 25 percent of IT managers were "very familiar" with

these programs. Other steps to manage energy consumption might require coordination with facilities.

■ Consider outsourcing. One radical solution to data center problems is to get rid of them altogether. Thousands of colleges have already signed up for e-mail and calendar services through Google Apps, eliminating the need for servers that previously hosted these systems. Outsourcing research data may prove to be more complicated, since it would require not just data processing on an unpredictable schedule but also moving large chunks of data. But any means of reducing the number of servers on campus should be supported by both IT and facilities.

Data center consolidation is only one prime example where increased IT and facilities coordination could have resulted in significant savings and better services for campuses. The first step in all of these situations is determining what is getting in the way. Leadership management should look at processes, policies, budgets, and beliefs to understand where the roadblocks are. The next step is to forge connections between departments. This does not have to be an elaborate process in the beginning. If the senior facilities and senior IT officers had lunch once a month, it would be a great start. You need both formal coordination and informal relationships to succeed. Finally, the departments should work together to develop processes that will improve alignment. Look for metrics along the way that you can use to measure your progress.

Questions for institutional dialogue:
■ What is the current relationship between facilities and IT? Are there any formal points of contact, coordination, review or approval? What about informal relationships that could serve as a starting point?
■ What are the roadblocks getting in the way of effective alignment? Are any policies interfering with coordination? What about institutional attitudes and beliefs?
■ Are the mission and goals of the two departments in alignment?
■ What are some concrete objectives of better IT and facilities alignment? Can we apply metrics to those objectives? How will we know when we have succeeded?

Data Point: IT and energy management
Findings from the 2010 Energy Efficient IT Report

IT managers place increased importance on energy-efficient technology
- The percentage of IT managers who believe that energy efficiency is a very important consideration when purchasing new IT equipment has rebounded significantly during the past year – from 34% in 2008, down to 26% in 2009 and back up to 39% in 2010

Organizations are consolidating data centers and innovating to reduce energy use
- 79% of organizations currently have or are developing a data center consolidation strategy. Many cite energy reduction as a top driver.

Their efforts are paying off
- 74% of organizations have or are developing programs to manage and reduce IT energy use
- Of this group, 56% (up from 39% in 2008) have reduced their IT energy costs by 1% or more

Still, many struggle to allocate funds for energy-efficient IT programs
- Managers explain that they have too little budget left for new, more efficient IT systems after meeting internal client demands. They also find that senior management gives higher priority to investments in other areas of the organization

—"CDW-G 2010 Energy Efficient IT Report,"
CDW-G, 2010.

- What processes and policies need to be revised to make alignment a reality?

5. Create a new budget model for IT and facilities.

The Issue: Institutions need to coordinate not just IT and facilities planning but also budgets to ensure both groups are working toward the same goals.

Strategies:
- Evaluate the current level of budget integration between IT and facilities—for example, are incentives available to IT to reduce energy costs?
- Understand barriers to changing the budget model.
- Seek buy-in from both IT and administration leadership.
- Consider interim steps that could help prove the need for better financial integration.

It is not enough for IT and facilities to coordinate their planning and operations; they also need to align their budgets. Today, at most institutions, the finances of the two departments are completely separate, creating unintended negative consequences that can get in the way of improving the effectiveness of both groups.

Take the example of data centers from above. Part of the problem cited at many colleges and universities is that there is no incentive for IT to spend more money for energy efficient systems. Relatively cheap servers distributed around the campus cost the IT budget very little—or, in fact, cost IT nothing at all because they are funded from department budgets—but they put a huge drain on the facilities budget. Conversely, consolidated, energy-saving data centers require investment from the IT budget, but the savings to the electric bill will help the facilities budget. If there is no financial incentive for IT to invest in energy efficiency, why would a cash-strapped IT department bother?

A better solution is to create a link between the IT and facilities budgets so that savings in one area help everyone. At some institutions, IT departments that can prove their purchases save money on operational costs can recoup some of those savings—but this is quite rare. A recent survey by ECAR found few colleges and universities offering any financial incentives for environmental sustainability initiatives. Only 9 percent offered incentives for adopting alternative sources of electrical power, 5. 7 percent for minimizing growth in electrical energy usage and 3 percent for complying with LEED standards. The survey also found that IT is often only marginally involved in green initiatives on campus and rarely have measurable goals for increasing sustainability. While 53 percent of institutions had a stated goal of minimizing growth in electrical energy use, only 35 percent had a system in place to measure their progress; 47 percent had no goal at all. Most IT directors are striving

to reduce consumption—75.1 percent had initiatives underway—but without set goals or any financial incentives, these efforts may stumble when budgets are cut and priorities shift.

One model for combining not just the efforts but also the finances of IT and facilities is provided by Stanford, where the Sustainable IT office is a joint effort of both facilities and IT and reports to both departments. The goal of the office is to reduce the greenhouse gas emissions generated by IT infrastructure by reducing the energy needed to run the computing infrastructure, the cooling needed to keep equipment running, the energy used to build the systems, and the electronic waste produced when equipment is disposed of. Since its creation in 2008, the office has implemented programs to reduce the energy consumption of desktop and laptop computers, saving more than 2 million kWh/year, improved the efficiency rating of its data centers, and is in the process of building a cutting-edge computing center that will save the university $3.2 million per year in energy costs over 25 years.

Important steps in creating a new budget model will include identifying critical stakeholders, building support for the concept, and developing strategic goals for what is to be accomplished. Such a major shift will require buy-in from both departments as well as administrators across the institution. A strong financial case for integration will be essential, so research will be needed. A look at the constraints that are getting in the way will also be necessary. These will certainly include long-standing organizational structures as well as firmly held beliefs about how the institution should operate.

This process will be lengthy, but some preliminary steps can help to make your case. For example, the ECAR study found that the majority of IT directors had little knowledge as to how much energy their systems used. Facilities can work with IT to uncover this information in several ways. One instrument is an energy audit: while some colleges and universities (40.5 percent) conducted at least partial audits in the past year, only 12.4 percent audited their entire energy usage. Many IT professionals, on the other hand, reported either no audits in the last year (28.9 percent) or did not know whether an audit had taken place. (28.2 percent). Another solution is to start metering energy usage and at least informing departments of their consumption if not billing them for it. Currently, 83.7 percent of colleges and universities neither inform nor bill departments for their energy use: 9.4 percent were not billed but were informed, while only 3.3 percent were actually billed for their energy consumption. If IT and individual departments knew how much technology was costing the institution—and themselves—they would be more motivated to take action. Metering is a task that facilities departments can undertake on their own: it can have significant impact in convincing others of the importance of both working together and creating a new structure for budgeting.

Questions for institutional dialogue:

- What are the unintended consequences of lack of coordination or incentives for IT?
- What do we want to accomplish with a new budget model? What are our goals?
- What are the current constraints to better integration?
- Who are the stakeholders who would be necessary to achieving better integration? What is their current attitude toward IT/facilities alignment?
- What steps would need to take place to achieve alignment? What model would work for the campus? Are incentives an option? A joint office? A new system entirely?

Data Point: Energy consumption and IT

Lack of information seriously hurts IT efficiency efforts

"The absence of metrics about our own electrical power consumption is one of the biggest barriers we face in getting heavily into ES [environment sustainability] projects. We don't know how much electricity we use now; we don't see the bills because our facilities aren't sub-metered. We can guess at our usage, but we'd be much better off if we could see the numbers." – Sharon Blanton, CIO of Portland State University.

—*Mark C. Sheehan and Shannon D. Smith,*
"Powering Down: Green IT in Higher Education,"
ECAR Research Study, 2010.

- What incremental steps could be used to inform campus leaders about the issues? Are energy audits an option? What about sub-metering?

6. Confront shifting workforce demographics.

The Issue: Institutions need to take active steps to prepare for an increasingly diverse workforce.

Strategies:
- Understand the demographic shifts expected in your region.
- Implement cultural competency training before you experience problems dealing with race, ethnicity or culture.
- Partner with others in your community or region to increase recruitment and training among diverse populations.

The college and university workforce of tomorrow will be significantly more diverse than that of today. Research makes clear the magnitude of the shift. To recap from previous sections of this report, the caucasian proportion of the population will decline steadily in the next few decades, while the Hispanic- and Asian-American populations will grow dramatically.

How will colleges and universities in general and facilities departments in particular prepare for this change? Demographic shifts are highly localized, and the transformations expected in one region may be very different from those in another. Senior facilities officers would be wise to take a look at the demographics of their own area: Does the workforce reflect the surrounding community? If it doesn't now, it probably will. These campuses should make extra effort to prepare for more diversity.

Institutions should also consider attitudes within the workforce. It's better to assess and address issues of race, ethnicity and culture than let them simmer under the surface. Human resources experts use the term "cultural competence" to describe the skills, attitudes, policies and structures within an organization that enable that organization to work effectively in a context of cultural differences. Efforts to increase cultural competence can include diversity training, mentoring programs, and partnerships with community and social service

organizations. Research on a six-city program by the Annie E. Casey Foundation to help disadvantaged, low-skilled workers secure jobs with family-supporting wages—often in the construction industry—found several steps critical to the success of cultural competency efforts:
- Leadership commitment and dedicated resources demonstrated the importance of cultural competency to employees.
- Cultural competence efforts must be a priority and should be tracked along with other management tasks.
- Training should be extended to front-line supervisors since they deal with diversity issues on a day-to-day basis.
- Employers reported they benefitted from cultural competency interventions even when they had not considered issues of race or ethnicity a problem.

Senior facilities officers should reach out to their HR departments for help identifying the cultural competency efforts that would help your organization.

Institutions should not just wait for the workforce to become more diverse; they should reach out to minority groups within the community and strive to attract a wide range of employees. Often recruitment efforts need to be combined with training programs to ensure workers have the right mix of skills. Individual colleges and universities rarely have the resources or the level of demand to warrant creating such programs themselves, so it makes sense to seek out existing programs or team with other employers in your area. Such programs have had significant results in some cities. For example, in 2010 the Tri-County Construction Labor-Management Council (TRICON), based in Peoria, convened a Labor Shortage Taskforce including industry representatives, education leaders and community members with the goal of building a diverse and skilled construction workforce. Programs underway include outreach to area middle and high schools to educate students on careers in construction, Women in Construction Days (a program targeted at high-school girls), a new construction pre-apprenticeship program coordinated by the Illinois Central College Professional Development Institute, and expanded training in green building. It is too early to know the long-term results of the TRICON program, but it holds

promise to increase not only the available workforce but also the diversity of that workforce.

Questions for institutional dialogue:

- What demographic shifts are expected in our region?
- Does our current workforce reflect the community in which we operate?
- How can we promote cultural competencies within our organization? What are the current attitudes toward race, ethnicity and culture? Who can help us become a more culturally aware and accepting workforce?
- How diverse is our current employee candidate pool? How can we increase the diversity of that pool?
- Can we partner with others in our community to create new recruitment and training programs? What can we do to promote careers in the industry?

7. Increase the flexibility of the workplace.

The issue: Higher education HR policies and procedures need to become more flexible to adjust to a changing workforce.

Strategies:

- Make the case for flexibility to key stakeholders and build alliances.
- Understand the barriers standing in the way of more flexible policies and practices.
- Take stock of what you can control and strive to increase flexibility within the existing system.

As well as becoming more racially, ethnically and culturally diverse, the campus workforce will also include more women, grow older, and face increased competition for skilled workers. The one solution that can help address all of these problems is more flexibility in the policies and procedures of the workplace.

The rigid structure that has worked for decades in the workplace no longer serves the institution, and the problem may only get worse. For example, women are statistically more likely to be responsible for the care of both children and aging parents. More flexible hours and an emphasis on productivity over the number of hours spent on the job appeal to women workers with these needs. Older employees might not want to continue as permanent employees but may want to work part-time. By accepting part-time or flexible work schedules, these employees can continue to provide their invaluable wisdom. Also, potential employees in highly competitive trades will soon be able to pick and choose where they work. More flexibility in terms, salaries, and advancement opportunities will help the institution attract critical staff.

The first steps for leadership in increasing the flexibility of the workplace are to make their issues known and to build alliances. Some campus leaders may have no idea of the looming shortage of skilled trade workers and would be surprised to learn that plumbers and electricians will soon be in short supply. Even HR experts may not appreciate the depth of the challenges. Presenting basic facts may go a long way toward enlightening key stakeholders. Academic leaders need allies across the campus if they intend to change hiring and workforce practices, so it is important to look for ways to make connections and build relationships.

Numerous barriers stand in the way of increasing flexibility, and a critical step is to evaluate the barriers on your campus. These might include state mandates for public schools, union rules for unionized campuses, and entrenched policies at larger institutions. Once you understand the rules and roadblocks, you can act constructively.

While working to overcome these barriers, you can make the most of the tools already at your disposal. Many aspects of workforce planning and management are under the control of the senior facilities officer. Look at ways to increase flexibility within the existing framework. At the least, you can strive for diversity in hiring, create mentoring programs, work to capture institutional wisdom from aging workers and promote a culture of accountability.

Questions for institutional dialogue:

- Do we understand the pressures that will challenge our workforce in the next five, ten and fifteen years? What issues will be critical—more women in the workplace? Aging and retiring staff? Increased competition for skilled workers?
- Do others on campus understand these challenges? What can we do to increase awareness about the challenges?

- Which critical stakeholders should be involved in efforts to increase flexibility? How can we build alliances with the right people?
- What barriers stand in the way of increased flexibility? Which barriers can be removed relatively easily? Which must be worked around?
- What do we want in terms of flexibility? What sorts of policies and practices would benefit the facilities workforce?
- What factors are within our control to improve workforce conditions right now?

8. Make smart decisions about outsourcing.

The issue: Outsourcing will increasingly become an important tool for accomplishing necessary tasks, but the right balance needs to be achieved between services outsourced to vendors and those kept the sole responsibility of employees.

Strategies:
- Consider why the institution wants to increase outsourcing.
- Understand the barriers to and arguments against outsourcing.
- Develop an evaluation process that takes into account the values, mission and goals of your institution.

Most colleges and universities have already discovered the benefits of outsourcing at least some services—one survey found 95 percent of institutions outsource some non-academic services. When budgets are tight and competition for skilled workers is fierce, sometimes the right solution is to turn to vendors to get the job done. However, not every task should be outsourced, and institutions need to develop systems to assess what should and should not be trusted to others.

Today, the most common outsourced services include food services, vending, bookstore operations, copy services and custodial services. However, this list is growing. IT outsourcing is becoming increasingly common, as discussed in previous sections of this report; for example, hundreds of colleges and universities have outsourced their e-mail to Google. Institutions are also exploring outsourcing other services including finance and accounting, student services and financial aid. Numerous

services within facilities departments are also being outsourced, including groundskeeping, HVAC maintenance and elevator service.

A report by the Lumina Foundation for Education found four reasons colleges and universities turn to outsourcing:

- **Reduction in costs.** This is the most often cited reason for outsourcing and usually the most important. Vendors can use technology, economies of scale, and expertise to get jobs done more cheaply than the institution could do itself.

- **Reallocation of capital resources.** By outsourcing services, institutions eliminate the need for capital investments related to those services. For example, when Google handles your e-mail, it is Google's job to invest in new servers.

- **Improvements in quality.** Dedicated vendors offer the advantage of experience and expertise. Outsourcing allows institutions to focus on what they do best—education—and lets vendors do what they do best, whether that is food service, grounds maintenance or custodial services.

- **Reduction in long-term employment costs.** Savings from eliminated or frozen positions can be significant, in both the short and long term. And for highly competitive jobs, vendors can sometimes attract staff that the institution cannot.

Nevertheless, it is important to understand factors that might limit institutions' power to outsource. These can include existing labor agreements, non-union labor issues, concerns about quality, interest in maintaining control over key functions, concerns about cost savings, and political opposition. Even some of the advantages of outsourcing can be points of contention. For example, outsourcing can reduce long-term employment costs, but that may mean laying off staff who might have worked at the institution for years. A study by the Institute for Higher Education Policy found that the prospect of displacing or replacing employees made outsourcing a particularly difficult decision. A related concern was a loss of identity and community and the impersonal nature of outsourcing. It is different to have an unknown

vendor representative fix your elevator instead of a staff member whom everyone knows.

Not every task is appropriate for outsourcing, and what works for one campus might not work for the next. Large campuses have economies of scale that small campuses do not; private institutions have flexibility in purchasing that public colleges do not. In a report for higher education vendor Aramark, Joseph G. Burke, president of Keuka College in New York, suggested a framework for decision making that included asking strategic questions about an organization, evaluating the role of stakeholders in the outsourcing decision, identifying decision criteria and performing a cost-benefit analysis. Possible decision criteria include the following:

- Effect on educational quality (instruction and learning).
- Effect on students (and, consequently, admissions and retention).
- Effect on faculty and staff.
- Effect on annual budget and long-term cost projections.
- Effect on relationship with local community.

The key for each institution is to develop its own criteria that take into account the priorities and needs of the organization. Outsourcing is a powerful tool for cost savings and service improvement, but it is not a magic bullet.

Questions for institutional dialogue:

- What forces are driving us to outsourcing? What do we hope to achieve (cost savings, improved services, or other goals)?
- What roadblocks would get in the way of outsourcing? Are these barriers insurmountable or could they be overcome?
- What factors should be considered as part of the decision-making process? How do we rank these factors?
- Who are the major stakeholders in the decision?
- What are the long-term implications of outsourcing? What is the cost-benefit analysis? How will students, faculty and the campus community be affected?

9. Improve emergency preparedness.

The issue: Colleges and universities must take ongoing action to prepare the institution for a growing list of threats.

Data Point: Outsourcing instruction
Institutions look to vendors to develop courses, teach students and grade papers

Outsourcing in higher education has traditionally been limited to business operations that could be considered ancillary to the institution's mission. However, in a small but growing trend, some colleges and universities are outsourcing instruction as well.

The advantages are clear. Vendors can create online and specialized degree programs quickly and cheaply. Institutions can expand their markets, meet capacity issues and shorten the time to a degree. Outsourcing even allows colleges and universities to offer otherwise cost-prohibitive services such as 24-hour-a-day tutoring and detailed feedback on writing assignments.

However, many critics are appalled by what they see as higher education farming out its essential function. They argue that the profit motive driving private vendors is at odds with academic culture and that outsourcing devalues education. While outsourcing is often presented as saving institutions money, some outsourced courses cost more than traditional ones, raising questions of equity. And quality is hard to control. The future of outsourced instruction remains unclear and many battles over its adoption are yet to be fought.

—Alene Russell, "Outsourcing Instruction: Issues for Public Colleges and Universities," Higher Education Policy Brief, American Association of State Colleges and Universities, July 2010.

Strategies:

- Make emergency preparedness an ongoing priority.
- Understand the elements of your campus emergency operations plan and particularly the role of facilities within that plan.
- Consider measures to mitigate risks such as security audits.
- Evaluate the need for backup power systems for key buildings and operations.

Colleges and universities take seriously their responsibility to protect students, faculty, and staff from criminal danger and natural disasters, but no other type of organization has such a challenge doing so. Campuses often cover large geographic areas that cannot be locked down. They include many different types of buildings and operations, from hospitals to
residence halls, theaters to high-tech research complexes. The campus population varies day to day, hour to hour, month to month. It is an overwhelming task.

Nevertheless, campuses have poured time and money into creating emergency response plans designed to address threats ranging from terrorism to pandemics, hurricanes to sex crimes. They have mitigated risks, implemented notification systems, and established protocols. The temptation to relax a bit and concentrate on other priorities must be strong, but no institution can ever file away its response plan and assume the campus is ready for any eventuality. The new reality is that colleges and universities must continuously assess and refine their emergency preparations. The threat is simply too great.

Fortunately, a growing body of knowledge is available to help institutions improve their emergency preparedness. Researchers have closely examined campus incidents and discovered common themes and issues. For example, the Federal Emergency Management Agency (FEMA) makes the following recommendations based on the study of previous emergencies:

- Integrate comprehensive, all-hazards emergency management planning into overall local and state planning.
- Institute regular practice of emergency management response plans and revise them as issues arise and circumstances change.
- Clarify command structures within the institution and with local and state agencies.
- Coordinate with surrounding jurisdictions and response and support agencies to develop plans for shelter and mass care.

Emergency plans should include a few key components. One is a communication plan that identifies the network of personnel who should be involved in communications decision making; hasty, incoherent and contradictory information creates chaos and complicates response efforts. Another is an assessment of campus

resources available in a crisis, including facilities that can accommodate information centers or shelters and human resources such as police officers, medical professionals, mental health counselors and spiritual leaders. At the heart of emergency preparedness is the emergency operations plan that sets out the steps to be followed in a crisis. Many plans today incorporate the well-defined and field-tested Incident Command System, a standardized, on-scene management approach that allows for the integration of facilities, personnel, procedures and communications within an organizational structure; enables a coordinated response among various jurisdictions and functional agencies; and establishes common processes for planning and managing resources.

Senior facilities officers play an important role in emergency preparation. One important task the facilities department can perform is to conduct building security audits to assess the risks to different facilities and their operations. Audits take an overall look at a building, its users and uses, where it is vulnerable and how it might be made more secure. Different types of buildings will require different responses. For example, a residence hall faces different threats and needs different interventions than a research lab would require.

Utilities are another major area of responsibility for facilities professionals. Natural disasters can wipe out electrical power, damage communications systems, interrupt water supplies and cause natural gas leaks. Utility damage assessment and repair should be included in every emergency operations plan, and facilities staff should understand their role in a crisis. During the planning process, institutions should evaluate the need for redundant or uninterruptable power supplies for critical facilities such as hospitals, command centers, data centers and research facilities, especially those that house animals.

Questions for institutional dialogue:
- What are the threats that confront the campus?
- Is there an emergency operations plan in place? How often is it reviewed and updated?
- How are campus leaders trained in the use of the plan? How often do they practice emergency response procedures? Is there a system in place for gathering feedback from practice sessions and incorporating it into the plan?

- Has the institution coordinated with local and regional authorities on the plan? Are lines of communication and command clear? Have plans been established to provide shelter and aid in a mass emergency?
- Are facilities professionals involved in the creation of the emergency plan? What is the role of facilities in a crisis?
- Has the institution completed security audits on campus facilities? Which buildings are most at risk and how can that risk be mitigated?
- Which facilities and operations would be endangered by interruptions to utilities in general and power supply in particular? Do we have backup or redundant systems in place where we need them?

10. Manage the existing built environment.

The issue: Senior facilities officers must take steps to ensure the existing campus buildings and infrastructure can meet the expected needs of the institution.

Strategies:
- Understand where you are today and how well the campus is meeting current needs.
- Look to your institution's mission and vision for a sense of where the college or university is going, then assess what will be needed to make that vision a reality.
- Keep up with trends and issues in higher education and evaluate how those trends will shape facilities.
- Craft a vision not only of the future campus but also of the future facilities team.

Spend time with IT experts for awhile and you will hear a term keep popping up: future proof. To "future proof" a system means creating a computer or server or database that will remain useful and accessible for years to come. It might mean buying more data storage than you need right now in anticipation of using it down the line, or storing data in a format that seems most likely to be still in use for a decade or more.

It is challenging but not overwhelmingly difficult to future proof new buildings on campus. Architects and engineers do it all the time—they go to a great deal of effort to understand not just the current needs the

building is intended to fulfill but also the anticipated shifts in pedagogy, technology, and research. But future proofing the entire campus, is another story. The average college or university includes buildings and systems built over decades, even centuries. A residence hall from the 1930s is next to a classroom building from the 1950s and a student union from the 1980s. Each was built to different standards using different technology and was intended to meet different needs. Renovations over the years might have helped—or they might have made the situation all the more complicated.

So how do you future proof your campus? Particularly, how do you future proof your campus in this era of slashed budgets, hiring freezes, and competing priorities? Obviously you cannot tear it all down and build it afresh employing the newest, greatest, greenest, most adaptable, most IT-friendly strategies. You have to take on the challenge step by step, and most of the time future proofing will not be your first priority. Instead it should be a guiding principle that shapes the choices you make on each and every renovation and update.

The first step is to understand where you are today. How well is the existing built environment meeting current needs? You can make this evaluation using a number of tools including a facilities inventory, condition assessment, space utilization reports, and inspections. A gap analysis can also be useful; it helps organizations compare actual performance with potential performance and focuses on two questions: "Where are we?" and "Where do we want to be?" A facilities gap analysis can expose areas in which facilities are failing to meet their potential to serve the campus community.

The next step is to consider the future demands on the built environment. Predicting the future is a risky business, but it can start on a firm footing by looking at the conception the institution has of its own future. What is the mission and vision of the institution? Do current facilities line up with those concepts? If your college or university sees itself primarily as a residential campus that will provide a 24/7 learning experience for students, yet you only have residence hall capacity for a quarter of students, it makes sense to plan additions or renovations to expand the number of dormitories. If your institution wants to build on its reputation of cutting-edge research yet your lab facilities are outdated, it's time to start budgeting for lab renovations.

Other future demands can be reasonably interpreted from established trends. Tools such as this document and similar reports from other higher education associations and organizations regularly report on trends. Some things we know. Energy will grow more costly. The student population will become more diverse. Technology will become ever-more pervasive. Online learning will expand. Sustainability will increase in importance. Determining how these trends will shape your campus is more difficult and requires a greater leap of imagination. It helps to get a diverse group of campus leaders together to discuss these issues. It is important to draw upon the wisdom of faculty, administrators, staff, and students in a wide range of functions—librarians will have a different perspective than student services, but all leaders should be taken into account when envisioning future needs.

Once you have a sense of where your campus is going, you need to see what it will take to get there. Take a look at your current resources including budget and staff. If you project forward ten, fifteen or twenty years, will these resources be adequate? What needs would be unmet? What services will become irrelevant? You need a vision not only of the future campus but also of your future workforce. How can you start planning now to have that team in place when you'll need it?

Future proofing is an imperfect science, but it's not just crystal-ball gazing. By building on what you know now, you can shape a reasonable response that will better prepare your campus for what is to come.

Questions for institutional dialogue:
- Where is the campus today? Do we know the condition of our buildings and systems?
- How well are current buildings, systems and infrastructure meeting current needs? Where are the gaps between where we are and where we want to be?
- What is the institution's vision for its future? What are the facilities implications of that vision? How will the built environment need to change to fulfill that vision?
- What trends will shape the campus? How will trends such as energy cost increases, student diversity, changing technology and sustainability affect this institution? How will facilities need to respond?
- What resources will be required to create and maintain the future campus? What should the facilities staff and budget look like in ten, fifteen or twenty years? How can we move from where we are to where we need to be?

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Strategic Capital Development:
The New Model for Campus Investment
By Harvey H. Kaiser and Eva Klein

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BY HARVEY H. KAISER AND EVA KLEIN
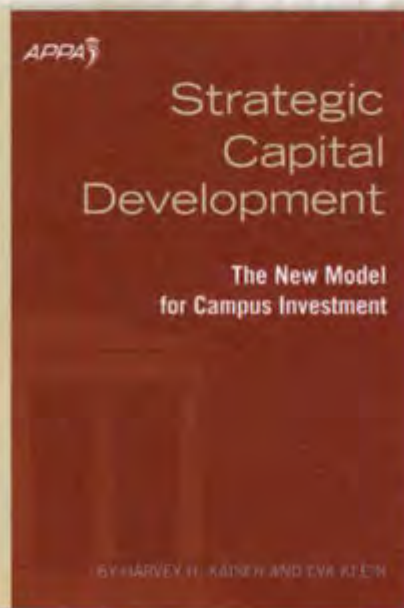
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