TRANSFORMING Facilities to Achieve Student Success

2017

Published by:

APPA is the association of choice serving educational facilities professionals and their institutions. APPA's mission is to support excellence with quality leadership and professional management through education, research, and recognition. APPA's **Center for Facilities Research (CFaR)** engages in a deliberate search for knowledge critical to educational facilities management and to policy making in education. CFaR encourages the study of the learning environment, appropriate management strategies, and their impact on education.

APPA
1643 Prince Street
Alexandria, Virginia 22314-2818
www.appa.org
www.appa.org/research/cfar/tls.cfm

Sponsorship assistance generously provided by:

JACOBS

Johnson Controls

International Standard Book Number: 1-890956-99-6
Produced in the United States of America

CONTENTS

Transforming Facilities to Achieve Student Success

Section 1:
Executive Summary

The year was 1973. The Carnegie Commission on Higher Education released a comprehensive report summarizing six years of investigating colleges and universities across the United States. Higher education was facing unprecedented challenges, including changing social norms and turmoil over the Vietnam War. One of the most pressing concerns, however, was very familiar to audiences today: money.

Students were flocking to degree programs at unheard-of rates, and institutions were struggling to keep up. The commission predicted a nationwide shortfall of $26 billion a year by 1980 if enrollment trends continued. What to do?

"Weed 'em out," the commission said.

"Encouraging higher educational institutions to use their resources more effectively, the commission report proposes that 'reluctant attenders' should be encouraged to leave," reported *The New York Times*. Pushing less-than-enthusiastic students out the door could slash nearly $10 billion—roughly 20 percent—of annual costs.

Other recommendations of the Carnegie Commission wouldn't be out of place in a report written today—the commission called for institutions to clarify their purposes, preserve and enhance quality, and achieve more effective governance. But the charge to show students the door is almost shocking in 2017.

It's not clear how the commission identified "reluctant attenders," but it's not hard to imagine many were students struggling to adapt to higher education. Today, institutions recognize their responsibility is **not to weed out, but to invite in**. What's more, today's colleges and universities are taking seriously the charge to help all students succeed.

Fostering student success in higher education

In April 2017, representatives of colleges and universities from across the United States and Canada assembled at the APPA Thought Leaders symposium to discuss the topic of student success. Attendees included senior campus leaders and representatives of academic affairs, student affairs, and facilities organizations. They debated broad trends and issues confronting higher education and considered how institutions can help students succeed.

Success is a complex term, and participants at the symposium struggled to define it. Success starts with retention and graduation, but it can expand to include factors from personal career goals to social responsibility. However success is defined, **colleges and universities recognize that they have a responsibility to prepare students to succeed**, and they are investing in programs and projects to help identify at-risk students, improve academic support, and expand student services.

The primary question of the symposium was **how the facilities organization can help further the success of every student**. The APPA members represented at the symposium—all dedicated members of the broader campus community—believe they have a crucial role to play in fostering success. Without safe, clean, functional spaces, education cannot thrive. Participants at the symposium identified the following priorities for the facilities organization:

- Address the basics.
- Create a student-focused built environment.
- Support the academic goals of the institution.
- Strive for inclusivity and fairness.
- Integrate technology.
- Promote sustainability.
- Serve as good stewards of campus resources.
- Engage students in the facilities organization.
- Do no harm.

Thought Leaders participants recognized that, all too often, facilities get in the way of student success when campus buildings fail. The high cost of upkeep of aging structures, many constructed during the boom of the 1960s and 1970s when the Carnegie Commission was active, has left many buildings in disrepair. Outdated heating, ventilation, and air conditioning (HVAC) systems, leaking roofs, and unreliable elevators plague campuses. **Students don't learn well next to buckets positioned to catch dripping rain.**

No institution has the funds to fix every pesky detail of every building, but colleges and universities are finding ways to make strategic investments in their existing buildings through **facilities revitalization and modernization**. This approach uses capital funds to revive, renovate, and reset the clock on campus buildings. It is a forward-thinking process that can encompass a range of tasks including maintenance (i.e., fixing leaks or repairing infrastructure) and programmatic updates (i.e., renovating classrooms to address changing pedagogy). The goal is to thoughtfully target reinvestment in existing assets to extend their life and revitalize their role on campus.

It is important to differentiate revitalization and modernization from the old—and utterly exhausted—term "deferred maintenance." The concept of deferred maintenance may have been useful once, but at this point it only serves to prompt a rash of finger-pointing. Most facilities leaders have come to dread the phrase, which smacks of failure on their part of maintain their campuses and discounts the hard work they have done to keep colleges and universities running smoothly. It is time to shift the focus away from backlogs of repairs and instead consider the goals of the institution.

This is a key message of this report: that **through strategic investment in their facilities, colleges and universities can support student success, position the campus for the future, and serve as good stewards of campus assets**. Thought Leaders participants agreed on the importance of an approach to campus facilities investments that is student-centered and future-focused. The process must reflect the mission and vision of the campus—the objective is to make the greatest impact possible on the college or university's goals.

Achieving success through collaboration

Undertaking a facilities modernization program involves years of effort from facilities leaders and requires the backing of the campus community. Without strong support from departments across the entire campus, modernization efforts will founder.

Gaining support while identifying the needs and goals of campus leaders demands a collaborative process. For help understanding effective collaboration, the Thought Leaders symposium turned to the Arbinger Institute, whose process emphasizes an outward mindset that recognizes the goals and priorities of others. Crafting a collaborative facilities modernization program not only helps the facilities organization achieve its goals, it also helps the entire institution achieve broader goals and move toward student success. Symposium participants outlined strategies for creating a collaborative facilities modernization program and examined ways to make the entire facilities organization more collaborative.

The symposium concluded with participants developing a list of self-assessment questions. APPA encourages facilities organizations in particular, and college and university leaders in general, to consider these questions as they seek to support the success of their students:

1. How does our institution define student success? How can the facilities organization specifically support student success at our college or university?
2. How does facilities revitalization and modernization contribute to student success?
3. How is the facilities organization a barrier to supporting student success?
4. How will investment in modernization support long-term institutional success?
5. Where do we start in making our processes more collaborative? What is our plan for adopting a collaborative approach to facilities revitalization in particular?

6. How do we select and engage stakeholders in a collaborative modernization process?
7. How do we prioritize modernization needs?
8. How do we establish and maintain discipline in the facilities renewal and revitalization process?
9. How do we say "no" without alienating those who have partnered in collaboration?
10. How do we communicate the risk of using capital dollars for work that does not further modernization?

When the Carnegie Commission wrote its report nearly 45 years ago, higher education was very different than it is today. Perhaps it's not surprising that institutions, overwhelmed by a deluge of students, wanted to turn some of them away. But by 1973, the doors of higher education had been thrown wide open, and it was too late, even then, to slam them shut again.

Today, colleges and universities are not only propping open the doors, they are waving from the front steps. Once students are inside, colleges and universities are finding concrete, creative ways to help students thrive. As caretakers of the structures of higher education, facilities organization leaders will continue to do their part to support students as they reach their goals and proceed to their futures—well-prepared for whatever comes next.

Section 2:
Improving Student Success in Higher Education

Student success and the big picture of higher education in 2017

Student success has become a top priority for colleges and universities. There's an air of urgency around the topic—a sense that institutions have an imperative to better support their students. One way to understand the issue is to place it in the context of two colliding crises in higher education: increased demand for a degree and reduced state support for colleges and universities.

Not so long ago, a degree from a college or university was a rare achievement. Today, **Americans without a degree are hard-pressed to support their families**. Of the 11.6 million jobs created after the Great Recession of 2008, 8.4 million went to those with at least a bachelor's degree, according to the Center on Education and the Workforce at Georgetown University. Another 3 million jobs went to individuals with an associate's degree or some college education. The long-term financial payoff for a degree is enormous: People with a bachelor's degree earn 40 percent more over the course of their lives than those with a high school diploma. It is difficult to overstate the significance of this societal shift. Until the early 1980s, more than 70 percent of Americans entered the workforce right out of high school.

At the same time, **public support of higher education has declined precipitously across the United States**. Most states are contributing less to public colleges and universities than they did before the recession. While state support for higher education increased slightly in 2016[1], it has yet to recover from a high point in 2008, according to research by the advocacy group Young Invincibles reported in *U.S. News and World Report*. Colleges and universities turned to families to make up the difference, and so tuition has soared, dragging student debt along with it. Average undergraduate debt for the class of 2015 is a staggering $30,100, according to the Institute of College Access and Success. (This figure might actually be much higher, since it does not include debt for students who attended for-profit institutions.)

These two crises have focused attention as never before on student success. The need for an education has never been greater, and the cost to the individual student has never been higher. To shortchange students attempting to secure their place in the middle class—and often finding themselves in debt before earning their first paycheck—is irresponsible. Colleges and universities have a **social and ethical imperative** to help their students succeed.

And yet too often, students fail. Around 61 percent of full-time undergraduates enrolled in public colleges and universities graduate with a degree in six years; the rate is 66 percent for students at private nonprofit institutions, according to the National Center for Education Statistics. **That leaves roughly a third of students with some college experience but no degree, and often with significant debt**. The situation is far worse at public community colleges, where only 22 percent of full-time students complete a degree or certificate within four years.

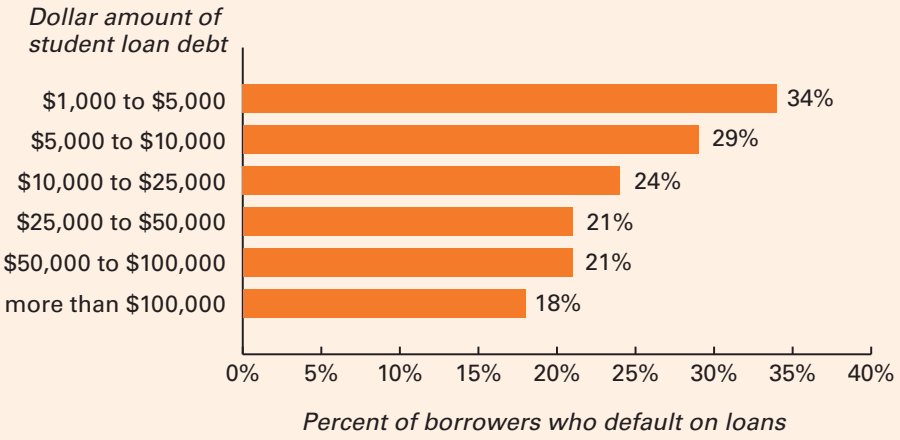
These students have not only failed to accomplish what they set out to do, they also are far more likely to struggle to pay back the debt they acquired in the attempt. While it's shocking to learn about students who have borrowed hundreds of thousands of dollars, those students generally make steady progress paying back their

1 The actual situation is difficult to summarize. According to the *2016 State Higher Education Finance* report from the State Higher Education Executive Officers, overall support for higher education fell by 1.8 percent per full-time equivalent student in 2016. However, the nationwide average is dragged down by Illinois, where a budget crisis forced appropriations to drop by 80 percent from 2015. Eliminate Illinois from nationwide calculations, and overall support increased by 3.2 percent. Support rose in 33 states and declined in 17.

Data Point:

Understanding the student loan crisis

Low debt, high default



On the surface, it would be much harder to pay back $100,000 than $5,000—but not without a college degree. In fact, the higher the debt, the more likely it is to be paid back, since those who have borrowed significant sums most likely land well-paying jobs in medicine or law.

Source: Federal Reserve Bank of New York Consumer Credit Panel and Equifax, *The New York Times*. Data represent graduate and undergraduate borrowers who left school in 2009 and defaulted by 2014.

loans. They likely either graduated from well-regarded institutions or completed graduate degrees, and their income is higher as a result. Only 7 percent of graduate-school borrowers default. Conversely, **borrowers with the smallest debts are the most likely to default**.

In one 2015 study of students from Iowa's 16 community colleges by the Association of Community College Trustees, the default rate for students who had borrowed less than $5,000 was nearly 32 percent. (Nationally, the rate is slightly higher, at 34 percent.)

Why is it so difficult for low-borrowing students to keep up with payments? Because they likely never completed a degree. Almost 90 percent of Iowa community college defaulters left college with no degree or certificate, and 60 percent had fewer than 15 credits. Less than a semester's worth of credit is unlikely to increase a student's income at all, and that $5,000 debt could haunt them for decades.

There is a growing sense that **institutions must help their students avoid the pitfalls of the current higher education environment**. Campus leaders are compelled to aid students in reaching their potential—to graduate on time, with as little debt as possible, and with the qualifications that will enable them to repay that debt and secure a future.

Moreover, **society as a whole is pressuring institutions to better serve their students**. Accreditation is beginning to be tied to student success (although the accreditation agencies generally have not defined success or explained how success will be measured). What's more, many states have linked some percentage of funding to metrics such as retention, graduation, and job placement. There is clear logic in rewarding effective institutions with higher funding, but such programs have often failed to achieve their goals, according to a study by the Century Foundation. "Research shows that tying financial incentives to performance measures rarely results in large or positive outcomes that are sustained over time." In this study, states that use performance-based funding do not outperform other states; any differences between them are statistically insignificant.

Why is this the case? Paying for performance is highly successful in many other economic situations, but, as the report points out, those are generally fairly straightforward transactions. **The reasons any student thrives or fails are complex and multifaceted and involve numerous factors outside the institution's control.** There is no single, clear path institutions can take to improve results. Certainly, institutions can—and have—identified many of the factors that contribute to success, and they are working to improve those factors.

Ineffective academic advising is a good example—poor advising can delay time to graduation by failing to help students keep their focus on their end goal. Many campuses are seeking to improve advising and are seeing real results, according to the Association for the Study of Higher Education report, *Piecing Together the Student Success Puzzle: Research, Propositions, and Recommendations*.

Another major challenge in tying student success to state funding comes down to definitions. What do we mean by "success"? How do we measure it?

Data Point:

Defining student success

San Jose State University

San Jose State University (SJSU) works actively and collaboratively to help students identify and strive toward their maximum potential, whether it leads to an SJSU degree or not. San Jose State University's student success framework provides a rich and diverse learning environment to engage students not only in mastering core subject areas but also in developing and refining their competencies in creativity, critical thinking, problem solving, quantitative literacy, information literacy, communication, and collaboration. The ultimate goal of our student success efforts is to produce citizens who possess intellectual, social, and life skills that are adaptable, culturally respectful, transformative, productive, and responsible.

The challenge of defining success

So far, we've discussed "student success" without defining it. Sometimes, success is presented as shorthand for graduation; at other times, it is presumed to encompass much more. But operating without a definition is a problem. The old adage "You can't manage what you can't measure" comes to mind—because you can't measure what you can't define. **Individual institutions need to decide what they mean by success** so they can determine if they're making progress toward improving it.

During the 2017 APPA Thought Leaders symposium, participants were asked to give their own definitions of success. Some definitions were straightforward and, therefore, would be relatively easy to measure:

- Maximum throughput in shortest time with highest graduation rate.
- Graduate on time. Increase income over lifetime of employment, over alternative of not attending college. Improve standard of living.

Others wanted to emphasize the personal nature of success:

- Student graduates "on time" based on their individual goal. Student acquires the knowledge, experience, and growth that he/she desired.

Many wanted success to include a societal component, with the assumption that higher education has a broader purpose than training students for careers:

- Student success is preparing an individual to be a productive member of society by educating them so that they can get a job, continuously educate themselves to understand current events, and value other perspectives.

And some framed success in the broadest terms:

- Student success is graduating with a degree and the life skills to be an enlightened contributor to society. It's making considered decisions and taking productive steps in life's journey. It's looking back at your educational experience with no regrets.

- Student success is full, rewarding emotional, personal, intellectual, societal, and academic development leading to timely matriculation and an academic degree coupled with key tools to acquiring future success/fulfillment.

The two statements above are highly ambitious and inspiring in their vision for higher education—and difficult to prove with a data set.

Thought Leader participants aren't the first and won't be the last to struggle with a definition of student success. Campuses across the country have held long, difficult meetings to hammer out definitions for their institutions; in fact, we're presenting many of those definitions as examples throughout this report.

Education experts have also penned reports considering the topic of student success; a few points merit attention.

First, while definitions of student success general include graduation, the **definition of success will vary widely** by institution. Attempts to hold all institutions, even all public institutions within a single state, to the same success standards will be difficult to achieve, since a state flagship campus operates in a very different environment than a small institution in a rural region.

Second, the goal of success sometimes comes into conflict with another major goal of many institutions: access. **The more open the admission standards of a college or university, the lower its retention rate**, according to the National Center for Education Statistics. (Retention is defined as the percentage of students who return to the same institution for a second year.) Community colleges and many public institutions were created with the goal of making higher education available to as many students as possible. Unfortunately, those who are least prepared for higher education are also those most likely to fail to complete a degree. Institutions with open admission see a retention rate of only 51 percent; more selective colleges and universities have a 76 percent retention rate.

Finally, most higher education leaders believe that **the quality of education matters, not simply the quantity.** It would be easier if success were defined only by retention and graduation rates. It would also be tempting, in that case, to reduce coursework demands, simplify degree programs, run everyone through with an A or B, and graduate students in four years whether they had learned anything or not. The leaders of our colleges and universities are serious people who believe in the responsibility of higher education, and most reject a narrow view that makes a degree and a job the sole measures of success. Therefore, a definition of success shouldn't be dismissed because it includes difficult-to-measure elements. Otherwise, ill-considered reward systems could end up elevating degree mills over thoughtful institutions.

Keeping all these points in mind, is it possible to develop a unified theory of student success?

Data Point:

Defining student success

University of Iowa

The definition of student success varies between individual students. However, in general, it includes several components, each of which contributes to a student's personal measure of their success. We take a holistic, or broad, approach to defining and supporting student success. Student success can be:

- Reaching academic goals.
- Social, personal, and emotional development.
- Appreciating diverse perspectives and developing a clearer sense of personal identity.
- Displaying resiliency and engaging in help-seeking behaviors.
- Developing a sense of belonging and ownership
- Financial literacy and stability.

Most institutions would generally agree that success encompasses some of the following elements:

- **Retention or persistence**—Entering students remain, re-enroll, and continue their education.
- **Graduation or attainment**—Students reach their education goals, whether a certificate or a degree. They move through their program in a timely manner.
- **Advancement**—Students succeed at subsequent endeavors (whatever those might be) and progress toward the next step in their degree plans or work in their desired field.
- **Achievement**—Students achieve satisfactory levels of academic performance.
- **Personal development**—Students grow as individuals, advancing intellectually, socially, and ethically.
- **Social engagement and civic responsibility**—Students are equipped to become good citizens of their community, their country, and the world.

It's not a perfect list, and not everyone will agree with every element, but it captures the broad outlines of meanings proposed by participants at the Thought Leaders symposium. It will serve as a working definition of "student success" for the purpose of this report.

Data Point:

Student success

Four trends that drive success identified by the Bill & Melinda Gates Foundation

Colleges and universities across the country are under enormous pressure to transform themselves to meet the needs of today's students. Is this transformation possible, and if so, what does it look like in successful institutions?

- **Laser-like focus on students.** Everyone—faculty, administrators, and advisors—knows their students. They study them, they understand their needs and aspirations, and they build educational, coaching, mentoring, and counseling services tailored to their students' needs.
- **Professional development for faculty and advisors.** Driven by the integration of technology, institutions support and encourage routine engagement of their faculty and advisors with learning science and with best practices in instruction, coaching, and mentoring.
- **Data analysis.** Institutions evolve their practices, gathering data about students, finding out where they are struggling in their courses, why and at what points they are slipping behind or dropping out, and experimenting with innovations that target those friction points. The continuing quest after improvement is scientific and intensely data-driven.
- **Courageous leadership**. Evolving traditional academic practices so they meet the needs of today's students is a complex and challenging process. It requires a willingness to explore new cost and revenue models and a commitment to supporting the professional development and training of dedicated experts working in fields undergoing fundamental transformation. What's more, it calls for a combination of patience (because fundamental change takes time) and urgency (because today's students cannot wait for us to address their needs tomorrow).

Source: Adapted from Daniel Greenstein, director of education for postsecondary success, Bill & Melinda Gates Foundation, "4 Trends that Drive Success in Higher Education," World Economic Forum, December 2, 2014.

Case Study in Facilities Modernization: Wellesley College

Wellesley College was founded in 1870 by a group of educators passionate about higher education for women. While investment had been made over the decades to the historic campus, by 2010, college leaders recognized the need to address both maintenance and programmatic needs. "There was a realization that the campus did not meet the needs of today," says Dave Chakraborty, chief facilities officer and assistant vice president for facilities management and planning. "So the campus kicked off a three-year process to develop a plan for improvements."

The planning process was highly collaborative, reflecting the character of the institution. "A vast cross-section of faculty and staff were involved," says Chakraborty. Initially, the college outlined a highly ambitious program of improvements—a program that actually turned out to be too ambitious. Running the numbers revealed it would cost more than $1 billion. Leaders went back to the drawing board and crafted a more feasible $575 million plan.

The end result was *Wellesley 2025: A Plan for Campus Renewal*. This plan charts a multiyear approach to campus modernization and incorporates academic, residential, athletic, and dining plans. Goals identified by the campus community include:

- Enabling academic initiatives and improvements to student life and providing opportunities for collaboration and community-building.
- Meeting current and anticipated program needs, with enough flexibility to accommodate evolution of programs and pedagogies.
- Facilitating stewardship of Wellesley's rich heritage of buildings and landscape and—in particular—securing the longevity of its existing buildings.
- Building on and enhancing sustainability initiatives throughout the campus.
- Improving accessibility throughout campus.
- Considering the campus as an embodiment of a forward-thinking college with a rich history and meaningful traditions, emphasizing both preservation and innovation.

Several projects have reached completion. For example, Pendleton West, which houses fine arts programs, hadn't been updated since it was constructed in 1936. The interior of the building was completely demolished and features a new layout, updated heating and cooling systems, and improved ventilation for hazardous art materials. Classroom spaces were designed with the flexibility to adapt to future needs.

Other projects are ongoing—a new science building is in the design stage, and residential life improvements will be addressed in the next five to seven years. The college has also recognized outstanding needs that will not be met by the 2025 plan and are discussing options for infrastructure and building improvements that will need to be tackled once this plan (which will probably extend beyond its original deadline to 2030) is complete.

The Wellesley 2025 plan has been embraced by the college community. None of the faculty or staff feels like "losers" in the modernization program, or resent that others are "winners." Chakraborty credits the provost and other senior leaders of the college for "ensuring that everyone was heard—and seriously heard." Leaders took seriously the input of the community. "Nothing was done in a back room," he says. "Certainly this approach takes much longer, but in the end the right decisions were made."

Kim Bottomly, president of Wellesley College from 2007-2016, said of the modernization at Wellesley, "Each generation at Wellesley has the great responsibility of stewarding our lovely campus buildings. We have inherited these buildings from those who came before us, and we must take care of our spaces, anticipating future needs, so that they serve Wellesley well into the future."

Section 3:
The Role of Facilities in Fostering Student Success

If the goal is student success, how are institutions to realize it? What is the role of facilities in student success?

The facilities organization is rarely part of the discussion of student success. However, **a student's experience on campus can be significantly enhanced, or diminished, by the facilities themselves**. How well a space is designed, operated, and maintained shapes the user's experience in that environment.

Participants at the Thought Leaders symposium believed that facilities have a critical role in student success. Understanding that role can help senior facilities officers target their efforts to improve student outcomes.

Data Point:

Defining student success

California State University

At the California State University (CSU), we work every day to help ensure one thing for our more than 474,000 students: **the timely completion of a rigorous, quality degree in preparation for a lifetime of achievement.**

- Student success means improving graduation rates and ensuring more students get a degree sooner.
- Student success means reducing the number of students who drop out of college before graduating.
- Student success means making college more affordable to more Californians.
- Student success means helping more prospective students understand what it takes to earn their degree.

How the facilities organization supports students

Address the basics. Fundamentally, the facilities organization is charged with ensuring that campus spaces are safe, accessible, clean, and functional.

Create a student-focused built environment. The campus can be an imposing and confusing space, especially for students who may have never set foot in a college or university before. The campus needs to be examined with the eyes of a total outsider and made easy to navigate for every student.

Support the academic goals of the institution. Pedagogy changes faster than architecture. The facilities organization needs to understand where the institution is headed in terms of teaching and learning styles and work with their academic counterparts to create appropriate learning environments.

Strive for inclusivity and fairness. Achieving Americans with Disabilities Act (ADA) standards is part of the baseline for facilities, but beyond that, the campus should be designed and operated so that all students can participate fully in the life of the institution.

Integrate technology. A close partnership with IT will help the facilities organization make spaces as usable as possible.

Promote sustainability. Facilities should continue to make strides in greening campus operations and reducing the carbon footprint of the college or university.

Serve as good stewards of campus resources. The facilities organization controls a major portion of the campus budget and can demonstrate responsible use of resources to a wide audience.

Engage students in the facilities organization. More and more facilities organizations are reaching out directly to students. Sometimes the goal is improved communications—facilities staff use Facebook and Twitter to keep students up to date on facilities projects. Other departments hire students as interns. Senior facilities officers teach courses in engineering, architecture, or environmental programs. Some schools have found ways to make their campuses into living labs where students can understand the real-world effect of decisions about space management, utilities use, and other critical facilities factors. Working with other departments gives the facilities organization allies across the campus.

Data Point:

Supporting success through facilities

Designing classrooms for modern pedagogy

Ninety-nine percent of teaching spaces were anticipated either in an image of an ancient Syrian palace school 4,000 years ago or in the Greek amphitheater: rows or rings of seats meant to focus the attention of the many on the one. But education is not about transferring information from one to many; it is about learning within the student. When printed books were new, transferring information was vital, but today, information is ubiquitous and readily available, and students can pick it up when and where they want. Instead, the classroom ought to focus on assimilation and application of knowledge to new contexts. The teacher becomes the guide on the side, instead of the sage on the stage, requiring wholly new learning spaces and teaching techniques.

Source: Eric Mazur, Balkanski professor of physics and applied physics, Harvard University, quoted in Lawson Reed Wilson, Jr., *Classroom Design*, Prepared for the Special Committee on Classroom Design, Princeton University, Summer 2013.

Do no harm. Facilities projects can be disruptive to a busy campus, but the organization can take steps to minimize that disruption. The goal should be to stay out of the way as much as possible and to be conscious of the experience of students and faculty.

The view from different disciplines

The 2017 Thought Leaders symposium sought the input of leaders from different corners of the campus as participants considered the role of facilities in student success. Alongside senior facilities officers, representatives from academics and student services were on hand to contribute. The distinct groups had different insights on how facilities can best contribute to student success.

Academic representatives emphasized the student experience. They urged facilities leaders to try to see spaces from the perspective of students who might be new to college and university life. "**Facilities need to meet students where they are**," one academic expert noted. "Navigating campus can be really difficult, but students don't want to ask questions. How can we help those students find their way?"

They also encouraged facilities to **give students agency**. "Let them shape the space," one person said. Academic representatives discussed spaces in which students can move the tables and chairs and write all over whiteboard-covered walls. At the same time, facilities should set expectations and encourage students to take responsibility for their spaces.

Finally, academic representatives encouraged senior facilities staff to **make a place for themselves on campus as experts**. "You're our resident expert—a real resource," observed one academic expert. "Facilities staff can be invisible, just taking care of things behind the scenes. But you know things we don't. We need to hear what you have to say."

Data Point:

Defining student success

South Dakota State University

Student success is defined as supporting student achievement to develop graduates who have a high level of self-confidence, are professionally competent, and are prepared to assume leadership roles in their communities as well as their chosen discipline.

The facilities organization has **insights that the rest of the campus needs**, said student affairs leaders. "You understand how spaces work—or don't work. There's a sort of anthropology of how people use campus spaces that facilities understands." This is particularly significant in designing new spaces. Often, campus leaders know the outcome they want for a space, but only facilities leaders know how to achieve that outcome.

Student affairs representatives encouraged facilities staff to think in terms of **breaking down barriers and promoting a safe environment**. "That means all kinds of barriers—both physical barriers that might be limiting access to someone with a disability and more subtle barriers limiting collaboration," one student affairs expert noted. "Our physical space needs to reflect our values of open interaction."

Facilities play an **essential role in campus safety and security**, the group emphasized. Elements such as lighting, open sightlines, and monitoring systems can enhance the security of students, faculty, and staff. "We need to get facilities staff more involved in the passive measures that keep students safe, like clear lighting for walkways," observed one student services representative.

Finally, student affairs experts noted that **facilities staff sometimes play an unexpectedly large role in students' lives**. "Sometimes, the custodian in a residence hall is the first person to notice that a student hasn't been out of their room in days—that there's some kind of a mental health problem," said one symposium participant. "We need to make sure that these people, who are on the ground interacting with students, have a way to report their concerns."

Ultimately, the message from academic and student affairs dovetailed with what facilities experts themselves believe: Facilities support student success every day. Investments in the physical campus return rewards in successful students.

Section 4:
Using Facilities Modernization to Reduce Barriers to Success

One way to think about the role of facilities in supporting student success is to flip the question: How do facilities *hinder* student success?

Poor facilities can absolutely get in the way of student performance. Students won't learn well in a freezing classroom with a failed heating system. They won't rest comfortably in a residence hall with broken toilets. They won't feel a warm glow of community in a student center with buckets positioned to catch rain. To achieve student success, the first charge upon facilities staff is to **address the basics** and the last is to **do no harm**. Nevertheless, many buildings on colleges and university campuses today are doing harm by failing to meet the basics.

Data Point:

Campus modernization

Why up-to-date buildings matter

Effective buildings do not guarantee good programs, but it is very difficult to build good programs without them. . . . Renewal initiatives are essential to provide contemporary educational opportunities for students and competitive research opportunities for our faculty.

Source: Harvey Perlman, chancellor, University of Nebraska-Lincoln, "University of Nebraska Building Renewal Plan Would Invest in Facilities for Quality Education, Competitiveness," University of Nebraska.

A slow-motion campus crisis

The problem of deteriorating campus buildings has its roots in the baby boom. In the 1960s and 1970s, college enrollment rates soared to never-before-seen levels, kicking off a building frenzy. Most colleges and universities invested heavily in new construction—in fact, **more than 35 percent of campus buildings today date from this period**. The builders were in a hurry, and so they cut corners—using low-quality materials and rushing construction. They didn't worry about energy use, since power was cheap. And, naturally, their designs suited the teaching styles of the time.

The result? Crumbling structures that cost too much to run and don't meet today's programmatic needs.

Data Point:

Defining student success

Utah State University

Student success is defined differently by each student and their parents, guardians, or families. Some define it as obtaining an undergraduate, graduate, or professional degree, while others consider success as having obtained value-added learning experiences that serve to further propel them within their chosen career or vocation. Still other students define success as the nourishment of their hunger for learning and their development as a well-rounded human being. All these definitions are appropriate and intrinsically right. The Student Affairs Division must be in tune with these definitions of student success and must foster the type of environment that will ensure as many of those definitions of success as possible. However, because of the mission of the institution and finite resources, not every definition can or may be fully served.

If institutions had kept up with maintenance on these buildings, they would at least be in better shape than

they are today. But colleges and universities have a long history of putting off unglamorous projects such as replacing roofs and updating water systems. New construction continued to attract funding dollars while maintenance backlogs inched up year after year. And so here we are in 2017, with **the backlog for facilities maintenance reaching an average of more than $100 per square foot,** according to survey data gathered in the annual Sightlines *State of Facilities in Higher Education* report of 2016. The figure is slightly lower for private colleges and universities—$88 per square foot—but is higher for public campuses, at $108 per square foot. The total across the United States is a record $30 billion.

What does that backlog look like for campuses? Peeling paint, yes, and scuffed floors—and a stark contrast to the new buildings constructed in the last decade. Buildings sitting side by side on the same campus can have vastly different performance levels; in fact, a single building can present a schizophrenic appearance, depending on how funds were allocated over time. In a 2016 article titled "The Paradox of New Buildings on Campus," *The Atlantic* draws a vivid picture of one such building:

> Akerman Hall is a gateway to the complex that houses the University of Minnesota's Department of Mechanical Engineering. But wandering through it is more like an experience in archeology.
>
> First, there's the former airplane hangar, built in 1948 and renovated five years ago with alumni contributions into a state-of-the-art student lounge, faculty office, and lab. Then come drab cinderblock corridors and classrooms that also date from the 1940s and don't look anywhere near as glamorous. Behind them, however, are more than $5 million of unseen upgrades the

Data Point:
Campus modernization
A historical perspective

The burdensome problems of major maintenance and capital renewal/replacement have troubled higher education since the 1970s. The term *deferred maintenance* emerged in the early 1970s as college and university administrators began to recognize the serious nature of plant problems on their campuses. The deteriorated plant conditions produced by ignoring older facilities during higher education's post–World War II expansion were compounded by the following:

- Poor designs for institutional durability
- Cost cutting that rapidly produced space with inferior construction techniques and innovative materials that showed early failures
- Soaring utility costs
- Inflation-induced reductions in operations and maintenance budgets
- Inadequate funding for capital renewal and major maintenance
- Increased government regulations, resulting in reallocation of resources and further deferral of maintenance

After many years, these factors produced a legacy of deferred capital renewal and the accrual of backlogs for major repairs, replacements, and renovations to facilities and infrastructure. By failing to fund renewal for building subsystems and infrastructure with expired life cycles, higher education began its slide on the slippery slope of failing facilities. Today, the problem is acute for the many institutions that may have as much as 75 percent of their facilities in the range of 30 to 40 years old — and be past a first cycle of major renewal expenditures.

Source: Harvey H. Kaiser, "Capital Renewal and Deferred Maintenance," *Body of Knowledge*, APPA, 2015.

university was forced to make to elevators, sprinklers, fire alarms, and ventilation systems so old the school was buying replacement parts on eBay.

These hallways lead to another handsomely appointed wing for which a dean scraped up some wealthy donors to make the kinds of improvements that are essential to compete for students in a hot field such as engineering.

But just upstairs from that are offices for English faculty with cracked and peeling window frames, sputtering air conditioners poking through walls, and plywood over some of the glass. This floor is still waiting for a badly needed overhaul—but there isn't any money in the budget.

Institutions pay a high price for failing buildings. The structures generally cost more to operate, and even the most bare-bones maintenance of temperamental systems will take longer and cost more. Aging infrastructure disrupts the operations of the campus and can threaten the work of faculty researchers.

Failing buildings and infrastructure also threaten enrollment. Students are **deeply influenced by their first impression of a campus**; multiple surveys of college-bound students point to the campus visit as the most significant factor in choosing an institution. APPA's own research reveals that roughly a quarter of prospective students will reject a college or university if they consider an important facility inadequate, and about 15 percent will reject an institution if an important facility is poorly maintained. ("Important facilities" are generally those related to a student's major.)

Supporting success with facilities modernization

Senior facilities officers understand the problem, and they know how to fix it: Reinvest in failing structures. The problem is finding the dollars. Facilities operating

Data Point:

Campus modernization

The high cost of failing structures

"Most people think of innovation as requiring shiny new equipment, which it often does, but it also comes with the far more mundane requirement of clean, functional buildings to house it. Years of federal belt-tightening have starved laboratories of funding for routine maintenance, and the deterioration has reached the point that some researchers say the nation's ability to conduct cutting-edge science is being damaged.

"'At the very least, these failures can cause delays in research work and add extra costs,'" a 2015 report on deferred maintenance at public agriculture colleges by the Association of Public Land-grant Universities found. "'At worst, we are entering an era when the condition of facilities will limit our ability to conduct world-class research that is needed to keep our leadership edge.'

"While the United States has been the envy of the research world, that prowess, at least in some areas, is starting to slip, [experts] say. China now spends 6 percent more on agricultural research than the U.S. does, for example, and other countries are catching up. If the maintenance backlog isn't addressed, domestic researchers could fall even further behind.

"Much of that problem comes down to old buildings."

Source: Jenny Hopkinson, "Innovation vs. the Ants: When Cutting-edge Research Labs Get Old, They Face a New Kind of Challenge: Upkeep Is Expensive, and It's Not Sexy," *Politico*, July 6, 2017.

budgets have inched up since the Great Recession, but they're not keeping pace with inflation or growth of campus square footage. Capital expenditures have also marginally increased, but many haven't yet returned to prerecession levels.

What's a campus to do? Most facilities leaders have adopted a variety of strategies. They're managing operations on a shoestring and increasing efficiency across the board. They're making better use of the functional space on campus and reducing demands on aging, failing buildings. In addition, they're making the case for campus modernization projects that breathe life into existing facilities. That's where this report will turn its focus: **supporting student success through facilities modernization**.

Modernization and revitalization is a program of upgrade and reinvestment in existing facilities and infrastructure. Essentially, modernization resets the clock and gives aging buildings a new lease on life.

It's a process that is critically different in both goals and means from from the deferred maintenance programs of previous decades. Deferred maintenance has gotten a bad reputation on campus because the sums involved are so large and the task never-ending. "**Trustees take a very dim view of deferred maintenance**," said Steven Thweatt, a consultant and invited subject matter expert in campus modernization who spoke at the 2017 Thought Leaders symposium. "And as senior facilities officers, we don't like it either. It implies that we can't keep up with our campuses."

The goal is not to simply rebrand deferred maintenance with a term fewer people will find objectionable. The goal is to change the conversation entirely. Instead of going to chancellors with long lists of maintenance needs, facilities leaders should be discussing institutional goals and how to achieve them through targeted facilities investments. Nevertheless, new terminology is also important. Words matter—how we discuss issues in our industry matters. It is time to embrace language that will engage the entire institution and encompass broad institutional goals.

Of course, if you are updating a building with classrooms that will better meet the demands of the 21st century, you'll also fix the leaking roof—but the goal is not maintenance. Of course you'll get new carpet—but the goal isn't surface modernization to bring a building back into style. The goal is to better serve students. To better support faculty. To better serve the needs of the institution. The goal is revitalization of a campus resource so that it can play an essential role in the future of the institution.

Revitalization programs target dollars where they will accomplish the most. **Facilities modernization is highly strategic, prioritizing projects based on both need and impact.** It stretches capital dollars by extending the life span of existing investments and promotes good stewardship of campus resources. Rather than looking back at overdue maintenance logs, it looks ahead to anticipated needs. It is forward-thinking, proactive rather than reactive, and tied directly to the institution's vision of its future.

Making the case for facilities modernization

Pursuing a modernization program is a major undertaking that will require buy-in from a wide range of constituents, Thweatt observed. Senior facilities officers will need to persuade the leaders of the institution to back the plan; state institutions might require the support of the legislature. Convincing so many stakeholders that precious institution dollars should go to modernization is a daunting task.

Strategies that have proven successful include the following:

Demonstrate how facilities modernization will support institutional goals. The key, noted Jay Pearlman, associate vice president of Sightlines, a higher education facilities consulting firm, is to move the discussion away from the needs of buildings. "The conversation regarding what to fund and what not to fund should be done in a context of a greater university strategy, and it should be set from the top down," said Pearlman. "So we're not engaged in a conversation about leaky roofs. We're

engaged in a conversation about how we support facilities to drive the institution forward."

For example, as vice chancellor for administration at the University of Colorado at Boulder, Thweatt helped create a **decision-making framework that tied modernization to campus priorities**. The organization evaluated projects according to the following criteria:

- Alignment with campus strategic goals, the chancellor's priorities, and the university's facilities master plan.
- Potential to provide distance-learning opportunities and/or generate new revenue.
- Impact on academic needs.
- Responsiveness to enrollment needs (current and projected).
- Alignment with future programmatic needs.
- Status of the structure on the campus building facility condition index.

Metrics were developed for each of these factors; for example, impact on academic needs was determined by the number of credit hours of classrooms in each building. While the modernization program sought to revitalize failing space, a new space optimization program was introduced at the same time to better utilize operational space. Combined, the two programs are leveraging the campus's investment in its facilities.

Make the argument clear and simple. Facilities departments deal in data that are unfamiliar to most campus leaders. While it may be vital for the senior facilities officer to know a building's maintenance deficiencies as divided by its current replacement value, this level of detail might be beyond what most stakeholders need. It's best to **make the case for facilities modernization with simple, straightforward data** that everyone can understand.

For example, Daniel King, facilities manager at Auburn University, in a May 2012 article for *Academic Impressions,* recommends a chart that measures campus buildings in terms of academic value (as ranked by the provost) and maintenance and modernization needs (determined by a facility condition index). Campus leaders get a snapshot of the entire campus and can see immediately that the buildings with the highest academic value and greatest modernization needs are the highest priority. King advises making the situation as simple as possible for busy campus executives:

> If you can rank your facilities within each of these quadrants, you can use such a chart as a tool to convey

Data Point:

Campus modernization

Making the case for modernization

Daniel King of Auburn University uses a simple chart to put the condition of buildings in the context of their academic value.

Academic Value -- Low to High		
	High academic value, low maintenance and renewal needs High-value buildings that need little operations and maintenance investment	**High academic value, high maintenance and renewal needs** Facilities that are the highest priority for reinvestment
	Low academic value, low maintenance and renewal needs Lower-priority buildings where it is safe to defer renewal	**Low academic value, high maintenance and renewal needs** Facilities that might be good candidates for demolition and replacement
	Maintenance and Renewal Needs – Low to High	

Source: Daniel King, "How Do You Make the Case for Funding Maintenance and Renewal for Campus Facilities?" *Academic Impressions*, May 18, 2012.

a fairly complex situation in a readable manner. They don't want to see 55 charts on 55 buildings and their problems; they can't absorb all that. You need to find a way to quickly tell the story about the institution's renewal and replacement needs.

Promote a culture of stewardship. "Organizations that are effective at managing the physical assets of facilities and infrastructure work within a developed culture of stewardship," wrote Rodney Rose in the executive summary to the APPA publication *Buildings...The Gifts that Keep on Taking: A Framework for Integrated Decision Making*. "The culture is rooted in a deep understanding of how the physical assets provide the environment to achieve the mission and program objectives of the institution."

Cultivating stewardship isn't so much a strategy for promoting a one-time facilities modernization campaign as it is a long-term philosophy inculcated into the institution that **recognizes both the value and the long-term costs of the campus built environment**. Senior facilities officers can't create this culture on their own, but they can take steps to encourage it by promoting the concept of total cost of ownership (TCO) and advancing long-term strategies for facilities management.

Brigham Young University (BYU), for example, maintains 40-year predictions of possible facilities expenditures for existing structures, and when new buildings are presented to BYU leadership, figures are calculated using a 75-year TCO framework that includes estimated maintenance, operating, and replacement costs. The result is a constant awareness of the lasting nature of facilities and a sense of both their costs and their benefits.

Facilities modernization priorities and opportunities

Thought Leaders symposium participants developed the following list of general priorities for colleges and universities when planning modernization programs:

- **Increase the life span of existing buildings.** Modernization should reset the clock on facilities and extend their useful life span at least ten years into the future—if not 30. In other words, even if a building was constructed in 1965 (or 1985, or 1915), after revitalization and modernization, that building is effectively brand new. New internal systems such as lighting, heating/cooling, and power will breathe new life into the structure while reducing operating costs and increasing sustainability.

- **Reduce disruptions.** Spaces should be free from distractions caused by leaking roofs, electrical outages, and too-hot or too-cold temperatures.

- **Expand useful space on campus.** Many campuses have enough space on paper but still feel pinched for classrooms, labs, and offices. Modernization allows institutions to update less-desirable spaces so that the campus can be used to its potential.

- **Increase flexibility.** Facilities modernization should reduce barriers to current pedagogy while building in flexibility that allows for even more change going forward.

- **Meet student and parent expectations.** Families paying tens of thousands of dollars a year for an education don't expect students to rough it in outdated campus housing. Residence halls and dining facilities in particular need to meet current expectations.

- **Improve accessibility.** Most campus buildings today are ADA-compliant, but that doesn't mean that they are truly open to every student. Modernization pres-

Data Point:

Campus modernization

Doing more with what you've got

Cuba Plain, assistant vice president of budget planning and development for the University of Missouri System (UMS), discusses the challenges of aging facilities:

"We want to examine how we're using space on campuses, with a goal of reducing net overall space. If we have less space to manage, we can do a better job of taking care of it. One way to reduce deferred maintenance is to take a building down. If the level of required repair or refurbishing is significant, it's better to tear down the existing facility and build another one that will be more efficient to maintain.

"[A maintenance backlog] impacts the entire university in all its different aspects. For instance, by addressing it, you'll be able to attract and retain students and enhance their academic performance by providing upgraded facilities, which also helps with faculty recruitment. You want to show that you offer competitive facilities.

"We have to be more efficient and effective and do more with less. We've been saying that for 20 years, but now it's come to fruition. Without space, we are not a research institution. Students and faculty need labs and facilities that are up-to-date. We can't just go along with business as usual in terms of facilities."

Source: Apryl Motley, "The Download on Upkeep," *Business Officer*, NACUBO, December 2015.

ents an opportunity for campuses to adopt universal design concepts that make buildings not just accessible but welcoming to all.

- **Promote collaboration and interaction.** Designers have learned a lot in recent years about how to draw people together. Renewed buildings should include spaces for meetings, cross-discipline collaboration, and student projects along with casual spaces that invite interaction.

- **Increase safety.** Modernization creates opportunities to integrate new security systems and measures such as key-card access into existing buildings, including labs, offices, and classrooms, not just exterior doors.

- **Reflect the identity of the institution.** Many colleges and universities have one or two buildings that don't fit with the rest of the campus—a single tan brick building in a sea of red or a failed modernist experiment surrounded by colonial-style structures. Today, institutions have a strong sense of how their visual identity reflects their brand. Modernization programs give colleges and universities a chance to remedy design errors of the past and unify the appearance of facilities.

Embarking on a modernization program will likely be a multiyear effort that requires hard work, commitment, collaboration, patience, and perseverance. But when done with care and driven by the priorities of the institution, modernization can support the success of students and the entire campus community.

Case Study in Facilities Modernization: University of Massachusetts at Amherst

A mix of structures make up the 13-million gross-square-foot, 1400-acre campus of the University of Massachusetts Amherst. Some are historic structures, including one listed on the National Register of Historic Places. Others—many others—were built in the campus boom of the 1960s and 1970s. And by the early 2000s, most of them needed investment. In addition, state funding for this investment has been limited, with the university paying for 70 percent of the cost of renovations and new buildings.

Embarking on a major facilities modernization program required Shane Conklin, associate vice chancellor for facilities & campus services, and the entire facilities department to make creative choices. "We tried to find a balance between replacing really poor spaces that would have a high impact and, at the same time, investing in areas targeted for growth on campus," Conklin says.

Understanding the condition of each building and cost of needed improvements was critical. Equally important was determining campus needs. For example, in the case of the Hills Building, an assessment revealed it would cost less to tear down and replace the building than to renovate it to desired standards; demolition began in summer 2017.

Some buildings were too important historically to demolish, but renovation posed major challenges. The South College building, for example, was constructed in 1886, and bringing it up to code seemed almost impossible. Right next door was a post-World War II building, Bartlett; in poor condition, it would have cost more to renovate than to demolish and start fresh. The solution? Tear down Bartlett and build a new structure attached to South College in its place. "We came up with a 'buddy building' concept," says Conklin. The new addition includes the features South College needs, including modern air handling equipment, elevators, and accessible entrances, while leaving the historic structure intact. "We were able to enable the demolition of a failing building and gut-renovate a historic building that now has a fresh start," says Conklin.

To determine their priorities, the facilities organization drew on studies including an academic space study and a science and engineering study. The academic survey looked at the classrooms available on campus and estimated current and future needs. The science and engineering study identified the deficiencies in research buildings that were preventing the institution from growing desired programs and attracting and retaining top researchers. "One general recommendation was that the deferred maintenance backlog had to be addressed to maintain our competitiveness as a leading research institution," says Conklin.

Increased accessibility was a priority of the modernization program, as was working with UMass researchers. Conklin was able to do both when Facilities worked with engineering professor Aura Ganz and her colleagues in the university's 5G Mobile Evolution Lab to install their PERCEPT navigation system in the Whitmore Administration Building, which houses the university's disability services office. The PERCEPT system allows the blind and visually impaired to navigate unfamiliar environments using their smart phones; RFID tags communicate the user's location to the phone, and the system provides directions that allow an individual to find any location in the building. "We had a unique opportunity to support the great work of our faculty while helping out our students," says Conklin.

The connection between facilities modernization and student success couldn't be more clear at the UMass campus, says Conklin. The institution completed a Student Experience Master Plan last year to better understand the needs of students. "We looked at what should we be doing to help student success? How do we make the campus welcoming and engaging?" Conklin says. Part of the UMass commitment to student success is a planned renovation to a building in the core of the campus. Designed as the student success hub, it will include a variety of services that help students achieve their goals. "We've just started planning on this, and it's pretty cool," says Conklin. "We recognize the importance of being deliberate about student success."

Section 5:
Building Support for Facilities Modernization with Collaboration

Senior facilities officers spearheading a facilities modernization program will need to forge strong relationships with leaders across the campus—from the president's office to deans and department chairs, from the CFO to IT and student services. It's an undertaking that might intimidate the most well-prepared facilities officer, who will be required to walk into conference room after conference room armed not only with data demonstrating the need for modernization but also confidence, enthusiasm, and commitment.

Let's face it, this level of collaboration can be *hard*. When facing a body of campus leaders with their own priorities and agendas, how can facilities leaders build consensus around modernization?

Data Point:

Defining student success

University of South Florida

The University of South Florida will empower students to succeed through educationally purposeful activities, initiatives, and accountability measures that will ensure that students are retained and graduated at higher-than-predicted rates, with higher degrees of satisfaction and minimal financial indebtedness, and are employed or enter graduate, professional, or postdoctoral programs at high rates, having acquired the skills, knowledge, and dispositions to succeed in any of those endeavors they pursue.

Achieving true collaboration

The Arbinger Institute's answer to achieving true collaboration: Change your mindset.

The Arbinger Institute, founded in 1979, is an international consulting and training firm based on research into the social sciences and philosophy. Arbinger focuses on helping organizations and individuals resolve conflicts and improve personal interactions to better achieve their goals.

A key concept for Arbinger is mindset.[2] Mindset is how you view the world and the other people in it; it's the lens through which you see your work and your relationships. Individuals have either an inward mindset or an outward mindset:

- **Inward mindset:** A focus only on one's individual goals and objectives. People with an inward mindset are blind to what others want or need. They only see others in relation to themselves. Individuals with an inward mindset might work incredibly hard for their organization, but they fail to recognize how their actions are affecting others.

- **Outward mindset:** An understanding that others have their own goals and needs and a focus on achieving the results of the organization as a whole. People with an outward mindset take the priorities of others into account when considering their own goals; they are aware that they might inadvertently get in the way of another individual or department and seek to limit their harm.

It's key to emphasize that having an inward mindset doesn't make someone a bad person. "It isn't that you woke up wanting to ruin someone else's day," said Andrea Hoban, Arbinger senior consultant/facilitator, who spoke at the 2017 Thought Leaders symposium. "It's that you may not even know that you are making life difficult for other people."

2 For more information, see the Arbinger Institute publications *Leadership and Self-Deception and The Outward Mindset.*

Nor does having an outward mindset mean letting other people walk all over you. "It's not about being soft," noted Hoban. Listening to the concerns of others doesn't require you to do what everyone else wants. It may be you do not have the time or funds to meet their requests, or there is a good reason for saying no. But even if you don't give people what they want, you can show that you hear them and have an honest conversation about what you can and can't do.

Further, an outward mindset does not mean giving up your own priorities—it doesn't make you a doormat. Rather, an outward mindset helps you better achieve your goals in the context of the mission of the organization. Nor is it necessary that everyone at an organization or within a department have an outward mindset. (Although it would be nice.) **Operating outwardly will allow you to work better with others, no matter how inward their mindset,** because you will see them as individuals with needs and goals.

An inward mindset, on the other hand, tends to reduce other people to objects. You might see others as objects that block your path or vehicles that you can manipulated to help you on your way. If they are not useful to you, other people can become simply irrelevant. In any case, you will be blind to their motivations because you are so focused on your own.

An outward mindset creates an environment that furthers collaboration and helps unite individuals around a goal. Collaboration with an outward mindset requires the following steps:

1. **Reach out.** Invite representatives from another campus department to a meeting where the agenda is for them to explain what they do and what problems they have. Your job is to sit there and listen—without defending yourself or your department and without casting blame elsewhere.

2. **Identify the objectives and challenges of others.** Learn how others understand their responsibilities and identify specific ways in which your organization is making it difficult for other people to do their jobs.

Data Point:
Collaboration
How am I a problem for you?

If you want to build better relationships with your colleagues, ask them this simple question: How am I a problem for you?

Key to an outward mindset is being aware that your actions affect others. You can jump-start collaboration and cooperation by reaching out and asking how your actions are creating harm.

It takes courage to ask the question and discipline to listen to the response. You are making yourself vulnerable, but "There's strength in vulnerability," noted Arbinger's Hoban. "If you've had strife with another group, and you walk in there asking how to do better, your intent is so pure they can't attack you."

3. **Adjust to be more helpful.** Start taking concrete steps. Tackle the low-hanging fruit first to get some easy wins that will make everyone happy. If the IT department is frustrated because it needs to be involved earlier in the design process for modernizing buildings, then get them in the room. Be aware that some challenges will require more time and effort. If the entirety of communications between Facilities and IT is broken, it will take sustained effort to build, or rebuild, trust.

4. **Measure what the institution is able to accomplish as a result of your efforts.** Look for metrics that you can use to monitor your progress. Can you find cost savings in streamlined processes? Can you demonstrate that the number of help tickets successfully closed has increased? Are response times improved? Is customer satisfaction on the rise? Measuring results helps you see where you're making a difference.

Hoban works with colleges and universities across the country, and she has seen this sort of collaboration succeed. Higher education, she says, has the advantage

that it is "really focused around mission. **It's wonderful to work with people who are all about their mission of supporting students**." She generally finds that the commitment to mission permeates the institution and motivates staff at all levels. However, she says, "One of the things I find curious about higher education is how siloed their areas of focus are. Everyone is focused on one mission, and yet the view of the world is wrapped around where each individual sits within the organization."

Being deliberate about cultivating an outward mindset and promoting collaboration helps campus leaders see beyond their narrow viewpoints. It helps them "find ways to support one another that they can't see themselves," Hoban said.

Facilities modernization through collaboration

Bringing the focus back to facilities modernization, adopting an outward mindset can jump-start the process of understanding campus needs and building consensus around a modernization program.

Often, facilities department leaders think they know all there is to know about the campus. But that inward focus can put blinders on. Reaching out to the faculty, staff, and students who use the campus can reveal a whole new side to buildings. Building flaws might be having unexpected negative effects unforeseen by facilities directors. Academic deans, residence hall directors, or IT staff might have needs facilities didn't expect.

Data Point:
Student success through collaboration

Collaboration to drive student success

Collaboration spurs innovation because bringing together groups of people who have different ideas, approaches, experiences, and areas of expertise creates a fertile environment for generating new concepts and methods. Sharing insights allows ideas to be refined and improved. Charging a group with developing a promising idea incentivizes the group—not just a single individual—to commit to its success and paves the way for trusted collaboration.

The challenge for leaders in higher education, then, is to figure out how to incentivize collaborative behavior to drive innovation that meets the needs of the country and of students—namely, by helping more students access opportunities for higher education and attain degrees and skills to advance their own and the nation's economic success. It's time to share what we know about how to serve students better, so that the beneficial effects of innovation can multiply rapidly across academic cultures, across regions, and across the diverse student populations striving for a college degree at thousands of postsecondary institutions throughout the United States.

This requires a new kind of collaboration that is intentional, self-forming, and based on shared values and goals, bringing together institutions with limited competitive interaction. Most importantly, this new kind of collaboration necessitates thoughtful coordination to bring more value to each institution than is taken from each institution.

Source: Bridget Burns, Michael Crow, and Mark Becker, "Innovating Together: Collaboration as a Driving Force to Improve Student Success," *Fresh from the UIA (University Innovation Alliance)*, March 4, 2015.

Gathering insights from across the campus gives facilities staff a new and powerful source of information that can be combined with metrics in, for example, a facility condition index. Campus leaders will get a clearer understanding of the facility needs when they understand how building failures affect people. At the same time, seeking input from a range of stakeholders will build support for your efforts. The communication process needs to be sustained over time, and facilities needs to communicate back the process it is using to prioritize needs. Making the entire process transparent will reduce frustration, increase trust, and build consensus around the final program outlines.

Participants at the Thought Leaders symposium agreed that the advantages and opportunities of a collaborative process include the following:

- **Increased stakeholder engagement** from all generations and types of campus users (that is, students, faculty, and staff of all ages).
- **Campus-wide agreement on facilities priorities** and how they support the college's or university's mission.
- **Alignment of facility efforts with the student success efforts** of the institution.
- **Strong buy-in** of the program, even during tough patches when construction is inconvenient or bills come due.
- **Shared ownership** of the outcomes.
- **Increased confidence and trust** in the facilities organization as a partner in the goals and mission of the college or university.

Not collaborating, on the other hand, has tremendous costs. Failing to engage stakeholders can mean that the facilities modernization program never gets off the ground. Thought Leaders symposium participants considered the following factors the greatest risks of *not* collaborating:

- Lack of perspective or knowledge outside the facilities sphere.
- Investment in buildings and systems that aren't needed.
- Failure to invest at all if consensus on the process is never achieved.
- Frustration of stakeholders who feel their needs are ignored.
- Blame and finger-pointing when things go wrong.
- Missed opportunities for innovation or progress, which occurs when the people necessary to seize an opportunity are not in sync.
- Distrust between facilities and different stakeholders on campus.

Collaboration **takes the pressure off facilities leaders**, says Peter Zuraw, former assistant vice president of facilities management at Wellesley College. "You're not putting your agenda forward—you're putting the institutional agenda forward." If the buildings selected for renovation and modernization are identified by the facilities department, the facilities department must defend those decisions. But when the priorities for modernization are based on institution goals and have been confirmed at the highest levels, facilities directors don't have to defend those choices because leaders such as the CFO, the president, and the board own those decisions, Zuraw says.

Remaking the facilities organization to be more collaborative

While the Arbinger Institute's ideas are straightforward and easy to understand, fostering collaboration requires effort. Participants at the Thought Leaders symposium considered how internal facilities operations should change to encourage collaboration. They started with simple changes; for example, **restructure meeting agendas to create more opportunities to listen**. The same one or two people shouldn't do all the talking at every meeting. Instead, meetings can be deliberately structured to draw out the insights of others at the table.

Participants believed senior facilities officers should **model outward behavior** for their staff. Organizations take their cues from the top, and if staff see their managers actively listening and responding to the input of others, they will respond. The senior facilities officer can also identify key individuals within the organization who have influence and **help them develop an outward mindset.**

Facilities leaders should **create or reaffirm a common purpose** within their organization. The call should be to work toward fulfilling the mission of the institution. Staff should be encouraged to think outside their own narrow role and immediate task and embrace a wider goal—a goal such as student success.

Finally, senior facilities officers need to **reward staff for working collaboratively.** Individuals should be encouraged to share ways in which they helped others within the organization and should be recognized for moments of joint success. Instances where facilities staff adapt to better serve other departments should be framed as opportunities rather than annoyances.

Ultimately, failure of collaboration and an inward mindset can hurt the mission of the institution: If the relationship between facilities and rest of the institution is dysfunctional, the institution is itself, in some way, dysfunctional.

However, the reverse is also true: A truly collaborative process can help the facilities staff organization advance the college or university by enabling facilities staff to make smart decisions about facilities modernization. Facilities leaders and staff can help students succeed by undertaking modernization in an outward, collaborative way.

Data Point:

Defining student success

Cape Cod Community College

Based on the awareness that student success is unique to every individual, Cape Cod Community College defines student success as a series of stepping stones and milestones, which could include being prepared for college, establishing clear and realistic goals, completing courses, developing the ability to monitor academic progress, earning certificates and degrees, transferring to another institution, acquiring necessary occupational training, and gaining skills useful for future learning.

Section 6:
Ten Questions to Drive Student Success through Facilities Modernization

How do we support student success with facilities modernization? Participants at the 2017 Thought Leaders symposium developed the following questions to help senior facilities officers think through the issues discussed in this report and strategize their next steps. We encourage facilities departments to consider these questions for themselves and to share them with others within the institution.

Data Point:

Defining student success

University of North Carolina, Chapel Hill

We believe student success includes:

1. Exploring and growing intellectually.
2. Appreciating diverse perspectives as well as developing one's own identity.
3. Developing social and emotional skills.
4. Engaging in meaningful activities, roles, and relationships.
5. Cultivating a sense of purpose or vocation.

1. How does our institution define student success? How can the facilities organization specifically support student success at our college or university?

Student success can be defined in many ways, and it's difficult to know if you're contributing to success if you don't know how your institution defines it. If your organization hasn't formally defined success, facilities can turn to the mission and vision of the organization. They can supplement that information with goals and priorities expressed by the institution and come up with a working definition of success that will give the facilities organization a sense of where the leaders of the college and university want to go. A good check of this working definition is to present it to different campus leaders and see if they agree with its aims.

2. How does facilities revitalization and modernization contribute to student success?

Senior facilities officers need to assemble a solid argument for facilities modernization in the service of student success. Assembling data is the first step; institutions need metrics that quantify the performance of each building. The experience of other colleges and universities has shown the importance of summarizing information in a way that is easy to understand.

Making the case for infrastructure projects can be particularly challenging. Facilities departments understand the importance of these projects, but hot-water lines and power cables lack natural stakeholders who will lobby for their modernization. It is hard to appreciate if all is working well. It may take significant education and outreach to make clear the need for investment in facilities.

3. How is the facilities organization a *barrier* to supporting student success?

Flipping the question can reveal significant information about where facilities and facilities operations are getting in the way of the institution's mission. Remember that one of the essential calls upon facilities is to "do no harm."

Facilities organizations should ask this question when engaging with stakeholders across campus and document instances in which classes were interrupted, faculty were

Data Point:

Supporting success with campus modernization

Making the case for modernization

Facilities leaders at different campuses were asked by NACUBO's *Business Officer* magazine how they argued the case for facilities modernization investment. Here's what they recommended:

- **Show the damage.** "We're on borrowed time, and we have to provide real, factual, visual explanations," says Sal Chiarelli, physical plant department director at the University of Vermont, Burlington. "I've had my staff bring big chunks of marble and concrete to me or place a piece of corroded pipe on my desk so that people can touch and feel the corrosion. You've got to get the people around you to see the problem." And it needs to be seen as broader than the facilties staff alone.

  Similarly, at the University of California, Irvine, Wendell Brase, vice chancellor of administrative and business services, uses photographs to document failing facilities. "CBOs [chief business officers] may not realize that they see things that others on campus do not, since most people have never been in a mechanical room or utilities tunnel." He notes: "The picture speaks for itself; you don't have to say anything. Images help illustrate problems in areas in which most people are unfamiliar."

- **Present data.** Cuba Plain, assistant vice president, budget and planning, for the University of Missouri System (UMS), has found value in gathering hard data to explain the facilities' problem to constituency groups. "We've changed our communication strategy to be very data-driven," she says. "We focus on demonstrating the most critical needs." In addition, Plain notes that data help in presenting the case for UMS to receive additional state funds: "When we ask the state to fund deferred maintenance, we give them a fact sheet that outlines the ROI for the state and its citizens."

- **Document stakeholders' concerns.** According to Brase, one of the most compelling factors is that of leading researchers who begin to express concern that the research environment on campus isn't stable enough to support their work. "When they start to speak up, it's pretty clear that this is a problem the university must face," he says.

- **Be straightforward.** "We haven't done a good job of communicating the impact of certain decisions," Plain says. "People forget that by not making a decision, you're really making a decision. We have to take action, so we have to be honest about the fact that there are tough choices to make."

Source: Excerpted from Apryl Motley, "The Download on Upkeep," *Business Officer*, NACUBO, December 2015.

forced to deal with a facilities crisis instead of teaching, or student activities were cancelled. A metric such as the number of classroom hours lost to facility failures is a powerful statement to senior campus leadership of the need for modernization.

4. How will investment in modernization support long-term institutional success?

Facilities modernization involves significant financial resources, and the results should justify the cost. Modernization isn't about short-term fixes. It's a way to extend the life span of campus facilities and leverage existing investments.

As such, facilities modernization programs should be based on strategic decisions and draw on the consensus of campus leaders. Modernization should focus on buildings that combine the greatest need with the greatest impact. Senior facilities officers may need help in seeing that impact with the second part of that equation. Facilities must draw on space utilization information while tapping the insights of other campus leaders to get this level of insight.

Modernization programs should also be tied to the institution's long-range plans. If the plan of the college or university is to increase on-campus housing, modernization of residence halls should take a higher priority; if the plan calls for expanded investment in biomedical research, research facilities should rise to the top of the list.

5. Where do we start in making our processes more collaborative? What is our plan for adopting a collaborative approach to facilities revitalization in particular?

Remaking the facilities organization to be more collaborative may seem like an overwhelming task—but you've got to start somewhere. It's essential to make a plan, write it down, and revisit it regularly, especially when a program as critical as campus modernization is on the line.

The call to adopt an outward mindset is deceptively simple: While it is easy to decide to be outward-focused, it is more difficult to maintain that mindset over time. Facilities leaders need to create reminders to engage in outward thinking and provide rewards for collaborative actions. Organizations must be deliberate about structuring their facilities modernization program to incorporate collaboration. Otherwise, it will be all too easy to fall back into outdated ways of thinking and acting.

6. How do we select and engage stakeholders in a collaborative modernization process?

Building support for a modernization program will require the backing of representatives from across the institution. It's worth the time to carefully consider the right players on this team. Facilities officers should draw upon a wide variety of departments and disciplines in making their case. Consider which groups will be able to further *their own* goals through investment in modernization, and be sure to include students as key stakeholders.

Facilities can take the question a step further and consider which individuals within key departments are likely to be open to collaboration. Staff with a history of working cooperatively with facilities should rise to the top of the list. Equally important when selecting partners is finding those with the right level of responsibility. You want players on your team who can act to further modernization rather than those with good intentions but no authority to make decisions.

Data Point:

Defining student success

Nazareth College

The true measure of student success is how well students are prepared to accomplish their current and future academic, personal, and professional goals through the development of knowledge, a sense of responsibility and self-reliance, and a connection to the college and wider community.

7. How do we prioritize facilities modernization needs?

The criteria used to determine modernization priorities, and making these needs transparent to the university community, will depend on the institution and how it has defined student success. Generally, the top priority isn't necessarily the buildings with the greatest renovation needs but rather the buildings and systems with the greatest potential for fulfilling campus goals.

It's essential that the criteria for prioritizing modernization projects are transparent, so that the entire college or university understands the decision-making process. You may never get everyone to agree on where you're putting your dollars, but at least you can show that the process was fair and even-handed.

8. How do we establish and maintain discipline in the facilities renewal and revitalization process?

Modernization programs are marathons, not sprints. They require sustained effort over years, and at the beginning, the hard work has very little to show for it. It's easy under those circumstances to become distracted by new ideas and proposals. At the same time, we must be flexible as technologies change.

It takes a firm commitment of key leaders to keep modernization programs on track. Keep the underlying problem in your sights. Keep reporting on building needs, keep assessing facility conditions, and keep reminding yourself and other campus staff of the cost of failure.

9. How do we say "no" without alienating those who have partnered in collaboration?

One challenge of seeking input from a wide range of sources is that sometimes you must disappoint your partners and supporters. When you reach out to a campus department to learn about its needs, you raise hopes and expectations that those needs are finally going to be met. Leaders in those departments confide in you—you gain a measure of their trust. However, some projects must take priority over others. Inevitably, you will need to tell a group that has rested its hopes in you that their project didn't make the cut.

Data Point:

Defining student success California Community Colleges

Acknowledging the varied educational goals of students, the CCC Task Force adopted a set of student success outcome metrics, and recommended that the system define success using the following metrics:

- Percentage of community college students completing their educational goals
- Percentage of community college students earning a certificate or degree, transferring, or achieving transfer-readiness
- Number of students transferring to a four-year institution
- Number of degrees and certificates earned

The only solution is a transparent, data-driven process. You will build credibility for your decisions by making all information freely available, and you need to be prepared to justify every dollar you spend. Be clear upfront about the process, and don't make promises you can't keep. You won't make everyone happy, but with patience, you can justify the trust individuals have placed in you.

10. How do we communicate the risk of using capital dollars for work that does not further modernization?

One irony of facility failures on campus is that new construction has continued at the same time maintenance backlogs have soared. After all, donors like to see their names on gleaming new state-of-the-art buildings; a repaired underground parking garage or updated utility tunnel doesn't have the same cachet.

It will take commitment from the highest levels of the institution and consensus from a broad base of campus leaders to stay the course. Institutions need to make the financial case for modernization to their boards and trustees and secure the continuity of long-term plans so they will survive leadership changes. Institutions can also appeal to the entire college or university community, including alumni, when making a case for reinvestment in existing buildings.

Campus buildings and spaces carry the affection and loyalty of the community, and alumni in particular want future generations of students to share the experience of taking classes in historic buildings or living in iconic residence halls. When a building needs to be demolished, there should be a clear explanation of the "why." Alumni may well have an emotional attachment that should be acknowledged and celebrated, even as the building is removed from campus.

At the same time, institutions need to emphasize the risk of diverting spending away from modernization. Senior facilities officers must make the impact of proposed projects crystal clear. Find ways for campus leaders to compare apples to apples and to highlight the connection between campus goals and capital expenditures.

Case Study in Facilities Modernization: Triton College

Triton College defines itself as an institution dedicated to student success—it says so right in its mission statement. The 100-acre campus, located 14 miles from downtown Chicago, serves nearly 18,000 students with 130 two-year degree and certificate programs.

Triton sought to modernize its facilities with the goal to "promote and support sound educational environments by updating facilities and creating flexible learning spaces that incorporate technology and sustainability." The institution also wanted to develop new education programs based on community and workforce needs and improve recruitment, retention, and graduation.

To prioritize its investments, Triton developed a smart-growth plan that incorporated findings from multiple studies, surveys, and meetings. Five workshops and two campus-wide planning sessions generated 371 specific ideas for campus improvements. At the same time, the facilities organization conducted facilities and infrastructure condition assessments to understand the needs of the campus built environment. Finally, the college outlined future curriculum needs and established guidelines for updated spaces. New classrooms, for example, needed to be flexible, with furniture that could be easily moved to accommodate various teaching styles. The end result was a comprehensive modernization plan driven by the needs of academic and student services that was highly flexible and future-ready.

Triton sold $53 million in bonds to fund its campus renewal projects in 2014, and work has been ongoing ever since. Projects range from cosmetic upgrades to a brand-new athletic complex, from remodeling the college cafeteria, to renovating the Child Development Center Lab School. The Cernan Earth and Space Center, which includes a planetarium and exhibits alongside classrooms and labs, was updated and modernized. Solar panels were creatively mounted on the exterior of the building, with one set of panels painted with a mural of NASA astronaut Eugene Cernan walking on the moon and another set installed to resemble a satellite orbiting the earth.

Triton has earned a reputation as a military-friendly college, and the institution wanted to use facilities modernization to support the success of student veterans. The campus opened its new Veterans Resource Center (VRC) in 2015 with the goal of creating a space on campus for veterans to call their own. VRC houses academic, career, and community services as well as a quiet study area and meeting space for the Student Veterans Club. The overall goal is to help veterans successfully transition to civilian life and to the classroom. "As a military-friendly institution, we are here to support our student veterans' education as well as their professional and personal goals," said Triton College President Mary-Rita Moore at the opening of VRC in 2015. "Our new Veterans Resource Center continues our mission toward all student success."

Section 7: *Conclusion*

Higher education today faces a daunting challenge: to help students succeed. Colleges and universities confront pressure from outside forces to improve metrics such as retention rates, graduation rates, and jobs secured after college. At the same time, the higher education community recognizes that it has an obligation to help students avoid crippling debt and incomplete degrees. The campus community is committed to this goal. Academic affairs, administrative affairs, student affairs—all are striving to find the most effective ways to help students get from enrollment to graduation.

What about facilities?

It only takes a moment to realize that the quality of campus facilities is directly related to the quality of the student experience. Students will not thrive in facilities that are failing. Facilities must take its place alongside the rest of the campus and align the facilities mission with the institution's definition of student success.

One way to accomplish this is through facilities modernization, and the key to successful modernization is a clear understanding of the institution's goals and priorities. Modernization doesn't mean fixing everything that's broken (there isn't enough money in the world). It doesn't even mean fixing what's in the worst shape (what if that structure has little value to the institution?). Modernization involves thoughtful translation of institutional goals into facilities priorities. The most consequential projects will be those that will have the greatest impact on campus goals.

That makes it sound easy, but it's not. Few organizations will instantly agree on the campus goals, how to achieve them, where facilities fits in, and which buildings on campus need modernization. That's where collaboration comes in. This report outlines some basic steps toward creating a more collaborative culture on your campus. A good starting point is to cultivate an outward mindset that recognizes that everyone you encounter has goals, priorities, and needs.

Facilities should always play a supporting role in student success efforts, unlike academic advising or student affairs, which stand on the front lines. But that's not to diminish the importance of facilities. A clean, comfortable classroom becomes a stage for faculty to challenge and motivate students. A welcoming, homelike residence hall becomes a haven from the stress of college life. An efficient and functional lab becomes a tool researchers use to unlock new discoveries. The campus itself opens its arms to students and says, "You are welcome here. Now go do good work."

Appendix A: *Selected Resources*

Academic Impressions. "How Do You Make the Case for Funding Maintenance and Renewal for Campus Facilities?" May 18, 2012. https://www.academicimpressions.com/news/how-do-you-make-case-funding-maintenance-and-renewal-campus-facilities

Ayers, Lee, et al. *The Economics of Higher Education: An Environmental Scan of Today's Emerging Trends.* Southern Oregon University. April 2017. http://www2.sou.edu/strategic-planning/wp-content/uploads/sites/28/2017/02/Economics-of-Higher-Education-Trends.pdf

Blumenthal, Anita. "Planning Tool Resets Priorities, Reshuffles Resources." *Facilities Manager*. May/June 2016. https://www.appa.org/files/FMArticles/22-27%20FM_MJ16_F1.pdf

Cammell, Amy. "Total Cost of Ownership Shapes BYU's Investment Strategies." *Tradeline.* August 7, 2007. https://www.tradelineinc.com/reports/2007-8/total-cost-ownership-shapes-byus-investment-strategies

Castleman, Ben, and Zach Sullivan. "How to Pay for Success in Higher Education." Brookings Institution. April 25, 2016. https://www.brookings.edu/blog/brown-center-chalkboard/2016/04/25/how-to-pay-for-success-in-higher-education/

Crawford, Mark. "Managed Risk and Facilities Management: A Balancing Act." *Facilities Manager*. January/February 2016. https://www.appa.org/files/FMArticles/28-33%20NO%20AD.pdf

Dynarski, Susan. "Why Students with Smallest Debts Have the Larger Problem." *The New York Times*. August 31, 2015. https://www.nytimes.com/2015/09/01/upshot/why-students-with-smallest-debts-need-the-greatest-help.html?mcubz=3

Fain, Paul. "Small Loans, Big Problem." *Inside Higher Ed.* September 28, 2015. https://www.insidehighered.com/news/2015/09/28/four-surprising-findings-debt-and-default-among-community-college-students

Fishman, Tiffany Dovey, Allan Ludgate, and Jen Tutak. "Success by Design: Improving Outcomes in American Higher Education." Deloitte Center for Higher Education Excellence. March 16, 2017. https://dupress.deloitte.com/dup-us-en/industry/public-sector/improving-student-success-in-higher-education.html

Glazner, Steve. "Campus Housing Projects Display Variety and Innovation." *Facilities Manager*. January/February 2016. https://www.appa.org/files/FMArticles/38-55.pdf

Greenstein, Daniel. "4 Trends that Drive Success in Higher Education." World Economic Forum. December 2, 2014. https://www.weforum.org/agenda/2014/12/4-trends-that-drive-success-in-higher-education/

Harris, Wallace L. "Facility Matters: The Perception of Academic Deans Regarding the Role of Facilities in Higher Education." *Facilities Manager*. September/October 2015. https://www.appa.org/files/FMArticles/32-373.pdf

Hillman, Nicholas. "Why Performance-Based College Funding Doesn't Work." The Century Foundation. May 25, 2016. https://tcf.org/content/report/why-performance-based-college-funding-doesnt-work/

Kadamus, James A. "Another Brick in the Wall? Increased Challenges Face the Physical Campus." *New England Journal of Higher Education.* January 13, 2014. http://www.nebhe.org/thejournal/another-brick-in-the-wall-increased-challenges-face-the-physical-campus/

Kaiser, Harvey H. "Capital Renewal and Deferred Maintenance." *Body of Knowledge*. APPA. 2015. http://bokcms.appa.org/pdfs/131-04211507.pdf

Kaiser, Harvey H. "Protecting and Enhancing Campus Facilities: 6 Principles for Boards." *Trusteeship Magazine*. Association of Governing Boards of Universities and Colleges. March/April 2012. https://www.agb.org/trusteeship/2012/marchapril/protecting-and-enhancing-campus-facilities-6-principles-for-boards

Krantz, Laura. "Backlog on Building Upkeep Is Mounting at State Campuses." *Boston Globe.* May 30, 2017. https://www.bostonglobe.com/metro/2017/05/29/state-higher-education-system-faces-billion-backlog-building-repairs-and-maintenance/Ul7byo43bsvtUgrGDeGMtL/story.html

Kuh, George D., Jillian Kinzie, Jennifer A. Buckley, Brian K. Bridges, and John C. Hayek. *Piecing Together the Student Success Puzzle: Research, Propositions, and Recommendations.* ASHE Higher Education Report, Vol. 32, No. 5. 2007.

Labi, Aisha. *Placing Student Success at the Center of State Higher Education Finance Policy.* Lumina Foundation. November 2015. https://www.luminafoundation.org/files/resources/labi-student-success-at-the-center.pdf

Luhby, Tami. "College Grads Are Getting Nearly All the Jobs." *CNN Money*. June 30, 2016. http://money.cnn.com/2016/06/30/news/economy/college-grads-jobs/

Maeroff, Gene I. "Carnegie Education Study Bids Universities Be Bold." *The New York Times*. October 10, 1973. http://www.nytimes.com/1973/10/10/archives/carnegie-education-study-bids-universities-be-bold-6million.html?_r=0

Marcus, Jon. "The Paradox of New Buildings on Campus." *The Atlantic*. July 25, 2016. https://www.theatlantic.com/education/archive/2016/07/the-paradox-of-new-buildings-on-campus/492398/

Medlin, E. Lander. "Back to the Future: Transforming Facilities to Achieve Student Success." *Facilities Manager*. July/August 2017. https://www.appa.org/files/FMArticles/(10-11)%20FM%20JF17_Exec%20Summ1.pdf

Michalewicz, John. "Unanticipated Success: Resident Facility Assistants." *Facilities Manager*. July/August 2017. https://www.appa.org/files/FMArticles/(46-47)%20FM%20ND16_Perspective1.pdf

Miller, Trey. *Higher Education Outcomes-Based Funding Models and Academic Quality.* Lumina Foundation. March 2016. https://www.luminafoundation.org/files/resources/ensuring-quality-1.pdf

Motley, Apryl. "The Download on Upkeep." *Business Officer.* NACUBO. December 2015. http://www.nacubo.org/Business_Officer_Magazine/Magazine_Archives/December_2015/The_Download_on_Upkeep.html

National Center for Education Statistics. "Undergraduate Retention and Graduation Rates." April 2017. https://nces.ed.gov/programs/coe/indicator_ctr.asp

Rose, Rodney. *Buildings...The Gifts that Keep on Taking: A Framework for Integrated Decision-Making., Executive Summary.* APPA. 2006. http://www.appa.org/files/pdfs/buildings%20exec%20summary.pdf

Zinshteyn, Mikhail. "Understanding the Many Crises of Student Loans." *The Atlantic.* September 27, 2016. https://www.theatlantic.com/education/archive/2016/09/understanding-the-many-crises-of-student-loans/501878/

Appendix B:
Participants at the 2017 APPA Thought Leaders Symposium

Erik C. Backus
Director, Construction Engineering Management Program
Clarkson University
Potsdam, New York

John F. Bernhards *
Associate Vice President
APPA
Alexandria, Virginia

Scott C. Brown
Vice President for Student Affairs and Dean of Students
The College of Wooster
Wooster, Ohio

Jack K. Colby, APPA Fellow *
Co-Chair and Co-Founder, APPA Thought Leaders Series
APPA Member Emeritus and Past President
Raleigh, North Carolina

Lynette Cook-Francis
Vice President for Student Affairs
CUNY – John Jay College of Criminal Justice
New York, New York

Andrew Feick
Director of Administrative Operations and Facilities Maintenance
Temple University
Philadelphia, Pennsylvania

Lisa Freeman
Acting President
Northern Illinois University
DeKalb, Illinois

Russell Garcia
Director, Higher Education
Performance Infrastructure - North America
Johnson Controls Inc.
Folsom, California

Steve Glazner *
Director of Knowledge Management
APPA
Alexandria, Virginia

Larry Goldstein *
Facilitator, APPA Thought Leaders Series
President
Campus Strategies, LLC
Crimora, Virginia

Donald J. Guckert, APPA Fellow *
Associate Vice President and Director of Facilities Management
University of Iowa
Iowa City, Iowa

Joseph K. Han, APPA Fellow *
Vice President of Operations
Central Washington University
Ellensburg, Washington

Linda Hanson
President-Emeritus
Hamline University
St. Paul, Minnesota

Jeanne Hart-Steffes *
Vice President for Student Affairs
Western New England University
Springfield, Massachusetts

Suzanne Healy *
Director of Professional Development
APPA
Alexandria, Virginia

Mark Heckler
President
Valparaiso University
Valparaiso, Indiana

Andrea Hoban
2017 Thought Leaders Subject Matter Presenter
Senior Consultant / Facilitator
Arbinger Training and Consulting
San Francisco, California

Clive Houston-Brown
Vice President, HR, IT, Facilities and Safety
LaVerne University
LaVerne, California

Dave Irvin
Associate Vice Chancellor for Facilities Services
University of Tennessee
Knoxville, Tennessee

Jim Jackson
Assistant Vice Chancellor of Facilities Maintenance and Operations
University of Nebraska Lincoln
Lincoln, Nebraska

Elizabeth Lunday *
Freelance Author
Fort Worth, Texas

E. Lander Medlin *
Host and Co-Founder, APPA Thought Leaders Series
Executive Vice President
APPA
Alexandria, Virginia

John P. Morris, APPA Fellow *
Former Associate Vice President, Facility Services
Northern Arizona University
Flagstaff, Arizona

Michael J. O'Connor *
Physical Plant Director
Appalachian State University
Boone, North Carolina

George Pernsteiner *
Immediate Past President
State Higher Education Executive Officers
Boulder, Colorado

Brian Rose
Vice President for Student Affairs
Binghamton University
Binghamton, New York

Mary E.M. Strey
Vice President for Academic Affairs / Dean of the Faculty
Central College
Pella, Iowa

T. Ramon Stuart
Provost and Vice President for Academic Affairs
Fort Valley State University
Fort Valley, Georgia

Patricia Telles-Irvin
Vice President for Student Affairs
Northwestern University
Evanston, Illinois

Tim Thimmesch
Associate Vice President of Facilities Services
Grand Valley State University
Allendale, Michigan

Steven C. Thweatt
2017 Thought Leaders Subject Matter Presenter
Consultant / Retired Vice Chancellor for Administration
University of Colorado
Boulder, Colorado

** indicates past Thought Leaders participant*

Sheri Tonn *
Professor of Chemistry
Pacific Lutheran University
Tacoma, Washington

Joyce Topshe *
Associate Vice President for Facilities
Wesleyan University
Middletown Connecticut

Luis Vildostegui *
Division Vice President
Jacobs Global Buildings
Philadelphia, Pennsylvania

Mary Vosevich *
Vice President, Facilities Management
University of Kentucky
Lexington, Kentucky

Joe Whitefield *
Assistant Vice President, Facilities Services
Middle Tennessee State University
Murfreesboro, Tennessee

Nina Wollman *
National Director, Asset Management and Assessment Services
Jacobs
Fort Worth, Texas

Keith A. Woodward *
Chair, APPA Thought Leaders Series
Associate Vice President of Facilities Operations
Quinnipiac University
Hamden, Connecticut

Kathy Woughter
Vice President for Student Affairs
Alfred University
Alfred, New York

Boyd Yarbrough
Vice President for Student Affairs
Cleveland State University
Cleveland, Ohio

** indicates past Thought Leaders participant*

Also Available from the APPA Bookstore:

- *Thought Leaders Report 2016:* Remaking the Facilities Organization
- *Thought Leaders Report 2015:* Facilities & Technology: The Transformation of Campus
- *Thought Leaders Report 2014:* Leveraging Facilities for Institutional Success
- *Thought Leaders Report 2012:* Campus Space...An Asset and a Burden
- *Thought Leaders Report 2011:* Workplace Demographics and Technology: Challenges and Opportunities to the Campus Mission
- *Thought Leaders Report 2010:* Assessing and Forecasting Facilities in Higher Education
- *Thought Leaders Report 2009:* The Economy's Influence on Environmental Sustainability and Energy
- *Thought Leaders Report 2008:* The Challenges of Demographic Changes and Accountability to Campus Facilities
- *Thought Leaders Report 2007:* Educational Facilities and the Impact of Technology, Expectations, and Competition
- *Thought Leaders Report 2006:* University Facilities Respond to the Changing Landscape of Higher Education
- *Thought Leaders Special Report:* Educational Facilities Professional's Practical Guide to Reducing the Campus Carbon Footprint (2008)

www.appa.org/bookstore

APPA
LEADERSHIP IN EDUCATIONAL FACILITIES

ISBN: 1-890956-99-6