

SECTION III: Opportunities and implications of improved space management for senior facilities officers

Senior facilities officers and facilities departments have a critical role to play in improving the management of space in higher education. Facilities officers are uniquely skilled at assessing, tracking and managing space, and their contribution will be essential going forward.

Role of the senior facilities officer in institutional management of space

What can the senior facilities officer bring to the table to improve institutional space management?

- **Information.** Facilities departments maintain the most detailed information about campus space. At the least, facilities departments keep track of blueprints; increasingly, they have at their fingertips building information management systems that contain detailed digitized data about campus space.
- **Metrics.** Facilities departments often monitor multiple metrics about space usage. For example, campuses are increasingly measuring electricity usage by building, by floor, and even by individual classroom, lab, and office. Facilities departments know when classrooms are actually in use because they know when the lights are turned on. Facilities departments are also in the best position to gather and track even more data.
- **Condition assessments.** As previously noted, understanding the quality of space is as important as understanding quantity. Facilities officers have a solid sense of what spaces work and what don't as well as the tools and background to adequately assess what it would take to improve the quality of dysfunctional spaces.
- **Big-picture view.** Facilities officers work across the entire campus and understand what's happening in every school and department. This broad perspective is essential, since so many campus leaders can only speak from their department or school. Facilities departments also bring a perspective uniquely inspired by the campus master plan. Facilities officers

understand the master plan and its goals and can help align individual space decisions with that plan.

- **Leadership.** Facilities officers have a unique leadership role in the management of space. They can facilitate discussions across departments and schools while acting as an information resource. They can also act as a neutral arbitrator of space disputes. Senior facilities officers have an opportunity to promote their authority as space experts and help develop processes and policies to better manage campus space.

Data Point:

Powerful data systems facilitate space management

"A good information system offers a way to store CAD drawings, so users have a graphic representation of each building, and allows officials to enter details like its location, including adjacency relationships between buildings and entities like parking lots or athletic fields. It should also track space by category, subcategory, and user-defined codes, and store employee information for everyone who uses that space.

"With the right input, when a department head requests space, you can pull up a graphical report within seconds and see which spaces are vacant, how many square feet that space uses, and the occupancy levels it allows, explains Dave Levenstein, manager of business development at FAMIS Software, which provides products that help organizations maintain and operate facilities assets, manage space, and control capital projects. Officials at Stanford University (Calif.) have even gone wireless with their FAMIS system, the better for officials to walk the campus entering information on the spot."

— Julie Sturgeon, "Lost in space: Campuses find ways to escape the pinch of finite classroom space," *University Business*, 2007.

Impact on facilities operations of more effective space management

It was clear in discussions at the Thought Leaders symposium that facilities operations would have to change if new thinking about space management took hold. Most changes would be positive, but some challenges would also arise.

Increased space utilization would spread out building operations across the day and week. Instead of a crammed campus between 9:00 a.m. and 2:00 p.m., the institution would be more uniformly busy. If more radical changes were made to scheduling—such as scheduling more classes in the summers, to keep the campus busy 12 months instead of 9—the typical ups and downs in the pace of campus life would rise to a more steady level. This would **even out the use of resources**. It would make campuses more productive and provide for better use of institutional assets.

On the other hand, **scheduling for maintenance and even cleaning would become more complicated**.

Today, many classrooms can be cleaned in the afternoon, but if classrooms are full all day and into the evening, janitorial services would have to be moved to the third shift. This schedule is more difficult to manage and more expensive. Further, most renovations and maintenance take place in the summer, when the campus is underutilized. Start filling up buildings in the summer and you've got to find another time to undertake renovations. These aren't insurmountable problems, but they need to be taken into account.

Smarter space management will improve energy use and impact sustainability goals. On the other hand, increased space utilization will **actually increase energy costs**. While heating an empty room wastes energy, filling that room with students, turning on the lights and running the projector uses more. Yes, that energy use is productive, but the higher bill will still have to be paid.

Attention to space as an institutional asset has the potential to **improve the quality of campus space overall**. The facilities department will be called upon to renovate and upgrade those low quality spaces that will need to be made more functional. Along the way, facilities departments can tackle some of their deferred maintenance backlog. Further, by focusing new

construction and renovation on highly flexible spaces, the inventory of obsolete spaces will slowly decrease.

Overall, challenging legacy attitudes about space will help the facilities department accomplish its institutional mission. Spreading the philosophy that space is an institutional asset serves to **elevate the importance of facilities and the role of the facilities manager**. In a new environment, the facilities department might be busier, which is always a worry in this era of tight budgets. But if the value of space rises, so too should the value of the facilities department.

Data Point:

The transformation of the university library

Few spaces on college and university campuses have changed as much in the past 20 years as libraries. Both technology and shifting student expectations have revolutionized libraries. Students now start their research with Google, not the reference desk. Most journals are found online, and books are increasingly digitized.

As for actual, physical volumes, libraries can no longer afford to purchase books just in case some researcher might someday want them. Even Harvard has given up the goal of buying every volume anyone could ever want. "The Harvard libraries can no longer harbor delusions of being a completely comprehensive collection but instead must develop their holdings more strategically," noted the Harvard University Library Task Force in 2009.

Libraries have shifted their mission from information storage to social learning space. Square footage is now devoted to learning commons, study lounges, group study rooms and computer labs instead of book stacks. Libraries are turning to book storage and retrieval systems to maintain their collections more efficiently. While books can be stored 10 to a square foot in on-site open shelving, they can be packed 150 to a foot in high-density storage; the cost drops from \$4.26 per year per volume on a library shelf to \$.86 per year to in high-density storage.

— Education Advisory Board, *Redefining the Academic Library: Managing the Migration to Digital Information Services*, University Leadership Council.

SECTION IV: Top space management issues for higher education

How the critical issues were identified

The premise of the Thought Leaders symposium is that facilities leaders have much to contribute to the major challenges facing higher education. This year participants felt they could offer unique leadership on the matter of space.

Six top issues relating to space in higher education were identified by symposium participants, along with critical questions for institutional dialogue. The questions are the heart of the exercise: They are intended to guide facilities managers and university leaders in the discussions at their own institutions. A major goal of the Thought Leaders Series is to help individual colleges and universities assess where they stand and help them develop strategies for the future.

One critical point: Readers of previous Thought Leaders reports might notice these issues are very different from those in years past. In previous years, symposium participants identified major issues from every aspect of higher education, ranging from sustainability to technology, demographics to finances. This year, the focus of the symposium stayed firmly on the topic of space, and the resulting top issues are all space-related.

1. Align space management to the mission of the institution.

The issue: Space management should be a tool for the institution to fulfill its mission and become a part of strategic planning for the future.

Strategies:

- Assess how well your mission, master plan and space management program are in alignment today.
- Identify key priorities from your mission and master plan that need to be incorporated into space management.
- Build relationships between the groups and individuals in charge of updating and implementing

both the master plan and the space management plan.

- Deal with the challenge of integrating space planning and scenario-based strategic planning for the future.

Space is an asset, but it is also a tool. Smart use of space allows the institution to further its mission and promote its vision. For space management to achieve these goals, the entire approach to space must be in alignment with the overall mission of the college or university and an outgrowth of the master plan.

The goal of integrating the academic mission, master plan and space management plan should be to put decisions about space into a wider context. Too often, space decisions are made in isolation. Instead, they should be made with the big picture of the total campus in mind. Space decisions should be seen as advancing the institutional mission step by step, space by space.

Start by examining the current relationship between the academic mission, master plan and space management plan. Was the space management process developed with reference to the master plan? This assumes, of course, that you have a master plan.

Is the master plan referred to when making space management decisions? Do you need to back up and make sure that the master plan itself is in alignment with the academic mission? Have you incorporated space planning with the institution's vision and scenario for the future?

To start to bring space management and the master plan together, consider some of the key priorities of the master plan and ask how they apply to space. For example, if sustainability is a priority of the master plan, sustainability should be a priority of space management. The goals of the institution can also translate to priorities for space. For example, does the institution position itself as a research university or as primarily a teaching college? Choices about classroom versus research space can flow from this decision.

Integrating the master plan and the space management plan means bringing together disparate groups, since the two functions are often not under the same roof. It will be important to understand who is responsible for the creation and maintenance of both the master plan and space management and get them on board. This will be complicated if space allocation is distributed across many schools or departments. It also means focusing on future needs, challenges, and constraints, and their corresponding impact on space.

Finally, the effort of moving toward increased alignment must include communication. Research has shown that decisions about space are often unclear to outsiders. Increased transparency in space management and allocation should be a goal for all institutions. Communicating the connections between the mission and master plan will help individuals across the campus understand the rationale for decisions about space.

Critical questions for institutional dialogue:

- Describe the relationship between the academic mission, the campus master plan and the space management program. How well are the three inter-related?
- What key priorities of your mission and master plan need to be built into space management?
- If space management on your campus does not currently reflect the mission and master plan, what steps need to be undertaken to bring them into alignment?
- How are the institution's scenarios for the future aligned or integrated with appropriate space needs?
- Are space management and master planning under the control of the same department? If not, do those in charge understand the importance of working together?
- How are space management processes and policies communicated to the campus? Is alignment with the master plan emphasized?

Data Point:

The challenge of classroom labs

Classroom laboratories account for about seven percent of assignable space on the average campus (excluding housing), more than the space devoted to classrooms, which averages about five percent. Yet labs are among the most difficult spaces to manage. Labs have several features that make them unique:

- **Departmental or decentralized control.** Even more than classrooms, labs are likely to be scheduled by departments.
- **Distributed locations.** Labs are found all over the campus, in a wide variety of departments. While most people think of the sciences when they picture a lab, in fact many disciplines from modern languages to architecture can have their own labs.
- **Specialized equipment.** Labs by their nature contain equipment unique to their discipline. This makes it difficult to increase the productivity of labs by sharing them across departments, since a

physics lab is going to need very different equipment than a geology lab.

- **Large station sizes.** Labs typically require more space per student than classrooms.
- **Dedicated support facilities.** Storage and prep areas are often required to support labs.
- **Unique patterns of use.** Labs are used less often than other classroom spaces; many lab courses meet only one day a week.

Despite these challenges, institutions that can assess the usage of their labs can uncover key information, including outdated labs in urgent need of renovation and underutilized labs that can be converted to other uses.

— Ira Fink, "Class Laboratories: Space and Utilization," *Facilities Manager*, November/December 2003.

2. Make space one of the top assets of the institution.

The issue: Space can no longer be an afterthought but must become one of the main priorities of institutional leadership. The entire campus must adopt the attitude that space is a key institutional asset.

Strategies:

- Understand how space is valued now within your institution.
- Reach out to the right people.
- Gather data about the value of space to make your case.

The primary message of this white paper is that space should be considered a key institutional asset. Elevating space as a priority should improve space management and utilization at your campus.

The first step is to assess how space is valued right now. Perhaps you can come up with a spontaneous reaction to this question, but objective measures will be more useful. It should be possible to determine how space ranks in comparison to other key institutional assets and operations. For example, is space one of the factors that is regularly reported to the chancellor or president? Who is in charge of space management and where do they rank in the organizational structure? If a problem comes up with space allocation, who handles it?

Data Point: The value of space

“Space is a critical resource, just like your institution’s financial resources; it has to be managed effectively and used efficiently. It is an asset that you need to allocate in order to support short- and long-term priorities.”

— Frances Mueller, Project Manager for the Space Utilization Initiative, University of Michigan, quoted in “Allocating Space Strategically,” *Higher Ed Impact*, June 13, 2012.

Noting these measures also gives you a starting point for where to target your attentions. Who is not paying attention to space? Who should start making it a priority? Can you reach key decision makers and channel their energy and attention into making space more important?

You’ll also need to make your case for space. This document outlines numerous ways in which space management benefits higher education, but the priorities of individual institutions will affect how you talk about space. A state university or community college under increasing pressure to improve productivity and increase transparency can emphasize how space management helps meet these goals. A campus with an active and vocal environmental movement can focus on the sustainability benefits of space management.

Critical questions for institutional dialogue:

- How is space valued right now in the institution? How can you objectively measure its value—by organizational level responsible for space? By amount of attention from senior administrators? In comparison with other assets and operations, such as finances, labor and technology? How will you know if the value of space has increased?
- What factors contribute to your institution’s valuation of space?
- Who should be targeted in any campaign to increase awareness about space? Whose opinion matters?
- How do you increase the understanding of space as an asset?
- What will be the top benefits of well-managed space at your institution? How can you use these benefits to promote improved space management?

3. Change the culture of space.

The issue: Colleges and universities need to shift the culture of space within their institution away from territorialism to appreciation of a shared resource.

Strategies:

- Assess the current culture of space.

- Describe the sort of changes you want to see.
- Develop concrete steps to move toward your vision.

“It won’t be enough just to reallocate the space,” warned Frances Mueller, Project Manager for the Space Utilization Initiative at the University of Michigan in a recent article for the *Higher Ed Impact* newsletter from higher education consulting firm Academic Impressions. “You have to change the culture, especially if you are fostering shared space.”

Frequently the culture of space in colleges and universities is highly territorial. Faculty members and

department chairs cling to space and resist any efforts to reallocate offices, labs or classrooms. Departments “own” their space and will fight to defend it—despite the fact this attitude promotes inefficiency.

Efforts to make space a shared institutional resource will inevitably fail—or at least get bogged down in endless political battles—unless this culture is changed. The first step in transforming the culture is to take an honest look at where you are. Get lots of input from many different parts of the campus and develop a broad view of attitudes and beliefs. Do younger faculty have different attitudes than older? Tenure-track versus non-tenure-track? Faculty versus staff? Do different schools or departments have different opinions about space? Who are the haves, and who are the have-nots?

Then develop a vision of the space culture you’d like to see at your institution. Draw on a number of resources here. If your institution is part of a state system, what are state plans and goals for space? Are there any existing statements or goals about space that haven’t been fully implemented?

You’ll need to think about how far your campus can be expected to change. Change takes time, and higher education is notoriously resistant to it. It would be unrealistic to expect a culture to completely transform itself overnight. Institutions with strong traditions of faculty governance will need to get the faculty senate on board with any major change. Unionized campuses may have different issues than non-unionized. The key will be to come up with concrete steps to shift the culture forward.

What will these steps encompass? Communication should be an element. Those promoting a new attitude about space will need to make clear their goals and the rationale behind those goals. Offer incentives for desired behavior. Show stakeholders how their lives will be better if they buy in to new attitudes about space. If the knee-jerk reaction to being asked to share space is hostile, demonstrate that sharing entitles the department to rewards such as updated spaces with the newest technology.

Finally, you’ll need some kind of metrics to measure your progress. It’s not easy to measure a change in culture, but creative thinking can help here. For example, if you’re setting up a new alternative system where classrooms are turned over to centralized scheduling, it will be possible to measure each year the number of departments and/or classrooms now in that central pool.

Data Point: Managing office space

“Offices are one of the largest uses of institutional space. The policy for allocating offices depends on institutional goals. For example, institutions supporting the socialization and tenure efforts of new faculty should locate them near departmental faculty and offices. If collaborative, multidisciplinary programs are desired, then faculty should be dispersed throughout the campus.”

— Watson Harris, “Budgeting Academic Space,”
Planning for Higher Education, October 1, 2011.

Critical questions for institutional dialogue:

- How would you describe the current culture of space in your institution?
- How does the current space management process inhibit or enhance the campus culture?
- What sort of new culture do you want to see?
- What steps are necessary to achieve the desired culture?
- What metrics can you use to measure progress?

4. Develop effective policies, processes, and organizational structures to manage space.

The issue: Institutions need a solid framework of policies and the people to manage space.

Strategies:

- Assess current processes, policies and organizational structures.
- Prioritize what should change in your campus space management system.
- Emphasize key best practices.

Getting into the nitty-gritty of space management means taking a close look at the people and processes actually dealing with space on a day-to-day basis. On a campus with a centralized space management office, this could be an easy exercise. At an institution where space is handled department by department, it could be complex, time-consuming and confusing. Nevertheless, it should be possible to describe the current space system, including all of the policies in place as well as the organizational structure responsible for implementing those policies.

Now you can begin to evaluate the effectiveness of this process. You may have a gut instinct that things aren't working well; can you prove your case with examples? Can you gather data about how well the system is working? Can you get a sense of the transparency of space allocation processes? You may need to be creative in gathering your data. Maybe a short online survey would be useful, or interviews with key stakeholders. What's important is that you get a sense of what's working and what isn't. If some aspect of space management on campus is effective, then by all means keep it in place and see if you can build on that success. If another aspect is universally disliked, you've found a great starting point for improvement.

Revising the space management process is going to take the commitment of high-level administrators. Do you know whose backing you'll need? Can you find champions for your work? Any project of this level of complexity is going to need long-term support, and you need to be certain you'll have help when you need it.

Finally, take time to research best practices in space management and consider the policies, processes and organizational structures that will succeed on your campus. A large, urban community college will of necessity have a very different process than a tight-knit private university. Seek out experts in space management and case studies of successful institutions to find models for new policies.

Critical questions for institutional dialogue:

- Who are the key players and stakeholders? What roles and responsibilities do they have? What motivates them?
- What space policies are currently in place? How effective are these policies? Are they closely followed or routinely ignored?
- What processes are in place to request, allocate, reassign and manage space?
- Are decisions about space transparent?
- Should space policies and processes be updated? Who has the authority to make this decision? Who will lead the effort? Is there a dedicated team of space champions who will see it through?
- What best practices should be built into your space management process?

5. Implement a space inventory system to understand resources and identify needs.

The issue: Institutions need robust, detailed inventories of their space resources.

Strategies:

- Outline your priorities for a space inventory system.
- Assess the pros and cons of your current system.
- Move toward a robust, flexible, accessible inventory.

Repeatedly in discussions of space management in higher education, the complaint rises that decision-makers don't have enough data. While many institutions keep basic inventories of their space using NCES codes, these inventories lack the power and flexibility to be truly useful to their institutions. As discussed in this report, they often fail to account for the quality of

campus spaces, struggle to classify mixed-use spaces, and produce data that is difficult to work with.

The first step in improving your institution's space inventory system is to understand what you want out of your system. What is its purpose? Is the primary goal to report to state coordinating boards? Improve space utilization? Facilitate planning?

Then you need to examine what is available right now. What sort of system is in place, and how well is it working? It may be possible to expand or adapt your current system, or you may need to start afresh. Key questions about the current system will relate to accessibility and integration. An inventory system that is inaccessible to key stakeholders and lacks the capacity to interact with other enterprise systems will limit your institution.

Finally, keep in mind the advice of participants at the Thought Leaders seminar that inventory systems should be forward-looking. In other words, they should support strategic planning, perhaps through analytical tools that allow forecasting. Can you explore different scenarios of space usage using the data in your inventory system? What would it take to add this capacity?

Critical questions for institutional dialogue:

- What is the purpose and desired outcome of your space inventory system?
- What sort of space inventory system exists on your campus right now? Where does it succeed? Where does it fail? Can the current system be adapted to meet your needs, or do you need a new approach?
- How accessible is the space inventory system?
- Does the inventory system integrate with other campus systems such as enterprise resource planning, computerized maintenance management systems, computer-aided facilities management, geographic information systems, etc.? How well?
- Does your inventory system support strategic planning? If not, what steps can you take to move in this direction?

6. Address space utilization by assembling credible data and adopting best practices.

The issue: Institutions can make significant improvements in the use of their space through reliable information management and effective space policies.

Data Point:

Key elements of space information

A study by the University of California at Berkeley examined the collection, maintenance and use of space data on campus, paying particular attention to barriers that complicate the accuracy and accessibility of space-related data. The research team identified the following factors as hindering space management on campus:

- **Consistency and reliability.** Lack of consistent and reliable space data interferes with the productivity of campus staff and hinders leadership from making strategic management decisions.
- **Sources and access.** Data should be maintained in an easily accessible and customizable repository to avoid redundancy and duplication of efforts.
- **Ownership and authority.** In the absence of clear and central governance over space data, both

departments and individuals have taken ownership of space data related to their units. Since data is not maintained centrally, campus leaders must rely on the de facto owners of this data to make decisions.

- **Transparency and security.** Campus leaders support a more transparent system for space data management, but concerns remain that transparency may have a negative impact on allocation and the security of sensitive data.

Tackling these barriers will help the institution move forward in creating an effective space information system.

— CalSTARS (Space Terminology and Recommended Standards) Team, "Space: An Institutional Data Management Challenge, September 2010.

Strategies:

- Integrate inventory and scheduling systems to automate utilization tracking.
- Examine best practices for improve utilization.

Improved space utilization is the goal of many institutions eager to maximize productivity, limit new construction and tackle sustainability concerns. Many colleges and universities have found that they have more space than they realize, once they have the right metrics and right policies in place.

Credible data is the key to tracking utilization. The most effective utilization systems combine data from space inventories and scheduling systems. Of course, this requires both inventory and schedule data to be readily accessible. If scheduling is handled department by department, this may not be the case. Institutions can sometimes make incremental steps toward centralized scheduling and therefore incremental steps toward better utilization of data. Without integrated systems, space planners are reduced to walking the halls, an inefficient approach although one that is sometimes revealing.

Institutions can also implement best practices to improve utilization. Several policies and practices have proven to significantly increase utilization numbers:

- **Centralized scheduling.** As well as allow for better data collection, centralized scheduling also improves space utilization. Research by Ira Fink and Associates, university planning consultants, reveals that utilization is consistently higher in classrooms assigned through a centralized system rather than department by department.
- **Dedicated staff.** Space has often been an afterthought tacked on to the department secretary’s duties. Along with centralized scheduling, institutions have turned to dedicated space managers with the skills to assess and manage space as well as the authority to make key decisions.
- **Standardized meeting times.** Schedules are easier to create when class start times and lengths are standardized across the campus. Inconsistent start times complicate scheduling and leave spaces empty at peak times.

- **Incentivized off-peak classes.** Administrators worry that classes offered during off-peak times—late afternoons, for example, or Fridays—won’t fill up, but institutions have found that simple incentives can increase off-peak utilization. For example, mandatory or core classes might be concentrated in off-peak times; alternatively, tuition might be discounted for afternoon or evening classes.

Critical questions for institutional dialogue:

- What sort of utilization data is available right now? Is this data credible?
- Are your scheduling and inventory systems integrated? What steps would be necessary to reach this point?

**Data Point:
Summer space savings**

Space is typically at a premium at EIU [Eastern Illinois University], yet utilization during the summer term is relatively light. Kathy Chancellor, Space Administrator at EIU, began to study her room inventory looking for buildings that could be shut down during Fridays and Saturdays in the summer.

While the three primary instructional buildings had non-instructional space that needed to be available all week, Chancellor’s team identified several buildings as shutdown candidates and ran scenarios . . . to determine if any of those buildings could really be closed.

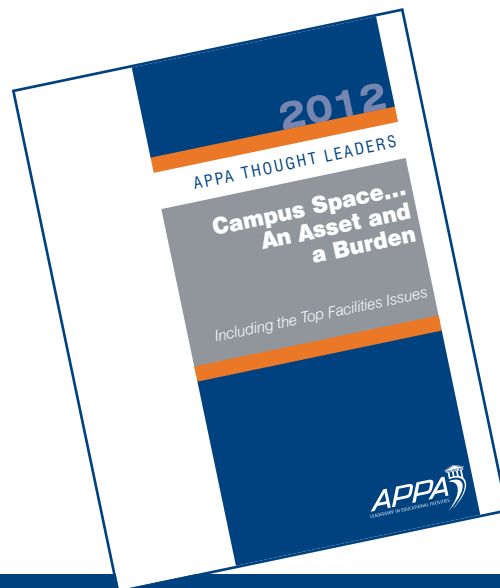
To their surprise, the room optimization tool was able to place the summer term classes in appropriate rooms without using rooms from any buildings on the shutdown list. . . . [Then] the surprise got better. Each year, the scheduling office has followed this practice to deliver big savings. “After looking at a variety of scheduling scenarios, we settled on a schedule that we estimate saved the University \$85,000 in energy costs during the first summer alone,” Chancellor reports.

— Eastern Illinois University Case Study, Ad Astra Information Systems.

- Has your campus considered various best practices for improving utilization? Which practices would be a good fit for your institutional culture? How can you move toward implementing these practices or policies?
- Do you have defined utilization goals? How will you know you've made progress?

As Frances Mueller aptly stated, “Space is a critical resource, just like your institution’s financial resources; it has to be managed effectively and used efficiently. It is an asset that you need to allocate in order to support short- and long-term priorities.”

Space must be considered a key institutional asset, managed accordingly. No other issue has such potential to transform the institution than that of the policies and practices related to effective space management and utilization.



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