



How higher education facilities
leaders can rein in runaway costs,
ease burdens & reach goals

AUTHORS

Stephen MacIntyre
Lizetta Fennessy



Leaders at higher education institutions continue to deal with ever-increasing burdens in the face of mounting financial pressures. **For facilities leaders, that burden has become balancing the maintenance and renovation of deteriorating buildings with increasingly complex demands to create sophisticated new structures.** ([Sightlines, 2016.](#)) As a result, prioritizing how to build, operate, and maintain existing facilities while supporting an institution's overall mission can be overwhelming and complex. And that is often exacerbated by competing goals and priorities across departments.

Within colleges and universities everywhere, aging infrastructure and budget issues have created a counter-productive, frustrating environment for those involved in physical asset planning, design, operations, maintenance, finance, and procurement processes. It's easy for stakeholders to feel frustrated by their perception of the actions — or inaction — of other departments.

The fallout of these increasing burdens is felt in departments across universities. For example, facilities management staff want to do their best by specifying materials and equipment that reduce maintenance costs but that may *increase* procurement or construction costs. Then, the capital projects team needs to find ways to reduce construction costs, but that could increase maintenance costs. Meanwhile, procurement is vetting suppliers that will do their best, but that can mean different things to different areas of the organization. Finally, the end customer — the actual people using the facilities — want the attractive, spacious, and functional space immediately. Each department is accountable for their own goals, so often that's where efforts are focused, rather than on the institution's *overall* mission. **Everyone is trying to do their best but defining a single "best" seems impossible when there are varied and conflicting goals.**

The result of conflicting goals?

With siloed departments focused on disparate and conflicting goals, many campuses have fallen behind on maintenance needs by hundreds of millions of dollars. A prime example of this is the University of Washington, which has more than a \$1 billion backlog. ([Long, 2016.](#)) Backlogs like this would make any maintenance department feel desperate to reduce costs and "catch up." ([Fennessy, 2017.](#)) Whether it's maintenance, construction, or procurement, limited budgets often mean doing less. Now it's becoming critical to do less, better.

In many institutions, the problem has reached a critical point with bursting budgets and excessive wasted resources. As various campus groups ranging from research to teaching to student life compete for a limited pool of money, leaders are forced to make difficult decisions. **These decisions are often made to the benefit of one area, yet at the expense of another — so the problem remains unsolved and repeated time and again.** In the absence of long-term solutions, facilities leaders stay frustrated, feeling like they make little progress no matter how hard they work. ([Sightlines, 2015.](#))

\$1 in maintenance deferred today is estimated to cost \$3 in restoration down the road.
([Sightlines, 2015.](#))

Too many campus buildings have become obsolete or are in desperate need of significant renovation. Nearly half were constructed between 1960 and 1975. ([Marcus, 2016.](#))

Meet the stakeholders

Large organizations have many departments, and they can be aligned or out of sync, depending on their agenda, goals, and priorities. The higher education facilities stakeholders and their roles:

Hello! My name is Frank.



Finance

"I'm the financial steward for our campus, so budget and risk mitigation are top priorities for me. It's important for me to ensure money goes to the right places."

Hello! My name is Derek.



Design

"I'm in charge of keeping projects within the campus design vision by setting the standards and specifications. The last thing we need is a Frankenstein-style building."

Hello! My name is Sue.



Strategic Planning

"I'm responsible for defining and ensuring the school's overall vision and direction, and that construction initiatives align with and move us closer to our long-term institutional goals."

Hello! My name is Chris.



Capital Planning

"It's up to me to translate plans into reality. Our budget is already overstretched, so I'm here to give you the technical and financial constraints that will help to manage new facility initiatives."

Hello! My name is Craig.



Construction

"As head of construction, I manage the scope and schedule of a capital project, carefully balancing the need to meet deadlines and stay on budget with ensuring my crews remain safe."

A Lean path to overcome barriers

The impact of crunched, misaligned budgets and resources reaches across all campus departments. **Lean thinking incorporates proven methods that, when applied systematically, can help universities relieve frustrations and best direct resources.** ([Lean Enterprise Institute, 2018.](#))

Using a Lean approach, campuses can directly address specific thinking and behaviors, and transform people into problem-solvers who work together to do more with less. ([Hargreaves, 2017.](#)) With a Lean approach, universities can:

- Maximize value to the end customer (student, faculty, staff).
- Identify and reduce sources of waste (time, budget).
- Create a respectful environment that engages and energizes people at all levels (from maintenance to management). ([Ehrenfeld, 2018.](#))

Although Lean originated in manufacturing, maximizing value to the customer is as crucial for learning institutions as it is for manufacturing plants. ([Lean Enterprise Institute, 2018.](#)) In fact, *not* focusing on the customer can come with a hefty price tag, something one large West Coast university learned the hard way. The school designed and constructed a research building *without* adequate input from their customer — in this case, the school's scientists. Once the space was completed, many scientists who were expected to use it refused to because it did not come close to meeting their needs. Even if the building costs seemed optimized for construction, maintenance, operation, and space utilization, the lack of customer input meant the university was stuck with an undesirable building that now has a sky-high vacancy rate.

What is Lean? It is a principle-based way of thinking and acting, with tools designed to support the principles, when applied correctly. At its core, Lean is about three things: increasing value, respecting people, and reducing waste.

Hello! My name is Paula.



Procurement

"If you're willing to work with me, I can negotiate contracts at the best value. Just don't expect me to undermine the procurement process that I've built over the years."

Hello! My name is Mark.



Maintenance

"I'm the one who has to deal with what may seem like a 'cheap fix,' but costs a fortune to maintain. Even if it looks good on paper, it may not stand up to daily wear-and-tear."

Hello! My name is Olivia.



Operations

"I'm out on the front line, dealing with facility issues every day. I know the reality of what it takes to keep things running smoothly, and I'm always happy to share my view."

Hello! My name is Robert.



Research

"I love exploring the many great ideas here on campus, but sometimes I don't get funding because our facilities don't support the needed research. We can't attract the best graduate students because our facilities are old."

Hello! My name is Ellie.



EHS

"I'm charged with keeping everyone safe on campus and avoiding environmental health risks during construction AND operations. What might seem more like bureaucracy is really about protecting people."

Teams transformed by Lean thinking and methods can also reduce waste through correct maintenance sequencing and supply chain optimization. Imagine procurement getting a "better deal" on painting with a broad cross-campus contract. But what if that deal was completed without continuing collaboration with facilities and operational staff? For example, an East Coast university painted the ceiling of one of its most iconic spaces on campus before the leaky roof was repaired because the team painting the ceiling had no idea there was anything wrong with the roof. This costly mistake could have been avoided if the procurement and maintenance teams had better methods of engagement to help them understand each other's needs.

Despite the high risk of failure, success is possible. This paper outlines seven steps to use a Lean approach for systematic engagement, which can reveal the full potential of all stakeholders — from management leaders and managers to supervisors and front-line workers. Following these steps will provide value far beyond process improvement. When applied, stakeholders will have greater respect for each other, along with the tools and expertise to develop a powerful culture of customer-focused, collaborative problem-solving.

BENEFITS OF LEAN

Achieve greater potential with campus facilities by doing more of the right things, better.

- **Increased customer value:** By focusing on customers and what they value, you will find your purpose.
- **Stronger purpose:** Lean puts everyone on the same page, working toward the same agreed-upon priorities.
- **Improved communication:** Leads to a better understanding amongst stakeholders — which leads to decision-making that meets overall goals.
- **Removed barriers:** Breaks down silo walls to get stakeholders thinking of overall institutional goals, not just their own goals.
- **Reduced stakeholder stress:** Results in smoother, smarter processes that lessen employee stress and boost employee morale.
- **Get results for shared priorities:** Lean gives a framework to track progress on high impact activities and a process to check along the way.

Step one: Connect silos to understand the whole system

Adopting a systems-thinking mindset focused on customer value is one of the fundamental changes needed to end conflicting efforts between departments. Everyone needs to start seeing and understanding what happens throughout an organization and what affects it from the outside — including market forces and regulatory changes. Systems-thinking helps stakeholders understand common challenges and see how their work can affect others. Staff members will only understand the total impact of their departments’ investments and decisions when they understand how the entire organization works as a system.

When departments are disconnected, decisions can have a domino effect. One school’s procurement department caused a stir after they set up a series of custom forms to help them complete tasks faster. In developing the forms, department staff didn’t communicate with, seek feedback from, or consider how their new forms would impact other departments – their customers. As a result, the new process did not provide value to the customer, but rather created confusion, more work, and frustration.

Sure, the procurement team had improved their own workflow, but they made life harder on everyone else, obstructing the institution’s overall goals. That type of damage goes deeper than most people consider. After making that process decision in a vacuum, the procurement team was labeled an obstacle. People tried to find ways to work around them and generally stopped communicating with them, which is the opposite of what procurement was trying to achieve.

Connecting silos is deceptively difficult. **Getting everyone to see the whole system seems like a herculean task because it is.** Individual mindsets form from years of experience. People are not accustomed to systematically examining and understanding one another’s value, challenges, and root causes of those challenges. To help staff members shift their mindset, **facilities leaders need to bring the right people together to establish a new way to create common goals and plan actions for the areas that connect them.**

Someone can spend years focusing on — and being rewarded for — success in driving down construction costs. But, now that person is asked to think about the total cost of ownership including the maintenance and operations costs, which requires a reset of priorities and a whole new way of thinking about the job. Shifting the stakeholder’s mindset requires them to put themselves in someone else’s shoes, which means openly communicating with all stakeholders to understand what should define the criteria that shape priorities.

| Customer Value Assessment | | | |
|---------------------------------------|-------------------|-------------------|-----------|
| What are our customers' expectations? | | | |
| FUNCTIONAL VALUES | FUNCTIONAL VALUES | FUNCTIONAL VALUES | CUSTOMERS |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

A Customer Value Assessment is a Lean tool that summarizes who the customers (and sometimes stakeholders) are and what they value. This tool can help determine what is most important so maximum value can be created.



“With the new custom form process we set up, we are responding to the need to eliminate paper and have reduced frustration within Procurement exponentially.”

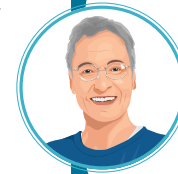
Paula, Procurement



“I can see how these new custom forms create efficiency for Procurement, but they are a lot more time consuming and have created more work for my team. Now it’s going to take longer for us to deliver on our key projects this quarter. There must be an approach that would be more efficient for everyone...”

Mark, Maintenance

Mindsets must change so people in silos understand that they need to not only solve their own problems, but consider the issues of the university as a whole — focus on the customer and think across the system. But how? First, by identifying the customers across the organization, as well as what those customers value, the things that are working well in meeting customers' needs, and the things that are getting in the way of meeting their needs. Then convene relevant stakeholders from each department to listen to all other perspectives and examine the things that can affect the organization. With this approach, people can see the *whole* picture, diagnose the problems, and form the direction the university should take.



"I'm proud to report our costs have declined \$10 per square ft for lab buildings in the last five years."

Craig, Construction

When you consider how deep in their silos each department lives, all of this likely sounds demanding. However, Lean provides proven methods and tools to help *all* groups achieve the right type of collaboration to succeed in today's environment. ([Hargreaves, 2017.](#))

How Lean thinking is preventing a large facility from washing away millions of dollars with its stormwater

One of the busiest single-runway commercial airports in the U.S. was in the midst of a major expansion and improvement program. Their plans were almost halted when the airport's planners, facilities development, and environmental affairs staff realized that mounting stormwater permitting and compliance requirements had everyone working at odds.

The airport decided to partner with experts in sustainability and resilience. This facility, with its large footprint and many departments with competing priorities, looked and felt similar to a college campus. The experts brought together all stakeholders to help them understand how their stormwater challenges were interconnected, and then how to collaborate and create a shared vision for managing issues. The group was able to uncover solutions that were sustainable and resilient while addressing climate trends that include rising sea level, water shortages, and the impacts of extreme weather events.

Shifting away from silos established a common purpose

Breaking down the walls amongst all departmental silos was difficult, but it is the only way that the airport could reduce their "cost of complexity." Using effective communication and sharing perspectives, stakeholders were able to establish their common purpose, and significantly **reduced the airport's cost of complexity to the tune of \$300,000 in annual operating costs**. Plans are in process to harvest rainwater, reducing both stormwater management and water supply costs, and flooding risk – contributing to the sustainability and resilience goals of the airport and the wider community.

Step two: Set the vision and goals

Typically, individual university departments focus on achieving their own goals, within their own budget. This **disconnects them from others and means there is little chance for a coherent approach to look across all departments and establish unified goals**. Everyone is putting forth maximum effort, but departments still diverge.

However, at the highest level, every institution has a mission, which requires a strategic plan. That strategic plan should consider how campus physical assets support the mission — and many organizations have a master plan to do so. But, when a master plan exists, they often gather dust. Why? Because they lack clear vision and goals to direct action for each department involved.

Establishing a unified, cross-department vision and goal is really a continuation of “understanding the whole system,” as it’s best done by engaging a large cross-section of perspectives from all relevant stakeholders. For a university with a mission that relies on its facilities to attract and retain researchers, staff, and students, that could include stakeholders representing planning, design, operations, maintenance, finance, and procurement in addition to the end users.

Using Lean thinking and tools will connect the vision and goals to the institution’s mission, as well as ensure the team remains focused on – and develops goals centered around – what internal and external customers value most. For example, through a Lean approach, facilities stakeholders with an institution vision to “be the world’s leading disease research center” and mission to “eradicate the diseases most damaging to humankind” might develop a supporting vision such as: *“Our facilities will support the institution’s mission by outperforming competitors and attracting leading-edge researchers.”*

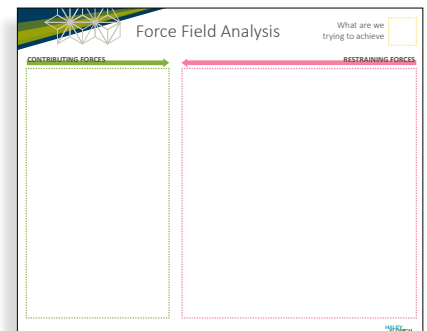
It’s tempting to develop a long list of goals to make each department and person feel included, but that exacerbates the initial problem of everyone operating under competing agendas. Instead, setting just a few goals across departments that increase value to the customer will help everyone work together toward the same end.

A cross-department vision will start to become more tangible with customer-focused goals that university leadership can also get behind. For example:

- Over the next three years we will reduce total life-cycle costs of our facilities by 15%, including capital expenditures, renewal costs, and maintenance.
- Over the next five years we will improve our occupant satisfaction rate from 40% to 80% .

Using Lean techniques, stakeholders collaboratively create a unified vision. If each leader clearly sees how they and their departments contribute to the overall, long-term institutional mission, and specific goals that support that, then their staff will be able to act on what benefits the *entire* system.

For most institutions, it’s a major mindset shift.



A force field is a Lean tool that helps people see what contributes to or inhibits achieving a goal.

“Now that I understand that our researchers need a vivarium isolated from noise and vibration, I’m going to update our design standards.”
Derek, Design

“I didn’t know until now what really goes on in the vivarium. I’m going to work with my team to revise our cleaning and maintenance processes for sensitive spaces.”
Mark, Maintenance

Step three: Agree on how to prioritize activities to achieve goals

Goals that are relevant to and aligned across departments and stakeholders help teams accomplish more. However, prioritizing goal-supporting activities can be a challenge. An organization can have a list of investments worth \$2 billion yet, have only a \$1 billion budget. Using a Lean approach to overcome this challenge, organizations can align goals and **prioritize the best ways to achieve them by developing criteria that everyone can use.**

Criteria are standards by which something is judged or decided; they bring objectivity to planning. There will often be exceptions — but a baseline enhances decision-making consistency and minimizes bias. For a university, criteria could include:

- Meets safety and regulatory compliance requirements.
- Contributes to sustainability commitments.
- Reduces total lifecycle costs.
- Meets end user requirements.

Setting criteria is a proven way to prioritize, but it's important to remember — **to ensure alignment, criteria must be developed collaboratively across departments and focused on increasing value, respecting people, and reducing waste.** Only then can criteria help prioritize the key tactics or activities necessary to achieve goals. It is critical to take the proper time to create criteria and to ensure they are documented. Otherwise, staff may make assumptions about criteria and focus on the criteria that are most important to them, forgetting about the system.

The shared criteria approach succeeds because it brings together all relevant stakeholders — staff at all levels from construction and procurement to facilities management and planning — using individual expertise to develop the overall strategy and operating approach to achieve common goals.

A decision framework sets up a faster, easier-to-facilitate decision-making process that applies across the organization. Skipping and skimping on this foundational work will lead to wasted resources, making it impossible to reach overall goals.

Once shared criteria are set, organizations have a foundation for establishing and aligning priorities, making life easier for everyone. When teams come together and agree on which of the criteria will be applied to achieve overall goals and objectives, each leader gets a realistic view of how their department fits into the big picture, helping all stakeholders succeed to ensure the best results. It is important not to go overboard and develop a lengthy criteria list. Instead, decide on a reasonable and achievable number, up to five. Too many criteria will make it impossible to narrow priorities .



"I'm really glad to see that everyone is willing to engage our help to make sure we are following best practices to remain safe and compliant."

Ellie, EHS



"I really wanted to keep my individual office, but now I see how that gets in the way of our criteria of creating space to foster collaboration. I also now understand that the extra HVAC requirements for office spaces would get in the way of meeting our energy efficiency criteria."

Robert, Research

THE ART OF DESELECTION

When prioritizing goals, what is not selected is as important as what is selected. Smart deselection will save hours, dollars, and energy by setting aside things that will not help to reach the overall goals. **Identifying and setting aside low priorities keeps everyone focused on high priorities.** Vetting each option against shared criteria will help get you there.

Step four: Establish a plan

Once a clear vision, goals, and criteria are in place, stakeholders need to create an execution plan, including specific goal-supporting activities. It's essential that all stakeholders bring ideas for goal-supporting activities to the table, and that the environment encourages forward-thinking and flexible — yet *tangible* — ideas. If everyone understands the goals and priorities, most ideas will in some way support the end goal.

At first, teams need to come together to generate ideas, not yet setting the plan. With solid coaching and brainstorming facilitation, stakeholders begin growing accustomed to working together and listening to each other. **Understanding and respect among departments and stakeholders grows as everyone works together.** This approach is what shifts mindsets and culture, and staff will start seeing that they are contributing members to a collaborative and effective problem-solving organization.

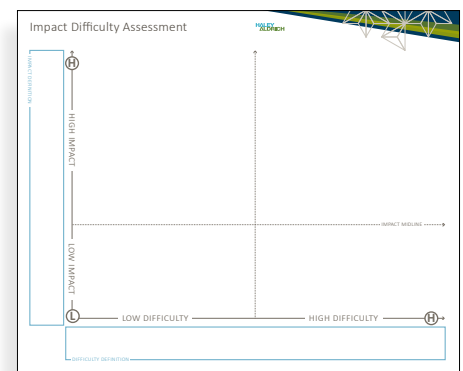
If everything is a priority, then nothing is a priority

Using the criteria in the previous step, drill down the list of ideas to the top priorities. The frustrating thing about priorities is that there is, unfortunately, no shortage of them. Coming up with a list of 100 *needs* is easy; figuring out the top three, 10, or even 30 *priorities* that will have the most impact takes thoughtful communication and collaboration.

However, when stakeholders come together and openly communicate and *understand* each other, they can determine priorities by focusing on the cross-department vision and goals set in the earlier steps and, while together applying the criteria to each idea, they can and will generate ways to combine things for *even better* ideas. When a group focuses on the same overall goals, the most critical priorities become evident. Employing Lean's systematic, streamlined method of planning creates productive, active working sessions where all appropriate stakeholders communicate openly and work together.

Establishing a solid initial plan makes it easier to evaluate and adjust throughout the life of the project or initiative. **Once actions are identified, sequence the plan across departments.** It's helpful to have high-level, long-term actions — six months to three years — that are used to create supporting, shorter-term plans — typically four to 12 weeks. Stakeholders across departments can use these plans to agree on weekly priorities, contributions, and commitments to one another to progress quickly with implementation.

It is crucial to track small steps and milestones, which increases the frequency of communication among all stakeholders, establishes accountability, and breaks down the barriers between silos that plague campus projects. Frequent communication between leaders and other stakeholders removes the obstacles that hold back efforts to maximize budgets and resources. Tracking all steps and activities will provide the necessary information to develop metrics to measure progress.



Impact-Difficulty charts are a Lean tool that helps evaluate the relative benefits of actions - what are the big and important challenges, what is low hanging fruit, and what isn't worth doing.



"I'm glad to see our more streamlined procurement processes will be in place by the time we release the RFP for the new building."

Paula, Procurement



"I'm glad I was able to get our new vendor criteria to Procurement so it's in the system before the next RFP. Now we'll get the right organizations on the next job."

Craig, Construction

How an East Coast university decreased unplanned maintenance by 30% using a Lean approach

One university needed to cut their long-term capital renewal needs and daily operating costs in half. Of the university's maintenance work, 75% was unplanned, reactive, and costly. They needed to empower their people to identify problems, remove obstacles, and implement change.

The school was trying to "put out fires" every day — as a result, only 60% of planned work orders were completed on time. Their reactive, "run it until it breaks" approach to maintenance led to avoidable, expensive repairs and replacement. There was no system for prioritizing work orders, and the university simply did not have the resources to address all of the problems.

Ultimately, the lack of a preventive maintenance strategy eroded the institution's mission.

Diagnosis

The university's total deferred maintenance needs: \$462M

- 75% of all work orders = unplanned maintenance.
- 25% of all work orders = planned preventive maintenance (PM).
- Of the PM, only 60% completed on time, as scheduled.
- 0 dedicated PM staff.

Using Lean to address deferred maintenance needs

The university partnered with Lean advisors to get better results.

Everything started with the customer, which is where every strategy should begin. Customers included students, faculty, and administrators. Focusing on the customer helped the university's team understand what is important to them and what they value most. Such a shared understanding allowed the team to ensure that each decision would deliver critical value. Next, they focused on prioritizing assets based on codeveloped criteria and developing ideas to improve the flow of the work, reducing waste in the process.

Priorities

How they prioritized assets:

- Formed a cross-functional team to inventory and prioritize asset types within buildings.
- Gave assigned assets a priority rating from 1 (highest) to 5 (lowest).
- Of 400 asset types reviewed, 178 were rated as priority 1 and 2.

The lower priority assets were deselected.

Results

Staff generated 195 improvement ideas, to free 57,000 hours/year.

The overall maintenance saving included:

- 30% decrease in unplanned maintenance.
- \$1/sf reduction in operating expenses.
- 80% increase in equipment receiving planned maintenance.
- Doubled the investment in planned maintenance.
- Additional 30 dedicated planned maintenance staff.

Step five: Measure progress toward outcomes

Once activities are prioritized, the team needs to establish ways to show progress and results. Good metrics show whether or not teams are progressing toward overall goals, give direction to performing activities, and reduce decision-making uncertainty. When teams focus on the *purpose* of measures when establishing them, they can be incredibly effective in helping teams prioritize the *right* activities.

The best metrics are:

- **Easy** to explain.
- **Responsive** enough for quick action.
- **Focused** on driving what's important.
- **Visual** with charts and graphics.

Setting metrics

When it comes to setting metrics, the more discretely and precisely the process is defined, the clearer, more specific, and useful the metric becomes. It's crucial to select metrics that provide the greatest level of information while using the smallest degree of resources.

Being selective is key; everything can be measured, but that does not mean everything *should* be measured.

Include leading and lagging indicators

When it comes to identifying useful metrics, it is *crucial* to include both lagging and leading indicators to establish [key performance indicators](#). Lagging indicators measure the outcomes of a process — they help teams see that they've achieved a goal. Lagging indicators are also more commonly used, and easier to define. Leading indicators help teams see if they're generating results. Both are important to setting metrics. ([Richardson, E & Richardson, T, 2018.](#))

LEADING INDICATORS

- Directional data: Indicative of expected results.
- Shows the process that leads to the customer value.

LAGGING INDICATORS

- Post-event results.
- Shows if a tangible objective was achieved.

A balance of leading and lagging indicators allow teams to intervene when there are signals from the leading indicators. Adjustments can ensure that teams see the appropriate lagging indicators. Together, leading and lagging indicators set up a valuable feedback loop for continuous improvement, ensuring effective use of limited resources.

Make things visible on a "scoreboard." Scoreboards can show progress on activities, leading indicators, and lagging outcomes. They are a great tool to help people see how they're doing and strive to "score better."



"It's great to see that our work order response time is 15% shorter. As a result of that, our building occupants have provided positive feedback and are happier with our service."

Mark, Maintenance



"Wow! I came into the lab this morning to find that the wash suites were fixed. That was a lot faster than expected – now my research won't get off track."

Robert, Research

Step six: Implement together

During implementation, the cross-department team will move from planning and prioritizing to engaging in the problem-solving process together. All of the right players need to actively participate and work together to analyze, implement, evaluate, and adjust plans as needs evolve. Mindsets will continue to shift from solving individual problems to challenging stakeholders to engage each other proactively in problem-solving.

Consider using a weekly work plan

Using a weekly work plan can bring team members together and create a cadence of accountability. (McChesney, Huling, and Covey, 2011.) Set a weekly 30-minute meeting to account for the past week, update metrics, and commit to the next week's work. The weekly work plan will help stakeholders assess reliability of their promises and adjust expectations, and will help the team see small steps toward the bigger goals. Additionally, the weekly work plan helps everyone understand the purpose of each activity and the cause of any identified deficiencies.

WHY WEEKLY WORK PLANS?

- Agreements on weekly priorities.
- Everyone shares their contribution.
- Everyone shares what they accomplished.
- Gets everyone working as a team and celebrating small wins (they add up!).

Take informed baby steps

For implementation, **small steps keep the plan flexible, make potential pitfalls more visible, and help maintain a clear line of communication.** Identify each progressive step — and ensure that tools to track progress are easy to access and intuitive for all stakeholders.



Action plans should be realistic, so everyone feels comfortable with deadlines and milestones. Honest communication, understanding, and a flexible plan with baby steps — and room to check and adjust with each step — will help to ensure that everyone is making both the right decisions and meeting shared goals. Focusing on incremental improvement will streamline efforts, produce less waste, and make the best use of everyone's time.



"We've been working together to secure funding and allocate our budgets towards research facility improvements."

Frank, Finance



"Our clear priorities around research facilities enable us to tackle those projects now. Our long term capital plan allows us to lay the roadmap for other priorities down the road."

Chris, Capital Planning



"As we move towards becoming a premier research institution, we've faced challenges bringing new faculty on due to the condition of our labs."

Sue, Strategic Planning

Step seven: Relentlessly check progress and adjust actions

Implementing a plan as a team also provides a chance to check progress and adjust. Regular assessments — every week or month — show what is working and what is not. While teams implement and measure, they will find some things are harder than they expected or discover surprise obstacles. Based on this, **changing actions is okay — but be very reluctant to change goals**. Achieving those goals is what will satisfy customers. Considering that, goals should only be changed with a deep understanding of customers and with new goals that will make them even happier.

Plan, Do, Check, and Adjust (PDCA)

A proven Lean approach for problem-solving, Plan, Do, Check, and Adjust (PDCA) involves proposing a direction, implementing the change, measuring the results, and then keeping those that work while adjusting those that don't. ([Lean Enterprise Institute, 2018](#).) The approach is not new; PDCA has been around since the 1950s and has proven itself over and over again.

Plan: Determine process goals and what needs to change to achieve them.

Do: Implement necessary changes.

Check: Constantly evaluate performance results.

Adjust: Do what is essential and standardize the process.

The first six steps in this article are focused on “plan and do.” While “check and adjust” may seem simple, they are critical to be sure the right results are achieved. Check and adjust require strong inquiry and discipline to truly understand how well things are going and how to make effective adjustments. It is critical that teams do not shortchange this step.

How to effectively check progress and adjust

- Set a cadence and regular time to check; this is similar to the weekly work plan but at a higher level so it should occur once a month or quarter for longer-term strategic plans.
- Create a standard agenda for each meeting — and stick to it.
- Ask four questions:
 - What was the plan and what actually happened?
 - What do the metrics show us?
 - Why are things working or not working?
 - What do we need to change?
- Make checking and adjusting a priority; stick to a standard meeting time that everyone can attend. If someone cannot attend, they can ask a delegate to participate.
- Add personal actions to each week's or month's plan that re-establish priorities and commitment; it can be as simple as each person reiterating their most important task.
- Ensure all stakeholders are clear on definitions such as what success looks like and how to measure it.

WHAT TO ALWAYS ASK

Successful progress requires doing the fewest things possible to meet overall goals. Some questions that should always be top of mind:

- What is the long-term goal?
- What is the current state?
- What is the next improvement?
- What are the obstacles?
- What are the actions?
- **What have we learned?**



“It was great to work with Facilities Operations to implement our new chemical storage procedures. We had to make adjustments in our check meetings but our compliance is up 50 percent.”

Ellie, EHS

Crucial advantages to the PDCA process:

- Reminds people that their work is important.
- Communicates ongoing progress.
- Fosters teamwork.
- Provides a source of celebration.
- Gives people a sense of commitment.
- Allows for fast responses to failures and successes.



“We had to revise a few procedures when we realized we were not meeting our improvement goals. The monthly meetings helped us realize we were off track.”

Olivia, Operations

Using Lean to get past current higher education barriers

Addressing snowballing campus challenges such as maintenance backlogs, the swell of new construction, and inefficient work processes is more significant now than ever before. While competing budgets and shrinking resources makes finding the right solution a complex task, Lean can help campus leaders identify the priorities that will serve the institution best. **It means working as a team to determine the most critical work so that the campus environment can support the institutional mission and focus on customer needs.**

Lean can create an environment where everyone is working to their potential and — most importantly — overall institutional goals and customer needs are being met. **However, as with all new worthwhile things, Lean isn't something that can just be switched on without effort.** As teams implement and measure Lean principles, many initially find some parts are harder than they expected and find unexpected obstacles. Adjusting to a new way of thinking and doing things, even when it's a *better* way, can be uncomfortable. Patience is important.

To reset mindsets and get everyone thinking Lean, it's often helpful to get third-party guidance to help facilitate Lean principles successfully. **It often takes an objective look from a third party to help teams find the ways that Lean can work for them — finding the biggest opportunities, asking the hard questions, and implementing new processes.**

The right experts can help facilities leaders implement a whole-system approach using Lean-based principles to help satisfy stakeholders and ensure more prosperous and sustainable projects. At the same time, it's important that teams learn Lean thinking and tools themselves. When they do, they will nurture the Lean culture and achieve even greater results.

Contact the authors at smacintyre@haleyaldrich.com or lfennessy@haleyaldrich.com to see how you can tap into the full potential of all stakeholders at your institution to develop a powerful culture of collaborative problem solving and reach your institutional goals.

About the authors



[Stephen MacIntyre](#)

Mac is Haley & Aldrich's Lean sensei. He is passionate about applying Lean principles with a focus on respecting and developing people who can make things better by creating more value and reducing waste. As Haley & Aldrich's Chief Services Officer, he serves as an advisor and facilitator for our clients and internal staff to improve strategy, capital programs, construction, organization design, innovation, learning, and operational performance.



[Lizetta Fennessy, P.E.](#)

As a Principal and Market Segment Leader, Liz collaborates with higher education and healthcare institutions to discover new and creative ways to tackle tough challenges and manage risk in the built environment. She joined Haley & Aldrich as a geotechnical engineer in 1994 and combined her work in the field and office on various real estate projects to form strong relationships within the A/E/C community. She is committed to working with her clients to deeply understand their needs and find the most cost-effective, innovative solutions that deliver lasting value.

Want to receive more insights on managing your institution's facilities? [Subscribe to our newsletter.](#)

REFERENCES

- Early, T. "Creating A Value Stream Map" for leanmanufacturingtools.com. 2018. Retrieved from: <http://leanmanufacturingtools.org/551/creating-a-value-stream-map/>
- Ehrenfeld, Tom. "A3 Thinking Roundup" for lean.org. Aug. 2016. Retrieved from: <https://www.lean.org/LeanPost/Posting.cfm?LeanPostId=602>
- Ehrenfeld, Tom. "Lean Roundup: Respect for People" for lean.org. May 2018. Retrieved from: <https://www.lean.org/LeanPost/Posting.cfm?LeanPostId=891>
- Fennessy, Lizetta. "Sick of 'catching up' and 'keeping up' with your campus facilities? Turn your challenges into bright spots." for Haley & Aldrich. Jan. 2017. Retrieved from <http://blog.haleyaldrich.com/sick-of-catching-up-and-keeping-up-with-your-campus-facilities>
- Forrest, George. "The Importance of Implementing Effective Metrics" for iSixSigma.com. 2018. Retrieved from: <https://www.isixsigma.com/methodology/metrics/importance-implementing-effective-metrics/>
- Gleeson, Brent. "The Silo Mentality: How To Break Down The Barriers" for Forbes. Oct. 2013. Retrieved from: <https://www.forbes.com/sites/brentgleeson/2013/10/02/the-silo-mentality-how-to-break-down-the-barriers/#7793268a8c7e>
- Graves, Allen. "Force Field Analysis" for Six Sigma Daily. Jan. 2013. Retrieved from: <https://www.sixsigmadaily.com/force-field-analysis/>
- Hargreaves, Meredith. "How three campus facilities departments are using Lean to do more with less" for Haley & Aldrich. Aug. 2017. Retrieved from: <http://blog.haleyaldrich.com/the-hidden-power-of-lean-perspectives-from-three-universities>
- Hood, Nathan. "Lean and SMART" for Michigan Technological University. March 2015. Retrieved from: <https://blogs.mtu.edu/improvement/2015/03/05/lean-and-s-m-a-r-t/>
- iSixSigma®. "Determine the root cause: Five Whys" for iSixSigma.com. 2018. Retrieved from: <https://www.isixsigma.com/tools-templates/cause-effect/determine-root-cause-5-whys/>
- Kannan, Nari. "Cause-and-effect Diagrams and Lean for Service Processes" for iSixSigma.com. 2018. Retrieved from: <https://www.isixsigma.com/methodology/lean-methodology/cause-and-effect-diagrams-and-lean-service-processes/>
- Lean Enterprise Institute®. "A brief history of Lean" for lean.org. 2018. Retrieved from: <https://www.lean.org/WhatsLean/History.cfm>
- Lean Enterprise Institute®. "Making things better through lean thinking and practice" for lean.org. 2018. Retrieved from: <https://www.lean.org/>
- Lean Enterprise Institute®. "PLAN DO CHECK ACT" for lean.org. 2018. Retrieved from: <https://www.lean.org/lexicon/plan-do-check-act>
- Macomber & Millburg. "A Global Perspective of Key Elements" for Lean Construction. 2012. Retrieved from: <https://www.leanconstruction.org/media/docs/chapterpdf/new-england/2012-01-26-lci-new-england-meeting.pdf>
- Marcus, Jon. "The Paradox of New Buildings on Campus" for The Atlantic. July 2016. Retrieved from: <https://www.theatlantic.com/education/archive/2016/07/the-paradox-of-new-buildings-on-campus/492398/>
- McChesney, C., Huling, J., & Covey, S. "The 4 Disciplines of Execution: Achieving Your Wildly Important Goals." October 2011
- Page, Bob. "Hoshin Planning: Making the Strategic Plan Work" for iSixSigma.com. 2018. Retrieved from: <https://www.isixsigma.com/methodology/hoshin-kanri/hoshin-planning-making-strategic-plan-work/>
- Richardson, E & Richardson, T. "The Value of Key Performance Indicators in a Lean Transformation" for lean.org. February 2016. Retrieved from: <https://www.lean.org/LeanPost/Posting.cfm?LeanPostId=531>
- Sightlines. "The State of Facilities in Higher Education: 2015 Benchmarks, Best Practices & Trends" for Sightlines.com. 2016. Retrieved from: <http://www.sightlines.com/wp-content/uploads/2015/12/State-of-Facilities-in-Higher-Education-2015-Benchmarks-Best-Practices-Trends.pdf>
- Sightlines. "The State of Facilities in Higher Education: 2016 Benchmarks, Best Practices, & Trends" for Sightlines.com. 2016. Retrieved from: <http://www.sightlines.com/insight/state-of-facilities-2016/>