PRIVV

Managing a University Capital Improvement Project

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Why Should You Read This Guide?

Education construction projects are challenging. And still, there's not a single book that covers capital improvement projects to the extent that gives you the confidence to navigate the complexities!

48% Fail Rate
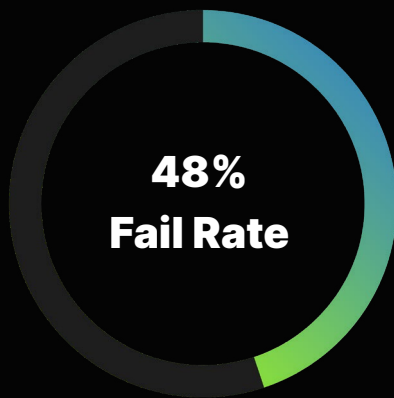
According to a survey by the Project Management Institute, 48% of all capital projects fail: they are either late, over budget or fail to meet compliance or desired outcome.

So, your university has a major new project in the works, whether it's a new research facility, residence hall, or athletic center. As the project manager, facilities director or manager, you want to make sure this complex undertaking is executed properly from conception through completion. But where do you even start?

In the coming pages, we'll explore the five critical steps to successfully managing any large-scale university project.

These steps are: **Plan, Review, Implement, Verify, and Validate (PRIVV).**

5
critical steps to successfully manage any large-scale university project.

05 Validate
01 Plan
04 Verify
02 Review
03 Implement

Let's get started.

Let's dive in and get started. The future of your university depends on the important work you're about to undertake.

From developing timelines to securing approvals to overseeing construction and final inspections, this guide provides a comprehensive road map to navigate the operational challenges, political dynamics, and unforeseen obstacles that often arise.

With the right preparation and oversight, your project will be set up for success and ready to serve your campus community for generations to come. The tools we introduce will help you better understand the steps, requirements, and value of your project, and ensure that its implementation is a success.

The Complexities of Capital Projects

A capital project is a long-term, capital-intensive investment to build upon, add to, or improve a capital asset. Capital projects are defined by their large scale and large cost relative to other investments that involve less planning and resources.

To start, you'll need to carefully define the scope and objectives.

If you work in higher education capital planning, you know that overseeing major capital projects is no small feat. Construction management can become very complex and expensive if not managed properly. Between navigating budgets, schedules, and stakeholder needs, these massive undertakings can quickly become complicated.

What exactly do you aim to accomplish?

- New science and engineering facilities
- Residence Halls
- Academic Buildings
- Sports Venues
- Something Else?

Be as specific as possible to determine costs and timelines.

Next, assemble your team.

You'll want experts in areas such as architecture, engineering, construction, and project management. But also look internally - involve faculty and staff who will actually use the new facilities. Their input is invaluable.

With your road map and team in place, you can move on to the procurement process. Evaluate contractors and suppliers to find those that suit your needs and budget. Be prepared for unexpected challenges by developing a risk management strategy before breaking ground.

Once construction begins, rigorous quality assurance, testing, and oversight become top priorities. Conduct frequent inspections and audits to ensure work meets standards and address any issues immediately.

Finally, evaluate how well you achieved your initial goals. Did the project finish on time and budget? Do stakeholders report high satisfaction? Look for ways to improve for the next capital initiative your university undertakes.

Major university projects are complex with many moving parts, and with comprehensive planning, oversight, and a commitment to excellence, you can achieve amazing outcomes.

In the next five chapters we have explained the steps that will lead your way to success.

Review the 5 critical steps to successfully manage any large-scale university project.

→

STEP ONE

Plan: Project Initiation and Planning for Capital Projects
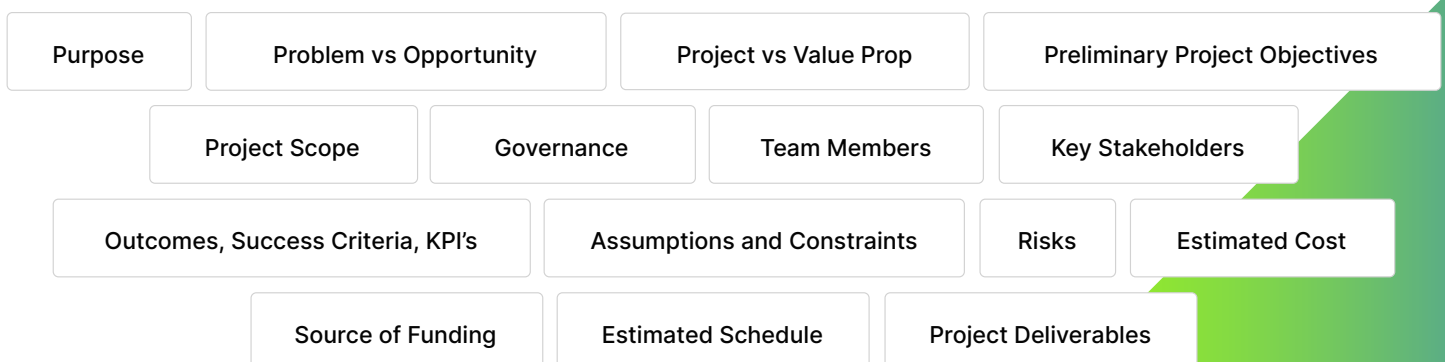
01

Planning Your Project

For starters, let's assume you have your project approved and funded, it's time to get planning. This first step is critical to the success of your capital project, so don't rush it!

Project Definition Document

In preparation for the project, you and your team should draft a Project Definition Document. This document is like an outline for your entire project and helps you and your team stay organized. Don't worry if you don't have every detail planned out at the start, this will be a living document that gets refined throughout the Planning phase.

The Project definition document includes the following elements:

Purpose	Problem vs Opportunity	Project vs Value Prop	Preliminary Project Objectives

Project Scope	Governance	Team Members	Key Stakeholders

Outcomes, Success Criteria, KPI's	Assumptions and Constraints	Risks	Estimated Cost

Source of Funding	Estimated Schedule	Project Deliverables

Below are some considerations you will need to make when defining and planning for your project.

Define Scope

Work with stakeholders to determine the specific objectives and parameters of your project. Be as detailed as possible in documenting what's included and not included. Changes to scope can derail your budget and timeline, so nail this down upfront.

How about communicating your scope with an elevator pitch that inspires and engages your team and your suppliers since the beginning.

A good elevator pitch answers the following questions:

- Why is your project important?
- How does it benefit the students, faculty and staff?
- What sets it apart from other similar projects?

Develop a Realistic Budget

Do your research to estimate costs for materials, labor, and any contracted services. Often it is best to use past similar projects as a benchmarking tool for the portions of the budget that are harder to estimate. Build in a 10-15% contingency fund for unforeseen expenses. Get input from facilities and finance teams who have experience with similar projects. Submit your budget for approval before moving on.

It's a good idea to start scheduling from high-value-high-risk items, and move towards lower risk and lower value items.

Create a Timeline

Map out milestones, tasks, and a sequence of events from start to finish. Factor in lead times for ordering equipment, permits, and inspections. Be generous with your time estimates, especially for the construction phase. Determine critical paths to avoid delays. Build in buffer periods in case of weather or other impacts. Review and revise with your team.

No project goes 100% according to plan. Be prepared for issues like bad weather delaying construction, cost overruns, or design changes. Build buffer time into your schedule and meet regularly with your project team to review risks and make contingency plans. Solving problems quickly will help keep things on track.

Assemble the Team

You'll need a project manager, contractors, consultants, facilities staff, and end users. Determine required skill-sets and experience levels. Consider using modern project management tools or hiring an owner's representative to oversee contractors. Meet with candidates, check references, review bids and select partners using your institution's procurement process.

Do your due diligence when hiring teams and make your expectations for excellence clear from the start and don't be afraid to request rework if something does not meet the standards you've set. High quality buildings are investments that will serve your institution for decades.

Address Risks and Challenges

Brainstorm anything that could negatively impact your budget, timeline & school season, health and safety, quality, or stakeholder satisfaction. Develop mitigation strategies for high probability or high impact risks. Monitor ongoing risks and issues, making adjustments as needed. Your proactive planning and management will lead to a successful project outcome.

In brainstorming, the road to success is paved with assembling an engaged team and asking the right questions. It's also a good idea to use available data sources and modern AI tools to predict the unknown unknowns.

Review: Assembling Your Project Team, Technology, and Resource Allocation

02
Assembling the right project team is critical to success. You'll want to bring together individuals with a diverse set of skills and experiences. Some key roles to fill include:

Project Manager

The project manager oversees everything and keeps the team on track. Look for someone with experience in managing complex projects, excellent communication and organizational abilities, and a proven track record of delivering on time and within budget. To help aid the project manager, you'll want to think about bringing out the best in your staff by having the right tools in place such as project management software and financial analytics tools.

Subject Matter Experts

Include experts in areas like facilities management, IT infrastructure, student services, etc. Their specialized knowledge will help guide important decisions. Tap staff from relevant departments or hire consultants.

Stakeholder Representatives

Invite representatives from key stakeholder groups like students, faculty, donors, and community members. Their input will help ensure the end result meets the needs of everyone impacted. Offer a seat at the planning table and seek out their feedback regularly.

Stakeholder Representatives Cont'd

Be realistic about limitations on your stakeholders' availability and build in contingencies for situations where someone leaves the institution or takes on new commitments.

The best way to organize these stakeholders is to divide them into three teams.

1. **The University Team** will consist of the leadership. Administrators, Directors, and representatives responsible for the functional and operational requirements of the capital project would be included in this team. You may also want to invite any campus entities that may be affected by the construction of the project in some way.

2. **The Facilities Team** represents the university leading the project through the design and construction process. This team ensures that each project achieves project objectives, complies with university standards and is designed and constructed within the approved budget and schedule. This team generally consists of the project managers, program managers, project planners, and any field management.

3. **The External Team** consists of specialists who will help you through the complex stages of the project. This team generally consists of the architect, the construction manager, and other specialists such as acoustical engineers, a/v consultants, cost estimators, landscape architects, and civil engineers.
Once you have the right teams assembled, determine how much time each member can dedicate to the project. Some may only be involved part-time or at certain points. Create a resource allocation plan that accounts for people's existing workloads and responsibilities.

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Technology

It's crucial to select tools that offer a comprehensive solution for managing various aspects of the project life cycle. Remember to assess the compatibility and integration capabilities of these technologies to ensure a smooth workflow across the various phases of the project. Here's a recommended technology stack and considerations:

Integrated Project Management Software:

Choose a robust project management platform tailored for large-scale construction projects. Look for a solution that handles scheduling, budgeting, resource allocation, task assignment, and document management. Ensure it offers collaboration features for multiple stakeholders involved in different project phases.

Building Information Modeling (BIM) Software:

BIM tools facilitate collaborative planning and design. They allow various stakeholders, including architects, engineers, and contractors, to work on a single, shared 3D model. BIM enhances visualization, detects clashes, and aids in efficient planning.

AI and Data Analytics Tools:

Implement AI-driven tools for predictive analytics, risk assessment, and data-driven decision-making. These tools can analyze vast amounts of project data to predict potential issues, manage risks, and offer insights for better decision-making throughout the project life cycle.

Document and Information Management System:

Use a centralized system for managing project documentation, contracts, and communications. Ensure it's secure, easily accessible, and allows version control to keep all stakeholders updated with the latest information.
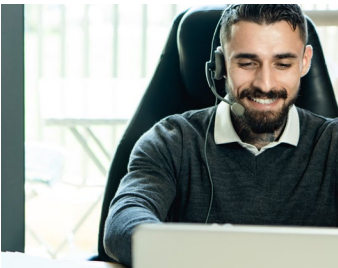
Technology
Cont'd

Collaboration and Communication Tools:

Invest in collaboration platforms and communication tools that facilitate seamless interaction among project team members. Video conferencing, messaging, and file-sharing platforms aid in real-time communication and problem-solving, especially in a multi-phase project involving various stakeholders.

IoT and Smart Technologies:

Consider incorporating Internet of Things (IoT) devices for smart monitoring and data collection. These devices can offer real-time insights into building performance, energy usage, and equipment health, enhancing maintenance and operational efficiency.

Training and Support Services:

Ensure that alongside the technology stack, there are adequate training programs and reliable support services. This helps users understand the tools and optimally use them throughout the project.

Engage with vendors and consultants who specialize in higher education construction projects, as they can provide tailored solutions and expertise specific to this sector. Regularly evaluate the effectiveness of the technology stack and adapt as necessary throughout the project's life cycle.

Communication

This is also the moment in time where communication is key. The success of capital projects centers on clear, timely communication amongst the leadership, stakeholders, facilities, and external team members. Best practices include determining who will be responsible for communications and how this information should be shared. Ideally, you will want to implement a regular schedule of meetings with the various stakeholders and assign a single representative who will be responsible for gathering data and forwarding the necessary information to the teams. With a skilled, diverse team in place and a clear understanding of their capacity, you'll have the foundation for executing a successful project. Regular communication, clearly defined responsibilities, and mutual respect among team members are also essential. By valuing different voices and making the

most of the expertise around the table, your project will benefit from a range of perspectives and have the greatest chance of meeting its goals. The team you assemble today will shape the future of your campus for years to come, so choose them wisely!

Now that your teams and communications plan is in place you will want to finish conceptualization, programming and design. These are major components necessary to complete a successful project.

Ask your suppliers about the tools, meetings and processes they have in place to provide you with transparent and constantly up-to-date information on the status of your project.

Programming/Concept Phase

Programming is the process of systematically collecting, documenting, and communicating the detailed criteria for the expected performance of the facility and site. The programming/concept phase of a major capital project is a crucial initial stage where the project's scope, objectives, feasibility, and overall concept are defined and refined. This phase sets the foundation for the entire project and involves a series of activities aimed at gathering information, making key decisions, and establishing a clear direction for the project.

The major elements of the programming/concept phase include:

- Project initiation
- Feasibility studies
- Stakeholder engagement
- Environmental requirements
- Zoning requirements
- Sustainability goals
- Conceptual design

- Budget estimation
- Risk assessment
- Regulatory and permitting considerations
- Preliminary schedule and milestones
- Conceptual Documentation
- Decision-making and Approvals

Modern software tools built for University capital project needs will include these elements, and make sure all necessary tasks are completed.

Design Phase

The design phase of a major capital project is a critical step that follows the programming/concept phase. During this phase, the project's conceptual ideas and plans are developed into detailed, actionable designs that serve as the blueprint for construction or implementation. The design phase involves a series of activities and tasks aimed at translating the project concept into specific technical, architectural, and engineering plans.

Here's a breakdown of what typically happens during the design phase:

01

Design Development

Further refine the project's design by creating detailed architectural, engineering, and technical drawings. Consider factors such as materials, construction techniques, and sustainability principles.

02

Structural and Mechanical Systems

Develop specifications for mechanical, electrical, and plumbing systems. Work with engineers and architects to design the structural components of the project, including the foundation, beams, columns or load-bearing walls.

Design Phase
Cont'd

03

Environmental Considerations

Ensure that the project complies with the environmental regulations and sustainability goals. Incorporate environmentally friendly design features, such as energy-efficiency or water conservation measures.

04

Safety and Accessibility

Design safety features and systems to ensure the well-being of workers and future occupants. Ensure compliance with accessibility standards, making the project accessible to people with disabilities.

05

Cost Estimation

Refine the project's cost estimate based on the detailed design.

06

Design Reviews and Coordination

Conduct thorough design reviews to identify any potential issues, conflicts, or inconsistencies in the plans. Collaborate with various design disciplines to ensure that all aspects of the project are coordinated effectively.

07

Permitting and Approvals

Continue the process of obtaining necessary permits and approvals from regulatory authorities. Address any additional requirements or modifications requested by permitting agencies.

Design Phase
Cont'd

08

Value Engineering

Explore cost-saving measures without compromising the project's quality and functionality.

09

Final Design Documentation

Prepare comprehensive sets of construction drawings and specs that provide all the details needed for contractors to build the project. Ensure that the design is clear, accurate, and complete.

10

Tendering and Bidding

Prepare tender documents that include the design drawings, specifications, and other relevant information. Solicit bids or proposals from contractors and select the most qualified bidder based on criteria like cost, experience, and reputation.

11

Contract Negotiation

Negotiate contracts with the selected contractors and subcontractors. Finalize project schedules, budgets, and contractual agreements.

12

Approvals

Present the final design and construction plans to the project stakeholders for their approval and sign-off.

Design Phase
Cont'd

Once the design phase is complete and the design has been approved, the project is ready to move into the implementation phase, where the actual implementation of the project takes place based on the detailed design documents

Scope Creep

Major projects often experience scope creep, where new requirements or features are added that weren't part of the original plan. Scope creep can quickly derail budgets and schedules. Review any new requests thoroughly to determine impacts before approving them. Push back on requests that aren't critical to the overall goals or delay them until a later phase.

Effective design management, coordination, and documentation are essential to ensure a successful transition from design to construction while minimizing costly errors and delays.

Implement: Executing the Project Plan and Overseeing Construction

03
Putting your plan into action.

Once your project plan has been developed and approved, it's time to put it into action. This crucial implementation phase requires meticulous oversight and control to keep everything on schedule and within budget.

Hiring contractors and consultants

With your project team in place, you can now procure the necessary contractors, consultants, and vendors to carry out the work. Issue requests for proposals, review bids, check references, and award contracts to the most qualified candidates. Make sure all parties understand the scope of work, timeline, and budget before signing on the dotted line.

Overseeing construction

As ground is broken and the build phase begins, closely monitor contractor work to ensure it meets approved specifications. Conduct regular site visits, meetings, and inspections to identify any issues early on. Review contractor payment applications carefully before approving to guarantee work is progressing satisfactorily before releasing additional funds.

Next:

Managing Issues & Monitoring Progress

→

Managing issues

Even the best-laid plans encounter problems. A major part of this phase is identifying and resolving any issues that arise. This could include delays, cost overruns, compliance problems, quality concerns or safety violations. Work with your team and contractors to develop solutions, then update plans and documentation accordingly. Inform stakeholders and get re-approval if necessary.

Monitoring progress

Compare the actual progress of work to the timeline in your project plan on an ongoing basis. Look at what has been accomplished versus what was scheduled to have been completed. Make adjustments as needed to get the project back on track or determine if the schedule needs revision. Closely check that the project remains within the approved budget and all funds are being utilized properly.

Celebrate milestones. Take time to recognize major milestones along the way. Celebrate accomplishments with your team and stakeholders to boost morale and motivation, and reinforces a sense of shared purpose in working toward a successful project outcome.

Procurement

The procurement phase of a major capital project is a critical stage in the project life cycle where materials, equipment, and services necessary for construction or implementation are acquired. This phase involves a series of activities and processes aimed at sourcing, selecting, and contracting with suppliers and contractors to ensure that the project progresses smoothly and meets its objectives

Here is a breakdown of what typically happens during the procurement process:

- Procurement Strategy Development
- Supplier & Contractor Selection
- Request for Proposals (RFP) or Bids
- Bid Evaluation and Contract Negotiation
- Contract Awarding
- Procurement Management
- Procurement of Materials & Equipment

- Contract Administration
- Supplier and Contractor Coordination
- Quality Control and Inspection
- Payments/Invoicing
- Documentation and Reporting
- Risk Management

The procurement phase plays a vital role in the successful execution of a capital project, as it ensures that the necessary resources and services are secured and managed efficiently. Effective procurement management helps control costs, maintain quality, and keep the project on track to meet its objectives and deadlines.

Using collaboration tools is an effective way to interact with project Team members. Communicate openly and often. Address issues immediately. Share progress reports, photos, and milestones to keep people up to date on the project. Host events like groundbreakings, beam signings, and tours to bring donors and stakeholders together. Their continued support is key, so make them feel like part of the team.

While overseeing a university construction project demands time and effort, executing the plan successfully will ensure your project is delivered on time, within budget and according to specifications.

Modern software tools help you stay on top of every detail and keep the end goal in sight.
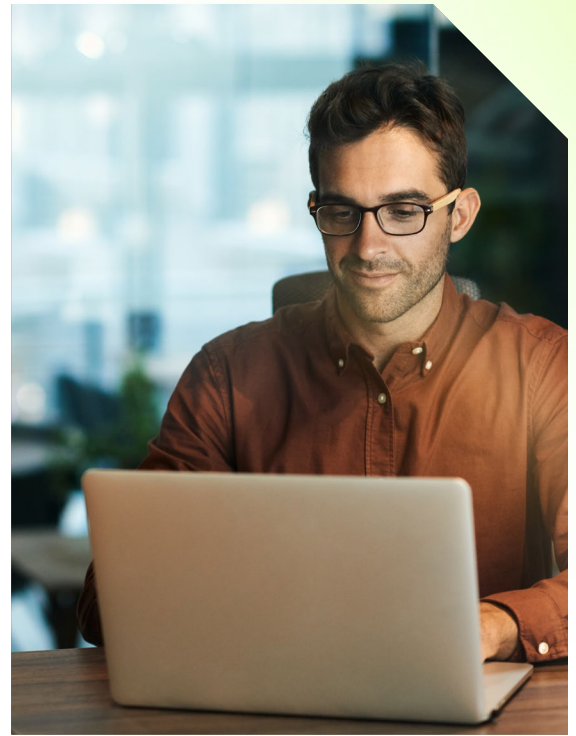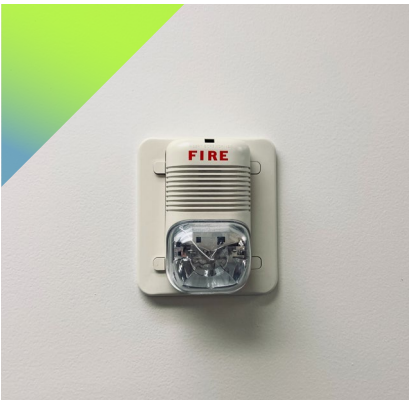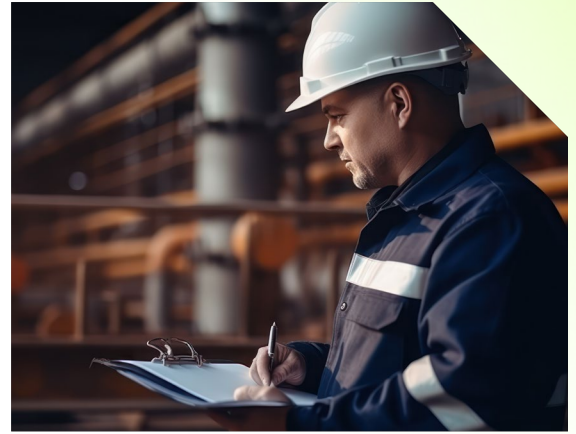
Verify: Inspection, Testing and Ensuring Compliance

04

Verify your implementations.

Once you've implemented your project plan, it's time for Step 4: Inspection, Testing and Ensuring Compliance. This step verifies that everything was executed properly and according to specifications. It's critical to check that all components are functioning as intended before officially completing the project.

Inspections

Conduct routine inspections of the worksite, equipment, materials, and facilities. Look for any defects, damage or issues that need to be addressed. It's best to do inspections frequently during key phases of construction or development. Document the results of each inspection to ensure any follow up actions are taken.

Testing

Test all equipment, technology, utilities and systems to confirm proper operation. For example, test emergency generators, HVAC systems, fire alarms, security systems, etc. Correct any problems found during testing before finalizing the project.

Following these verification procedures carefully is key to a successful project completion.

Do not cut corners on inspections, testing and compliance - it will only lead to problems down the road.

Take the time to do it right the first time!

Compliance Audits

Double check that the project meets all building codes, safety standards, zoning laws, and other regulations. Review permits, plans and specifications to verify compliance. Make any necessary changes to bring the project into compliance before completion.

Issue Resolution

Address any remaining issues, defects or problems found during inspections, testing or audits. Come up with solutions, make repairs or modifications as needed. All issues should be resolved before the final walk through and hand off.

Budget Analysis

Re-evaluate the project budget to determine final costs. Look for any cost overruns or savings. A cost analysis at this stage can uncover valuable insights to improve cost estimation and management for future projects.

Compliance Issues. For any project involving construction or renovation, compliance with building codes, zoning laws, accessibility standards and other regulations is essential. Use modern technology to keep you on track with the requirements and conduct reviews at multiple points to catch any compliance gaps and address them immediately.

Validate: Evaluating Project Success and Closing Out

05
Evaluating Project Success and Closing Out

With the project complete, it's time for the final and critical step: evaluating how it all went and closing things out officially. This is your opportunity to determine what worked, what didn't, and make improvements for next time. It will also provide closure for everyone involved.

Start by reviewing the initial scope and objectives. Did the final product or outcome achieve what was intended? If not, determine why. Compare the actual timeline and budget to the original estimates. Look for lessons learned and areas for improvement in the planning process.

Survey key stakeholders, team members, and users to gather feedback. Questions should aim to assess satisfaction with the end result, communication, available resources and tools, and the overall experience. Look for both quantitative data and qualitative comments. The feedback may highlight successes to repeat as well as pitfalls to avoid in the future.

Once evaluation is complete, it's time to **Close Out** the project. Finalize all paperwork, including sign-offs, approvals, and final budget reports. Hold a wrap-up meeting with stakeholders and team members to share the evaluation results, express appreciation, and officially announce the project end.

Closing out a major project is a milestone to celebrate. Be sure to **recognize and reward** team members for their contributions and hard work. Taking time to reflect on what went well and what could improve will make the next project even more successful. The lessons you learn from navigating this project to completion will serve you and your institution for years to come.

Compliance Issues. For any project involving construction or renovation, compliance with building codes, zoning laws, accessibility standards and other regulations is essential. Use modern technology to keep you on track with the requirements and conduct reviews at multiple points to catch any compliance gaps and address them immediately.

Conclusion

At the end of the day, successfully managing a major university project comes down to following the key steps laid out here and staying on top of all the details.

If you make the effort to plan thoroughly, get the right people to review and approve the plans, put those plans into action, double check that everything is being done according to spec, and validate the end results, you'll be able to bring your vision to life. It may seem daunting, but by breaking down the work into manageable chunks and keeping the big picture in mind, you absolutely have what it takes to lead complex university projects from concept to completion

But don't forget, you don't have to go it alone. With modern tools, such as Privv, you can streamline your project management, collaborate with your team effortlessly, and ensure that every detail is accounted for. Privv is built as the tool you need to make your university projects a resounding success.

Stay focused, get help when you need it, and keep putting one foot in front of the other. Before you know it, you'll be cutting the ribbon on a new building or initiative you can feel genuinely proud to have shepherded to success

About the Authors

Ville Houttu

Ville Houttu is the Co-founder and CEO of Privv. Originally from Finland, he relocated to the United States along with his wife and their two children in 2016.

In the same year, he established a software company, Vincit USA, and built it from scratch to $14 million in 2022. Ville holds an M.Sc. in Electrical Engineering and is deeply passionate about crafting software solutions that precisely cater to the needs of end-users and ensuring they are built correctly.

Ville is a renowned TEDx speaker, and his leadership has garnered recognition in esteemed publications, such as TechCrunch, Forbes, Inc. Magazine, Harvard Business Review, and Adam Grant's TED Podcast.

Additionally, he is honored as a finalist for the 2023 EY Entrepreneur of the Year award, a three-time member of the Inc. 5000 Fastest Growing Companies in America, and the recipient of the Entrepreneur of the Year award for Irvine, California in 2018.

Joe Phillips

Joe Phillips, a dedicated Product Manager at Privv, brings a wealth of experience and a diverse background. Originally from Chicago, he moved to Arizona in 2016, merging entrepreneurship with academic excellence. By age 25, Joe successfully owned two businesses, aided by a Master's in Real Estate Development from ASU, giving him over a decade of industry experience.

Notably, he received the 2016 George Gunn Award for Architectural Excellence in Wisconsin due to his meticulous renovation of the first governor of Wisconsin's house, showcasing his commitment to historical accuracy and design. At Privv, Joe leverages his multifaceted background, academic achievements, and industry recognition to drive innovation, strategic vision, and a profound understanding of construction and development intricacies.

Final words.

"Strategic planning is the compass, collaboration is the key, and meticulous execution is the path to achieving excellence in capital project management within higher education institutions."

Peter Krahenbuhl
Senior Project Manager | Nations Group

"Success in capital projects for higher education hinges on collaboration; its about weaving the dreams of educators into the fabric of tangible, transformative spaces."

Jeff Shoultz
VP Marketing & Business Development | Nations Group

"As an owner's rep, orchestrating the symphony of stakeholders is my art. The result: spaces that inspire, nurture, and seamlessly evolve with the pulse of education."

James M Rodems
Senior Construction Project Manager | Nations Group

"Every capital project is a pledge – to create spaces that transcend construction, becoming the crucible for academic growth, exploration, and excellence."

Tino Hernandez
Project Manager | Nations Group

Let's
talk.

P PRIVV

Let's talk about your next university capital improvement project.

Privv is a specialized project management platform designed for higher education and K-12 facilities. It combines industry-specific knowledge with advanced tools to ensure capital projects are completed on time, within budget, and to the highest standards.

Privv empowers educational institutions to focus on their core mission of providing world-class education while streamlining the management of complex construction projects.

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