



The 6 Keys to Driving Capital Effectiveness on Small Capital Projects



Day & Zimmermann

We do what we say.®

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The successful execution of capital projects in chemical processing requires a well-orchestrated effort across an entire organization. Everyone, from the CEO to the project manager to the construction workers on site, must be on the same page to keep a project under budget and on time.

When it comes to capital expenditures at chemical processing companies, the large-scale projects attract most of the time and attention from executives and top-level decision makers. Whether it be building a new plant or a mass-scale maintenance project, large projects undoubtedly have the potential to significantly improve operations, and deserve the level of attention they receive.

Smaller capital projects, however, are often overlooked and fail to attract the same attention and care, despite representing a significant portion of a company's overall capital spending. A recent McKinsey report found that roughly 50 percent¹ of the chemical industry's \$400 billion in annual capital spend is allocated to smaller projects. By number, these projects typically account for as many as 80 percent of all capital projects.

Improving the execution of small projects in aggregate represents a large opportunity for chemical processing companies to increase their organization's overall capital effectiveness. It has been estimated that improving the overall execution and selection of these projects can save companies up to 30 percent in costs².

By focusing more on the execution of smaller projects, chemical processing plants can vastly improve their capital effectiveness. Doing so will require business leaders to adopt new mindsets, while also borrowing from established strategies and techniques. We've boiled down our approach to improving capital effectiveness on smaller projects into the following six keys:



¹ <https://www.mckinsey.com/industries/chemicals/our-insights/small-equals-big-unlocking-savings-in-small-to-midsized-capital-project-portfolios-in-chemicals>

² <https://www.mckinsey.com/industries/chemicals/our-insights/small-equals-big-unlocking-savings-in-small-to-midsized-capital-project-portfolios-in-chemicals>



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KEY #1

Project Selection & Prioritization

The capital effectiveness of a particular project is optimized when the goals of the endeavor align with the strategy and priorities of the overall enterprise. When deciding to undertake a particular project, managers must ask themselves: will this capital project deliver a meaningful and justifiable benefit to the overall company, or just my specific business segment? Does the total spend on this project help us meet our corporate goals? What is the return on capital deployed, and does it meet the desired standards set by the broader organization? What is the risk of marginal ROI projects exceeding cost targets and being killed in later phases, resulting in poor utilization of capital and hindering the company's ability to achieve business goals? Some companies wisely bring together the heads of engineering and operations of every business unit to discuss these metrics, risks, project pipelines and the value being created through these expenditures. This also offers corporate leaders an opportunity to remind each business unit head of the organization's key strategic priorities for the future.

Aside from project selection, the prioritization of the project schedule must not be overlooked. Based on an organization's broader business goals, it often makes sense to prioritize certain projects over others. At the beginning of each year, plant owners and managers should rank projects based on their risk, projected return on investment, and overall benefits. This prioritization list should also be maintained and updated throughout the year to keep objectives, timelines and expectations aligned. This process is even more important when many smaller capital projects are on the docket for a given year.

KEY #2

Proper Stage-Gate Planning & Front-End Development

For many smaller capital projects, maximizing ROI comes down to the level of stage-gate planning and front-end development. These early-stage planning processes can shine a light on potential roadblocks before they arise and keep all parties on the same page.

The Construction Industry Institute's (CII) Project Definition Rating Index (PDRI) is a powerful tool used to measure the level of completeness in the front-end development of a capital project. PDRI helps project organizers and plant owners manage the pre-project planning process by evaluating whether the project is ready for design and eventually

construction. Owners use it as an assessment tool for establishing a comfort level at which they are willing to move forward with projects into the next phase. Designers and contractors use it as a method of identifying poorly-defined scope elements and risks associated with execution of the project. Capital projects with the best PDRI scores typically come in 4 percent under budget and 3 percent ahead of schedule, according to CII. By leveraging effective front-end planning and the PDRI, chemical processing plants can significantly boost their overall capital effectiveness, no matter how small the project.

During smaller capital projects where oversight may be limited, a disconnect can emerge between engineer and contractor that can lead to costly miscommunications and a logistical nightmare. Contractors must be involved in the project engineering and design process so that they can glean a clear picture of what materials and skilled laborers are needed to execute a capital project. However, too often are contractors given a project design days before construction is scheduled to begin without an adequate amount of time to prepare.

KEY #3

Adaptable Processes

Every capital project at a chemical processing plant is unique. No matter the size, each one necessitates a strategic approach and process. Larger capital projects typically utilize rigid standard processes that fit the magnitude, scope, timeline and budget of the project at hand. However, project managers and contractors fail to approach smaller projects with the same individualized care and attention. When projects are small, companies sometimes fail to look deeply into the nuances of the endeavor and instead take a rigid, one-size-fits-all approach to planning and execution. As a result, chemical processing plants and contractors are prone to the misallocation of resources, miscommunication and faulty timeline or scheduling development that can lead to costly setbacks.

Instead, project managers are better served adopting a flexible, individualized approach based on the specific needs of each capital project, no matter how small. Plant owners may be surprised to find out that some capital project staffing and management firms specialize in this flexible approach that can be scaled up or down in order to meet the specific needs of each individual project. While it will require some additional planning on the front end, taking this project-specific, adaptable approach will help chemical processing plants meet their project deadlines and budgets while maximizing ROI.



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KEY #4

Create & Communicate Realistic Schedules

Management regularly applies pressure on project managers to speed delivery, limit the business interruption and minimize construction time during these projects. This pressure is often even greater during smaller capital projects that business leaders view as less significant or critical. One major misconception is that the sooner construction begins, the shorter the overall project timeline will be. However, speeding through the early stages of a project to begin construction early can lead to rework, construction delays and inefficiencies, and even oversights of critical safety measures that can lead to setbacks in the process. Leveraging construction readiness tools like the CRA from the CII is an excellent way to keep a small capital project from getting ahead of itself. This tool alone has been proven to produce up to 20 percent in cost savings, 29 percent productivity growth and 22 percent shorter timelines.

Honest conversations with stakeholders in initial planning discussions and setting realistic timelines is also key for any capital project, no matter how small. Gathering input from contractors in terms of their expected timelines and expenses can help project managers set realistic metrics that can guide the process and keep management informed on progress. This can improve an organization's overall capital effectiveness in two ways. First, it provides contractors and laborers with the budget and time they need to properly plan and complete the job adequately. Second, it provides leadership with realistic expectations and keeps the entire enterprise on the same page in terms of how long a project will take to complete and its associated risks.

KEY #5

Collaborate with your Contractors

Collaboration between contractor and project manager is essential to completing projects under budget and on schedule. This collaboration must begin at the very beginning of the process. In a recent study, 76 percent³ of company owners indicated that on their best projects, they engaged key stakeholders (including contractors) in the conceptualization of the project. Contractors and owners have an opportunity in this moment to finally embrace the kind of working relationship that can foster new ideas and mutually beneficial outcomes.

But these conversations cannot stop once construction begins. Maintaining relationships and keeping lines of communication open is critical to project success. Owner and contractor teams must be in constant contact with one

another. New technology is now capable of providing the type of real-time progress-tracking tools that will allow for better communication between owners and contractors. Sophisticated document management systems like eQuorum are being used to share files and collaborate across all parties involved in the capital project. These capabilities make information easily accessible and constantly update documents so that engineers and contractors always know they're working with the most up-to-date version. Additionally, contractors, engineers and plant owners must also establish regularly scheduled touch points throughout the project process to meet and discuss progress openly and honestly. Establishing these meetings can help keep the project on track and keep expectations in line as the project progresses to limit the number of surprises along the way.

KEY #6

Drive for Win-Win

Building monetary incentives into agreements with contractors is another powerful tool that can align the objectives of both parties and keep even the smallest of capital projects on track. A recent study conducted by the U.S. Office of Federal Procurement Policy discovered⁴ that building incentives into arrangements with contractors can lead to a 15 percent reduction in price and an 18 percent improvement in satisfaction in the contractors' work. Many contractors and their workers are paid by the hour and aren't properly incentivized to complete the project on time. When improperly monitored or incentivized, contractors can drag projects on for weeks, adding thousands of dollars to their final bill and leading to long business interruptions. Other contractors are paid through lump sum contract arrangements which often are negatively impacted by contentious change management negotiations and delays. But when contracts are written properly, companies can also incentivize the contractors to meet these metrics and keep the project on schedule and under budget while also maximizing quality and ROI for the project.

In order to properly incentivize contractors, project managers must start by establishing clear goals and metrics from the outset of the project and making sure each party fully understands their obligations in their fulfillment. Companies must also articulate exactly how contractors will be evaluated. From there, companies can write incentives into the contract for the timely and cost-effective work. For instance, if the goal is to complete the project in less than 60 days, companies can include clauses to their contracts that provide a monetary bonus for doing so.



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⁴https://obamawhitehouse.archives.gov/omb/procurement_guide_pbsc/#chapter1



The Capfx® Approach

Chemical processing plants can no longer afford to waste time, resources and money on smaller capital projects. Day & Zimmermann has developed a proprietary and strategic process for enhancing the execution of these endeavors. We call it the Capfx® approach. By applying this approach to every project, no matter how small, chemical processing plants can benefit for decades to come. While it may require an initial investment of time and resources, the long-term benefits will vastly outweigh upfront costs.

Reach out to us today to learn how our Capfx® approach can help your business.