

In Capital Projects, Structure Beats Heroics

Disciplined front-end planning, pragmatic stage gates, and portfolio visibility protect ROI and reduce disruption.

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Why do we count on heroics to accomplish some of the thorniest manufacturing undertakings?

Capital projects involve organizational alignment, financial risk, production, engineering and construction complexity, supply chain and service level disruption risks, and environmental, health and safety (EHS) impacts. When things go wrong, the outcomes are predictable: budget overruns, schedule slips, late-stage scope changes, extended commissioning timelines, poor integration into existing infrastructure and operations, slow start-up, delayed market access, and a diluted return on investment. Yet many manufacturers rely on overworked engineers, one-off plans, and reactionary problem solving to deliver capital work.

The good news is that you can prevent most of these negative outcomes. The organizations that consistently deliver capital work well don't rely on heroics. They operate with a repeatable, practical set of processes, protocols, portfolio governance, and tools that shape projects before major dollars are committed and before disruption hits the plant. This disciplined approach directs capital and resources to the highest-value initiatives, reducing waste, improving operational outcomes, and maximizing ROI.

This article shares practical insights from Integrated Project Management (IPM) consultants' recent client engagements, including what they have seen work—and what they've seen break—in capital project planning.



The Front End Is the Time to Resolve Uncertainty and Eliminate Risk

Many organizations treat the front end of capital projects as something to push through so the team can get to execution. But front-end planning—ideation, feasibility, scoping, budgeting, and early procurement—is where the most critical decisions get made. When you rush this work, the downstream execution team inherits uncertainty, which turns into change orders, rework, and delays, all of which result in significant costs.

On a recent capital project with a large, multisite metal fabrication company, leadership wanted to move equipment from a demolition site to another plant. In their desire to move quickly, the company scoped the effort using general timing and cost estimates and neglected to get detailed specifications from the recipient plant. When IPM was hired, the consultant analyzed the project to develop firm bids for cleaning, dismantling, transporting, installing, and starting up the machines, then initiated the work because speed was a priority. Importantly, the consultant also presented leadership with all the risks he was still evaluating to avoid uncertainty and potential changes, rework, and delays.

In another engagement, a life sciences company enlisted IPM to consolidate its headquarters and lab into a new facility. In this case, expectations, requirements, and even floor plans were well defined. Front-end planning helped streamline execution, resulting in conformance to budget, minimal construction delays, rapid commissioning, and on-schedule start-up.

Stage Gates Enable Objective Decisions Under Pressure

Stage gates give management the opportunity to make sure that everything that is in scope is being done, and to pressure-test the business case, risk profile, and strategic fit. But they get a bad reputation when they become paperwork checkpoints. In high-performing organizations, stage-gate models are practical, clear, and designed to answer one question: Do we have enough information to make a confident decision to move forward, right now?

Stage gates are particularly valuable when leaders feel pressure to move faster than the information supports. Capital planning often happens alongside production demands, customer commitments, capacity constraints, and changes in the competitive landscape or the economy. Executives must constantly balance urgency with risk. A well-designed gate helps leaders move quickly without betting the company on optimism. It makes decision tradeoffs visible and gives leaders a structured way to say, "yes, proceed," "not yet," or "proceed only if these conditions are met."

A good stage gate doesn't slow leaders down. It protects them from approving projects with hidden uncertainty. And it gives the project team clarity so they can execute.

At the life sciences company noted above, the project team provided cost estimates at the initial stage gate that were more than 20 percent higher than budget. Leadership reiterated the budget and gave the team time for re-engineering and vendor negotiation. Tradeoffs and risks were understood, so both the executives and the project team were confident at the next gate.



How Portfolio Visibility Prevents Capital Project Failure

Even a well-defined project will struggle if it competes with 10 others for the same shutdown window, engineering and R&D capacity, operations attention, and capital dollars. That's why some of the biggest improvements in capital performance come from improving how leadership prioritizes and sequences the project portfolio.

Leaders need a clear line of sight not only into how projects are progressing, but into which capital investments should enter the pipeline, when they should start, whether the organization can realistically resource them, and what tradeoffs they create across the business.

IPM sees a recurring pattern in multiplant environments. Companies plan projects individually, resulting in conflicts that develop during execution, when corrective actions become expensive. The organization calls it an execution issue, but the root cause is often project portfolio and resource alignment.

You don't need a massive portfolio transformation to fix this. A practical starting point:

- One enterprise view of active and proposed capital work
- A simple way to see timing windows, resource demand, and key risks
- Clear decision-making criteria, owners, and escalation paths
- A recurring checkpoint cadence focused on project portfolio alignment, decisions, and exceptions, not just status updates



The goal is not to create more meetings. The goal is to surface conflicts, risks, and tradeoffs early, so the project teams and plants can negotiate resolutions and improve execution reliability and confidence.

On a recent engagement at a utilities equipment manufacturer, IPM built a portfolio to provide visibility into overlapping projects and resources. In a newly established checkpoint meeting, a manufacturing executive, whose team was trying to optimize a line to increase efficiency, learned about an R&D project to re-engineer a subcomponent to be easier to manufacture. The product changes would address the noted inefficiencies and negate the need for a separate optimization effort. The portfolio review prevented manufacturing from continuing an unnecessary project.

Collaboration Tools Can't Fix a Broken System

Tools amplify whatever system you already have. If you have clear gates, consistent definitions, budget management processes, and a structured portfolio view, software becomes a force multiplier. The right tools can strengthen decision-making by improving visibility, flagging exceptions earlier, and clarifying accountability.

However, if your front-end process and governance are unclear, and cross-functional leaders aren't aligned, software won't fix it. It will just digitize confusion.

IPM has supported clients who wanted better transparency and governance but had security policies, IT architecture, or corporate standards that limited what tools they could use, preventing them from getting the full benefits of the technology. In a recent engagement with a manufacturer, the team wanted to implement a modern collaboration platform. But the organization required the front-end capital planning work to remain inside existing Excel-based templates. The restriction not only increased administrative effort, but it also made it harder to maintain a single source of truth.

Start Improving Decisions, Without Creating Too Much Bureaucracy

For most organizations who want to improve their capital projects execution, the best path forward is direct:

- *Assess the current capital planning process.*
- *Define a stage-gate framework with clear deliverables and decision rights.*
- *Create a streamlined, fit-for-purpose portfolio process and governance.*
- *Pilot the approach on one or two projects, refine, then scale.*

Capital projects are investments in the future. When the work is complex and urgent, the organizations that win are rarely the ones that push harder. They are the ones that implement a clear capital project structure, then execute accordingly.



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