



5 common time management pitfalls in EPC projects and how to avoid them

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Despite best efforts, time overruns remain a significant challenge for many Engineering, Procurement and Construction (EPC) projects, potentially leading to delays, cost escalation, and even [legal disputes](#). This article explores the common time management pitfalls in EPC projects and suggests strategies to avoid them.

EPC projects are a popular contracting method used in large-scale infrastructure developments, including oil and gas, energy, and civil engineering sectors. EPC projects are typically structured as turnkey contracts, where the contractor delivers a fully operational facility. Due to their complex and interdisciplinary nature, EPC projects require stringent time and schedule management to ensure successful delivery.

5 common time management challenges for EPC projects

1. Inaccurate time estimation and scheduling

One of the most pervasive issues in EPC projects is the inaccurate estimation of timelines during the planning phase.

EPC projects often span several years and involve multiple stakeholders, leading to complexities in forecasting the time required for various tasks. Unrealistic scheduling often results from optimism bias, where contractors underestimate the time and resources required for critical activities, such as design, procurement, or construction.

An inaccurate time estimate can cascade into future phases, especially when the [Critical Path Method \(CPM\)](#) is used to schedule tasks. Activities on the critical path, if delayed, will inevitably

affect the overall project schedule. Additionally, insufficient buffers for non-critical activities can cause unforeseen delays to compound, further derailing the project timeline.

How to avoid poor time estimations

Contingency buffers

Incorporating appropriate time buffers for key activities can help mitigate risks related to unexpected delays. Buffers provide flexibility without significantly impacting the overall project duration.

Detailed pre-construction planning

Effective pre-construction planning should involve comprehensive feasibility studies and consultations with all project stakeholders. This ensures that timelines are based on realistic data, past experience, and lessons learned from previous projects.

Use of simulation tools

Modern project management tools, such as Building Information Modelling (BIM), allow project managers to model various scheduling scenarios and evaluate potential risks. By incorporating such tools, project managers can more accurately estimate durations and set achievable milestones.

1. Inefficient resource allocation

Resource management is integral to schedule management in EPC projects, and improper allocation of resources often leads to bottlenecks in project timelines.

Resource constraints, such as the unavailability of skilled labour, materials, or equipment, can delay construction activities and extend the project's duration. This is particularly true for the procurement phase, where supply chain disruptions, late deliveries, or material shortages can stall the construction process.

Additionally, the practice of "resource smoothing" or "resource levelling," where resources are distributed evenly over the duration of the project to avoid peaks in demand, can lead to inefficiencies if not properly managed. This method can elongate the schedule if resource limitations are not identified early on.

How to avoid resourcing issues

Advanced procurement planning

One key mitigation strategy is to develop a robust procurement plan early in the project lifecycle. By identifying long-lead items and working with reliable suppliers, project managers can avoid procurement-related delays.

Using resource management tools

Modern project management software, such as Primavera P6 or Microsoft Project, includes resource management features that allow project managers to track the allocation and availability of resources in real-time. This ensures that critical resources are assigned to high-priority tasks, preventing bottlenecks.

Collaborative scheduling

Engaging with contractors, suppliers, and other stakeholders in collaborative scheduling helps to align resource availability with the project timeline. Joint planning and transparency can reduce the risk of resource conflicts and delays.

1. Poor communication and coordination

The multidisciplinary nature of EPC projects requires clear communication and coordination among various teams, including engineering, procurement, construction, and subcontractors. Failure to establish effective communication channels can result in delays, as misaligned priorities or unanticipated issues may not be addressed in a timely manner.

For instance, engineering and design changes that are not communicated promptly to the procurement or construction teams can delay the entire project. Similarly, construction activities may stall if procurement teams are unaware of material shortages or delivery delays.

How to avoid the pitfalls of poor communication

Frequent coordination meetings

Regular coordination meetings, whether virtual or in-person, between key project teams can ensure that potential risks are identified early and corrective actions are implemented. A clear communication protocol should be established at the outset, specifying how changes are documented and communicated across departments.

Appointing a dedicated scheduler

Many EPC projects benefit from appointing a dedicated scheduler or schedule controller, whose role is to monitor the timeline, coordinate between teams, and flag any potential issues that may affect the schedule.

1.Scope creep and unmanaged change orders

Scope creep, where project requirements grow beyond the original contract, is another common cause of time overruns in EPC projects.

Often, the client may request additional features or modifications, which, while necessary, can significantly extend the schedule. Failure to manage these changes effectively can lead to rework, redesign, and rescheduling, ultimately delaying the project.

Change orders that are not properly vetted or approved can also lead to confusion, as different teams may begin working based on conflicting instructions. This lack of clarity disrupts the project flow, causing time overruns.

How to avoid issues related to scope creep

Strict change management procedures

Implementing a formal change management process is essential to controlling scope creep. All change requests should be documented, reviewed, and approved by key stakeholders before implementation. This ensures that changes are properly evaluated for their impact on the project timeline and budget. And, of course, if approved, timely communication to all teams is essential.

Clear scope definition

During the project's planning phase, it is crucial to establish a clear and comprehensive project scope. Any ambiguity in the initial scope is likely to lead to disputes or delays as the project progresses. A well-defined scope, with measurable deliverables, helps to prevent unnecessary changes.

Contingency planning for change orders

While change orders are inevitable in large-scale EPC projects, incorporating a contingency plan for potential changes can help mitigate their impact. Setting aside time and resources to accommodate change orders can prevent these alterations from derailing the entire schedule.

1.Inadequate risk management

Failure to adequately [assess and manage risks in EPC projects](#) can lead to significant time overruns.

Common risks in EPC projects include environmental hazards, regulatory approvals, and geopolitical issues that may affect procurement and logistics. Without a proactive risk management strategy, these factors can cause unanticipated delays, forcing the project to fall behind schedule.

In addition, external factors such as contractor insolvency, labour strikes, or regulatory compliance issues may emerge during the project lifecycle, further complicating time management.

How to avoid it

Comprehensive risk assessment

Before project execution, conducting a thorough risk assessment is essential to identifying potential threats to the schedule. The use of risk matrices and other assessment tools can help rank risks according to their probability and potential impact.

Regular risk reviews

Risk management is not a one-time task. Continuous monitoring of project risks is necessary, with regular reviews of the risk register to ensure that new risks are identified and mitigated promptly.

Insurance and legal safeguards

EPC contracts should include provisions for risk mitigation, such as insurance for key activities and legal clauses to handle force majeure events or other unforeseen circumstances. Such safeguards can provide financial protection and enable contractors to respond quickly to schedule disruptions.

Get help from a lawyer with EPC experience

In EPC projects, time management issues can easily turn into legal disputes or financial liabilities. Wambeti Legal can assist you by playing a crucial role in time management for your project by:

- ensuring that your construction contract includes clear drafting of timelines and milestones to ensure all parties understand the time-related obligations;
- helping you to define force majeure events and delay clauses that are relevant to your project;
- helping ensure the contract terms align with local laws and industry standards, reducing the risk of ambiguities that may lead to disputes;

- assisting you in implementing a formal change order process, ensuring that any modifications to the project's scope, time, or cost are documented and approved by all stakeholders;
- reviewing and negotiating change orders, ensuring they are reasonable and do not impose unnecessary delays.

Contacting Wambeti Legal

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Further reading for EPC projects

- [Effective contractual mechanisms in Engineering, Procurement and Construction \(EPC\) projects](#)
- [The adversarial nature of EPC contracts in construction projects](#)
- [Contract negotiation strategy](#)

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