

Detailed planning, scheduling key to avoiding power project cost overruns

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Cost overruns and schedule delays are key concerns for developers of infrastructure projects across Africa. As global competition for capital heats up, the ability to ensure large-scale projects will be delivered on time and on budget will be key to meeting the continent's growing need for reliable power, water and transportation infrastructure.



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To meet client and government expectations, engineering, procurement and construction (EPC) providers are combining new technology with decades of experience to ensure projects are on track and stay on course from digging the first hole to commissioning.

A 2017 Ernst & Young (EY) report shows that project delays are found across the globe. According to the report, even with its mature construction sector, North America fares among the worst regions, historically, at controlling schedules and cost of capital projects. A similar 2016 EY report, focusing on oil and gas infrastructure projects, showed projects in the Middle East were among the most prevalent with cost overruns while in Africa, 82% of projects faced schedule delays.

It's important to evaluate how power project delays and cost overruns can be prevented. While they can often be attributed to a number of factors - spanning from the integration of capital project technologies to economic variations such as inflation – it's often found that schedule and budget overruns are as a result of poorly planned and executed project schedules.

Detailed project plans and schedules set the baseline for how costs are incurred over a project's lifespan. These comprehensive timelines, when meticulously developed, also give shareholders, such as bankers or financiers, assurance that every detail within the project has been given due consideration. A lack of insight and confidence into the project plan is a key barrier to the deployment of project capital across the continent.

The case for detailed scenario plans

A project plan and schedule outlines the entire scope of work and helps track progress against incremental goals. Project milestones should also encompass safety, quality, schedule and cost. Past project experience in certain regions can be

advantageous for factoring in local dynamics such as workforce experience, community leadership and economics. Most plans are developed with a focus on a certain execution philosophy. When conditions change during the execution phase, as they always do, contingencies – put in place for varying scenarios during the planning phase – ensures the project progresses unhindered.

This plan not only prioritises EPC tasks and establishes how to reach a completion goal, but also identifies potential risks and proposed mitigation measures. Utilising a risk-based framework allows the execution strategy to flexibly adapt to project hurdles and minimise impacts on overall project time and budget.

It is important to set a schedule that features a plan and timeframe and assigns resources as needed. A streamlined resource requirement plan helps keep costs to a minimum by predicting and planning for workload peaks and valleys. Intelligently forecasting resource levels, including qualified staff requirements for general contractors, subcontractors and other execution team members, will ensure performance is monitored by the most qualified professionals in each phase.

Innovative software and IT applications harnessing project data from across the globe can also help refine schedules by more effectively forecasting milestone timelines and future cost trade-offs. These tools also allow all project teams to view the schedule in its current state to help ensure all professionals are aware of the project updates, implementation processes and understand their respective roles in meeting deliverables on time.

A collaborative effort

Project schedules should be developed collaboratively – from conception through operations - to ensure stakeholder buy-in and input. It can take a fair amount of time for schedules to be developed. For example, the thousands of steps found in a detailed coal project schedule can take anywhere between three to four months to compile.

Due to varying degrees of inputs, a schedule often needs to be revisited often to ensure it fits in with current project milestones. Fluid modifications based on real-time data and conditions help ensure that the project follows its sequence – meeting major and intermediate project goals while factoring in the interplay of resource availability, performance, environmental considerations and the risks associated with the variables.

ABOUT THE AUTHOR

Joseph Mahendran is regional manager for Black & Veatch South Africa. He develops and maintains client relationships, has worked in project management for more than two decades internationally and across multiple industries. With experience in both traditional engineering, EPC and turnkey operations, he specialises in project controls, strategic and risk management, competitor analysis, change management and advanced statistical analysis.