

Every planning decision is a capital allocation decision

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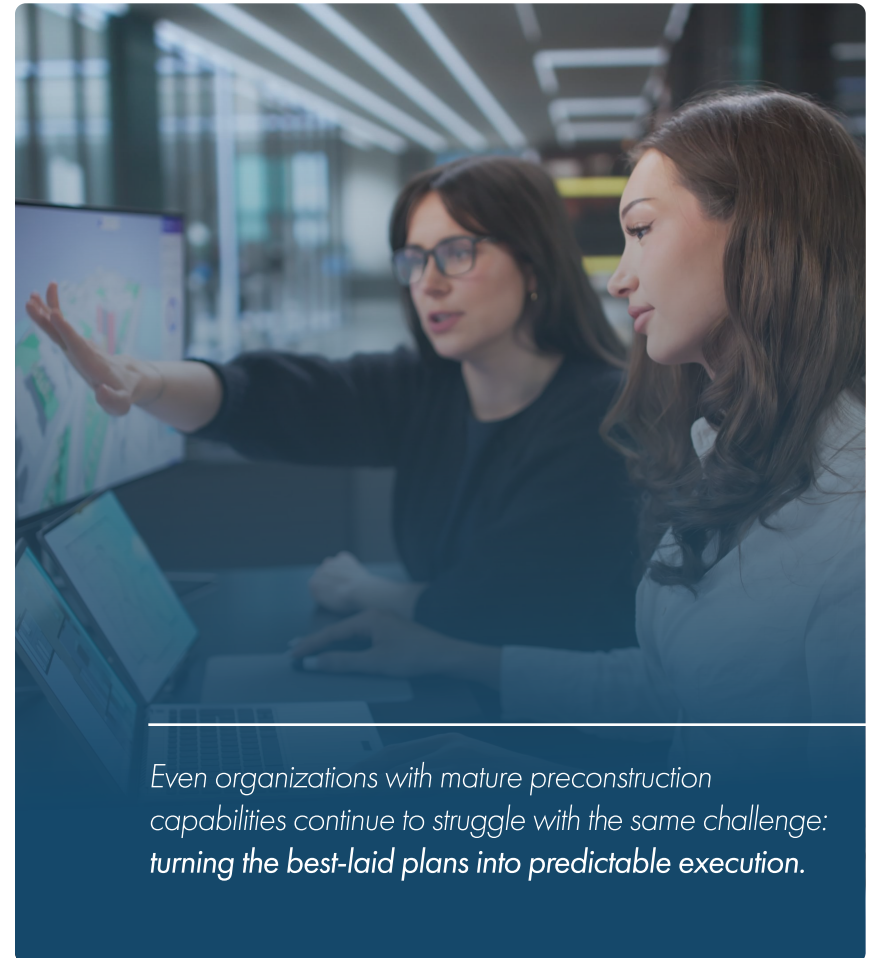
The state of the art for utility infrastructure planning is advancing every day. Today, planning solutions embracing advanced optimization, geospatial intelligence and artificial intelligence can balance cost, constructability, competition, permitting constraints, labor availability and long-term network performance with remarkable precision. As a result, the planning function has evolved from high level route analysis to detailed designs that are ready to be built.

However, while planning has advanced, deployment outcomes have improved far more slowly.

McKinsey continues to report that major capital projects routinely exceed budgets and schedules. FMI estimates that more than half of construction rework stems from poor project information and communication rather than planning and engineering deficiencies. Even organizations with mature preconstruction capabilities, which experience significantly less rework than their peers, continue to struggle with the same challenge: turning the best-laid plans into predictable execution.

The disconnect raises an important question. If planning has become increasingly optimized, why does so much of that value fail to reach the field? Moreover, as organizations rely more and more on the planning process to make significant capital allocation decisions, how can the chain of execution be so broken?

The answer may be that we've been measuring planning by the wrong standard.



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McKinsey
& Company

“ 98% ”

of megaprojects **exceed budgets by more than 30%**, and 77% are at least **40% behind schedule**. ”

“ 50%+ ”

of construction rework is caused by **poor project information and communication**, not planning or engineering deficiencies. ”



Planning is more than a design function.

Every route selected, every material specified, every sequencing decision and every constructability tradeoff determines how capital will be deployed, where risk will be assumed, how efficiently crews can execute and, ultimately, how quickly an investment begins generating returns. The drawings themselves are simply the vehicle used to communicate those decisions.

Seen through that lens, planning becomes far more than a design function. It becomes one of the earliest and most consequential business decisions an organization makes. Long before the first crew mobilizes, planning has already established the assumptions that will determine cost, schedule, productivity, quality and return on investment.

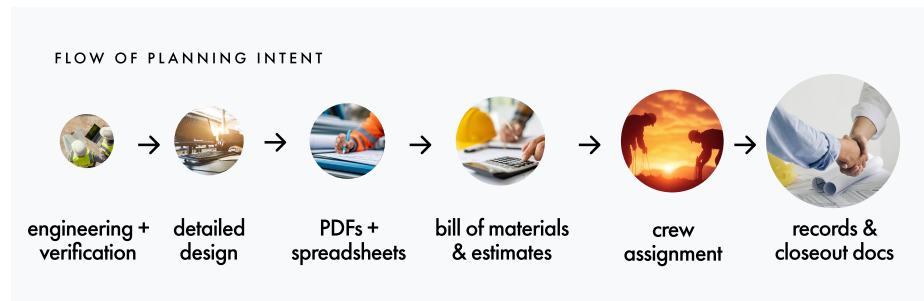
The real question, then, isn't whether those decisions are sound. It's how they can survive long enough through the deployment process to influence execution.



Infrastructure doesn't lose value in construction. It loses value in translation.

The industry often describes the transition from planning to construction as a handoff. That description understates what's actually happening.

Construction rarely begins with the planning model itself. Instead, planning intent is translated from one system to another and from one team to the next. Detailed engineering, field verification, and make-ready work evolve plans to detailed designs which inevitably become work prints, often in PDF format, paired with spreadsheets to document the bill of materials and quantity estimates. Those artifacts influence daily crew assignments, and the crew's field observations become photographs, inspection records and closeout documentation.



Every one of those steps serves a purpose. Every one also introduces interpretation, with little accountability to the original decisions made at the planning stage. Those decisions gradually become separated from the work being performed in the field, not because anyone intended to change them, but because each translation creates opportunities for assumptions to drift. Small adjustments made to accommodate field conditions, schedule pressures or operational realities often happen without anyone understanding their cumulative impact on the original plan.

By the time those differences surface during quality reviews, closeout or billing, the organization is no longer managing execution against the original plan. It is simply explaining why it was necessary to close out the work.

That distinction matters.

The industry hasn't spent decades losing value because planners failed to make good decisions. The challenge has been that those decisions have not been continuously reconciled to the original plan as work progressed.



Closing the gap between the planned and actual network.

This is why reconciling the planned versus actual network deployment deserves to be viewed differently.

Traditionally, the deviations between the planned network and the as-built one has been treated as a reporting exercise. They tell project teams whether production targets were achieved, and whether budgets and material consumption were within expected ranges. Those insights are important, but they describe performance after the network has been built.

The real strategic value lies in assessing these deviations in real time, as the network is being deployed. Because every planning decision represents an assumption about how capital should perform, the as-built network must adhere to the plan in order to effectively validate those assumptions.

For example:

Every planning decision represents an assumption about future business performance:

-  A route is selected because it is expected to reduce construction costs, accelerate deployment, or lower project risk.
-  A construction sequence is chosen because it is expected to improve crew productivity, reduce mobilizations, and shorten the schedule.
-  A material specification is approved because its long-term operational and financial benefits are expected to outweigh higher upfront costs.

Construction is where those assumptions are validated.

Viewed through that lens, reconciling planned versus actual deployment becomes much more than a measure of progress. It becomes the mechanism for continuously validating whether the economic assumptions embedded within the engineering design remain true as execution unfolds.

With this approach, critical questions can be answered daily to guide and manage the adherence to the original plan

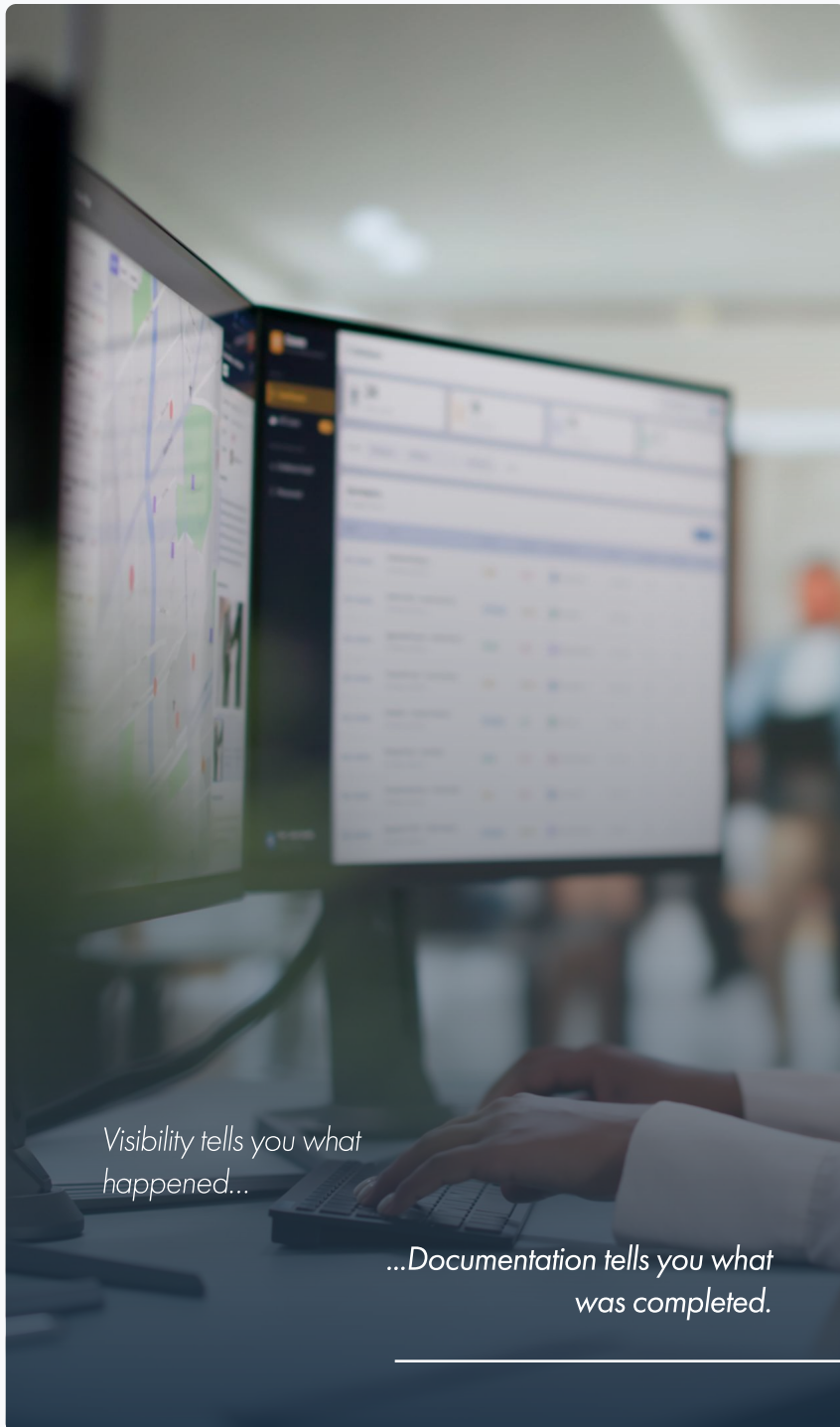


- Has field productivity changed?
- Has constructability changed?
- Have permitting constraints altered the original plan?
- Are crews still executing work in a way that reflects the planning decisions that justified the investment?

Those questions shouldn't be answered at project closeout. They should be answered every day.

Organizations rarely lose margin because of a single catastrophic event. More often, margin erodes gradually as dozens of small deviations accumulate unnoticed until they become expensive rework, delayed revenue recognition or prolonged project schedules.

Without continuous validation, organizations can no longer determine whether the assumptions that justified the investment remain true as execution unfolds.



*Visibility tells you what
happened...*

*...Documentation tells you what
was completed.*

Improving decisions, not documentation.

For years, the industry has invested in improving planning rigor. More recently, it has invested in digitizing construction processes. Both efforts have created meaningful progress towards delivering on capital investment decisions, but neither alone fully addresses the challenge of preserving planning intent throughout execution. Many platforms improve project visibility and documentation, and may automate workflows to improve efficiency. However, few systems continuously validate whether field execution still reflects the planning decisions that justified the investment in the first place.

That distinction is significant. Visibility tells you what happened. Documentation tells you what was completed, but only continuous validation tells you whether the work being performed is still aligned with the plan that optimized capital in the first place.

This is the philosophy behind the partnership between Biarri Networks and Render Networks.

Biarri helps operators make better planning decisions before construction begins, using optimization, scenario planning and constructability expertise to improve estimation of how capital should be deployed.

Render extends those decisions into execution. Through Render's Blueprinting process, approved engineering designs are directly transformed to an executable project rather than resorting to another document requiring interpretation. As work progresses, planned and actual quantities remain continuously connected, allowing planning assumptions to be validated against field reality in real time, while there is still time to act.

The outcome isn't simply better management. It's a shared responsibility that provides greater confidence that planning decisions persist throughout the construction and deployment process.

*The organizations that
outperform their peers will ensure
decisions become reality.*

The next competitive advantage.

The organizations that lead the next generation of critical infrastructure deployment won't simply make better planning decisions. They'll ensure those decisions remain true throughout execution.

They will replace disconnected handoffs with continuous validation, using integrated systems that continuously measure whether the assumptions established during planning remain true as work unfolds. Planned versus actual will no longer be viewed as a reporting metric. It will become the mechanism for validating whether capital is performing as intended.

Planning doesn't end when construction begins. Its value is realized only when the business assumptions established during planning continue guiding execution until the asset is placed into service.

Organizations that can continuously validate those assumptions gain more than operational visibility. They identify risks sooner, intervene before small execution variances become financial variances, and create greater confidence that capital will deliver the outcomes it was intended to achieve.

