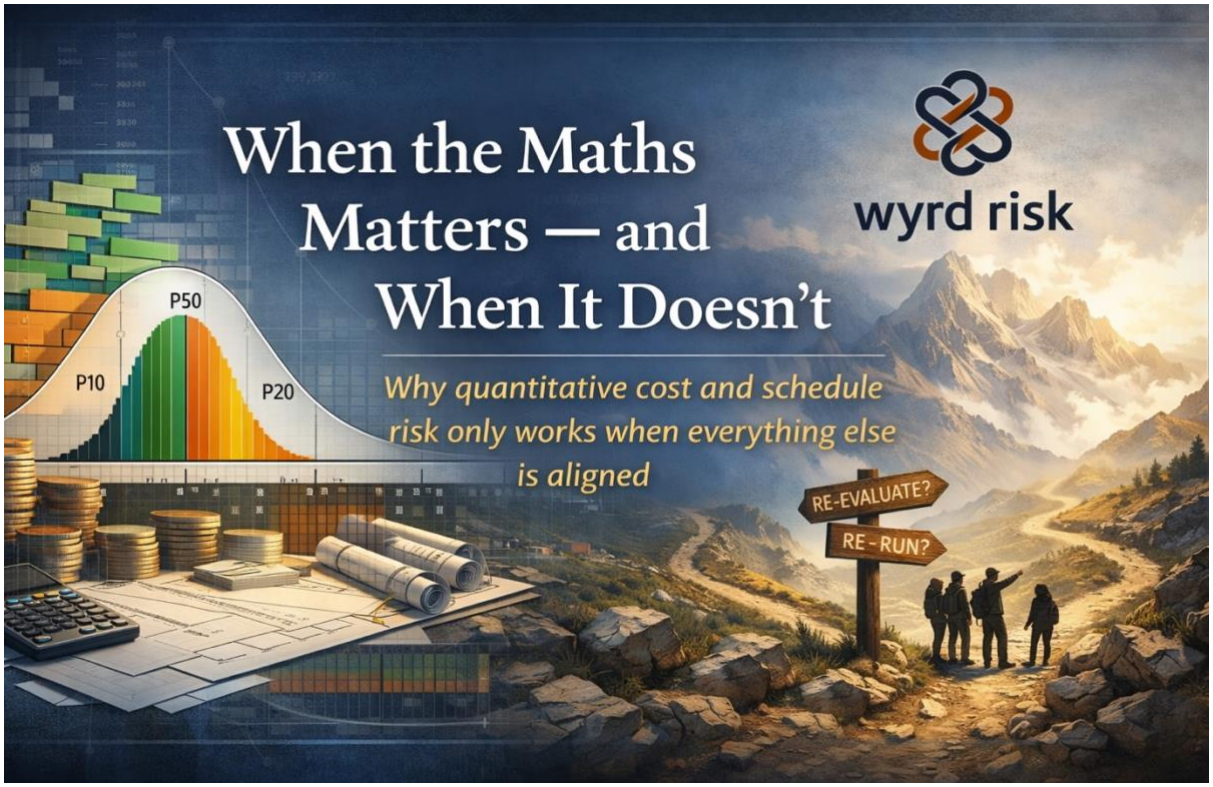

Why quantitative cost and schedule risk only work when everything else is aligned

A key insight from recent thinking on risk and decision-making is that the value of quantitative cost and schedule risk analysis depends entirely on how well the organization is aligned. Many organizations put a lot of resources into quantitative cost and schedule risk analysis. They build complex models, run simulations, and present the results with care. Yet the decisions that follow often remain much the same. This leads to an important, if uncomfortable, question:

If strong technical analysis rarely changes outcomes, the real problem is usually somewhere else, often in a mismatch between the analysis and the organization's environment.

Quantitative analysis is not the problem

There is nothing inherently wrong with quantitative risk analysis. Used well, it can:

- expose uncertainty that deterministic plans hide
- challenge false confidence
- show the range of plausible outcomes, not just the most optimistic one

When used in the right context, it can be a powerful tool to support decisions. The problem is rarely poor modelling. More often, it's a lack of alignment between the analysis and the organization's environment.

The hidden assumptions behind the numbers

Quantitative cost and schedule analysis rests on a set of assumptions that are rarely made explicit. For the results to be meaningful, several things need to be true:

- the underlying plan reflects how work will actually be done
- estimates are grounded in experience rather than aspiration
- scope is reasonably stable, or consciously variable
- dependencies are understood and realistically represented
- risk identification has been done at the level of causes, not just outcomes
- leadership is genuinely open to uncomfortable results

When these conditions are missing, it's not the maths that fails, but the context.

The real cost is not the model — it's the alignment

A widespread misconception is that quantitative analysis is mainly an analytical investment, when in reality its true value lies in aligning the ongoing organisational focus with the modelling process. In reality, the largest investment is ongoing organisational time and attention. Doing quantitative cost and schedule risk well requires sustained involvement from:

- planners and schedulers
- cost engineers and estimators
- delivery leads and subject-matter experts
- risk specialists
- and leaders who must engage with, and act on, the outputs

This is not a one-off exercise. It involves continually:

- challenging assumptions embedded in plans
- revisiting logic, sequencing, and dependencies
- refreshing estimates as learning accumulates
- aligning risk identification with how work is actually unfolding

We often see organisations underestimate this commitment. Quantitative analysis is treated as a product to be delivered, rather than a shared, evolving model of reality.

Re-running the model is not the same as re-evaluating it

Most organisations are good at measuring progress:

- updating percent complete
- tracking spend against budget
- reporting variance against plan

Far fewer regularly ask whether the model itself still reflects reality.
Re-running a model answers: *Where are we now, assuming nothing else has changed?*
Re-evaluating a model asks: *Is this still the right representation of how work will unfold?*
That distinction matters. As work progresses:

- assumptions are invalidated
- behaviours change under pressure
- new risks emerge while others fade
- plans are resequenced or compressed

Unless these shifts are consciously reflected, the model ages — even if it is updated every reporting cycle.

Keeping the model valuable requires periodic re-evaluation, not just recalculation.

When re-evaluation becomes essential

There are predictable moments when the model deserves renewed scrutiny:

- when core assumptions no longer hold
- when the plan changes materially
- when new risks emerge or old ones evolve
- when behaviours shift in response to pressure
- when significant decisions are about to be made

At these points, continuing to rely on an unchanged model creates false confidence. Often, by the time numbers show discomfort, the real situation has already changed.

Cost and schedule are not just technical variables

A frequent mistake is treating cost and schedule risk as mathematical problems. In reality, they are shaped just as much by:

- incentives and performance measures
- governance and approval processes
- contractual and commercial structures
- organisational tolerance for bad news
- how escalation is received

A Monte Carlo simulation cannot compensate for a culture that rewards optimism or punishes early realism.

The greatest sources of uncertainty often sit outside the model.

Where quantitative analysis genuinely adds value

When the conditions are right, quantitative analysis can be extremely powerful. What we often see in effective use cases is:

- early and continued involvement from planners, estimators, and delivery teams
- clarity about which decisions the analysis is meant to inform
- openness to revisiting assumptions, not just outputs
- integration of quantitative results with narrative explanations of why outcomes are shifting

In these environments, the maths does not replace judgement — it supports it.

Quantitative analysis adds value when integrated with ongoing engagement and narrative context.

From precision to preparedness

One of the quiet traps of quantitative analysis is the pursuit of precision. Ranges narrow, models grow detailed, and confidence seems to rise. But resilience does not come from tighter numbers. It comes from:

- recognising when reality diverges from assumptions
- understanding which drivers matter most
- knowing what options remain available as uncertainty unfolds

From a **wyrd risk** perspective, the value lies less in predicting exactly when something will happen and more in being prepared for how it might unfold.

A better framing

Rather than asking: *How accurate is this analysis?*
A more useful question is: *What does this analysis help us notice earlier — and what choices does it open or close?*
When quantitative work is framed this way, it becomes a tool for sense-making rather than just forecasting.

Clarity supports better decisions than mere precision.

A final question worth asking

There is one question that sits beneath all quantitative cost and schedule analysis, but is rarely asked explicitly: *If we do not have the time, capacity, or organisational willingness to continuously re-evaluate this model, is it worth building it in the first place?*

This is not a technical question. It is a leadership question.

A quantitative model that is built once, updated mechanically, and rarely re-examined does not simply become less accurate over time. It becomes misleading. What we often see is that such models:

- outlive the assumptions they were built on
- continue to be referenced long after reality has shifted
- provide reassurance rather than insight

In these cases, it is not a matter of using quantitative analysis imperfectly—it is about a lack of alignment between the model, its assumptions, and evolving organisational reality.
It is using it in a way that creates false confidence — even if unintentionally.

When restraint is the more responsible choice

The decision to build a quantitative model should be deliberate. It is worth the investment when the organisation is prepared to:

- revisit assumptions openly
- involve planners, estimators, delivery teams, and leaders over time
- allow uncomfortable results to influence decisions
- re-evaluate the model when the story changes, not just re-run it

If your organisation cannot fully commit to sustained engagement, honest discussion, and regular re-evaluation, make a deliberate choice. Pause before proceeding with heavy modelling. Decide if these conditions can be met—and, if not, consider focusing effort elsewhere.

This is not a rejection of rigour It is an acknowledgement that rigour without honesty is performative.

Simpler tools, used well

Choosing not to rely on complex quantitative models does not mean abandoning discipline. In many environments, greater value comes from:

- clear, cause-based risk narratives
- explicit discussion of key assumptions and their fragility
- scenario ranges rather than precise distributions
- early warning signals and escalation clarity
- preparedness and response, not just prediction

These approaches are often easier to revisit as conditions change — and more closely aligned to how decisions are actually made.

The Wyrd Risk view

Quantitative analysis is not a badge of maturity. The true indicator of maturity is not the presence of quantitative analysis, but the hard-won alignment between intent, capacity, and behaviour.

Commit to keeping models meaningful, or choose more practical, simpler tools—do not settle for halfway measures. Make a clear choice and build genuine clarity into your approach. The key takeaway: effectiveness comes from alignment and maintainable practices, not technical complexity alone.

The goal is not to model uncertainty away: it is to make uncertainty clear enough to enable a decision to be made.