



CMCS INSIGHTS • CLAIMS

Construction Contract Claims

How contemporaneous PMIS records change the economics of claims: documentation quality, forensic scheduling, quantum and the Engineer's determination.

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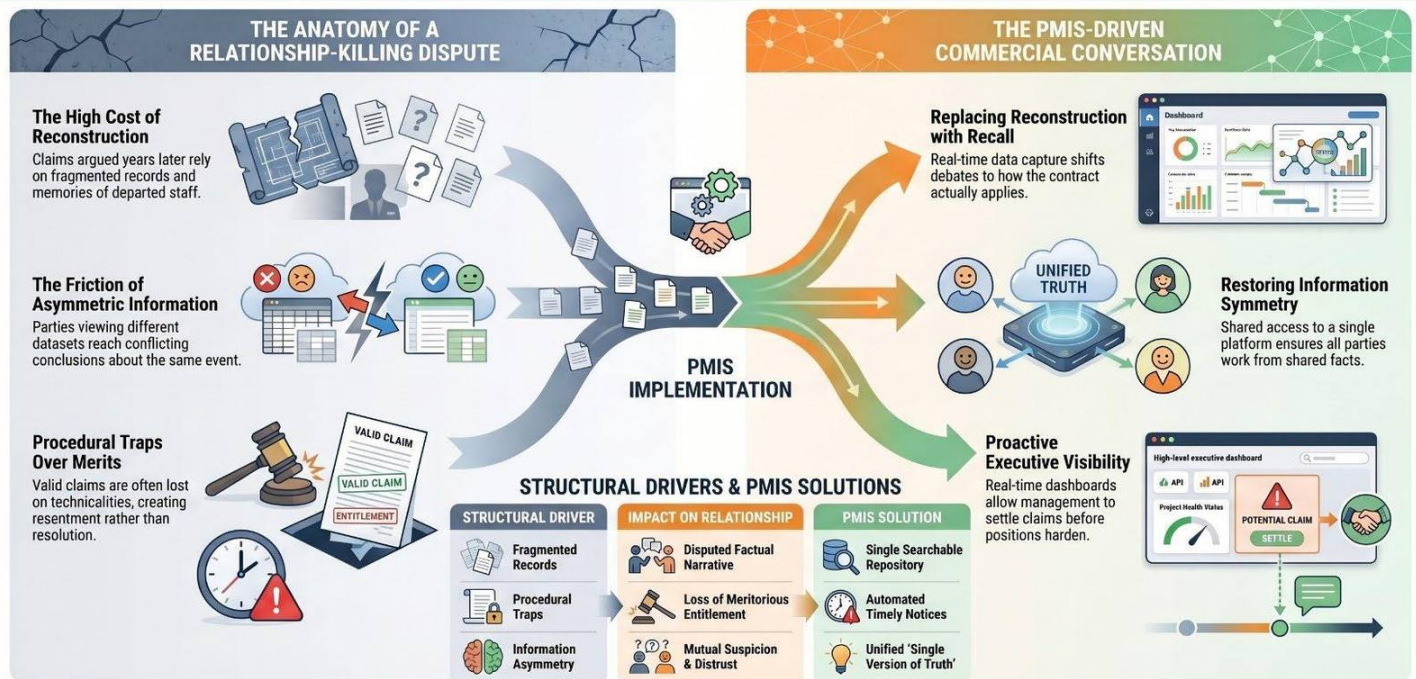
ARTICLE 1 OF 10 — CONSTRUCTION CLAIMS SERIES

Beyond Adversarial: How PMIS-Driven Documentation Transforms Construction Claims from Relationship Killers into Structured Commercial Conversations

Construction claims are no longer occasional events on capital projects. They are a structural feature of how the industry works. The question is not whether claims will arise but whether the parties will navigate them as a structured commercial conversation or as a relationship-destroying dispute. The infrastructure that decides this outcome is, in almost every case, the project's documentation system.

FROM DISPUTES TO CONVERSATIONS: HOW PMIS RESHAPES CONSTRUCTION CLAIMS

Traditional construction claims are "relationship killers" driven by fragmented data, information asymmetry, and procedural traps. By implementing a PMIS, firms transform these disputes into "commercial conversations" through a unified version of the truth and real-time visibility.



The Quiet Cost That No One Reports

If you ask a project owner to list the costs of a construction claim, the list is usually predictable. There is the disputed amount itself. There is the legal and consultancy spend on preparation, response and, if matters escalate, expert reports and tribunal fees. There are the management hours absorbed by the claim that should have been spent on the next project. On larger programmes, there is the financing cost of money tied up in disputes for years.

All of these costs are real and material. But they are not the largest cost, and they are not the one that quietly damages the project owner's long-term strategic position. The largest cost is relational. It is the slow erosion of trust between the project owner and the contractor — and, very often, between the project owner and the consultants engaged to manage the contract on the owner's behalf. By the time a major claim has been argued out, the parties involved have, in most cases, stopped behaving as commercial partners and started behaving as adversaries.

This shift in behaviour is far more expensive than the disputed amount on the claim. It changes how the contractor prices the next bid from the same client. It changes how forthcoming the project team is with early-warning information that the owner needs in order to decide. It changes the willingness of both sides to make pragmatic, reasonable trades on small issues, because every small issue is now suspected of being the prelude to another claim. It changes the tone of every meeting for the remaining duration of the project and, often, for the duration of the relationship between the two organisations.

This is the hidden cost of badly managed construction claims, and it is a cost that almost no project owner attempts to measure. But every executive who has been responsible for a delivery programme of any size knows it intimately. It is the reason why otherwise rational organisations spend disproportionate sums on disputes that, on a strict commercial analysis, they should have settled months earlier. The dispute has stopped being about the money. It has become about the relationship.

Why Construction Claims Behave This Way

Construction claims are uniquely well-designed to damage commercial relationships, and the reasons are worth setting out plainly because they explain why the documentation infrastructure of the project matters so much.

The first reason is that claims are usually argued long after the events they describe. A delay event that occurred in month four of a four-year programme may not be quantified and submitted as a claim until month thirty. By that point, most of the individuals who were on site when the event occurred have moved on. The site manager has been promoted. The planner has joined another contractor. The owner's representative has retired. The people now arguing about what happened are, in almost every case, people who were not there. They are working from documents.

The second reason is that the documents they are working from are usually incomplete. On any reasonably sized capital project, the volume of correspondence, instructions, requests for information, submittals, daily reports, meeting minutes, photographs, drawings, schedule updates, progress invoices and emails generated over the project duration runs into the hundreds of thousands of records. When those records are scattered across personal email inboxes, shared drives, contractor and consultant filing systems, archived back-up tapes and the memory of individuals who are no longer employed by any of the project parties, the chance of reconstructing a coherent factual narrative is small. The chance of the two sides reconstructing the same coherent factual narrative is smaller still.

The third reason is that the contracts under which most capital projects are delivered — FIDIC, NEC, bespoke government forms, EPC frameworks — impose strict notice periods, contemporaneous record requirements and procedural conditions on the right to claim. A perfectly meritorious claim can be lost on the technicality that the notice was issued one day late, or that the supporting records cannot be produced, or that the entitlement was

not articulated under the correct sub-clause. When those technicalities decide the outcome, the losing party rarely accepts the result with grace. The relationship has been damaged not by the merits of the dispute but by the procedure surrounding it.

The fourth reason is that the parties are working from different information. The contractor's commercial team has access to the contractor's daily reports, the contractor's resource records, the contractor's internal correspondence with subcontractors and the contractor's view of the schedule. The owner's team has access to a different and partially overlapping set of records. The consultant has yet another set. When the same underlying event is described from three different documentary perspectives, three different conclusions are inevitable — and each side believes its own version.

The four structural drivers of claim-related relationship damage — historical reconstruction, fragmented records, procedural traps and asymmetric information — are not problems of contract law. They are problems of documentation infrastructure. They cannot be solved by drafting better contract clauses. They can only be solved by building better information systems.

What a PMIS Like PMWEB Actually Changes

A project management information system, properly implemented, does not eliminate construction claims. Claims will still arise on every project of any meaningful complexity. What a PMIS changes is the conditions under which claims are argued. It changes them in five specific ways, each of which alters the commercial and behavioural dynamic between the parties.

It Replaces Reconstruction With Recall

When every formal project record — every daily report, every request for information, every transmittal, every meeting minute, every change request, every progress invoice, every photograph attached to a site instruction — is captured at the moment it is generated, into a single platform that all authorised parties can access, the question of what happened on a particular

date thirty months ago stops being a matter of reconstruction and becomes a matter of recall. The system already knows. It knows what the weather was on that day, who was on site, what work was completed, what resources

were deployed, what events were reported, what photographs were taken, what correspondence was issued and what schedule activities were affected. The two sides may still disagree about the legal characterisation of those facts, but they no longer disagree about the facts themselves.

This is the single most important behavioural shift that a properly implemented PMIS produces. Once the factual narrative is no longer in dispute, the conversation between the parties changes. It moves from "that is not what happened" — which is a personal, almost insulting accusation — to "we agree on what happened, and we disagree on whether the contract entitles you to compensation for it," which is a structured commercial conversation that two reasonable organisations can have without permanent damage to their relationship.

It Forces Notices to Be Timely

Most contractors who lose meritorious claims on procedural grounds lose them for the same reason: the notice was not issued in time, or the notice was issued in the wrong form, or the notice did not identify the contractual basis for the claim with sufficient precision. These failures are almost never deliberate. They are the result of a system in which the people who first observe the claim

The screenshot displays the PMWEB software interface. On the left is a dark green sidebar with a menu containing: Plans, Forms, Costs, Schedules, Assets, Workflows, Portfolio, Tools, Recent Records, Search, and PMWEB University. The main content area shows a workflow for 'RV50104 - Boston Medical Center' with the status 'Returned (Step 2 of 4)'. Below this, a 'Business Process: 01 - WF-000001 Cost Estimate Approval' is shown. The 'Progress' section indicates the current step is 'Step 2 of 4' (GM Development Manager) and the furthest step is 'Step 3 of 4' (Director). A 'Last Activity' box shows a return by Bassam Samman (admin) on October 8, 2018. Below this is a 'Log' section with a table of activities.

Step	Due Date	Role	User	Image	Action	Action Date	Signature	Action	Delegate	Team In...
1	Jul-31-2011	Project Acco...	Bassam Samman(admin)		Submit	Jul-26-2011 12:11 PM	<i>Bassam Samman</i>	Submit		
2	Jul-31-2014	GM Develop...	Bassam Samman(admin)		Approve	Jul-26-2011 12:12 PM	<i>Bassam Samman</i>	Approve		
1	Jun-25-2014	Project Acco...	Bassam Samman(admin)		Return	Jun-20-2014 03:19 PM	<i>Bassam Samman</i>	Return		
1	Jun-25-2014	Project Acco...	Bassam Samman(admin)		Approve	Jun-10-2015 11:39 AM	<i>Bassam Samman</i>	Approve		

event — the site engineer, the foreman, the planner — are not the people who know the contractual notice obligations, and the people who know the contractual notice obligations are sitting in a head office somewhere and only learn about the event days or weeks after it occurred.

A PMIS configured for proactive claim management closes this gap. The site team captures the occurrence as soon as it happens, on a structured form that asks for the specific information the contracts and commercial team will need. The system routes the form, automatically and immediately, to the contracts and commercial team for action. The contracts and commercial team prepares and issues the formal notice within the contractual time bar, using a pre-approved template that articulates entitlement under the correct sub-clauses. The whole sequence, from observation to notice, can be completed in hours rather than weeks. Procedural traps stop being a structural feature of the project.

It Restores Symmetric Information

When the project owner, the contractor and the consultant are all working from the same documentation platform, the asymmetry of information that drives so many disputes simply disappears. Both sides see the same daily reports. Both sides see the same schedule. Both sides see the same instruction. Neither side can plausibly claim ignorance of a record that the system clearly shows was issued, transmitted, viewed and acted upon. The

result is that meritorious claims become harder to reject and unmeritorious claims become harder to sustain, because the underlying documentary record is the same for everyone.

This symmetry has a second-order effect that is often missed. When both parties know that the other party can see the same records, both parties become more careful about what those records say. Daily reports become more accurate because the contractor knows the owner can read them. Instructions become more precise because the consultant knows they will be scrutinised. Meeting minutes are corrected within hours because everyone knows the minutes are the official record. The overall quality of project communication rises. Claims become less frequent because the misunderstandings that often trigger them are resolved earlier, in the ordinary course of project management, rather than escalating into formal disputes.

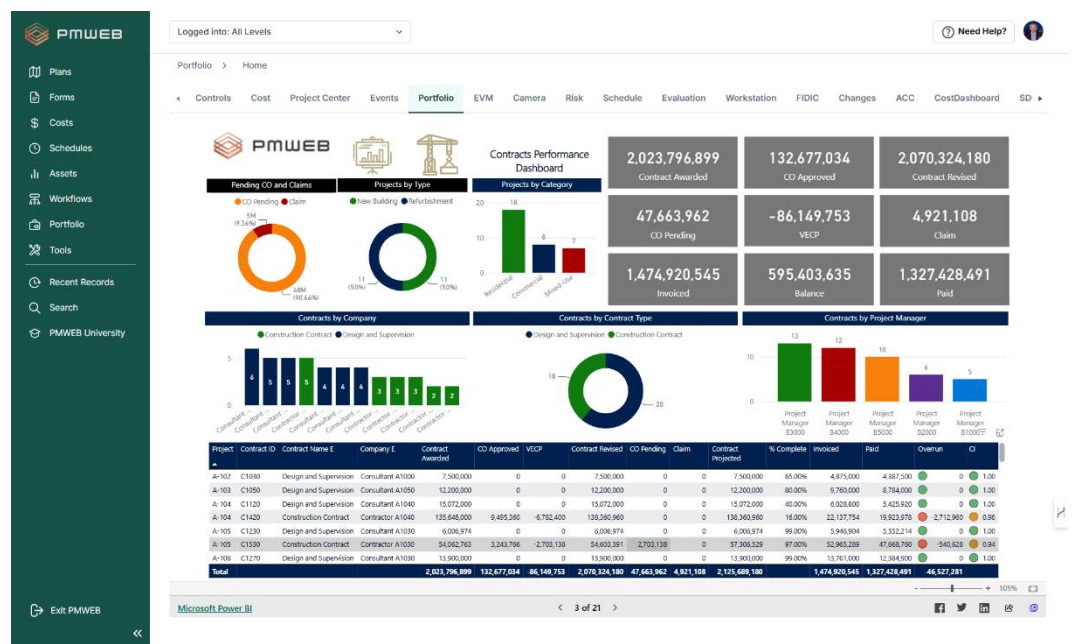
It Preserves Institutional Memory

The departure of key personnel during the long tail of a capital project is one of the most under-appreciated drivers of claim disputes. The site manager who could have explained, in two minutes, exactly why a particular instruction was issued in a particular way is no longer with the project, or no longer with the company, or no longer reachable. The information that could have settled a multi-million-dollar argument has walked out of the door.

A PMIS that captures every formal communication, every workflow step, every comment, every approval and every attachment converts the institutional memory of the project from something that lives in people's heads into something that lives in a searchable repository. The departure of an individual no longer constitutes the loss of the project's history. Three years after substantial completion, when a final-account dispute crystallises, the claims team can search the system, locate every relevant record, view who issued it and when, see the workflow that approved it, read the comments made along the way, and reconstruct the factual position with a level of precision that would simply not have been available without the system.

It Provides a Real-Time Portfolio View for Senior Management

The final shift produced by a properly implemented PMIS is the visibility it gives to executives. Without a PMIS, senior management on the owner's side and senior management on the contractor's side typically learn about claims late — when the disputed amounts have already grown large enough to demand executive attention. By that point, the claim has already moved through several review cycles, positions have hardened on both sides, and the cost of intervention is high.



With a PMIS, executives can see the claims pipeline as it forms. They can see early-warning notifications, claim notices being prepared, claim notices submitted, responses pending, amounts in dispute by category, schedule impacts, the contractual basis for each claim and the workflow status of each transaction. They can intervene early, at the point where settlement is still cheap and the relationship is still preserved. The claims-management function changes from a reactive, damage-limitation activity into a proactive, strategic one.

Why This Is No Longer Optional in the GCC

The points above apply to capital projects everywhere. They apply with particular force in the Gulf Cooperation Council region, for reasons that the author has observed across more than four decades of practice in Saudi Arabia, the United Arab Emirates, Qatar, Kuwait and the wider MENA market.

GCC capital projects tend to be larger, faster and more politically visible than their international comparators. Programme deadlines are often non-negotiable for reasons that have nothing to do with construction logic — they are tied to government calendars, ceremonial events, fiscal-year considerations or strategic-vision targets. Multi-billion-dollar programmes are routinely delivered on durations that would be considered aggressive by international standards. The project teams delivering them are correspondingly large, with hundreds of contractors, sub-contractors, consultants and stakeholder agencies operating across multiple sites and time zones. The volume and velocity of project communication on a typical regional megaproject would, on a like-for-like basis, defeat any documentation system that is not purpose-built for the task.

In addition, the GCC market has, over the last decade, attracted very substantial inflows of international claims-consultancy expertise and third-party claims funding. Contractors who would, in the past, have absorbed the cost of poorly documented claim positions are now actively supported by professional claims teams whose business model depends on identifying meritorious claims and pursuing them to the limit of contractual entitlement. The result is that owner organisations in the region face better-prepared, better-supported and more sophisticated claim submissions than they did even five years ago. The project owners that respond to this environment with the documentation systems of the previous decade will, predictably and avoidably, lose.

The capital project owners and contractors who treat their PMIS as a back-office record-keeping tool will continue to lose claims they should have won, win claims that destroy the relationship, and pay a hidden tax on every programme they deliver. The ones who treat their PMIS as the commercial infrastructure of the project will preserve their relationships, settle disputes faster, settle them cheaper and, over time, become the partners that everyone else wants to work with.

What This Series Will Cover

Over the next nine articles, this series will work through the specific commercial and technical mechanics that a project management information system like PMWEB decides on a modern capital project. The next article looks at the empirical reality that documentation quality decides the outcome of approximately ninety percent of

construction claims — long before any legal argument is ever made. Subsequent articles will address the specific high-stakes claim categories where PMIS data quality is decisive: concurrent delay, forensic schedule analysis, quantum verification, the engineer's determination role under FIDIC, predictive claim risk analysis, sub-contractor claim cascades and the specific demands of the GCC market.

The aim throughout is not to describe the features of a software product. It is to describe the commercial and behavioural reality of construction claims on modern capital projects, and to explain why the project management information system that the parties use is, increasingly, the single most important variable in determining whether those claims preserve or destroy the relationships that matter.

About the Author

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Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation and has lectured at more than three hundred and fifty international events. He holds a Master's degree in Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

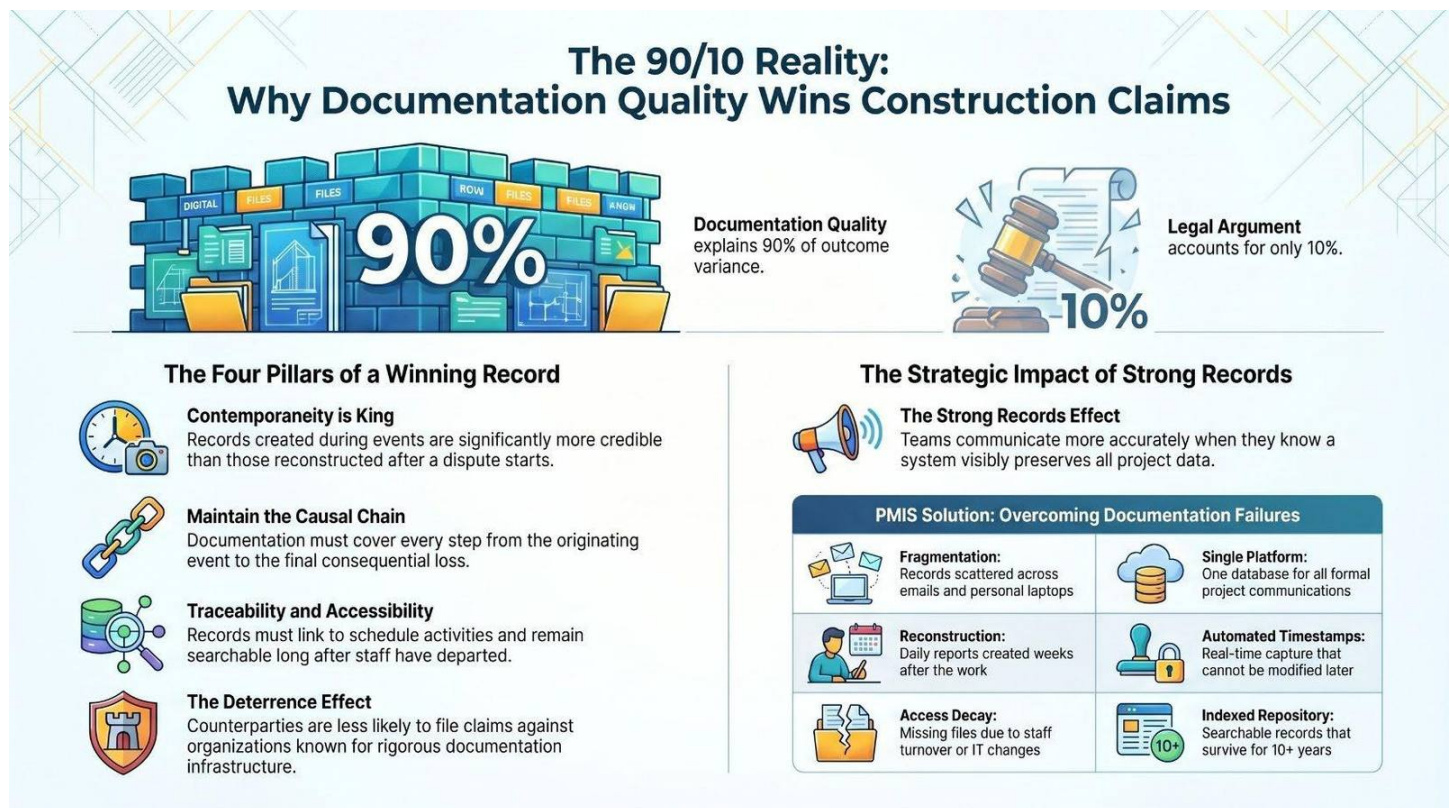
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ARTICLE 2 OF 10 — CONSTRUCTION CLAIMS SERIES

The 90/10 Reality of Construction Claims: Why Documentation Quality Decides Ninety Percent of Disputes Before They Are Even Argued

Anyone who has worked on enough construction claims knows the unspoken rule of the trade: the side with the better documentary record almost always wins. The legal argument decides the framing. The contractual analysis decides the entitlement. But the documentation decides the outcome — and it does so before the lawyers have written their first paragraph.



The Empirical Reality That Practitioners Know but Rarely State

In four decades of work on construction claims, across more than two hundred capital projects in the Middle East, North Africa, Europe and the Americas, the author has seen one pattern repeat itself with a regularity that goes beyond coincidence. Meritorious claims with poor documentation lose. Weak claims with strong documentation settle in their proponent's favour. The merits of the underlying argument matter, but they matter less than the strength of the contemporaneous record that supports them.

This is not a comfortable observation, particularly for the legal community whose professional self-image is built around the persuasiveness of argument. But it is the empirical reality of how construction disputes actually

resolve. When an arbitrator, an adjudicator, a judge or a dispute board has to choose between two competing accounts of what happened on a site three years ago, they choose the account that is supported by contemporaneous documents. They have no other reasonable basis for choosing. The party that produces a complete, traceable, time-stamped record of the events they describe is treated as more credible than the party that does not, and that credibility advantage propagates through every issue in the dispute.

The phenomenon is so well-known among experienced practitioners that it has acquired a working name in some claims-consulting circles: the ninety-ten reality. Approximately ninety percent of the variance in claim outcomes is explained by documentation quality; approximately ten percent by everything else combined, including legal argument, contractual interpretation, and the relative skill of the experts on each side. The exact ratio is impossible to measure, and the figures are illustrative rather than statistical, but every senior practitioner in the field has, at some point, watched a meritorious case lose because the records could not be produced and watched a marginal case win because the records were impeccable.

What “Documentation Quality” Actually Means

If documentation quality decides claim outcomes, the obvious next question is what documentation quality actually consists of. The phrase is used loosely in the industry to mean almost anything, but in the specific context of construction claims it has four well-defined components. A documentary record that meets all four is, in almost every practical case, a winning record. A record that meets only some of them is exposed.

Completeness

Completeness means that the records cover the entire factual narrative of the claim, from the originating event through the impact on the works through the contractor's response through the consequential losses. Gaps in the narrative are usually fatal. If the contractor can show the differing site condition was encountered on a particular date and can show the impact on the schedule three months later, but cannot show what happened in the intervening period — what investigations were carried out, what decisions were made, what mitigation was attempted — the inference will be drawn against them. Completeness is not about producing every document ever created; it is about producing a record of every step in the causal chain the claim asserts.

Contemporaneity

Contemporaneity means that the records were created at or near the time of the events they describe, not assembled afterwards in support of the claim. This is the single most heavily-weighted factor in tribunal evaluations of evidence. A daily report written on the day records what was actually observed; a memo written in week one of the dispute records what someone now wishes had been observed. Tribunals have very fine instincts for the difference. Contemporaneous records are treated as substantially more credible than retrospective reconstructions, because the people creating contemporaneous records did not know which events would later become disputed and therefore had no incentive to slant their descriptions.

Traceability

Traceability means that each record can be located in the project's communication chain — who created it, when, who reviewed it, who approved it, who received it, what other records it referenced or generated. A daily report that cannot be linked to a specific schedule activity, to specific resource records, to specific photographs, to a

specific instruction or non-conformance is a much weaker piece of evidence than the same daily report with all of those links established. Traceability is what allows the tribunal to see the document not as an isolated artefact but as a node in a network of contemporaneous communications, which substantially raises its evidentiary weight.

Accessibility

Accessibility means that the records can actually be produced when needed — not after a six-month archival exercise, not subject to the availability of departed personnel, not contingent on retrieving back-up tapes from the previous IT system. This is the most underappreciated of the four components. Records that exist somewhere but cannot be produced in a usable form within the time available are, for practical purposes, equivalent to records that do not exist. Tribunals work on deadlines. Senior management works on quarters. The window in which evidence has to be produced is always narrower than the window in which the evidence has to be preserved.

The Asymmetric Power of Records

These four components produce an asymmetry in claim outcomes that is worth understanding precisely, because it explains why investing in documentation infrastructure is rational even for organisations that consider themselves unlikely to be involved in disputes. Strong records do not just defend against claims. They prevent claims from being made at all.

The reasoning is straightforward. A contractor or owner contemplating a claim does so under uncertainty. They know what they believe happened. They do not know what the other party can prove happened. If their counterparty has visibly maintained complete, contemporaneous, traceable, accessible records throughout the project, the calculation changes. The cost of preparing a claim that may be defeated by superior records is high. The cost of preparing a defence to a claim that has been launched at you despite your superior records is much lower. Counterparties make rational decisions about which claims to pursue, and the strength of the documentary environment is one of the most important inputs into that decision.

The result is that organisations with strong documentary infrastructure receive fewer claims than organisations with weak infrastructure, even controlling for the underlying merits. This is a difficult effect to demonstrate empirically, because the claims that are not made cannot be counted. But the author has observed it consistently. Project owners who are known in the regional market for maintaining rigorous PMIS-driven documentation receive a different volume and quality of claim submissions than project owners who are not. The contractors are not less commercial; they are more selective.

Strong records are not just a defensive asset. They are an offensive one. They deter weak claims from being made, accelerate the settlement of marginal ones, and ensure that the meritorious ones are settled on terms that reflect the actual entitlement rather than the relative bargaining power of the parties.

The Four Failure Modes of Project Documentation

Most projects that fail the documentation quality test fail in one or more of four specific ways. Recognising these failure modes is the first step to designing a system that avoids them.

The first failure mode is fragmentation. Project records exist, but they exist across multiple uncoordinated systems — email, shared drives, contractor-side filing, consultant-side filing, the project owner's own document control system, the Primavera schedule files, the cost system, the contracts management system, and a long tail of personal repositories on the laptops of individual team members. When a claim arises, no single source can produce the complete picture. Each repository produces a fragment. The fragments do not align. The reconciliation exercise consumes weeks and almost always misses material that nobody knew existed.

The second failure mode is reconstruction. Records were not maintained contemporaneously and have to be assembled retrospectively. Daily reports are completed in batches at the end of the month. Meeting minutes are circulated weeks after the meeting. RFIs and submittals are logged into a system long after they were issued. The records exist but they are no longer credible as contemporaneous documents, because their authorship and timing cannot be reliably established.

The third failure mode is broken traceability. Records exist and are contemporaneous but cannot be linked to each other. The daily report mentions an event but does not identify the schedule activity. The schedule update shows a slippage but does not reference the event that caused it. The RFI describes an issue but does not link to the instruction that resolved it. Each record is internally credible but the chain of causation that the claim depends on cannot be assembled from them.

The fourth failure mode is access decay. Records exist, are contemporaneous, are traceable, but cannot be located in the time available. The individual who knew where to find them has left the project. The folder structure has been reorganised. The email archive has been migrated to a different platform that no longer indexes attachments. The system in which they were originally captured has been decommissioned. The records are technically still there, somewhere, but they are no longer practically accessible.

How a PMIS Systematically Delivers All Four

A project management information system properly implemented at project inception solves all four failure modes by design rather than by effort. It eliminates fragmentation by acting as the single platform through which all formal project communications pass. It eliminates reconstruction by capturing each communication at the moment it is generated, with system-generated time stamps that no party can later dispute. It eliminates broken traceability by linking each record to the relevant schedule activities, cost lines, contract clauses, and other PMIS records, building the network of references that makes individual documents into a coherent narrative. And it eliminates access decay by holding all of this in a single, indexed, searchable repository that survives the departure of individuals, the reorganisation of departments, and the migration of corporate IT systems.

The PMWEB platform implemented across CMCS's regional client portfolio addresses each of the four failure modes through specific architectural choices. The single underlying database eliminates fragmentation. The workflow engine, which captures every action with system-generated time stamps and identifies the user responsible, eliminates reconstruction. The cross-module linking, which allows any record to reference any other record, including project schedule activities, contract clauses, cost lines, drawings, specifications, RFIs,

submittals, daily reports and correspondence, eliminates broken traceability. And the document management repository, with its hierarchical folder structure, version control, subscription notifications and full-text search, eliminates access decay even ten or fifteen years after the project closes.

The Behavioural Consequence: The Strong Records Effect

Once a project organisation operates within a properly implemented PMIS for long enough, a behavioural shift takes place that is, in the long run, more important than any specific documentary capability. The project team starts to behave as if their records are going to be examined, because they know their records can be examined. Daily reports become more accurate. Instructions

become more precisely worded. Meeting minutes are corrected within hours rather than weeks. RFIs are framed with greater care because the team knows they will be linked into a larger narrative. The overall standard of project communication rises across the board.

This is what experienced practitioners refer to as the strong records effect. It is not a feature of any specific software product. It is a behavioural consequence of operating within a system that visibly preserves the integrity of project communication. The same effect can be observed in any well-disciplined organisation, but on capital projects it requires technological support because the volume of communication is otherwise simply too high for human discipline alone to maintain.

What Senior Management Should Be Asking

If documentation quality decides ninety percent of construction claim outcomes, the questions senior management should be asking about their projects are not the technical questions of contract administration. They are the architectural questions of information infrastructure. Are all formal project communications passing through a single documented system, or are they distributed across multiple uncoordinated channels? Are records captured contemporaneously, with system-generated time stamps that cannot be later modified? Is each record linked to the project schedule, cost system and contract structure in a way that allows the chain of causation behind any claim to be reconstructed in days rather than weeks? Will the records still be accessible in usable form ten years after substantial completion, regardless of who has left the project, the company or the industry?

The organisations that can answer yes to all four questions are positioned to settle their claims on terms that reflect their actual entitlement. The organisations that cannot are paying the documentation tax — every day, on every project, whether they have measured it or not. The next article in this series quantifies that tax.

About the Author

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ARTICLE 3 OF 10 — CONSTRUCTION CLAIMS SERIES

The Hidden Tax: Quantifying the Cost of Disorganised Claims Management on Capital Project Margins

Every capital project organisation pays a tax on every programme it delivers. The tax is rarely visible on any project's profit-and-loss account, never appears as a line item in the cost report and almost never features in the executive review pack. But it is there, every time, and over a portfolio of projects it accumulates into one of the largest discretionary cost centres in the business. The name of the tax is disorganised claims management, and the size of it is, in most organisations, a multiple of what the organisation believes it is.



Why The Tax Is Invisible

Most project finance systems do an excellent job of capturing the costs that are easy to capture: labour, plant, materials, subcontract values, preliminaries, overheads. They do a much weaker job of capturing the costs that are diffuse, distributed across multiple departments and not directly tied to any particular cost centre on any particular project. Claims-related costs fall almost entirely into the second category. They are diffuse by nature. They are absorbed across legal, commercial, project controls, executive management and operations, and they

are absorbed across multiple projects rather than localised on any one of them. As a result, they are systematically under-counted by the very accounting systems that are supposed to give executives a view of where the organisation's money is going.

The under-counting is not deliberate. It is a structural property of project accounting. Each individual claim-related cost, considered in isolation, is small enough to be absorbed without comment into a general overhead category. It is only when the costs are aggregated across an entire portfolio over a multi-year period that the size of the total becomes visible — and most organisations never perform that aggregation, because no one in the organisation has the responsibility, or the data, to do it.

The Six Categories Of Claims-Related Cost

A useful starting point is to break the tax into its component categories. Six categories matter. Each is real, each is significant, and each is separately worth quantifying.



Direct External Costs

This is the visible portion of the tax: legal fees, claims-consultancy fees, expert witness fees, mediator fees, arbitrator fees, tribunal fees and the disbursements that travel with all of them. On any major dispute these costs run into millions of US dollars, and on a portfolio of disputes they aggregate quickly. They are also the only category of claims-related cost that finance teams reliably capture, because they arrive as external invoices and have to be paid against project codes.

These costs are visible but they are not the largest category. In most organisations they account for between fifteen and twenty-five percent of the total claims tax. The remaining seventy-five to eighty-five percent is invisible to the standard reporting system.

Internal Time Costs

Every hour that a senior commercial manager, project director, planner, quantity surveyor or in-house counsel spends preparing or defending a claim is an hour they are not spending on the next project, the next bid, the next negotiation or the next operational issue. The fully-loaded cost of that hour, including overhead, social charges and opportunity cost, typically runs into hundreds of US dollars. On a major dispute, the internal time absorbed by a single individual can run into thousands of hours over the life of the matter. Aggregated across a project organisation with a portfolio of active disputes, the internal time absorption is often the largest single component of the claims tax.

Internal time is invisible because it is paid for through fixed salaries that the organisation would be paying regardless of what the individual was working on. The cost is therefore real but it does not appear as a separate line item anywhere. It can only be made visible by deliberate measurement, and the measurement is uncomfortable enough that most organisations decline to perform it.

Carrying Costs On Disputed Cash

When money is in dispute, money is not flowing. The contractor's interim valuation that has been disputed by the engineer is money that the contractor has spent and not been paid for. The contractor will finance the gap, either through its own working capital or through bank facilities, and the financing has a cost. From the project owner's perspective, the disputed amount is money the owner is being asked to pay but has not yet decided to pay; the owner may also incur financing-related costs in the form of disputed retention releases, deferred final-account settlements and project-completion delays that affect when revenue starts flowing from the asset.

Carrying costs accumulate at the prevailing rate on the disputed amount over the duration of the dispute. On a multi-year arbitration involving disputed amounts in the tens of millions, the carrying cost alone can run to several million US dollars on each side. This cost is, again, almost never attributed to claims management in conventional reporting. It is absorbed into general financing costs and treated as a fact of life.

Programme Distortion Costs

Disputes distort the way projects are managed. The mere existence of an unresolved claim, or the anticipation of one, changes how decisions are made on the project. Instructions are drafted with one eye on the dispute. Records are created, or not created, with one eye on the dispute. Pragmatic compromises that would have been reached in days are stretched out over weeks because each side fears that any concession will weaken its position in the dispute. The project itself moves more slowly and costs more to deliver as a consequence.

Programme distortion is the most invisible of the six cost categories because it does not appear as an event. It appears as the absence of decisions that should have been made, the slowness of decisions that were eventually made and the over-engineering of communications that should have been routine. The cost is real but it can only be estimated, never measured directly. In the author's observation, on disputed projects of any significant size it typically adds between two and five percent to the total project cost — a figure that, on a one-billion-dollar programme, dwarfs the legal and consultancy spend by an order of magnitude.

Relationship And Future-Bid Costs

The cost of a damaged relationship between an owner and a contractor is paid in the next project, not in the current one. A contractor that has had a difficult claim experience with a particular client will price the next bid from that client more conservatively, will include larger contingencies for risks it has now learned about, will demand stricter contract terms, and will often decline to bid altogether for projects of similar scope. The owner pays this cost in the form of higher prices, fewer competitive bidders and a smaller pool of contractors willing to take on the work.

From the contractor's perspective, the relationship cost is paid in the form of lost opportunities with the same client, weaker references for the next pursuit and reputational damage in a market where reputation travels quickly. In the GCC, where the population of major project owners is small and the contractor community is concentrated, the reputational dimension is particularly acute. A contractor that develops a reputation for difficult claim behaviour can find itself excluded from significant pursuit opportunities for years.

Cultural And Defensive Costs

The final and least-quantified cost is the one that accumulates inside the organisation itself. When claims management is chronically painful, the project organisation develops defensive habits. Project teams refuse to make decisions without legal review. Site engineers stop putting things in writing for fear of creating evidence against the organisation. Daily reports become anodyne and useless because the team has been instructed to avoid recording anything that could be used against it. Meeting minutes become so generic that they capture nothing of value. The whole communication culture of the project becomes oriented towards minimising disclosure rather than maximising clarity.

The cultural cost is paid in two places. First, in the immediate degradation of project communication, which makes every project run less efficiently than it should. Second, paradoxically, in worse outcomes on the next dispute, because the defensive culture has produced records that are too thin to support the organisation's own case when the time comes.

The Compounding Effect Across A Portfolio

The six categories above are individually significant. The portfolio effect is more significant still. A project organisation does not run one project; it runs a portfolio. The categories of cost above are paid on every project in the portfolio, not just on the projects that have active disputes. Programme distortion costs accrue on every project where claims are anticipated, not only where they have crystallised. Cultural and defensive costs accrue across the entire organisation, including on projects that have no claims at all. Relationship and future-bid costs are paid in pricing margins across the whole forward order book.

On a typical capital project portfolio, the author estimates that the aggregate claims tax — across all six categories, conservatively scoped — falls between three and seven percent of the total programme value. For a project owner running a five-billion-dollar capital programme, this is an annual tax of one hundred and fifty to three hundred and fifty million US dollars. For a contractor running a two-billion-dollar order book, it is sixty to one hundred and forty million US dollars per year. These are not figures that any executive would willingly accept as a structural cost of doing business if they were visible. They are accepted only because they are invisible.

How Much Of The Tax A PMIS Eliminates

It is important not to overstate the case. A properly implemented project management information system does not eliminate the claims tax. It cannot. Some claims will arise on every capital programme, some of them will be contested, and some of the cost categories above will be incurred regardless of the documentation system in use. But a properly implemented PMIS reduces each of the six categories materially, and in the aggregate the reduction is large enough to fund the PMIS many times over.

Direct external costs fall because better documentation reduces the time external lawyers and consultants spend reconstructing the factual record — typically the largest single component of an external bill. Internal time costs fall for the same reason. Carrying costs fall because disputes resolve faster when the documentary record is unambiguous. Programme distortion costs fall because the parties spend less time positioning around a possible future dispute and more time managing the project. Relationship costs fall because disputes that resolve on facts rather than on procedure or argument tend not to permanently damage commercial relationships. Cultural costs fall because a documentation environment that captures records as a matter of routine eliminates the need for individuals to make defensive choices about what to record.

In aggregate, the reduction in the claims tax that a properly implemented PMIS produces is, in the author's observation, between forty and seventy percent of the pre-implementation level. On a five-billion-dollar capital programme paying a three-percent tax, that is a recovery of between sixty and one hundred and five million US dollars per year. The investment required to implement and operate a PMIS at the appropriate standard is a small fraction of that figure. The return on the investment is therefore not contested; it is among the most reliably positive returns available anywhere in capital project delivery.

The financial argument for a properly implemented PMIS is not that it is cheap. It is that the claims tax it eliminates is, on any reasonably sized capital programme, an order of magnitude larger than the cost of the system. Any executive who has performed the calculation honestly arrives at the same conclusion: the system pays for itself many times over in the avoided tax, before any of its other benefits are even counted.

A Simple Self-Assessment

Any project organisation can perform a rough self-assessment of the size of the claims tax it is currently paying. Five questions are usually sufficient.

First. Across all of the disputes the organisation has been involved in over the last five years, what is the total external legal and claims-consultancy spend? Most organisations can answer this question to within ten percent. Multiply this number by four to allow for the internal time, carrying, programme-distortion, relationship and cultural costs that the external spend does not capture. The result is a conservative estimate of the visible portion of the claims tax over the period.

Second. Of the disputes the organisation has been involved in, what proportion were lost or settled disadvantageously on procedural or evidentiary grounds rather than on the merits? Tribunals and arbitrators

are unsentimental about procedure. Disputes lost on time-bar issues, on missing notices or on inadequate records are pure documentation failures. They were paid for in cash that should have been kept.

Third. In the disputes the organisation has won, how long did each take to conclude from claim crystallisation to settlement or award? Disputes that take more than eighteen months to resolve impose substantial carrying costs, and the speed of resolution is heavily influenced by the quality of the documentary record on both sides.

Fourth. On the closed-out projects in the portfolio, what proportion produced a final-account settlement at, above or below the budgeted contract value? Final-account settlements that exceed budget by more than a small margin are usually settlements that the organisation lost on the documentary record — because the organisation could not substantiate its position on the disputed items and was forced to concede them.

Fifth. On the active projects in the portfolio, how would the organisation answer the documentation test from the previous article in this series? Pick a random date from the construction phase of any active project. Can the organisation reconstruct, in minutes, what work was done on that date, by whom, with what resources, against what schedule activities, with what events reported, with what records issued and with what photographs taken? If not, the organisation is currently paying the documentation tax on the active project, every day, and will continue paying it until the documentation environment is fixed.

The Decision Executives Actually Face

The decision facing executives in any project organisation is not whether to invest in a project management information system. It is whether to continue paying the claims tax in its current form or to substitute a much smaller PMIS investment for it. Framed this way, the decision is not difficult. Framed in the conventional way — as a question of whether to incur a new line of spend on software — the decision feels harder, because the saving against the claims tax is invisible while the new line of spend is visible.

This is the structural reason why so many capital project organisations continue to operate documentation environments that are clearly inadequate. The cost of inadequacy is invisible; the cost of remediation is visible. Once the cost of inadequacy is made visible, through the kind of self-assessment outlined above, the decision tends to make itself.

The next article in this series moves into the technical mechanics. It examines concurrent delay, the single most contested issue in modern delay claims, and shows why the quality of the records held in the project's PMIS — not the skill of the delay analysts engaged later — is what actually determines who pays for lost time on a capital programme.

About the Author

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lectured at more than three hundred and fifty international events. He holds a Master's degree in Engineering Administration from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive programmes completed at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

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Concurrent Delay: Why the Quality of Your PMIS Records — Not the Skill of Your Lawyers — Determines Who Pays for Lost Time

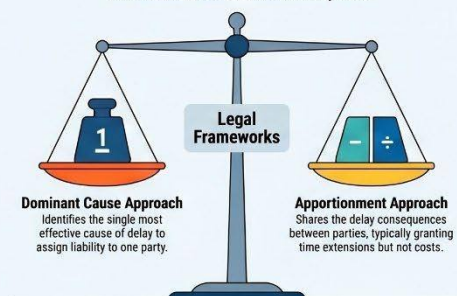
Concurrent delay is the single most heavily-litigated issue in construction disputes worldwide. The law has evolved substantially over the past two decades and continues to evolve. The Society of Construction Law Delay and Disruption Protocol, the Malmaison line of authorities, the Walter Lilly decision, the more recent North Midland and Adyard cases, and the bespoke concurrency clauses now appearing in regional contracts have all reshaped how concurrency is identified, characterised and apportioned. None of this matters if the contemporaneous records are not there.

Records Over Rhetoric: Winning the Concurrent Delay Dispute

Concurrent delay occurs when multiple parties contribute to the same project delay. Resolution depends entirely on a factual reconstruction through high-quality, contemporaneous project records, not legal arguments alone.

The Two Tests for Delay

Concurrency is analyzed through one of two primary lenses. Both fail without a solid documentary base.



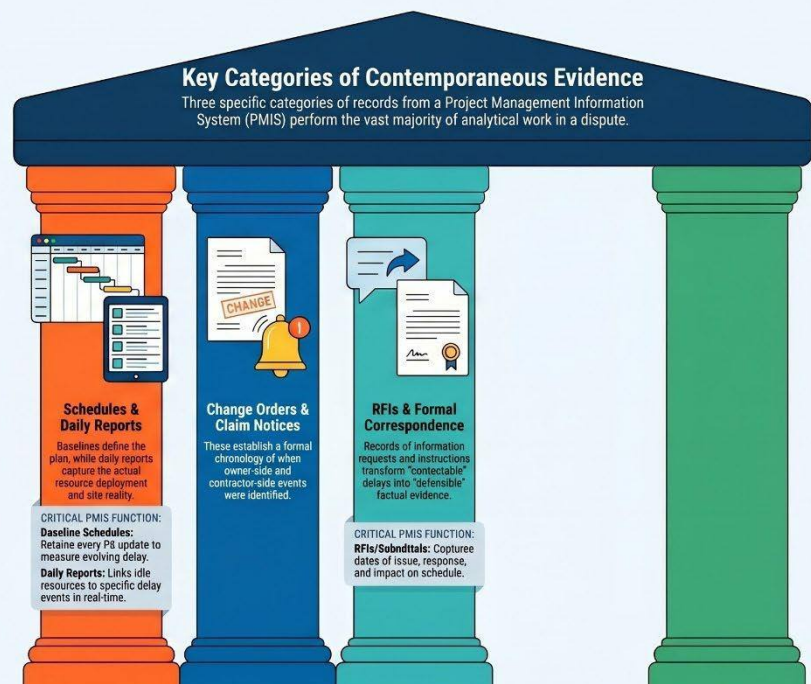
The Record is the Deciding Factor

The party with superior, traceable documentation prevails regardless of the legal framework applied.



Key Categories of Contemporaneous Evidence

Three specific categories of records from a Project Management Information System (PMIS) perform the vast majority of analytical work in a dispute.



What Concurrent Delay Actually Is, and Why It Is Difficult

Concurrent delay arises when two or more delaying events, attributable to different parties or sharing different risk allocations under the contract, both contribute to the same overall delay to project completion. The classic textbook example is the contractor causing a one-month delay to the critical path through poor productivity at the same time as the owner is causing a one-month delay to the same critical path through late issuance of design information. At the end of the period, the project is one month late. The question is who bears the consequence: does the contractor get an extension of time, with or without compensation, or does the owner recover liquidated damages, or is the time-and-money consequence shared in some way between them?

The question is difficult for two reasons. The first is that the law has not settled on a single answer. Different jurisdictions, different contract forms and different generations of judicial reasoning have produced different rules, ranging from the dominant cause approach to the apportionment approach to the prevention principle

approach to bespoke contractual mechanisms. The applicable rule on any given dispute depends on the contract, the seat of arbitration or jurisdiction, and the precise factual configuration of the concurrency.

The second reason is more practical and more important. Whatever rule applies, identifying concurrency in the first place — establishing what events occurred, when, what activities they affected, what the critical path was at each point in time, and how the events interacted — is overwhelmingly an exercise in factual reconstruction from contemporaneous records. Without those records, the analysis cannot be done at all. With incomplete records, the analysis is contestable on every point and the side with the more credible documentary base prevails.

The Two Competing Tests, in Outline

Two analytical frameworks dominate the field. The dominant cause approach, associated historically with the English law tradition, asks which of the concurrent causes was the dominant or effective cause of the delay. If the dominant cause was the contractor's, the contractor bears the

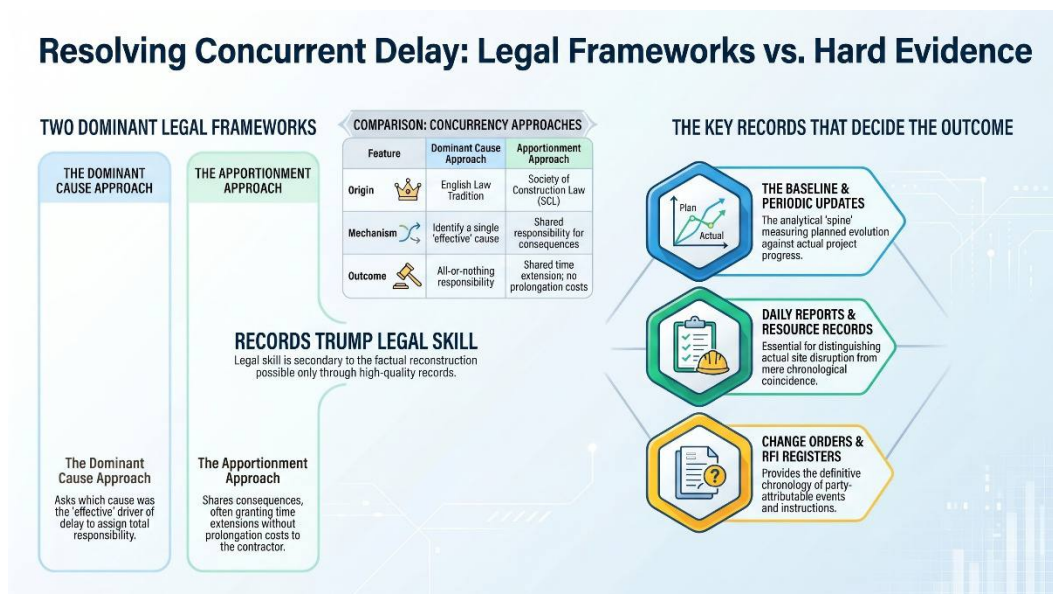
consequence. If the dominant cause was the owner's, the owner bears it. The framework is conceptually clean but operationally difficult, because dominance has to be established as a factual matter against the contemporaneous record.

The apportionment approach, associated with the Society of Construction Law Protocol and increasingly with continental civil-law jurisdictions, asks how the consequence of the concurrent delay should be shared between the parties. The contractor typically receives a time extension to relieve liquidated damages but not the prolongation costs associated with the period of concurrency, on the principle that the contractor would have been delayed anyway by its own fault and therefore cannot recover the prolongation costs of a delay it caused itself. The owner does not recover liquidated damages for the period of concurrency, because the project would have been delayed by the owner's fault even if the contractor had performed perfectly.

Both frameworks turn on the same underlying factual question. Both require the analyst to establish, from contemporaneous records, exactly what events occurred, exactly when they occurred, exactly what activities and paths they affected, and exactly how they interacted with each other and with the rest of the works. Neither framework can be applied to a project whose contemporaneous records do not support the underlying factual reconstruction.

The Five Records Categories That Decide Concurrency

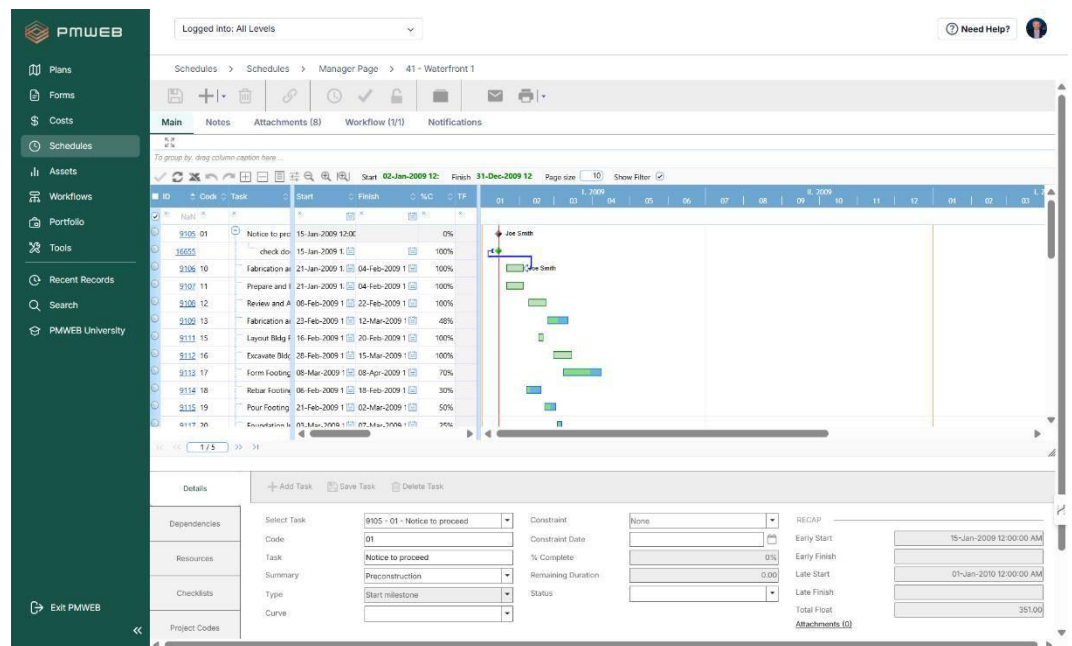
In every concurrent delay analysis the author has been involved in, across more than four decades, five categories of contemporaneous record have done almost all of the analytical work. Where these five categories are complete, contemporaneous, traceable and accessible, concurrent delay analysis is a tractable exercise that can be completed in weeks. Where they are not, the analysis collapses into a dispute about what



happened, and the dispute is settled on the relative credibility of the surviving documents rather than on the merits of the underlying delays.

Category One: The Baseline Schedule and Its Updates

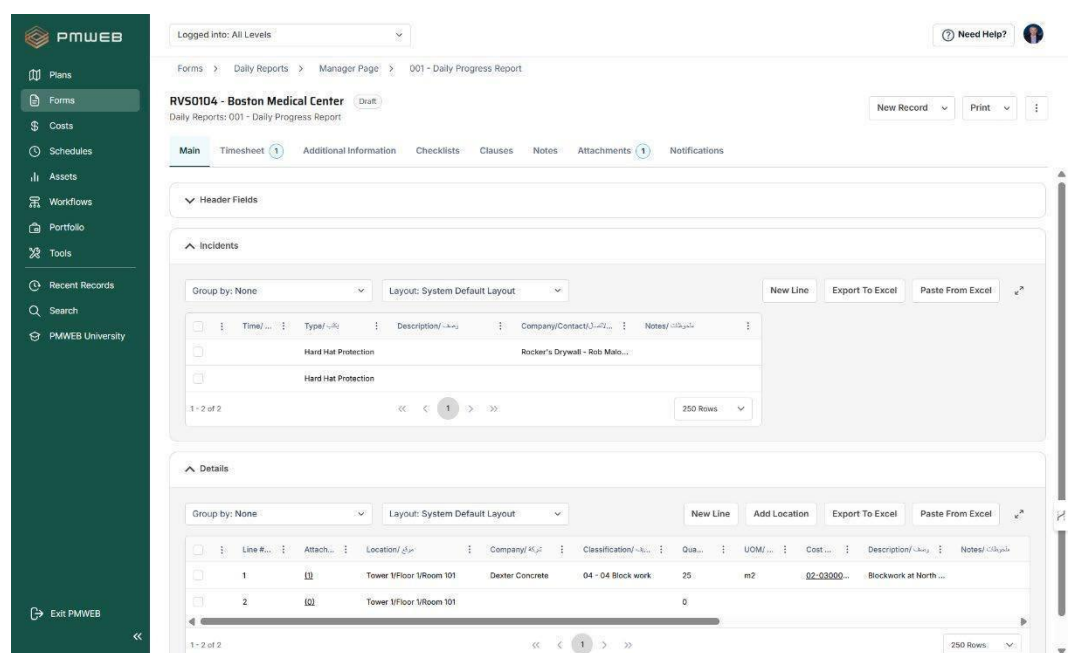
The baseline schedule defines what was supposed to happen. Each periodic update defines what was happening at the time of the update. The progression of updates, taken together, defines how the planned sequence evolved as the works proceeded. Without a baseline schedule that has been formally accepted by



both parties, the analyst has no benchmark against which to measure delay. Without periodic updates that capture the progression of progress and the emerging variances, the analyst has no contemporaneous record of when the delays became apparent. The schedule and its updates are the spine of every concurrency analysis. PMWEB's scheduling module, with its capacity to import and retain every Primavera P6 baseline, revision and update, and to compare them against each other and against the project records, removes the most common single point of failure in this category.

Category Two: Daily Reports and Resource Records

Daily reports, when properly maintained, provide the contemporaneous record of what was actually happening on site each day. Activities worked on, locations affected, resources deployed (and idle), incidents observed, weather conditions, instructions received, deliveries made, deliveries delayed. The



combination of daily reports and resource records is the only credible source for distinguishing between an event that disrupted the works and an event that merely coincided with already-disrupted works. This distinction is at the heart of every concurrency analysis. A daily report that shows the contractor's resource was idle for a reason attributable to the owner, on the same day the contractor was already delayed for an

unrelated reason of its own, is a critical evidentiary input. A daily report that does not exist, or was completed in a backfilling exercise three weeks later, contributes nothing.

Category Three: Change Orders, Variations and Notices of Claim Events

The formal change order and variation record establishes when each owner-side event was identified, communicated, instructed, priced and resolved. The notice register establishes when each contractor-side event was identified and notified. The combination produces a chronology of which party-attributable

The screenshot displays the PMWEB software interface. On the left is a dark green sidebar with navigation icons and labels: Plans, Forms, Costs, Schedules, Assets, Workflows, Portfolio, Tools, Recent Records, Search, and PMWEB University. The main content area shows a form titled 'RV50104 - Boston Medical Center' with a sub-header 'Commitment COs: 001 - Office Modifications'. The form is divided into several sections: 'Header Fields' containing Project*, Commitment*, Vendor, Record #*, Subject, Currency*, Post As, WBS, Claims, Category, Cause, EOI / CI Reference #, Requested By, Assigned To, AVI Date, Effective Date, Days, Status, Revision, and a 'Use Units' checkbox. Below this is a 'User Defined Fields' section with 'Work Description', 'Probability For Time', and 'Probability For Cost'. The top of the interface includes a 'Logged into: All Levels' dropdown, a 'Need Help?' button, and a breadcrumb trail: 'Costs > Commitment COs > Manager Page > 001 - Office Modifications'. A workflow indicator shows 'Step 5 of 6'.

events were on the table at each point in the project. Without this chronology, the concurrency analyst is reduced to inferring from secondary evidence what was happening, which is rarely persuasive to a tribunal. PMWEB's change management modules, including the Potential Change Order, Online Change Request and Claim Notice forms previously documented by the author, provide the contemporaneous register of events on which all subsequent concurrency analysis must rest.

Category Four: RFIs and Submittal Cycles

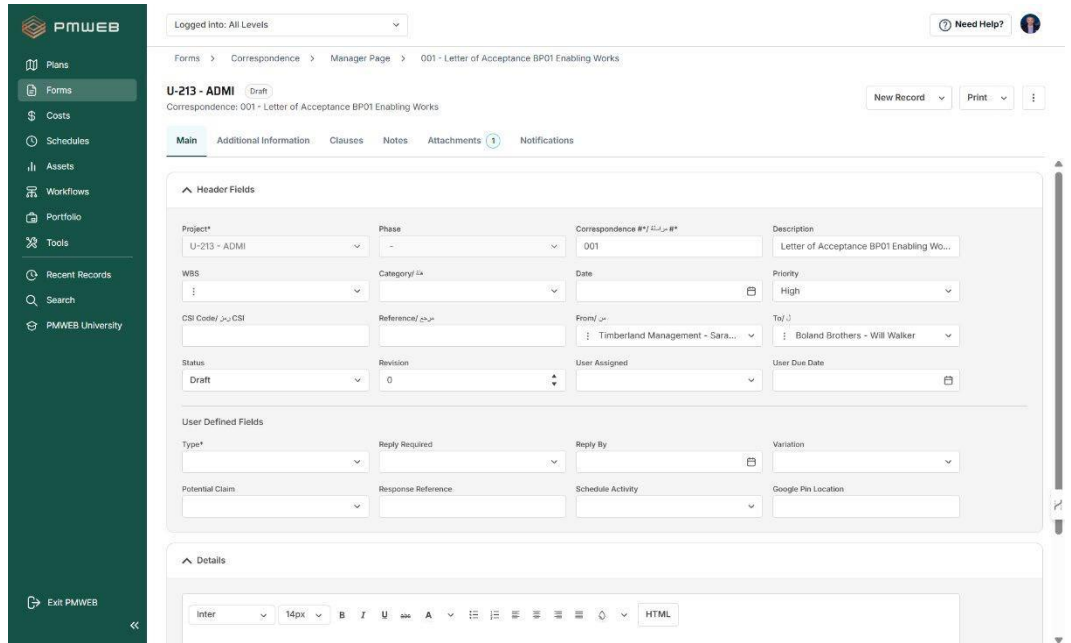
Requests for information and submittal review cycles are the most common single source of owner-attributable delay on capital projects. They are also the most easily contested in retrospective analysis, because the dates of issue, response, approval and re-submission are often poorly recorded in

The screenshot displays the PMWEB software interface for a different form. The sidebar is identical to the previous screenshot. The main content area shows a form titled 'RV50104 - Boston Medical Center' with a sub-header 'Submittal Items: 001 - Air Handling Unit Product Info'. The form is divided into several sections: 'Header Fields' containing Project*, ID#, Description, Phase, WBS, Submittal Set #, Company, CSI Code, Category, Submittal Status, Start Date, Finish Date, Lead Time, Due Date, To, Task, Status, Revision, Mfr., Mfr. #, Notes, User Assigned, User Due Date, and a 'User Defined Fields' section with 'Certification Statement*'. The top of the interface includes a 'Logged into: All Levels' dropdown, a 'Need Help?' button, and a breadcrumb trail: 'Forms > Submittal Items > Manager Page > 001 - Air Handling Unit Product Info'. A workflow indicator shows 'Step 1 of 1'.

informal systems. A PMIS-managed RFI register that captures the date of issue, the date of receipt, the date of response, the substance of the response, the schedule activity affected and the contractor's downstream actions transforms what would otherwise be the most contestable category of delay record into the most defensible. The same applies to submittal cycles for shop drawings, method statements, material samples and subcontractor approvals.

Category Five: Correspondence on Instructions and Approvals

The fifth category is the residual but indispensable one: the correspondence in which instructions were given, approvals were granted or withheld, positions were taken, undertakings were made and disputes were notified. On most projects this correspondence is distributed across email systems, hard-copy

The screenshot displays the PMWEB software interface. On the left is a dark green sidebar with a menu containing icons and labels for 'Plans', 'Forms', 'Costs', 'Schedules', 'Assets', 'Workflows', 'Portfolio', 'Tools', 'Recent Records', 'Search', and 'PMWEB University'. At the bottom of the sidebar is an 'Exit PMWEB' button. The main content area has a top navigation bar with a 'Logged into: All Levels' dropdown, a 'Need Help?' button, and a breadcrumb trail: 'Forms > Correspondence > Manager Page > 001 - Letter of Acceptance BP01 Enabling Works'. Below this, the form title is 'U-213 - ADMI' with a 'Draft' status. Action buttons for 'New Record', 'Print', and a settings icon are on the right. A tabbed interface shows 'Main' as the active tab, with other tabs for 'Additional Information', 'Clauses', 'Notes', 'Attachments' (with a notification icon), and 'Notifications'. The 'Header Fields' section contains a grid of input fields: 'Project*' (U-213 - ADMI), 'Phase' (-), 'Correspondence #*' (001), 'Description' (Letter of Acceptance BP01 Enabling Wo...), 'WBS' (.), 'Category*' (.), 'Date' (.), 'Priority' (High), 'CSI Code/مركز CSI' (.), 'Reference/المرجع' (.), 'From/من' (Timberland Management - Sara...), 'To/إلى' (Boland Brothers - Will Walker), 'Status' (Draft), 'Revision' (0), 'User Assigned' (.), and 'User Due Date' (.). Below this is the 'User Defined Fields' section with fields for 'Type*' (.), 'Reply Required' (.), 'Reply By' (.), 'Variation' (.), 'Potential Claim' (.), 'Response Reference' (.), 'Schedule Activity' (.), and 'Google Pin Location' (.). At the bottom is a 'Details' section with a rich text editor showing 'Inter' and a '14px' font size, along with various text formatting icons and an 'HTML' toggle.

letters and informal communications, with no systematic capture. A PMIS that imports correspondence from email, captures formal letters in its correspondence module, and links each communication to the relevant project record, schedule activity, contract clause and counterparty, transforms this category from the most fragile to the most resilient. PMWEB's correspondence module, integrated with the document repository and the workflow engine, has been documented by the author in earlier articles in the broader series and is not repeated here.

Why Both Concurrency Tests Turn Entirely on These Records

The dominant cause analysis asks which concurrent cause was dominant. The only way to answer this question persuasively is to show, from the schedule, the daily reports, the change records and the correspondence, exactly how each cause affected the works and to demonstrate that one cause was more material than the other. Without contemporaneous records in all five categories, the dominance analysis is reduced to assertion. The tribunal will accept the assertion only to the extent it is supported by what the records actually show.

The apportionment analysis asks how the consequence of concurrent delay should be shared. The only way to apportion is to identify, from the same five categories of record, exactly which periods of delay were caused by which party-attributable events, and to share the consequence accordingly. Without contemporaneous records, apportionment is impossible to execute as a quantitative exercise and collapses into a negotiated compromise that reflects bargaining power rather than entitlement.

Whichever framework the contract or the seat of arbitration imposes, the records decide. The party with the better records wins. The party with the worse records loses. The legal framework determines the form of the loss; the records determine its magnitude.

The Behavioural Forcing Function

There is a final point about concurrent delay analysis that is rarely discussed but that experienced project owners and contractors understand intuitively. The discipline required to maintain the five categories of record at the standard required for credible concurrency analysis is, in practice, the same discipline required to manage the project well. The site team that maintains accurate daily reports also catches productivity issues earlier. The cost manager that maintains a clean change-order register also catches scope creep before

it becomes a problem. The planner that maintains a current and credible schedule also identifies emerging delays in time to act on them.

In other words, the project that is ready to defend a concurrency claim is, almost by definition, the project that has fewer concurrency claims to defend in the first place. The investment in PMIS-driven documentation pays back not only in the disputes that arise but in the disputes that, because the project was being managed at a higher standard throughout, never crystallised at all. This is the deeper return on documentation infrastructure that is invisible in the cost report but visible in the project's overall performance, and it is the return that distinguishes the organisations that consistently deliver capital programmes successfully from those that consistently struggle with them.

About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZ-LLC, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar, Kuwait and India.

Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation and has lectured at more than three hundred and fifty international events. He holds a Master's degree in Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

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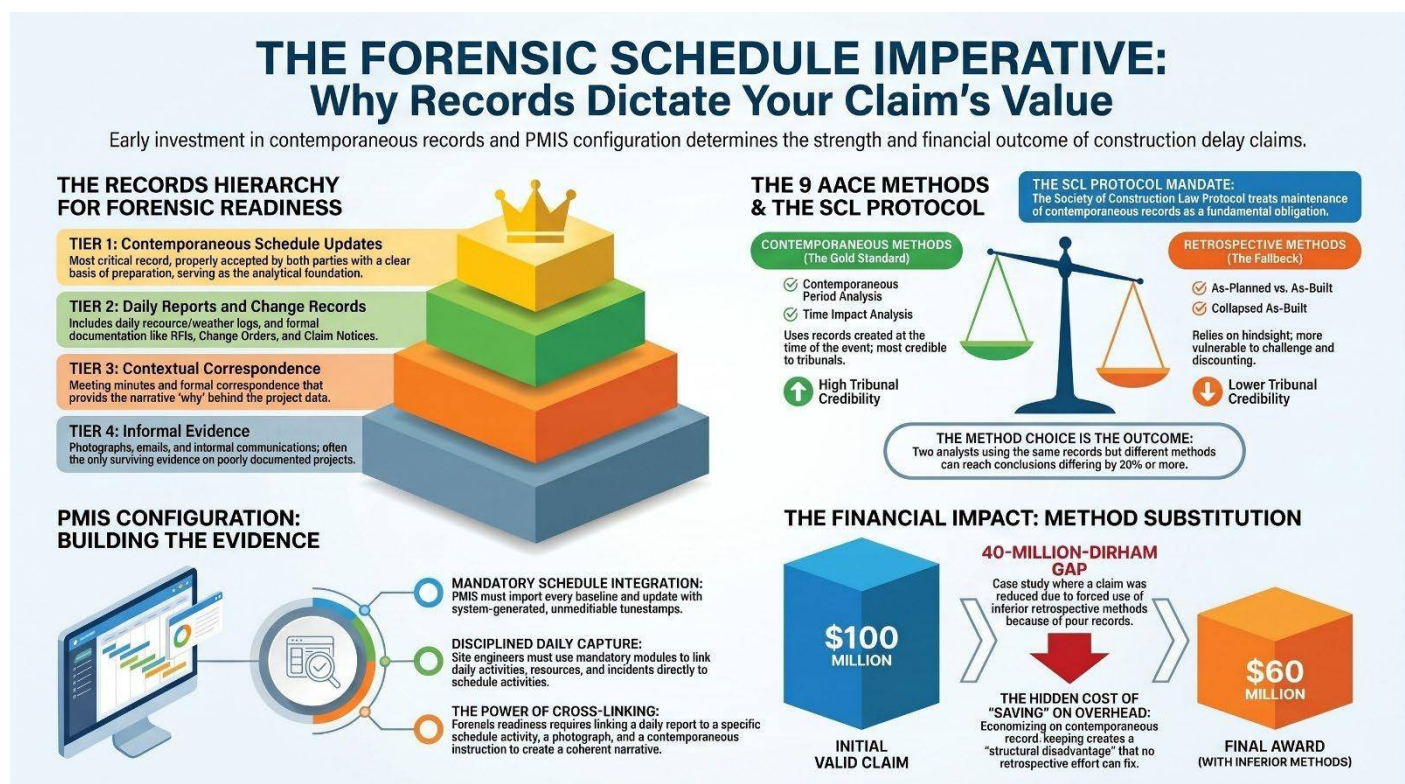
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The Forensic Schedule Imperative: Preparing for AACE RP 29R-03 and SCL Protocol Methods Long Before a Dispute Crystallises

The Recommended Practice 29R-03 of AACE International identifies nine forensic schedule analysis methods. Each one has different evidentiary requirements. Each one produces a different result when applied to the same project. The choice of method, more than any other technical decision in a delay claim, determines the size of the time-extension award. And the choice of method is, in practice, determined entirely by the records the analyst has to work with.



The Method Choice Is the Outcome

Among practitioners of forensic schedule analysis, it is widely understood that the analyst's choice of method is the single most consequential decision in the delay claim. Two competent analysts working from the same project records, applying different methods, will produce delay analyses that differ in their conclusions by twenty percent or more, sometimes by considerably more. The arithmetic of the underlying schedule is not in dispute. The difference is in what each method assumes about how the as-planned schedule, the as-built record and the impact of intervening events should be combined to produce a delay quantification.

This is uncomfortable for the legal community, which prefers to think of forensic schedule analysis as an objective scientific exercise that produces a single correct answer. It is not. It is a structured analytical exercise that, like any structured analytical exercise, depends on the assumptions and inputs the analyst is permitted to use. Different methods permit different inputs. The analyst's choice of method is, in effect, the analyst's choice of which records to rely on and how to combine them.

And the analyst's choice of method is, in turn, constrained almost entirely by what the project's documentary record will support. An analyst who would prefer to use a contemporaneous-period method, in which delay is analysed period-by-period using only the records that existed at each historical point in time, cannot do so on a project that did not maintain credible periodic schedule updates. An analyst who would prefer to use a windows analysis cannot do so on a project that did not preserve the contemporaneous baselines that define the windows. The choice of method is the choice of records, and the choice of records was made by the project organisation, not by the analyst.

The Nine Methods, in Outline

AACE International Recommended Practice 29R-03 identifies nine specific methods of forensic schedule analysis, organised into two principal categories. The contemporaneous methods reconstruct the delay analysis using only the information that was available at each historical point in time, working forward through the project chronology. The retrospective methods analyse the delay using the complete project record, including information that emerged after the fact. Within each category, sub-methods differ in their treatment of the as-planned schedule, the as-built record, contemporaneous schedule updates and the impacted-versus-collapsed comparison.

The contemporaneous methods are typically considered the most credible because they reflect what the parties actually knew at each point in time. The most prominent are the contemporaneous period analysis, in which the project is divided into periods defined by the contemporaneous schedule updates and each period is analysed using only the records available at that time, and the time-impact analysis, which prospectively models the effect of each known event at the time the event occurred. These methods are demanding of project records: they require credible contemporaneous schedule updates, contemporaneous records of when each event was identified, and contemporaneous records of how the parties responded.

The retrospective methods are less demanding of contemporaneous records but more vulnerable to challenge on the grounds that they apply hindsight to events that the parties could not have foreseen at the time. The most prominent are the as-planned versus as-built comparison, the impacted-as-planned analysis, the collapsed-as-built analysis and various variants of the windows analysis. Each has specific requirements: the impacted-as-planned method requires a credible as-planned schedule and a record of each delay event sufficient to model its effect; the collapsed-as-built method requires a credible as-built schedule and the same event record; the windows analysis requires both, plus credible intermediate baselines.

The Contemporaneous-Versus-Retrospective Distinction in Practice

The most important practical distinction across all nine methods is between those that rely on contemporaneous records, captured at or near the time of the events they describe, and those that rely on retrospective reconstruction. Tribunals across virtually every jurisdiction prefer contemporaneous methods, for the same reason they prefer contemporaneous records generally: the parties had no incentive at the time to slant the record toward a position that would later become disputed.

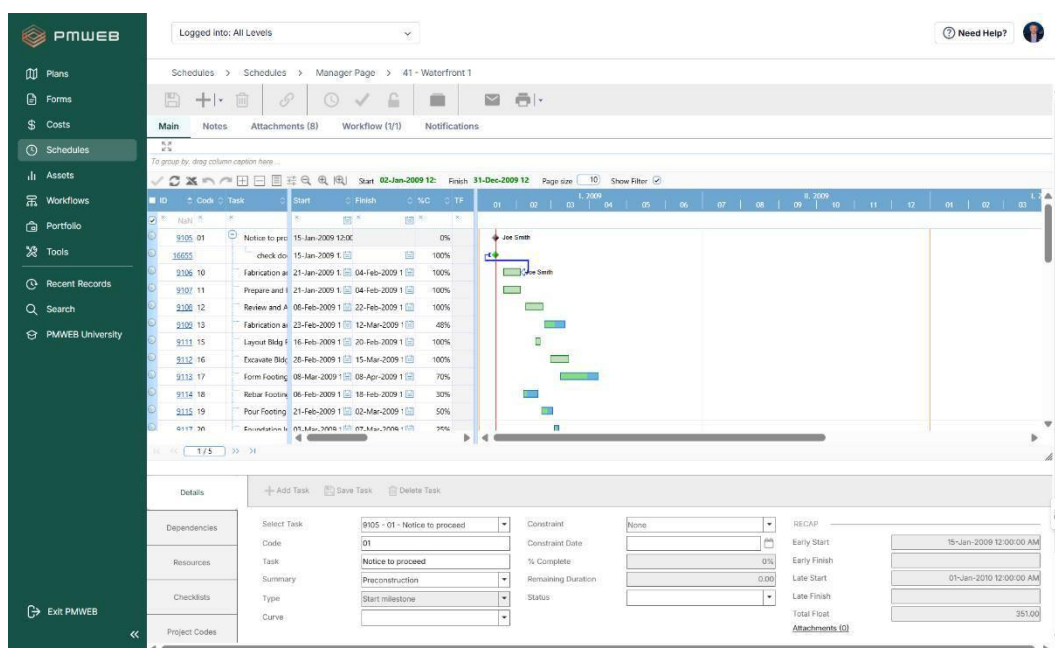
This preference produces a specific and consequential implication. A project organisation that is well-served by contemporaneous documentation has access to the full menu of nine analytical methods, and the analyst can choose the method best suited to the specific factual configuration of the dispute. A project organisation that is poorly served by contemporaneous documentation is constrained to retrospective methods, which the tribunal will already discount, and is at a structural disadvantage before the analysis has begun. The investment in contemporaneous documentation, made years before any specific dispute crystallises, determines what analytical universe is available when the dispute eventually arrives.

The Society of Construction Law Protocol's Position

The Society of Construction Law Delay and Disruption Protocol, now in its second edition, is the most widely-cited international authority on the conduct of delay analysis in construction disputes. It is not law in any jurisdiction, but its principles are routinely cited by tribunals, adopted into bespoke contracts, and treated by practitioners as a reasonable statement of best practice in the absence of contrary contractual provisions.

The Protocol takes a clear position on contemporaneous documentation. It treats the maintenance of credible contemporaneous schedule updates, daily reports, change records and progress documentation as a fundamental obligation of competent project administration. It treats the failure to maintain such records as a substantive disadvantage in any subsequent delay analysis, regardless of the merits of the underlying claim. And it provides specific guidance on the records that should be maintained, the frequency at which schedule updates should be issued, the form in which delay events should be captured, and the linkages that should be preserved between scheduling, cost and contract management.

The Protocol's documentation guidance maps directly onto the architectural choices that distinguish a properly implemented PMIS from a fragmented set of unconnected systems. The maintenance of credible periodic schedule updates is supported by PMWEB's scheduling module. The contemporaneous



capture of daily progress and resource records is supported by the daily report module. The recording of delay events is supported by the change management modules. The cross-linking of records to schedule activities, cost lines and contract clauses is the foundational architecture of the PMIS itself. A project run on these foundations is a project that satisfies the SCL Protocol's documentary expectations as a matter of routine, not as a matter of special effort.

The Records Hierarchy for Forensic Readiness

From the perspective of the analyst who will eventually have to defend a delay analysis in front of a tribunal, the records hierarchy of importance is reasonably stable. At the top is the contemporaneous schedule update, properly accepted by both parties at the time, with a clear record of the basis on which it was prepared and accepted. Immediately below sits the daily report, with its record of activities, resources, weather and incidents. Below that sit the records of identified delay events: change orders, variations, RFIs, submittals, instructions, claim notices. Below those sit the correspondence record and the meeting minutes, which provide the narrative context. At the bottom sit the photographic record, the email correspondence and the various informal communications that, on a poorly documented project, are sometimes the only surviving evidence.

The forensic-ready project maintains records in all of these tiers and, critically, maintains the cross-links between them. A daily report referencing a specific schedule activity, supported by photographs and linked

to a contemporaneous instruction, is a substantially stronger piece of evidence than the same daily report standing alone. The cross-linking is what allows the analyst to assemble a coherent narrative from individual records. Without it, the records exist but the analysis cannot be performed.

PMIS Configuration for Forensic Readiness

The specific PMIS configuration choices that produce a forensic-ready project are not numerous but they are non-trivial. The scheduling module must be configured to import every Primavera or MS Project baseline and update, with system-generated timestamps that establish the date each version was issued and accepted. The daily report module must be deployed across all site engineers and superintendents, with mandatory capture of activities, resources and incidents linked to the schedule. The change management modules must be configured to capture every variation, claim event and notice, with clear linkages to the schedule activities affected. The document management repository must be structured to hold all supporting records — drawings, specifications, photographs, correspondence — in folders that align with the project's organisational structure. The workflow engine must record every action taken on every record, with timestamps that cannot be retrospectively modified.

None of these configuration choices is technically demanding. All of them have been documented by the author in earlier articles, individually, as features of the PMWEB platform. What is demanding is the discipline of maintaining the configuration consistently across the duration of a multi-year programme, particularly when individual project team members rotate, when site teams come under delivery pressure that tempts them to defer documentation, and when the project organisation is tempted to economise on the unglamorous overhead of contemporaneous records. The forensic-ready project is the project where senior management treats this discipline as non-negotiable, regardless of programme pressure.

The Cost of Method Substitution

The practical consequence of poor forensic readiness is method substitution. The analyst who would have used a contemporaneous period analysis, which is robust to challenge and produces credible results, has to substitute a retrospective method that is more vulnerable to challenge and produces less defensible results. The substitution is rarely visible to the executive team that authorises the claim; it is, however, visible to the experienced opposing counsel and to the tribunal. The claim that should have produced a one-hundred-million-dirham extension-of-time-and-prolongation award produces a sixty-million-dirham award instead, because the method that was available was inferior to the method that should have been available, and the tribunal applied an appropriate discount for the analytical weakness.

The forty-million-dirham gap is the cost of method substitution. It is paid by every project that defers the investment in contemporaneous records until a specific dispute makes the need for them visible. By that point, the records have either been captured properly or they have not, and no amount of subsequent effort will turn a poorly-documented project into a forensic-ready one. The investment must be made up-front, in the configuration of the PMIS at project inception and in the discipline of maintaining it throughout the programme. There is no retroactive substitute.

About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZ-LLC, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar, Kuwait and India.

Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation and has lectured at more than three hundred and fifty international events. He holds a Master's degree in Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

About CMCS

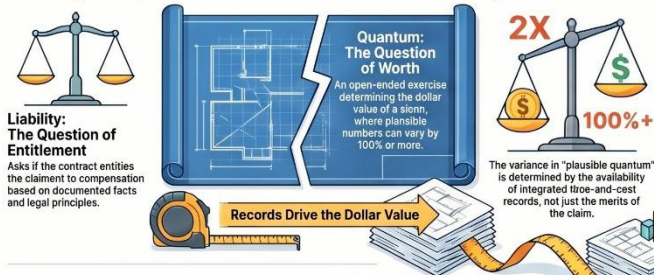
CMCS (Collaboration, Management and Control Solutions) is the regional PMWEB implementation partner for the GCC and MENA regions, awarded PMWEB Partner of the Year 2025. CMCS specialises in digital project management solutions for real estate developers, infrastructure owners, and construction companies across the Middle East and North Africa.

The Quantum Question: How Cost-Loaded PMIS Records Defend Project Owners Against Inflated Claims and Defend Contractors Against Unreasonable Rejections

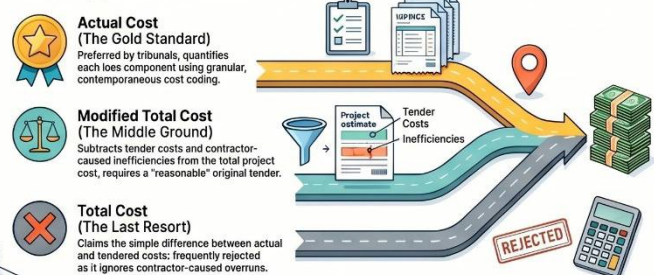
The first question in any construction claim is whether there is entitlement. The second question, and very often the more expensive one, is what the entitlement is worth. Quantum is where claims are won and lost in dollars rather than in legal principle, and quantum is decided almost entirely by what the project's cost and time records can prove.

The Quantum Question: Using Data to Defend and Win Construction Claims

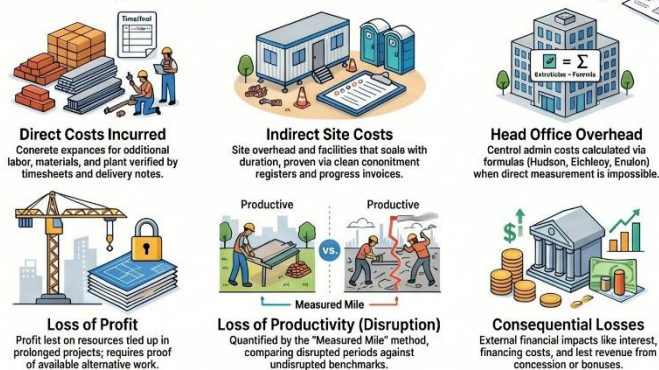
Liability vs. Quantum: The "Two-to-One" Reality



The 3 Approaches to Quantum



The 6 Categories of Claimable Loss



The PMIS Advantage: Data as a Defense



The Liability-Quantum Separation

In construction claim practice, liability and quantum are conventionally treated as separate questions. Liability asks whether the contract entitles the claimant to compensation for the event in question. Quantum asks how much that compensation should be. The two questions are analytically distinct and, in many disputes, are dealt with in sequence, with liability resolved first and quantum determined either by agreement or by a separate exercise once liability has been established.

This separation is convenient but it can mislead executives into believing that liability is the more important of the two. In practical terms it usually is not. Liability is typically a relatively contained legal question that can be answered by reference to the contract and the documented facts. Quantum, by contrast, is an open-ended exercise in which a wide range of plausible numbers can be defended depending on the records available, the analytical approach adopted and the assumptions made about indirect costs, head office overhead and lost opportunity. The variance in plausible quantum on a single claim, from the lower end of

what the claimant might accept to the upper end of what the defendant might be ordered to pay, is routinely two-to-one or wider. This is where the money is.

And the variance in plausible quantum is, like the variance in delay analysis methods, determined almost entirely by the records the analyst has to work with. A project with cost-loaded schedule activities, integrated time-and-cost records, contemporaneous resource tracking and a clean commitment register has a quantum analysis that is straightforward and difficult to challenge. A project without these records is reduced to retrospective reconstruction, theoretical formulas and broad-brush approximations that are vulnerable to challenge on every component.

The Six Categories of Claimable Loss

On most capital projects, claims fall into six broad categories of loss, each with its own quantum methodology. Understanding the six categories is necessary because the records required to defend or challenge each one are different.

Direct costs incurred. The most concrete category. Additional materials, additional labour, additional plant, additional supervision actually deployed on site as a result of the claim event. Quantum is established by reference to the contemporaneous cost records — the timesheets, the material delivery notes, the plant utilisation records, the subcontractor invoices. A PMIS that integrates with the cost system makes this category straightforward.

Indirect site costs. Site overhead, site supervision, site facilities, site utilities, site security and similar costs that scale with the duration of works on site rather than with specific activities. Quantum is established by reference to the actual site overhead spend during the period of prolongation. A clean commitment register and a clean progress invoice trail are essential.

Head office overhead. The contractor's central administration, executive management, head office facilities and similar costs that are notionally allocated to projects through overhead rates. Quantum is contested in almost every claim because there is no direct way to measure how much head office cost was specifically attributable to a particular project's prolongation. Theoretical formulas — Hudson, Eichleay, Emden — provide reasonable approximations but each carries assumptions that can be challenged.

Loss of profit. The profit the contractor would have earned on the resources tied up in the prolonged project, had those resources been deployed on alternative work. Quantum is contested because it requires showing that alternative work was actually available and would actually have been won. This is a fact-intensive question that depends on the contractor's commercial records.

Loss of productivity (disruption). The reduction in productivity caused by the claim event, distinct from any prolongation of duration. Quantum is established by the measured-mile method, in which productivity during the disrupted period is compared to productivity during a comparable undisrupted period. This requires daily report records of productivity that are sufficiently granular to support the comparison.

Consequential losses. Losses that flow from the prolongation but are not direct costs of the prolongation itself — financing costs, interest, currency effects, lost early-completion bonuses, lost concession revenues. Quantum varies enormously depending on the contract's allocation of consequential loss risk and on the specific factual configuration.

The Three Approaches to Quantum

Across all six categories, three broad analytical approaches are available, and the choice between them is, again, decided primarily by the records available rather than by the merits of the underlying claim.

Actual Cost

The actual cost approach quantifies each component of loss by reference to the actual costs incurred, as documented in the project's contemporaneous cost records. This is the approach tribunals overwhelmingly prefer. It is also the most demanding of records: it requires that the project's cost system was capturing costs at a sufficient level of granularity to support component-by-component reconstruction, that timesheets and material records were accurately maintained, and that the cost coding allowed costs attributable to the claim event to be separated from costs that would have been incurred anyway.

Logged into: All Levels

Costs > Cost Codes > * Master *

* Master *

Create and edit your project cost codes

Main Notes Attachments

Levels

Format: X-XX-XX

Level: 1
Description: Lead Design Consultant - The Villas
Characters: 1

Level: 2
Description: Secondary Infrastructure Contractor - The Villas
Characters: 2

Level: 3
Description: Main Construction Works - The Villas
Characters: 2

Codes

Group by: None

New Line Export To Excel Paste From Excel

	Inactive	Cost Code	Description	Lead Design Consultant - The V...	Secondary Infrastructure Contra...	Main Construction Works - Th
☐	No	1-11-11	Authorities Approvals	1 - Pre Contract	11 - Feasibility	11 - Authorities Approvals
☐	No	1-11-12	Development and Financial Appraisal	1 - Pre Contract	11 - Feasibility	12 - Development and Financ
☐	No	1-11-13	Land Purchase	1 - Pre Contract	11 - Feasibility	13 - Land Purchase
☐	No	1-11-15	Technical Assessment	1 - Pre Contract	11 - Feasibility	15 - Technical Assessment
☐	No	1-11-80	Miscellaneous	1 - Pre Contract	11 - Feasibility	80 - Miscellaneous
☐	No	1-12-11	Authorities Approvals	1 - Pre Contract	12 - Master Plan / Pre-Concept	11 - Authorities Approvals
☐	No	1-12-12	Development Financial Appraisal	1 - Pre Contract	12 - Master Plan / Pre-Concept	12 - Development and Financ

On a project where the PMIS integrates the cost system, the schedule and the contract management framework, the actual cost approach is tractable for most categories of loss. The cost system records what was spent. The schedule records when. The contract management framework records why. The three together produce a defensible reconstruction that is difficult for the opposing party to challenge on factual grounds.

Modified Total Cost

The modified total cost approach starts from the contractor's total actual cost on the project, subtracts the originally tendered cost, and adjusts for amounts that are clearly the contractor's own responsibility (rework, contractor-attributable inefficiencies, items the contractor concedes). The remainder is claimed as the cost attributable to the claim events. This approach is acceptable to most tribunals when the contractor can demonstrate that the originally tendered cost was reasonable, that the actual cost is properly recorded, and that the modifications applied are genuine and complete.

The approach is recordless less demanding than actual cost because it operates at the level of project totals rather than line-by-line component reconstruction. It is, however, vulnerable to challenge on the reasonableness of the original tender and on the completeness of the modifications. The tribunal's confidence in the modified total cost approach depends substantially on the rigour of the cost records and the credibility of the modifications.

Total Cost

The total cost approach simply claims the difference between the contractor's total actual cost and the originally tendered cost, without modification. This approach is disfavoured by virtually every tribunal in every jurisdiction, because it implicitly assumes that every dollar of cost over-run is attributable to the claim events. It is occasionally accepted where the contractor can prove that all four conditions are satisfied: the impossibility of more accurate quantification, the reasonableness of the original tender, the accuracy of the actual cost record, and the absence of contractor-attributable contribution to the cost overrun. These conditions are rarely met. Total cost claims are typically a sign that the project's cost records are too poor to support either of the more rigorous approaches.

Why the Records Determine Which Approach Is Available

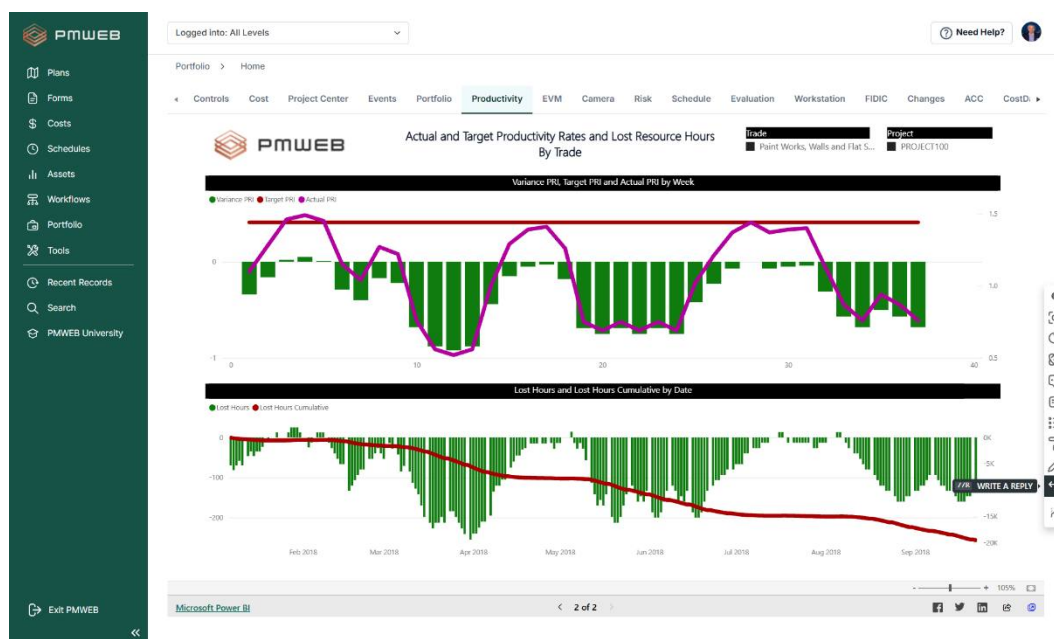
The progression from total cost to modified total cost to actual cost is, in practical terms, a progression of records quality. A project with poor records is reduced to total cost. A project with moderate records can support modified total cost. A project with strong records, integrated across cost, time and contract management, can support actual cost. The progression maps directly onto the quantum that can be defended: total cost quantum is heavily discounted by tribunals; modified total cost is moderately discounted; actual cost is awarded close to the claimed amount.

The economic value of strong records, in quantum terms alone, is the difference between the actual cost award and the total cost award discounted by the tribunal's typical scepticism. On a one-hundred-million-dirham claim, the difference is routinely thirty to fifty million dirhams. The investment in cost-loaded PMIS records, which produces this difference, is a small fraction of the difference itself.

The Measured Mile and Its Cousins

Among the six categories of loss, disruption (loss of productivity) is the one that most depends on a specific records architecture. The measured mile method, the most accepted technique for quantifying disruption, requires that the project's productivity records be maintained at a level of granularity that allows productivity during a disrupted period to be compared with productivity during a comparable undisturbed period. The granularity required is typically by trade, by activity type, by location and by date — exactly the structure that the PMWEB daily report module captures by default, as documented in the author's earlier article on lost productivity claims.

Where the daily report records are available at this granularity, the measured mile analysis is tractable and produces results that are difficult to challenge. Where they are not, the contractor is reduced to less rigorous methods — comparable project comparisons, industry productivity standards, theoretical disruption percentages — each of



which the tribunal will discount heavily. The difference in defensible quantum between a measured mile analysis based on PMIS-captured daily reports and a theoretical analysis based on industry standards is, again, routinely thirty percent or more of the claimed amount.

Head Office Overhead Formulas: A Specific Case

Head office overhead claims are worth a specific note because they are the category most commonly contested in major disputes and the category where records architecture most directly determines the result. The three principal formulas — Hudson, Eichleay, Emden — each calculate an overhead recovery from a combination of contractor revenue, head office spend, the original contract value and the prolongation period. Each formula carries assumptions that can be challenged. The Hudson formula assumes that the head office

overhead is constant per unit of time, regardless of project mix; the Eichleay formula allocates overhead in proportion to project revenue; the Emden formula varies with the contractor's overall trading position.

Whichever formula the tribunal accepts, the input figures must come from somewhere. The contractor's actual head office spend during the period must be documented; the contractor's project revenue mix must be substantiated; the original contract value must be stated correctly. On a contractor whose internal records are well-maintained, the inputs are uncontroversial and the formula produces a defensible result. On a contractor whose records are poor, every input is contestable and the head office overhead claim is at risk of being reduced or rejected entirely. The contractor's internal records discipline, well before any specific project, determines the success of head office overhead claims on every project that contractor undertakes.

What Cost-Loaded PMIS Records Change

The architecture that produces strong quantum across all six categories of loss is the cost-loaded PMIS. The schedule activities are loaded with the budgeted resource and cost values. The actual costs are captured against the same activities through the cost system, integrated with the PMIS. The progress invoices reference the same activities, with the percent

Line #	Attach	Cost Co.	Description	Currency	Sched	Prior L	Curren	Total T	Total L	Total S	Total
1	[02]	02-010002	General Conditions	USD - Dollar (Unite...	\$415,000.00	\$124,500.00	\$33,200.00	\$33,200.00	\$157,700.00	\$157,700.00	3
2	[02]	02-020000	Existing Conditions	USD - Dollar (Unite...	\$1,000,000.00	\$300,000.00	\$200,000.00	\$200,000.00	\$500,000.00	\$500,000.00	5
3	[01]	02-030000	Concrete	USD - Dollar (Unite...	\$850,000.00	\$85,000.00	\$255,000.00	\$255,000.00	\$340,000.00	\$340,000.00	4
4	[02]	02-050000	Metals	USD - Dollar (Unite...	\$825,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
5	[02]	02-061000	Rough Carpentry	USD - Dollar (Unite...	\$365,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
6	[02]	02-099000	Painting and Coating	USD - Dollar (Unite...	\$250,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
7	[02]	02-210000	Fire Suppression	USD - Dollar (Unite...	\$425,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
8	[02]	02-220000	Plumbing	USD - Dollar (Unite...	\$400,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
9	[02]	02-230000	HVAC	USD - Dollar (Unite...	\$400,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
10	[02]	02-250000	Electrical	USD - Dollar (Unite...	\$500,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0
11	[02]	02-310000	Earthwork	USD - Dollar (Unite...	\$480,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0

complete values flowing back into the schedule. The change management framework captures every variation against the same activity structure, with cost and time impacts identified at the time of issue. The result is an integrated record in which every dollar spent on the project can be located in time, in scope, in contract attribution and in cause.

On a project of this kind, quantum analysis is a calculation rather than a reconstruction. The numbers are in the system. The analyst's role is to extract them, organise them and present them. The opposing party's challenge is constrained to the merits of the cost categorisation, not to the existence of the underlying figures. Quantum disputes settle faster, settle closer to the right number, and damage the relationship between the parties less. This is the dividend of investing in cost-loaded PMIS records, and it is paid every time a quantum question arises on every project the organisation delivers.

About the Author

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The Engineer's Determination: Using PMIS Evidence to Issue Fair, Defensible and Sub-Clause-Compliant FIDIC Decisions

Under most modern FIDIC contracts, the engineer is required to act fairly, in accordance with the contract, and taking due regard of all relevant circumstances when issuing determinations. The engineer's determination is binding on both parties unless successfully challenged. The pressure on engineers — from owners who appointed them, from contractors who must be told no, from their own professional reputation — is intense. The only thing that protects the engineer is the quality of the evidentiary record.



The Engineer's Quasi-Judicial Role

Across the FIDIC contract family — the 1999 first editions, the 2017 second editions, and the bespoke regional adaptations that derive from them — the engineer occupies a position that is unique in commercial life. The engineer is appointed and paid by the project owner. The engineer's day-to-day instructions, on most projects, come from the owner's project management team. And yet the engineer is required, when issuing determinations under sub-clause 3.7 of the 2017 books or sub-clause 3.5 of the 1999 books, to act independently of the owner, to consult both parties, to consider all relevant circumstances and to make a determination that is fair to both sides.

This is a quasi-judicial role embedded in a commercial relationship, and the tension is fundamental. The engineer who is too sympathetic to the owner's position loses credibility with contractors, accumulates a reputation in the regional market that depresses future bid pricing, and faces challenges to determinations that are upheld in arbitration with reputational consequences. The engineer who is too sympathetic to the

contractor's position loses the confidence of the owner, faces commercial pressure on the consultancy contract and on future appointments, and may find specific determinations rejected by the owner with consequent dispute escalation. The narrow path between these failures is the path of fair, defensible, evidence-based determination — and the narrow path is, in practical terms, walked on the foundation of the project's documentary record.

Sub-Clause 3.7 in the 2017 FIDIC Books, in Outline

The 2017 FIDIC second editions introduced significant changes to the engineer's determination process compared with the 1999 first editions. The two-stage process under sub-clause 3.7 — consultation followed by determination — is more clearly articulated, the time limits are tighter, the requirements for a reasoned determination are more specific, and the consequences of failure to comply with the procedure are more severe.

The first stage requires the engineer to consult with both parties, individually and collectively, and to seek an agreement. The second stage, if agreement is not reached, requires the engineer to make a determination, supported by reasoning, that addresses the matter in dispute. The determination must be issued within the time limit specified in the contract, must reflect a fair view of the contract and the circumstances, and must be capable of being explained to both parties on the basis of the evidence considered. The determination is binding on both parties unless and until it is revised by an agreement, by the dispute avoidance and adjudication board, or by arbitration.

These requirements impose specific evidentiary expectations on the engineer. The consultation must be on an informed basis: the engineer must have considered the records relevant to the matter in dispute before consulting either party. The reasoning must address the records: a determination that does not engage with the evidence presented is not a reasoned determination. The conclusion must be defensible against the records: a determination that is contradicted by the contemporaneous record is at risk of being overturned and the engineer's professional standing damaged. Each of these expectations turns on the engineer's access to the project's documentary record at the moment the determination is being prepared.

The Pressures the Engineer Faces

The pressures on the engineer in the determination process are well-known to the senior consultancy community but are rarely articulated in print. They are worth stating explicitly because they are the conditions under which the engineer's documentary infrastructure has to perform.

The first pressure is from the owner. The owner has a financial interest in the outcome of every determination and, on a project of any scale, the owner's project management team makes that interest known to the engineer's team in ways that range from polite suggestion to explicit instruction. A weaker engineer accommodates the owner's interest. A stronger engineer resists it. The engineer who can defend resistance with reference to the documentary record is in a stronger position than the engineer who cannot.

The second pressure is from the contractor. Contractors who receive adverse determinations rarely accept them quietly. They challenge the determination, escalate to the dispute board, threaten arbitration and, on occasion, mobilise commercial pressure through their relationship with the owner. The engineer who can defend the determination with reference to the documentary record withstands this pressure. The engineer who cannot is exposed.

The third pressure is from the engineer's own professional reputation. Determinations are watched in the regional market. Engineers who consistently issue determinations that are overturned in arbitration accumulate a reputation that affects their future appointments, their professional standing and the commercial value of their consultancy. The engineer who issues determinations grounded in the

documentary record protects this reputation. The engineer who issues determinations on the basis of judgment alone, without documentary support, places it at risk.

What a Defensible Determination Requires

A determination that withstands the three pressures above and survives any subsequent challenge in front of a dispute board or arbitral tribunal has four characteristics. Each characteristic is supported by the project's PMIS infrastructure and is difficult to achieve without it.

Process Compliance

The determination must have been preceded by consultation with both parties, conducted on an informed basis, within the time limits specified in the contract. The PMIS workflow record establishes when each stage of the process occurred, who was involved, what was communicated and on what basis. A challenge to the engineer's process is rebuttable by the workflow record. A determination issued without a documented process is harder to defend.

Evidentiary Completeness

The determination must have considered all relevant evidence available at the time of issue. The PMIS document repository, the schedule history, the daily report record, the change management register, the correspondence record and the meeting minutes record together establish what evidence was available. A determination that overlooks relevant records is exposed; a determination that explicitly considers each category of relevant record is robust. The engineer's ability to demonstrate that all relevant records were considered depends on the existence of those records in a single, searchable repository.

Reasoned Analysis

The determination must explain how the evidence supports the conclusion. This is not a legal argument; it is an analytical demonstration that the engineer has applied a coherent framework to the facts. The reasoning must engage with the contractor's position, with the owner's position, and with the contractual provisions invoked by each. The reasoning must reach a conclusion that follows from the evidence rather than from the engineer's commercial position. The PMIS provides the structured framework within which the reasoning can be articulated and supported.

Timely Issue

The determination must be issued within the contractual time limit. Late determinations are vulnerable to challenge regardless of their merits. The PMIS workflow engine, with automated reminders and escalation, supports timely issue across the determination process. The engineer who relies on manual tracking is exposed to procedural failure even when the substantive analysis is correct.

How a PMIS Supports Each Element

The four characteristics above describe the determination. The supporting infrastructure that makes each characteristic achievable is the project's PMIS. Process compliance is supported by the workflow engine, which captures the consultation steps, the communications between the parties, the time stamps and the attendees of each consultation. Evidentiary completeness is supported by the document repository and the cross-linking between project records, which allows the engineer to identify and retrieve all relevant evidence within hours rather than weeks. Reasoned analysis is supported by the integrated record, which allows the engineer to construct a coherent narrative across schedule, cost, contract and correspondence dimensions. Timely issue is supported by the workflow engine's reminders and escalation.

The author has worked with senior engineering teams across the GCC region in implementing this infrastructure. The pattern of consequence is reliable. Engineers who operate within a properly implemented PMIS issue determinations faster, defend them successfully more often, and accumulate a regional reputation that

STEP #	TYPE	DESCRIPTION	LEVEL	ACTION	RETURN TO	DELEGATE	DECISION
1	Director		System	Next Step		☒	☐
2	Project Manager		System	Next Step	Previous Approver	☒	☐
3	Project Engineer		System	Next Step		☒	☐
4	CO GT 100000		System	Branch		☐	☐
4.1	Project Engineer 2		System	Next Step		☒	☐
4.2	Procurement Department		System	Next Step		☒	☐
4.3	Capital Accounting Manager		System	Next Step		☒	☐
4.4	Director		System	Next Step		☒	☐
4.5	AuthorizationSAF		System	Next Step		☒	☐
4.6	Business Group Head of Finance		System	Next Step		☒	☐
5	COO		System	Next Step		☒	☐

strengthens their consultancy practice. Engineers who do not are reduced to the slower, less reliable and more contestable practice of determining each matter from whatever records can be assembled at the time, which is increasingly inadequate to the demands of the modern FIDIC framework and to the sophistication of the contractor and claims-consultant community now active in the regional market.

The Reputational Cost of Poor Determinations

There is a final point about engineer's determinations that bears on the commercial calculation of the engineering consultancy itself. The engineering consultancy that consistently issues determinations grounded in the documentary record builds a reputation in the market for fairness, rigour and professional independence. That reputation is, in the long run, the most valuable asset the consultancy has. It produces invitations to bid on the most complex projects, justifies premium fee structures, attracts and retains the best engineering talent, and protects the consultancy against the commercial pressures of any individual project.

The engineering consultancy that issues determinations on the basis of judgment alone, without documentary infrastructure, accumulates the opposite reputation. The contractors learn, over time, which engineers are reliable in determination and which are not. The owners, in their less guarded moments, distinguish between engineers who can be relied upon to support the owner's commercial position and engineers who cannot. The first kind of reputation is, in short-term commercial terms, easier to capitalise on. It is, in long-term reputational terms, lethal. The engineering consultancy that wants to remain competitive over a multi-decade horizon invests in the documentary infrastructure that supports defensible determinations, and it does so for its own commercial reasons rather than because the contracts require it.

About the Author

Bassam Samman, PMP, PSP, EVP, GPM is the Chairman and Chief Executive Officer of CMCS FZ-LLC, the PMWEB Authorised Implementation Partner for the Gulf Cooperation Council and broader Middle East and North Africa region. CMCS holds the PMWEB Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar, Kuwait and India.

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About PMWEB

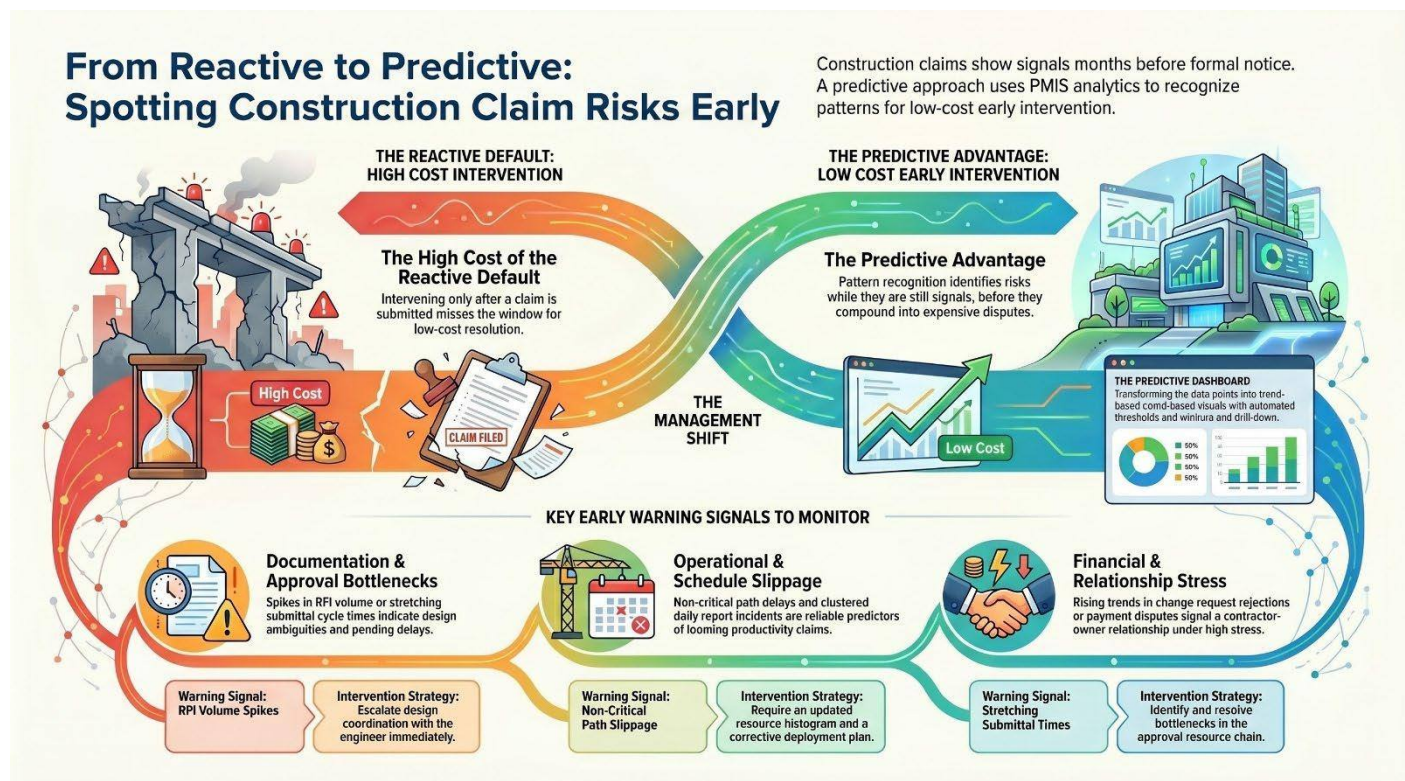
PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

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From Reactive to Predictive: Using PMIS Analytics and Early-Warning Patterns to Identify Claim Risks Before They Materialise

Claims rarely arrive without warning. The signals are usually visible in the project records months before the formal notice is issued — but only to organisations that are looking for them, and only to organisations whose information systems make those signals visible. Predictive claims management is no longer a theoretical capability. It is a practical one.



The Reactive Default and Its Cost

Most construction claims management, on most capital projects, is reactive in character. The claim arrives. The claims management team is mobilised. The records are assembled. The position is taken. The defence or the counter-claim is prepared. The dispute is resolved. The cycle repeats on the next claim. This is the default mode of operation across the global industry, and it is the mode of operation in which most claims-management training is conducted, most claims-consultancy services are sold, and most legal advice is provided.

The reactive default has a structural problem that is rarely articulated openly. By the time a claim has been formally submitted, the conditions that produced it have been in place for months, sometimes years. The opportunity to intervene at low cost has passed. The opportunity to intervene at moderate cost is rapidly closing. What remains is the high-cost intervention of formal claim management, which the reactive cycle is built around.

Predictive claims management proposes a different sequence. The signals that precede claims are identified and acted upon while they are still signals, before they have crystallised into formal positions and before the cost of intervention has compounded. This requires two capabilities that the reactive cycle does not develop: the ability to recognise the signals, which is a matter of analytical pattern-recognition, and the ability to make those signals visible to the project organisation in time to act, which is a matter of information infrastructure.

The Signals That Precede Claims

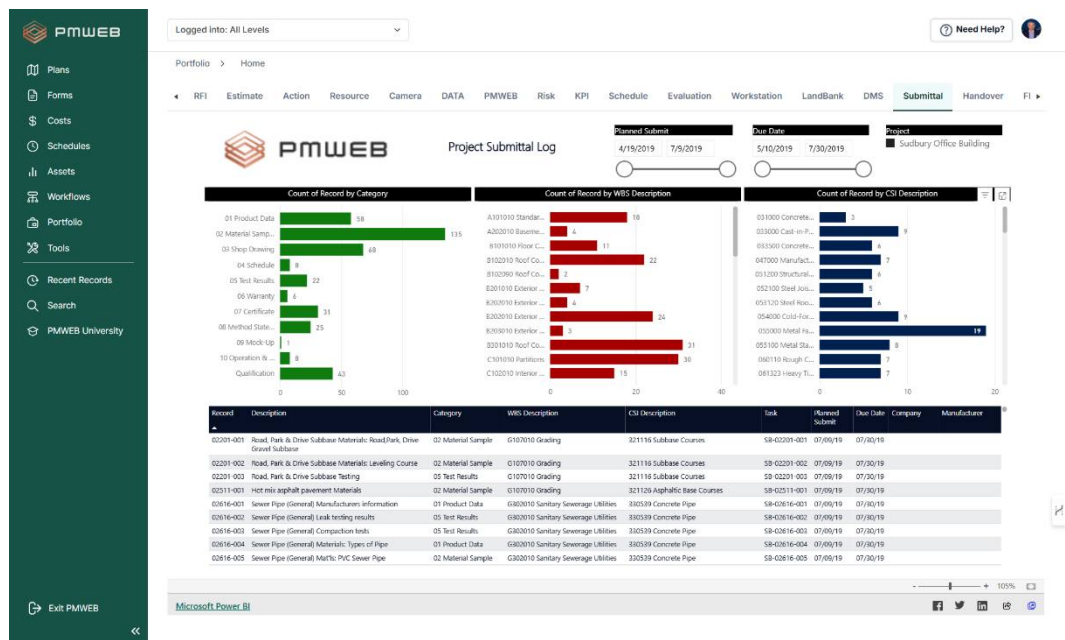
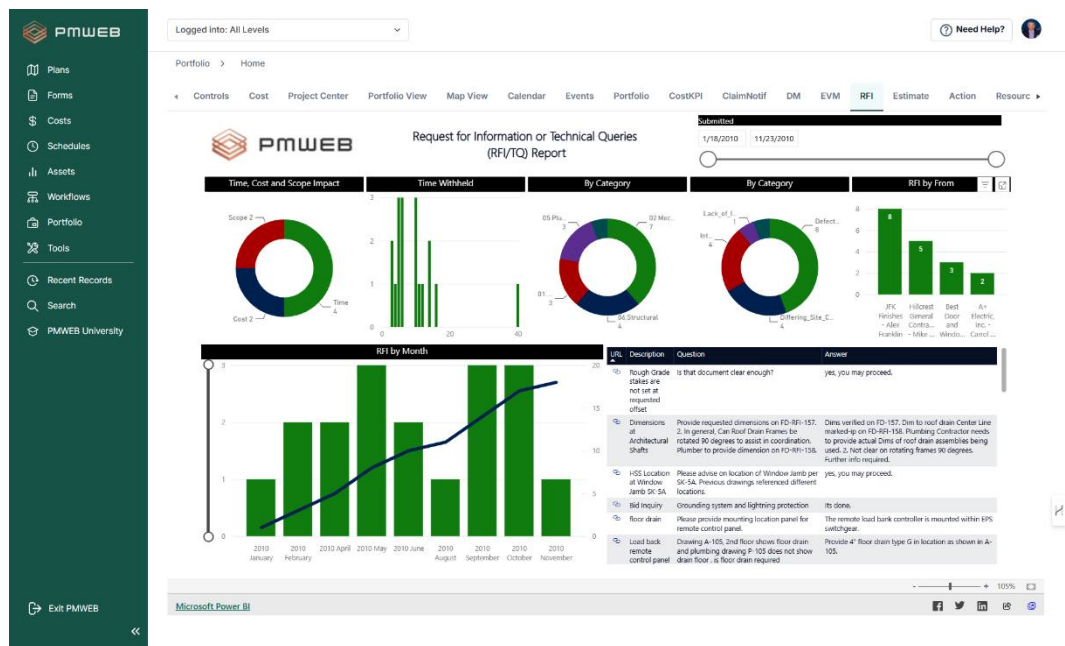
Across more than four decades of practice, the author has observed a consistent set of signals that precede formal claim submissions. The list is not exhaustive but the patterns are reliable enough that an experienced project organisation can use them as a working dashboard of claim risk. Six signal categories are particularly diagnostic.

RFI Volume and Category Clustering

Requests for information are the routine mechanism by which contractors clarify ambiguities in the design documents. A normal project generates a steady volume of RFIs across a range of categories, with no particular concentration. A project drifting toward a design-related claim generates an above-trend volume of RFIs concentrated in a small number of categories — typically the ones the contractor will later cite as evidence of defective specifications, late drawings, or inadequate design coordination. The pattern is visible in the RFI register weeks or months before any formal claim is articulated, but only to organisations that monitor the register at the level of category trends rather than as individual records.

Submittal Cycle Times Stretching

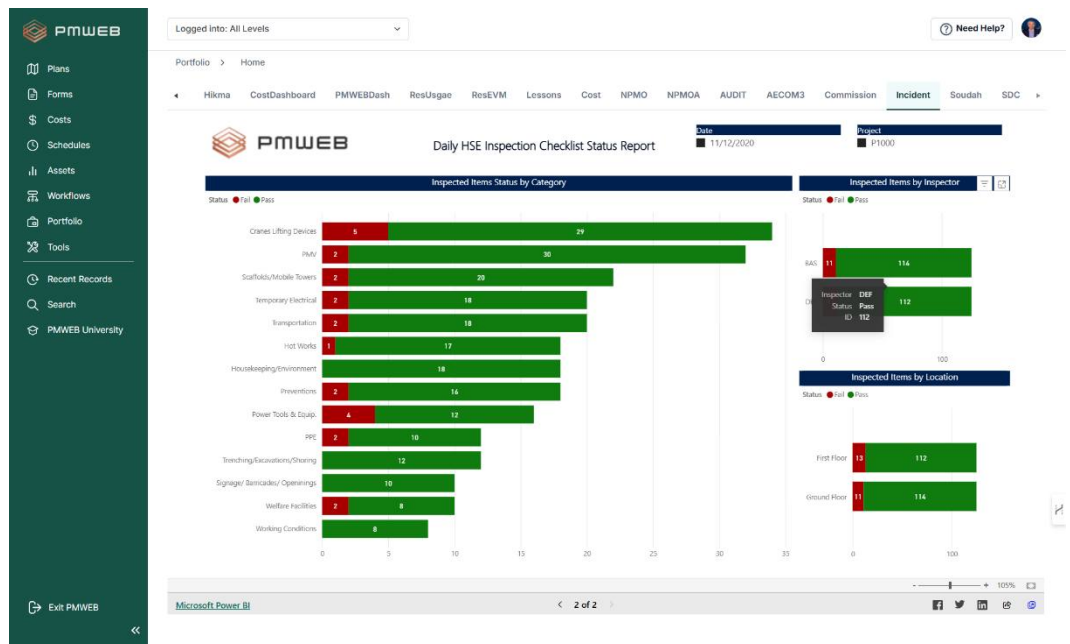
Submittal cycles — for shop drawings, method statements, material samples, subcontractor approvals — have a distribution of cycle times that is reasonably stable on a well-managed project. When the distribution shifts, with median cycle times stretching and outliers



growing more extreme, the project is approaching a delayed-approval claim. The shift is visible in the submittal register weeks or months before the contractor formalises the claim, but again only to organisations that monitor cycle-time trends rather than individual approvals.

Daily Report Incident Patterns

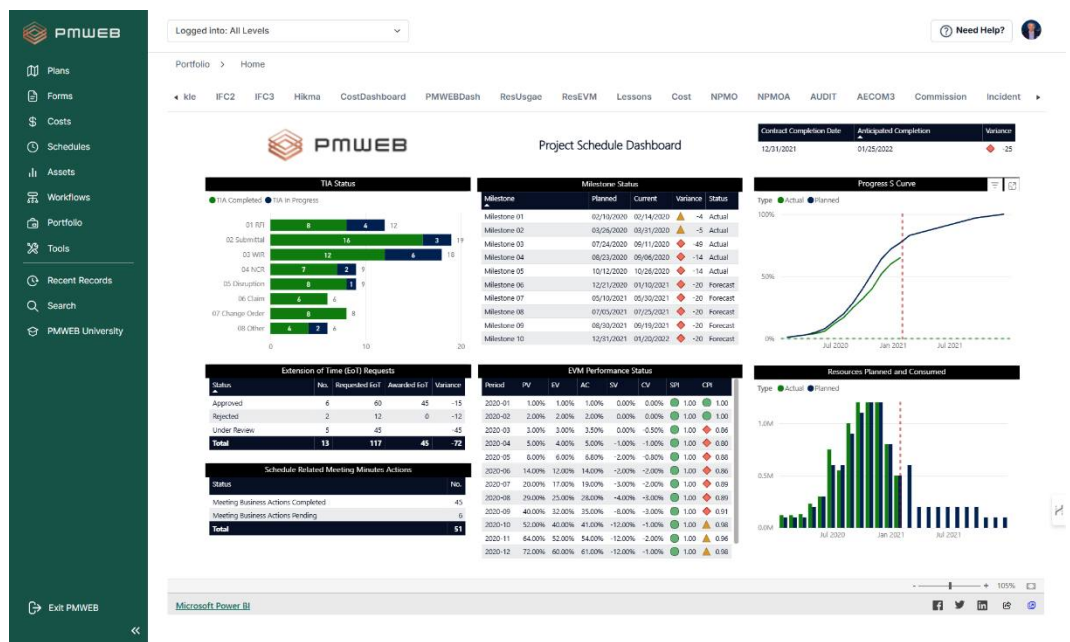
Daily reports capture incidents and observations as they occur. A normal project records a steady, low-volume stream of incidents. A project drifting toward a disruption claim records an above-trend volume of incidents in a recognisable pattern — typically clustered around specific locations, specific trades



or specific times. The pattern is visible to anyone who reads the daily reports systematically, but most projects do not read them systematically. They are filed for future reference, in case a claim arises that requires them. By the time the claim arises, the pattern that should have triggered intervention is buried in the historical record.

Non-Critical-Path Schedule Slippage

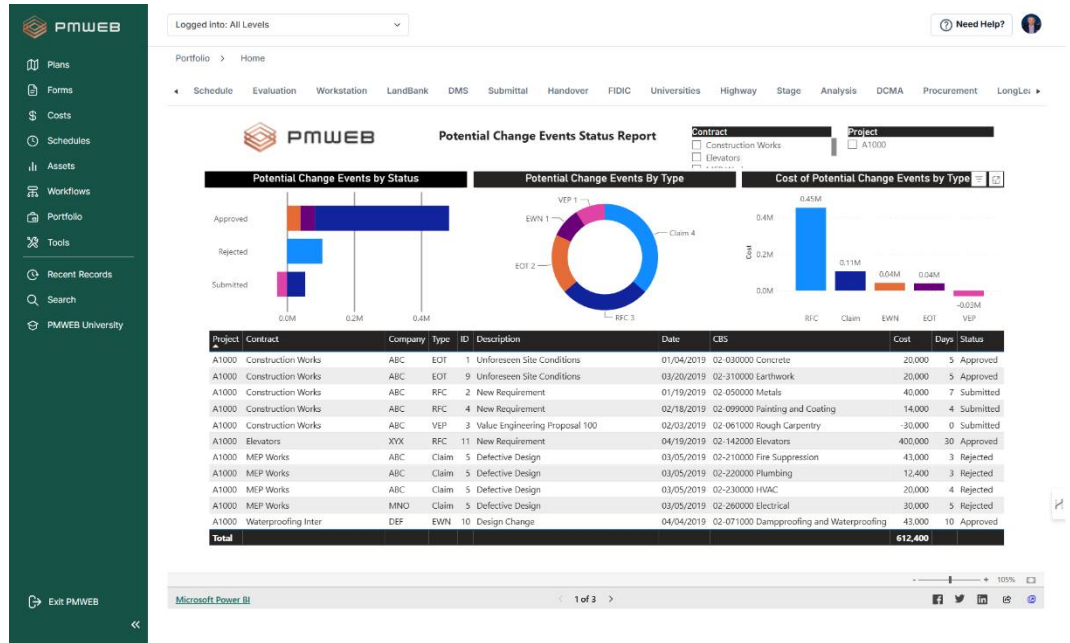
Schedule slippage on the critical path is, by definition, visible to the project management team because it threatens the completion date. Schedule slippage on the non-critical path is rarely visible at the senior level, because the slack absorbs it without changing the completion forecast. But non-critical-path



slippage is one of the most reliable predictors of forthcoming productivity claims, because it indicates that the contractor's resource deployment is no longer matching the planned sequence. The non-critical activities that should have been performed in parallel with the critical activities are being deferred, the resources that should have been working on them are being redeployed to address other issues, and the productivity penalty of the unplanned redeployment is accumulating in records that nobody is reading.

Change Request Rejection Patterns

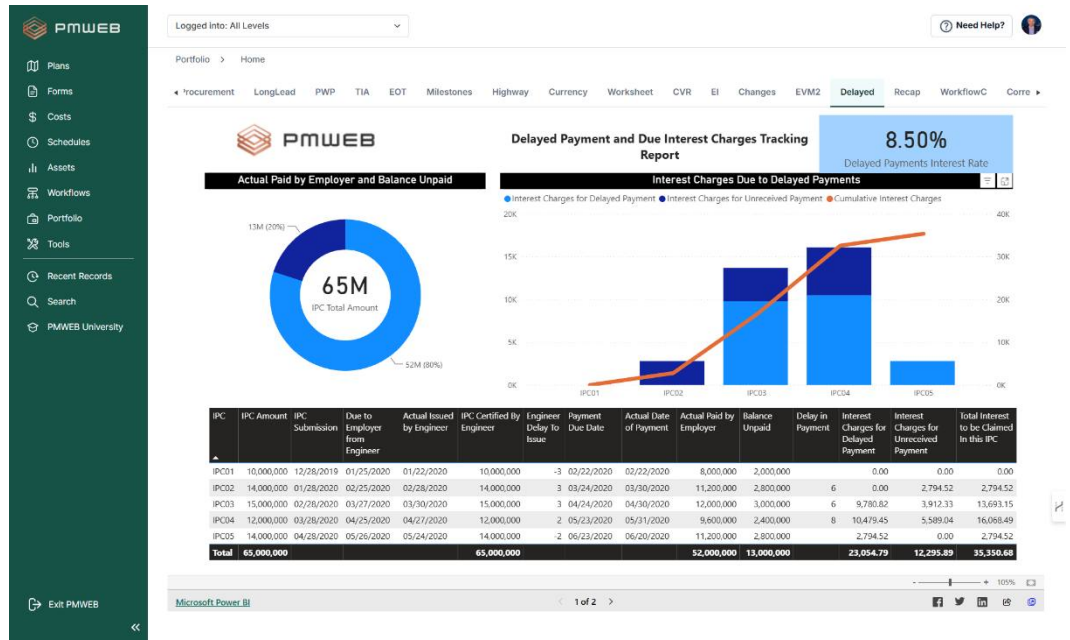
Change requests submitted by the contractor and rejected by the engineer have a normal pattern: the rejection rate is stable, the reasons for rejection are dispersed across several categories, and the contractor's response is to accept the rejection or to argue it on the merits. A project drifting toward a contested-variation



claim shows a different pattern: the rejection rate rises, the reasons for rejection cluster around a small number of categories (typically 'within scope' or 'not a variation'), and the contractor's response is to begin building a documentary case for the work as a constructive change. The pattern is visible in the change management register weeks or months before the claim is formalised.

Payment Dispute Trends

Disputes on interim progress invoices — value of work, retention, set-off, payment timing — are routine on capital projects and individually rarely escalate. But the trend in payment disputes is diagnostic. A rising trend in disputed amounts, a lengthening trend in payment cycle times, or a clustering of disputes around specific



work packages indicates a contractor-owner relationship under stress, and stressed relationships produce claims at a higher rate than healthy ones. The trend is visible in the payment register and the cost system, but only to organisations that monitor it as a leading indicator rather than as individual transactions.

From Signals to Patterns: The Predictive Dashboard

The signals above are individually visible in the project records of any organisation that maintains records at all. What distinguishes predictive claims management from the reactive default is not the existence of the signals but the systematic visibility of the patterns. A predictive dashboard makes each signal visible in trend

form, on a single page, updated automatically from the underlying PMIS data, with thresholds that flag deviation from normal patterns and drill-down capability to investigate any flagged signal in detail.

Building such a dashboard is technically straightforward on a properly implemented PMIS. The data is already in the system. The trend calculations are simple. The threshold logic is well-understood. The drill-down is supported by the cross-linking between PMIS records that the platform provides as a foundational architecture. What is required is the discipline of building the dashboard, deploying it across the project organisation, and acting on what it shows. The first two are technical exercises that can be completed in weeks. The third is an organisational shift that takes longer.

Early Intervention Strategies

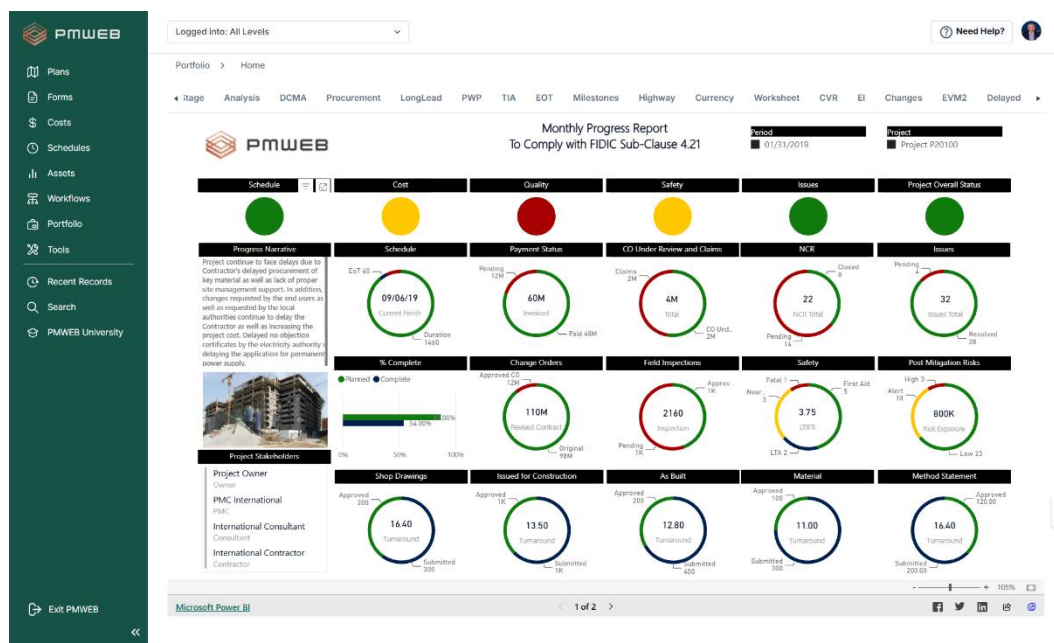
Once the signals are visible, the question becomes what to do about them. Predictive claims management is only valuable if the visibility translates into action that prevents or reduces the eventual claim. The action repertoire is well-developed but rarely systematised. Five intervention strategies, each tied to a specific signal category, capture the most common cases.

When RFI volume rises in a specific category, the appropriate intervention is to escalate the underlying design coordination issue with the engineer, in a structured forum, before the contractor's documentary case for defective specifications has been allowed to compound. When submittal cycle times stretch, the appropriate intervention is to identify the cause of the bottleneck — typically resource constraint at the engineer's office or unclear approval criteria — and to address it in time to reset the cycle time distribution. When daily report incident patterns cluster, the appropriate intervention is a focused review of the affected location, trade or time slot, with corrective action to remove the underlying cause.

When non-critical-path slippage emerges, the appropriate intervention is to investigate the contractor's resource deployment and to confirm that the deployment is consistent with the planned sequence; if it is not, the appropriate intervention is to require an updated resource histogram and a corrective plan. When change request rejections cluster, the appropriate intervention is a structured discussion of the scope boundary in dispute, before the contractor's documentary case for constructive change has been allowed to mature. When payment disputes rise, the appropriate intervention is a senior-level review of the contractor-owner relationship, with the explicit objective of restoring the trust that produces healthy payment dynamics.

The Behavioural Effect of Visibility

The most important effect of a predictive dashboard is, again, behavioural rather than technical. When the project organisation knows that the signals are being watched, the behaviour of the parties shifts. The contractor's claims-management function recognises that early intervention is now possible and adjusts its



strategy from accumulating claim positions to engaging on issues as they arise. The owner's project management function recognises that the dashboards are visible to senior management and adjusts its tolerance for unaddressed issues. The engineer's team recognises that the patterns of submittal cycle times and approval delays are visible and adjusts its resource allocation accordingly.

The cumulative effect, observed on programmes that have implemented this discipline, is a reduction in claim volume and claim severity that exceeds what would be expected from the intervention strategies alone. The visibility itself produces a more disciplined project culture. The dashboard becomes a forcing function for behaviour, not just an information tool.

The Limits of Prediction

Predictive claims management has limits that should be acknowledged. Some claims arise from events that produce no early signals — force majeure, unforeseeable site conditions, third-party actions, statutory or regulatory changes. The dashboard cannot predict these. Some claims arise from strategic decisions on the contractor's side that are not visible in the project records until the formal claim is submitted. The dashboard cannot predict these either.

But the majority of claims on the majority of capital projects are not of this kind. They develop over weeks and months, through patterns that are visible in the records. They are produced by the gradual accumulation of unaddressed issues into a documented case. They are, in principle, susceptible to early intervention. The investment in predictive infrastructure addresses this majority — not all claims, but most claims, and the most claims that are most expensive. The remaining claims, the unpredictable ones, are managed reactively as they always have been. The combined approach is materially more effective than the reactive default alone, and it is the direction in which sophisticated capital project organisations across the regional market are moving.

About the Author

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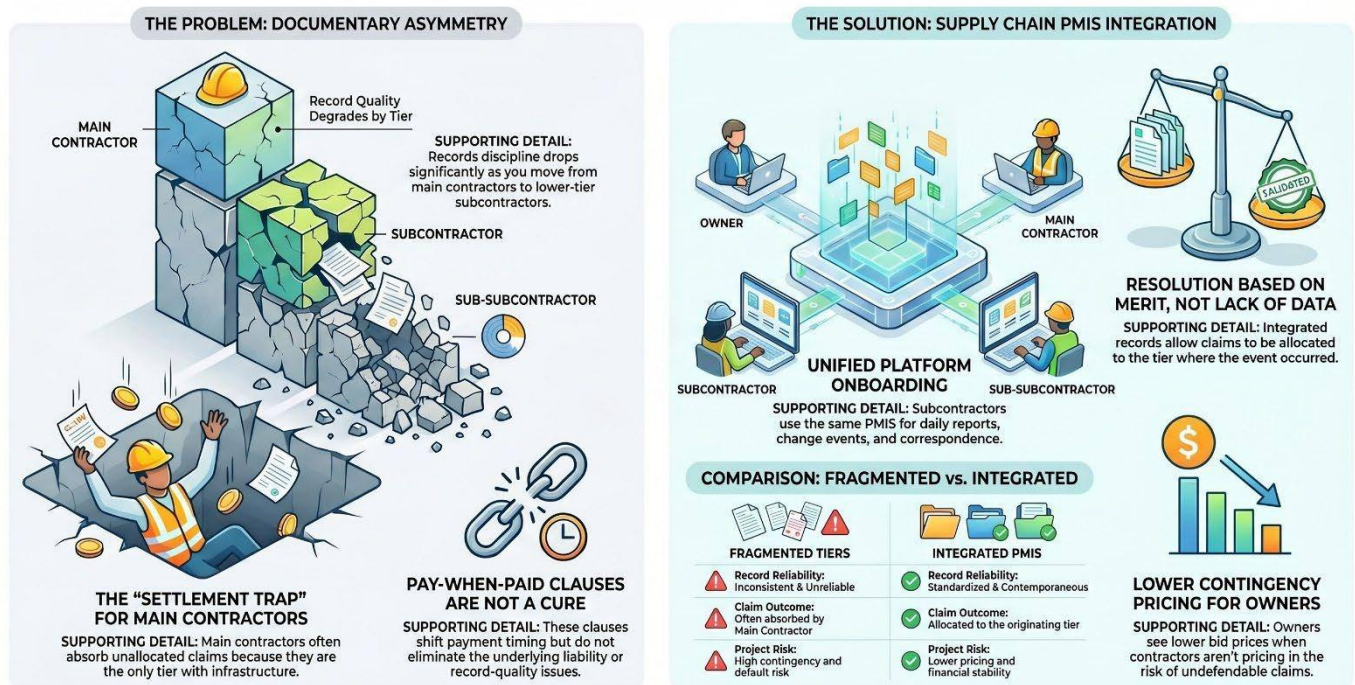
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The Subcontractor Cascade: Managing Tier-Two and Tier-Three Claims Liability Through a Single PMIS

When a main contractor receives a claim from its subcontractors, it has three choices. It can absorb the claim from its own margin, it can pass it through to the project owner, or it can dispute it. The choice it makes depends almost entirely on what its documentary records can prove — about its own performance, about the subcontractor's performance, and about the chain of causation between events on site and obligations under the subcontract.

The Subcontractor Cascade: Solving the Records Gap in Construction Claims



The Cascade Problem

Capital construction projects are delivered through hierarchical contractual structures that almost everybody in the industry takes for granted. The owner contracts with a main contractor. The main contractor contracts with subcontractors. The subcontractors contract with sub-subcontractors. Each tier in the hierarchy carries its own contractual obligations, its own performance standards, its own payment terms and its own liability allocation. When events on site produce claims, those claims propagate through the hierarchy in patterns that are well-known to experienced practitioners but rarely articulated in print.

The propagation pattern is straightforward in outline. An event on site disrupts the work of a sub-subcontractor. The sub-subcontractor submits a claim to the subcontractor under the sub-subcontract. The subcontractor, having received the claim, considers whether the disruption was attributable to its own performance or to events upstream — to the main contractor, to the engineer, to the owner. If upstream, the subcontractor passes the claim through to the main contractor under the subcontract. The main contractor, in turn, considers whether the disruption was attributable to its own performance or to events upstream of itself, and either absorbs the claim or passes it through to the owner.

This is the cascade. It is the mechanism by which a single event on site can produce a claim against the owner that has its origin two or three contractual tiers below the main agreement. It is also the mechanism by which the records discipline at each tier determines the eventual outcome. Where every tier maintains complete contemporaneous records, the cascade is tractable: the chain of causation can be reconstructed at each interface and the claim is allocated to the tier where the originating event occurred. Where records discipline breaks down at any tier, the cascade collapses, and the consequence is borne disproportionately by the main contractor — which is invariably the only tier with sufficient documentary infrastructure to defend itself, and is therefore the tier on which all unallocated claims eventually settle.

Why Pay-When-Paid Clauses Don't Solve It

The standard contractual mechanism for protecting the main contractor against subcontractor claims that the main contractor cannot pass through to the owner is the pay-when-paid or pay-if-paid clause. These clauses provide that the main contractor's obligation to pay the subcontractor is contingent on the main contractor itself receiving payment from the owner for the same work. In jurisdictions where such clauses are enforceable, they provide a measure of protection. In jurisdictions where they are not enforceable, or where they are enforceable only in limited circumstances, the main contractor bears the full cost of any subcontractor claim it cannot pass through, regardless of the underlying merits.

Even where pay-when-paid clauses are enforceable, they do not solve the cascade problem in practice. Subcontractor claims that are not passed through to the owner accumulate on the main contractor's balance sheet as contingent liabilities. They strain the main contractor's working capital. They damage the main contractor's relationship with the subcontractor community, which over time affects the main contractor's ability to procure subcontract work at competitive rates. They produce litigation between the main contractor and its subcontractors, which the main contractor wins or loses on the basis of, again, the records discipline of each side. The pay-when-paid clause shifts the timing of the payment but does not eliminate the underlying liability or the underlying records-quality problem.

The Documentary Asymmetry Between Tiers

The most important feature of the cascade, from a records-management perspective, is the asymmetry between tiers. Main contractors on capital projects of any meaningful size operate within structured project management environments — they have formal cost systems, formal scheduling systems, formal correspondence management, and on increasing numbers of projects formal PMIS deployments. Subcontractors operate within less structured environments. Sub-subcontractors operate within still less structured environments. The records discipline degrades as one descends the contractual hierarchy.

This degradation produces a structural problem when claims arise. The main contractor receiving a claim from its subcontractor has its own records to work with, but the subcontractor's own performance — which is the proximate question — is documented in records of a quality the main contractor cannot control. If the subcontractor maintained inadequate daily reports, the main contractor cannot reconstruct what the subcontractor was actually doing. If the subcontractor did not capture its own change events properly, the main contractor cannot determine which events were attributable to upstream causes and which were not. The main contractor is reduced to evaluating the subcontractor's claim on the basis of the subcontractor's own records, which the main contractor knows to be unreliable, and is forced into one of two unattractive options: accept the claim despite its weak documentary base, or reject the claim and absorb the cost of the dispute.

The same asymmetry applies on the way up. The main contractor that wishes to pass a subcontractor claim through to the owner must defend the claim in front of the engineer with the engineer's customary

documentary expectations. The subcontractor's records, which are the underlying evidentiary base for the claim, are typically below the standard the engineer would accept. The main contractor either supplements the subcontractor's records with its own — a labour-intensive exercise of questionable value — or accepts that the pass-through is at risk of being rejected on documentary grounds. Either outcome is expensive.

The Owner's Hidden Stake in the Cascade

Project owners frequently take the position that the cascade is a contractor-side problem. The owner contracts with the main contractor on terms that allocate the responsibility for managing the supply chain to the main contractor, prices the contract on that basis, and treats subcontractor performance as the main contractor's risk. This position is contractually defensible. It is operationally inadequate.

In practice, owner outcomes are affected by the cascade in three significant ways. First, the cost of the cascade is priced into the main contractor's bid. Main contractors who know they will absorb subcontractor claims that cannot be properly documented price that absorption into their tender. Owners pay for it in higher initial pricing, regardless of whether claims actually materialise. Second, the disputes the main contractor cannot pass through to the owner directly affect the main contractor's financial health and its ability to deliver. A main contractor whose working capital is being absorbed by undefendable subcontractor claims is a main contractor at increased risk of default on the project itself. Third, the disputes that do reach the owner — the ones the main contractor passes through, with documentary support that may or may not be adequate — present the engineer with claims whose underlying records the engineer cannot reasonably assess. The engineer's determination is harder, the cycle is longer, and the outcome is more contestable.

The owner's interest in cascade quality is therefore not contractual but operational. Owners who wish to receive bids at lower contingency prices, work with main contractors whose financial stability is not eroded by undefendable subcontractor claims, and resolve their own disputes on records of adequate quality, have a direct interest in the records discipline of the entire supply chain — not only of the main contractor.

Extending PMIS Into the Supply Chain

The architectural solution to the cascade problem is the extension of the project's PMIS into the supply chain. Subcontractors operate on the same platform as the main contractor. Their daily reports are captured in the same system, with the same structure, integrated with the main contractor's schedule and cost frameworks. Their change events are recorded in the same change management module. Their progress invoices flow through the same system. Their correspondence is captured in the same repository.

This is, in the author's experience, the area of capital project management where the most significant gains over the next decade will be made. The technology to extend PMIS into the supply chain has been available for some time. The PMWEB platform supports unlimited user accounts at no per-user incremental cost, supports tier-specific configuration so that subcontractors see only the records relevant to them, supports controlled cross-tier visibility so that the main contractor can monitor subcontractor performance without exposing main contractor records inappropriately, and supports the same workflow, document repository and reporting capabilities at every tier. The constraint is not the technology. It is the organisational discipline of bringing the supply chain onto the platform.

Subcontractor Onboarding and Claim-Readiness

The practical mechanism for extending PMIS into the supply chain is structured subcontractor onboarding. Subcontractors are required, as a condition of award, to operate on the project's PMIS. They are provided with training, with configured access to the relevant modules, and with templates and processes that align their internal procedures with the main contractor's. Their staff are issued user accounts. Their reporting

flows are integrated with the main contractor's. Their records become part of the project's documentary infrastructure rather than a separate parallel system that has to be reconciled at every interface.

The cost of this onboarding is borne primarily by the main contractor, with some support from the owner where the owner sees the strategic value. The benefit is captured in two forms. The first is the reduction in cascade-related disputes, which translates into faster project delivery and lower contingency in subcontract pricing. The second is the construction of a documentary record at the subcontractor tier that, when claims do arise, supports their resolution on the merits rather than on the asymmetry of records discipline. Both benefits compound over time as subcontractors who have been onboarded onto the platform become repeat participants in the main contractor's project portfolio.

The Cost of Tier Fragmentation

On programmes where the supply chain has not been onboarded onto the platform, the cost of tier fragmentation is substantial and largely invisible. Subcontractor claims accumulate that the main contractor cannot defend. Pass-through claims to the owner are rejected on documentary grounds. Subcontractor disputes consume management time at the main contractor level that should have been deployed elsewhere. Working capital is tied up in contingent liabilities that have no clear resolution path.

On programmes where the supply chain has been onboarded, the cost reduces substantially but does not disappear. Some subcontractors resist the onboarding, citing administrative burden or competitive concerns about exposing internal records to the main contractor. Some sub-subcontractors are below the threshold at which onboarding is economic. Some subcontract scopes are too small to justify the integration effort. The platform extends most of the way down the cascade but not all of the way. The residual cost is real but manageable, and substantially below the cost on a fully fragmented programme.

The Practical Path Forward

The practical path to closing the cascade gap is incremental rather than absolute. Major subcontract scopes are onboarded first; minor scopes follow as the platform investment is amortised. Sub-subcontractor onboarding is selective, focused on the scopes most likely to generate claim activity. The owner provides commercial support for the onboarding effort where it sees the strategic benefit, typically through provisions in the main contract that require supply-chain participation in the project's PMIS. The main contractor provides operational support through structured training, configuration assistance and ongoing technical support. The result, observed on programmes that have committed to this approach, is a supply chain that operates as a single integrated documentary system rather than as a series of weakly-connected tiers, with the consequent reduction in claim volume, claim severity and unallocated cost.

This is one of the areas where the author's regional experience suggests the GCC market may, over the next decade, take a leadership position relative to other major construction markets internationally. The combination of large programme scale, sophisticated owner organisations, increasingly disciplined main contractors, and the growing strategic alignment between owners and main contractors on the value of supply-chain integration provides the conditions in which extended PMIS deployment can be economically justified at scale. The next and final article in this series addresses the specific features of the GCC market that make it not only suitable for this approach but, in the author's view, dependent on it.

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ARTICLE 10 OF 10 — CONSTRUCTION CLAIMS SERIES

The GCC Reality: Why Regional Capital Projects Demand Stronger Claims Discipline Than International Norms — and Why a PMIS Like PMWEB Is the Only Practical Answer

The capital project market in the Gulf Cooperation Council region is unlike any other in the world. The scale is larger, the timetables are more aggressive, the political visibility is higher, and the claims environment is, by any measurable metric, more sophisticated than even five years ago. Project owners and contractors who continue to use the documentation systems of the previous decade will, predictably and avoidably, lose ground to those who do not.

The GCC Construction Reality: Navigating the New Era of Capital Projects

The New High-Stakes Environment



in the Project Pipeline

GCC: One of the largest & densest capital project markets globally. Giga-projects & infrastructure for the next decade.



Vision-Driven, Non-Negotiable Deadlines
National strategies (e.g., Saudi Vision 2030, Qatar Vision 2030) tie completion to fixed fiscal targets. Acceleration is the only option.

Shift in Owner Capability



Outdated Reliance
(International Consultants)



Advanced Internal Capability
(Regional Government Owners)

Owners building internal PMO teams of superior capability, demanding higher documentation standards.

The Sophistication of Modern Disputes



The Rise of Third-Party Claims Funding

International funds finance regional claims, enabling contractors to pursue complex arbitrations previously abandoned.



Multi-Jurisdictional Arbitration Standards

Regional centers (DIAC, SCCA) apply international best practices. No 'regional discount' on quality of evidence required.



Outdated Systems
(Documentary Tax)



Modern, Defensible Evidence

The Solution: PMIS & Local Expertise



PMWEB as the Practical Answer

Robust PMIB: The only way to maintain contemporaneous records for favorable settlements and avoid the 'documentation tax'.



The Necessity of Local Implementation

Platforms must be configured by experts (like CMCS) to align with regional FIDIC variants, workflows, and multilingual environments.



CMCS: 30+ Years of Regional Practice
CMCS bridges the gap between global technology and specific GCC contractual realities.

The Path Forward for Stakeholders



Owners

Eliminate the Documentation Tax

Invest in PMIS infrastructure to protect the portfolio, ensure management is grounded in data, not judgment.



Contractors

Achieve Sustainable Bidding

Operate at the documentary standard of funded claims to capture a structural advantage in regional tenders.



Consultants

Protect Professional Standing

Ensure all determinations are grounded in defensible, integrated documentary infrastructure to preserve long-term reputation.

The GCC Capital Project Environment in 2026

The Gulf Cooperation Council member states — Saudi Arabia, the United Arab Emirates, Qatar, Kuwait, Bahrain and Oman — collectively represent one of the largest capital project markets in the world by annual programme value, and the largest by programme density per capita. The combined construction pipeline across the region, taking in giga-projects, infrastructure programmes, real-estate development, industrial and energy facilities,

runs into the trillions of dollars over the rolling decade. No other region delivers capital programmes at this density of value to programme value at this speed of execution.

This scale is not a marginal feature of the regional market. It is the defining characteristic of how capital projects are delivered in the region, and it has consequences for every other dimension of the work. Programme teams are larger than international norms. Stakeholder structures are more complex. Decision-making timelines are compressed. Risk allocations are more aggressive. Performance expectations are higher. The capacity of the regional supply chain has expanded substantially over the past decade but remains, on the most demanding programmes, a binding constraint. Every one of these features intensifies the documentation challenge that the previous nine articles in this series have described.

Vision-Driven Programmes and Non-Negotiable Deadlines

A specific feature of the regional market that does not appear in equivalent form elsewhere is the strategic anchoring of capital programmes to national development visions. Saudi Vision 2030, the UAE's various national strategies, Qatar's Vision 2030, Kuwait's Vision 2035, Oman Vision 2040 and the equivalent strategic frameworks across the region establish programme deadlines that are tied to fiscal-year considerations, ceremonial events, sovereign-vision targets, and major international gatherings hosted in the region. These deadlines are non-negotiable in a way that is not paralleled in most other markets, where programme deadlines are typically commercial constructs that admit of commercial renegotiation.

The non-negotiability of regional deadlines has a specific consequence for claims management. The fallback option that is available to project owners and contractors in most markets — to negotiate a programme extension when delays mount, on terms that share the cost between the parties — is not available, or is available on much narrower terms, in the regional context. The programme has to be delivered by the date. If the date is at risk, acceleration is the only acceptable response, and acceleration generates its own claims. The compressed environment forces every party to make decisions faster than international norms would suggest, on documentation that has to be of higher quality, with consequences for relationships that are correspondingly more severe.

The Arrival of International Claims Funding

Over the past five years, the regional market has been comprehensively transformed by the arrival of international third-party claims funding. Funds from Europe, North America, Australia and increasingly Asia now finance the preparation, submission and pursuit of construction claims on regional programmes, in exchange for a share of any recovery. The funded contractor's economic calculation has changed: claims that would previously have been abandoned for lack of resources are now pursued to arbitration. The funded claims-consultancy industry that has grown alongside this funding is more sophisticated than the regional industry of even ten years ago, and it is bringing analytical capabilities that the previous generation of contractor commercial teams did not possess.

The implication for project owners is direct. The claims that are now reaching arbitration in the region are better-prepared, better-supported and more sophisticated than the claims that the regional contracting community was generating before the arrival of funded claims management. Owners who continue to operate on the documentation discipline of the previous decade are facing claim submissions of a quality their documentary

infrastructure was never designed to defend against. The asymmetry has shifted. The contractors are now better-resourced for the claims process than the owners are. The author has observed, on multiple regional programmes, the consequent migration of arbitration outcomes toward contractor-favourable awards in the period since the funding arrived.

The implication for contractors who are not themselves working with funded claims-management is equally significant. The standard against which their claim submissions will be judged has risen. Submissions that would have succeeded against the comparator pool of contractor submissions five years ago are now mediocre. To succeed, the unfunded contractor must operate at the standard the funded contractors are setting, which requires documentary infrastructure of the kind this series has described.

Government Project Owners and the New Discipline

A specific feature of the regional market that has changed substantially over the past decade is the level of capability inside government project owner organisations. The major regional owners — the development companies, the giga-project entities, the national project management offices, the infrastructure authorities — have, collectively, recruited and developed project management capability of a standard that did not exist in the region in earlier generations. The owner-side teams running these programmes are now, in many cases, of equivalent capability to the international consultancy teams supporting them, and the gap continues to close.

This capability shift has consequences for the documentation discipline expected on regional programmes. The new generation of owner-side project management teams understands the strategic value of contemporaneous records, the analytical methods that depend on them, and the consequences of failing to maintain them. They are increasingly imposing PMIS deployment as a contractual requirement, structuring tender evaluation criteria to reward bidders with demonstrated PMIS capability, and integrating their own owner-side reporting into the same platforms as the main contractor's project records. The regional capital project market is, in this dimension, leading rather than following international norms.

Cross-Border Contracts and Multi-Jurisdictional Disputes

Regional capital projects are typically delivered through contractual structures that involve multiple jurisdictions. The owner is incorporated under one jurisdiction; the main contractor is often a joint venture between regional and international firms incorporated in different jurisdictions; the design consultant is frequently international; the supply chain extends across the region and beyond. Disputes that arise in this structure are heard in seats of arbitration that are often outside the country in which the project is delivered, under arbitration rules that may be regional, international, or specific to the contractual seat.

The principal regional arbitration centres — the Dubai International Arbitration Centre (DIAC), the Abu Dhabi Global Market Arbitration Centre, the Saudi Center for Commercial Arbitration, the Bahrain Chamber for Dispute Resolution, the Qatar International Court — have substantially expanded their capacity over the past decade and are now hearing major construction disputes that would, in earlier generations, have been heard in London or Paris. The standards applied by these centres reflect international best practice in construction dispute resolution. The documentary expectations they impose on the parties are equivalent to those of the longer-established international centres. The regional centres do not, in any meaningful sense, offer a less

demanding forum than the international ones; they offer an equivalently demanding forum that is geographically and culturally closer to the parties.

The implication for documentary infrastructure is direct. The standard the regional centres expect is the standard at which the regional industry must operate. There is no longer a regional discount on documentary quality. The discount that may have existed in earlier generations of regional dispute resolution has closed.

Why Local PMIS Implementation Capability Matters

The technology of project management information systems is, at the platform level, a globally available commodity. PMWEB, the platform on which CMCS has built its regional implementation practice, is one of several major international platforms; it is implemented on capital projects across more than thirty countries on six continents. The technology itself is not a regional product.

What is regional, and what cannot be substituted by the platform technology, is the implementation capability. The configuration of the platform to align with regional contractual structures (FIDIC variants, regional bespoke contracts, government project frameworks); the integration with regional cost-system conventions and currency arrangements; the workflow alignment with regional approval authority structures and stakeholder management practices; the multilingual deployment that supports the diverse linguistic environment of regional project teams; the cultural alignment of the implementation methodology with regional operating norms — these are capabilities that are built up over decades of regional practice and that cannot be reproduced by importing implementation teams from other markets.

CMCS has, over more than three decades of regional practice, accumulated this implementation capability across the full range of regional project types — real estate, capital construction, government infrastructure, industrial, hospitality, healthcare, education and digital infrastructure. The PMWEB Partner of the Year 2025 designation reflects this capability. The portfolio of regional programmes the firm has supported — across UAE, Saudi Arabia, Qatar, Kuwait and India — provides the empirical base for the observations in this series.

The Regional Capability Gap

Despite the capability the regional market has accumulated, a gap remains between the documentary discipline that the most sophisticated regional programmes operate at and the discipline that the broader regional industry maintains. The leading owner organisations, the leading main contractors and the leading consultancies operate at the standard this series has described. Below them, the standard varies widely. Mid-tier contractors, smaller subcontractors, less-mature owner organisations and emerging consultancies operate at varying standards, in some cases substantially below what the modern regional dispute environment demands.

The gap is closing, but it is closing slowly, and it is closing unevenly. The organisations that close it first capture a competitive advantage that compounds over time: they win more bids, deliver projects with fewer disputes, settle the disputes that do arise on more favourable terms, and preserve the relationships that produce repeat business. The organisations that delay closing the gap pay the documentation tax described in the third article of this series, on every project, for as long as the delay continues.

The Path Forward

The path forward is not, in essential terms, complicated. The technology is available. The implementation capability is available. The organisational case for investment in documentary infrastructure has been made repeatedly, in this series and in the author's earlier work. What remains is the decision, taken at the level of senior management in each project organisation, to make the investment.

For project owners, the decision is between continuing to bear the documentation tax across the project portfolio and investing in the infrastructure that eliminates most of it. The investment is small. The return is large. The organisations that have made the investment are visibly better-performing across multiple dimensions of programme delivery.

For main contractors, the decision is between operating at the documentary standard the funded claims environment now imposes and continuing to operate at the standard that was acceptable five years ago. The first option is sustainable. The second is not. The contractors that recognise this earlier capture a structural advantage in regional bidding.

For engineering consultancies, the decision is between issuing determinations grounded in defensible documentary infrastructure and issuing determinations on the basis of judgment alone. The first option protects the firm's regional reputation across a multi-decade horizon. The second exposes the firm to a slow erosion of standing that becomes visible only when it is too late to address.

For subcontractors and the regional supply chain, the decision is whether to participate in the integrated PMIS environments that main contractors and owners are increasingly requiring, or to remain in the parallel-systems environment that produces unallocated claims and damaged main-contractor relationships. The first option requires investment. The second produces, predictably, a steadily eroding competitive position.

None of these decisions is genuinely difficult on the merits. All of them are difficult in practice because they require the organisation to act before the consequences of inaction have become visible in the cost report. The organisations that act now will, in the author's view, dominate the regional market over the next decade. The organisations that defer action will not. This series has tried to set out, with the directness the subject deserves, the reasons why.

This concludes the ten-article series.

About the Author

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Bassam has over four decades of experience providing project management, project controls services and project management information systems to more than two hundred capital projects with a combined value exceeding one hundred billion US dollars. He is the author of four published books on project management digitalisation and has lectured at more than three hundred and fifty international events. He holds a Master's degree in

Engineering Administration (Construction Management), with Faculty Commendation, from George Washington University and a Bachelor's degree in Civil Engineering from Kuwait University, with executive education at Harvard Business School and London Business School.

About PMWEB

PMWEB is an enterprise-class, web-based capital construction project management platform trusted by organisations worldwide including Harvard University, the United Nations, and Atlanta Airport. Built on Microsoft .NET technology, PMWEB manages the entire project lifecycle within a single integrated platform — from portfolio planning and cost management through document control, procurement, scheduling, asset management, and business intelligence. With 150+ pre-configured SSRS reports, drag-and-drop dashboard design, multi-currency support, and open REST/SOAP API integration, PMWEB delivers enterprise capability with implementation timelines measured in months, not years.

About CMCS

CMCS (Collaboration, Management and Control Solutions) is the regional PMWEB implementation partner for the GCC and MENA regions, awarded PMWEB Partner of the Year 2025. CMCS specialises in digital project management solutions for real estate developers, infrastructure owners, and construction companies across the Middle East and North Africa.