CMCS INSIGHTS · OWNERS · PRACTICE

PMWEB in Practice

Six in-depth articles on specific PMWEB processes for owners and PMOs: RFIs as structured data, contingency and management reserves, real-time line-item variance reporting, Activity Boards that keep project conversations on the record, contingency managed as a portfolio buffer, and why real-time cost reporting needs PMWEB integrated with the ERP.

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PMWEB for Capital Project Owners | Request for Information Management

RFIs as Data, Not Correspondence — The Added Value of Managing RFIs in PMWEB

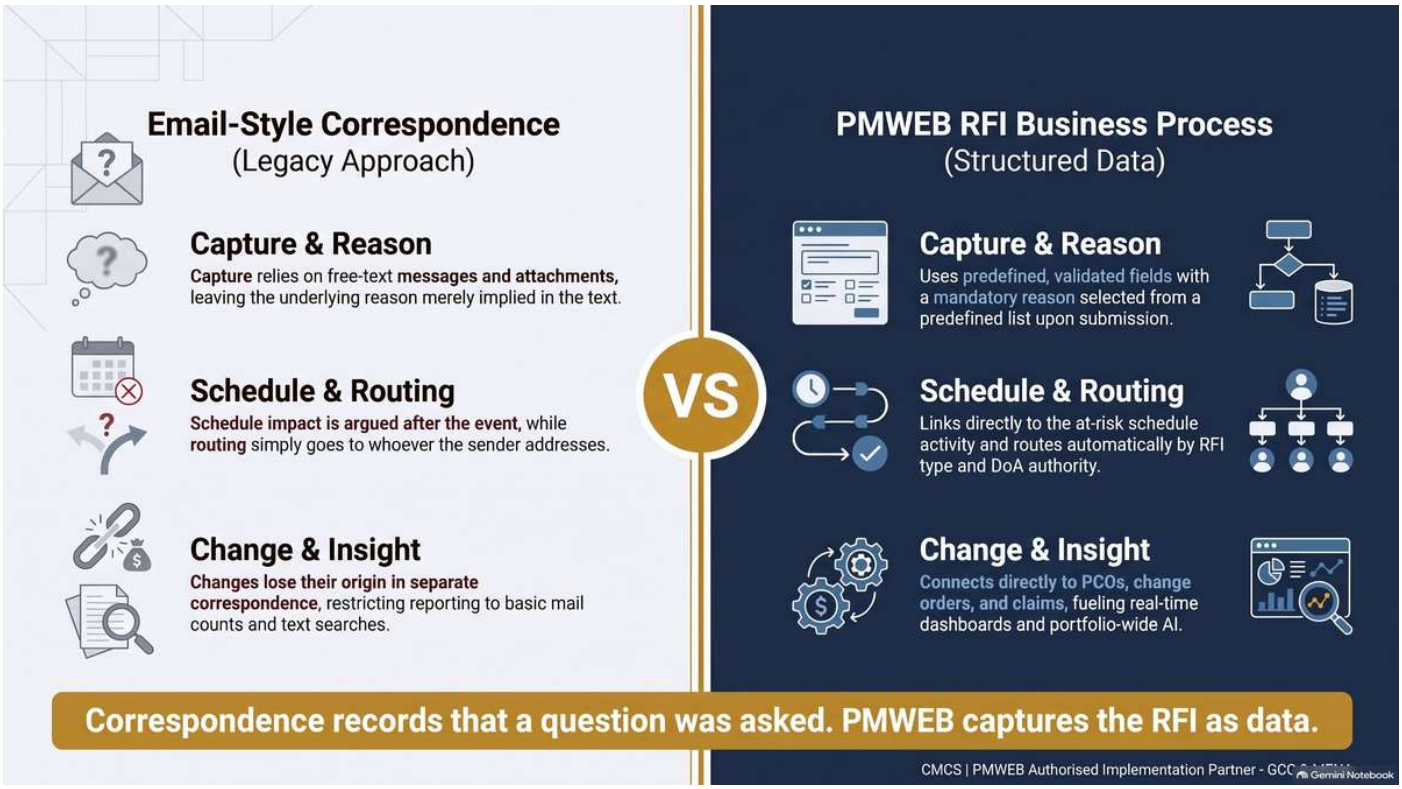
From a mail thread that records a question to a business process that governs its consequences

Every construction project raises hundreds of RFIs, and large programmes raise thousands. Most owners can say how many were sent. Very few can say which ones put the critical path at risk, which ones committed them to cost, and which ones were raised to open the door to a claim.

A Request for Information, known on many projects as a Technical Query or a request for clarification, is how the contractor asks the design team to resolve an ambiguity in the drawings, specifications, bills of quantities or the contract itself. The principle is simple. The exposure is not. A late answer can delay a critical activity. An answer given without the right authority can commit the owner to cost. An RFI raised with intent can become the first document in a variation or a claim.

On many GCC projects, RFIs are exchanged as correspondence on email-style document control platforms such as Aconex. The question is sent, the answer comes back and the thread is archived. That proves a communication took place. It does not capture the RFI as data. The reason it was raised, the activity it threatens, the authority needed to answer it and the change it triggered all stay buried in free text and attachments, where no workflow, report or AI model can reliably use them.

PMWEB treats the RFI as a business process rather than a message. This article explains how capturing each RFI as granular, structured data allows PMWEB to link it to the project schedule, route it by type, enforce the owner's Delegation of Authority (DoA) matrix, connect it to potential change orders and claims, report on it in real time and, with PMWEB 2026, learn from RFIs across the owner's entire portfolio of projects.



What a Well-Managed RFI Process Must Achieve

Whatever the contract form, FIDIC or bespoke, owners expect the RFI process to deliver the same six outcomes. Each one depends on data that must be captured when the RFI is raised, not reconstructed later.

Objective	What it requires
Clarity	The question is specific, references the exact contract documents and offers the contractor's proposed solution.
Timeliness	Answers are issued within the contractual response period and prioritised by schedule risk, not by date received.
Right expertise	Each RFI is reviewed by the discipline that owns the design element in question.
Right authority	Any answer with time or cost consequences is approved at the level set in the owner's DoA matrix.
Traceability	Every RFI that leads to a change order or claim can be traced in both directions.
Learning	Patterns across projects inform design reviews, contract drafting and contractor and consultant selection.

How RFIs Are Typically Managed Today

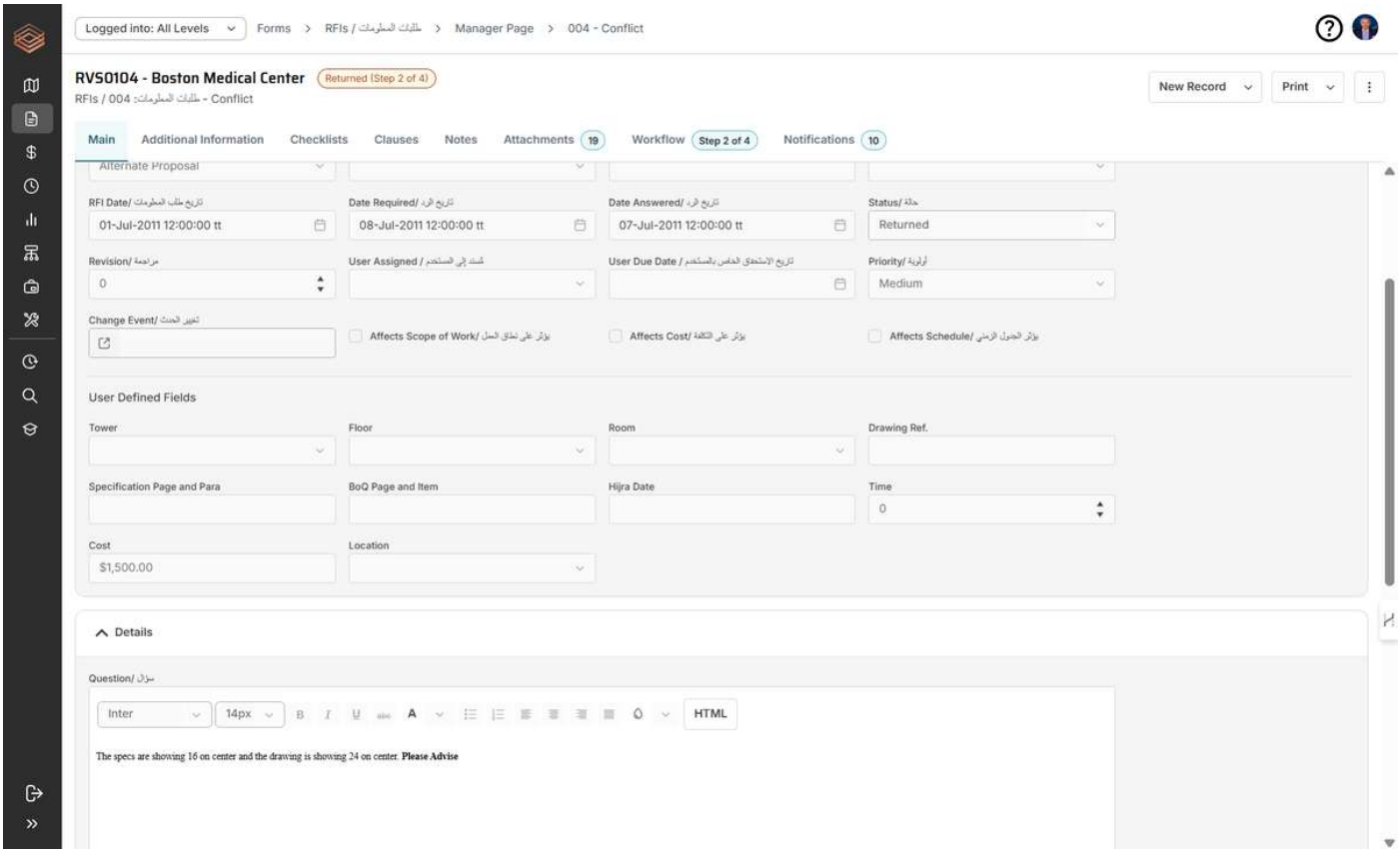
- **The RFI is a message, not a record.** Reason, discipline, location and impact live in the subject line and body text, if they are stated at all.
- **Routing depends on the sender.** The contractor addresses whoever they think should answer, and the right reviewer may never see the query.
- **Authority is implied, not enforced.** A designer's answer that changes scope or adds time can be issued without the owner's commercial approval.
- **Schedule impact is argued after the event.** The link between an RFI and an activity first appears in an extension of time submission, months later.
- **Changes lose their origin.** A variation arising from an RFI is raised in new correspondence, and the trail back depends on someone quoting a reference number.
- **Reporting stops at counts.** The register shows how many RFIs were sent and answered. It cannot show why they were raised, where, or at what cost.

How PMWEB Digitalises RFI Management

The principle is to capture every attribute of the RFI once, at source, in a structured field, and then let workflows, links, reports and AI put that data to work. Each element below is configuration within PMWEB, not custom development.

A granular RFI template

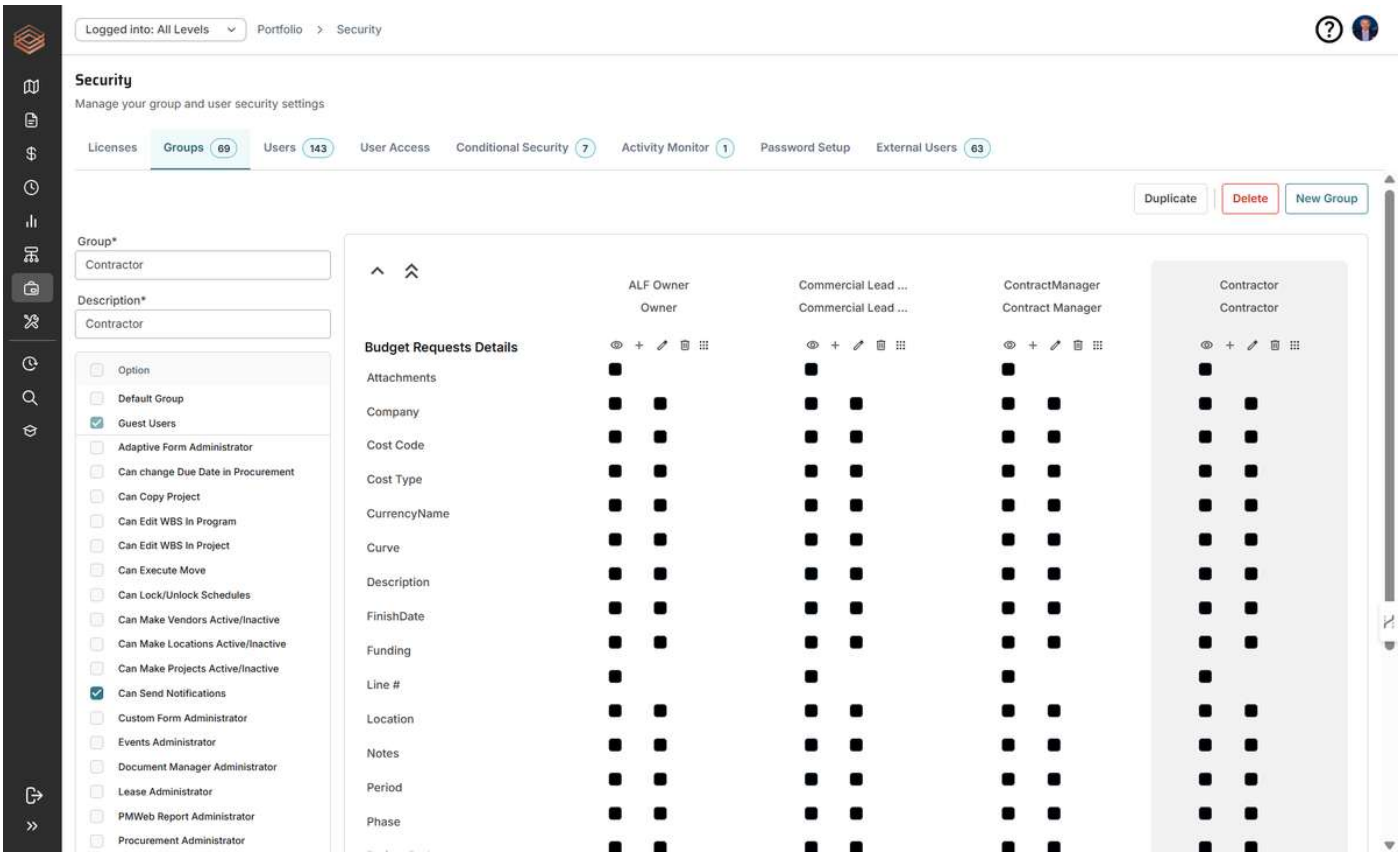
The PMWEB RFI template is built so that an ambiguous RFI cannot be submitted. Alongside the project, stage, number, revision and dates, the form captures the WBS, trade, CSI specification section, discipline and building system; the location by tower, floor and room; the drawing, specification and BoQ references; the priority and the contractual required-response date. The reason for the RFI is selected from a predefined list such as design coordination, constructability, incomplete plans or specifications, differing site conditions, material change, value engineering or BIM clash. The question, the contractor's proposed solution and the consultant's answer each have their own field.



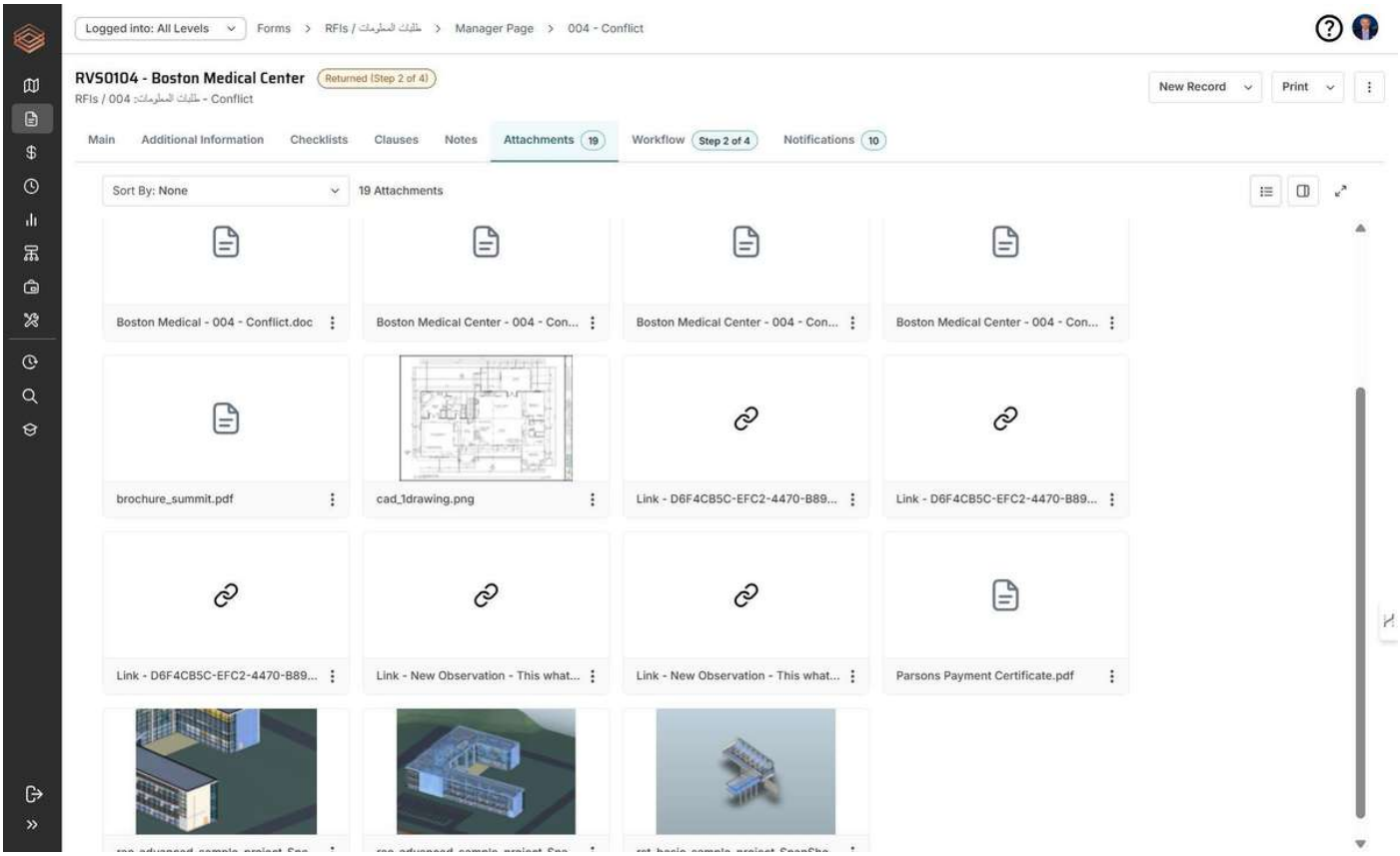
Additional custom fields can be added without limit. A checklist tab can require the contractor to confirm that the RFI does not ask for information already contained in, or reasonably inferable from, the contract documents, and that it is not being submitted to set up a material substitution or a change order.

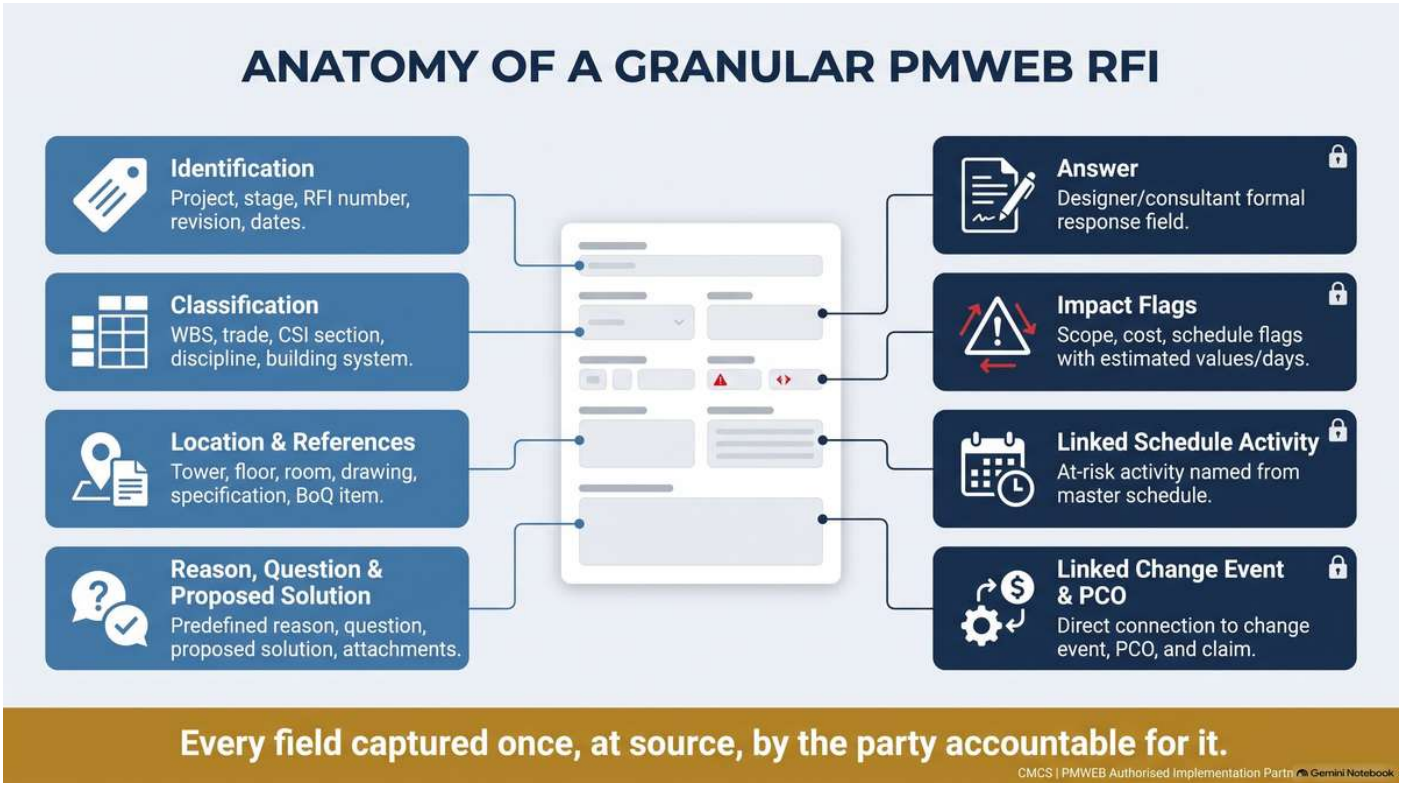
Field-level security and supporting evidence

Granular data is only useful if it can be trusted. PMWEB security defines which role group can view, create or edit each field. The contractor completes the question, reason and proposed solution. Only the consultant team completes the answer and the scope, cost and schedule impact flags. Each field is owned by the party accountable for it.



Every RFI carries its evidence: drawings, specification extracts, BoQ pages, site photos and BIM model snapshots, uploaded to the PMWEB document management repository and attached to the record with a comment explaining the relevance of each. Project emails imported into PMWEB can be linked to the RFI too, so correspondence becomes part of the record instead of a substitute for it.



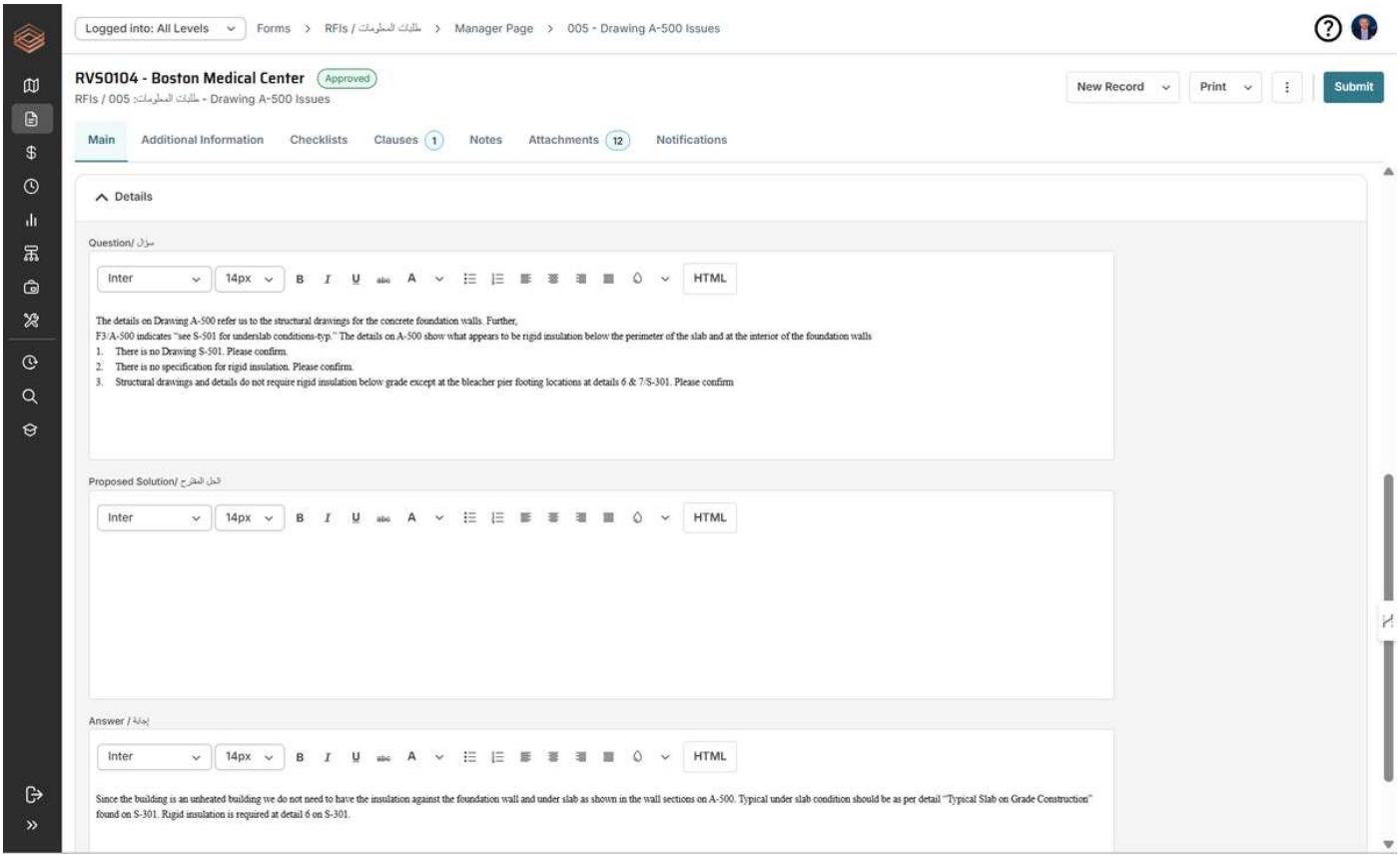


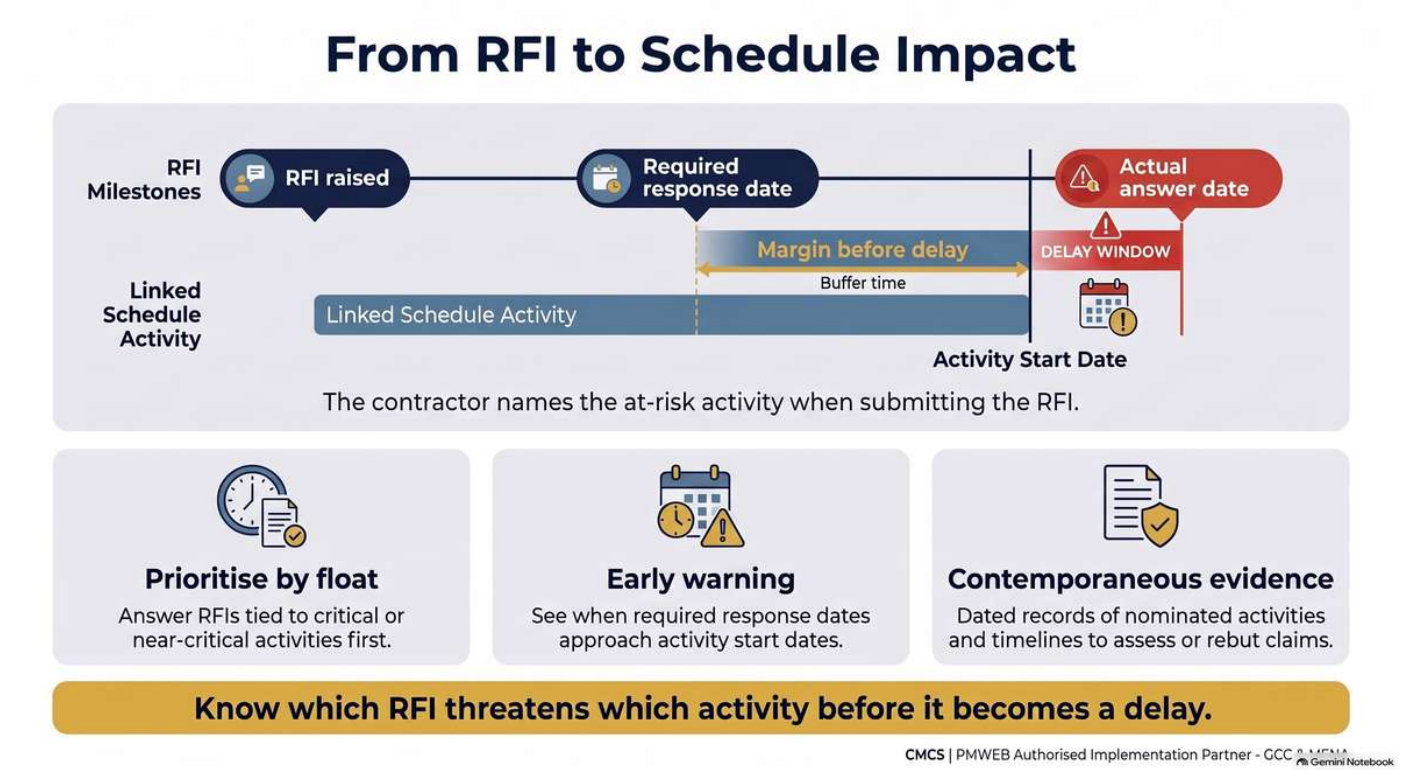
Linking every RFI to the project schedule

An RFI matters to the schedule only if it sits on, or near, the path of the work it affects. In PMWEB the contractor must name the schedule activity that the RFI could impact if it is not answered on time, at the moment the RFI is submitted. Because the schedule and the RFI log share one database, that single field changes the conversation.

- **Prioritisation by float.** The consultant sees which open RFIs are tied to critical or near-critical activities and answers those first.

- **Early warning.** Comparing the required-response date with the linked activity's start shows how much margin remains before a late answer becomes a delay.
- **Contemporaneous evidence.** If a delay occurs, the owner holds a dated record of the nominated activity, the date raised, the contractual response date and the actual answer date, which is exactly what is needed to assess or rebut a time claim.

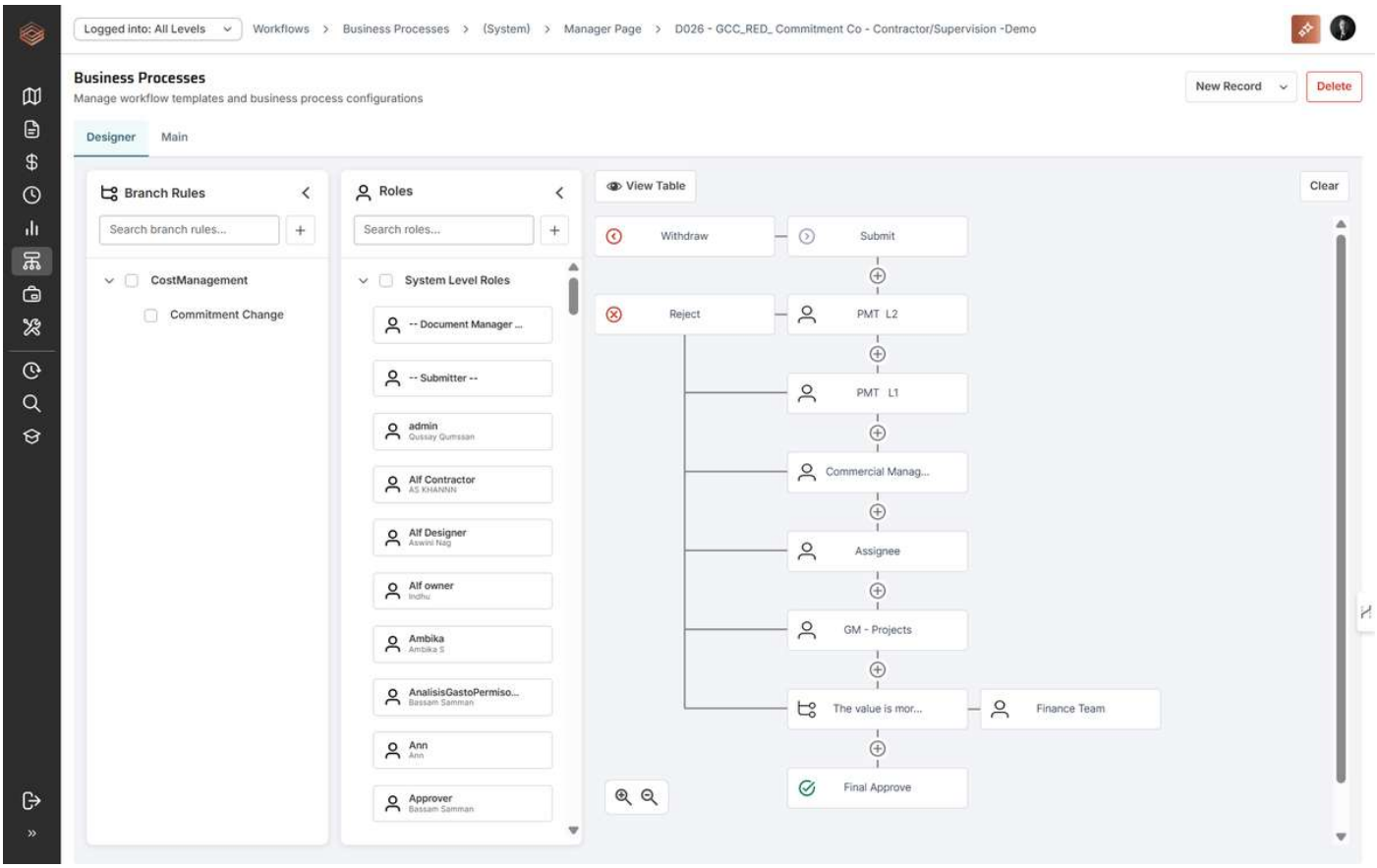




Workflow that routes each RFI by type

PMWEB workflow maps every step needed to review and answer an RFI: who is assigned, how long each step may take, the actions available (approve, return, reject, delegate, request team input) and where the RFI goes on return and resubmission. Because discipline, building system, CSI section and reason are captured as fields, conditional branches send each RFI to the right reviewer automatically.

- Structural, MEP and architectural RFIs go to the responsible design consultant.
- RFIs citing differing site conditions or utility conflicts also go to the PMC site team.
- BIM clash RFIs pass through the BIM coordinator before reaching the designer.
- Value engineering and material change RFIs are copied to the owner's technical and commercial teams.

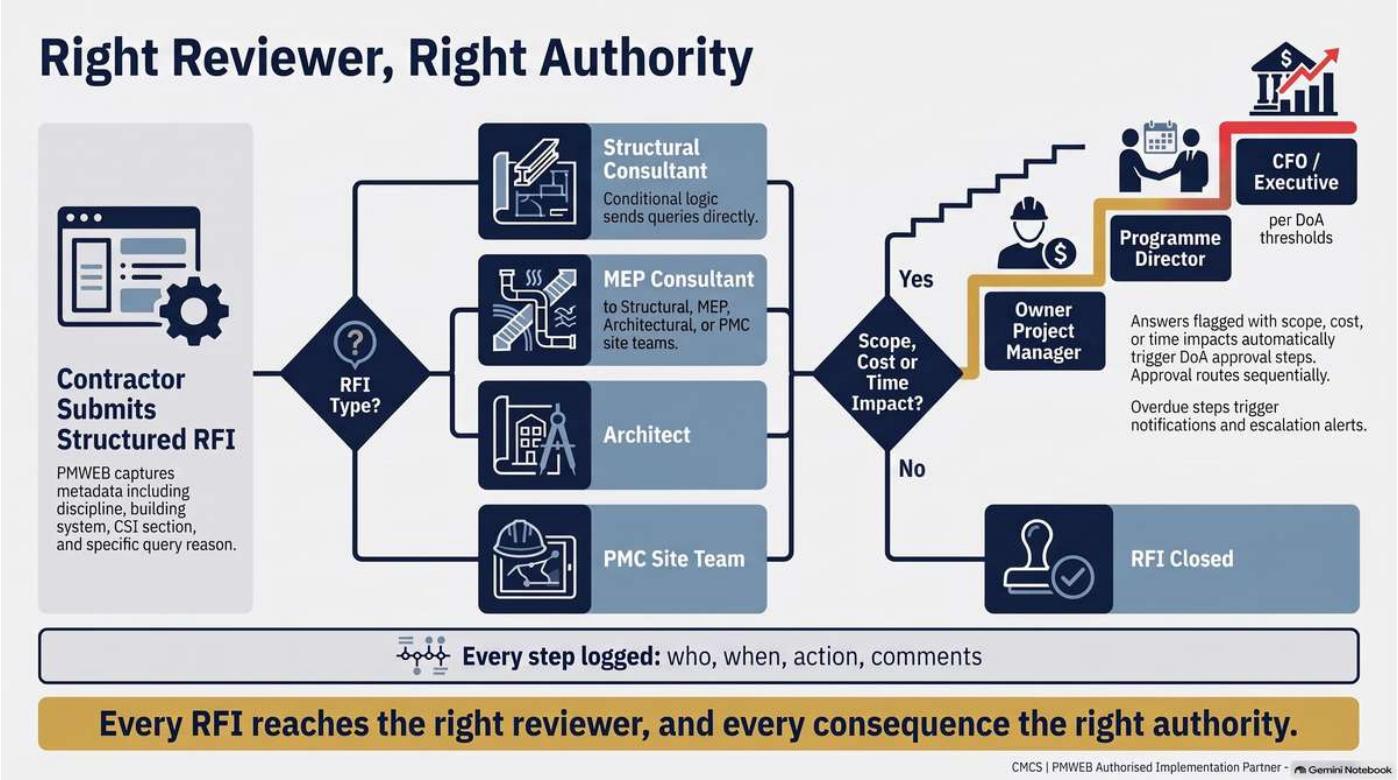


Embedding the DoA matrix

Not every RFI is purely technical. Once the consultant flags that an answer affects scope, cost or schedule, the RFI can no longer be closed by the designer alone. PMWEB workflow reads those flags, and the estimated value or days, to add the approval steps required by the owner's DoA matrix.

Impact of the answer	Workflow path
No scope, cost or time impact	Design consultant answers, PMC reviews, RFI closed.
Time impact only	Adds PMC planning review and owner project manager approval.
Cost within PM authority	Adds PMC cost review and owner project manager approval.
Cost or time above PM authority	Adds programme director and, where the DoA requires, CFO or executive approval.

The thresholds are set by each owner's own DoA matrix. Once submitted, every workflow step is logged automatically: who acted, when, the action taken and any comments. Overdue steps trigger notifications, and the workflow inbox shows every pending RFI by project, step and due date. Accountability no longer depends on someone chasing replies.

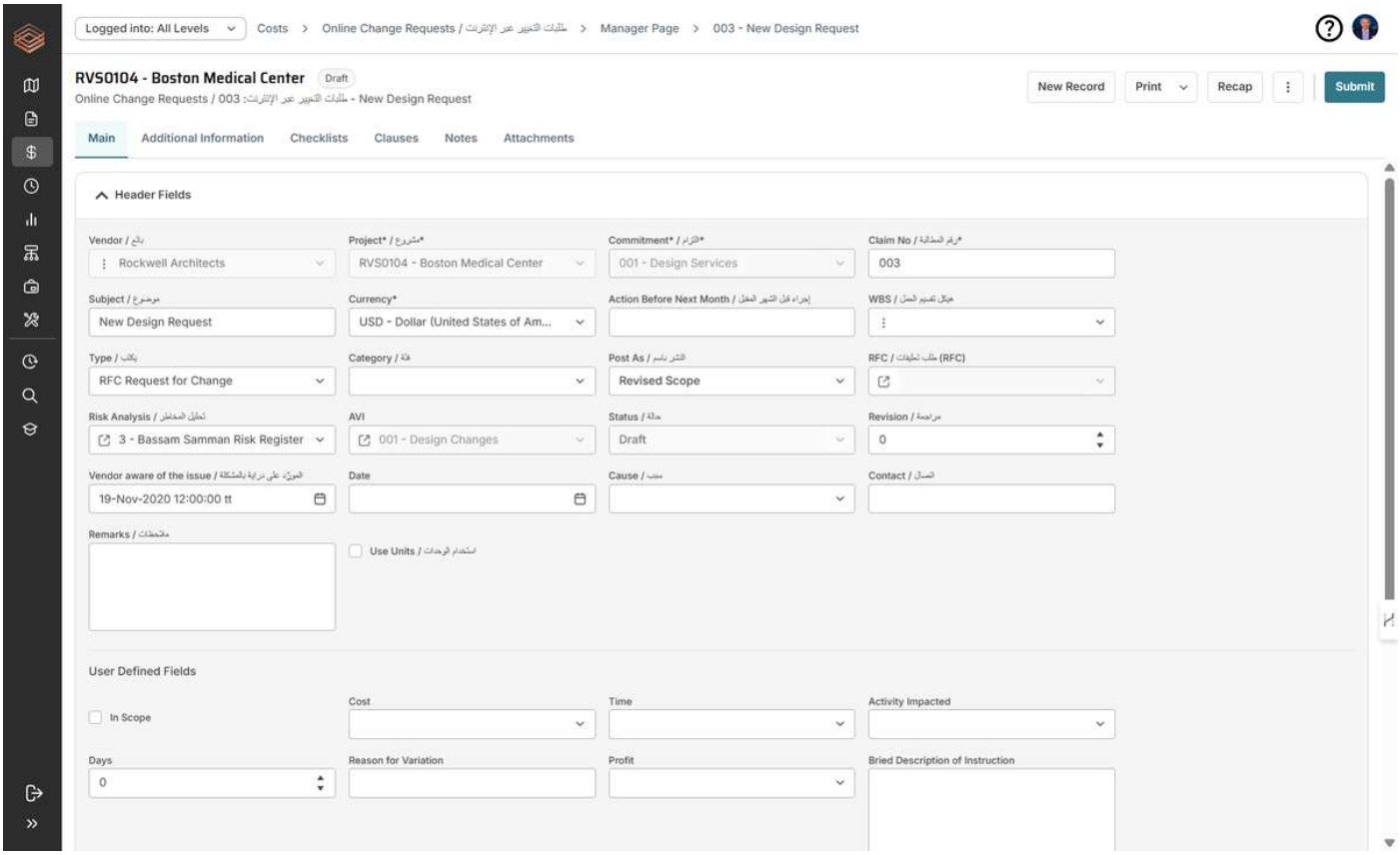


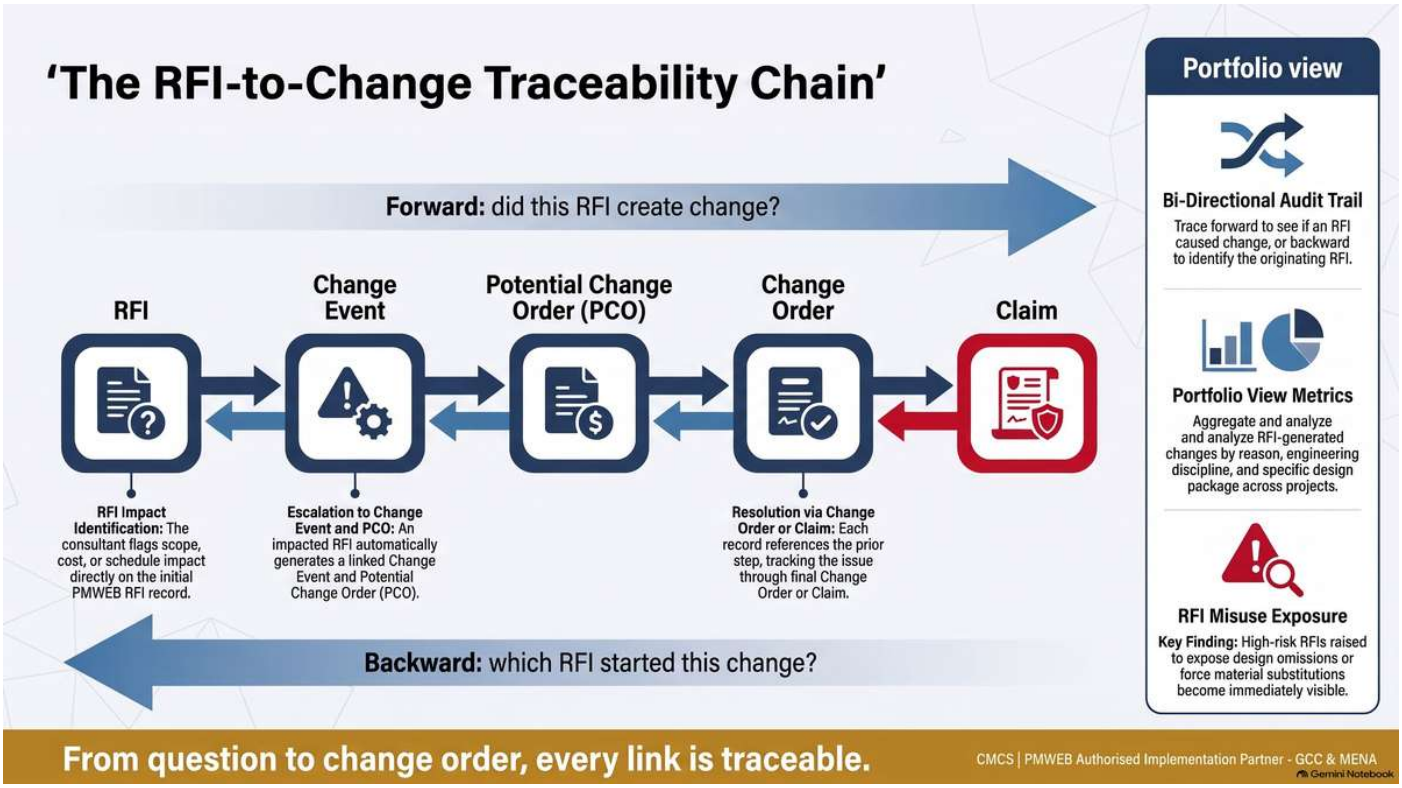
From RFI to potential change order and claim

Many change orders and claims begin life as an RFI. An answer that clarifies design intent can also reveal an omission, a conflict between contract documents or a differing site condition. In PMWEB, an RFI flagged with a scope, cost or schedule impact is linked to a change event and carried into a potential change order (PCO) and then a change order, each record referencing the one before it. The same linked-records capability connects RFIs to submittals, meeting minutes and non-conformance reports.

- **Forward:** from any RFI, see whether it produced a PCO, the estimated and approved values and the change order status.
- **Backward:** from any change order or claim, see the RFI that started it, when it was raised, the proposed solution and the answer.
- **Aggregate:** measure how much approved change and claimed time and cost originated from RFIs, by reason, discipline and design package.

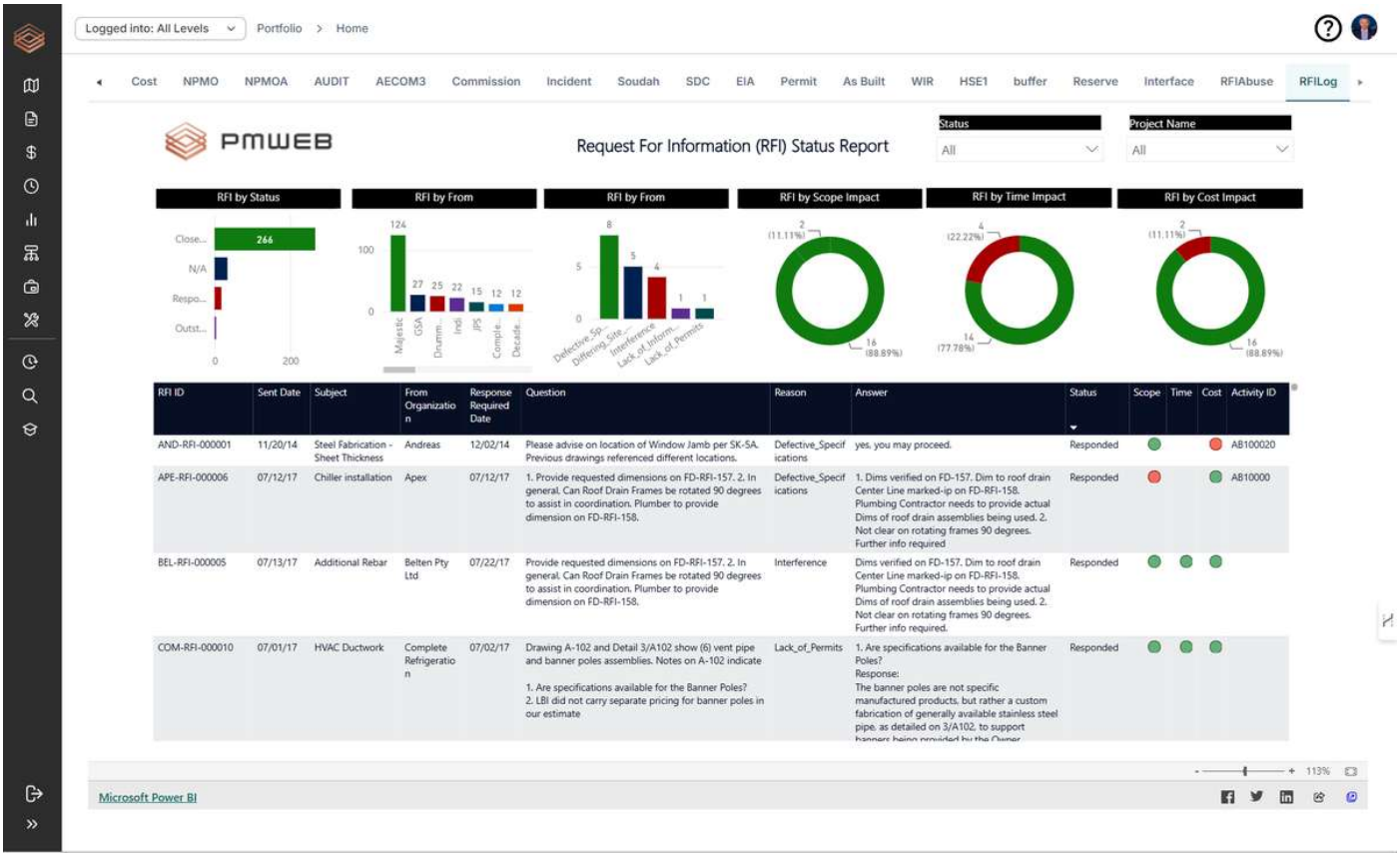
That aggregate view is a direct measure of design quality and contract document completeness. It also exposes RFI misuse: a pattern of RFIs raised to expose consultant omissions or to set up material substitutions becomes visible once RFI and change data sit in the same database.





Reports and dashboards that answer real questions

A report can only slice data by what was captured. Because every RFI attribute in PMWEB is a field, every attribute becomes a dimension for filtering and drill-down on one project or across the portfolio. The RFI status dashboard shows open, closed and overdue RFIs alongside scope, schedule and cost impact and the category of each, with the full log beneath.



The same data supports analysis no register can provide: RFIs by CSI code and category, the RFI and PCO trend over six months, and RFIs by reason. When RFI volume and RFI-related change rise together, the owner sees it while there is still time to act.



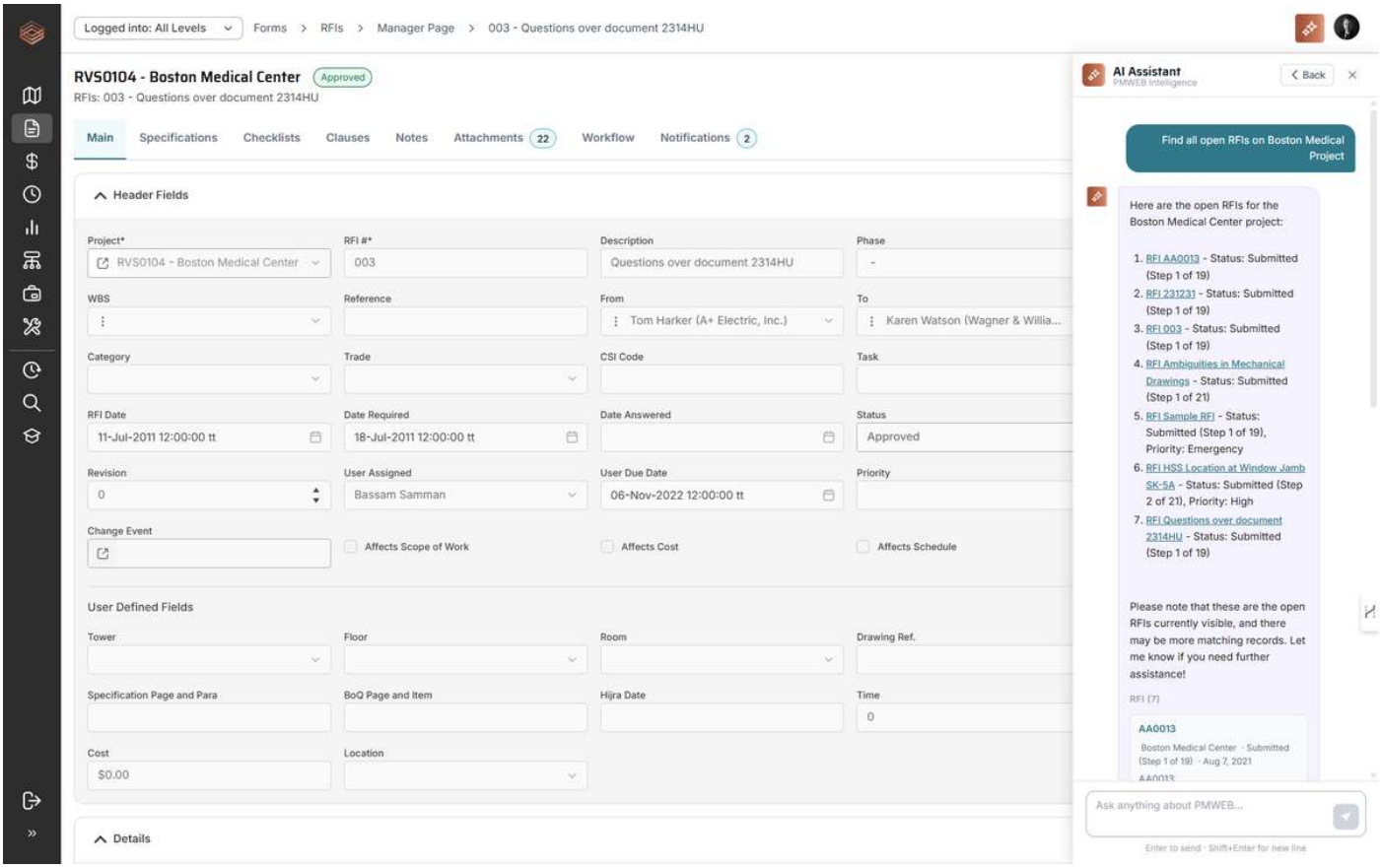
Because RFIs carry their discipline, location and model references, they can also be shown on the BIM model by scope of work, so the project team sees where the queries concentrate. PMWEB reports can be formatted to the owner's branding, and the data feeds Power BI dashboards that combine RFIs with cost, schedule and change information, current at the moment they are opened.



PMWEB 2026 AI: learning from RFIs across the portfolio

AI is only as useful as the data it reasons over. Applied to a mailbox, AI has to infer from free text what each RFI was about, why it was raised and whether it mattered. Applied to PMWEB, it starts from RFIs already classified by reason, discipline, location, WBS, schedule activity, impact and outcome, and already linked to the change orders and claims they influenced. No data, no AI. And without structured data, no reliable AI.

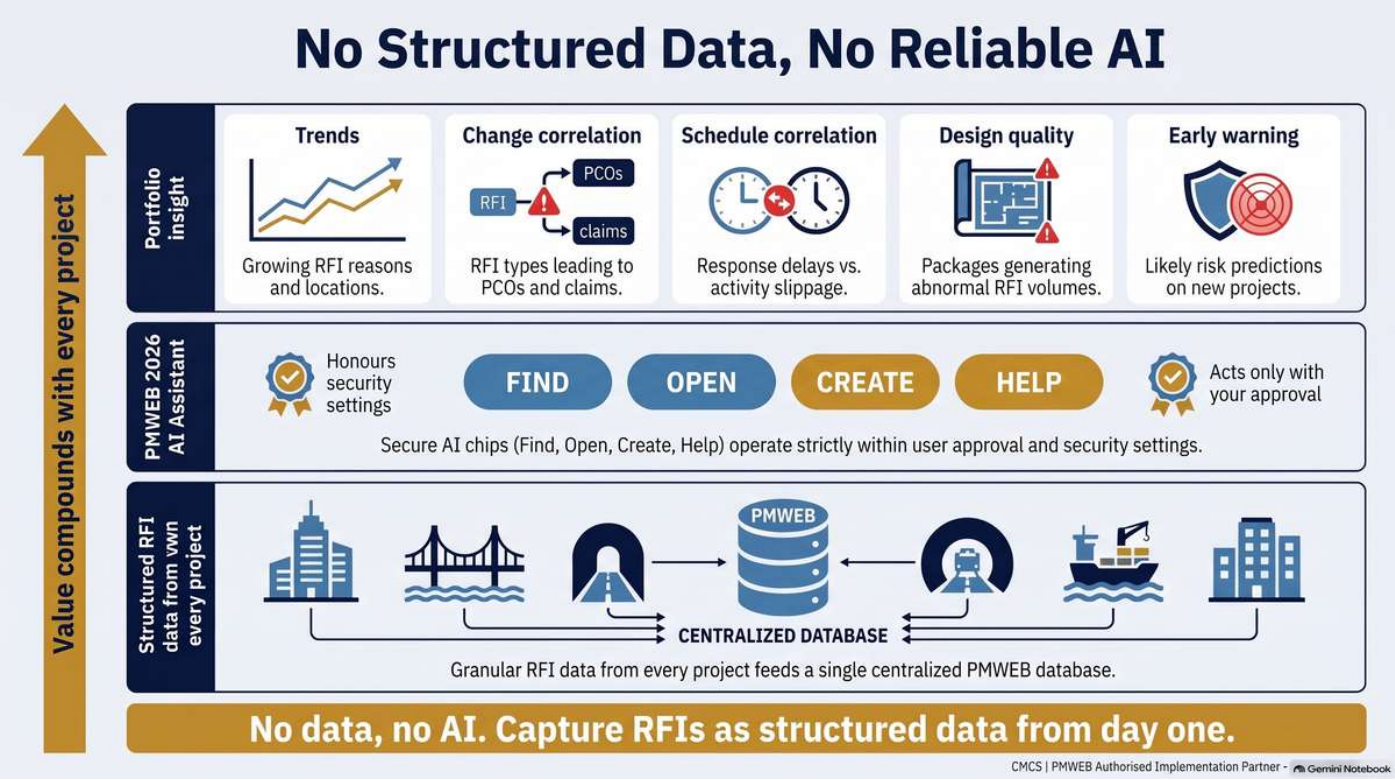
The PMWEB 2026 release introduces the PMWEB AI Assistant, which helps users find, open and create records and get help on the system. It honours PMWEB security settings and acts only with the user's approval. A project engineer can ask for the open RFIs on a given floor, open a specific RFI or start a new one in natural language, within the access already defined for their role.



The larger prize is the RFI data an owner accumulates across every active and completed project. Held in one PMWEB database, that data can be analysed at portfolio level by PMWEB AI in this and future releases, and by AI solutions that integrate with PMWEB, to answer questions such as:

- **Trends:** which RFI reasons are growing, and on which project types, contractors or design consultants?
- **Change correlation:** which RFI reasons and disciplines most often lead to PCOs, change orders and claims, and at what average value and time?
- **Schedule correlation:** do projects with slow RFI responses show more slippage on the linked activities?
- **Process correlation:** do RFI peaks precede spikes in submittal rejections, NCRs or site instructions?
- **Design quality:** which design packages generate RFIs well above the portfolio norm?
- **Early warning:** given the RFI pattern in a new project's first months, which issues are most likely to follow, based on comparable projects?

Lessons learned stop being anecdotes in close-out reports and become evidence the owner applies to design reviews, contract drafting, contractor selection and the RFI response periods it specifies.



Email Correspondence vs PMWEB: Side by Side

Correspondence platforms still have a role: transmittals and formal letters must be controlled. But an RFI is a decision-making process with time and cost consequences, and that needs structured data, defined accountability and an audit trail that a mail thread cannot provide.

Capability	Email-style correspondence (e.g. Aconex)	PMWEB RFI business process
Data capture	Subject line, free-text body and attachments	Predefined fields and value lists, validated on submission
Reason for the RFI	Implied in the text, if stated	Mandatory selection from a predefined list
Schedule impact	Narrated after the event	Linked to the at-risk schedule activity at submission
Routing	Whoever the sender addresses	Workflow by RFI type, discipline and reason
Approval authority	Whoever replies	DoA thresholds embedded in workflow steps
Change management	Separate follow-up correspondence	Linked to change event, PCO, change order and claim
Field-level control	Whole message visible to recipients	Role-based rights per field

Capability	Email-style correspondence (e.g. Aconex)	PMWEB RFI business process
Reporting	Mail register and counts	Real-time reports and dashboards on any attribute
Portfolio AI	Text search across messages	Structured data across all projects, ready for analysis

Configuring PMWEB to the Owner's RFI Procedures

Every owner, and every contract, defines its RFI procedure slightly differently. Those decisions become configuration in PMWEB, saved in project templates and reused on each new project.

What the owner decides	How it is configured in PMWEB
Forms and fields	RFI template, checklists and custom fields built to the owner's procedure
Reason and category lists	Predefined value lists for reason, discipline, building system and priority
Response periods	Required-response dates calculated from the contract's response period
Routing rules	Conditional workflow branches by discipline, reason and location
DoA thresholds	Approval steps triggered by scope, cost and time flags and values
Numbering	RFI numbering by project, package, discipline and contractor
Notifications	Alerts and escalation for overdue workflow steps
Report formats	RFI registers, dashboards and output forms in the owner's format
Integration	Schedules from Primavera P6 or Microsoft Project, imported project emails and BIM models

Evidence That RFI Management Is Working

- **Response timeliness.** RFIs answered within the contractual response period, by consultant and discipline.
- **Reviewer cycle time.** Average days spent at each workflow step, showing where answers stall.
- **Critical-path exposure.** Open RFIs linked to critical or near-critical activities, and the margin remaining on each.
- **Impact ratio.** The share of RFIs flagged with scope, cost or schedule impact.
- **RFI-to-change conversion.** RFIs that became PCOs, change orders or claims, and their value.
- **Repeat reasons.** Recurring RFI reasons by design package, signalling where documents need improving.
- **Submission quality.** RFIs returned or rejected because the answer was already in the contract documents.

Key takeaway

Managing RFIs as correspondence answers one question: was the query sent and answered? Managing them as a business process in PMWEB answers the questions that protect the owner. Was the RFI justified? Did the right reviewer answer it on time, with the authority to accept its consequences? Which activity was at risk? Did it lead to a change order or claim, and for how much?

The difference is granularity. Structured fields, field-level security, schedule links, DoA-driven workflow, change management links, real-time dashboards and portfolio-wide AI all depend on capturing each RFI as data the moment it is raised. Owners who make that choice turn the RFI from a source of delay, cost and dispute into one of their richest sources of project intelligence.

Talk to us: *to see how the PMWEB RFI business process, workflows and dashboards can be configured for your projects, contact CMCS at info@CMCS-MENA.com.*

#PMWEB #CMCS #RFI #TechnicalQueries #ConstructionManagement #ProjectControls #PMIS #CapitalProjects #AIinConstruction

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.

PMWEB for Capital Project Owners | Portfolio Reserve Governance

Reserves as Governance Indicators, Not Budget Buffers — The PMO's Role in Managing Contingency and Management Reserve with PMWEB

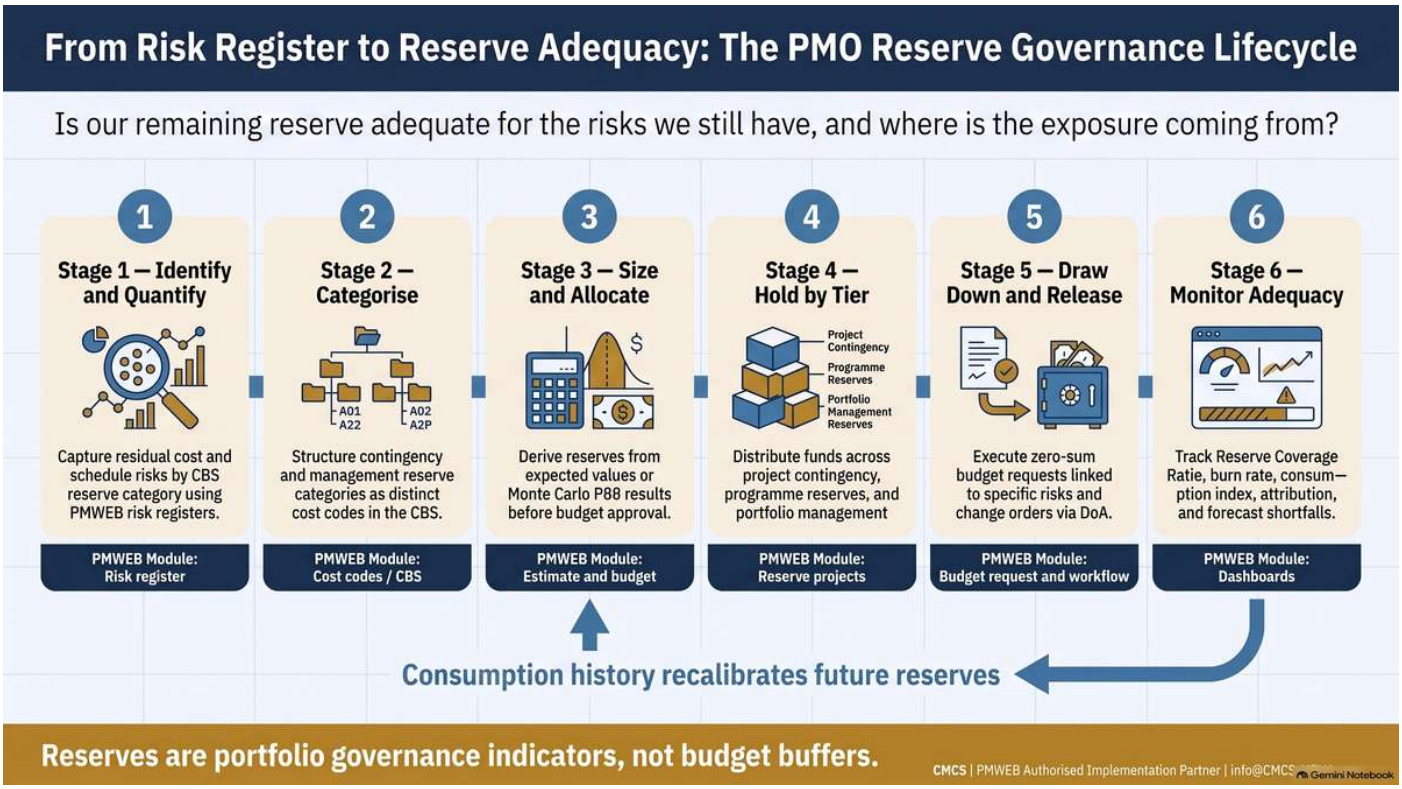
From a percentage added to the estimate to a risk-based reserve the PMO can see, attribute, defend and redeploy across the portfolio

Every capital project carries a contingency, and most owners also hold a management reserve. Most PMOs can report how much of it remains. Very few can say whether what remains is enough for the risks still ahead, which party and package is consuming it, and whether it is being spent faster than value is being delivered.

On a mega-project or programme with multiple contractors, vendors, consultants and stakeholders, Contingency Reserve and Management Reserve are not simply budget buffers. They are the owner's quantified answer to uncertainty, and the way they are consumed is one of the earliest signals that a project is drifting. A contingency line that has dropped by 30 percent while the project is 15 percent complete says more about delivery health than most progress reports.

Yet on many projects, reserves are still set as a flat percentage of the estimate, held as a single line, drawn down by email approval and reported as a closing balance in a spreadsheet. The link between each risk, the money set aside for it and the money spent when it occurred is lost. At portfolio level the problem compounds. Reserves become trapped in projects that no longer need them, while other projects run short.

This article explains the role of the PMO in governing both reserves at portfolio level, and how PMWEB supports that role end to end: identifying and quantifying risks in the PMWEB risk register, breaking reserves into categories within the cost breakdown structure (CBS), allocating them in the budget before approval, controlling every drawdown through the PMWEB budget request module, and reporting the indicators that tell executives whether the remaining reserve is adequate. It closes with how PMWEB 2026 AI, and AI solutions that integrate with PMWEB, add value once that data is captured in structured form.



Two Reserves, Two Lines of Authority

Each reserve covers a different kind of uncertainty and is released by a different authority. Mixing them is the most common reason reserves cannot be governed.

Dimension	Contingency Reserve	Management Reserve
Covers	Known-unknowns: identified risks and estimate immaturity	Unknown-unknowns: unidentified risks and extreme events
Basis for sizing	Risk register, estimate class and quantitative risk analysis (P50 / P80)	Owner policy, portfolio exposure and judgement
Position	Inside the cost baseline	Outside the cost baseline, inside the total approved budget
Released by	Project manager or project director, within the DoA matrix	Sponsor, steering committee or board
Drawdown	Budget transfer from the contingency category to the affected cost codes	Formal approval to move funds into the cost baseline

The same split applies to time. **Schedule contingency** is a buffer on critical and near-critical paths, sized by schedule risk analysis. The **owner's management time reserve** is held back between the contractual completion date and a business-critical date such as an opening or an event. **Float ownership** is set by the contract and should be defined explicitly, because it decides who benefits when a buffer is consumed.

What the PMO Must Be Able to Answer

A mature PMO does not only ask how much reserve remains. It asks whether the remaining reserve is adequate for the risks still open, and where the exposure is coming from. Answering that requires seven indicators, monitored continuously rather than at quarterly reviews.

Indicator	The question it answers
Reserve Coverage Ratio (RCR)	Is the remaining reserve sufficient for the remaining quantified risk exposure?
Reserve Burn Rate	How quickly is contingency being consumed, per period and cumulatively?
Reserve vs Physical Progress	Are reserves being consumed faster than value is being delivered?
Reserve Attribution	Which party, package, risk or reserve category is consuming the reserve?
Cross-Party Exposure	How much risk is created by interfaces and dependencies between parties?
Management Reserve Available	How much strategic buffer remains for emerging events?
Forecast Reserve Shortfall	Will the current reserve remain adequate through project completion?

None of these can be produced from a closing balance. Each one depends on data captured when the risk is identified, when the reserve is allocated and when every drawdown is approved.

How Reserves Are Typically Managed Today

- **A percentage, not a quantification.** Contingency is set at 5 to 10 percent of the estimate, whatever the project's actual risk profile.
- **One line, many purposes.** Design development, escalation, ground conditions and owner changes share a single contingency line, so no one can tell which allowance is being consumed.
- **Allowances mixed with risk money.** Provisional sums and prime cost sums sit inside contingency and hide the real burn.
- **Drawdowns without a cause.** Funds move by email or spreadsheet adjustment, with no link to the risk that occurred or the change order the money paid for.

- **Trapped reserves.** Contingency behind retired risks stays locked in projects that no longer need it, while other projects run short.
- **Reporting stops at the balance.** The PMO sees what remains, not whether it is enough or who is consuming it.

How PMWEB Digitalises Reserve Governance

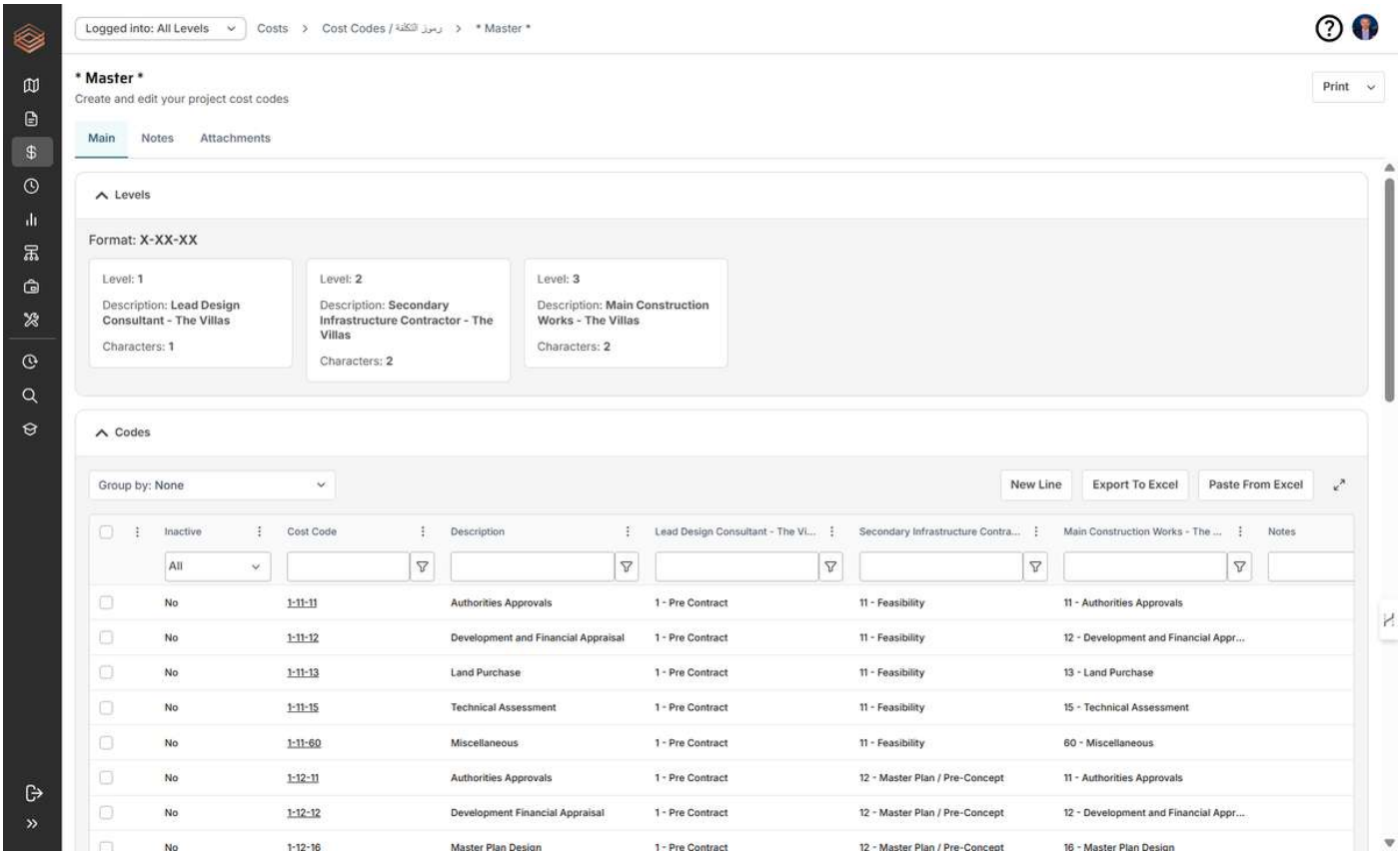
The principle is the same as for any business process in PMWEB: capture each attribute once, at source, in a structured field, and let workflows, links, reports and AI put that data to work. Each element below is configuration within PMWEB, not custom development.

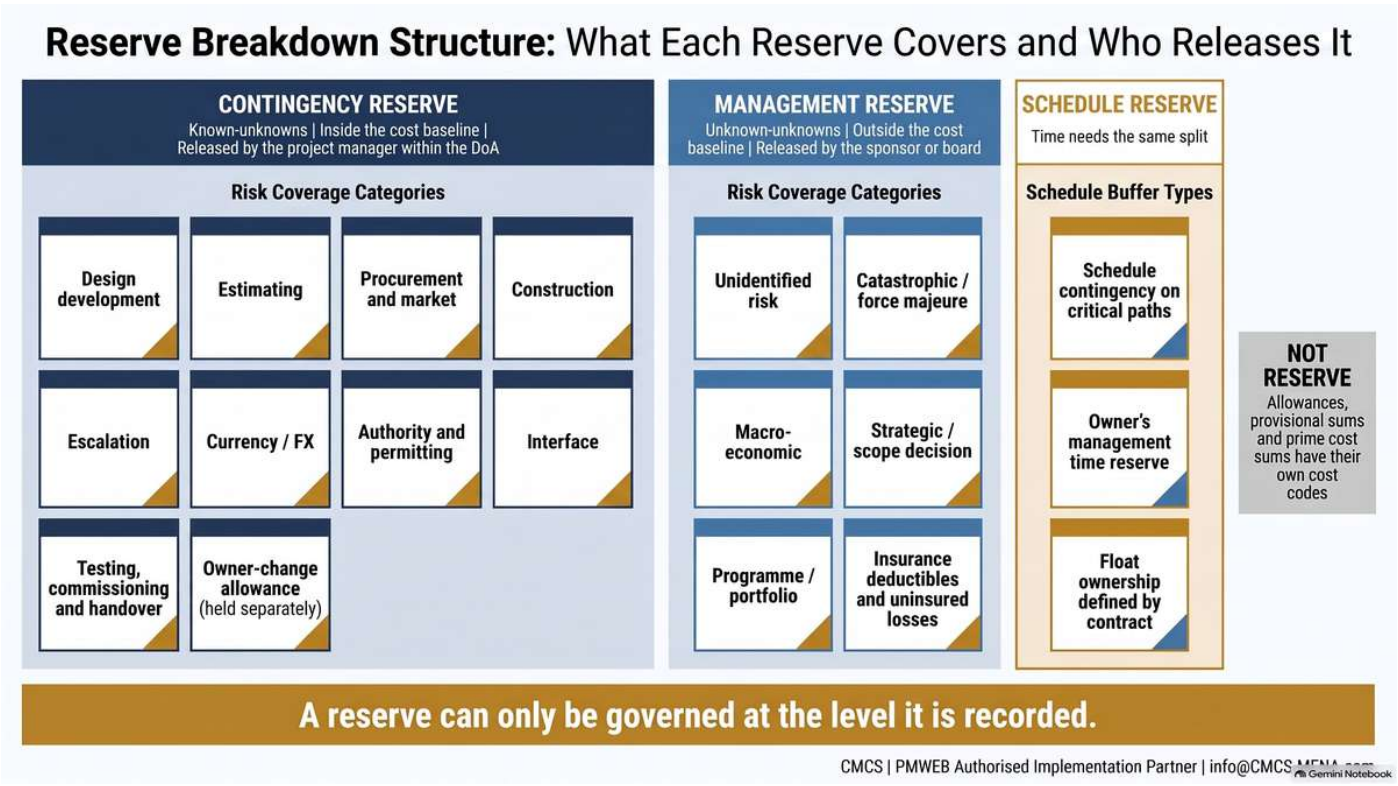
A reserve breakdown structure inside the CBS

A reserve can only be governed at the level it is recorded. The first step is to break both reserves into categories within the CBS, so that each category has its own cost code, budget, drawdown history and balance. A typical owner-side structure:

Category	Reserve	What it covers
Design development	Contingency	Scope growth as design matures from concept to IFC. Largest at Class 5 and Class 4 estimates, and should be consumed by tender.
Estimating	Contingency	Quantity and rate uncertainty, take-off errors and pricing gaps.
Procurement and market	Contingency	Tender prices above estimate, supplier availability and long-lead items.
Construction	Contingency	Unforeseen site and ground conditions, utilities, coordination clashes, rework and claims arising from contract ambiguity.
Escalation	Contingency	Material and labour inflation over the project duration, often held as a separate line.
Currency / FX	Contingency	Imported equipment and foreign-currency contracts.
Authority and permitting	Contingency	NOC conditions, code changes and utility-provider requirements.
Interface	Contingency	Package-to-package and third-party interfaces, especially on programmes.
Testing, commissioning and handover	Contingency	Integrated systems testing failures, snagging and operational-readiness gaps.
Owner-change allowance	Contingency, held separately	Client-directed changes within the approved scope intent, held apart so they do not consume risk contingency.
Unidentified risk	Management reserve	The true unknown-unknowns.
Catastrophic / force majeure	Management reserve	Pandemics, sanctions, geopolitical disruption and extreme weather beyond insured limits.
Macro-economic	Management reserve	Commodity shocks or currency devaluation beyond what the escalation contingency assumed.
Strategic / scope decision	Management reserve	Sponsor decisions to upgrade specifications or respond to market or regulatory shifts. True out-of-scope additions go through change control.
Programme / portfolio	Management reserve	Held above individual projects and reallocated across them, common with government entities and master developers.
Insurance deductibles and uninsured losses	Management reserve	Deductibles and losses outside policy cover.

Allowances, provisional sums and prime cost sums get their own cost codes outside contingency. They are known items not yet defined, not risk money, and keeping them separate is what makes contingency burn meaningful.



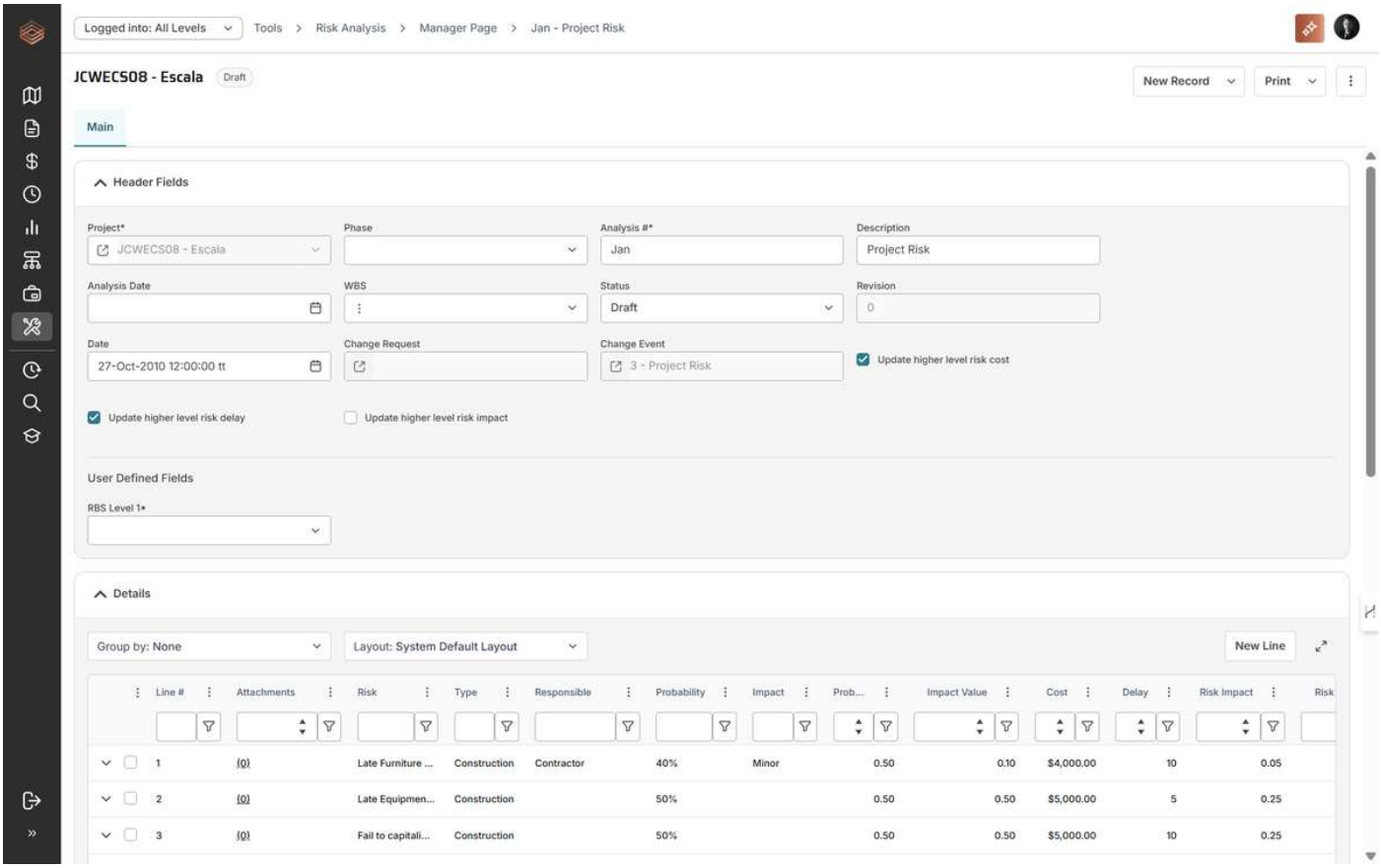


The risk register as the basis for every reserve

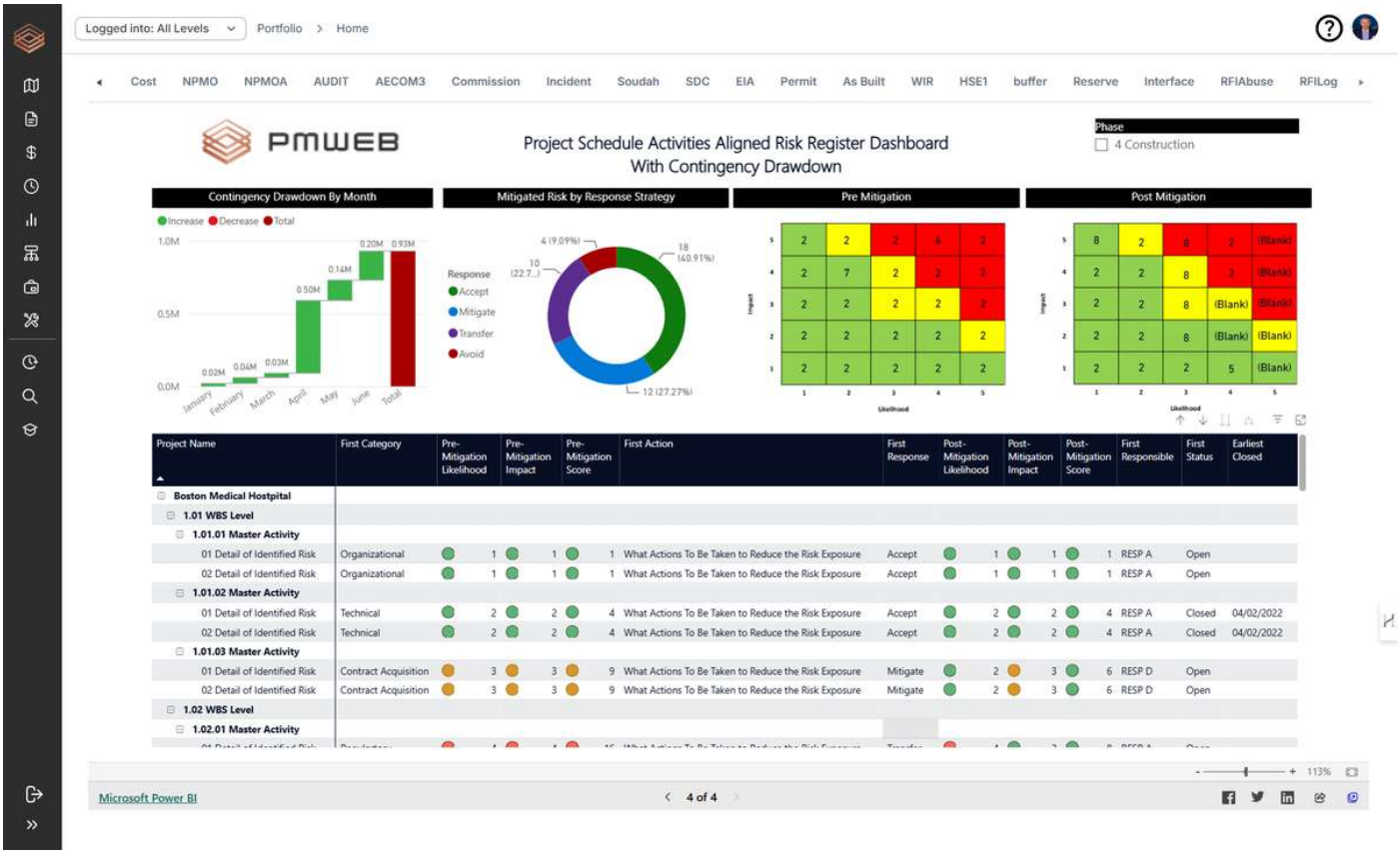
Contingency is only defensible if it can be traced to the risks it covers. The PMWEB risk register, built with the custom form builder, captures each risk with fields selected from predefined value lists: risk breakdown structure (RBS) category, risk type and nature, WBS level, CBS reserve category, the schedule activity the risk threatens (imported from Primavera P6 or Microsoft Project), the company owning the risk and the risk owner. Pre-mitigation likelihood and impact, the mitigation actions with their cost, and post-mitigation likelihood and impact are scored on the same form.

Three additional fields turn the register into a reserve tool: the **residual cost impact** (most likely, with optional minimum and maximum), the **residual schedule impact** in days, and an **interface flag** naming the parties on each side of the risk. Multiplying the residual impact by the post-mitigation probability gives each

risk's expected value. Because every risk carries its CBS reserve category, those expected values roll up into the quantified exposure behind each contingency category.

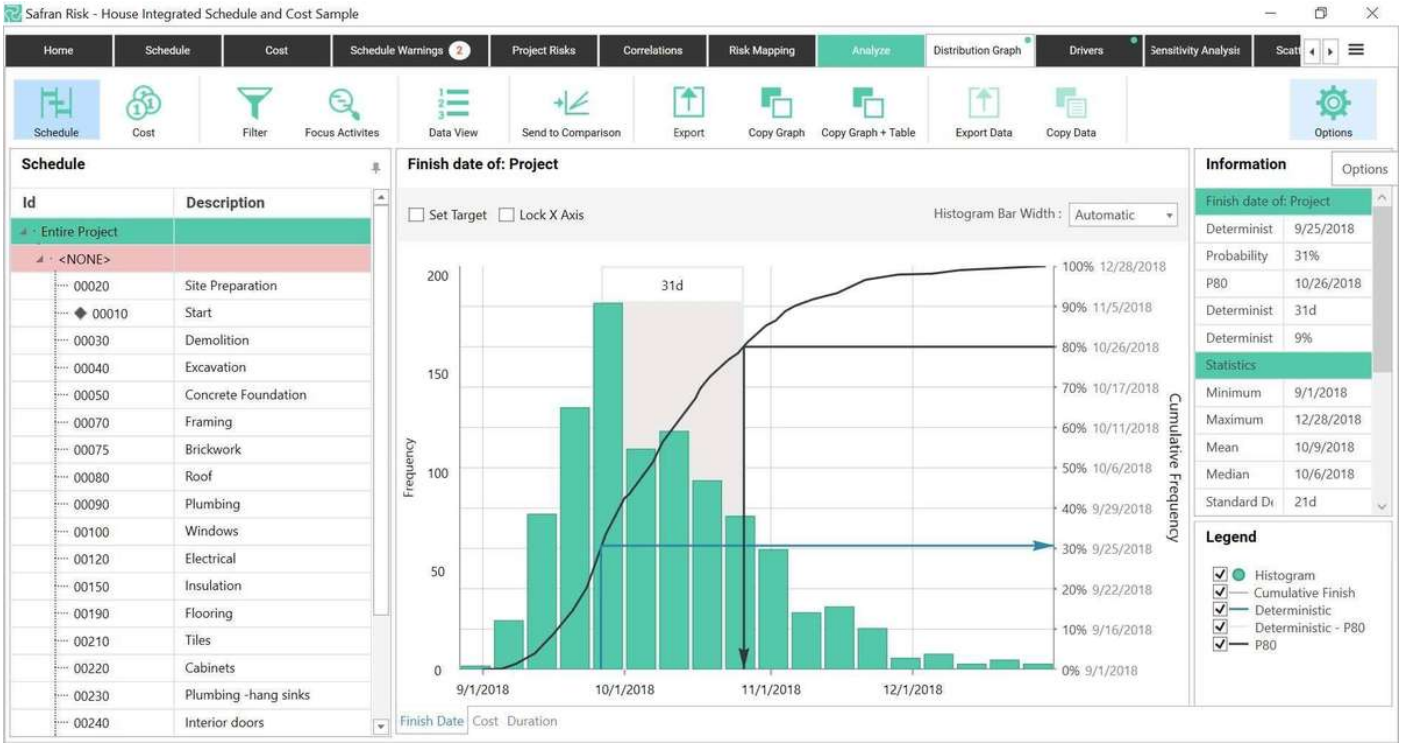


The risk register dashboard shows risks by category and response strategy, with pre- and post-mitigation heat maps. With residual values added, the same dashboard shows quantified exposure by reserve category, project, package and risk owner.



Sizing the reserve: from expected value to confidence level

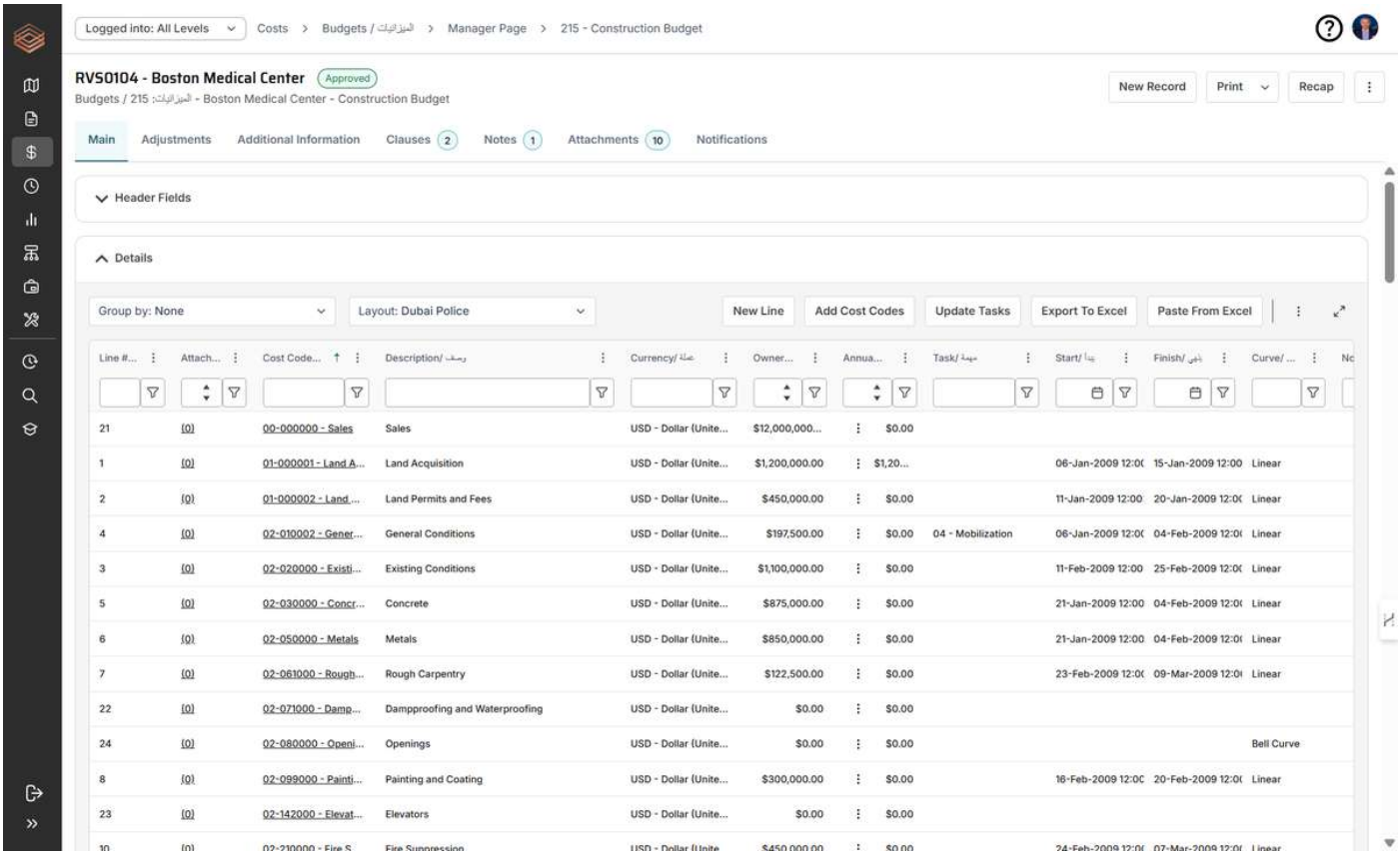
For smaller projects, the sum of residual expected values by category, plus an estimating allowance tied to the estimate class, is a sound basis. For major projects, the PMWEB risk register report is exported in the format required by Monte Carlo tools such as Safran Risk, where integrated cost and schedule risk analysis produces the P50 and P80 outcomes. The owner selects the confidence level it funds. The difference between the deterministic estimate and that confidence level becomes the contingency, and the gap between it and the owner's policy ceiling informs the management reserve.



Whatever the method, the results are recorded against the reserve categories in PMWEB. The basis of every reserve, the risks behind it and the confidence level it represents stay attached to the budget for the life of the project.

Allocating reserves in the budget before approval

Whether the cost estimate is prepared in PMWEB or imported from a third-party estimating tool, the contingency and management reserve allowances are added to their CBS categories before the budget goes for approval. The approved estimate generates the budget, and the reserve lines carry through at the same level of detail. Budget versions can be created as the estimate matures through the design stages, but only one baseline can be approved, and its approval follows the owner's workflow and DoA.



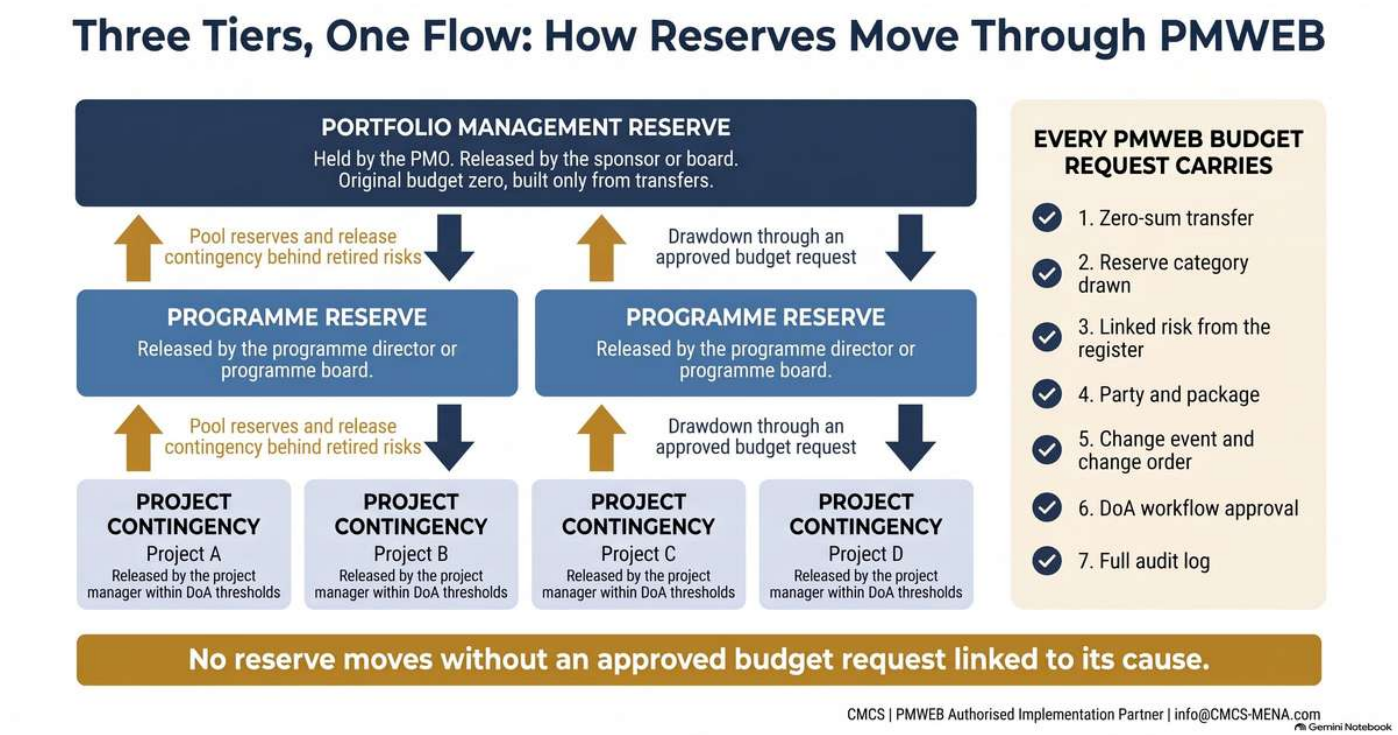
From that point the PMO holds, for every project, a reserve that is broken down by category, traceable to quantified risks, approved through workflow and recorded in the same database as the budget, commitments, changes and schedule.

Where each reserve is held

Governing reserves at portfolio level means deciding who holds which money. A common structure has three tiers, each set up in PMWEB as budget lines on the projects or on dedicated reserve projects.

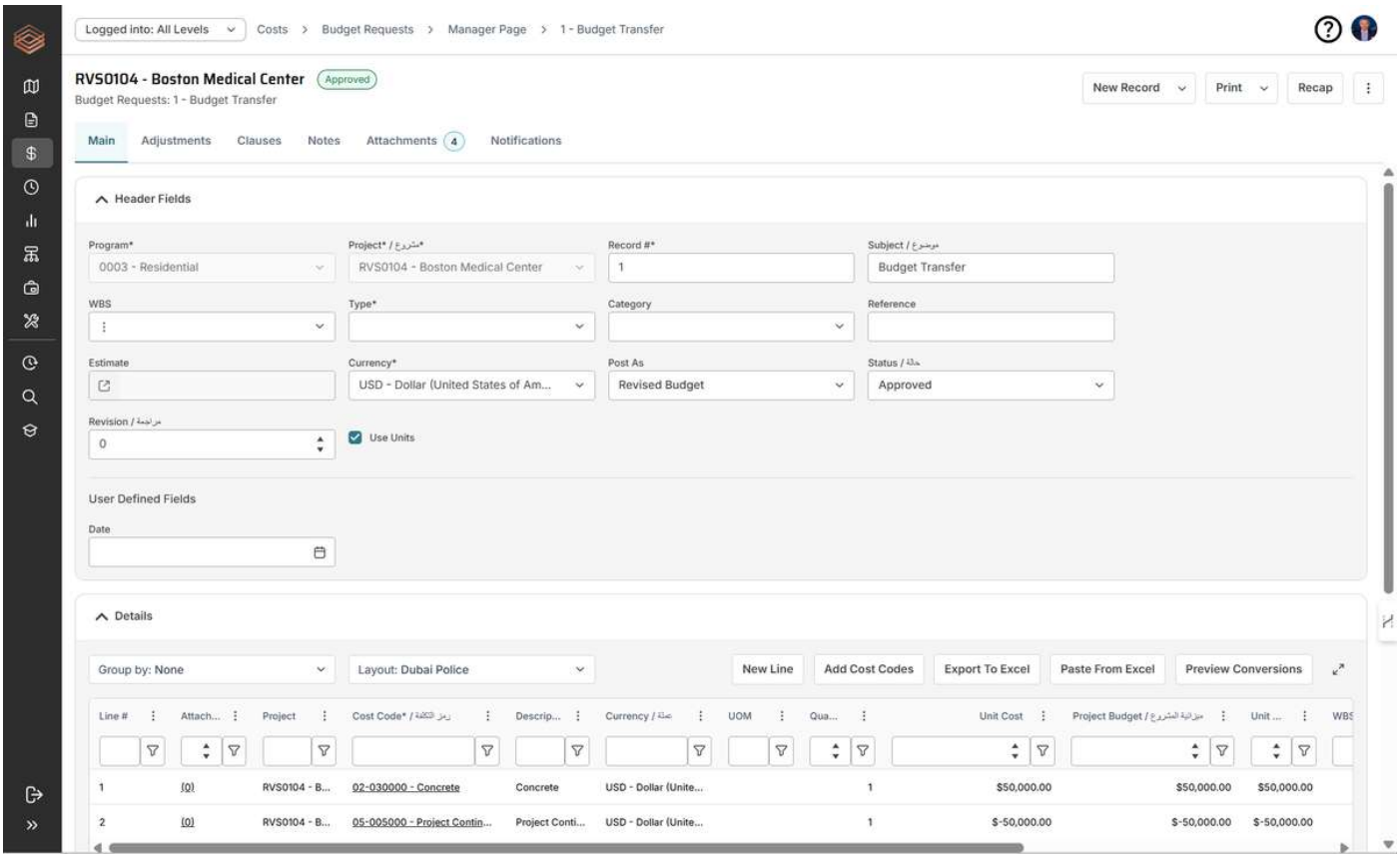
Tier	Held in PMWEB as	Released by
Project contingency	Contingency CBS categories on each project budget	Project manager or project director, within DoA thresholds
Programme reserve	A programme-level reserve project holding contingency or management reserve pooled from its projects	Programme director or programme board
Portfolio management reserve	A Risk Reserve Management project managed by the PMO, with access restricted to authorised users	Sponsor, investment committee or board

The portfolio reserve project starts with an original budget of zero. Its value is built entirely from transfers received from projects and reduced by transfers released back to them, so its reports show where every amount came from and where it went. Owners who pool reserves this way remove trapped budgets. Contingency that one project no longer needs becomes visible and available to another.

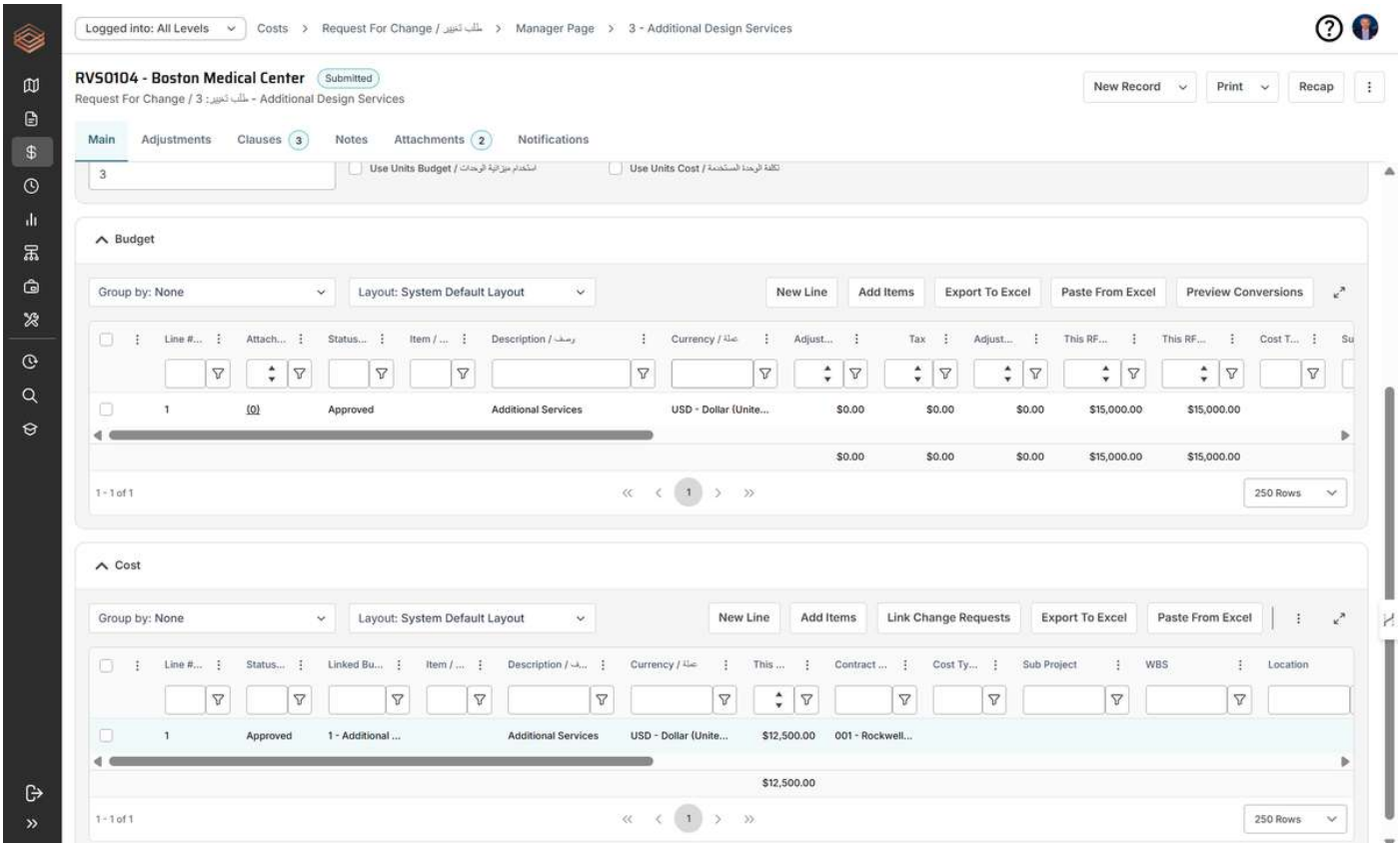


Every drawdown through the PMWEB budget request

Any movement of reserve, whether from a contingency category to a cost code, from a project to the portfolio reserve or back again, is made through the PMWEB budget request module. Each request is a zero-sum transfer: the increase on the affected cost code equals the decrease on the reserve category, so the total budget never changes without formal approval. Where schedule buffer is also consumed, the same request records the time adjustment.



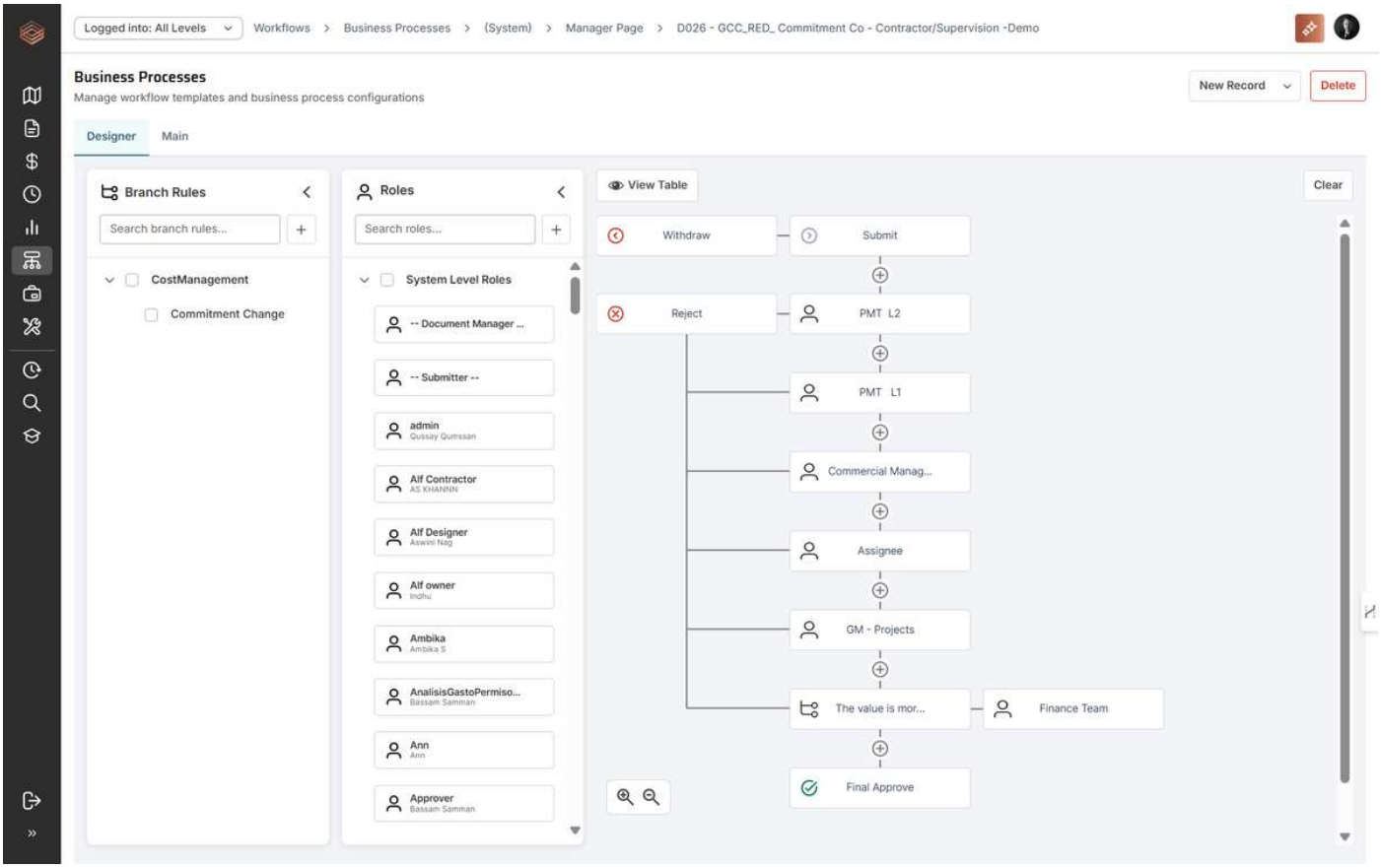
Each budget request records the attributes the PMO needs for attribution: the reserve category drawn, the risk from the register that occurred (or the reason the event was unforeseen), the contractor, vendor or consultant involved, the package, and the linked change event and change order. The PMWEB change event aligns the commitment change order with the budget transfer that funded it, so the PMO can see both why the reserve was needed and what it paid for.



PMWEB workflow routes each request through the steps required by the owner's DoA matrix. Conditional branches read the reserve type, category and amount.

Drawdown	Workflow path
Contingency within PM authority	Cost controller review, project manager approval.
Contingency above PM authority	Adds programme director and, where the DoA requires, finance approval.
Interface contingency	Adds review by the interface manager and the PMO.
Management reserve	Adds PMO review and sponsor, steering committee or board approval.
Release of unused contingency	PMO review, then transfer back to the programme or portfolio reserve.

The thresholds are set by each owner's own DoA matrix. Every workflow step is logged automatically: who acted, when, the action taken and any comments. Supporting documents such as the risk assessment, the contractor's notice or the change order valuation are attached to the request from the PMWEB document management repository.



Releasing contingency as risks retire

Reserve governance is not only about controlling spending. When a risk closes, because the activity it threatened is complete or the mitigation worked, the contingency behind it should be reviewed. In PMWEB the closed risk still carries its reserve category and expected value, so the PMO can identify contingency that is no longer supported by open risks and release it, through a budget request, to the programme or portfolio reserve. That is how reserves stop being trapped.

The Indicators, Defined

With the risk register, budget, budget requests, change events and progress held in one database, the seven indicators become calculations rather than estimates. Each can be produced for a project, a programme or the whole portfolio.

Indicator	Calculation	PMWEB data source
Reserve Coverage Ratio	Remaining contingency ÷ remaining quantified risk exposure (residual expected value of open risks).	Budget reserve lines; risk register
Reserve Burn Rate	Contingency drawn per period, and cumulative drawdown as a percentage of original contingency.	Approved budget requests by date
Reserve Consumption Index	Percentage of contingency consumed ÷ percentage physical progress. Above 1.0, reserve is being consumed faster than work is delivered.	Budget requests; schedule or progress invoice progress
Reserve Attribution	Drawdowns grouped by party, package, reserve category and risk.	Budget request fields; linked change events
Cross-Party Exposure	Expected value of open risks flagged as interface risks, by pair of parties.	Risk register interface fields
Management Reserve Available	Original management reserve plus releases received, less approved drawdowns.	Portfolio reserve project
Forecast Reserve Shortfall	Remaining exposure plus forecast emerging exposure, less remaining contingency and available management reserve. A positive result is a shortfall.	Risk register; reserve balances; trend of new risks

The two executive ratios

Reserve Coverage Ratio = Remaining Reserve ÷ Remaining Quantified Risk Exposure

Portfolio Reserve Adequacy = (Remaining Contingency + Available Management Reserve) ÷ (Remaining Risk Exposure + Forecast Emerging Exposure)

A ratio of 1.0 means the reserve exactly matches the exposure it is meant to cover. The thresholds are the owner's to set. Many use bands such as 1.2 and above as healthy, 1.0 to 1.2 as watch, and below 1.0 as a shortfall that needs action.



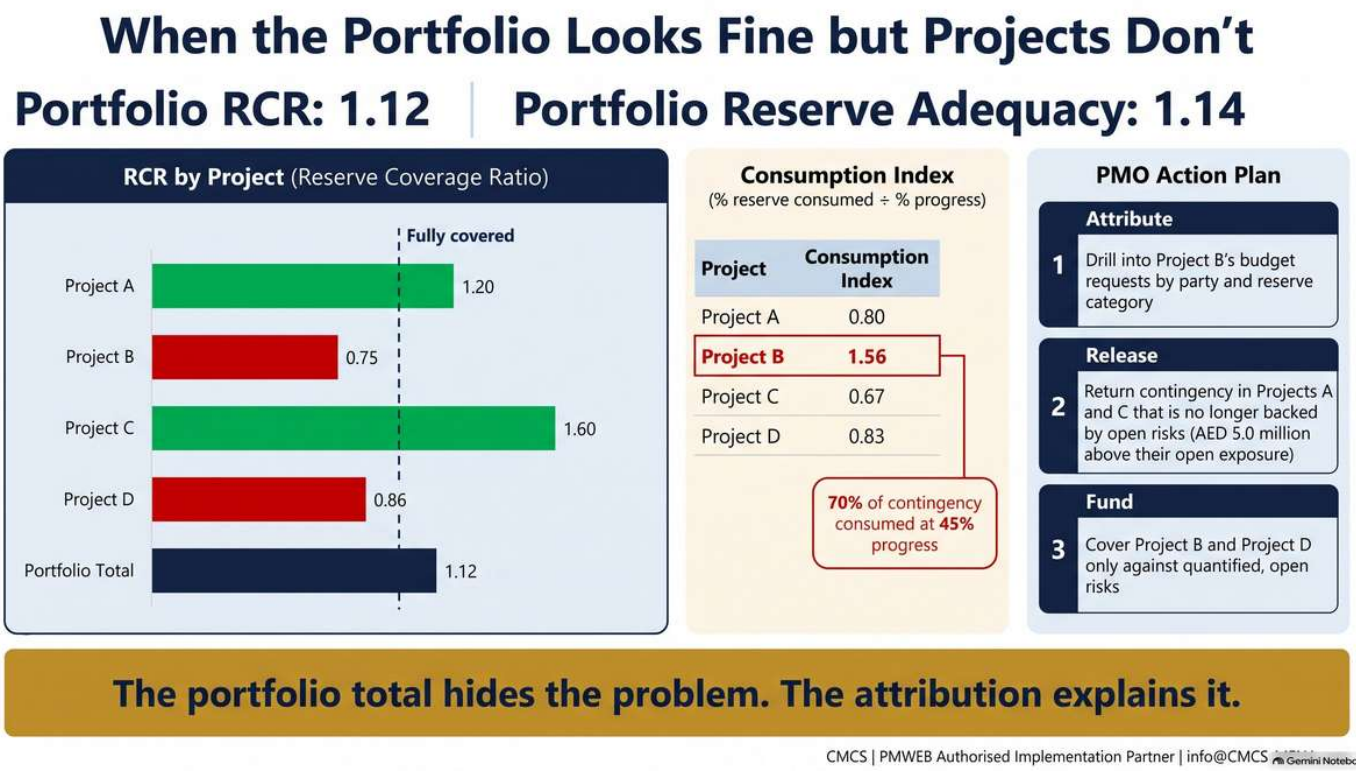
A worked example

Consider a portfolio of four projects, with values in AED million.

Project	Original	Consumed	Remaining	Progress	Consumption index	Remaining exposure	RCR
Project A	20.0	8.0 (40%)	12.0	50%	0.80	10.0	1.20
Project B	15.0	10.5 (70%)	4.5	45%	1.56	6.0	0.75
Project C	10.0	2.0 (20%)	8.0	30%	0.67	5.0	1.60
Project D	6.0	3.0 (50%)	3.0	60%	0.83	3.5	0.86
Portfolio	**51.0**	**23.5 (46%)**	**27.5**	–	–	**24.5**	**1.12**

At portfolio level the picture looks comfortable. The RCR is 1.12, and with AED 6.0 million of available management reserve against AED 5.0 million of forecast emerging exposure, Portfolio Reserve Adequacy is 33.5 ÷ 29.5 = 1.14. One level down, two projects are short. Project B has consumed 70 percent of its contingency at 45 percent progress, a consumption index of 1.56, and its remaining reserve covers only 75 percent of its open exposure. Project D is also below 1.0. Projects A and C hold AED 5.0 million more than their open risks require.

The portfolio total hides the problem, and the attribution explains it. Drilling into Project B's budget requests shows which parties and reserve categories drove the burn, for example interface contingency consumed by repeated package-to-package coordination changes, and whether the same risks are recurring on other projects. The PMO's decision is then evidence-based: recover from the responsible party where the contract allows, release unsupported contingency from Projects A and C to the portfolio reserve, and fund Project B only against quantified, open risks.



Reports and Dashboards for the PMO

Because every reserve movement is a budget request with structured fields, reports can slice reserve data by any attribute. The budget requests analysis report shows, line by line, the original budget, each transfer and the revised budget, giving an auditable history of every reserve category.

PMWEB | Budget Requests Analysis

Line #	Cost Code	Description	Original Budget	Request: 1-Budget Transfer	Request: 2-Budget Increase	Request: 3-Budget Increase	Revised Budget
5	02-030000	Concrete	$875,000.00	$50,000.00	$50,000.00	$0.00	$1,850,000.00
6	02-050000	Metals	$850,000.00	$0.00	$0.00	$20,000.00	$870,000.00
7	02-061000	Rough Carpentry	$122,500.00	$0.00	$0.00	$10,000.00	$132,500.00
8	02-099000	Painting and Coating	$300,000.00	$0.00	$0.00	$15,900.00	$315,900.00
20	05-005000	Project Contingency	$700,000.00	$-50,000.00	$0.00	$0.00	$650,000.00
23	02-142000	Elevators	$0.00	$0.00	$0.00	$12,000.00	$12,000.00
24	02-080000	Openings	$0.00	$0.00	$0.00	$30,000.00	$30,000.00
Totals			$2,847,500.00	$0.00	$50,000.00	$87,900.00	$2,985,400.00

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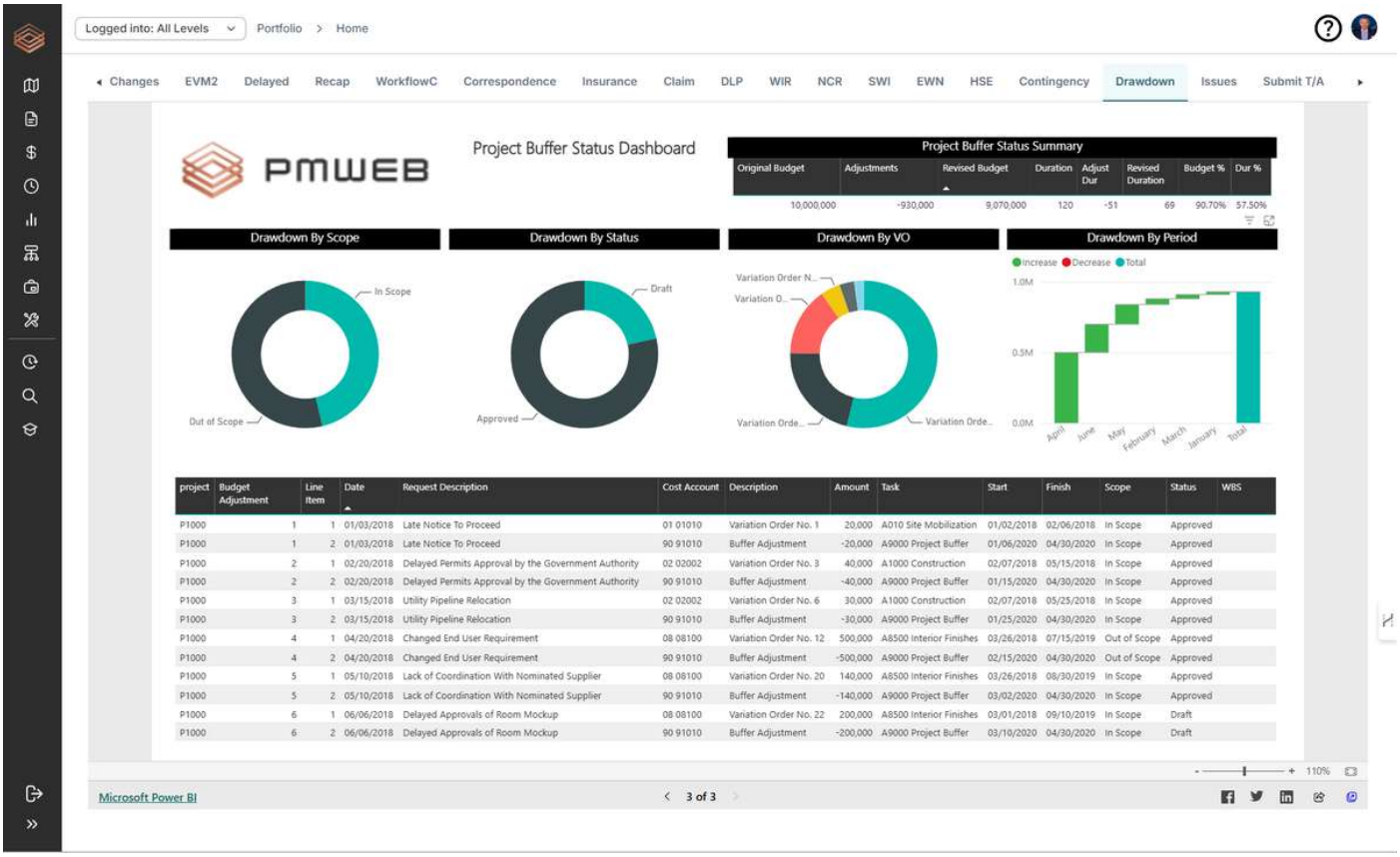
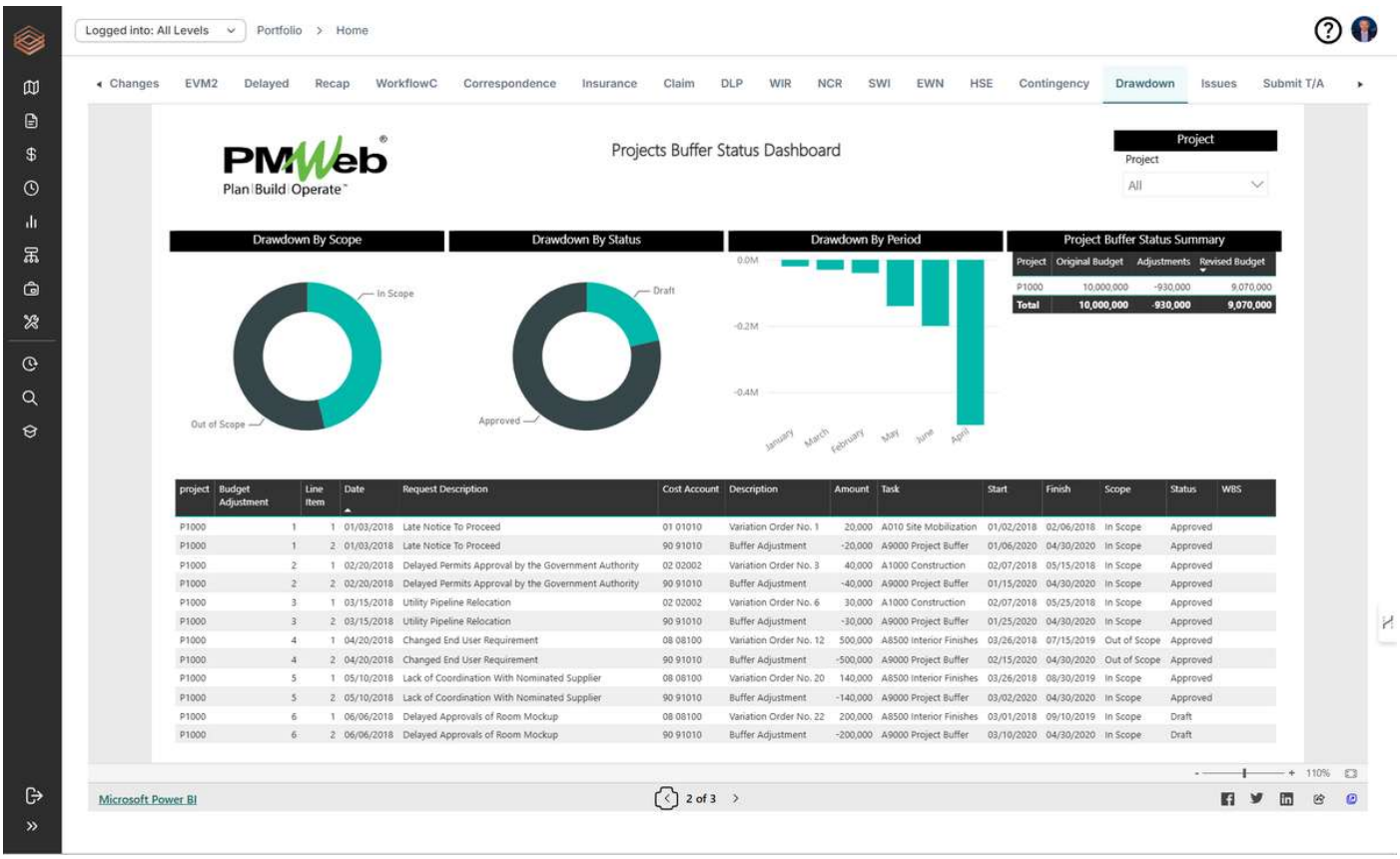
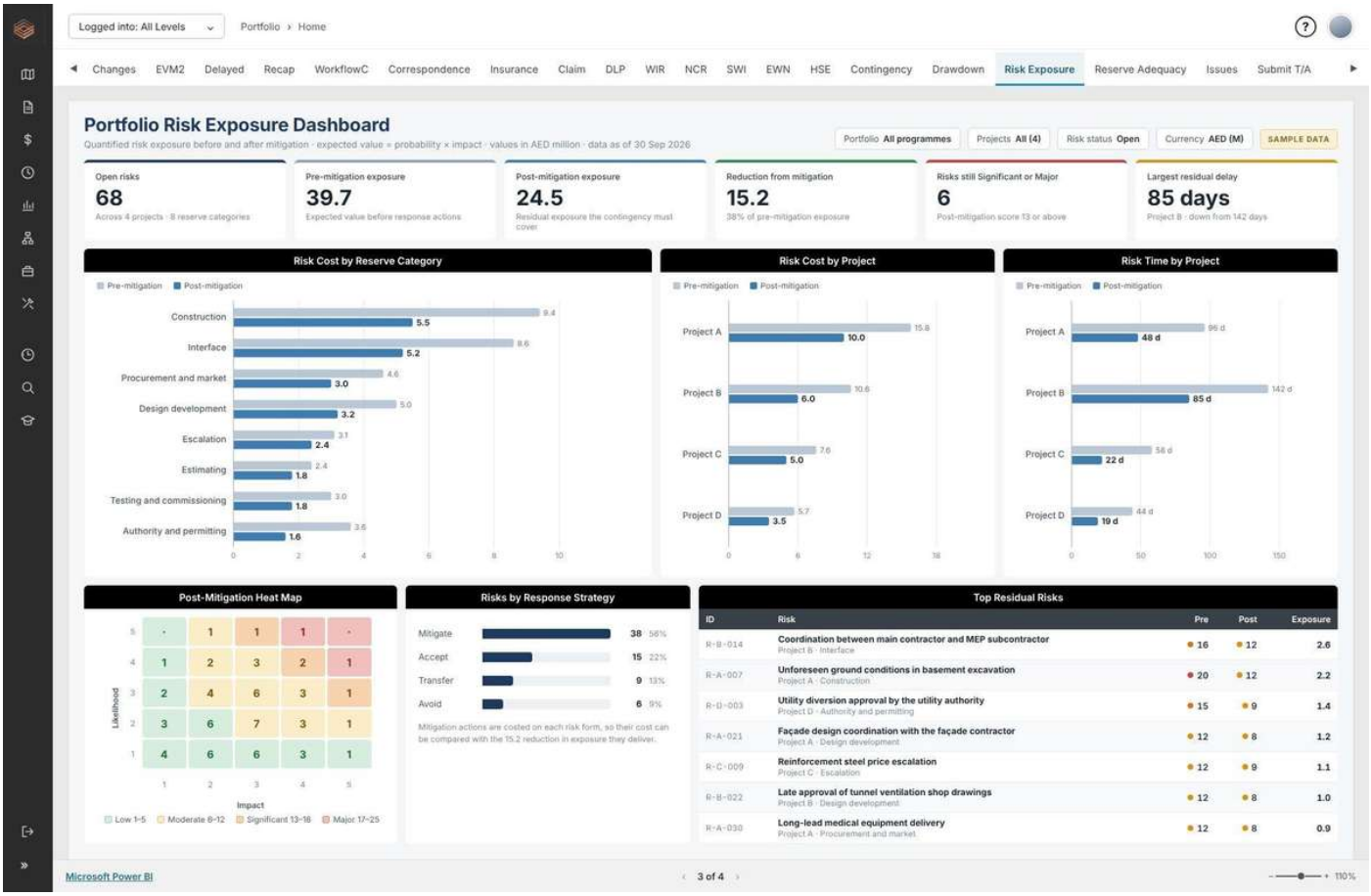
The project buffer status dashboard shows contingency drawdown by scope, status, variation order and period, with the full log of budget adjustments beneath. The same layout at portfolio level shows executives how much contingency each project has consumed and how much it still holds.

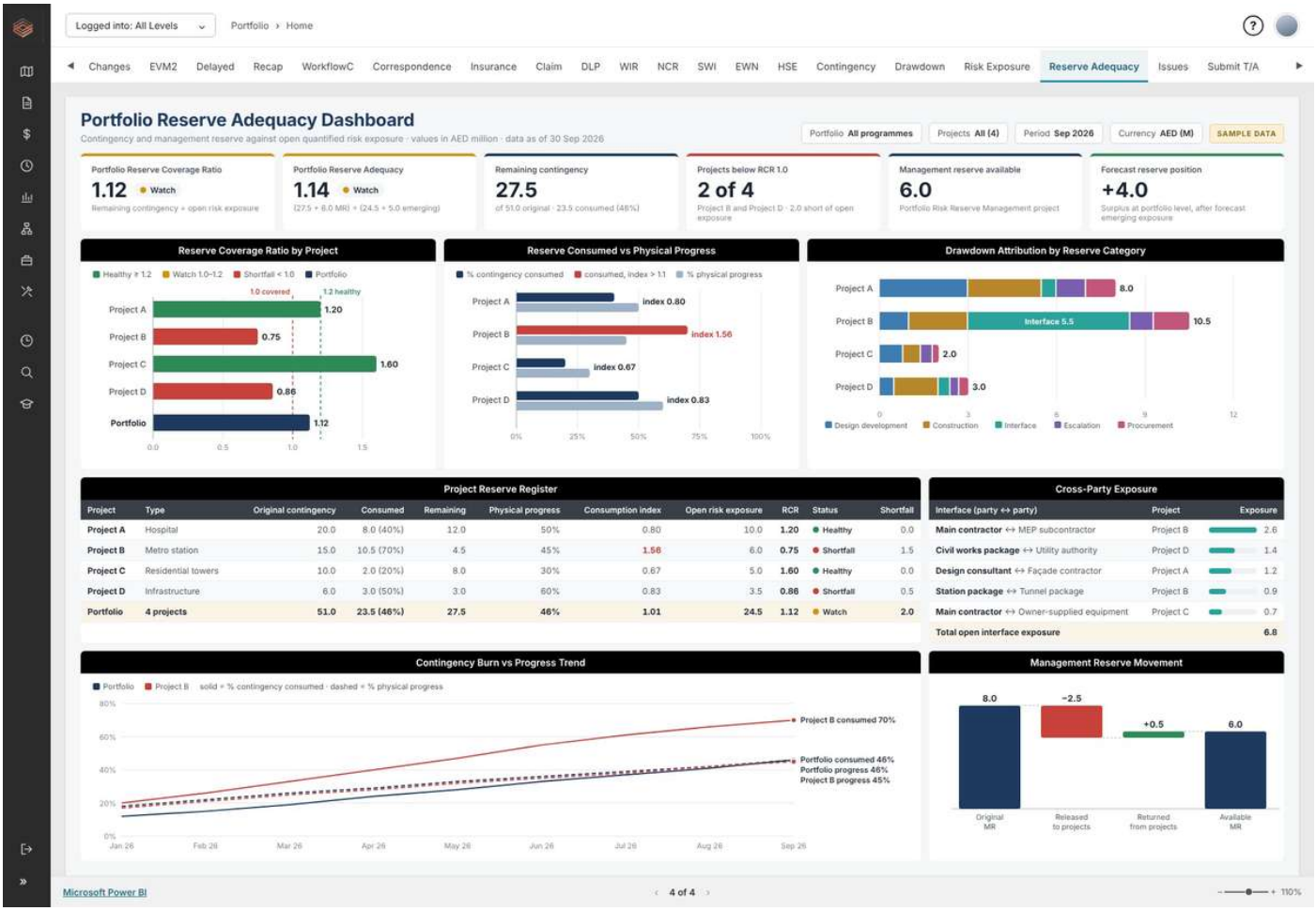




Risk exposure dashboards show quantified risk cost and time by category and by project, pre- and post-mitigation. This is the denominator of every coverage ratio.



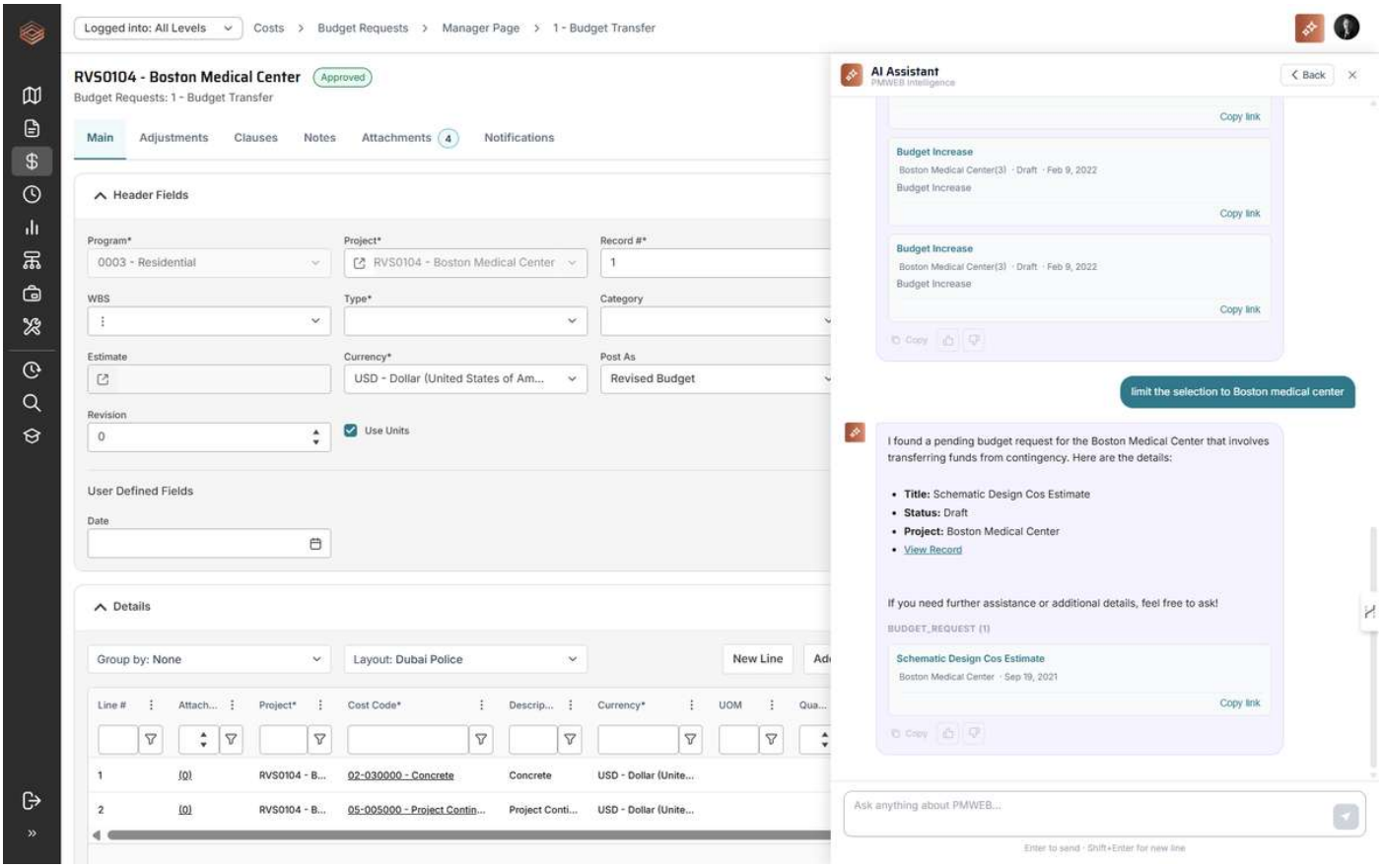
Bringing these together, the PMO's portfolio reserve adequacy dashboard presents RCR by project against the owner's thresholds, the consumption index, attribution by party and category, cross-party exposure, management reserve available and the forecast shortfall, with drill-down from any value to the budget requests and risks behind it. Built on PMWEB data with PMWEB dashboards or Power BI, it is current at the moment it is opened.



PMWEB 2026 AI: From Reserve Balances to Reserve Intelligence

AI is only as useful as the data it reasons over. Applied to a spreadsheet of balances, AI can only describe numbers. Applied to PMWEB, it starts from risks already classified by category, owner, CBS reserve category and schedule activity, with quantified residual exposure, and from drawdowns already linked to the risk, party, package, change event and change order behind them. No data, no AI. And without structured data, no reliable AI.

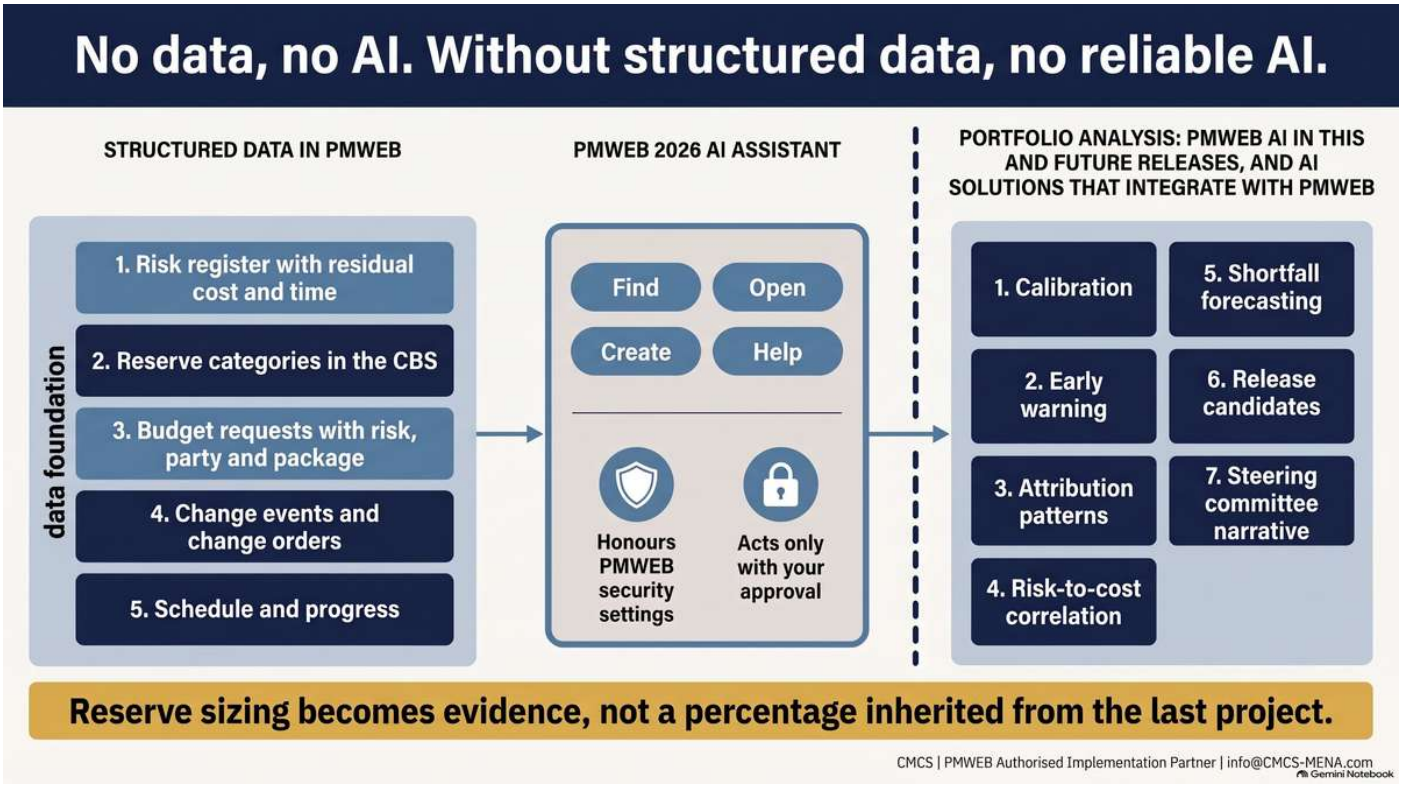
The PMWEB 2026 release introduces the PMWEB AI Assistant, which helps users find, open and create records and get help on the system. It honours PMWEB security settings and acts only with the user's approval. A cost controller can ask for the pending budget requests drawing on contingency on a project, open a specific request, or start a new drawdown request in natural language, within the access already defined for their role.



The larger prize is the reserve history an owner accumulates across every active and completed project. Held in one PMWEB database, that data can be analysed at portfolio level by PMWEB AI in this and future releases, and by AI solutions that integrate with PMWEB, to answer questions such as:

- **Calibration:** how did actual contingency consumption by category compare with the reserve set at approval, by project type, delivery model and estimate class?
- **Early warning:** given a new project's burn pattern and consumption index in its first months, which past projects followed the same path, and where did they end?
- **Attribution patterns:** which contractors, consultants, packages or interfaces consume reserve disproportionately across the portfolio?
- **Risk-to-cost correlation:** which risk categories most often materialise, and at what share of their expected value?
- **Shortfall forecasting:** which projects are trending towards an RCR below 1.0 before completion, and how much management reserve would cover them?
- **Release candidates:** which contingency lines are no longer supported by open risks and can be returned to the portfolio reserve?
- **Steering committee narrative:** a draft of the monthly reserve commentary built from actual drawdowns and risk movements, for the PMO to review.

Reserve sizing then stops being a percentage inherited from the last project. It becomes evidence the owner applies to estimates, to the allocation of risk in contracts and to the release thresholds in its DoA.



Configuring PMWEB to the Owner's Reserve Policy

Every owner sets its own reserve policy. Those decisions become configuration in PMWEB, saved in project templates and reused on each new project.

What the owner decides	How it is configured in PMWEB
Reserve categories	Contingency and management reserve cost codes within the CBS, separate from allowances and provisional sums
Risk register fields	Custom risk form with RBS, CBS reserve category, schedule activity, residual cost and time, and interface flags
Sizing method	Expected value roll-up, or export to Monte Carlo tools and recording of the funded confidence level
Holding tiers	Project budgets plus programme and portfolio reserve projects with restricted access
Drawdown rules	Budget request types, mandatory fields and links to risks, change events and change orders
DoA thresholds	Conditional workflow steps by reserve type, category and amount
Release rules	Review when risks close, and budget requests returning unused contingency
Indicator thresholds	RCR and consumption index bands for dashboards and alerts
Report formats	Reserve logs, drawdown analyses and portfolio dashboards in the owner's format
Integration	Schedules from Primavera P6 or Microsoft Project, estimates from estimating tools and actual costs from the ERP

Evidence That Reserve Governance Is Working

- **Traceability.** Every contingency category traces to quantified risks, and every drawdown traces to a risk, a party and a change order.
- **Coverage.** No project sits below the owner's RCR threshold without an approved recovery action.
- **Pace.** Consumption indices stay close to 1.0, and the outliers are explained.
- **Separation.** Owner changes and allowances never consume risk contingency.
- **Release.** Contingency behind retired risks is returned to the portfolio within the agreed review cycle.

- **Discipline.** No reserve moves outside an approved PMWEB budget request.
- **Learning.** Reserve levels for new projects are set from the portfolio's own consumption history.

Key takeaway

Reporting reserves as a balance answers one question: how much is left? Governing them in PMWEB answers the questions that protect the portfolio. Is the remaining reserve adequate for the risks still open? Which party, package and category is consuming it? Is it being spent faster than value is delivered? Where is reserve trapped, and where is it short?

The difference is granularity. Categorised reserves in the CBS, a quantified risk register, approval through the DoA, every drawdown made through a budget request linked to its cause, real-time indicators and portfolio-wide AI all depend on capturing the data once, at source. PMOs that make that choice turn reserves from a financial buffer into a strategic portfolio governance tool.

Talk to us: *to see how PMWEB risk registers, reserve structures, budget request workflows and portfolio reserve dashboards can be configured for your projects, contact CMCS at info@CMCS-MENA.com.*

#PMWEB #CMCS #PMO #ContingencyManagement #ManagementReserve #RiskManagement #ProjectControls #PMIS #CapitalProjects #PortfolioManagement #AIinConstruction

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.

From Number to Narrative — Real-Time, Traceable Line-Item Variance Reporting in PMWEB

How eight cost records on one cost breakdown structure explain every movement on a cost line

A variance is a number. An explained variance is a decision. The difference is whether every number on the cost report is the sum of records that can be opened, read and traced to an approval.

Every capital project owner has sat through the same meeting. The cost report shows that a work package is AED 290,000 above its concept estimate. Someone asks why. The cost manager promises an answer by next week, then spends that week reconciling spreadsheets, e-mails and contract files to rebuild a story the organisation already lived through once.

The problem is not the arithmetic. Any spreadsheet can subtract one number from another. The problem is that the number arrives without its history: which quantities moved, which rates moved, which transfers were approved, which changes were negotiated, which invoices were certified, and who approved each step.

Line-item variance reporting solves this only when the history travels with the number. That is what PMWEB does when the estimate, budget, budget requests, commitments, change events, potential change orders, change orders and progress invoices all share one cost breakdown structure (CBS) and live in one database. This article explains how each of those records contributes to a variance report that is real time, traceable and explainable line by line.



Infographic I-1 — One cost code, eight records, one database

Why Estimate-to-Estimate Variance Is Not Enough

Modern estimating platforms have made line-item variance a standard feature. Pick any two estimate versions and the tool lists every line that was added, edited or removed, with the base value, the new value and the delta for quantity, unit cost and total. Grouping deltas roll up by package or system, and colour separates savings from increases at a glance.

That is useful, and PMWEB users should expect the same discipline for their own estimate revisions. But those tools are candid about the limit: the comparison covers quantity, unit cost and total between two snapshots of an estimate, and it is explicitly not an audit trail.

Once a project is approved, the estimate stops being the place where cost moves. Cost moves when funds are transferred, when a subcontract is awarded above or below budget, when a design revision triggers a change event, when a potential change order is priced and negotiated, and when a contractor submits a progress invoice. None of those events lives inside an estimating tool.

How Owners Typically Explain Variance Today

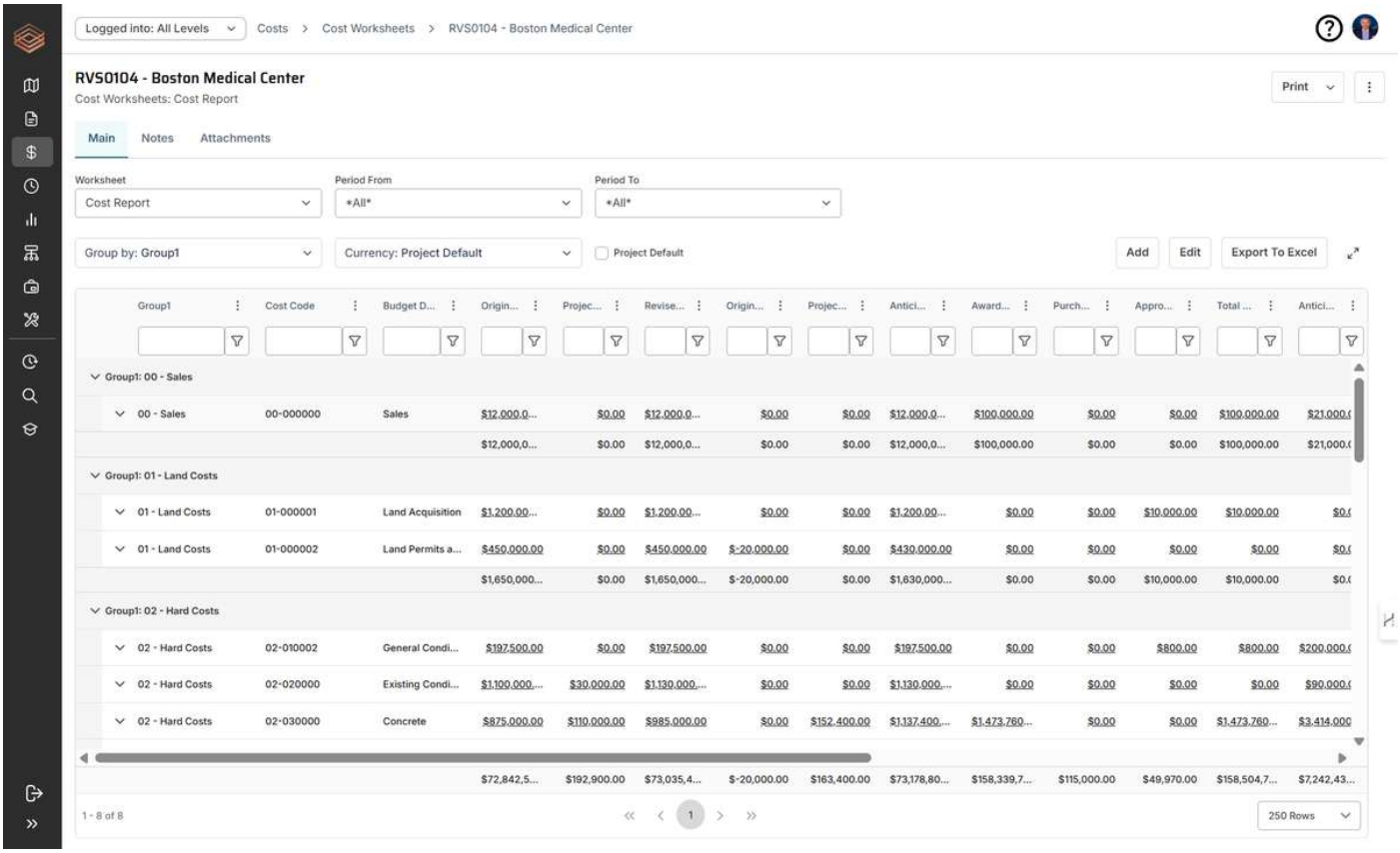
- **The estimate, the budget and the contract register are separate files.** Each is maintained by a different team, on a different cost structure, and they are reconciled by hand at month end.
- **Budget transfers happen by e-mail.** Contingency is drawn down and funds are moved between packages, but the approval sits in a mailbox rather than on the cost line.
- **Changes are agreed before they are recorded.** Site instructions and design revisions are priced informally, so exposure is invisible until a change order lands.
- **Invoices are certified against totals, not lines.** Progress is measured at contract level, so nobody can say which cost code has been earned and which has not.
- **Variance is explained in narrative, not in records.** The monthly report says costs rose "due to design development" with no quantity, rate or reference behind the sentence.
- **Every review starts from scratch.** Auditors, boards and claims consultants each ask the project team to rebuild the same story.

How PMWEB Makes Every Variance Traceable

The approach is to hold every movement of cost on a record, and every record on the same cost code. Each record type then explains one kind of variance, and the Cost Worksheet adds them up.

The cost spine: one CBS across every cost record

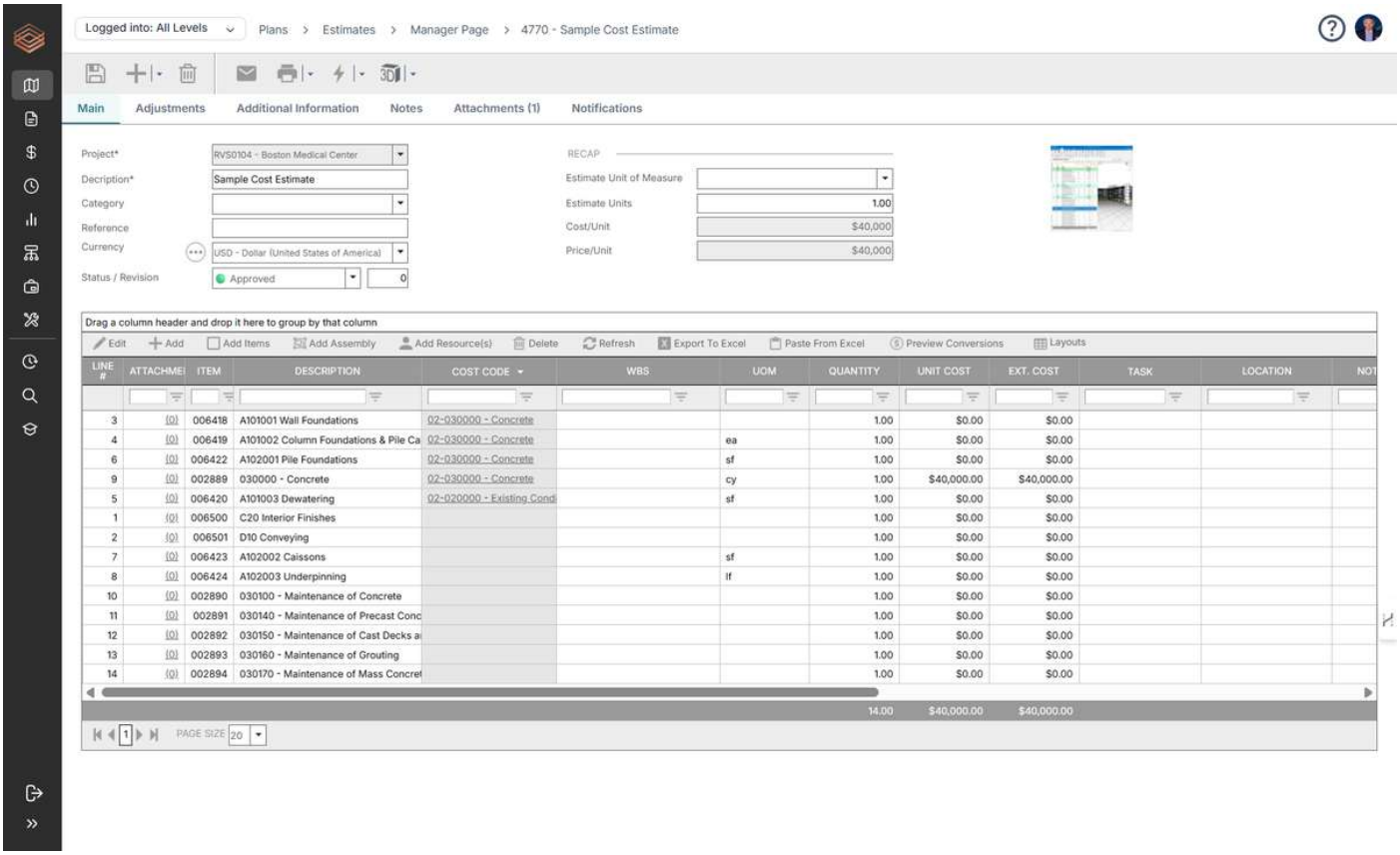
Every line item on every PMWEB cost record carries a cost code from the project CBS. Because they do, the Cost Worksheet shows each cost code as a row and each record type as a column: Original Budget, Approved Budget Requests, Current Budget, Original Commitments, Approved Changes, Pending Changes, Revised Commitments, Invoiced to Date and Estimate at Completion. None of these cells is typed. Each is the sum of line items on source records, and each drills down to those records, their attachments and their workflow history.



PMWEB screenshot S-1 — Cost Worksheet by cost code

Estimate and estimate revisions

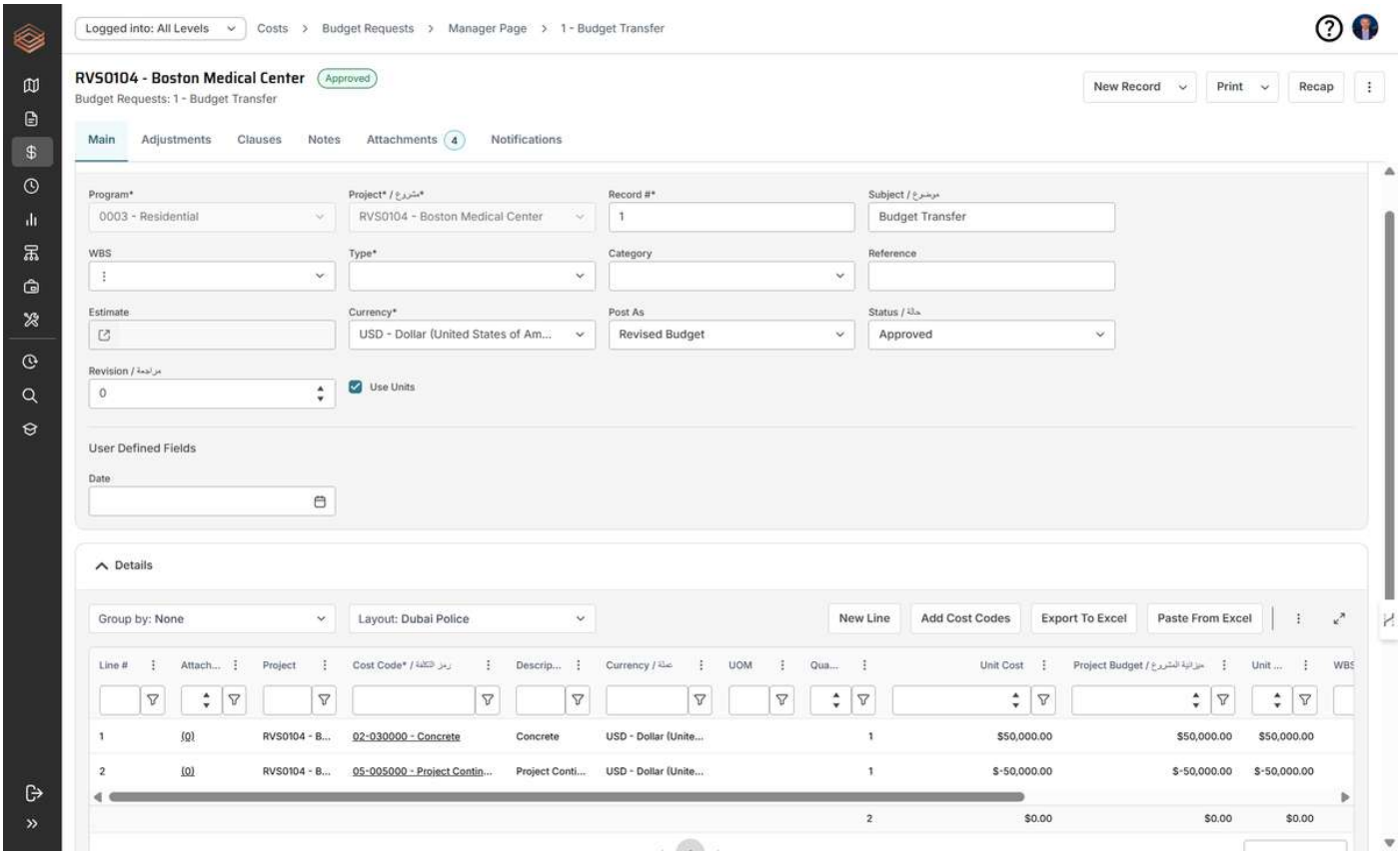
PMWEB estimates hold quantity, unit of measure and unit rate per line, each line coded to the CBS. Each design-stage revision is kept as its own record, so concept, schematic and detailed design estimates can be compared line by line through PMWEB reports. Because quantity and rate are separate fields, every delta between two revisions can be split into a quantity effect and a rate effect rather than reported as a single number.



PMWEB screenshot S-2 — Estimate line items with quantity, unit and rate

Budget and budget requests

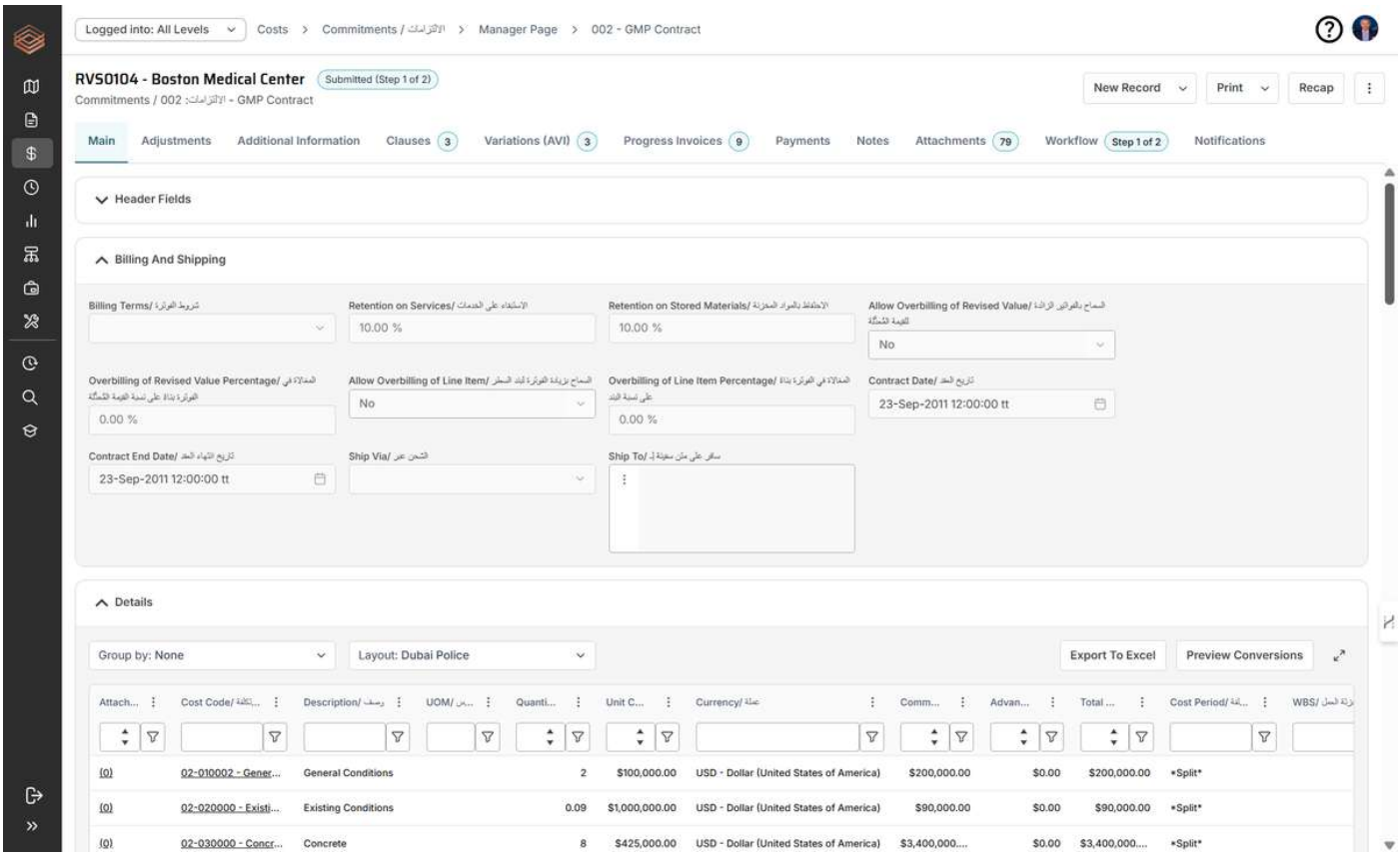
The approved estimate is loaded as the original budget, so the budget baseline carries the same lines and codes. From then on, the budget changes only through budget requests: transfers between cost codes, draws on contingency or additional funding. Each request routes through the owner's delegation-of-authority workflow, and its lines post to the Approved Budget Requests column when approved. A transfer therefore always shows where funds came from, where they went and who authorised the move.



PMWEB screenshot S-3 — Budget request with transfer lines and approval history

Commitments

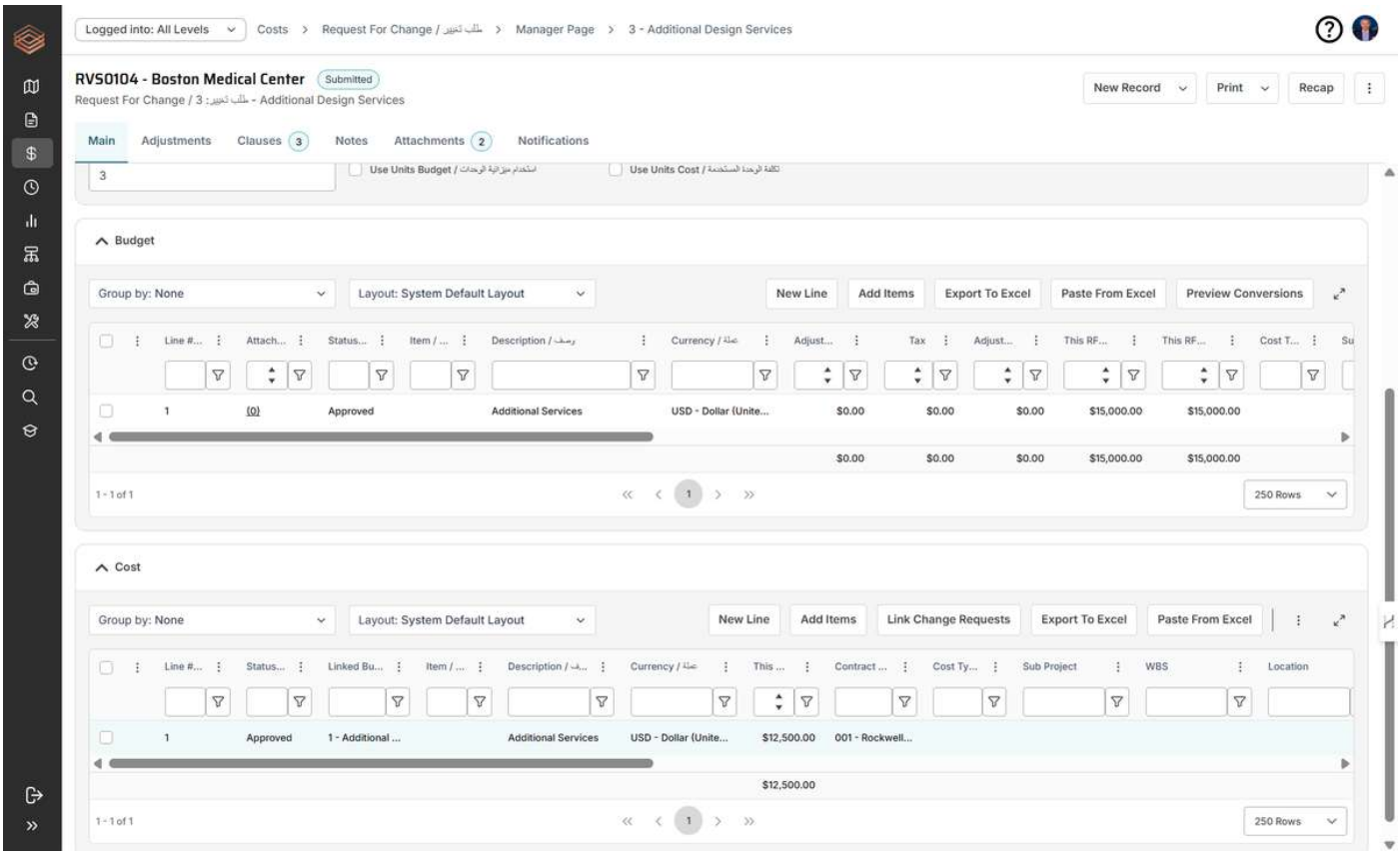
Subcontracts and purchase orders are entered as commitments with a schedule of values coded to the same CBS, carrying awarded quantity and rate where the work is measurable. The difference between Current Budget and Original Commitments on each line is the buyout variance: the saving or overrun that procurement delivered against the authorised budget.



PMWEB screenshot S-4 — Commitment schedule of values by cost code

Change events, potential change orders and change orders

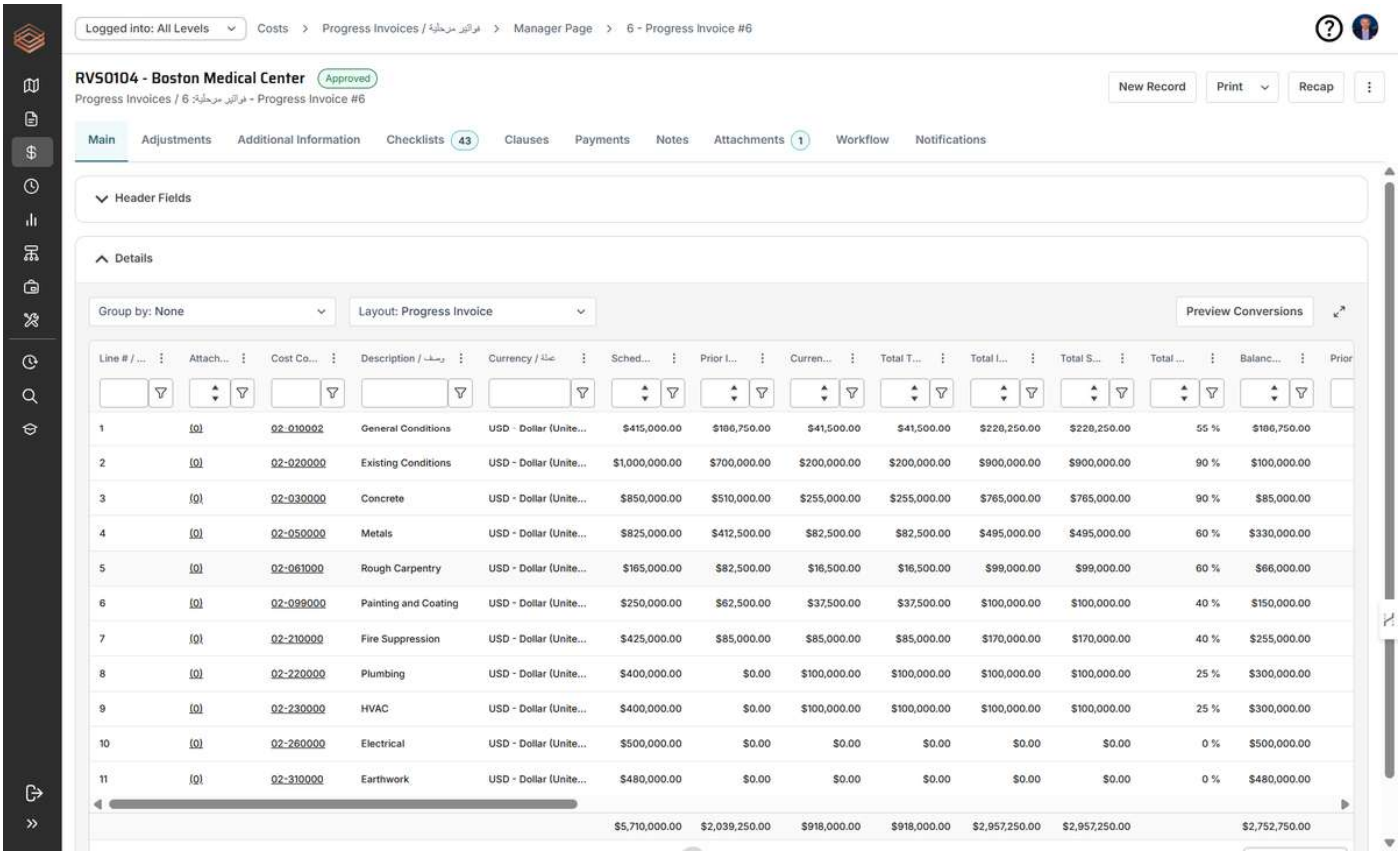
A change event records the trigger, whether a design revision, an instruction, a site condition or a claim, before anyone has agreed a price. Potential change orders price that event per cost code, on the owner side and on the contractor side, and appear on the Cost Worksheet as Pending Changes. When a PCO is negotiated and approved, it becomes a change order that revises the commitment. The chain from event to PCO to change order is linked in PMWEB, so every approved change carries its origin and every pending one is visible as exposure before it becomes cost.



PMWEB screenshot S-5 — Change event linked to its PCO and change order

Progress invoices

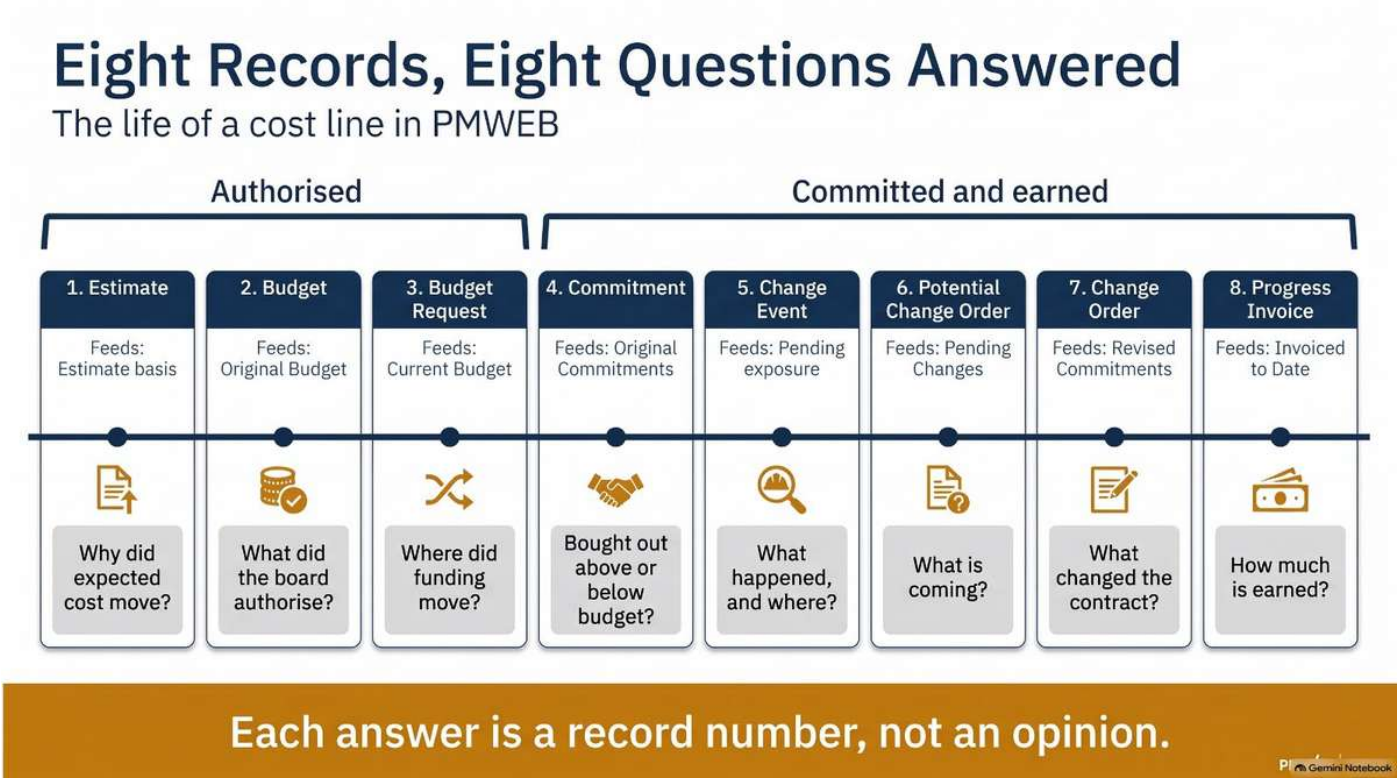
Progress invoices are raised against the commitment's schedule of values, line by line, with previous, current and cumulative quantities and values. Retention and deductions are calculated on the same lines. The Invoiced to Date column therefore shows how much of each cost code is earned and certified, and the balance to finish is known per line, not only per contract.



PMWEB screenshot S-6 — Progress invoice against commitment lines

What each record explains

PMWEB record	What it changes on the cost line	Cost Worksheet column	Variance question it answers
Estimate and revisions	Quantity, rate and total per cost code at each design stage	Estimate basis for the original budget	Why did the expected cost move between design stages?
Budget	Approved baseline per cost code, loaded from the approved estimate	Original Budget	What did the board authorise for this scope?
Budget Request	Transfers, contingency draws or added funding	Approved Budget Requests, Current Budget	Where did funding move, from which line, on whose authority?
Commitment	Awarded quantity, rate and value per cost code	Original Commitments	Was the scope bought out above or below budget?
Change Event	The trigger, logged before it is priced	Pending exposure, once estimated	What happened, and which lines and contracts does it touch?
Potential Change Order	Priced but unapproved change per cost code	Pending Changes	What is coming that is not yet in the numbers?
Change Order	Approved change to the commitment per cost code	Approved Changes, Revised Commitments	Which approved changes moved the contract value?
Progress Invoice	Certified quantity and value to date per commitment line	Invoiced to Date, Retention, Balance to Finish	How much of the committed value is earned and certified?



Infographic I-2 — Eight records, eight questions answered

Explaining a Difference, Line by Line

Comparing two numbers line by line shows where cost moved. Explaining it means splitting each delta into causes a reviewer can accept or challenge. With quantity and rate held on every PMWEB line, five causes cover almost every movement.

- **Quantity variance.** The scope measured differently: the change in quantity, priced at the earlier rate.
- **Rate variance.** The same scope priced differently, from market movement, specification or buyout: the change in rate, applied to the new quantity.
- **Scope added or removed.** Lines that exist in one version and not the other, each tied to a design revision or change event.
- **Transfer.** Funding moved between cost codes by an approved budget request. It moves budget, not cost, and nets to zero across the project unless new funds are added.
- **Change.** Approved change orders, which are in the numbers, and pending PCOs, which are exposure not yet in the numbers, each traced to its change event.

For any line, the first two causes reconcile exactly to the total delta:

$$\Delta \text{Total} = (Q_2 - Q_1) \times R_1 + (R_2 - R_1) \times Q_2$$

The split is simple, but it works only when quantity and rate are stored as separate fields on every record. Lump-sum lines and spreadsheet totals cannot be decomposed after the fact, which is why CBS and unit-rate discipline must be set in PMWEB from the first estimate, not retrofitted at the first variance review.

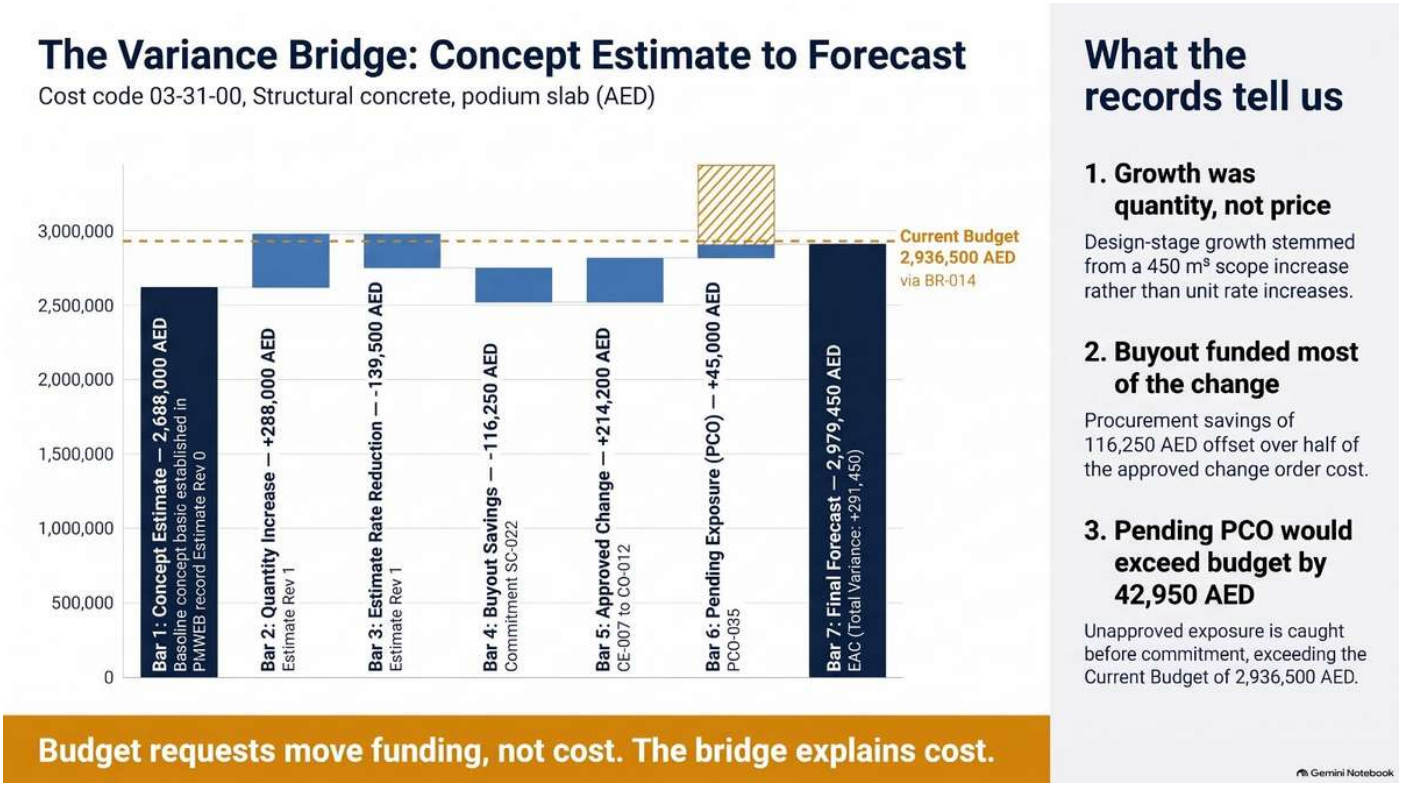
Worked Example: One Cost Code from Concept Estimate to Forecast

Take one cost code, 03-31-00 Structural concrete, podium slab, on an illustrative owner project. The forecast now stands AED 291,450 above the concept estimate. In PMWEB that number is the sum of nine records.

#	PMWEB record	Quantity × rate	Value (AED)	Effect on the line
1	Estimate Rev 0, concept	4,200 m³ × 640	2,688,000	Concept basis
2	Estimate Rev 1, detailed design	4,650 m³ × 610	2,836,500	+148,500 vs Rev 0
3	Budget, original	Loaded from Rev 1	2,836,500	Original Budget
4	Commitment SC-022, concrete subcontract	4,650 m³ × 585	2,720,250	Buyout 116,250 below budget

#	PMWEB record	Quantity × rate	Value (AED)	Effect on the line
5	Change Event CE-007, transfer-beam zone added by design revision	Logged, then priced	—	Exposure opened
6	PCO-031 negotiated to Change Order CO-012	380 m³ × 585 claimed; 360 m³ × 595 approved	214,200	Revised Commitment 2,934,450
7	Budget Request BR-014, transfer from contingency	—	100,000	Current Budget 2,936,500
8	Progress Invoices PI-01 to PI-06	3,250 m³ × 585 + 120 m³ × 595	1,972,650	67.2% invoiced; 961,800 to go
9	PCO-035, cold-joint treatment (pending)	Lump sum under review	45,000	EAC 2,979,450

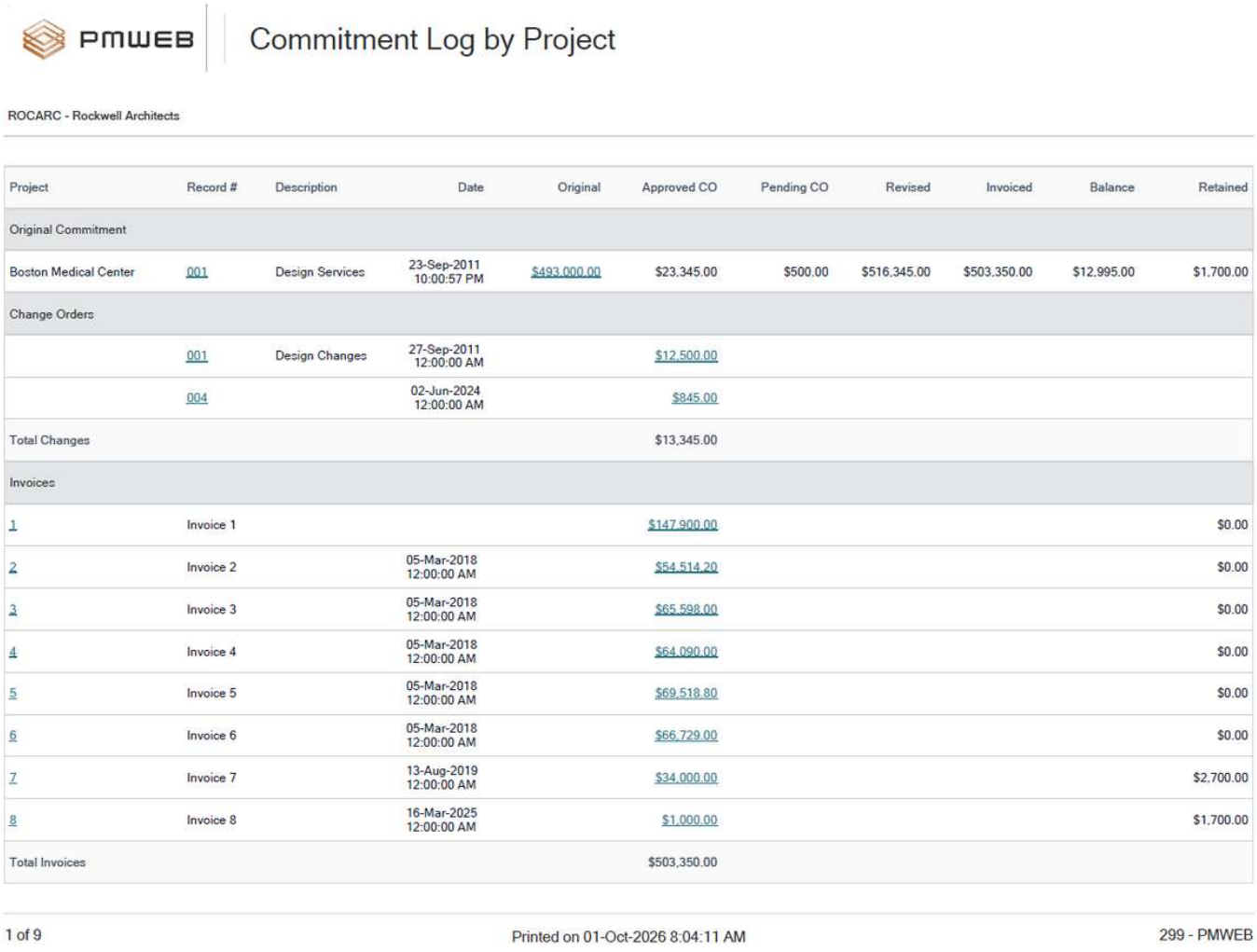
Cause of variance	Source record	Variance (AED)
Quantity: design measured 450 m³ more	Estimate Rev 1 vs Rev 0	+288,000
Rate: estimate rate fell from 640 to 610	Estimate Rev 1 vs Rev 0	−139,500
Rate: subcontract bought out at 585 vs 610	SC-022 vs Budget	−116,250
Scope added: transfer-beam zone	CE-007 → CO-012	+214,200
Pending exposure: cold-joint treatment	PCO-035	+45,000
Total: forecast vs concept estimate		**+291,450**



Infographic I-3 — The variance bridge: concept estimate to forecast

Three conclusions come straight out of the records. First, design-stage growth was mostly quantity, not price, which is a question for the design team rather than the estimator. Second, the buyout saving funded more than half of CO-012, so only AED 100,000 had to be drawn from contingency through BR-014. Third, the line is funded for approved cost, with a Current Budget of 2,936,500 against a Revised Commitment of 2,934,450, but PCO-035 would push the forecast AED 42,950 over budget. The cost manager sees that before PCO-035 is approved, not after.

BR-014 does not appear in the variance bridge. A budget request moves funding, not cost: it explains the budget column, while the bridge explains the cost column. Keeping the two apart is what stops a transfer being mistaken for a saving.



PMWEB | Commitment Log by Project

ROCARC - Rockwell Architects

Project	Record #	Description	Date	Original	Approved CO	Pending CO	Revised	Invoiced	Balance	Retained
Original Commitment										
Boston Medical Center	001	Design Services	23-Sep-2011 10:00:57 PM	$493,000.00	$23,345.00	$500.00	$516,345.00	$503,350.00	$12,995.00	$1,700.00
Change Orders										
	001	Design Changes	27-Sep-2011 12:00:00 AM		$12,500.00					
	004		02-Jun-2024 12:00:00 AM		$845.00					
Total Changes					$13,345.00					
Invoices										
1	Invoice 1				$147,900.00					$0.00
2	Invoice 2		05-Mar-2018 12:00:00 AM		$54,514.20					$0.00
3	Invoice 3		05-Mar-2018 12:00:00 AM		$65,598.00					$0.00
4	Invoice 4		05-Mar-2018 12:00:00 AM		$64,090.00					$0.00
5	Invoice 5		05-Mar-2018 12:00:00 AM		$69,518.80					$0.00
6	Invoice 6		05-Mar-2018 12:00:00 AM		$66,729.00					$0.00
7	Invoice 7		13-Aug-2019 12:00:00 AM		$34,000.00					$2,700.00
8	Invoice 8		16-Mar-2025 12:00:00 AM		$1,000.00					$1,700.00
Total Invoices					$503,350.00					

1 of 9 Printed on 01-Oct-2026 8:04:11 AM 299 - PMWEB

PMWEB screenshot S-7 — Drill-down from Revised Commitments to source records

Configuring PMWEB to Your Cost Procedures

Each owner decides how cost is structured, approved and reported. Those decisions become configuration in PMWEB, set once and reused across the portfolio.

What the owner decides	How it is configured in PMWEB
Cost breakdown structure	CBS levels and cost codes shared by every cost module, at the level variance will be explained
Measurement basis	Quantity, unit of measure and unit rate held separately on estimate, commitment, change order and invoice lines
Cost Worksheet columns	Columns and formulas for budget, commitments, approved and pending changes, invoiced, EAC and variance, in the owner's terminology
Approval routes and DoA thresholds	Role-based workflows for budget requests, PCOs, change orders and invoices, mapped to the delegation-of-authority matrix
Contingency rules	Contingency held on its own cost codes and drawn only through budget requests
Change process	Change event, PCO and change order forms linked, with reason codes for design, client, site and claim
Reporting	SSRS variance reports and dashboards from live data, with Power BI where the owner has standardised on it
Integration	Commitments, invoices and actuals exchanged with the owner's ERP on the same cost codes

Evidence That Variance Reporting Is Working

- **Every movement is a record.** No budget transfer, change or invoice affects a cost line without a PMWEB record behind it.
- **Variance explained by cause.** Each material variance is split into quantity, rate, scope, transfer and change, with record references.
- **Exposure visible early.** Pending PCOs appear on the Cost Worksheet before they are approved, and their value is reported with the forecast.
- **Transfers net to zero.** Budget requests that move funds between codes balance across the project unless new funding is approved.
- **Invoices reconcile to lines.** Invoiced to Date on each cost code agrees with the certified progress invoices against it.
- **No month-end reconciliation.** Cost reports are generated from live data and agree with the records the team works in every day.

> **Key takeaway**
>
> Comparing two estimates line by line tells an owner what changed in the estimate. Holding the estimate, budget, budget requests, commitments, change events, PCOs, change orders and progress invoices on one CBS in PMWEB tells the owner what changed in the money, why, on whose authority, and what is still coming.
>
> That is the difference between reporting a variance and explaining one. Every number on the report is a record you can open.

Talk to us: *info@CMCS-MENA.com* | *#CMCS #PMWEB #CostManagement #ProjectControls*

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.

PMWEB Collaboration | Activity Boards

The Conversation Is the Record — Why Project Teams Should Work on PMWEB Activity Boards

How ad-hoc collaboration, captured in the project's own database, becomes the evidence behind decisions, claims and lessons learned

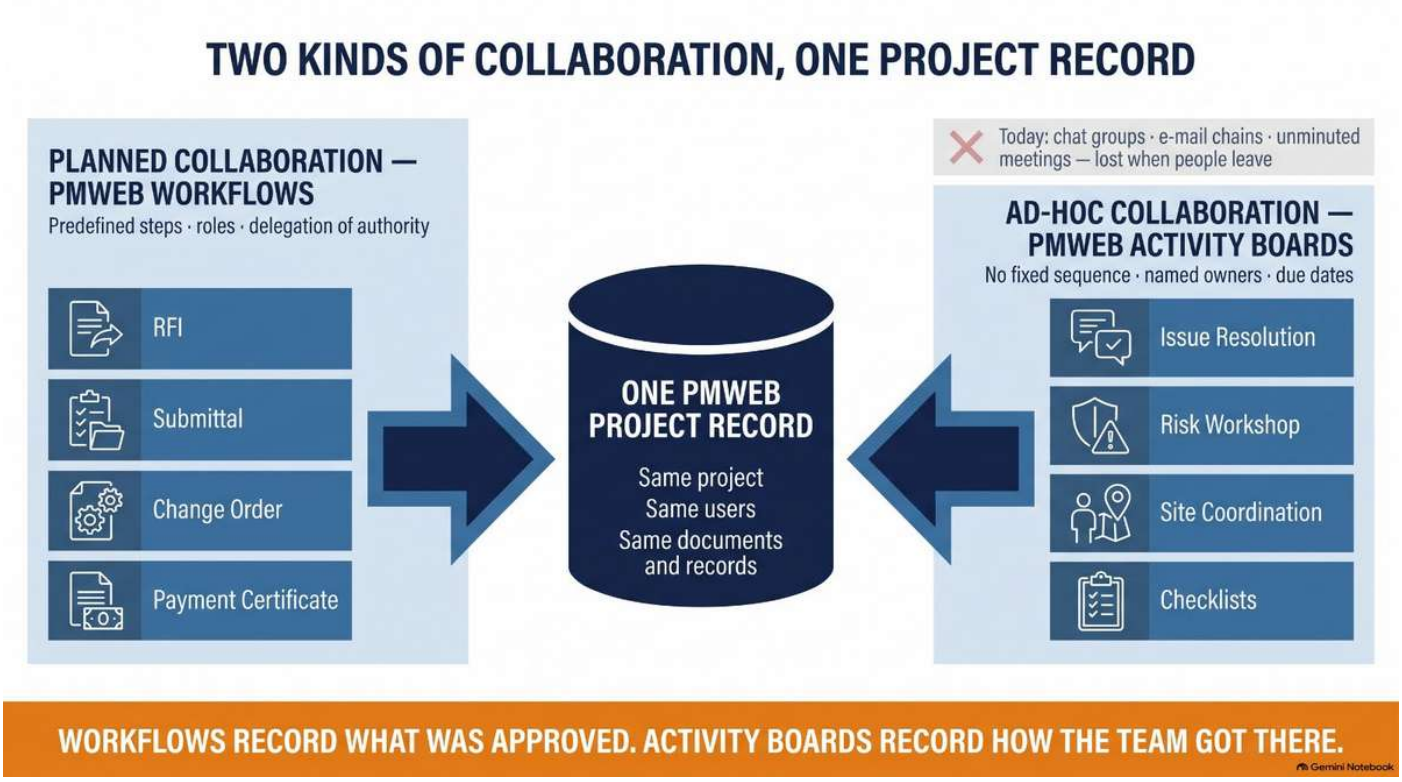
Most project decisions are not made in a workflow. They are made in a conversation. When that conversation lives in a chat group, the decision survives but its reasons do not.

Every capital project runs on two kinds of collaboration. The first is planned. An RFI, a submittal, a change order or a payment certificate is routed through a workflow that maps who submits, who reviews and who approves under the delegation of authority. A project management information system (PMIS) is built for this, and PMWEB manages it across more than a hundred business processes.

The second kind is ad-hoc. It is the site coordination that unblocks a concrete pour, the three-day exchange between the designer, the MEP contractor and the cost manager about a clash, and the workshop that produces the first cut of the risk register. It has no predefined sequence, but it does have owners, deadlines and outcomes. On most projects it happens in chat groups, e-mail chains and meeting rooms, outside the project record.

The cost shows up later. Fourteen months into construction, a contractor submits an extension of time claim for a clash it says the owner took six weeks to resolve. The owner's team remembers resolving it in a week. The proof is in a chat group on the phone of an engineer who has since left the project.

PMWEB Activity Boards are built for this second kind of collaboration. This article explains why owners and PMOs should promote them as the default place for ad-hoc teamwork, how the module works, and what the captured record is worth when a decision has to be defended.



Infographic I-1 — Two kinds of collaboration, one project record

Where Ad-Hoc Collaboration Lives Today

- **Chat groups.** Fast and familiar, but held on personal phones, mixed with unrelated traffic, and lost when people change roles or leave.

- **E-mail chains.** Split across inboxes. The one person not copied is the one who needed to know, and attachments drift away from the discussion about them.
- **Meetings without a live record.** Actions are agreed verbally and minuted days later, if at all. The reasoning behind them rarely reaches the minutes.
- **Personal trackers.** Spreadsheets and whiteboards that only their owner updates and only their owner can find.
- **No link to project records.** The RFI, the NCR, the drawing and the site photo sit in the PMIS. The discussion about them sits somewhere else.
- **Knowledge leaves with people.** Turnover on a multi-year project is normal, and the context each person carried leaves with them.

Why the Discussion Becomes Evidence

The formal record shows what was decided. The discussion shows why it was decided, when the problem was known, who was involved, which options were considered and how long it took. Those are exactly the questions asked when:

- **A decision is revisited.** A new project director, a board, a lender or a regulator asks why one option was chosen over another.
- **A claim is made or defended.** Delay and disruption analysis depends on contemporaneous records of when an issue was raised and how it was handled.
- **An audit is performed.** Internal audit expects a decision trail, not a recollection.
- **Lessons are learned.** The next project needs the reasoning, not just the outcome.

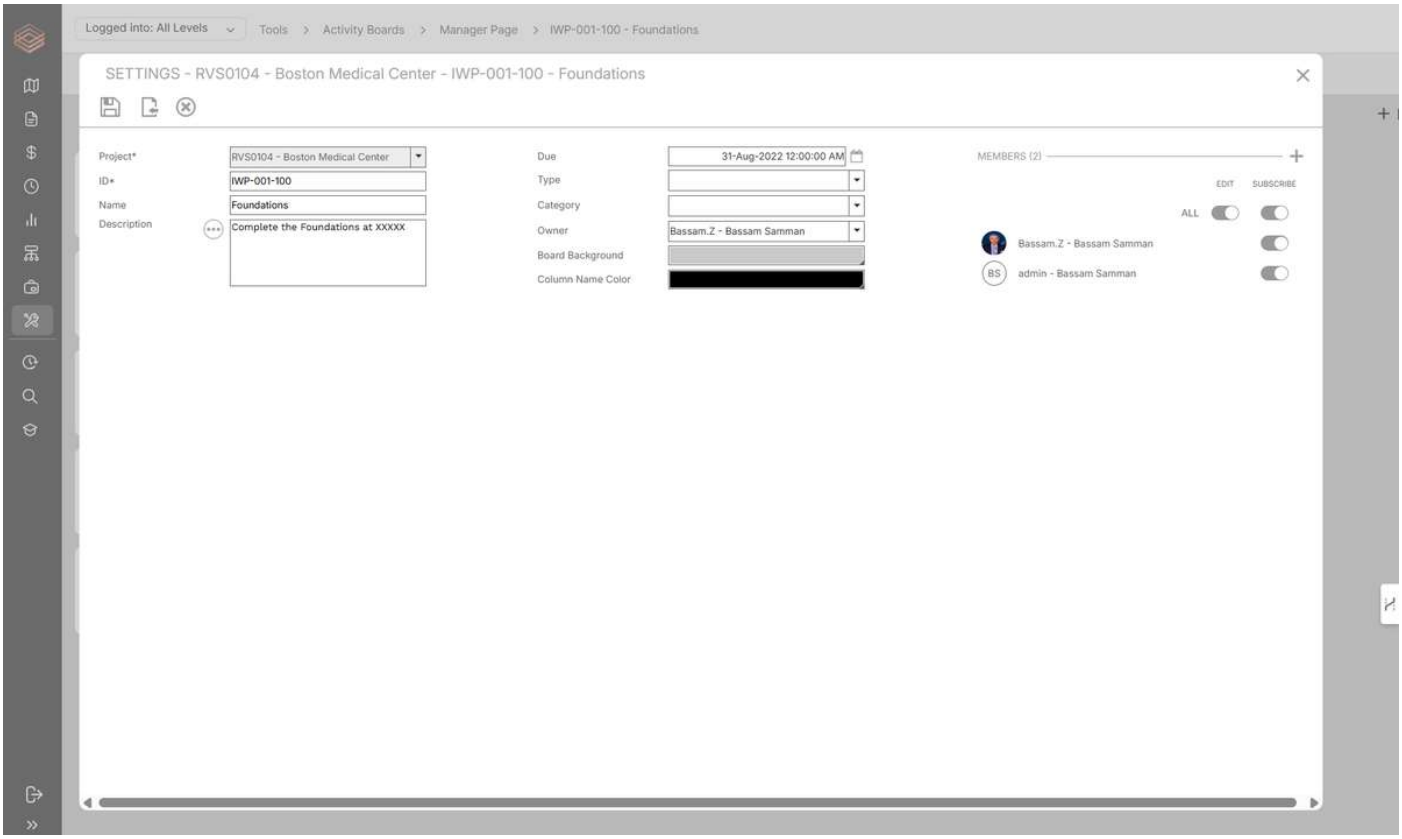
A record made at the time the work is done carries a weight that a reconstruction never will. That is the case for moving ad-hoc collaboration into PMWEB: not to formalise it, but to keep it.

How PMWEB Activity Boards Work

Activity Boards is a Kanban-style collaboration module under PMWEB Tools. A board holds any number of columns and task cards, and cards are dragged between columns as the work moves. What separates it from a stand-alone Kanban app is where it lives: on the same project, users, documents and records as everything else in PMWEB.

A board belongs to a project

Each board is created in Board Settings with a **Project** (required, and locked once members are added), an **ID**, **Name**, **Description**, **Due** date, **Type**, **Category** and **Owner**, plus the board and column colours. Type and Category let the PMO classify boards consistently across the portfolio, for example issue resolution, risk workshop, site coordination or checklist.

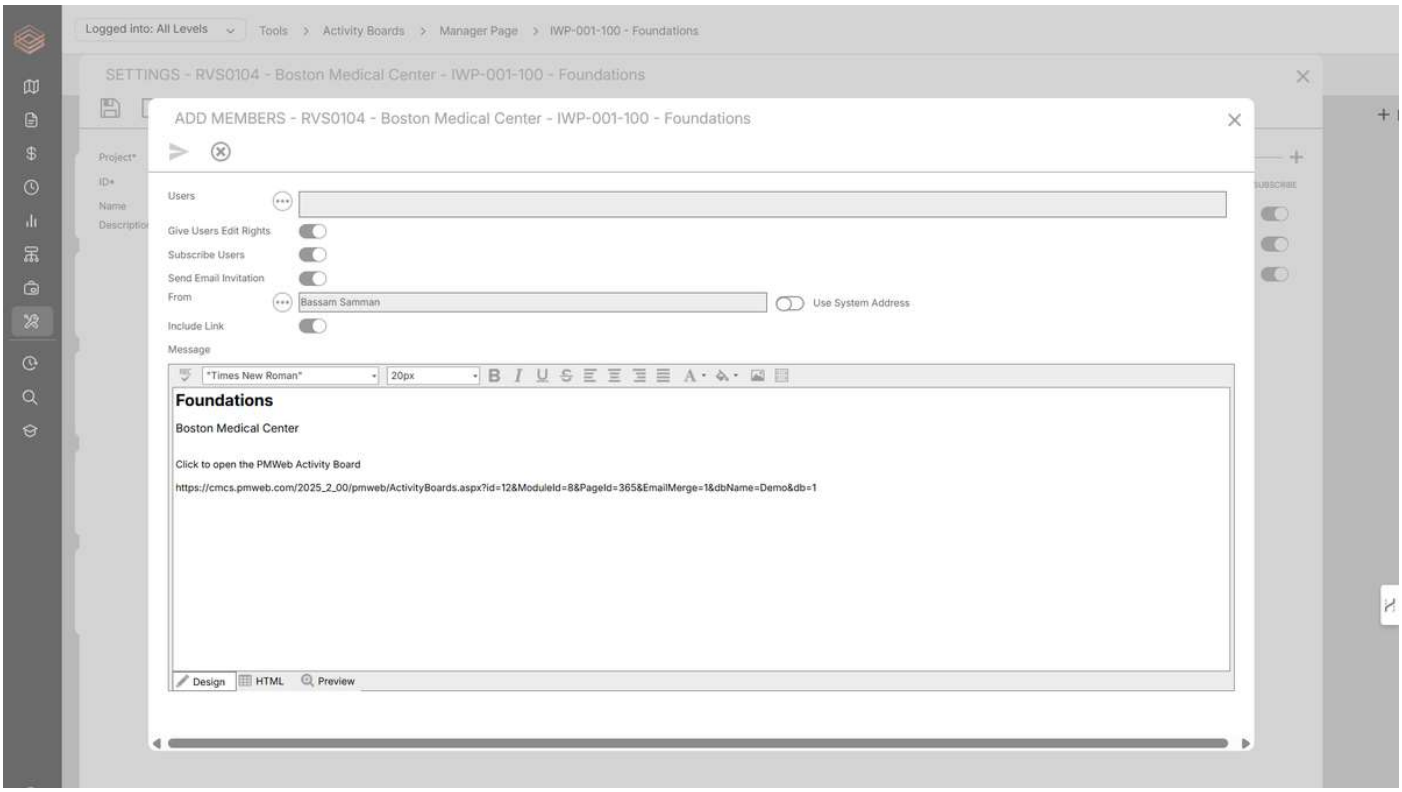


PMWEB screenshot S-1 — Board Settings with project, type, category and owner

Members, edit rights and subscriptions

The owner adds members from the project's PMWEB users. Each member has two switches: **edit rights** and **activity e-mail subscription**. The creator, the owner and the PMWEB administrator always hold full rights. Other members with edit rights cannot delete the board, add or remove members, or edit or delete other users' comments. When a member is removed, they lose access to the board, but their activity stays on it.

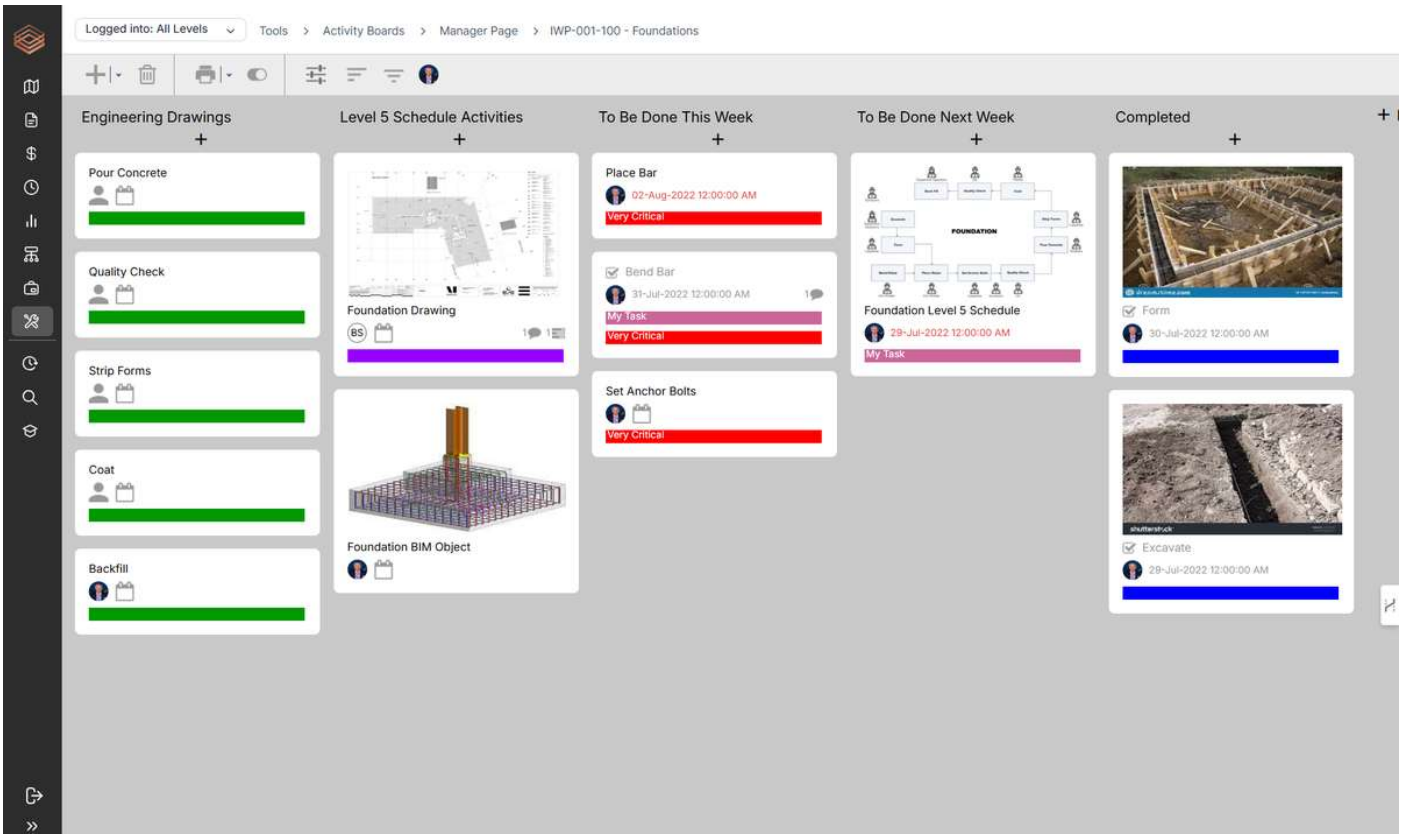
That last rule matters more than it looks. The record does not leave with the person.



PMWEB screenshot S-2 — Members section with edit-rights and subscription switches

Columns, cards and flags

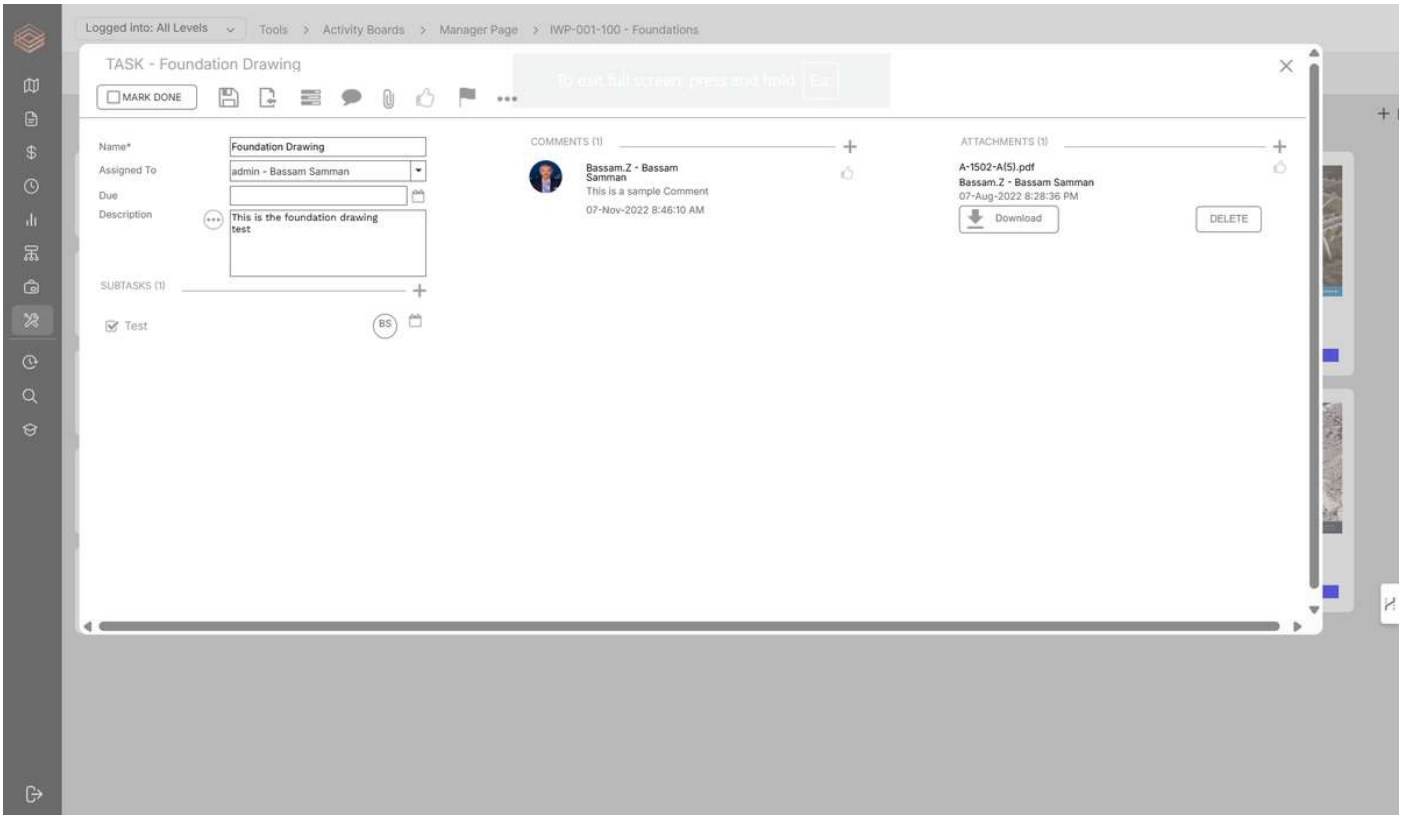
In Card View, columns are named to suit the purpose, and there is no limit on columns or cards. Each card shows its name, assignee and due date, which turns red when overdue. It also shows counts of likes, comments and subtasks, an optional cover image, and one or more **flags**. Flags are coloured bars whose meaning is set once for the whole board, such as Critical, High, Medium and Normal, so every card reads the same way.



PMWEB screenshot S-3 — Card View of an issue resolution board with flags and cover photos

The task card: owner, due date and subtasks

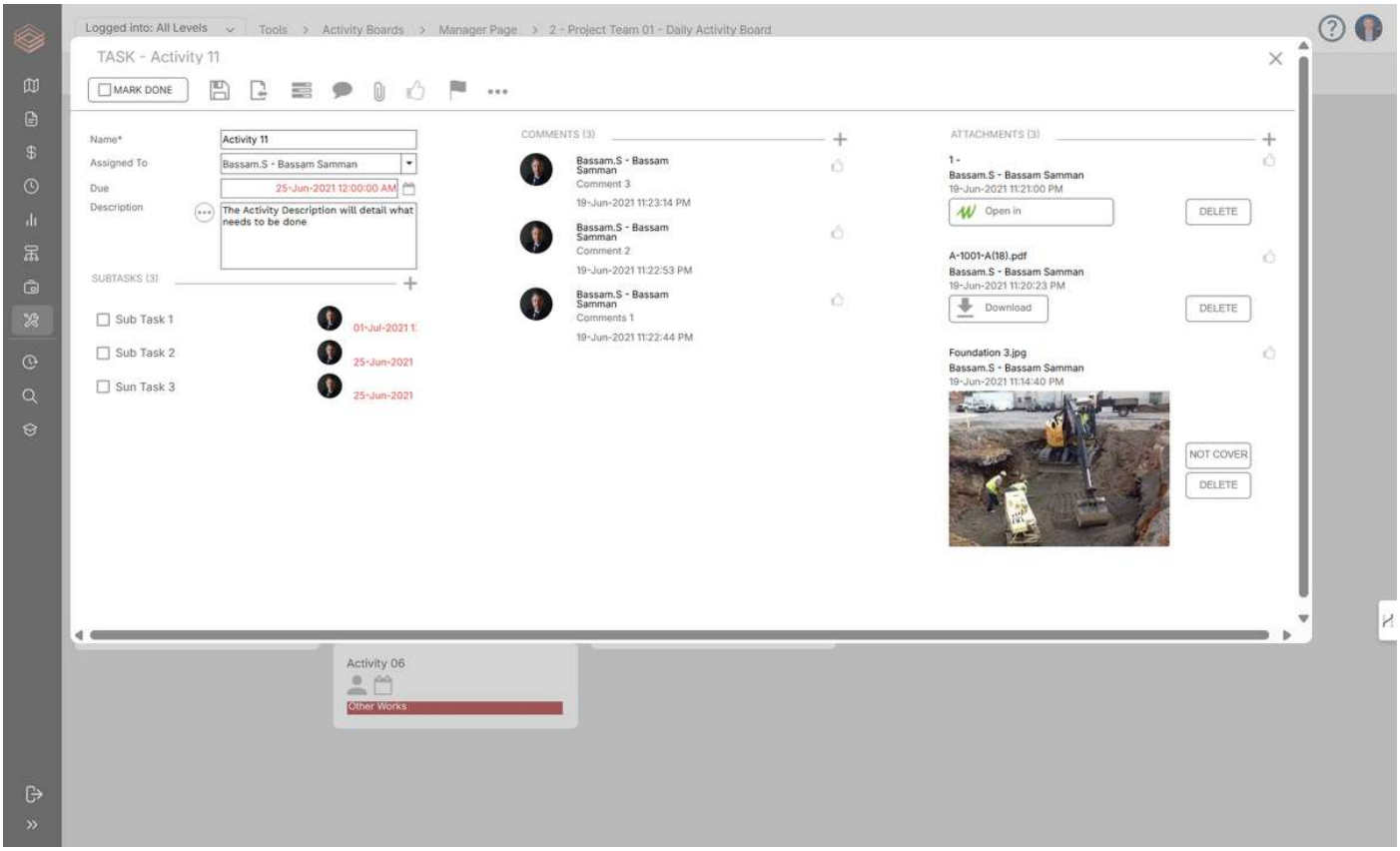
Opening a card shows the Task Details: **Name**, **Assigned To**, **Due**, **Description** and a **Mark Done** toggle. A task can be broken into **subtasks**, each with its own assignee and due date. Subtasks can be nested without limit, and a double-click drills down the chain. Tasks can be copied or moved to another board, which lets a standard set of tasks be reused across projects.



PMWEB screenshot S-4 — Task Details with subtasks assigned across entities

Comments: the conversation, in order

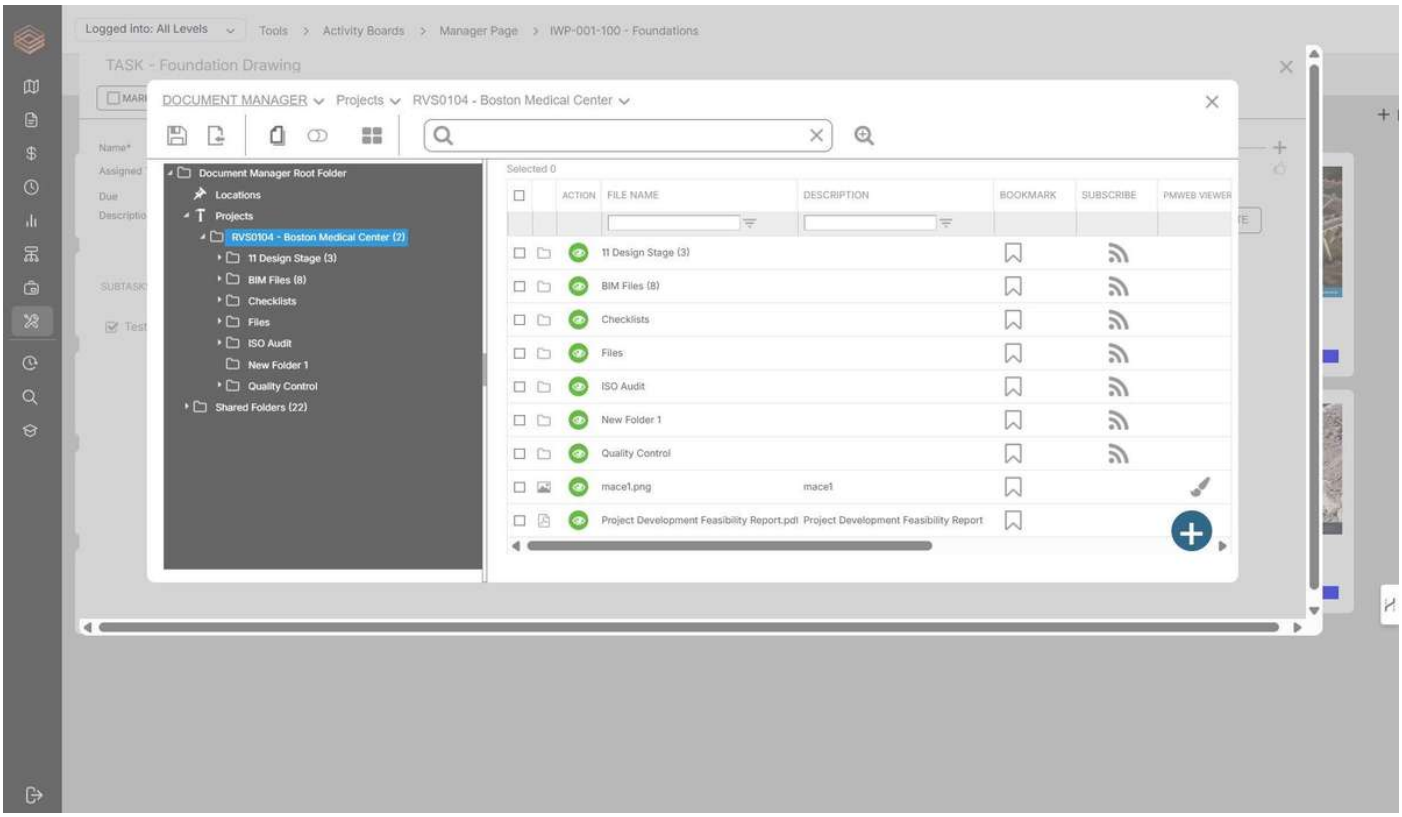
Every task carries an unlimited comment thread with the latest comment on top. Members can edit or delete only their own comments, so nobody can quietly rewrite what someone else said. Likes on comments and attachments act as a lightweight acknowledgement that a message was seen.



PMWEB screenshot S-5 — Comment thread on a task

Attachments and links to PMWEB records

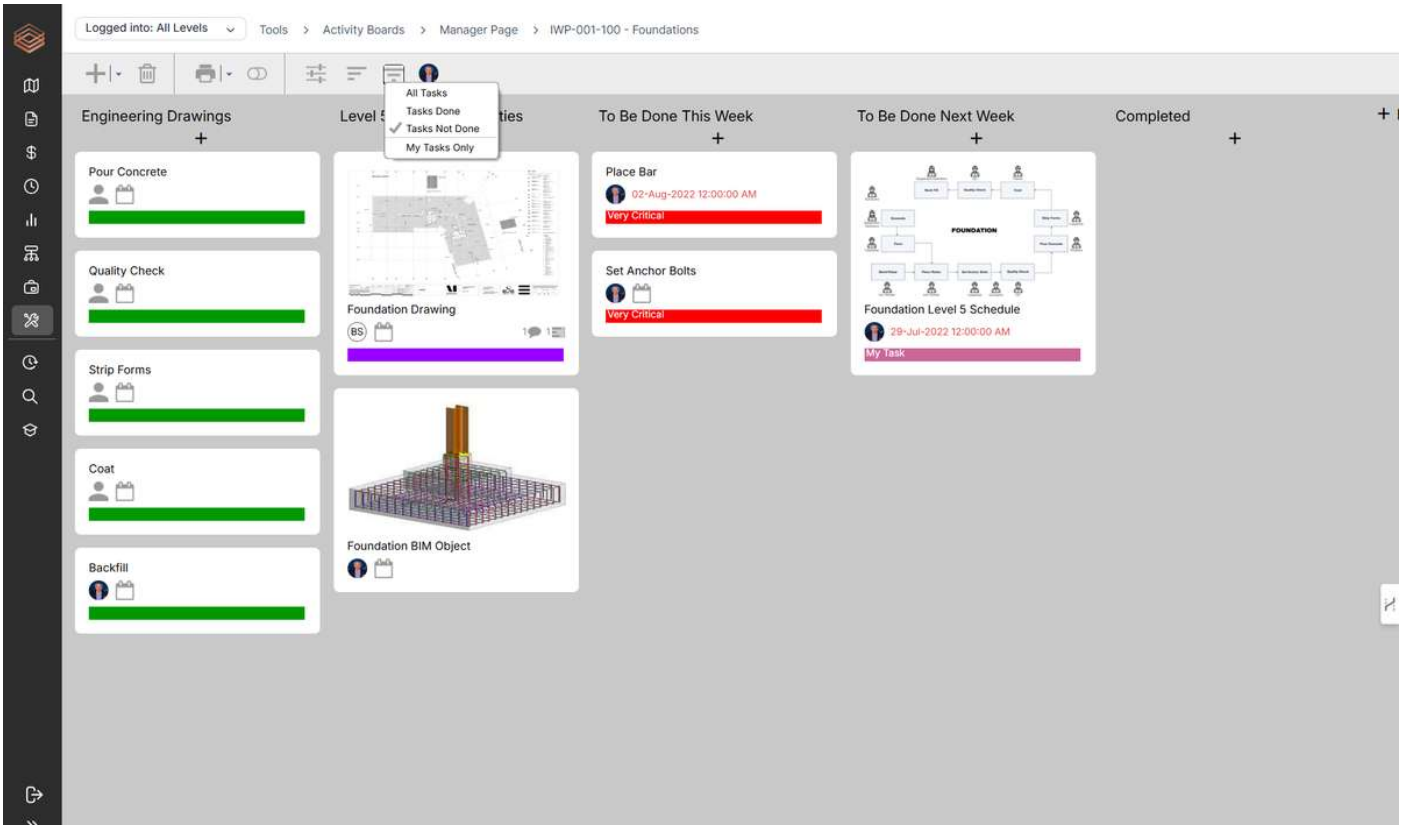
Attachments come from four sources: **Your Computer**, **Document Manager**, **PMWEB Record** and **Web URL**. Files can be dragged straight onto a card, and an image or PDF can be set as the card cover. The PMWEB Record option links the card to the RFI, NCR, change event, schedule or any other record the discussion concerns, so the conversation points directly at the formal records it relates to.



PMWEB screenshot S-6 — Attachments with a Document Manager file, a PMWEB record link and a photo cover

List View, filters and notifications

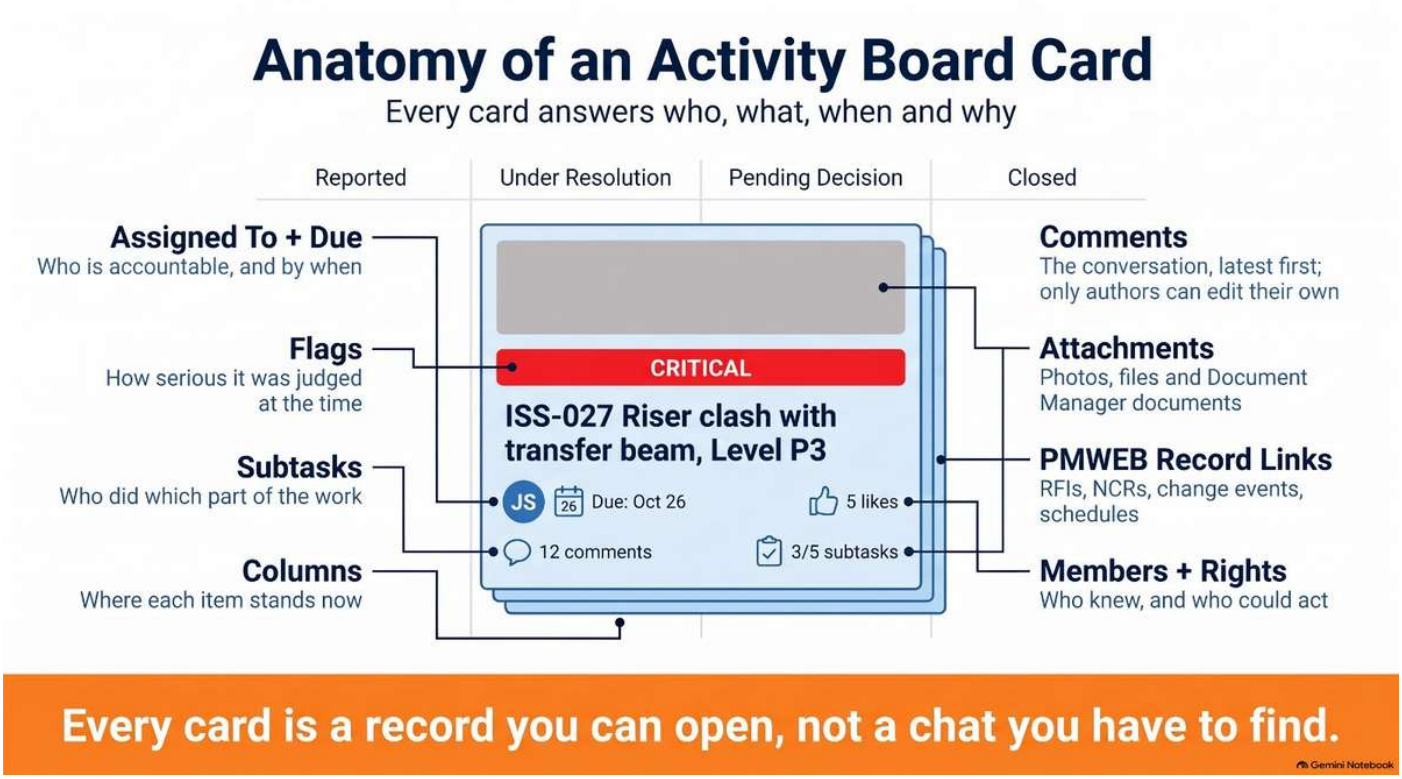
List View shows the same tasks as a table, with filters on Task, Assigned To and Due. The header filter switches between All Tasks, Tasks Done and Tasks Not Done, with an independent **My Tasks Only** option. Several tasks can be selected together and acted on in one step. In the Profile dialog, each member chooses an e-mail for every new comment and a periodic **summary** e-mail with an attached report, so the board reaches people who do not open it every day.



PMWEB screenshot S-7 — List View filtered to My Tasks Only and Tasks Not Done

What each element captures

Board element	What it captures	The question it answers later
Board settings	Project, purpose (type, category), owner, due date	Which project and purpose did this collaboration serve, and who owned it?
Members	Who was invited, with which rights	Who knew about it, and who could act?
Columns and card moves	Status of each item	Where is each item now, and what is stuck?
Task fields	Assignee, due date, done status	Who was accountable, and was it done on time?
Subtasks	Breakdown and delegation	Who did which part of the work?
Comments and likes	The discussion in order, by author; acknowledgement	What was said, by whom, and was it seen?
Attachments	Photos, files, Document Manager documents, web links	What information was the team looking at?
PMWEB record links	RFIs, NCRs, change events, schedules and other records	Which formal records did the discussion concern?
Flags	Priority or category, defined once per board	How serious was it judged to be at the time?



Infographic I-2 — Anatomy of an Activity Board card

The Use Case with the Biggest Payback: Issue Resolution

Activity Boards suit many purposes: risk workshops, checklists, project charter development, daily site coordination and handover snag closure. The one that returns the most value to a capital project is issue resolution. A risk is a problem that may happen. An issue is a problem happening now, and every day it stays open costs time and money. Every unresolved issue is also a potential claim. The speed of resolution and the record of how it was resolved are both worth money.

Setting up the board

Board setting	Issue resolution configuration
Type and category	Type: Issue Resolution. Category by discipline, or one board per category where different people resolve different issues
Columns	Reported · Under Resolution · Pending Management Decision · Closed
Flags	Red: Critical · Orange: High · Yellow: Medium · Blue: Normal
Owner	Project manager
Members	Design manager, planner, cost manager, contract administrator, contractor project manager, key subcontractor coordinators
Linking rule	Every card links the RFI, NCR, site instruction or change event it relates to

Worked example: one issue, nine days, one record

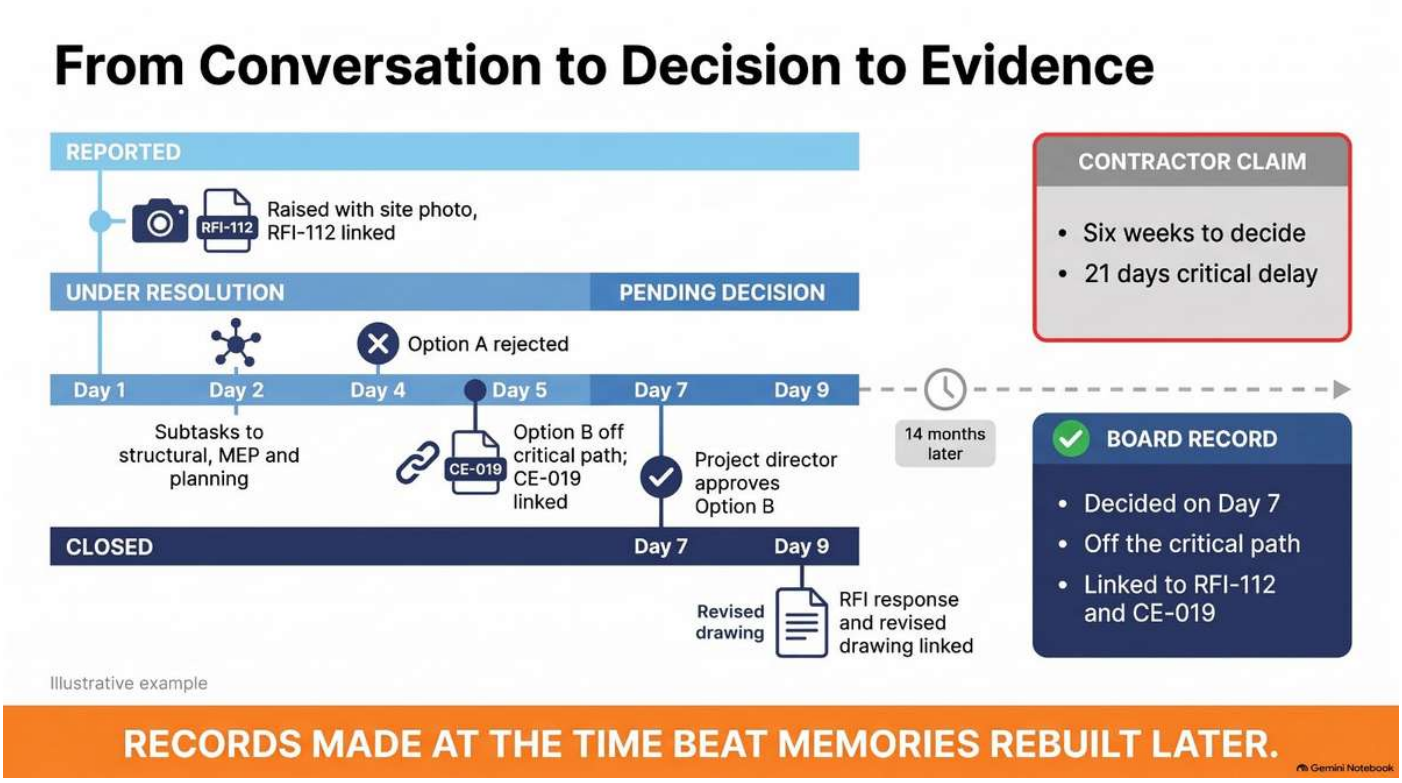
Take one issue on an illustrative owner project. **ISS-027: chilled-water riser clashes with transfer beam, Level P3, Core B.** Every row below is something that happened on the board.

Day	Who	Action on the board	What the record now shows
1	MEP subcontractor coordinator	Creates the card in Reported, attaches a site photo as cover, links RFI-112	When the issue was raised, by whom, with evidence
1	Project manager	Flags it Critical, assigns it to the design manager due Day 8, moves it to Under Resolution	Priority and accountability at the time

Day	Who	Action on the board	What the record now shows
2	Design manager	Adds subtasks: structural check of a beam penetration (structural engineer), reroute option (MEP designer), schedule impact (planner)	Delegation, with due dates
3	MEP designer	Comments: Option B reroutes through shaft S2 and avoids the beam; attaches a sketch from Document Manager	The options considered
4	Structural engineer	Comments: penetration not acceptable without strengthening; marks subtask done	The technical basis for rejecting Option A
5	Planner	Comments: Option B adds three working days to riser installation, off the critical path	Schedule impact assessed before the decision
5	Cost manager	Comments with the cost estimate for Option B; links change event CE-019	Cost exposure opened as a formal record
7	Project director	Comments: Option B approved; revised drawing and RFI-112 response to follow	The decision, the decision maker and the date
9	Design manager	Links the RFI-112 response and the revised drawing, marks the task done, moves it to Closed	Closure, tied to the formal records

Fourteen months later the contractor's extension of time claim says the clash caused 21 days of critical delay and that the owner took six weeks to decide. The owner's team opens ISS-027. The issue was raised on Day 1, decided on Day 7 and closed on Day 9. The planner's assessment at the time placed the work off the critical path. The decision is linked to the RFI response and the change event that priced it.

Answering that part of the claim takes an hour, not a month. More importantly, it rests on records created while the work was happening, not on what people remember. The board does not replace contractual notices or the formal RFI and change processes. It shows how the issue was handled between them, and that is the part most often lost.

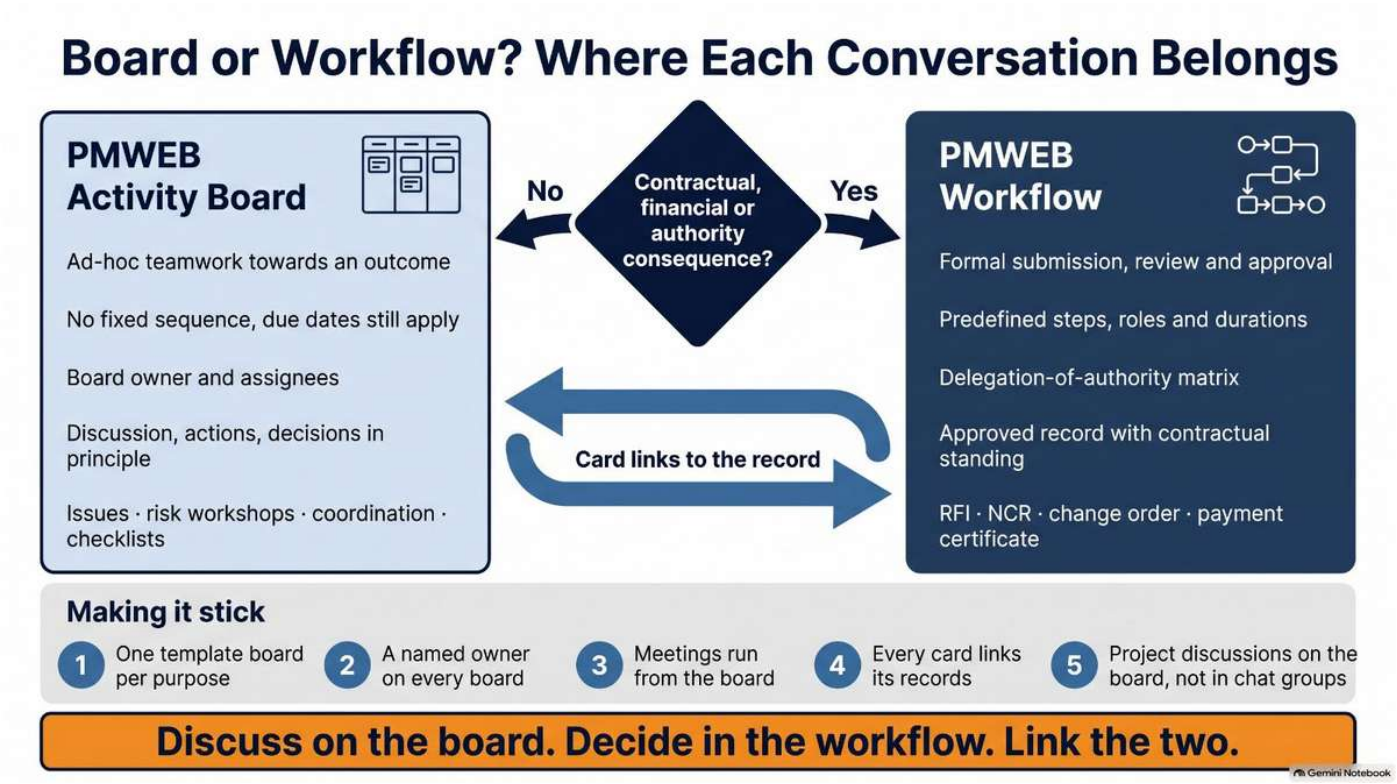


Infographic I-3 — From conversation to decision to evidence

Activity Boards Complement Workflows. They Do Not Replace Them

One rule keeps the two in balance. Anything with a contractual, financial or delegation-of-authority consequence goes through the formal PMWEB business process and its workflow. The board is where the team works out what to put into that process, and the card links to the record once it exists.

	Activity Board	PMWEB business process with workflow
Purpose	Ad-hoc teamwork towards an outcome	Formal submission, review and approval
Sequence	No predefined sequence; due dates still apply	Predefined steps, roles and durations
Authority	Board owner and assignees	Delegation-of-authority matrix
Output	Discussion, actions, decisions in principle	Approved record with contractual standing
Examples	Issue resolution, risk workshops, site coordination, checklists	RFI, NCR, change order, payment certificate
Connection	Card links to the records it concerns	The record is the formal outcome



Infographic I-4 — Board or workflow? Where each conversation belongs

Promoting the Use of Activity Boards

The module takes minutes to learn. Adoption is a management decision, and it sticks when the PMO sets a few rules once and applies them on every project.

What the PMO decides	How it is applied in PMWEB
Who takes part	Activity Boards option enabled for each participating user in Portfolio > Administer > Security > Define Users, including contractor and consultant users who hold PMWEB access
Board purposes	Standard Type and Category values for issue resolution, risk, coordination, checklists and handover
Standard columns and flags	One template board per purpose, with its columns, flag meanings and standard tasks, copied to each project
Ownership	A named owner on every board, usually the project manager or discipline lead

What the PMO decides	How it is applied in PMWEB
Edit rights	Granted to members who need to change tasks, not by default to everyone
Notifications	Comment and summary e-mails set per member, which each member can adjust in their Profile
Meeting practice	Coordination and issue meetings run from the board on screen, with actions recorded on cards during the meeting
Linking rule	Every card that relates to a formal record links to it
The project instruction	Project discussions belong on the board, not in chat groups

Evidence That Activity Boards Are Working

- **Meetings run from the board.** Coordination and issue meetings open the board, not a slide or a spreadsheet.
- **Every open item has an owner and a due date.** Nothing sits in Reported without an assignee for more than a day.
- **Chat groups go quiet on project matters.** They are used to say "see the board", not to make decisions.
- **Cards link to records.** Closed issues point to the RFI, NCR or change event that formalised them.
- **Decisions are findable.** Anyone with access can answer "why did we do this?" from the card, without asking the people involved.
- **Nothing leaves with people.** When a team member moves on, their comments, files and decisions stay on the project.

From Captured Conversation to Usable Knowledge

There is a further reason to promote Activity Boards. Comments, subtasks, attachments and record links are held in the PMWEB database alongside the project's structured records. A discussion that never reaches the PMIS cannot be searched, summarised or analysed by people or by AI. Moving ad-hoc collaboration onto the board is the precondition for applying AI to a project's real decision history, not only to its approved forms. No data, no AI.

> ### Key takeaway
>
> A workflow records what was approved. An Activity Board records how the team got there. Capital projects need both, and on most projects the second is lost in chat groups and inboxes.
>
> Make PMWEB Activity Boards the default place for ad-hoc teamwork, start with issue resolution, and link every card to the records it concerns. The project then keeps its reasons as well as its decisions.

Talk to us: info@CMCS-MENA.com | #CMCS #PMWEB #Collaboration #IssueManagement #ProjectControls

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

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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.

About CMCS

CMCS (Collaboration, Management and Control Solutions) is the regional PMWEB implementation partner for the GCC and MENA regions, awarded PMWEB Global 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.

PMWEB FOR CAPITAL PROJECT OWNERS | PORTFOLIO CONTINGENCY MANAGEMENT

Stop Freezing Contingency Project by Project: Managing Contingency as a Portfolio Buffer with Critical Chain Thinking and PMWEB

Why owners with a large capital portfolio should size contingency from residual risk, pool it like a critical chain buffer, and control every release through a PMWEB contingency master commitment

Bassam Samman, PMP, PSP, EVP, GPM | Chairman & CEO, CMCS FZ-LLC | PMWEB Authorised Implementation Partner, GCC & MENA

Every capital project is approved with a contingency. Add those contingencies up across a portfolio of twenty, fifty or a hundred projects and the owner is holding a very large sum of money that is approved, funded and frozen, waiting for events that will never all happen at the same time.

For one project, holding contingency at a high level of confidence is prudent. For an owner with a significant portfolio, holding it project by project is expensive. The money cannot be committed to the next project. It sits in budget appropriations or on the balance sheet at a cost. And because it is ring-fenced to one project, it tends to be spent there whether or not the risk it was set aside for ever occurs. Contingency that is not needed is rarely returned. It usually finds a use.

There is a second cost that is harder to see. When contingency is scattered across dozens of project budgets, nobody looks at it as a whole. Each project manager sees their own balance. Nobody sees that the same risk, steel price escalation, a stretched MEP subcontractor market or a slow utility authority, is sitting in seven risk registers at once, priced seven different ways and drawn down seven times with no common lesson learned.

This article proposes a different model, borrowed from **Critical Chain Project Management**. Size contingency from the residual risk in each project's risk register. Keep a working share at project level. Pool the rest in a **portfolio contingency buffer** managed by a dedicated, risk-oriented group that reviews risk across the whole portfolio. And make every release spend-oriented by holding that buffer in PMWEB as a **contingency master commitment**, so that each release is traceable to a project, a contract, a cost code and a risk.

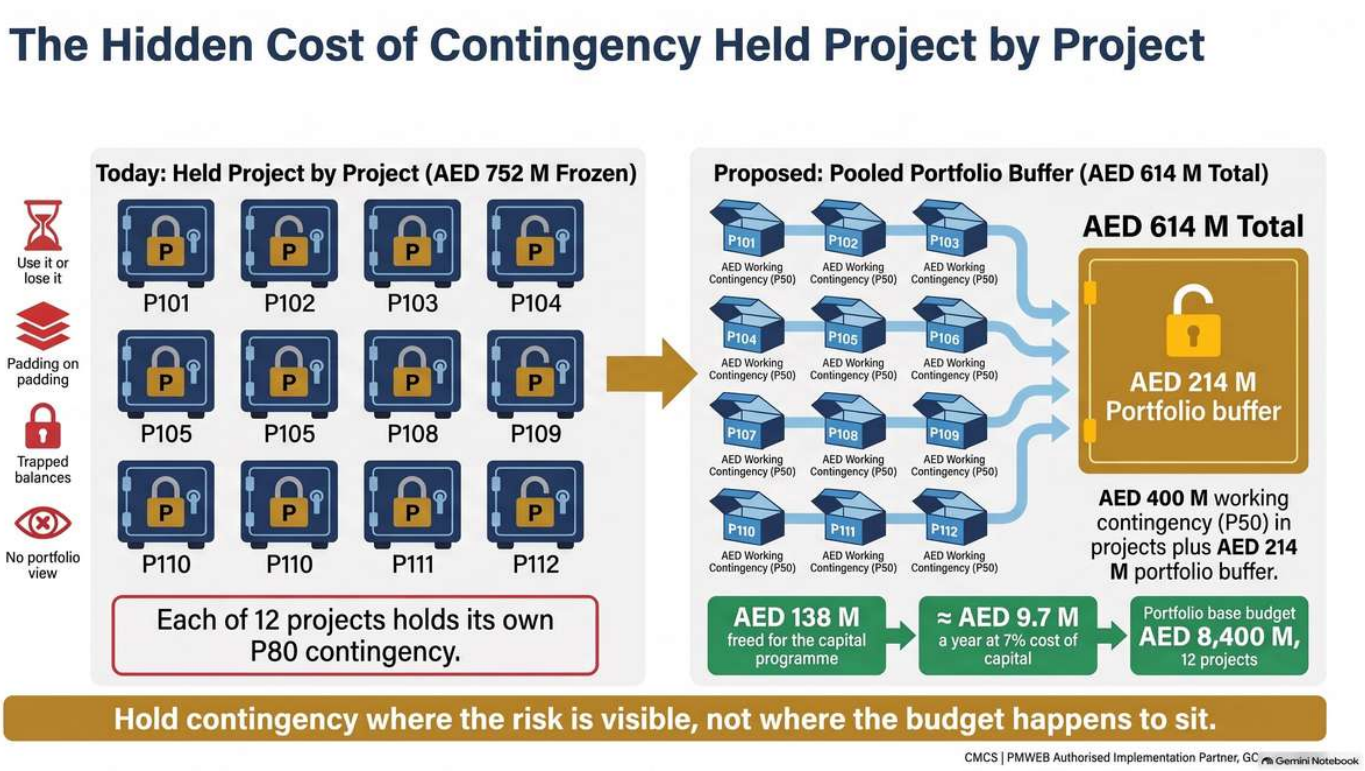


Figure 1: The cost of holding contingency project by project

The Hidden Cost of Contingency Held Project by Project

Most owners ask each project to carry contingency at a stated confidence level, often P80: an 80 percent chance that the contingency will be enough. That is a sound rule for a project. Applied to every project in a portfolio, it produces a total that is far higher than the portfolio actually needs, because projects do not all reach their bad outcomes at the same time. **The sum of the P80s is not the P80 of the sum.**

In the sample portfolio used throughout this article, twelve projects with a combined base budget of AED 8,400 million each hold their own P80 contingency. Together that is **AED 752 million**. Sized as one portfolio, the same risks at the same 80 percent confidence need **AED 614 million**. The difference, **AED 138 million**, is money the owner is freezing for no additional protection. At a 7 percent cost of capital that is roughly AED 9.7 million a year.

The behaviour around project-level contingency adds to the cost. Eliyahu Goldratt described how safety time built into individual tasks is wasted: work expands to fill the time available, and people start late because they know the safety is there. Contingency money behaves the same way.

Symptom	What happens on the project	Cost to the owner
Use it or lose it	Unused contingency is treated as the project's money and spent before close-out, often on scope.	Contingency funds betterment that was never approved as change.
Padding on padding	Allowances in the estimate, contingency in the budget and a programme reserve all cover the same uncertainty.	The same risk is funded two or three times.
Trapped balances	Projects that no longer need contingency keep it; projects that do need it ask for new funding.	New approvals while approved money sits idle elsewhere.
Closing-balance reporting	Contingency is reported as a remaining amount, not against the risks still open.	Nobody can say whether what remains is enough.
No portfolio view	Each project sees its own risks and its own balance.	Common-cause risks are priced and absorbed separately, with no shared lessons.

None of this is a criticism of project teams. It is what any team will do when contingency is allocated to them as a fixed amount and the reward for not using it is losing it. The fix is structural: change where contingency is held and who releases it.

Not All Contingency Is the Same

Before anything is pooled, the owner needs a common vocabulary. The word contingency is used loosely for reserves that cover different kinds of uncertainty, are sized on different bases and are released by different authorities. Some can be pooled at portfolio level. Some must stay with the project. Some are not contingency at all.

Reserve	What it covers	Sizing basis	Held by	Pool?
Design development allowance	Growth in quantities and detail as design matures, within the approved scope	Estimate class and design maturity	Project; reduces at each design stage	Partly
Allowances and provisional sums	Known items not yet defined or priced (provisional and prime cost sums in the contract)	Priced item	Project or contract	No: these are budget, not risk
Construction risk contingency	Identified risks: ground conditions, design errors, supply chain, productivity, weather	Residual expected value from the risk register; P50 and P80	Working share at project; balance in the portfolio buffer	Yes: the core of the pool
Escalation reserve	Price movement in materials, labour and energy beyond the estimate base date	Indices and forecasts	Portfolio	Yes: correlated across projects
Currency reserve	Exchange-rate movement on foreign-currency contracts	Exposure by currency and hedging policy	Portfolio or treasury	Yes
Interface contingency	Risks between packages, contractors, utilities and authorities	Interface and risk registers	Programme	Yes, at programme level
Regulatory and permit contingency	New authority requirements, code changes, approval delays	Risk register	Programme or portfolio	Yes
Commissioning and handover contingency	Test failures, re-commissioning, operator readiness	Risk register	Project, late in its life	Partly
Insurance deductibles and uninsured losses	Deductibles under contractors' all-risks policies and excluded perils	Policy terms and claims history	Portfolio	Yes: natural pooling
Contractor's contingency	The contractor's own risks inside a lump-sum price	Contractor's pricing	Contractor	No: not the owner's money
Schedule contingency	Time risk on critical and near-critical paths	Schedule risk analysis	Project	No: time cannot move between projects
Management reserve	Unknown-unknowns, extreme events, strategic decisions	Owner policy and judgement	Sponsor or board	Held separately, outside the buffer

Three points from this table matter most. First, **allowances are not contingency**. A provisional sum for a known item belongs in the budget. Second, **contingency is not a scope fund**. An owner-requested change should be funded through change, not by drawing on risk money; on the dashboards later in this article, these non-risk drawdowns are flagged separately. Third, **schedule contingency follows the same critical chain logic inside each project**, with project and feeding buffers, but it cannot be pooled across projects the way money can. A day saved on a school does not help a hospital. The rest of this article is about cost contingency.

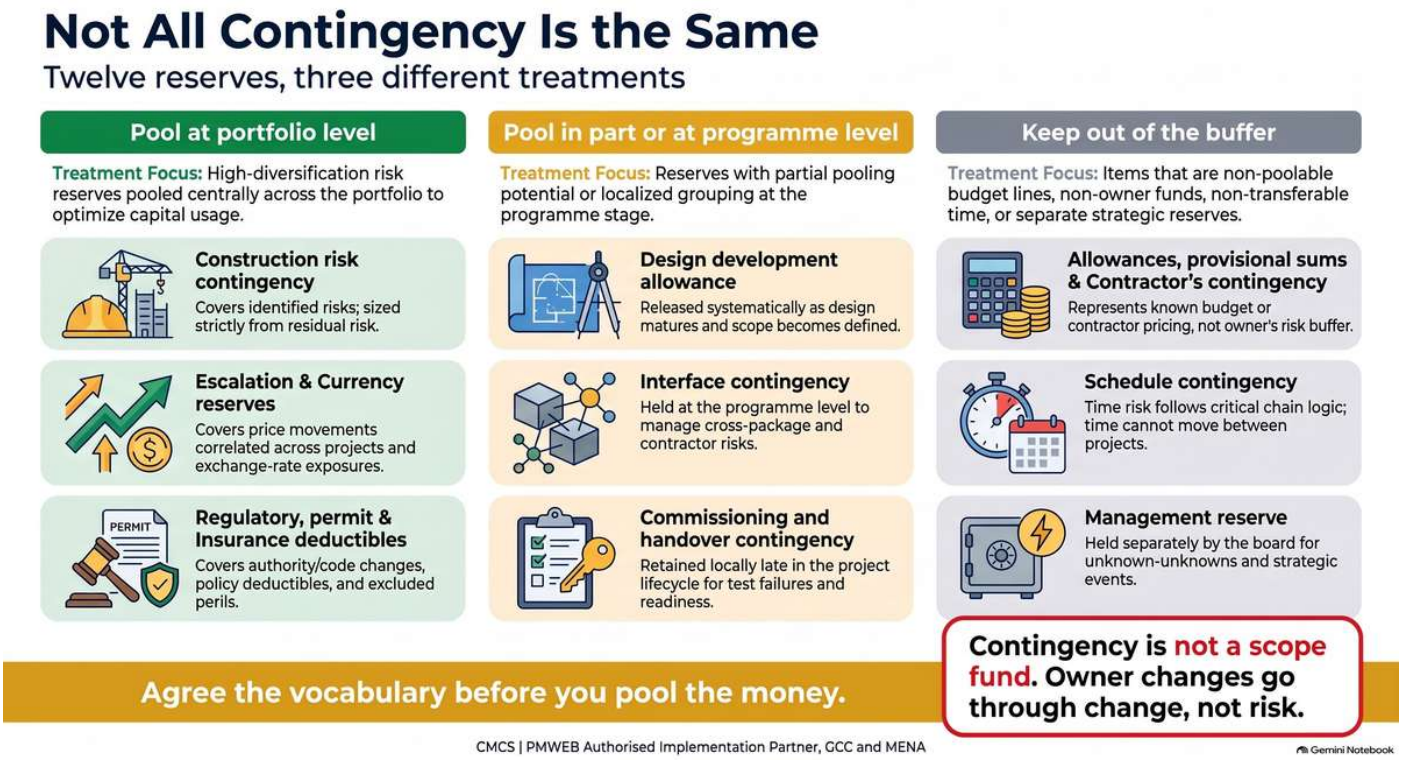


Figure 2: Reserve and contingency types, and which can be pooled

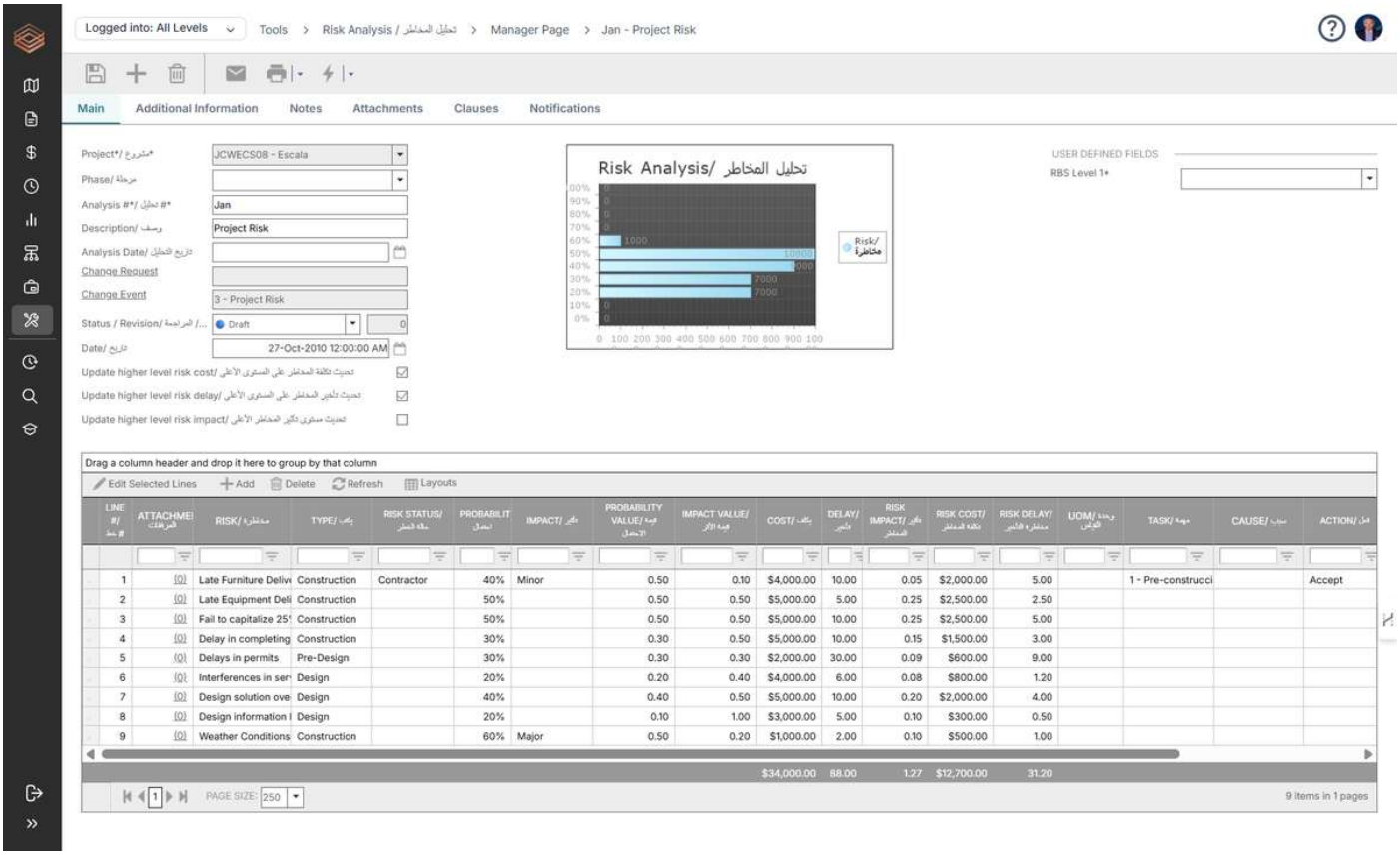
Where Contingency Comes From: The Risk Register and Residual Risk

A contingency that cannot be traced to risks cannot be governed, defended or released. The starting point is each project's risk register, and in particular the **residual** risk: what is left after the response has been planned and paid for.

Step	What is recorded	Effect on budget and contingency
1. Identify	Cause, event and effect; category; risk owner; project, package and contract	None yet
2. Assess inherent risk	Probability and cost and time impact before any response	Sets priority
3. Plan the response	Avoid, transfer, mitigate or accept (for opportunities: exploit, share, enhance)	The cost of the response goes into the base budget, not into contingency
4. Assess residual risk	Probability and a three-point cost impact (minimum, most likely, maximum) after the response	Residual expected value = probability × most likely impact
5. Add secondary risks	New risks created by the response itself	Added to the residual exposure
6. Set the trigger	The observable event that shows the risk is occurring, and the contingent response	The trigger is what justifies a drawdown
7. Size contingency	Sum of residual expected values (close to P50) and the range from three-point estimates or quantitative analysis (P80)	P50 becomes working contingency; P80 minus P50 goes to the buffer
8. Close	Actual cost when the risk occurred, or closure when it can no longer occur	Contingency behind closed risks is reviewed for return

Three rules follow. **The response cost belongs in the base budget.** If an owner decides to pay for additional ground investigation to reduce a ground risk, that is a planned cost, not contingency. **Contingency is sized only for residual risk.** And **every risk that closes should release the contingency behind it**, otherwise contingency outlives the risks that justified it.

For portfolio management, two further fields are essential. The **reserve type** links each risk to one of the categories above, so that drawdowns can be reported by type. The **common-cause theme** tags risks that share a driver across projects, such as steel prices, a currency, a utility authority or a constrained subcontractor market. These tagged risks are the ones that do not diversify when they are pooled, and the ones the portfolio group must manage once rather than twelve times.



Screenshot S1: PMWEB risk form with residual assessment, reserve type and common-cause theme

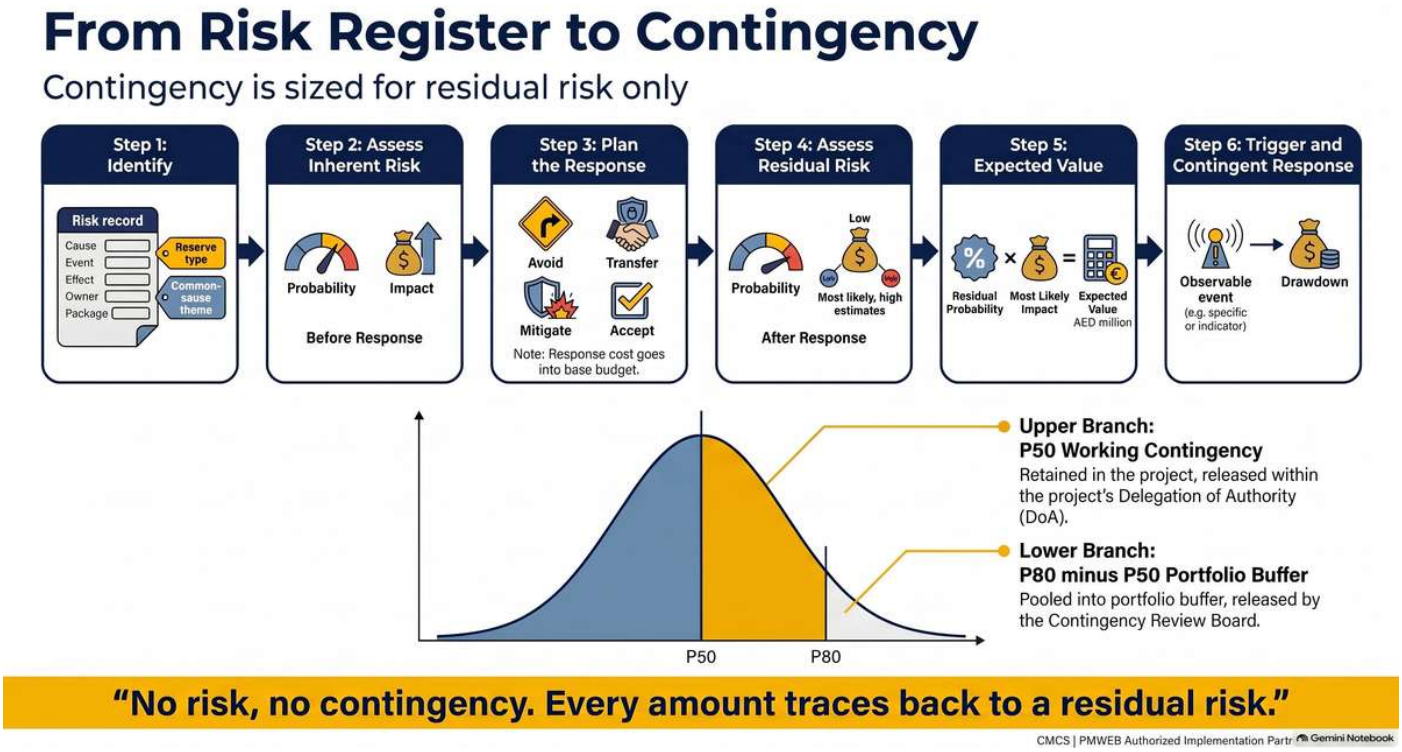


Figure 3: From risk register to working contingency and portfolio buffer

The Critical Chain Idea, Applied to Money

In 1997 Eliyahu Goldratt published Critical Chain, applying his Theory of Constraints to projects. His observation was that each task estimate carries hidden safety, and that the safety is lost because of how people work with it. His answer was to cut task estimates to an aggressive but achievable duration, remove the individual safety, and place a single **project buffer** at the end of the critical chain, with **feeding buffers** where non-critical chains join it. Because the variation of a sum grows more slowly than the sum of the variations, the shared buffer can be much smaller than the safety it replaces and still protect the completion date.

The same reasoning applies to contingency across a portfolio.

Critical chain (time, inside one project)	Contingency (money, across a portfolio)
Task estimate at an aggressive, achievable duration	Project working contingency at P50
Safety removed from each task	Contingency between P50 and the project's standalone P80
Project buffer at the end of the critical chain	Portfolio contingency buffer held by the Contingency Review Board
Feeding buffer where a non-critical chain joins	Programme-level buffer for interface and programme risks
Buffer sized from the aggregated variation	Buffer sized from the portfolio's aggregated residual risk at P80
Fever chart: buffer consumed against chain completed	Contingency consumed against project progress

Why the pooled buffer is smaller

If each project's residual risk has a spread, the spread of the portfolio total is not the sum of the spreads. Where project risks are independent, it is the square root of the sum of the squares. Where they are partly correlated, a correlation term is added. The buffer needed at 80 percent confidence is therefore:

Portfolio buffer at P80

$$\text{Buffer} = z \times \sqrt{\left(\Sigma\, \sigma_i^2 + \Sigma\, \Sigma\, \rho\, \sigma_i\, \sigma_j \right)}$$

where σ_i is the spread of project i's residual risk (from the gap between its P50 and P80), ρ is the correlation between projects' risks, and z is 0.84 for 80 percent confidence. With $\rho = 0$ the projects are independent and pooling saves the most. With $\rho = 1$ they move together and pooling saves nothing.

A worked example

The sample portfolio has twelve projects with a combined base budget of AED 8,400 million. Each project's P50 and standalone P80 come from its own risk register.

Project	Description	Base budget	P50 (working)	Standalone P80	P80 – P50
P101	Hospital, 400 beds	1,450	72	131	59
P102	Metro depot	1,120	61	112	51
P103	Mixed-use tower	980	44	82	38
P104	Highway interchange	760	38	71	33
P105	University campus	690	31	60	29
P106	Water treatment plant	640	35	66	31
P107	Logistics park	520	22	41	19
P108	Schools package (6)	480	19	37	18
P109	District cooling plant	430	23	44	21
P110	Police HQ	390	17	33	16

Project	Description	Base budget	P50 (working)	Standalone P80	P80 – P50
P111	Coastal park	310	13	25	12
P112	Housing, 900 villas	630	25	50	25
Total	12 projects	8,400	400	752	352

Held project by project, the portfolio carries **AED 752 million**. Pooled, each project keeps its P50 as working contingency (AED 400 million in total) and the portfolio buffer holds the balance needed for portfolio P80 confidence. Assuming a modest correlation of 0.3 between projects, the buffer is **AED 214 million**, against the AED 352 million of P80 safety it replaces.

Scenario	Portfolio buffer	Total contingency	Capital freed
Held project by project (each at P80)	—	752	—
Pooled, independent risks (ρ = 0)	112	512	240
Pooled, correlation 0.3 (used in this article)	214	614	138
Pooled, fully correlated (ρ = 1)	352	752	0

The sensitivity matters as much as the headline. The saving depends on how correlated the risks really are, and correlation comes from common causes: escalation, currency, market capacity, the same authority. That is why the common-cause theme in the risk register is not a detail. It is what tells the owner how much pooling is genuinely safe. **Pooling without understanding correlation is not risk management; it is optimism.**

What stays where

- **At the project:** working contingency at P50, released by the project manager or director within the delegation of authority (DoA). In the example, AED 400 million.
- **In the portfolio buffer:** the pooled balance for portfolio P80 confidence, released by the Contingency Review Board. In the example, AED 214 million.
- **Outside the buffer:** management reserve for unknown-unknowns, held by the sponsor or board (AED 210 million, 2.5 percent of base, in the example); allowances and provisional sums; the contractor's own contingency; and schedule contingency.

Pooling does not take money away from projects. A project whose risks occur keeps the right to call on the buffer. What changes is that the call is made against evidence, the risk and its trigger, to a group that sees the whole portfolio.

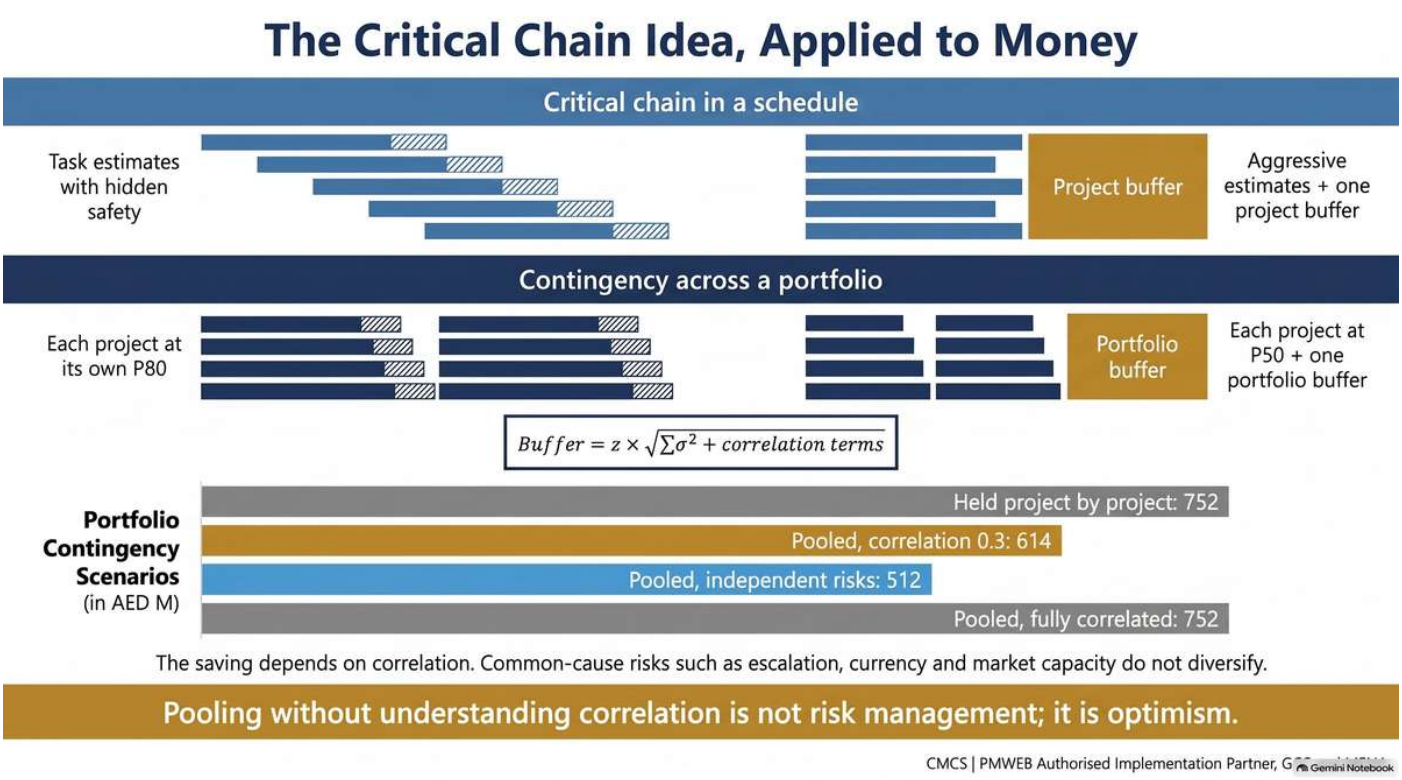


Figure 4: Critical chain buffering applied to portfolio contingency

A Dedicated, Risk-Oriented Group: The Contingency Review Board

Pooling only works if someone owns the pool. The owner should establish a **Contingency Review Board**: a small group, separate from project delivery, whose job is risk rather than progress. Its independence is the point. A project director asking for buffer should be asking a group that has no stake in that project's reported performance.

Element	Recommended set-up
Chair	Head of the PMO or the Chief Risk Officer
Members	Portfolio risk manager, head of cost control, finance or treasury representative, head of contracts; programme directors attend for their own items and do not vote on them
Holds	The portfolio contingency buffer and the authority to release, return, re-size and request top-up within limits set by the board
Rhythm	Monthly review meeting; urgent releases decided within an agreed number of working days; buffer re-sized each quarter
Inputs	Every project's risk register, contingency budget and drawdowns, progress, and pending requests, all from one PMWEB database
Outputs	Decisions recorded on PMWEB records, the monthly contingency pack, and a lessons-learned log

What the board decides

Decision	When	Result in PMWEB
Release from the buffer	A risk has triggered and the project's working contingency is exhausted or the amount exceeds project DoA	Release linked to the contingency master commitment; budget transferred to the project
Return to the buffer	Risks have closed and working contingency exceeds the open residual risk	Budget transferred back from the project to the portfolio contingency project
Top-up	Open residual risk across the portfolio exceeds the remaining buffer	Request to the sponsor or board to transfer management reserve or approve new funding
Re-size	Quarterly, or after a major change in the portfolio's risk profile	Buffer value adjusted; master commitment changed accordingly
Re-classify	A request is really an owner scope change, not a risk	Rejected as a drawdown and routed to the change process
Capture lessons	Every release and every closed risk	Actual cost against residual estimate, root cause and response effectiveness recorded

Why spending improves

Contingency is spent better when one group sees all of it. The board can see that a risk on one project is about to occur on another, and act before it does. It can recognise that ground risks on coastal sites are consistently under-estimated, or that façade supplier risk is concentrated in two firms that appear on four projects. It applies the same rules to every request, separates real risk from scope, and removes the incentive to spend contingency before it is lost, because unused contingency returns to a pool the project can still call on.

Over time the lessons-learned log becomes something more valuable: a record of how each risk category actually behaved, how close the residual estimates were to what was spent, and which responses worked. That is the reference base for sizing the contingency of the next project from evidence, in the spirit of reference class forecasting, rather than from a percentage.

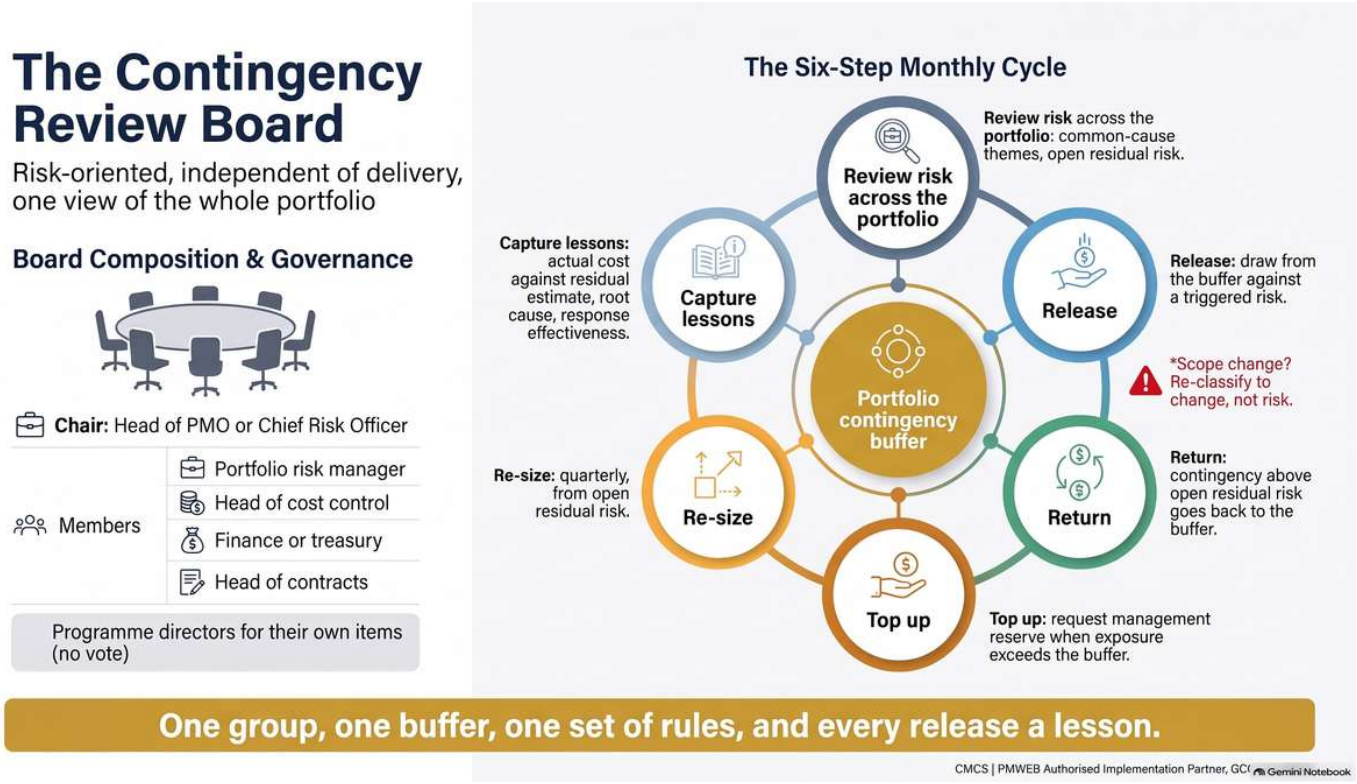


Figure 5: The Contingency Review Board and its monthly cycle

Buffer Management: Two Indicators, Two Questions

Critical chain manages buffers with a simple visual, the fever chart, which compares how much buffer has been used with how much of the work is done. Two indicators give the board what it needs.

Indicator	Calculation	Question it answers
Consumption index	% of working contingency consumed (including buffer calls) ÷ % project complete	Is contingency being used faster than work is being delivered?
Coverage ratio	Remaining contingency ÷ open residual risk expected value	Is what remains enough for the risks still ahead?

The consumption index looks back; the coverage ratio looks forward. A project can have a healthy index and a weak coverage ratio if large risks are still to come, so the board needs both.

Zone	Consumption index	Action
Green	Up to 1.0	No action; review release of contingency behind closed risks
Amber	Above 1.0 up to 1.3	Project presents its open risks and recovery options at the next review
Red	Above 1.3	Recovery plan required; any buffer call scrutinised against the risk register and trigger

The thresholds are the owner's policy, not universal values. What matters is that they are set in advance, applied to every project in the same way, and reported from data. In the sample portfolio, the buffer is 21 percent consumed at 56 percent portfolio progress and the portfolio coverage ratio is 1.49: healthy overall, while three projects sit in the red zone and account for all of the buffer used so far.

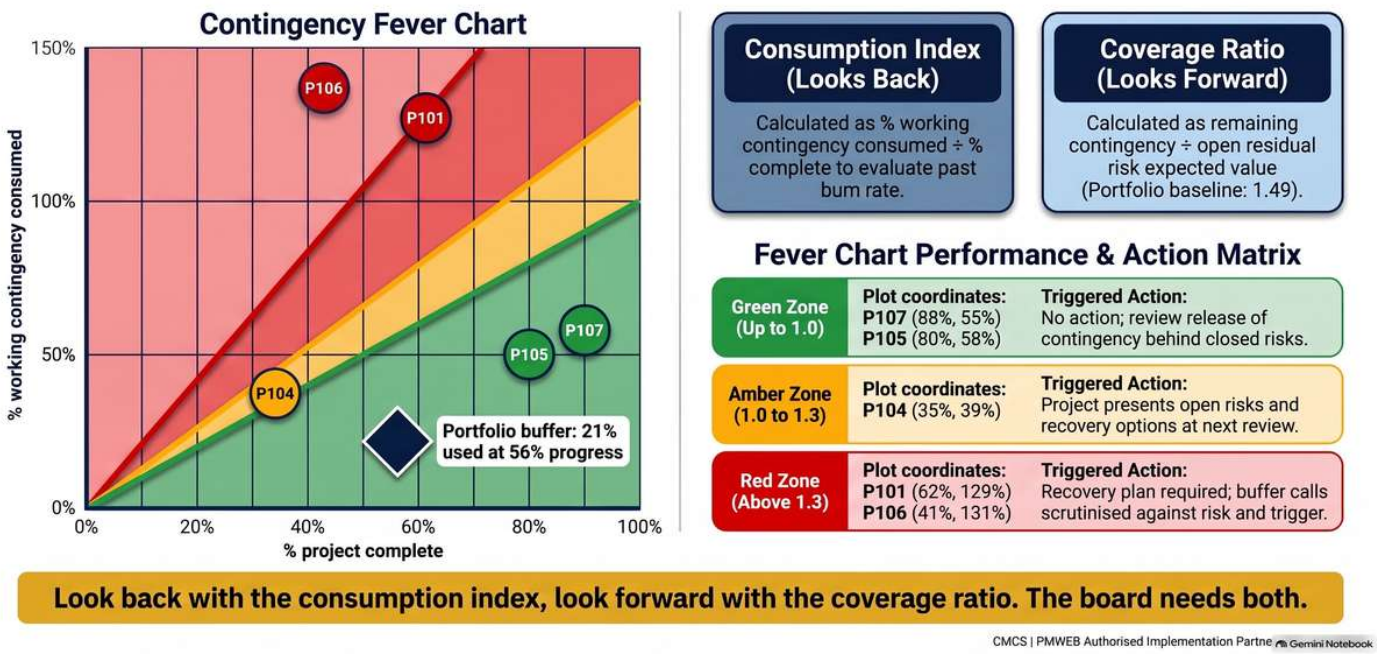


Figure 6: Reading the contingency fever chart

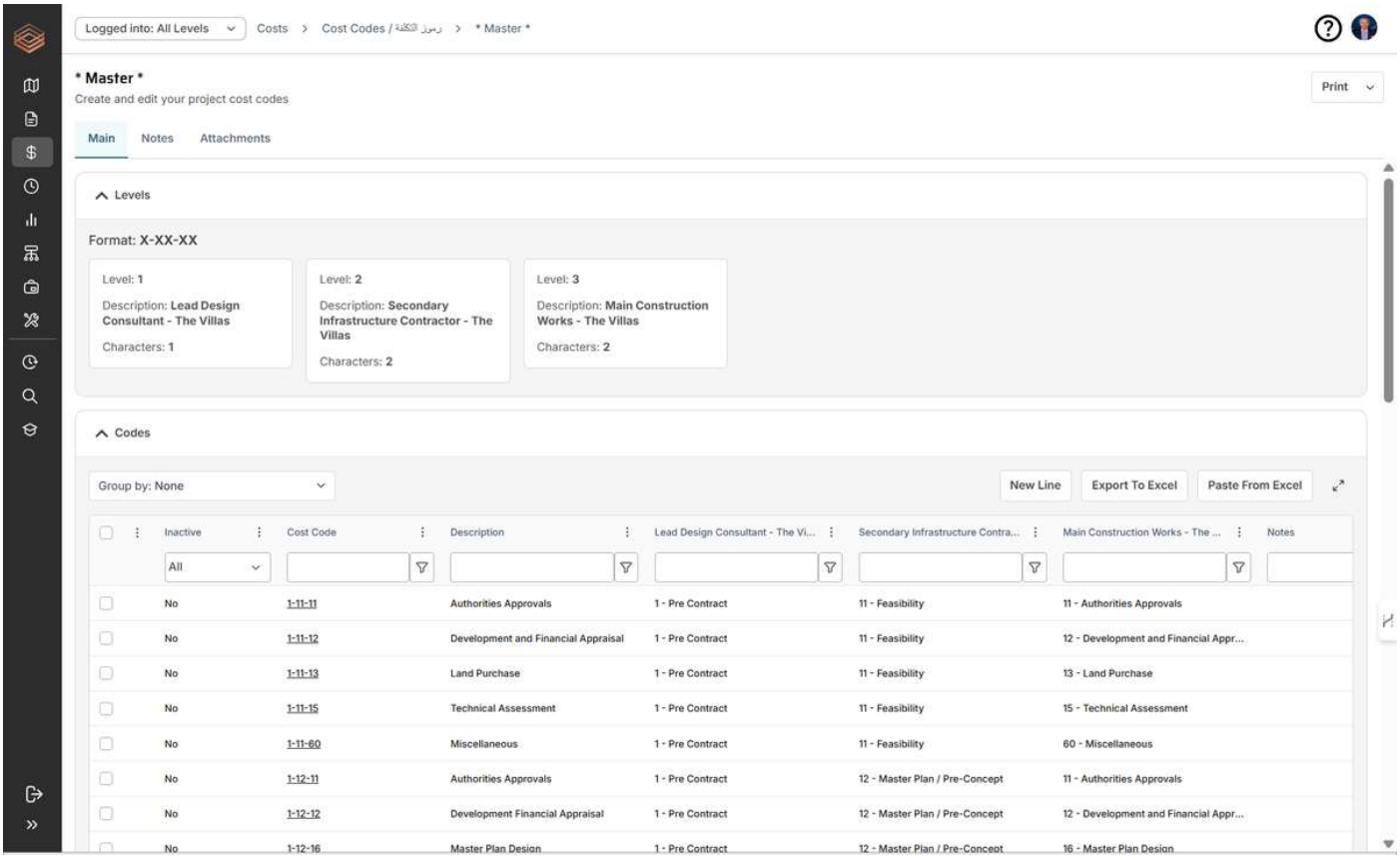
Making Contingency Spend-Oriented: The Contingency Master Commitment in PMWEB

A pooled buffer held as a budget line shows money that is available. It does not show where that money has gone. To make the buffer spend-oriented, the proposal is to hold it in PMWEB as a **contingency master commitment**.

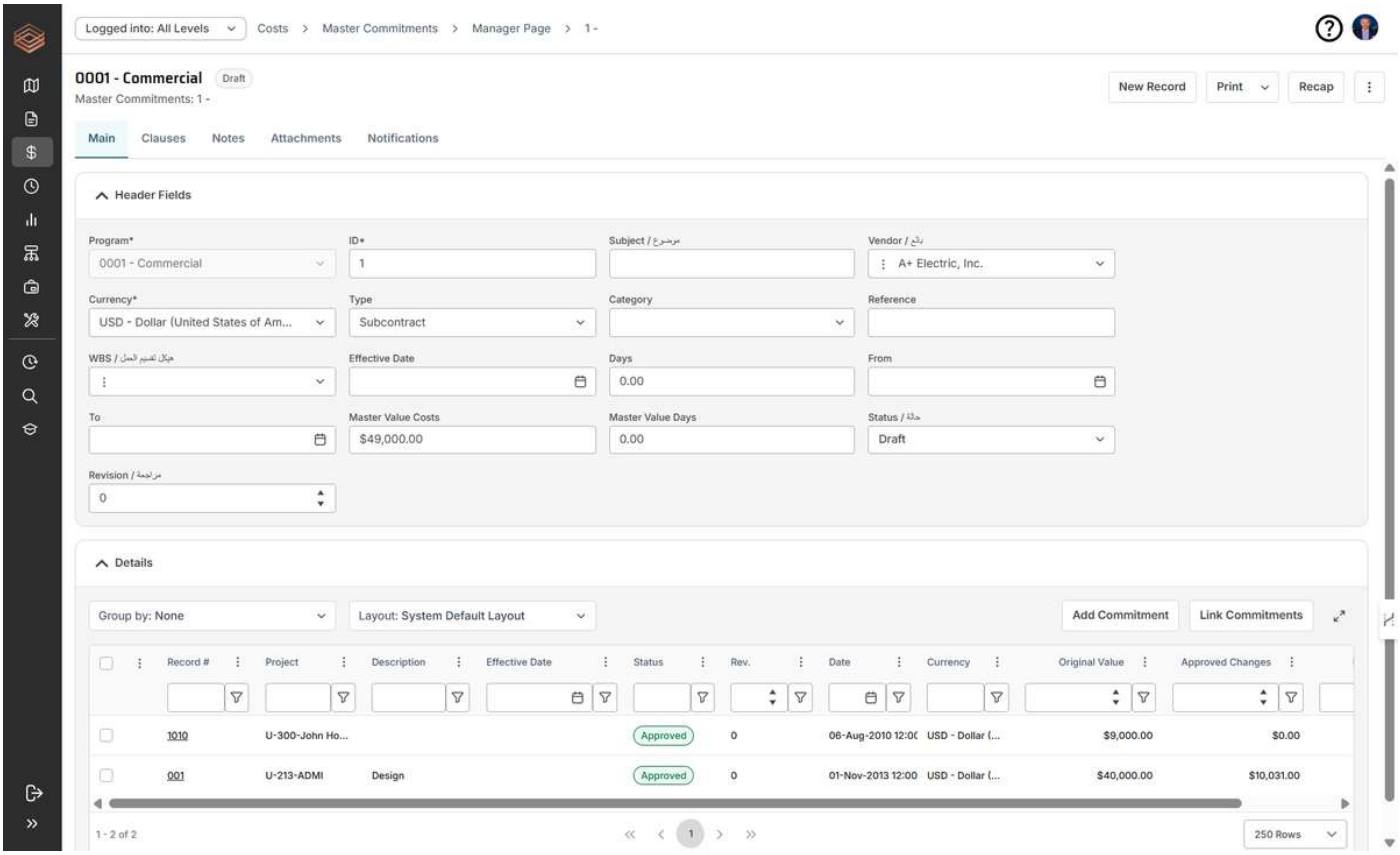
In PMWEB, a master commitment holds an overall value against which commitments on multiple projects and contracts can be issued, and PMWEB tracks how much of that value has been committed and how much remains. Owners already use it for framework agreements and term contracts that serve many projects. Applied to contingency, the master commitment becomes the single instrument through which the portfolio buffer is released, and its register becomes the drawdown history of the whole portfolio.

Setting it up

Step	PMWEB record	Purpose
1	Risk register on every project, with reserve type, residual expected value and common-cause theme	Traceability from contingency to risk
2	Project budget with working contingency in contingency cost codes, split by reserve type	Working contingency at P50, visible by type
3	A Portfolio Contingency project, with access restricted to the board	Holds the buffer budget by reserve type
4	Master commitment MC-CONT-2026 on that project at the buffer value, with the owner's own organisation as the company	The buffer as one controlled instrument
5	A dedicated commitment type for contingency releases, reported in its own column rather than in committed cost	Avoids counting the same money twice when the contractor's change order is issued
6	Workflow on releases and budget requests routed by amount and reserve type under the DoA	Every release approved at the right level and logged



Screenshot S2: PMWEB budget with working contingency by reserve type



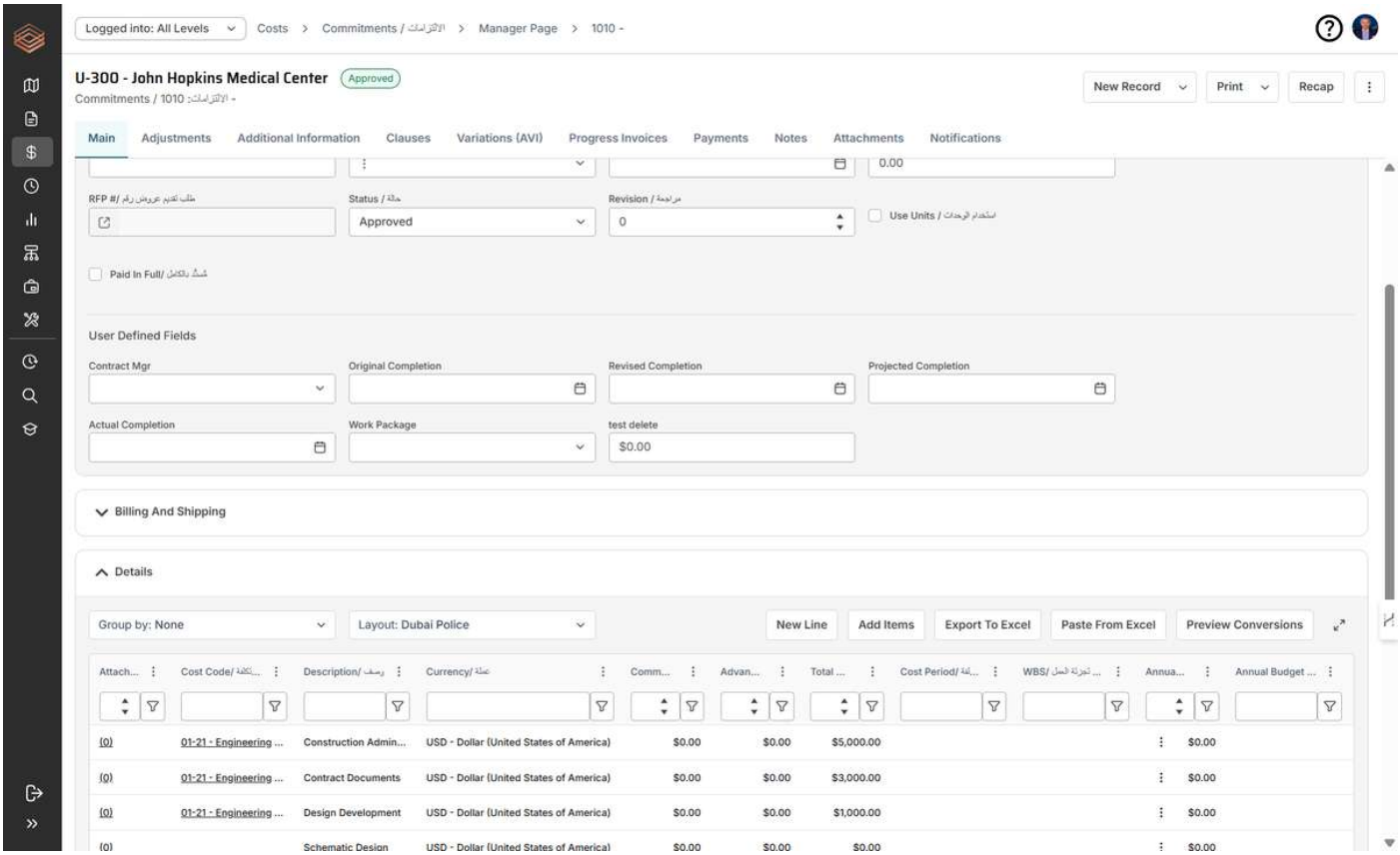
Screenshot S3: PMWEB contingency master commitment MC-CONT-2026

How a release flows

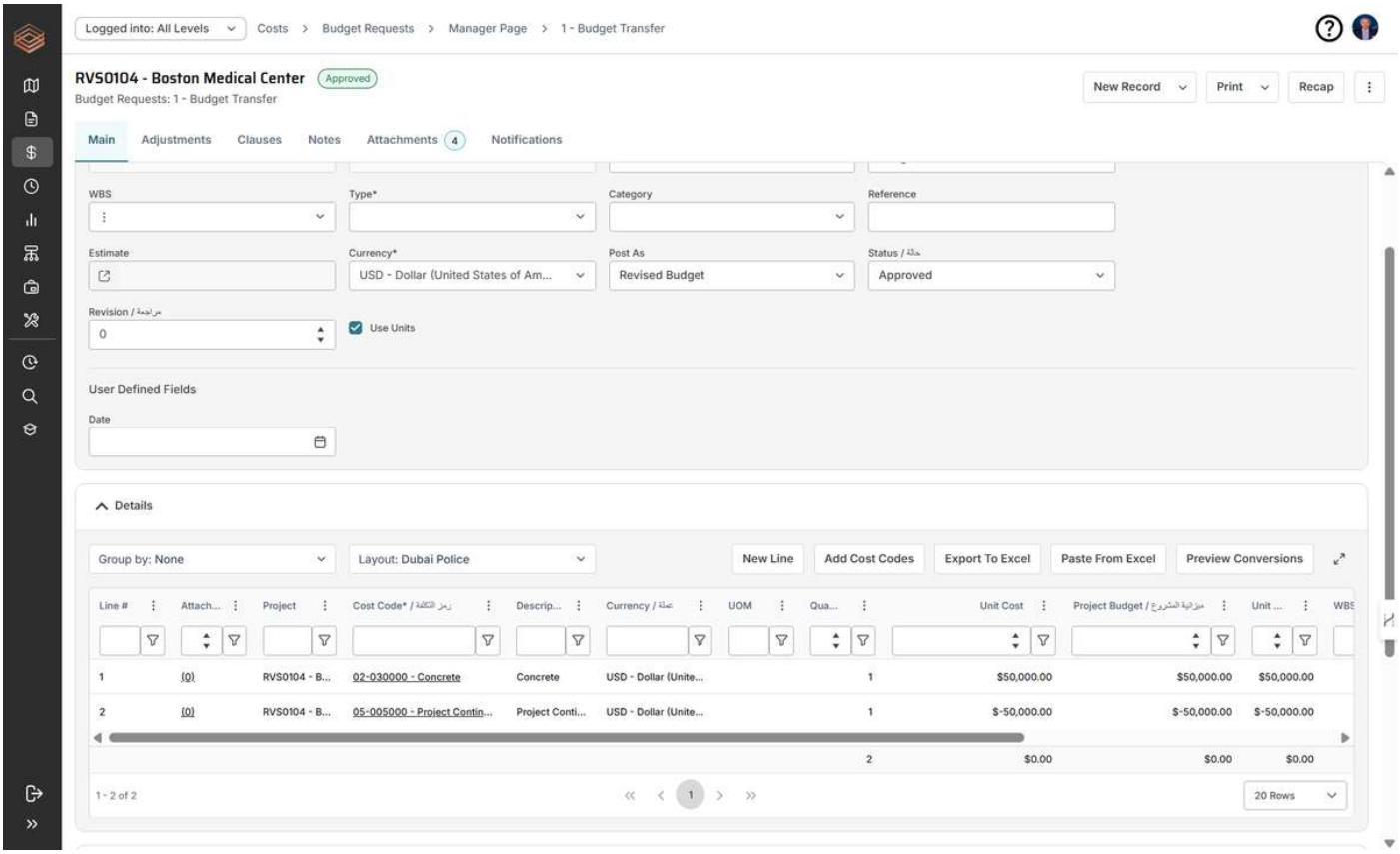
Event	PMWEB record	Effect
Risk R-101-14 triggers on Project P101	Risk status set to occurred; change event raised and linked to the risk	Cause and cost captured at source
P101 working contingency is exhausted	Release request on P101 linked to MC-CONT-2026, with risk ID and reserve type	Master commitment remaining balance falls
Board approves through workflow	Approval logged with comments and supporting documents	Decision on record
Budget moves to the project	Budget request transfers budget from the Portfolio Contingency project to the P101 cost code	Zero-sum transfer; total approved budget unchanged
Contractor is instructed	Change order on the contractor's commitment, funded by the transferred budget	Spend traceable from risk to contract
Risk is closed	Actual cost recorded against the residual estimate	Lesson learned captured

Returns and top-ups use the same records in reverse. When working contingency exceeds the open residual risk on a project, the board returns the excess by budget request to the Portfolio Contingency project and the master commitment is adjusted by change order. When the portfolio's open residual risk exceeds what remains, a top-up is requested from management reserve and, once approved, increases the master commitment.

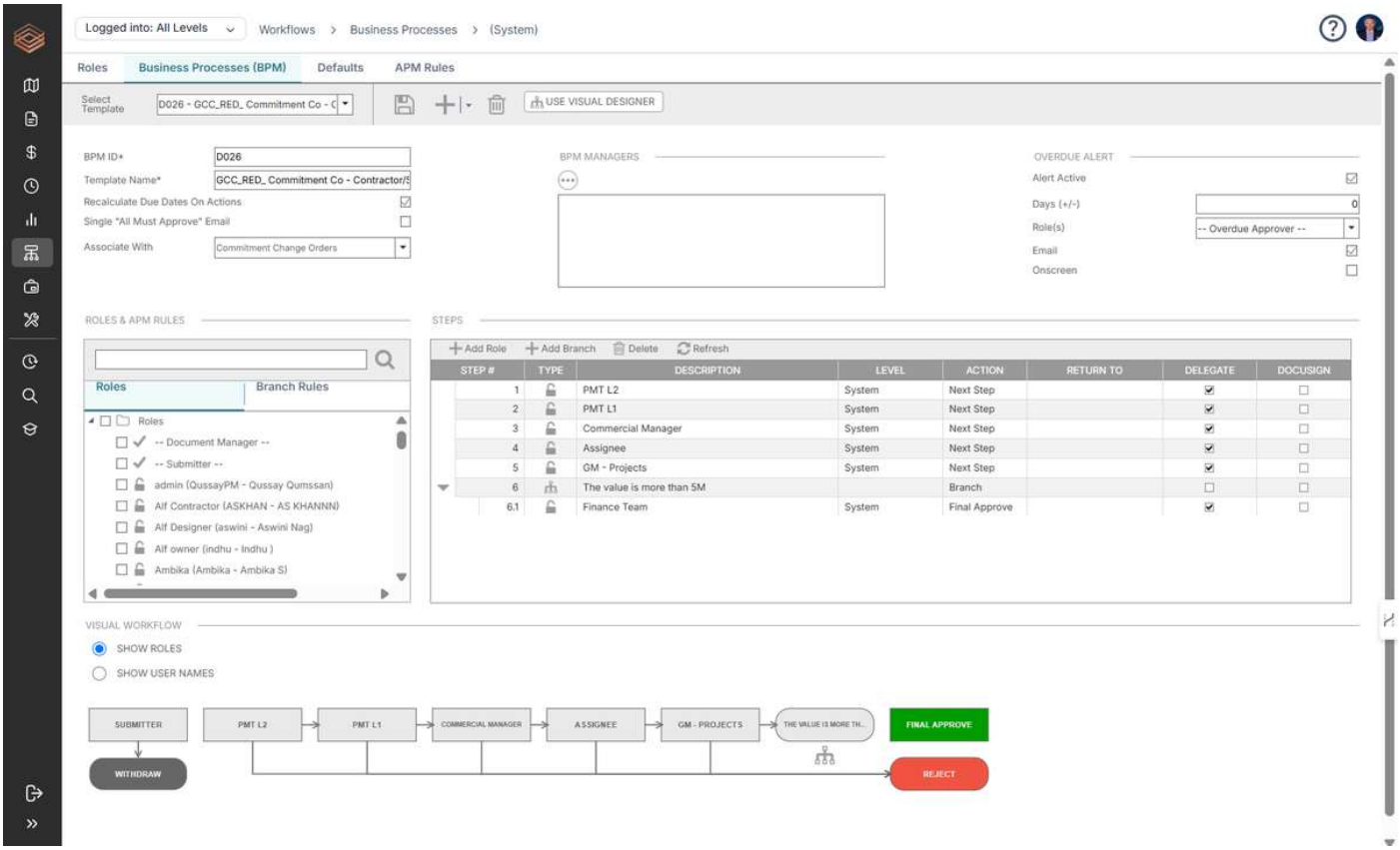
The result is that the buffer behaves like money that is being spent, not money that is being held. At any moment the board can see the original buffer, each release by project, contract, cost code, reserve type and risk, the amount returned, and the balance remaining.



Screenshot S4: Buffer release on P101 linked to the contingency master commitment



Screenshot S5: Budget request transferring buffer to the project cost code



Screenshot S6: Workflow routing for buffer releases under the DoA

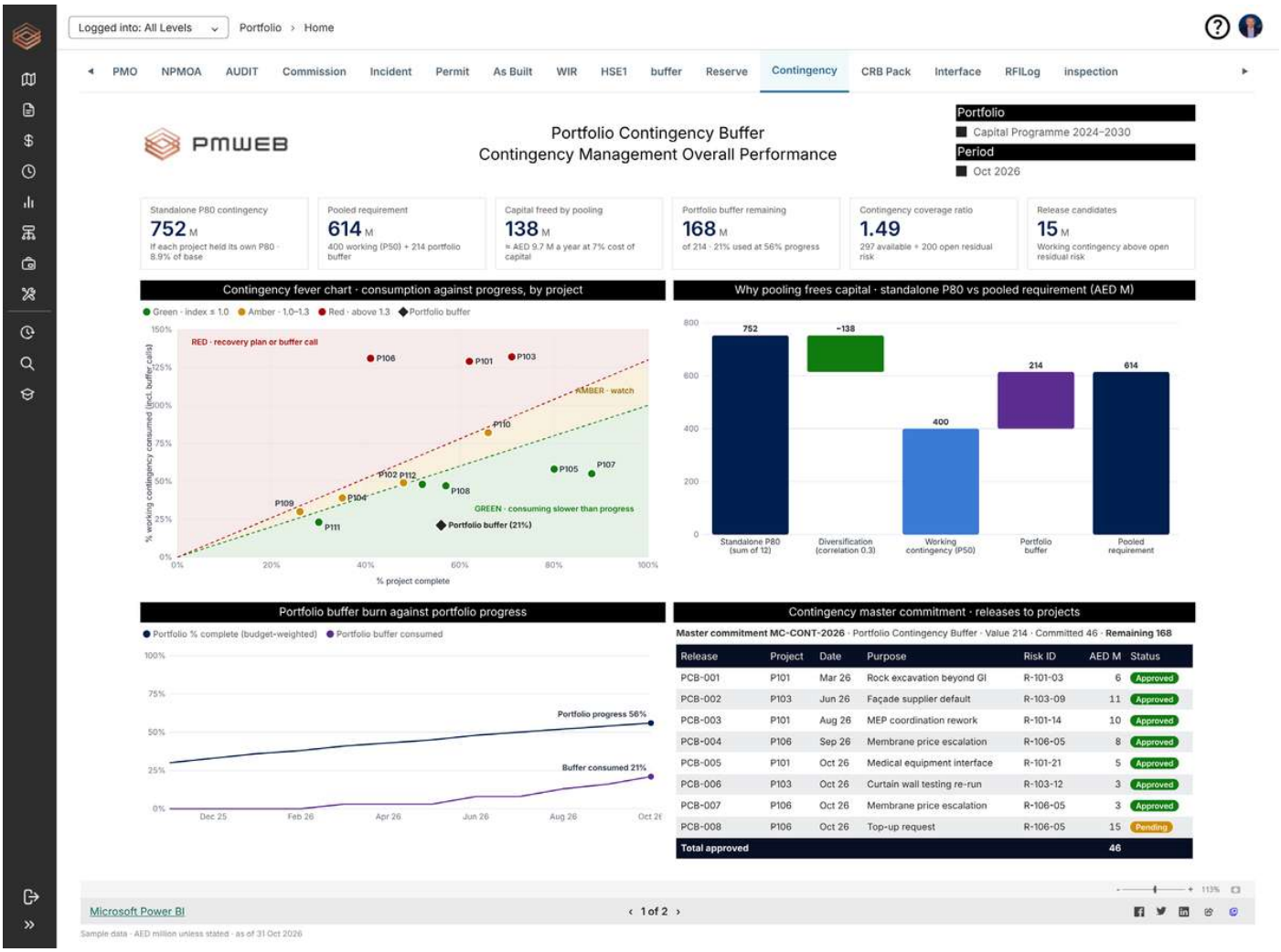


Figure 7: The contingency master commitment flow in PMWEB

What the Board Sees in PMWEB

Because the risk register, budgets, master commitment, releases, budget requests, change orders and progress are held in one PMWEB database, the board's dashboards are calculations, not compilations. The two dashboards below are shown as they would appear inside PMWEB, using the sample portfolio.

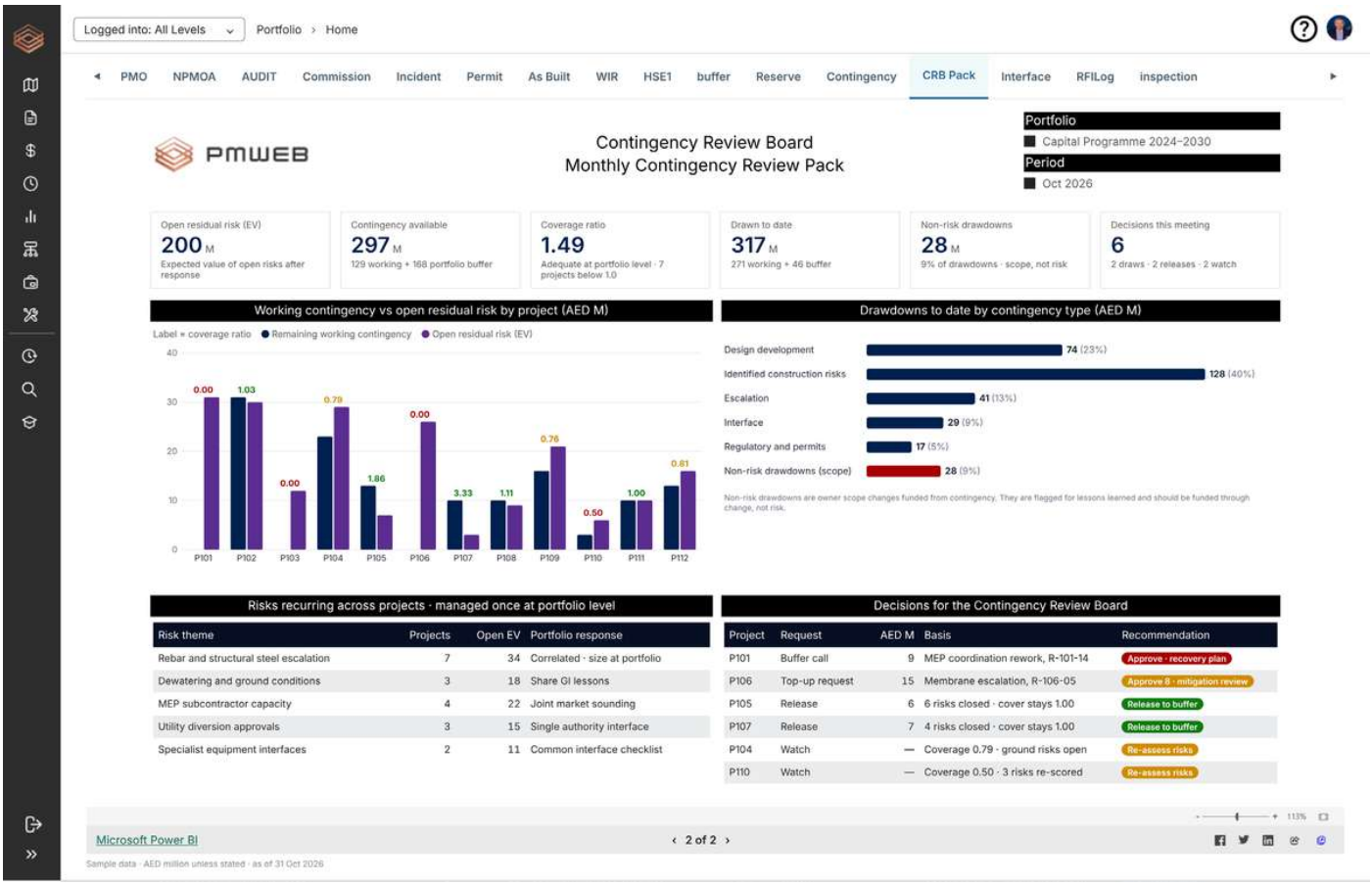
Dashboard 1: Portfolio Contingency Buffer



Dashboard 1: Portfolio Contingency Buffer, shown in the PMWEB interface (sample data, AED million)

- **The case for pooling in one view.** The bridge shows AED 752 million held project by project against AED 614 million pooled, with AED 138 million freed.
- **The fever chart.** Three projects, P101, P103 and P106, are in the red zone and account for all AED 46 million called from the buffer. Most of the portfolio is green.
- **The buffer is not being burned faster than work is delivered.** 21 percent consumed at 56 percent portfolio progress.
- **The master commitment register.** Every release, by project, date, purpose and risk ID, with AED 168 million remaining and one top-up request pending.

Dashboard 2: Contingency Review Board Monthly Pack



Dashboard 2: Contingency Review Board monthly pack, shown in the PMWEB interface (sample data, AED million)

- **Coverage by project.** Seven projects have less working contingency than open residual risk. The portfolio as a whole is covered 1.49 times because the buffer sits behind them; that is the buffer doing its job.
- **Drawdowns by type.** AED 28 million, 9 percent of all drawdowns, funded owner scope changes rather than risk. These are flagged for lessons learned and should have gone through change.
- **Common-cause risks.** Steel escalation appears on seven projects and is managed once, at portfolio level, rather than seven times.
- **The decisions list.** Two draws, two returns and two watch items, each with its basis and recommendation, ready for the meeting.

The same dashboards drill down from portfolio to project to the individual risk, release, budget request or change order, so a question at the board can be answered from the record in the meeting.

Where PMWEB 2026 AI Adds Value

The **PMWEB 2026 AI Assistant** lets users find, open and create records in natural language: for example, listing the pending buffer release requests on a project, or opening the budget request behind a release. For a board working across many projects, that removes much of the effort of finding the record behind a number.

Broader analysis becomes possible with PMWEB AI in this and future releases, and with AI solutions that integrate with PMWEB: comparing actual release costs with residual estimates across hundreds of closed risks, spotting a common-cause theme emerging in new risk entries, or drafting the monthly contingency pack from the records. All of it depends on the same condition. The risk register, the reserve types, the releases and the lessons learned must be captured in structured form in the first place. No data, no AI.

Questions to Settle Before Pooling

Question	Why it matters
Do budget rules allow pooling of funds?	Some government and semi-government budgets must appropriate contingency to each project. Where that applies, pool control rather than funding: keep the appropriation, but release it only through the board.
Which legal entities are involved?	Contingency usually cannot move freely between separate entities, SPVs or joint ventures. Pool within an entity, or by agreement.
How correlated are the risks?	Correlation decides how much pooling is safe. Use the common-cause theme and do not assume independence.
What does the project manager still control?	Working contingency within DoA keeps decisions close to the work. The board handles the buffer, not every drawdown.
What is contingency for, and what is it not for?	A written rule that scope change is funded through change, not risk, prevents the most common misuse.
How is the buffer re-sized?	Quarterly, from open residual risk across the portfolio, so the buffer shrinks as risks retire.

What the PMO Must Put in Place

- A reserve taxonomy that every project uses, with allowances, contingency, management reserve and schedule contingency kept distinct.
- A PMWEB risk register on every project with residual probability, three-point residual cost impact, expected value, trigger, reserve type and common-cause theme.
- Contingency sized from residual risk, with P50 as working contingency and the P80 balance pooled.
- A Contingency Review Board with a written mandate, membership, DoA limits and meeting rhythm.
- A Portfolio Contingency project and a contingency master commitment in PMWEB, with a dedicated release commitment type.
- Workflow for releases, returns and top-ups, routed by amount and reserve type.
- The consumption index and coverage ratio, with zone thresholds set by policy.
- A lessons-learned log populated from every release and every closed risk.

Key takeaway

Contingency held project by project is safe for each project and expensive for the owner. The sum of the P80s is not the P80 of the portfolio, and the difference is capital frozen for no additional protection.

Size contingency from residual risk, keep a working share at project level, pool the rest as a critical chain buffer under a dedicated Contingency Review Board, and release it through a PMWEB contingency master commitment. The owner frees capital, spends contingency on risk rather than scope, and learns from every release.

How does your organisation hold contingency today: project by project, or as a portfolio? And who decides when it is released?

Talk to us: info@CMCS-MENA.com

#CMCS #PMWEB #ContingencyManagement #RiskManagement #CriticalChain #PortfolioManagement #PMO #ProjectControls #CapitalProjects #GCC

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 Global Partner of the Year 2025 designation and serves capital project owners, contractors and consultants across the UAE, Saudi Arabia, Qatar and Kuwait.

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 PMWEB Authorised Implementation Partner for the GCC and MENA regions, awarded PMWEB Global Partner of the Year 2025. CMCS markets, implements and supports PMWEB for more than 60 enterprise clients across the UAE, Saudi Arabia, Qatar and Kuwait, helping capital project owners, PMC firms and contractors digitalise their project management processes on a single, governed platform. Contact: info@CMCS-MENA.com

PMWEB COST MANAGEMENT | REAL-TIME COST REPORTING | PMIS AND ERP

Real-Time Cost Reporting Needs a PMIS, Not Just an ERP

Why the ERP and the PMIS answer different questions, and why integrating PMWEB with the ERP maximises the value of cost management, whatever role you play in project delivery

Bassam Samman, PMP, PSP, EVP, GPM | Chairman & CEO, CMCS FZCO | PMWEB Authorised Implementation Partner, GCC & MENA

Almost every PMWEB conversation we have across the GCC reaches the same sentence within the first ten minutes: *"We already have SAP."* Sometimes it is Oracle Fusion, Oracle EBS or Microsoft Dynamics 365. The assumption behind it is always the same: that a project information system and an enterprise resource planning system compete for the same job.

They do not. An ERP cannot do what a PMIS does, and a PMIS cannot do what an ERP does. The ERP is the organisation's book of record. The PMIS is the project's book of control. Asking which one you need is like asking whether a hospital needs an accountant or a surgeon.

The fallacy of comparing a PMIS with an ERP

An ERP answers one question: *what is the organisation's financial position?* It answers it at legal entity, GL account, cost centre and profit centre level, in compliance with IFRS. A PMIS answers a different question: *what is the project's cost position and forecast?* It answers it at WBS, CBS, contract and work-package level, linked to physical progress and the schedule.

When organisations try to report project cost from the ERP alone, the same weaknesses appear on every programme:

- **It sees money, not contracts.** A subcontract is a PO value and a vendor number. Retention, advance recovery, measurement rules and variation clauses are invisible.
- **It records change only after approval.** The months between an instruction and an approved variation, where cost risk actually sits, leave no trace in the ledger.
- **It is structured by company, not by project.** Cost centres and GL accounts serve finance. The project needs a CBS, contract line items, phases and locations, linked to the schedule.
- **It looks backwards.** Actuals arrive after invoice approval, often 30 to 60 days after the work was done.
- **It has no forecast discipline.** Cost-to-complete, EAC, contingency drawdown and pending-change exposure live in spreadsheets outside the ERP.
- **It excludes most of the delivery team.** Project managers, quantity surveyors, consultants and contractors rarely hold ERP licences, so the people who know where cost is heading are not the people entering data.

The result is familiar to every cost manager: an ERP total accurate to the last dirham, and useless for deciding anything about the project.

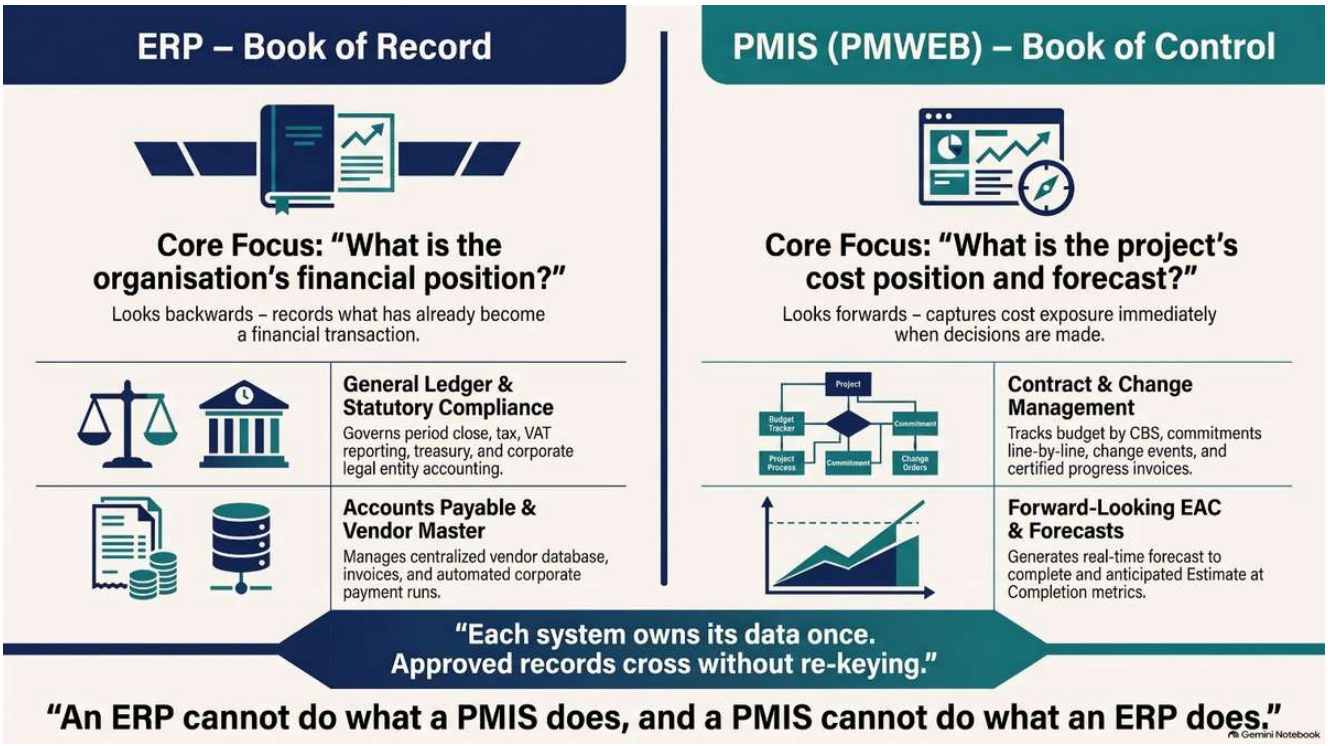


Figure 1: The ERP is the book of record; the PMIS is the book of control

What cost reporting actually is

Using PMWEB, cost reporting is the structured, real-time process of capturing, analysing and communicating the financial status of a construction project against its approved budget. It transforms raw transactional and contractual data — applications for payment, variations, subcontractor accounts, procurement commitments — into decision-useful information for project sponsors, financiers, contractors and delivery teams.

At its core, cost reporting answers four questions that every stakeholder ultimately wants resolved:

#	Question	What answers it	Where the data is born
1	What have we spent and committed to date?	Commitments, approved change orders, certified progress invoices, accruals	PMWEB commitments and invoices; ERP payments
2	What is the anticipated final cost?	Committed cost plus pending and potential changes plus forecast to complete	PMWEB change events, PCOs, forecasts
3	How does that compare with the approved budget and contingency?	Original budget, approved budget requests, contingency drawdowns	PMWEB budget and budget requests
4	What is driving any variance, and what are we doing about it?	Line-item variance by cost code, change reason, vendor and risk	PMWEB cost worksheet, change logs, risk register

Only the first question can be partly answered from an ERP. Questions two to four live almost entirely in contractual and change data the ERP never sees.



Figure 2: The four questions of cost reporting, from history to forecast

> **Practitioner insight**
>
> A cost report is not an accounting statement. It is a forward-looking management tool. The historic spend is simply the evidence base; the value of the report lies in the forecast and the narrative explaining the trend.

Two systems, two different questions

The ERP and PMWEB are complementary, not competing. Each is strong precisely where the other is weak, and the integration between them is what keeps the two answers consistent and traceable to a single set of authorised transactions.

Capability	ERP Finance (SAP, Oracle, Dynamics)	PMWEB (PMIS)	Integration point
Core purpose	General ledger, chart of accounts, statutory reporting at legal-entity level	Project lifecycle: planning, budgeting, procurement, progress and cost control at WBS/CBS level	Master data flows ERP to PMWEB; approved budgets flow PMWEB to ERP
Budget management	Budgets at GL account or cost centre; revisions by journal	Original budget, revisions, cost-to-complete and EAC per CBS line, with approval workflow	Approved budget and revisions posted to ERP
Commitments	Encumbrance at GL level; no schedule of values	Contracts and POs with schedule of values, retention and cash-flow forecast	Committed values sent to ERP as POs
Change orders	No native construction change concept; PO amendments as a workaround	Change event, PCO and change order workflow with budget, cost and schedule impact	Approved changes update ERP PO lines and budget
Cost control and earned value	Actual spend vs. budget; no CPI, SPI or EAC	Earned value, cost-at-risk and contingency burn, linked to progress	ERP actuals feed PMWEB forecasts

Capability	ERP Finance (SAP, Oracle, Dynamics)	PMWEB (PMIS)	Integration point
Invoicing and payment	AP, three-way match, payment runs, bank reconciliation	Progress invoices certified line by line against the schedule of values	PMWEB certifies, ERP pays; payment status returns to PMWEB
Schedule	No schedule engine	Linked to Primavera P6 and MS Project; delay linked to cost	Internal to PMWEB
Retention	AP liability set up manually per vendor	Calculated per line item, released against milestones	Release approved in PMWEB, paid by ERP
Approvals	Generic, by company code and cost centre	By project hierarchy, role and value threshold (DoA)	Only fully approved transactions post to ERP
Reporting	Trial balance, P&L, balance sheet, consolidation	Cost worksheet, variance, commitments, cash-flow forecast, EVM dashboards	Combined BI: ERP actuals plus PMWEB commitments and forecasts

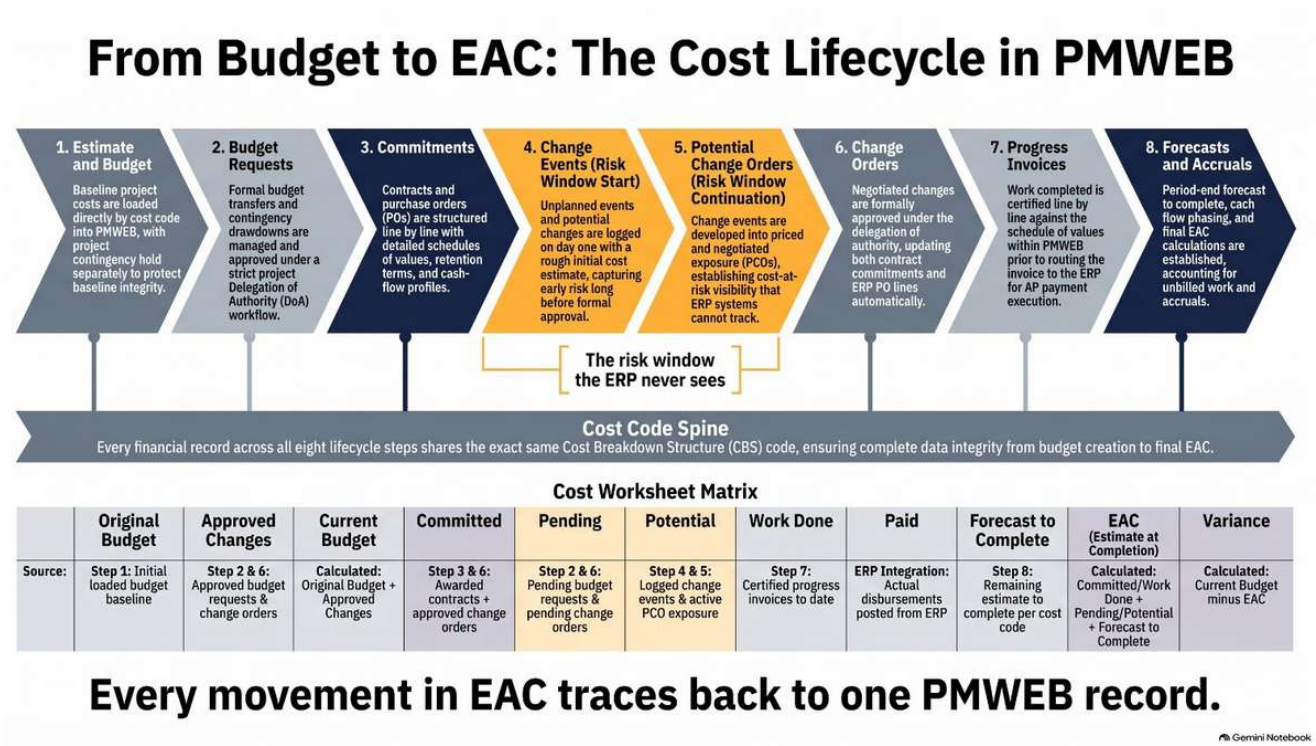
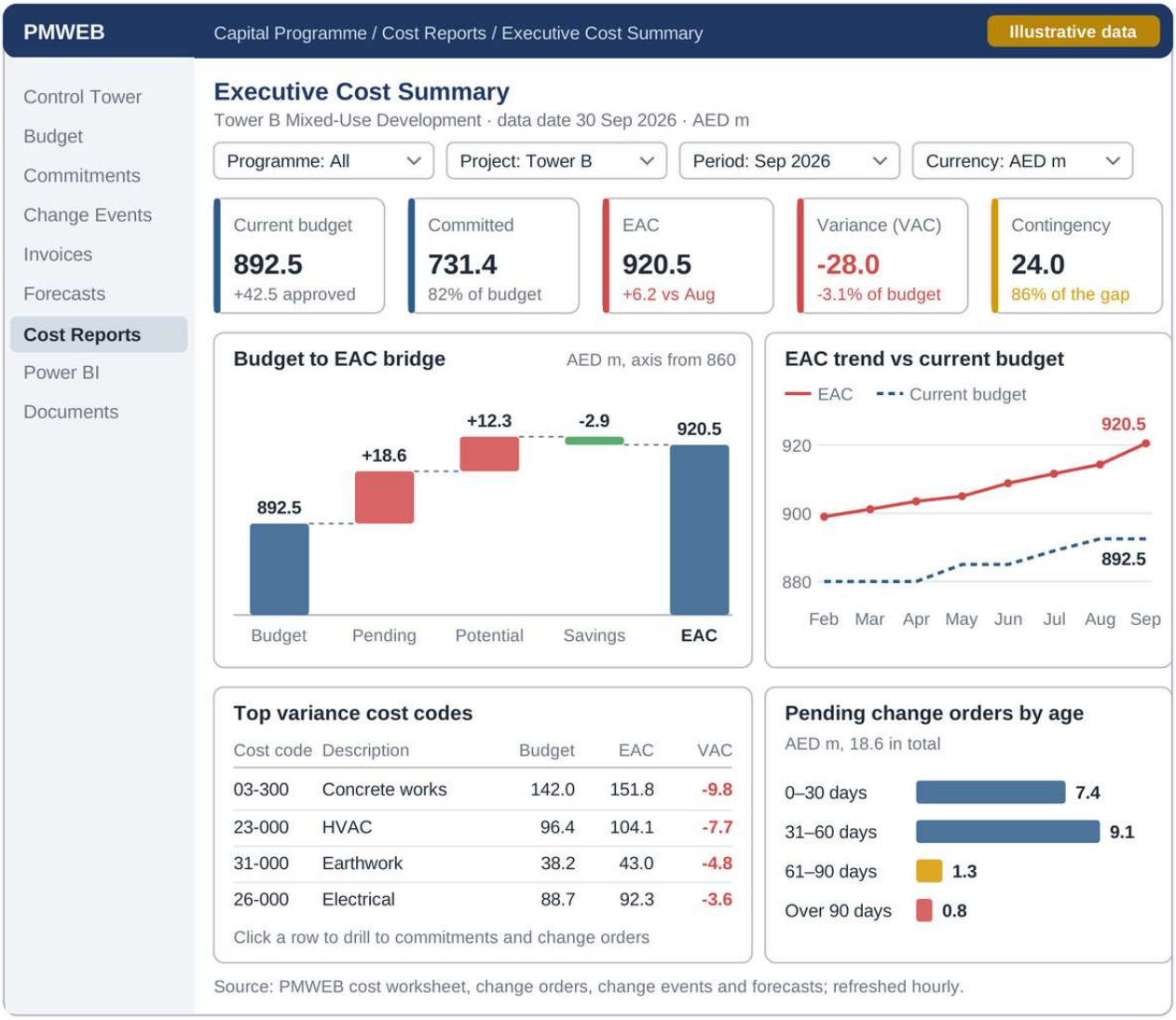


Figure 3: Every movement in EAC traces back to one PMWEB record, on the same cost code

Dashboard 1: Executive Cost Summary



Dashboard 1: PMWEB Executive Cost Summary — a Power BI report displayed inside PMWEB, built from the cost worksheet, change orders, change events and forecasts. The bridge shows why EAC differs from budget, split into what is agreed, what is being negotiated and what is still only a risk. Illustrative data.

What changes when PMWEB is integrated with the ERP

Without integration	With PMWEB integrated with the ERP
Project cost reports and ERP figures diverge: two views of the same money	Approved commitments, certified invoices and budget revisions flow to the ERP; finance sees the true project position
Every transaction is re-keyed, with error, delay and audit risk	Governed, event-driven data flows replace manual re-entry
The ERP cannot see a commitment until someone raises a PO	A contract awarded in PMWEB reaches the ERP as a PO the same day
Cost-to-complete is assembled by hand every month	EAC is calculated from budgets, commitments, changes and forecasts on the same cost codes
ERP approvals work by company code and cost centre	PMWEB delegation of authority governs every approval at project level; only authorised transactions post to the ERP
Vendors are maintained twice, with different IDs and duplicates	One corporate-approved vendor master, synchronised daily to PMWEB

Without integration	With PMWEB integrated with the ERP
Finance spends days reconciling at every period end	The two systems stay synchronised, shortening the close
An ERP posting has no link to the project decision behind it	Every posting carries the PMWEB project, cost code, commitment and certificate reference

How the integration works

The principle is simple: each system owns its data once, and approved records cross between them without re-keying. PMWEB is the system of record for project controls: CBS, budgets, procurement, commitments, change orders and payment certification. The ERP is the system of record for corporate finance: chart of accounts, vendor master, accounts payable, general ledger and treasury.

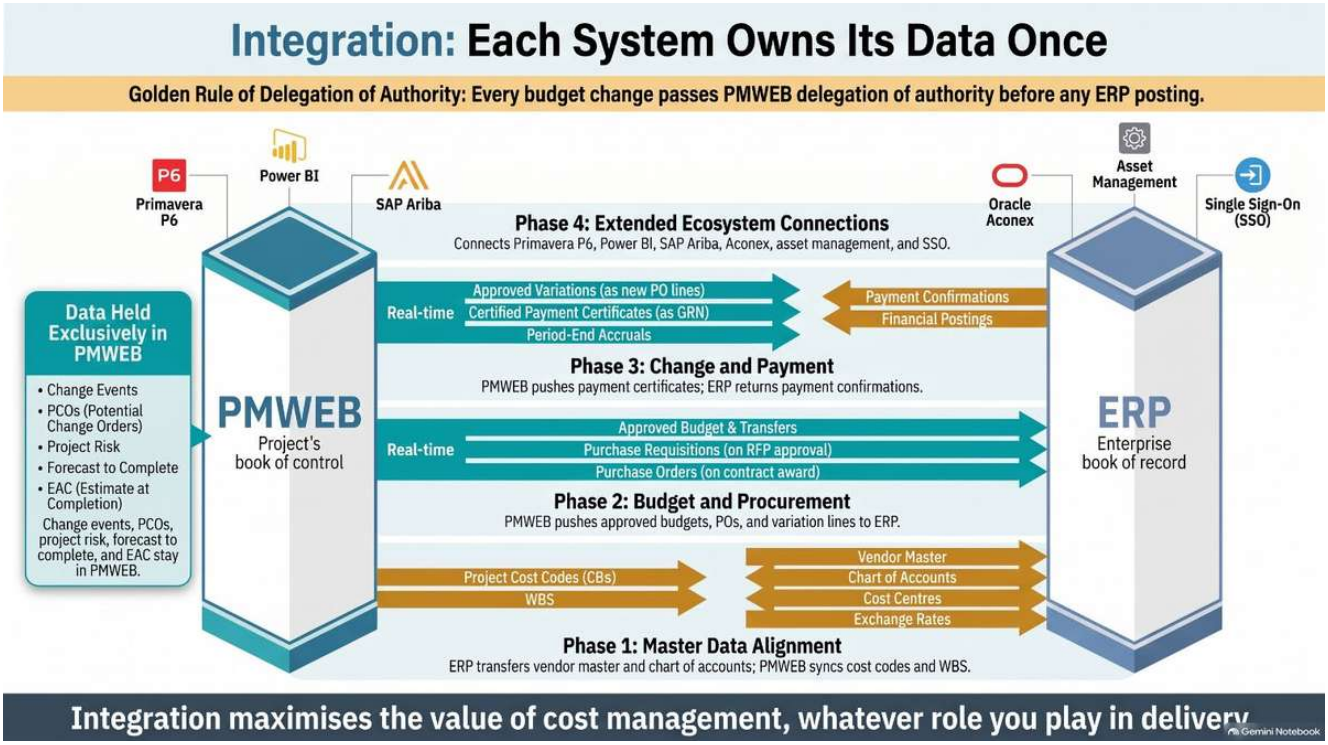


Figure 4: PMWEB–ERP integration touch points. Change events, PCOs, risk and forecasts never reach the ERP, which is why a cost report without the PMIS cannot answer questions two to four.

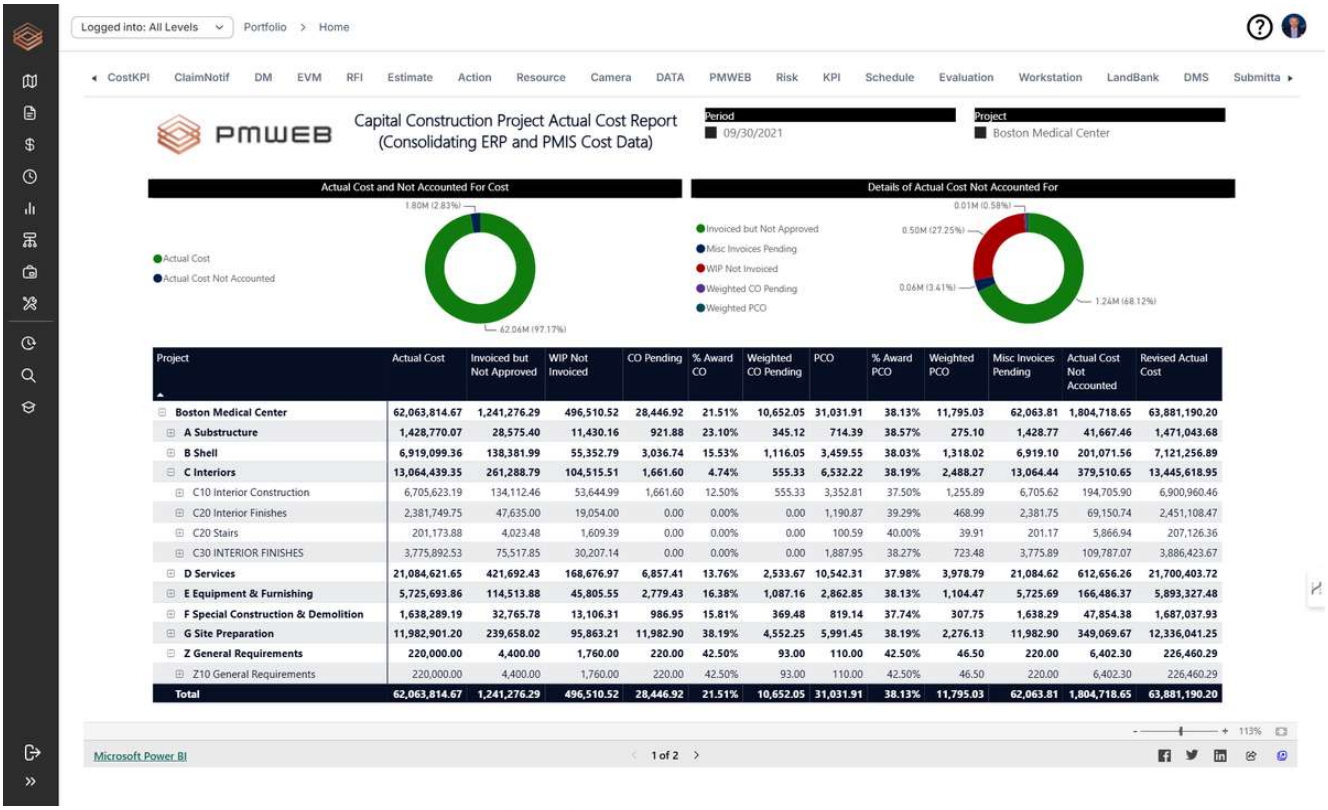
CMCS delivers the integration in four phases, each stable and tested before the next is built on top of it:

Phase	Touch points	Direction	Sync
1. Master data	Vendor master, chart of accounts, profit and cost centres, exchange rates	ERP to PMWEB	Daily or monthly batch
1. Master data	Project cost codes (CBS) and WBS	PMWEB to ERP	Real time / twice daily
2. Budget	Approved project budget, budget changes and transfers	PMWEB to ERP	Real time on approval
2. Procurement	Purchase requisition on RFP approval; PO on contract award; PO amendments	PMWEB to ERP	Real time on approval
3. Change orders	Approved variation as new PO line; budget change triggered by the variation	PMWEB to ERP	Real time on approval
3. Change orders	Cost provisions	ERP to PMWEB	Daily batch

Phase	Touch points	Direction	Sync
3. Invoicing and payment	Certified payment certificate as GRN; progress invoices (revenue); period-end accruals	PMWEB to ERP	Real time / monthly
3. Invoicing and payment	Payment confirmations, FI postings, petty cash and direct costs	ERP to PMWEB	Daily / real time
4. Extended ecosystem	Primavera P6 and MS Project, Power BI, SAP Ariba, Oracle Aconex, asset management, SSO	Various	Per interface

Key governance principle

All budget changes, whether they originate in PMWEB or in the ERP, pass through PMWEB's delegation of authority workflow before any financial posting. The ERP general ledger is only ever updated with fully authorised movements, and the project record and the corporate record stay synchronised around the same approved baseline.



Dashboard 7: What PMWEB has committed, certified and accrued against what the ERP has posted and paid, with any integration exceptions flagged. With integration, the gap is near zero; without it, this is the reconciliation finance does by hand every period. Illustrative data.

Cost reporting from day one: PMWEB out-of-the-box reports

PMWEB ships with more than 150 pre-configured reports, and the cost reports answer all four questions the day the data is entered, before any custom dashboard is built. At their core is the cost worksheet: one row per cost code, with budget, commitment, change, invoiced, paid, forecast and variance side by side.

Question answered	PMWEB out-of-the-box report	What it shows
1. Spent and committed	Commitment Log by Cost Code	Every contract and PO line against its cost code, with original, changes and revised value

Question answered	PMWEB out-of-the-box report	What it shows
1. Spent and committed	Commitment Log by Vendor	Committed, invoiced, retained and paid per vendor
1. Spent and committed	Commitment Change Orders Log	Approved and pending change orders per commitment
1. Spent and committed	Progress Invoice – Payment; Application and Certificate for Payment	Line-item certification: previous, this period, to date, retention, net due
1. Spent and committed	Committed Cost Per Month	Commitment build-up over time
2. Anticipated final cost	Forecast Details	Forecast to complete and EAC per cost code
2. Anticipated final cost	Anticipated Forecast Per Month	Monthly phasing of the forecast
2. Anticipated final cost	Change Events Log – Budget and Cost	Open change events with budget and cost exposure, before they become change orders
3. Budget and contingency	Budget Single Project – Pending and Approved	The single-project cost worksheet: original, approved and pending budget, committed, actual, variance
3. Budget and contingency	Budget Multiple Projects – Pending and Approved	The same worksheet rolled up across a programme or portfolio
3. Budget and contingency	Budget Request Log; Budget Requests Analysis	Every transfer, increase and contingency drawdown with its approval status
3. Budget and contingency	Budget Summary; Projects Over/Under Budget	Budget health per project, flagged by variance
4. Variance drivers	Anticipated Variance Per Month; Budget Month Variance Cumulative	When the variance appeared and how it is trending
4. Variance drivers	Budget and Actual Cost Comparison	Budget vs. actual by cost code
4. Variance drivers	Earned Value Log	CPI, SPI and earned value by period
Cash and funding	Cash Flow Budget; Funding Recap; A/P Aging	Cash requirement, funding position and overdue payables

Each report drills to the source record, so a variance on page one is never more than two clicks from the commitment, change event or invoice that caused it.

		A	B	C=A+B	D	E	F	G=D+E+F	H=C-G	I
Code	Description	Original Budget	Budget Changes	Anticipated Budget	Original Commitments	Commitments Revisions	Forecast to Complete	Anticipated Cost	Variance	Actual Cost
00 - Sales										
000000	Sales	$12,000,000.00	$0.00	$12,000,000.00	$121,000.00	$50,000.00	$0.00	$171,000.00	$11,829,000.00	$1,960.00
Subtotals for:	**00 - Sales**	**$12,000,000.00**	**$0.00**	**$12,000,000.00**	**$121,000.00**	**$50,000.00**	**$0.00**	**$171,000.00**	**$11,829,000.00**	**$1,960.00**
01 - Land Costs										
000001	Land Acquisition	$1,200,000.00	$0.00	$1,200,000.00	$0.00	$60,000.00	$0.00	$60,000.00	$1,140,000.00	$1,201,000.00
000002	Land Permits and Fees	$430,000.00	$0.00	$430,000.00	$0.00	$0.00	$0.00	$0.00	$430,000.00	$60,000.00
Subtotals for:	**01 - Land Costs**	**$1,630,000.00**	**$0.00**	**$1,630,000.00**	**$0.00**	**$60,000.00**	**$0.00**	**$60,000.00**	**$1,570,000.00**	**$1,261,000.00**
02 - Hard Costs										
010002	General Conditions	$197,500.00	$0.00	$197,500.00	$200,000.00	$800.00	$0.00	$200,800.00	$-3,300.00	$228,430.00
020000	Existing Conditions	$1,100,000.00	$30,000.00	$1,130,000.00	$90,000.00	$0.00	$0.00	$90,000.00	$1,040,000.00	$900,180.00
030000	Concrete	$875,000.00	$262,400.00	$1,137,400.00	$4,887,760.00	$45,000.00	$-850,000.00	$4,082,760.00	$-2,945,360.00	$1,337,740.00
050000	Metals	$850,000.00	$21,000.00	$871,000.00	$825,100.00	$25,000.00	$0.00	$850,100.00	$20,900.00	$495,000.00
061000	Rough Carpentry	$122,500.00	$85,000.00	$207,500.00	$165,000.00	$40,000.00	$0.00	$205,000.00	$2,500.00	$99,000.00
071000	Dampproofing and Waterproofing	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
080000	Openings	$0.00	$40,000.00	$40,000.00	$51,500.00	$0.00	$0.00	$51,500.00	$-11,500.00	$6,100.00
099000	Painting and Coating	$300,000.00	$15,900.00	$315,900.00	$250,000.00	$30,000.00	$0.00	$280,000.00	$35,900.00	$212,500.00
142000	Elevators	$0.00	$12,000.00	$12,000.00	$0.00	$26,670.00	$0.00	$26,670.00	$-14,670.00	$0.00
210000	Fire Suppression	$450,000.00	$0.00	$450,000.00	$425,000.00	$0.00	$0.00	$425,000.00	$25,000.00	$318,750.00
220000	Plumbing	$415,000.00	$0.00	$415,000.00	$408,000.00	$0.00	$0.00	$408,000.00	$7,000.00	$222,730.00
230000	HVAC	$410,000.00	$0.00	$410,000.00	$26,463,500.00	$0.00	$0.00	$26,463,500.00	$-26,053,500.00	$300,600.00
260000	Electrical	$52,000,000.00	$0.00	$52,000,000.00	$560,330.00	$0.00	$0.00	$560,330.00	$51,439,670.00	$0.00

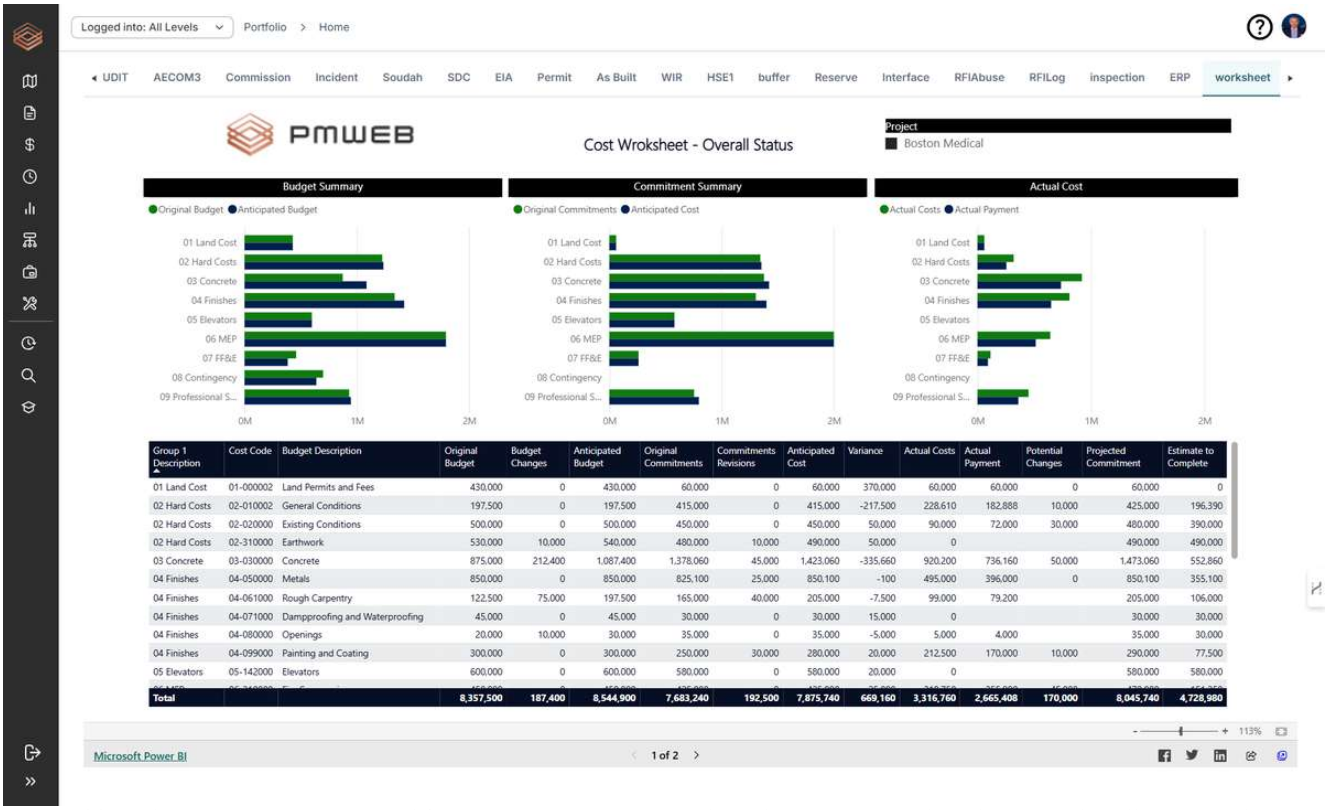
PMWEB out-of-the-box cost worksheet: budget, commitment, change, invoiced, paid, forecast and variance per cost code

From reports to Power BI dashboards

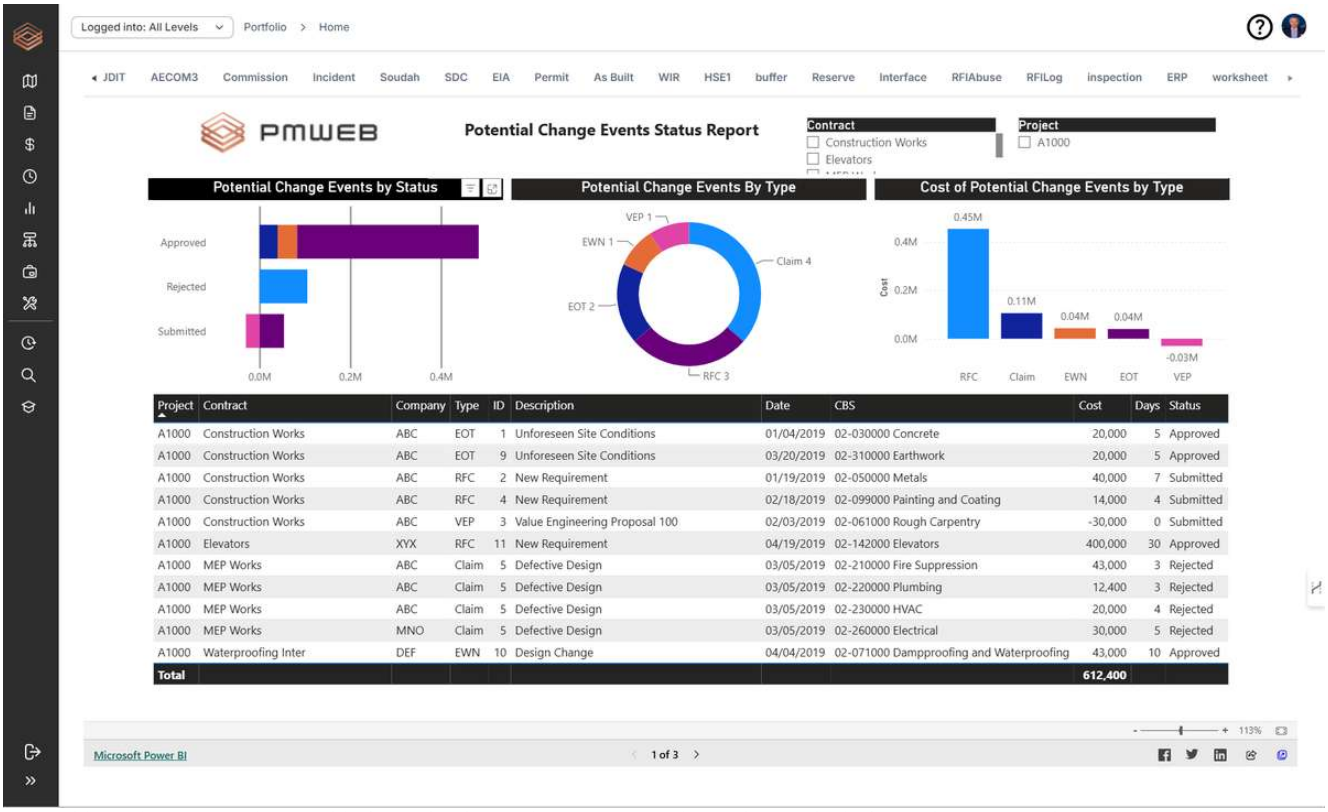
For executive and portfolio audiences, PMWEB cost data feeds Power BI at configured refresh intervals, from every 15 minutes to hourly, and the reports are displayed inside PMWEB so users never leave the system.

Dashboard	What it shows	Questions
1. Executive Cost Summary	KPI cards, budget-to-EAC bridge, EAC trend, top variance cost codes, pending change ageing	2, 3, 4
2. Cost Worksheet and Variance Drill-Down	CBS matrix with the full cost-worksheet columns; drill from programme to cost code to commitment line	1, 3, 4
3. Change Exposure	Change events identified, priced (PCO) and approved; ageing; exposure by reason and originator	2, 4
4. Commitments and Buyout	Budget vs. committed by package, uncommitted balance, buyout savings or overruns, retention held	1, 3
5. Cash Flow and Forecast	S-curve of planned, work done, certified and paid; monthly EAC; advance recovery and retention release	1, 2
6. Contingency and Reserve Drawdown	Contingency used vs. % complete; remaining reserve vs. open risk and pending changes	3, 4
7. PMWEB–ERP Reconciliation	Committed vs. ERP PO value, certified vs. AP invoiced, paid; accruals; integration exceptions	1

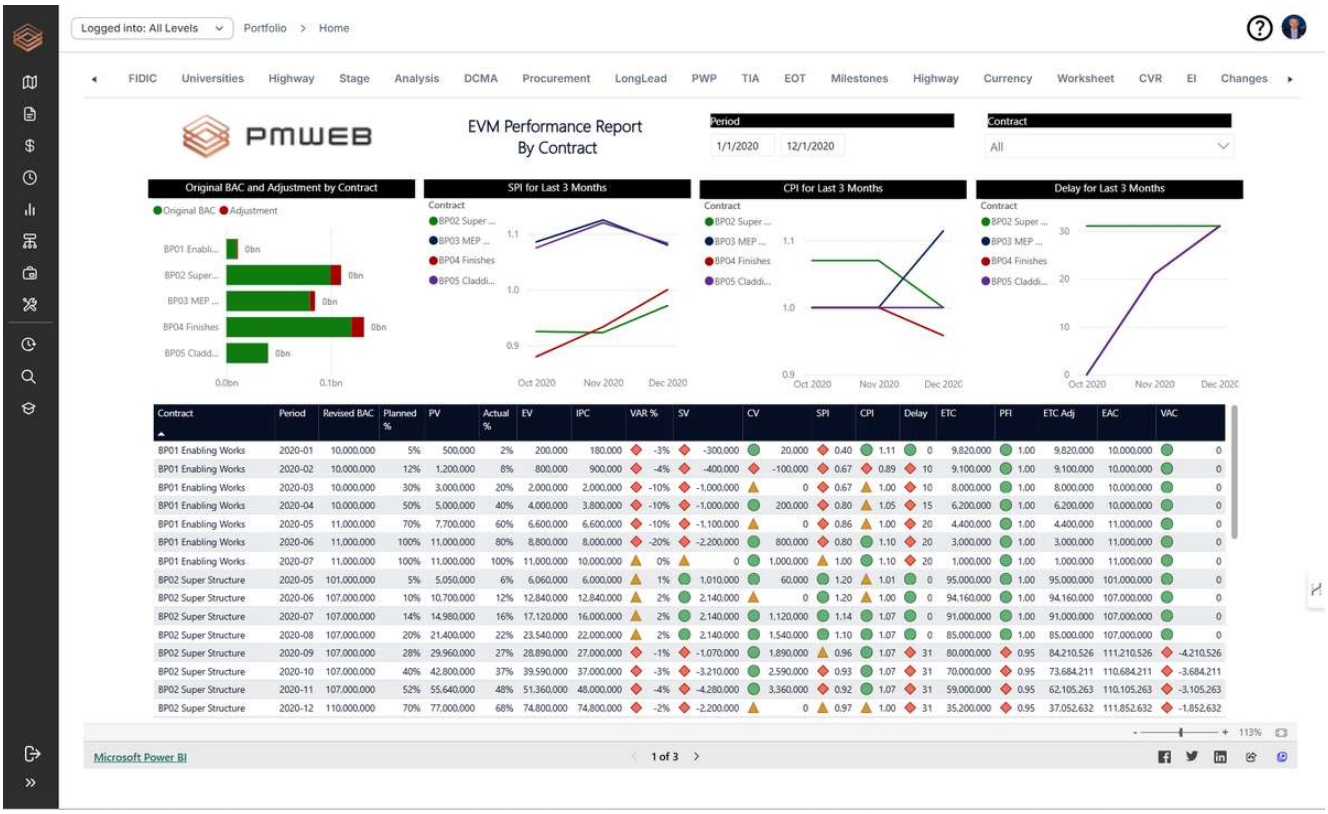
Dashboard	What it shows	Questions
8. Portfolio Cost Performance	EAC variance and CPI by project, contingency coverage, projects needing attention	3, 4



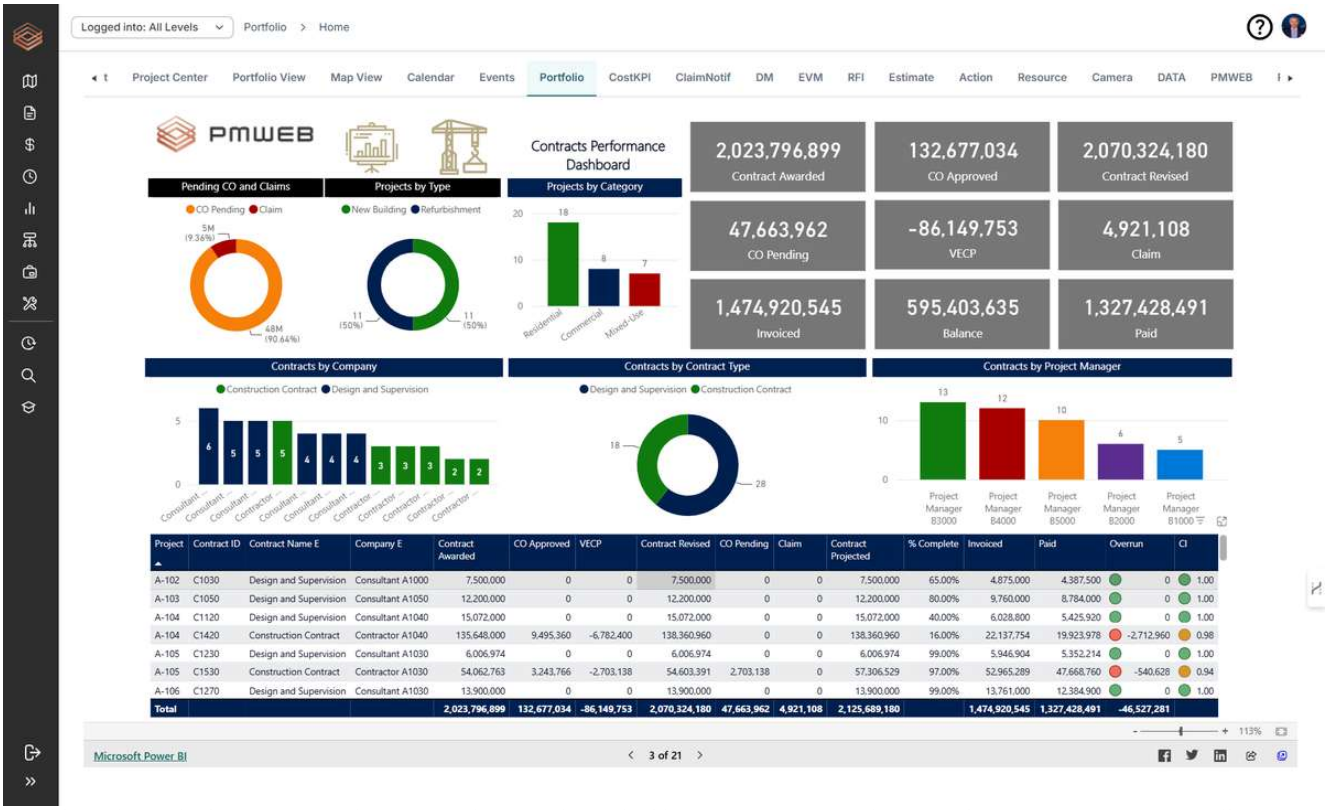
Dashboard 2: Every variance traced from programme to cost code to the commitment line that caused it. Illustrative data.



Dashboard 3: Cost risk is visible from the day a change event is logged, months before it becomes a change order. Illustrative data.



Dashboard 5: Planned, work done, certified and paid on one S-curve, with the forecast to completion. Illustrative data.



Dashboard 8: Which projects need attention this month, ranked by variance at completion and contingency coverage. Illustrative data.

Proven across the region

This is not a theoretical architecture. CMCS has delivered PMWEB–ERP integration programmes for real estate developers, government entities and government-linked companies across the UAE, Saudi Arabia and Qatar, on every major ERP platform used in the region.

Client profile	ERP integrated with PMWEB	Status
Diversified business group, UAE	SAP	Delivered
Real estate developer, UAE	Oracle Fusion and Salesforce	Delivered
Master developer, UAE	Oracle EBS	Delivered
Government entity, UAE	Oracle EBS / GRP	Delivered
Real estate developer, Saudi Arabia	Oracle Fusion and Salesforce	Delivered
Government-linked developer, Qatar	Oracle EBS R12	Delivered
Real estate developer, UAE	Microsoft Dynamics 365	In progress
Diversified business group	SAP	In progress

The lesson is consistent across all of them: the integration succeeds when the cost code mapping, the delegation of authority and the accrual rules are agreed **before** the first interface is built, and when PMWEB is the place where every approval happens.

Where PMWEB 2026 AI Adds Value

The PMWEB 2026 AI Assistant lets a CFO, a commercial director or a project sponsor ask the cost data a plain question — which cost codes have an EAC above budget, which change events have been open for more than 60 days without a price, which contracts have retention due for release — and get an answer drawn from the live records, with the records cited.

Further AI capabilities being released through 2026, together with AI solutions that integrate with PMWEB, extend this to drafting the monthly cost report narrative, explaining the movement in EAC since last period and flagging early warning signs across hundreds of commitments. All of it depends on one condition: the cost data must already be held in structured form, on the same cost codes, in one system. An ERP extract and a spreadsheet cannot give AI that foundation. No data, no AI.

Questions to Settle Before You Start

Question	Why it matters
How do PMWEB cost codes map to ERP WBS elements and GL accounts?	The mapping must be agreed before any transactional interface is built. Late changes break every downstream posting. Design the CBS in PMWEB first, then map the ERP against it.
Where does delegation of authority live?	Approvals belong in PMWEB, with pre-approved records sent to the ERP. Approving twice in two systems creates delay and conflict.
When does a new vendor reach the ERP?	Typically at first contract award or first PO. Without a defined trigger, vendor records are duplicated or missing.
How are advance payments, retention and penalties treated?	They are the most common cause of payment-integration failures after go-live and must be specified in design.
How are accruals handled at period end?	Work done but not invoiced, invoiced but not certified, and certified but not paid each need different treatment in both systems.
Who creates project codes?	One owner, usually the ERP, with PMWEB receiving them. Parallel creation in both systems is a common source of data integrity failures.

What the Cost Manager and PMO Must Put in Place

- One cost breakdown structure, owned in PMWEB and mapped to the ERP

- A rule that every budget change, commitment, change order and payment certificate is approved in PMWEB
- Change events logged on day one, so exposure is visible before it becomes a change order
- A monthly forecast to complete per cost code, owned by a named person
- Accrual rules agreed with finance for the three states of work done, invoiced and certified
- An executive cost dashboard and a variance narrative issued every period from the same data

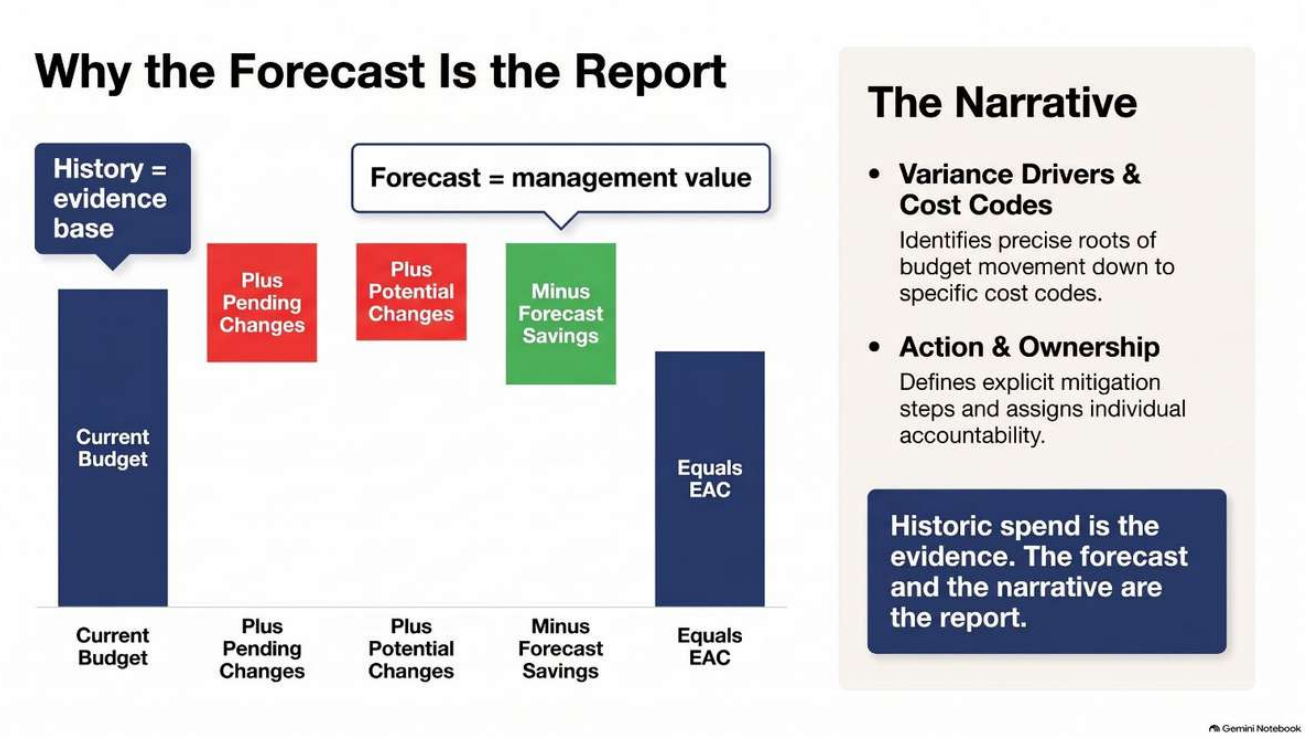


Figure 5: Historic spend is the evidence; the forecast and the narrative are the report

Key takeaway

An ERP cannot do what a PMIS does, and a PMIS cannot do what an ERP does. The ERP tells you what has happened to the money; PMWEB tells you where the project's cost is heading and why.

Integrating the two gives cost reporting that is real-time, forward-looking and traceable to every contract line, whether you are the owner, the government entity, the PMC, the contractor or the bank.

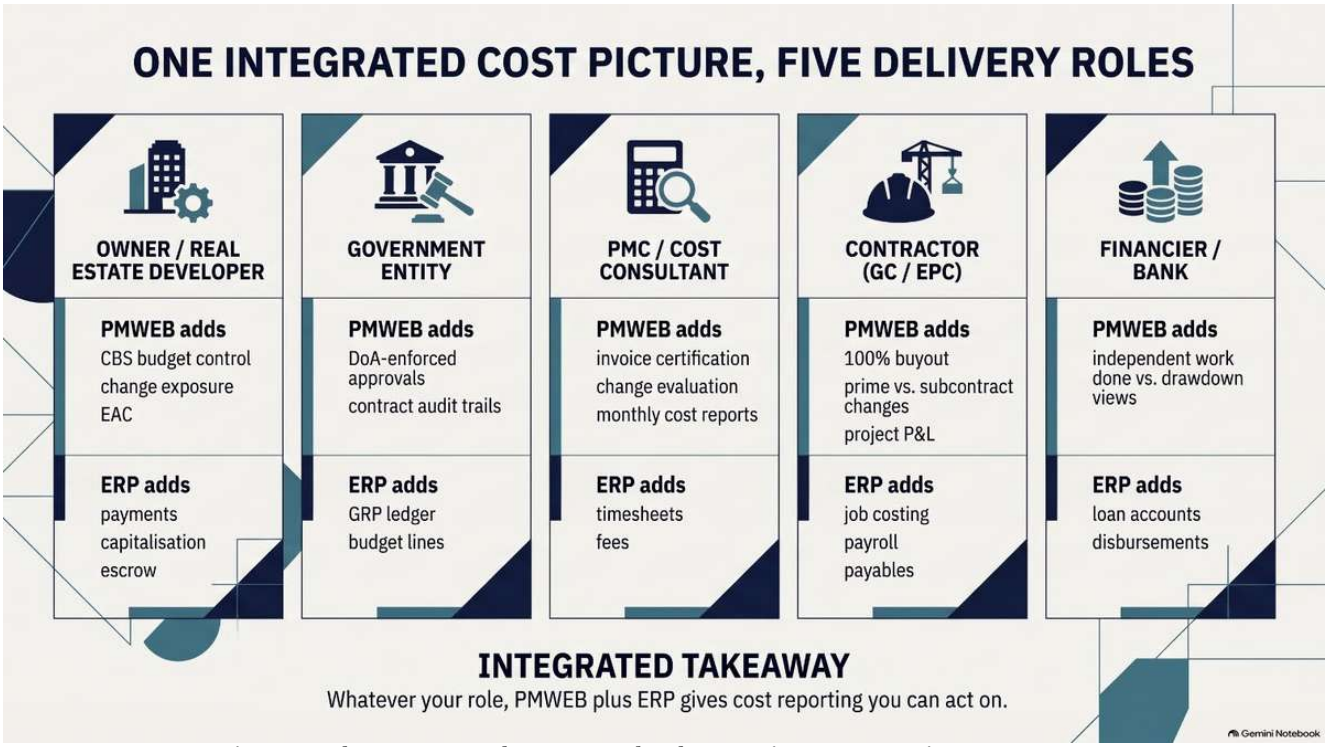


Figure 6: Whatever your role, PMWEB plus the ERP gives cost reporting you can act on

Does your monthly cost report still start with an ERP extract and end in a spreadsheet — and could your sponsor see this month's EAC, and why it moved, tomorrow morning?

Talk to us: **info@CMCS-MENA.com**

#CMCS #PMWEB #PMIS #CostManagement #CostReporting #ERP #SAP #OracleFusion #ProjectControls #CapitalProjects

Dashboards and report screens in this article are PMWEB-style illustrations with illustrative data, prepared by CMCS.

About the Author

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

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 PMWEB Authorised Implementation Partner for the GCC and MENA regions, awarded PMWEB Global Partner of the Year 2025. CMCS markets, implements and supports PMWEB for more than 60 enterprise clients across the UAE, Saudi Arabia, Qatar and Kuwait, helping capital project owners, PMC firms and contractors digitalise their project management processes on a single, governed platform. Contact: info@CMCS-MENA.com