CONSTRUCTION PROGRESS COALITION

AEC INTEGRATION SUMMIT

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INITIATIVE TEAM REPORT

CH-CH-CHANGES

Shining a light on the sources of waste and frustration between Trade, GC, and Owner throughout the change order management lifecycle.

Team Deliverable Report: Ch-ch-changes

Presented by: Plexxis Software in partnership with the National Association of Surety Bond Professionals (NASBP)

EXECUTIVE SUMMARY

Over the course of two days, the "Ch-ch-changes" team, led by Plexxis Software's Chad Pearson, tackled the sources of waste and frustration between Trade, GC, and Owner throughout the change order management lifecycle. The central objective was to identify how change orders produce waste through friction and ambiguity, before unpacking the stakeholder motivations that lead to it. The solution to this shared point of contention is not just another software. It requires a shift in strategic mindset and collaboration mechanics to rethink how work-in-progress (WIP) data is exchanged and analyzed on surety projects among the bonded contractor, the owner obligee, the surety agent, and the bond carrier.

The group identified that **delays in change order recognition and resolution** are a primary driver of cost escalation, disputes, and cash flow strain. "Work in contest"—whether unreported or disputed—functions as an industry-wide tax, compounding through contingency, risk pricing, and administrative overhead. This burden disproportionately impacts subcontractors, who are often stuck financing the unresolved work.

While searching for root causes, they found that **the industry lacks a shared system of visibility and standardized reporting**. This leads to fragmented data and delayed communication, but the lack of visibility is actually due to ***misaligned incentives***. Despite the power of AI and cloud collaboration to prototype a future change management dashboard, this won't become a reality for stakeholders until contracts include direct incentives to report early deviations and impacts.

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DIGEST

The following initiative report of findings began as an AI-generated summary extracted from recorded transcripts of each team's breakout sessions and their final presentations. Team participants provided a thorough review and comments to validate the report findings and supporting graphics.

TEAM — CH-CH-CHANGES

Participants represented a cross-section of the AECO ecosystem, including general contractors, subcontractors, and industry advocates. Perspectives varied but consistently highlighted misaligned incentives, contract ambiguity, and lack of interoperability as root causes.

TEAM OBJECTIVE

HOW MIGHT WE — measure the cause and impact of a change

...IN WAYS THAT — promote standardized reporting

...SO THAT — all stakeholders get a clear view of project health

DELIVERABLE
Change Management Portal

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THE GROUNDING SCENARIO
A Subcontractor Conflict

The group anchored an otherwise abstract discussion in a concrete, multi-party conflict on a bonded, multi-floor commercial project. The total project value was $60 million, with the mechanical contractor holding a $15 million contract and the framing contractor holding a $5 million contract. A persistent coordination risk exists between framing and mechanical sequencing: if framers go first, mechanical is disadvantaged; if mechanical goes first, framing is disadvantaged. In this case, an in-scope, unsolicited change arose from sequencing clashes, which forced rework and resulted in a $1.5 million impact.

ONE PROJECT. FOUR MOMENTS

$60M bonded. $5M framer. $15M mechanical.

A Sequencing conflict results in $1.5M in rework. Nobody is lying. Nobody is incompetent. The system has no mechanism to surface the cost when it is small.

01 • WEEK 0

Pull plan agreed

Sequence is set. The framer never reprices against the new sequence — they assume it matches their bid.

Cost: $0

02 • WEEK 4

Clashes appear

Mechanical goes first. Framers follow, hits rework. Costs accumulate inside the framer's internal NCW account.

Cost: ~$30K

03 • WEEK 12

The gap opens

The framer's NCW number and the GC's PCO number never connect. Each party tracks the issue in their own system.

Cost: Climbing

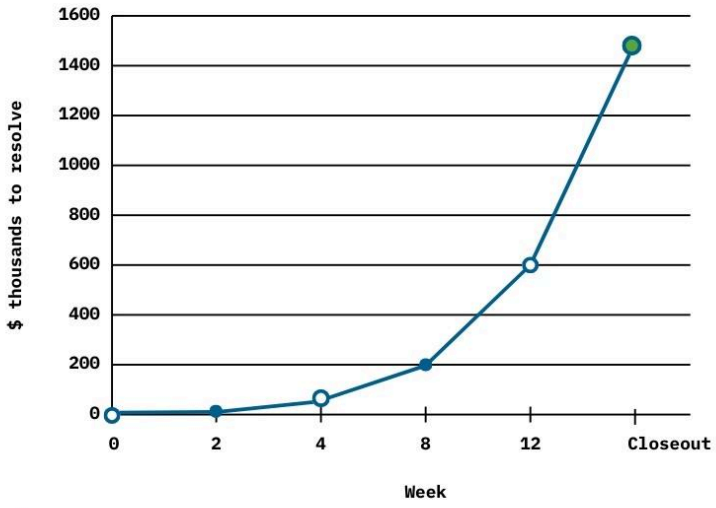
04 • CLOSEOUT

Positions harden

$1.5M surfaces. Contingency is gone. Everyone writes it down. The surety is underwriting a balance sheet that doesn't reflect reality.

Cost: $1.5M

HOW THE COST COMPOUNDS



The cost of a change is a function of *when* it surfaces

Not what it is. Not who caused it. When. Every week of delay compounds — through hardened positions, lost contingency, and the cost of money on uncollected work.

— KEY ELEMENTS

THE IMPACT 01

The $1.5 million impact is explicitly defined as an unsolicited change—neither field-directed nor formally requested—and represents the cost of rework attributable to sequencing misalignment.

THE ACCOUNTABILITY 02

The general contractor (GC) typically sequences trades to minimize overall risk. When miscoordination occurs, responsibility must be assessed against the contract schedule and the agreed baseline sequence.

RECOVERY PATHWAY 03

The impacted party submits costs to the GC, who then facilitates a back charge to the responsible party. The group characterized this as an in-scope back charge that cannot be reimbursed, rather than an owner issue. The owner expects ducts and walls delivered as contracted.

What is the dilemma or paradox?

The challenge of construction delays and cost overruns has existed long before the rise of cloud computing and generative AI. Historically, contractors have used change orders as a tool to recoup more than just the direct cost of the change. For example, concessions made by a trade contractor to win the job could be recouped through inflated change orders.

The prevalence of these 'tit for tat' strategies has made any attempts to measure the cause or impact of a change irrelevant. Each stakeholder's ***risk is protected through deception and disjointed contingencies.*** This intentional ambiguity is a key driver behind macro-level project inefficiency and cost inflation. The result is 63.7% of specialty contractors reporting their GCs are 'sometimes' or 'often' surprised by a change order request (COR) they submit [1]. At the same time, 66% of GCs [2] say subcontractor COR logs are frequently or occasionally out of sync with their own.

A WORKING PARADOX

Ambiguity is a *bug* and a *feature*.

Risk transfer is the name of the game. Every party in the supply chain is rationally incentivized to keep the next party in the dark — and to pay a premium for the privilege.

These disputes lead to 64% of trade contractors reporting being paid slowly by the GC, creating widespread cash-flow instability. When there is no clear basis for measuring delay notifications, the result is that trade contractors wait an average of 56 days to be paid after submitting a pay application, while GCs believe they wait only 30 days for payment [3]. For sureties, this means that 1 out of 3 trade contractors they underwrite will have to draw on personal or retirement savings to cover the cash deficit created by years of broken repayment practices.

Prequalification is a good strategy for GCs to qualify their subcontractors, and for owners to qualify GCs. Trade contractors willingly provide historical cash flow to a GC in more detail than what's required later in the payment application.

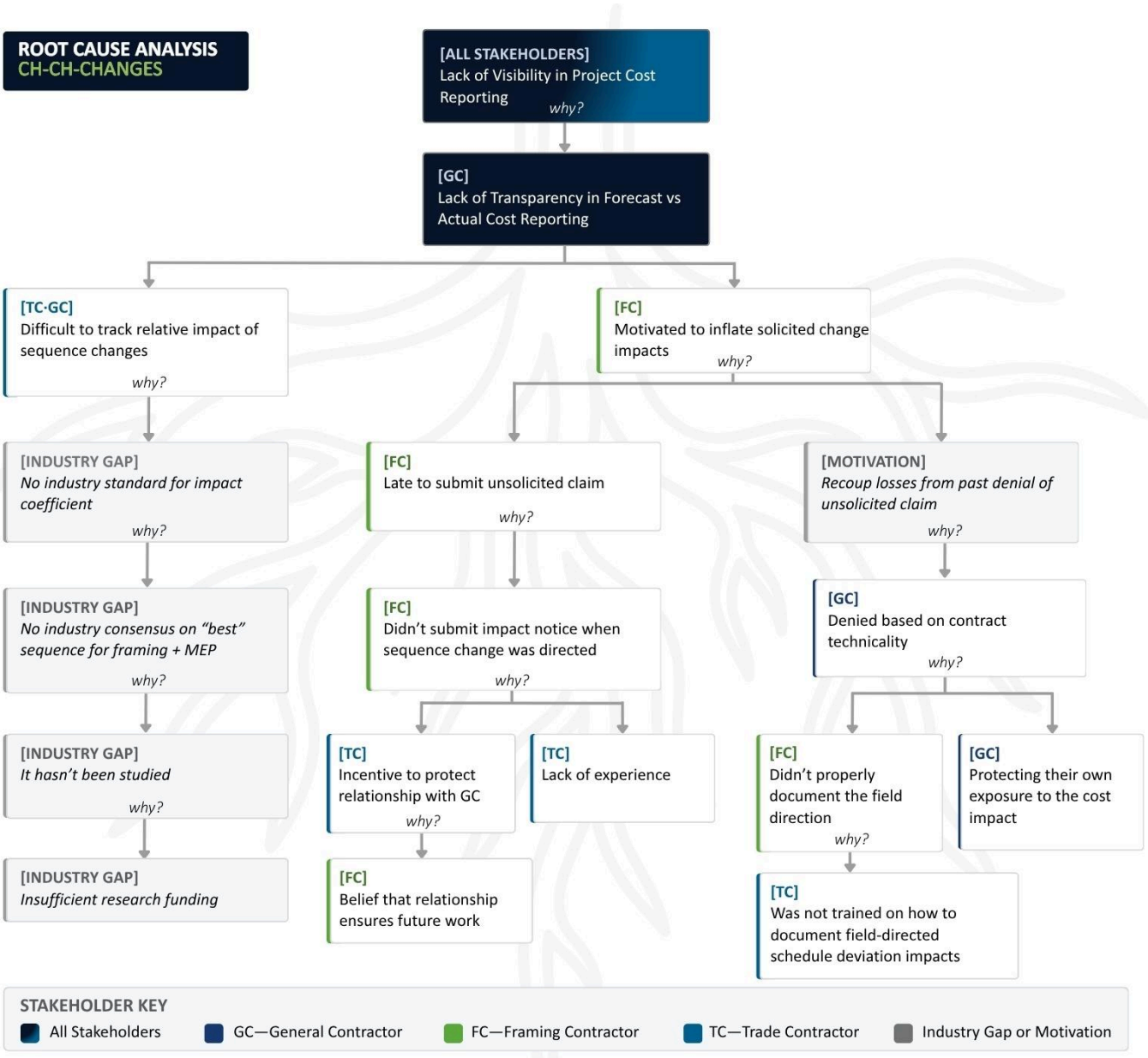
So, *why* are contractors willing to be transparent before signing the contract, only to later protect themselves with tactics that reduce visibility, erode trust, inflate costs, and delay schedules? If change is inevitable on projects, why do we sign contracts that treat change as an exception rather than a managed process?

To unpack the root causes of this transparency paradox, it was helpful for the team to level-set the debate around their prototypical scenario. They dissected the compounding reasons *why* the deviation in the schedule sequence impacted the framing contractor and escalated into a $1.5 million claim.

Which stakeholders? How are they impacted?

Regardless of whether you're the owner, designer, GC, trade contractor, or vendor, all stakeholders desire greater visibility into their project cost reporting. The reason most contractors do not supply the requested levels of transparency is due to either:

1. The project manager (PM) doesn't have the data because it wasn't measured or it was too hard to obtain.
2. There is a business incentive for the PM to cover contingency costs by reporting costs ambiguously.



In the prototype scenario, the framing contractor (FC) bore the burden of proving they were affected by the sequence change, measuring the direct impact on labor and materials, and then calculating the total cost of those impacts. Any mistakes in the documentation process could risk them not being paid for the $1.5 million impact they incurred.

If the prototype is a guaranteed maximum price (GMP) contract, the GC must decide whether to accept or deny the claim. Since the FC's claim is based on a change in the contract schedule sequence, the GC must determine why the sequence was changed and whether it constitutes a deviation from the contract.

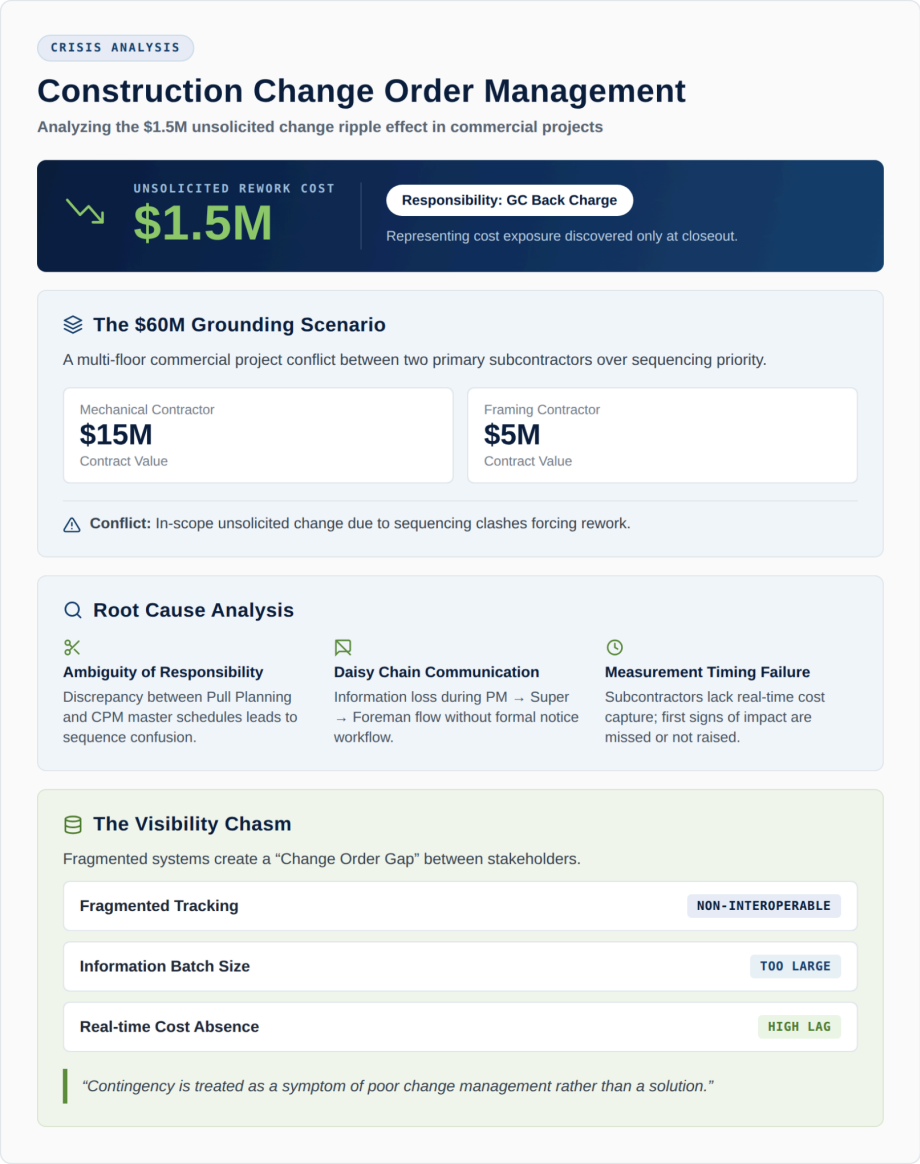
The GC is motivated to find fault in anyone but themselves. If the owner requested the change, the GC should work with the FC to create a comprehensive claim. Or, if the mechanical contractor (MC) requested the change to their benefit, the GC could ask them for a credit.

When the GC directs the change - formally or not - their motivation is to defend against any resulting claims. The GC may defend that the sequence change during lookahead planning was not a formal change to the contract schedule. If that defense fails, the GC's next strategy is to attack the legitimacy of the claim amount and impact documentation.

Owners, whether they know it or not, will ultimately pay the cost. Even on progressive Design-Build projects, these legacy behaviors and strategies withstand the injection of new incentive structures. This leads to negative sentiment among owners toward modern delivery methods because they don't experience the return on investment.

Incentivizing transparency requires project owners to upend current contracts and adopt a GMP Design-Build with shared-savings. While private owners could - and should - make this foundational shift, the same cannot be said on publicly funded projects. These traditional, low-bid contracts use competition and limited visibility to drive down price. The result is downstream volatility, cost escalation, and project delays due to lack of trust between stakeholders.

Because the government is driving both low-bid contracts and bonding requirements, surety underwriters are positioned to make significant risk decisions based on lagging indicators and incomplete or falsified reporting. The surety industry faces compounding data integrity issues because its primary source of qualifying metrics is shared by the same clients it is paid to serve.



DECIDE: OPPORTUNITIES & CONSTRAINTS
What Are The Opportunities?

When a trade contractor is struggling financially, it puts every project they work on at risk. What if GCs, project owners, and surety underwriters could use change order data to predict a contractor's risk exposure? Project owners (public or private) who expect projects to be delivered on time and on budget should investigate contract innovations that promote early notification of deviations and real-time visibility, from resolution to change-order impact reporting and approval status. The absence of sufficient owner perspectives in the room reinforced the team's conclusion that additional data, case studies, and marketing are needed to expose this opportunity.

Regardless of project-driven requirements, there is a growing demand among contractor executives to leverage their cloud-based accounting or enterprise resource planning (ERP) software to produce internal-facing key performance indicators (KPIs) they can benchmark across their projects. With greater transparency and real-time updates, CFOs can optimize their financial operations to improve cash flow.

Innovation Opportunity	Key Deliverable	Use Case	Responsible Stakeholder
Common Data Environment (CDE)	Shared data environment that allows exchanges with stakeholder systems	Typically used for sharing contract design documents, a CDE can also be used for change impact reporting	Owner
Standardized Change Framework	Unified definitions for deviation, impact, and change orders.	Necessary for industry benchmarking (similar to EMR in safety)	Owner/Industry
Contractual Innovation	Incentives for rapid resolution to reduce the compounding effects of change delay	Aligns the risk-sharing models to reduce "contingency stacking"	Owner
Exchange Requirements	Business process map of information exchange flow from the deviation notice to the final change order	Determine the most effective process for identifying, documenting, and sharing change impacts with other project stakeholders.	Project Team
Key Performance Indicators (KPIs)	New measurements of project and contractor health as it relates to change impact documentation and resolution	i.e., Time to recognition, approval, and resolution, # of outstanding changes, % of change work (solicited and unsolicited)	Each Stakeholder (Individually)

What is constraining adoption today?

Despite a shared desire among contractors, owners, and sureties to have visibility into their own forecasts through final payment for change order work, several inherent constraints arise.

These include:

- **Legacy of Mistrust**
    - Based on past experiences, stakeholders may be hesitant to share information that has been used against them.
- **Fragmented Systems and Data Silos**
    - Interoperability failures are rarely due to insufficient technology. Rather, it's caused by tech's response to the customers' interest in privacy and consolidation over integration.
    - Data silos result from disjointed process standards and misaligned contract incentives.
- **Misaligned Incentives**
    - When contractors continue to profit from the current state of ambiguity, there's less incentive to create transparency
    - Owners want transparency but worry that any significant changes to the contract may trigger negative backlash.
- **Contract Complexity and Illiteracy**
    - Even if contracts were to change, chances are the Project Managers will revert to their old habits and not comply because it was buried in contract language and not enforced by the owner who required it.
- **Cultural Resistance**
    - Clarifying the change order rules of engagement at the project outset may reduce a form of strategic ambiguity that persists, as it can shield stakeholders from early accountability, transparency, and timely cost recognition.
- **Cross-Operational Limitations**
    - Any "digital multiplier" efficiencies cannot be achieved as long as owner PMs and contractor CFOs continue to request separate forecast updates with the same information, in different formats, from the same contractor PM.

Change Categories

The first step in centralizing project financial reporting for bonded projects is to determine the standard data fields that all stakeholders use to report project financials, from bid estimates to final payment applications and every change order in between.

This begins by categorizing a change by its cause. Any change order can be classified into one of three categories: **solicited, field-directed, and unsolicited**.

	SOLICITED	FIELD-DIRECTED	UNSOLICITED
WHO INITIATES	Owner / architect	GC superintendent	**Contractor claim**
WHO FINANCES THE GAP	Owner	Sub (T&M float)	**Whoever is downstream**
DISPUTE LIKELIHOOD	Low	Medium	**Highest**
CURRENT VISIBILITY	Documented	Tickets — or not	**Trapped in internal systems**
MECHANICAL STANDARD ROI	Marginal	Meaningful	**Transformational**

> *The highest-leverage intervention is in the rightmost column. This is where "work in contest" lives — and where a shared mechanical standard pays for itself before it pays for anything else.*

In the grounding scenario, the mechanical contractor argued that the change was field-directed after the GC changed the installation sequence during the lookahead meeting. The GC treated the request as an unsolicited change since they were not anticipating it. The owner in this scenario is unlikely to pay this cost directly unless it was their direction that led to the resequencing. Therefore, it is in their best interest to resolve this dispute as quickly as possible.

These commonplace disputes among project stakeholders can only be surfaced if the owner or CM requires all change requests to be submitted through a centralized platform. As many state departments of transportation (DOT) and the Army Corps of Engineers look to implement Digital Twin handover requirements, this creates an opportunity to transform capital project finance and operation standards together.

Beyond owner-directed industry transformation, contractors can categorize their own changes as project-solicited, field-directed, or unsolicited as part of a broader strategy to measure KPIs consistently across projects.

Finally, surety underwriters should ask more questions during their WIP review about the total amount and distribution of change-order work across the three categories. Another option is for the National Association of Surety Bond Professionals (NASBP) to lobby government owners to include contract language that stipulates the categorization of changes and centralized reporting requirements based on financial reporting standards set by XBRL-US[4].

The team recommends that NASBP and XBRL US form a strategic partnership, similar to the way the National Institute of Building Sciences (NIBS) supports the adoption of Building Information Modeling (BIM) standards for public owners[5]. Thankfully, financial reporting standards like XBRL US already serve multiple industries, including surety underwriters and agents. The XBRL contractor WIP taxonomy includes separate fields to forecast approved versus unapproved change orders. Similarly, the Construction Financial Management (CFMA) financial benchmark survey asks contractors to submit separate values for retainage on contracts, unbilled work, and other receivables, while also allowing for an allowance for "doubtful accounts"[6].

Data Exchange Standard for Change Order Documentation

The often overlooked first step in digital transformations is the establishment of a common language to exchange data packages between stakeholder systems. Before any dashboards, there should be a standard taxonomy for Change Order (CO) packages that can maintain the relationship between multiple unique cost-codes and document reference numbers depending on which stakeholder is viewing the information and the system they chose to view it in. The CDX workflow depicts aspects of the disputed claim between the framing contractor (Summit Interiors) and the GC (Apex Builders). It shows how a single CO package that started with the framer's impact notice could easily contain four or more separate documents, some passing through multiple levels of approval or rejection, before ending with either GC rejection, owner rejection, or owner approval.

The documents needed for a complete CO package will vary, but they all begin with a documented deviation from the project plan. Deviations can be solicited design changes, field-directed allowances, or unsolicited claims. The formality and level of detail required to record the deviation and subsequent impact can't be standardized beyond the project level. However, the required data at each stage of the package lifecycle (impact notice, claim, resolution, etc) can be standardized with the help of motivated software and industry member associations.

Assuming all stakeholders adhere to existing industry standards for financial reporting set by XBRL US, the benefit to contractors is a streamlined process for PMs to submit payment applications and update forecasted billing projections that are reported externally to the owner and internally to the CFO, without any duplicate entry. By creating the incentive and ease of reporting deviations in real time and tracking the actual impact on productivity, everyone wins.

New Performance Metrics

Ultimately, transforming the current culture of change management in construction will require new performance metrics that incentivize early recognition of deviations and faster resolution cycles. When all stakeholders start with a shared understanding of change categories and activities that trigger the start and end time of a potential change event, each can track their own set of KPIs based on a common source of measurement (A.K.A. the single source of truth).

Project owners can begin to see trends across their projects and gain visibility into the root causes of excessive changes, whether due to late design-change directives or unforeseen field conditions. Project dashboards can also highlight outstanding change orders. Owners with the ability to manipulate contract clauses could experiment with including incentives for faster resolution (i.e. less than 15 days) or aging controls and escalation protocols for changes that extend beyond 30 days.

Performance metrics and KPIs will vary by project and organization. However, a sample set of possible change order metrics and KPIs are listed below.

Metric	Description	Key Performance Indicator (KPI)
Change Order Value	The total impact potential of a CO claim based on calculated exposure (cost impact, schedule impact, likelihood)	Weighted calculation based on cost, schedule, and likelihood
Change Order Type	Distribution of open change orders by category tag (Solicited, Field-Directed, Unsolicited)	% measured using total $ impact by each category
WIP Delta	Total amount of CO claims that have been rejected, unanswered >30 days, or unpaid >90 days	$ (positive = overbilled, negative = underbilled)
Open Claims	Number of active CO claims in process	#
Time to Impact Notice	Solicited = days from receipt of change documentation Field Directed = days from receipt of field direction Unsolicited = days from identifying and documenting the issue	Target ≤ 3 days
Time to Resolution	Elapsed time from notice of impact to approved change order or moved to contingency	Target ≤ 30 calendar days
Unsolicited Rate	% of active change orders (by $ amount) attributed to unsolicited claims	Target ≤ 33%
Contingency Rate	% of contingency utilized to date vs total budgeted	Target ≤ 50% utilization at 75% billed to date

The best performance metrics start by analyzing past failures to improve future results. This requires each stakeholder to conduct their own post-mortem analysis of contingency usage to identify the root cause(s) of each use and determine what action(s) could prevent them or protect them from exposure. Research from the UK Department for Transport [7] uncovered the inherent optimism bias that all design consultants, contractors, and suppliers carry into competitive bidding situations. If you can't eliminate the competitive bid, their solution is to compensate for the bias by adding a contingency budget at the start, based on historical project cost and schedule inflation.

Contractors and sureties shouldn't wait around for owners to lead the change. Organizations like CFMA and NASBP have the opportunity to include a new subset of change management metrics in their existing Financial Benchmarker Report. When one stakeholder takes the lead, the rest will follow. All sides of the change order dilemma are starving for an easier way to report cost impacts earlier to ensure that unanticipated impacts are addressed quickly and equitably.

Greater transparency, from the point of the deviation notice to the final resolution of any resulting 'work in contest', can be adopted strategically by any of the aforementioned stakeholders. All they need is the right combination of company culture and contract literacy to determine the project performance metrics that will drive the behaviors that ultimately improve the bottom line.

When transparency is the goal, gamification is a great strategy for encouraging even the most resistant to share by tapping into their competitive nature. Any organization or association could come up with an aggregate score for change management on a project - similar to the Quarterback Rating in the National Football League. A hypothetical project "CO Rating" would factor time-based metrics (speed to notice and resolution) more heavily than cumulative (number of claims, total impact, etc).

CLOSING INSIGHT

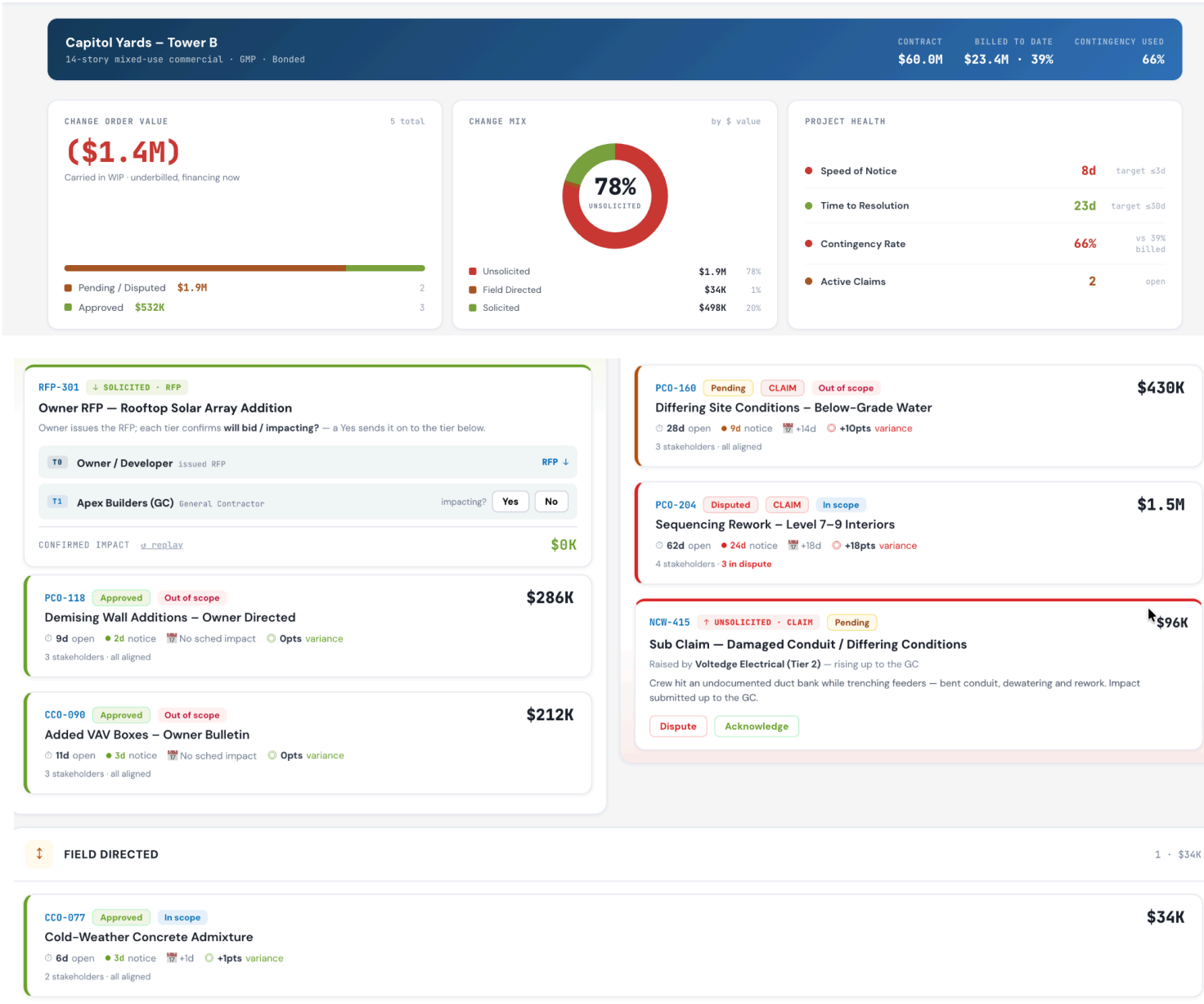
The workshop reinforced a critical shift: **Change management must evolve from a reactive, opaque process into a proactive, transparent system of continuous alignment.**

The industry's challenge is not a lack of tools or knowledge—but a lack of **shared standards, aligned incentives, and timely execution**. Solving these issues requires coordinated action across all stakeholders, with a focus on visibility, speed, and accountability.

ANTI-DELIVERABLE
Mock Dashboard of Change Order Progression

The team utilized a suite of AI tools to rapidly prototype a web-based dashboard for PMs to view, prioritize, and manage change order claims from notice of deviation to final resolution. The intent of this prototype is not to replace the existing project management software that each stakeholder utilizes. Rather, this explores what future dashboards might look like within each stakeholder's PM system, assuming new contract incentive and leadership culture is in place.

Assuming that the project is a progressive Design-Build with a shared contingency budget, every PM is measured by their collective contribution to the overall contingency use. In the prototype example, a 66% contingency utilization at only 39% of the total project billed to date is higher than the average rate based on historical GC and owner data. The $1.4 million deficit under change order value represents the total amount of impact claims that are currently in dispute or remain unpaid over 90 days. Other key performance indicators (KPIs) include speed to notice, time to resolution, and variance in forecasted vs actual billing (%) [target ≤ 10%].

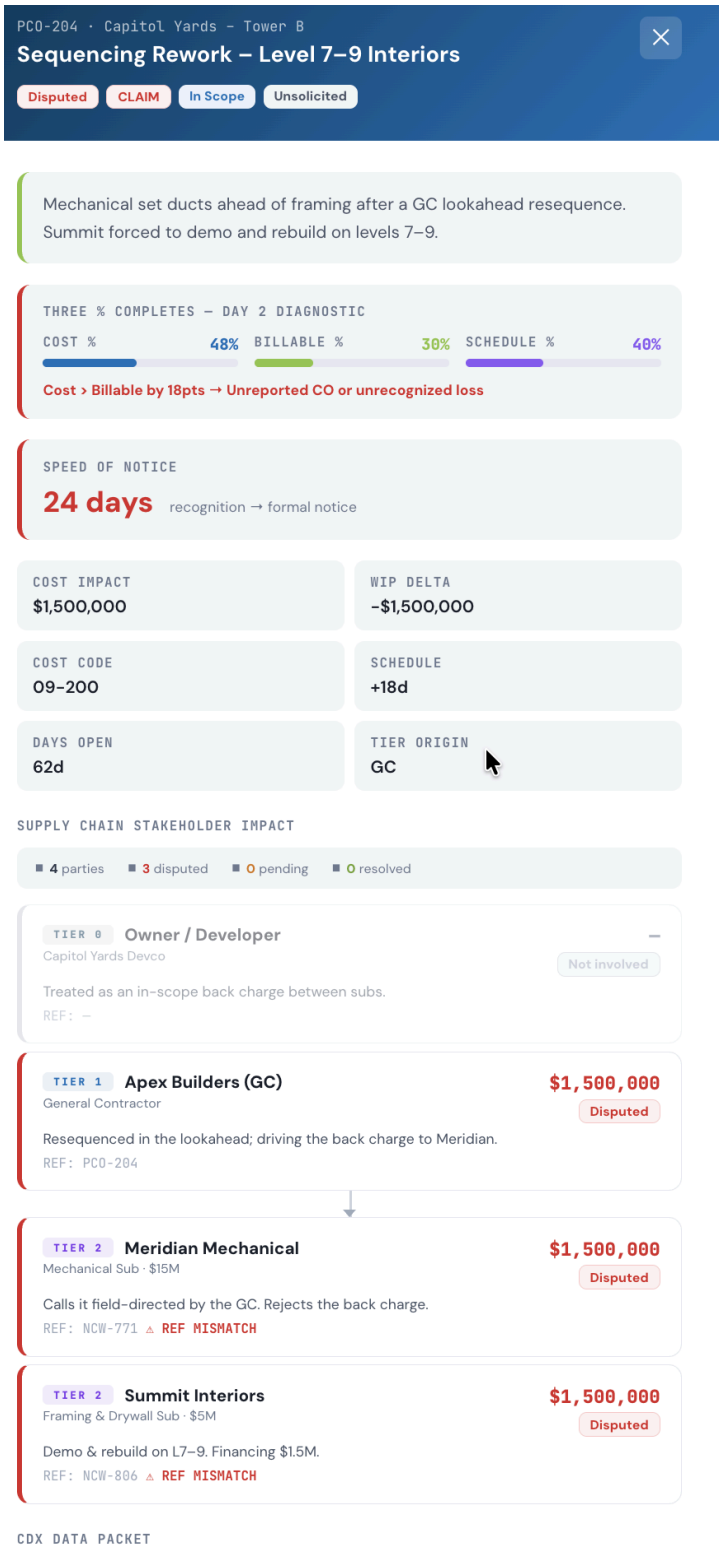


Below the dashboard is the log of active claims, organized first by category, then ranked by level of impact and urgency. The action items for Apex Builders are to confirm if there is a cost impact regarding a solicited change from the owner and to acknowledge or dispute a claim from Voltedge Electric regarding damaged conduit. Clicking on any of the claim packages will present more detailed information.

All of the details from the team's grounding scenario of the disputed $1.5 million claim between the framer, mechanical contractor, and GC have been captured within the CO package ID #PCO-204. It indicates the 24-day delay between recognition of the impact and formal notice, which is eight times longer than the stated goal of three days or less.

Because this prototype is only theoretical, it led the team to debate the level of transparency that each stakeholder would be comfortable with depending on the claim type and potential risk exposure. The conclusion was that more sophisticated API or blockchain protocols will enable each project to define where a change notice, impact report, and claim response can occur. In the detailed CO package, both of the non-conforming work (NCW) claims from the framer and mechanical are referenced to the GC PCO number. If the owner was involved, there would be a new CO number to reference as well.

At key milestones in the CO notice to resolution workflow, this collection of artifacts can be exported or shared as a CDX data packet to update internal financial systems or share updates with other external stakeholder systems. The prototype also includes a stakeholder point of view (POV) tab, where a CFO can dig into their company's exposure without bothering the PM. The final tab looks at the same set of data from the project owner or surety perspective, focusing on the holistic impact of all claims on the project and identifying patterns that led to the unanticipated exposure.



While this is simply a representation of what future change management dashboards could look like, it should not be viewed as any threat to existing PM software and dashboards. The challenge for a future AEC Integration Summit is to test the exchange of change documents between existing PM platforms representing the owner, GC, and trade contractor perspectives to validate the data packet requirements at each stage.

INNOVATION OPPORTUNITY MATRIX

CHANGE DRIVER	BENEFICIARY	SUGGESTED CHANGE	EFFORT	IMPACT
CONTRACT & POLICY CHANGES				
Contract innovation	Subcontractor	Speed-tied financial incentives — reward resolution under 15 days; escalation protocols beyond 30 days	MEDIUM	HIGH
Contract innovation	Subcontractor	Mandatory deviation notice window — formal deviation report required within a defined period after discovery	MEDIUM	HIGH
Contract innovation	Subcontractor	Prompt payment enforcement tied to change order status — approved work paid regardless of disputed work	HIGH	TRANSFORMATIVE
Contract innovation	Subcontractor	Escrow or joint check requirements for disputed work — funds held pending resolution, not retained by GC	HIGH	TRANSFORMATIVE
Public policy/lobbying	Subcontractor, Owner	NASBP lobbies for government contracts to mandate change categorization and centralized reporting via XBRL US standards	HIGH	TRANSFORMATIVE
SURETY & INDUSTRY ACTIONS				
Surety market signal	Subcontractor, Surety	Sureties price bond premiums based on contractor change order performance — days to notice, unsolicited rate, contingency utilization	MEDIUM	HIGH
Surety market signal	Surety	Expand WIP review to require change category distribution as standard underwriting input — not just totals	LOW	MEDIUM
Industry standards	Owner, GC	CFMA incorporates change management KPIs into its financial benchmarking — time to recognition, unsolicited rate, contingency utilization	LOW	MEDIUM
Industry standards	All parties	NASBP and XBRL US partner to establish a BIM-style standards body for construction financial reporting	HIGH	TRANSFORMATIVE

CHANGE DRIVER	BENEFICIARY	SUGGESTED CHANGE	EFFORT	IMPACT
OWNER & CONTRACTOR ACTIONS				
Owner-led	Owner, Subcontractor	Owners require all change requests submitted through a centralized platform as a contract condition	MEDIUM	HIGH
Contractor-led	GC, Subcontractor	Contractors categorize changes internally across projects as a company KPI — independent of owner requirements	LOW	MEDIUM
ERP PROVIDER ACTIONS				
ERP provider	GC, Subcontractor	Native change categorization fields (solicited / field-directed / unsolicited) are built into the change order workflow — not a custom workaround	LOW	HIGH
ERP provider	GC, Subcontractor	Automated deviation notice timestamp and aging tracker — system flags when deviation is approaching or past contractual notice window	LOW	HIGH
ERP provider	Subcontractor	WIP report auto-populated with pending vs approved change breakdown and unsolicited rate — removes PM data entry burden and reduces intentional ambiguity	MEDIUM	HIGH
ERP provider	Surety, Subcontractor	XBRL-formatted export of WIP and change order data — enables direct ingestion by surety underwriters without manual repackaging	MEDIUM	TRANSFORMATIVE
ERP provider	GC, Subcontractor	Cross-project KPI dashboard built into CFO view — contingency utilization rate, average resolution time, and unsolicited change rate benchmarked across portfolio	MEDIUM	HIGH
ERP provider	All parties	Open API standard for change order data exchange between GC and subcontractor ERPs — eliminates manual reconciliation and the 66% log-sync failure rate cited in the report	HIGH	TRANSFORMATIVE
ERP provider	Subcontractor	Payment application auto-linked to change order approval status — system prevents submission of underbilled work and surfaces WIP volatility in real time	MEDIUM	HIGH

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