

Member Communication Experience

AI Best Fits Contractors When It Unifies The Language Within Firms

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For three decades, the construction industry has been told that the answer to its operational fragmentation is another piece of software. The result has been a tangle of disconnected systems, a back office buried in reconciliation, and a field crew that has largely opted out. Most recently, the solution pitched is artificial intelligence; creating the problem of AI slop.

We have come to a different conclusion: The problem isn't the tools. The problem is that no single tool understands the business the way the people running it do. What construction needs is an ontology.

ONTOLOGY: WHAT IT IS AND WHY IT MATTERS

An ontology is a digital model of how your company actually operates: the proper nouns and verbs of your business and the relationships between them. A job. A foreman. A material delivery. Equipment.

Each of these exists in your business, trapped in different systems, viewed through different lenses by different departments and reconciled only when something breaks.

Semantics is only half of the power. The true value comes from the kinetics (the verbs) in the ontology. Procure a material, assign a crew, execute a change order, validate a legal claim. Decisions made in one business process inform others. They are captured and compound.

When we design an ontology, we capture the full view of the business. How a piece of equipment looks to dispatch, to the



mechanic, to the project manager. The ontology becomes the shared source of truth everyone operates from, while still letting each function see their slice of reality.

FOUR THINGS THE ONTOLOGY MUST DO

Working with our partners in construction including McCarthy Building Cos., Thomas Cavanagh, and Lennar, we've learned what works. The ontology must do four things, or it isn't worth building.

It must be companywide. If the field runs on one system and the back office runs on another, you've built a new silo on top of the old one. The ontology must span the entire business, from the moment a bid is priced to job closeout.

It must work for blue-collar operators. The most important users in construction are the ones with mud on their boots. If

the foreman won't use it, nothing else matters. We design from the jobsite inward, not the executive suite outward.

It must function like an Iron Man suit. The goal isn't to replace the experienced operator. It's to remove administrative burden and give them more awareness, speed, and leverage.

It must reintegrate the business. By codifying how a construction company operates, the ontology lets functions that have been disconnected for decades start operating holistically again. Each piece of information is entered once and then is available to the entire business.

CONSTRUCTION ONTOLOGY IN PRACTICE

The core objects we model with our construction partners are straightforward: jobs, activities, labor, equipment, materials, and contracts. The benefit of an ontology emerges by connecting this data from disparate source systems into a comprehensive, living model of your business.

Timecards. For many companies, timecards travel from a paper sheet or app, through approvals, into the ERP and finally into payroll. Under the best circumstances, this can take days. If there are exceptions, the burden on payroll teams can be immense. With the ontology, the timecard is the same object from jobsite capture through approval, job cost-visibility and payroll. Adjustments can happen the same day, not the next pay period.

Equipment. Equipment is the classic example of a single object viewed through many different lenses. The jobsite wants the right machine available when needed. Maintenance wants every unit serviced on schedule. Dispatch wants the right asset at the right job at the right time. With the ontology, they operate from one equipment record showing location, job assignment, cost, service status, and upcoming demand.

Contracts. A typical project contract runs hundreds of pages and contains dozens of obligations, notice windows, change order procedures, weather provisions, and insurance requirements. With contract clauses and AI agents in the ontology and linked to the events happening on the jobsite, the document becomes a living seal of approval on day-to-day operations. Deadlines can surface before they're missed. Notice requirements can trigger automatically.

Procurement. A job churns through hundreds of vendors and thousands of invoices. In most back offices, anything under a threshold gets paid because the validation cost exceeds the risk. Anything above it consumes hours of manual effort and documentation. With AI agents and those documents all sitting in the same ontology, the validation can happen automatically. Designed to ensure you pay for exactly what you received, at the price you agreed to.

Every company's ontology will look different. That's the point.

The core objects described are the bones. The way your company operates is the meat on those bones, and it isn't the same as your competitor's.

A heavy civil contractor doesn't run like a mechanical sub, which doesn't run like a vertical builder. The ontology has to bend to the business, not the other way around.

Without an ontology, AI is a loose cannon with a good vocabulary and no foundation under it. With one, it's a tool that knows your business, respects your rules, re-enforces your security architecture, scales with your workforce, and makes your people faster. 🦿



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