



Adaptive Construction Tools

Lightweight software solutions for your data challenges.

Presented by Ananda Chatterjee · Jessica Yang

Poll!

Join here:
4529 9655



<https://www.mentimeter.com/app/presentation/al1hzvj5dy7fzgb2dy9xjykcj97ho9zy/view?question=q27fbw4vchte>

Who we are



Ananda Chatterjee

Co-Founder

Data Scientist with a transportation background: prior work at FTBA and HNTB, plus construction management coursework at Santa Fe College. Experience building custom software for a DOT. Pursuing B.S. in Statistics at the University of Florida.



Jack Popov

Co-Founder

Transportation researcher leading marketing for University of Florida's official business consulting club. Turning what agencies need into product direction. Pursuing B.S. in Business Administration at the University of Florida.



Jessie Yang

Co-Founder

Benefit-cost analyst with experience in financial modeling and policy research. Experience building automation tools for financial data extraction and analysis. Pursuing B.S. in Statistics and Applied AI at the University of Florida.

Overview

1. Data Services

2. Use Cases

3. Example Solutions

4. Case Study

5. Our Method

6. Next Steps

Our Services

CAPABILITY

WHAT IT MEANS

**Cleaning datasets**

Turning inconsistent, duplicate, and malformed records into one reliable source you can easily query.

**Sourcing missing values**

When a price, quantity, or spec isn't on file, we source a real, defensible number instead of leaving a blank.

**Building custom automation tools**

Narrow, purpose-built tools for the one repeated task eating your team's time, not a platform you have to configure.

**Connecting siloed data**

Linking spreadsheets, PDFs, and systems that don't talk to each other into one place your team can actually use.

**Building lessons learned libraries**

Turning scattered decisions into a searchable record instead of knowledge only in one person's head.

Our Core Beliefs on Artificial Intelligence

AI is useful when work requires reading, comparing, retrieving, summarizing, or connecting information across many documents.

AI tools **should not** replace professional judgment.

They should reduce time required to assemble evidence needed for judgment.

Use Case: Estimating Backup

Every proposed price **checked** against real statewide FDOT bid data.

Create bottom-up comparable pricing support with source links, dates, quantities, and project context

Catch prices that drift from the real market before an estimate is ever submitted

Estimating Backup: Solution

● ESTIMATING BACKUP

Get Instant Estimating Backup

- 1 · Enter or upload
Type proposed pay items, or drop in a real document — text extracted live, no manual retyping
-
- 2 · Pull real backup
Each line checked against live FDOT statewide market pricing
-
- 3 · Get your answer
Real backup data with the source cited — seconds, not a manual DQE lookup


Draft_Engineers_Estimate.pdf
Real text extraction — not simulated

Found 12 known pay item code(s) in this PDF's real text. Quantity and price below are best-effort reads off the surrounding text — verify each before trusting the total. Every price shown is checked against real statewide market backup below — see "Δ vs. statewide market."

Line items to check — type a code or description to search all 33

PAY ITEM	QTY	PROPOSED \$/UNIT	
0102 14 — Traffic Control Officer	640	81.25	×
auto-detected from PDF — verify	 found on p.1 — view		
0102 60 — Work Zone Sign	950	0.35	×
auto-detected from PDF — verify	 found on p.1 — view		
0700 1 11 — Single Post Sign, F&I Ground Mour	40	540	×
auto-detected from PDF — verify	 found on p.1 — view		

Draft_Engineers_Estimate.pdf

1 page

DRAFT ENGINEER'S ESTIMATE — PRE-LETTING

ILLUSTRATIVE / HYPOTHETICAL — NOT AN OFFICIAL FDOT DOCUMENT

Project: I-4 Corridor — Wrong-Way Driving Deterrent System Expansion, Segment 2 (hypothetical)
District: 5 | County: Orange | FPN: DRAFT — NOT YET ASSIGNED
Status: Pre-letting draft, prepared for engineer's estimate review | Prepared: July 20, 2026

Schedule Of Items

Item No	Pay Item	Description	Unit	Quantity	Unit Price	Extended Amount
1	0102-1	Maintenance of Traffic	LS	1.00	\$99,500.00	\$99,500.00
2	0102-14	Traffic Control Officer	HRI	640.00	\$81.25	\$52,000.00
3	0102-60	Work Zone Sign	ED	950.00	\$0.35	\$332.50
4	0700-1-11	Single Post Sign, F&I Ground Mount, Up to 12 SF	AS	40.00	\$540.00	\$21,600.00
5	0700-6-11	Highlighted Sign, F&I Ground Mount, AC Powered, Up to 12 SF	AS	8.00	\$6,450.00	\$51,600.00
6	0700-6109	Highlighted Sign, F&I Bridge Mount, Wrong Way, AC Powered	AS	2.00	\$9,600.00	\$19,200.00
7	0700-6110	Highlighted Sign, F&I Bridge Mount, Wrong Way, Solar Powered	AS	2.00	\$12,100.00	\$24,200.00
8	0630-2-11	Conduit, F&I, Open Trench	LF	3,250.00	\$16.90	\$54,080.00
9	0633-1121	Fiber Optic Cable, F&I, Underground, 2-12 Fibers	LF	5,400.00	\$4.35	\$23,490.00
10	0635-2-11	Pull & Splice Box, F&I, 13in x 24in Cover Size	EA	22.00	\$1,475.00	\$32,450.00
11	0660-7-21	Vehicle Detection System, Wrong Way for Exit Ramp, 1-2 Lanes, AC Powered	EA	2.00	\$71,000.00	\$142,000.00
12	0676-2143	ITS Cabinet, F&I, Base Mount, 334, 24Wx66Hx30D	EA	3.00	\$7,600.00	\$22,800.00
13	0685-1-11	Uninterruptible Power Supply, F&I, Line Interactive	EA	6.00	\$6,100.00	\$36,600.00
Total (proposed)						\$579,852.50

Note: this is a hypothetical draft estimate built for demonstration purposes, using real FDOT pay item codes, descriptions, and units from contract 56603 as a reference. Item list, Quantities, and proposed unit prices are illustrative and not intended to bid figures.

Estimating Backup: Solution

Estimating Backup — live, calculated in your browser			
PROPOSED		REAL STATEWIDE MARKET BACKUP	
\$480,352.50		\$383,912.71 (+25.1%)	
PAY ITEM	PROPOSED \$/UNIT	STATEWIDE MARKET \$/UNIT	Δ VS. STATEWIDE MARKET
0102 14 p.1	\$81.25	\$77.58	+4.7%
0102 60 p.1	\$0.35	\$0.27	+30.1%
+30.1% vs. the real statewide market average of \$0.27/unit (907 contracts, 2562 bids)			
0700 1 11 p.1	\$540.00	\$520.73	+3.7%
0700 6 11 p.1	\$6,450.00	\$6,392.70	+0.9%
0700 6109 p.1	\$9,600.00	\$12,050.07	-20.3%
-20.3% vs. the real statewide market average of \$12,050.07/unit (1 contracts, 3 bids)			
0700 6110 p.1	\$12,100.00	\$12,018.44	+0.7%
0630 2 11 p.1	\$16.90	\$17.70	-4.5%

Use Case: Lessons Learned Library

Convert past project issues, claims, decisions, and resolutions into reusable knowledge.

Preserve what evidence mattered and what decision was made.

Creates alerts on prior lessons when similar risks appear on future projects.

Lessons Learned Library: Solution (Hypothetical)

Notification on July 20, 2026:

✉ New entry — today

Site engineer report, Segment 7

July 20, 2026 — unexpected subsurface soil conditions found during excavation, differ from the geotechnical report.

Logging and cross-referencing against lessons learned library



💡 Matched precedent — March 4, 2023

From Project engineer, District Construction Office
To District Materials and Research Engineer
Subject Base modification approval — Segment 3

"...subsurface conditions on Segment 3 don't match the original geotechnical report...approving a modified base design for Segment 3 only, adding a geotextile separation layer..."

Lessons Learned from March 4, 2023:

Following up on our site visit last week. The subsurface conditions we hit on Segment 3 **don't match what the original geotechnical report showed for that stationing range**. We're seeing saturated, poorly-draining soil that wasn't flagged in the boring logs, **likely because the borings were spaced too far apart to catch this pocket**.

Given that, I'm approving a **modified base design for Segment 3 only**: adding a geotextile separation layer beneath the base course before proceeding, rather than the standard base section called for in the plans. The contractor flagged this proactively rather than paving over it, which would've caused early base failure and a much costlier fix post-construction.

This is specific to Segment 3's actual field conditions, not a plan error. The rest of the contract's base design stands as designed. Documenting this here so it's tied to the contract record and not just a verbal field decision.

Use Case: Standards & Specifications Alignment

Compare estimates, contracts, specifications, and current policies in one review.

Surface conflicts, missing requirements, and clauses that may need attention.

Show the exact source behind each flag so reviewers can verify it quickly.

Solution: Standards & Specifications Alignment (Example)

 Estimate_E4471.pdf — ingested

14 line items detected and parsed

Item	Description	Price
0334-1-53	Superpave Asphaltic Concrete	\$169.21
0430-175-118	Substitute HDPE Pipe 	\$41.60
0520-1-10	Concrete Curb, Type F	\$18.40



 Does not align

Item 0430-175-118 — substitute product flagged

Plans specify reinforced concrete pipe (RCP) for this item. The estimate substitutes HDPE pipe with no compatibility justification memo attached.

 Source

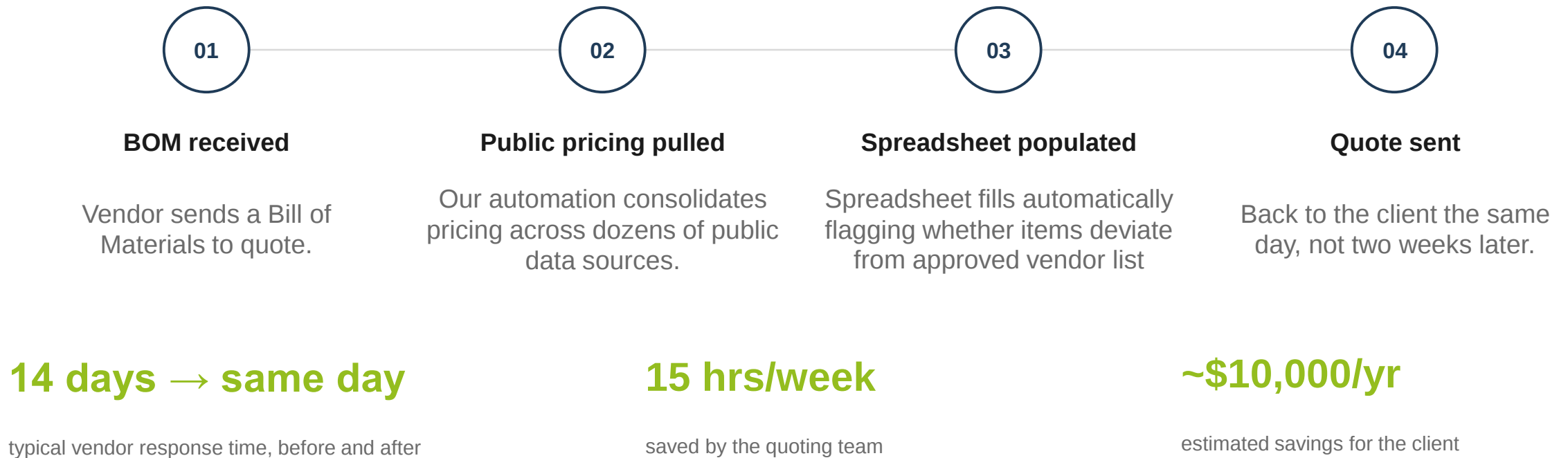
Special Provision 9-3 — Contractor-Proposed
Substitutions

Fix

Ignore

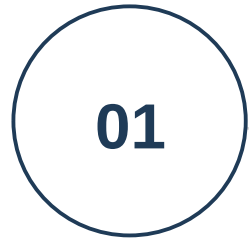
Saving time for a Government Contractor

An electronics manufacturer quotes every incoming Bill of Materials from a government contract. They chase their own vendors part by part, often waiting up to two weeks to hear back. Downstream quotes they receive would do not always align with the client's approved specifications list.



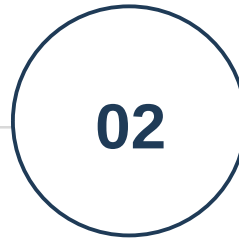
WE PRESENT

Our Method



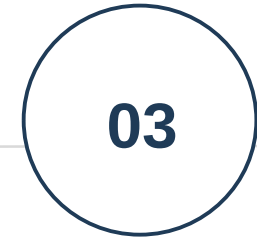
Understand

Work alongside your team and identify one repeated, document-heavy workflow.



Develop

Build a narrow tool using representative or approved data.
Work within your existing technology stack.



Validate

Test whether it saves time, retrieves evidence, and fits within existing process.

Who we want to work alongside:

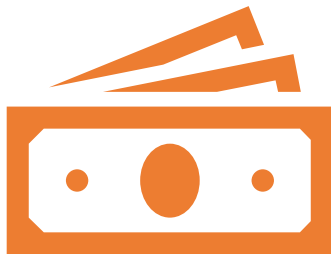
DOTs



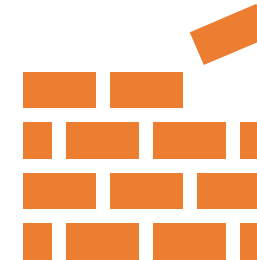
Contractors



Forecasting & Performance



Project Teams



Who we want to work alongside:

DOT Estimating Offices

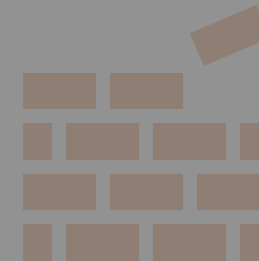
Contractors

Let's build your data solution together.

Send us one repetitive document or data workflow, and we will map it, identify the bottlenecks, and return a lightweight automation concept within 72 hours.

Cost & Forecasting Teams

Materials and Product Evaluation Teams



Thank you for listening



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