

**Stop Guessing,
Start Growing:**
How Data Analytics
Transforms Reactive
Repairs to Proactive Profits

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Breaking News

Running a Fire Protection
Business Is Hard




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Why is it so hard?

Demand isn't the problem.
What's limiting your growth?



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The Real Problem

Which activity actually drives growth?

FIELD REVENUE DELIVERED

INVOICE
SELL
SCHEDULE
SERVICE
QUOTE

4

Most Contractors Can't Answer

What's our quote-to-cash time?

Which inspections drive revenue?

Which techs are most productive?

Which customers are most profitable?

What are you doing tomorrow?
...and yet... you're asked for forecasts?!

FIELD REVENUE DELIVERED

INVOICE
SELL
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SERVICE
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How To Answer Those Questions

2026 Artificial Intelligence Edition

1. Collect **Ground Truth** Data
2. You store your data somewhere **Queryable**
3. Document the **Semantics** of the data. (definitions, relationships, etc)
4. Ask the **Right Questions**
5. Get the right answers, quickly with **Intelligent Analytics**

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1) Ground Truth Data

Structured Data
Charged/Pressure Adequate: **FAIL**



Ground Truth Data



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1) Ground Truth Data


Structured Data
Charged/Pressure Adequate: **FAIL**

or worse...

Charged/Pressure Adequate: **PASS**



Ground Truth Data



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1) Ground Truth Data

	Structured Data	Ground Truth Data
Defensibility	Low	High
Completeness	Low	High
Ease of Capture	Low	High
Ease of Processing	High (with limits)	Low w/o AI (High w/ AI)


Ground Truth Data + AI = Structured Data

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2) Queryable Data
Can AI access your data?


<p>Not Queryable</p> <ul style="list-style-type: none"> ● Peoples Head ● Paper Forms ● Clipboards ● Post-It Notes ● Individual Devices ● Spreadsheets ● Email* 	<p>Queryable (OLTP)</p>	<p>Queryable (OLAP)</p>
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2) Queryable Data
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3) Semantic Understanding
Can AI understand what it's looking at?

- Basic definitions of fields
- Relationships between data
- Prevention of **Cartesian Products** (double counting)
- Query guidance to expedite results
- What do you mean when you say ____ ?




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4) Ask The Right Questions

Consistent Definitions

Metric: Quote To Cash

- **From when?**
Quote issued? Quote Signed? Work Started?
- **To when?**
Invoice Sent? First Payment? Final Payment? Payment Applied?




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4) Ask The Right Questions

Measuring Scheduler Performance

- **# Appointments per day**
What about service lines that have inherently longer appointments?
- **Average revenue-per-tech per day**
Some services just bill more per hour. Others generate pull-through.
- **Billable Hours per day per tech.**
What about techs that work 4-tens vs 5-eights?
- **% Shift Billable**
Does the scheduler minimize wasted time.
- **Mean Priority of Missed SLAs**
Are we NOT doing the right work?




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4) Ask The Right Questions

Cheat Code:
A good FSM has industry best-practices already codified


Pro Tip:
Don't reinvent wheels



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5) Use Intelligent Analytics

Analytics Is Dead



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5) Use Intelligent Analytics


```

What percent of appointments use more than one tech?
Searched for 2 patterns, read 3 files, listed 3 directories (ctrl+ to expand)
# Bash(source venv/bin/activate && python tools/analyze/query.py *
# in tech_count=85 1)
Initiating login request with your identity provider. Press CTRL+C to abort and try again...
# 4 lines (ctrl+ to expand)
(timeout 30)
# Completed appointments - tech count
22.72% use more than one tech.

```

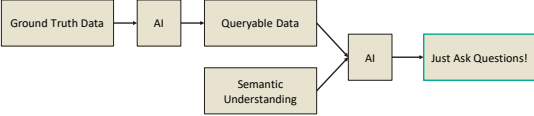
	Appointments	Share
Single tech	~ 347,855	77.28%
Multi-tech	~ 84,858	22.72%
Total	~ 213,913	100%

Single tech 77.28%
Multi-tech 22.72%



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5) Use Intelligent Analytics



```

graph LR
    A[Ground Truth Data] --> B[AI]
    B --> C[Queryable Data]
    C --> D[AI]
    E[Semantic Understanding] --> D
    D --> F[Just Ask Questions!]

```



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5) Use Intelligent Analytics

The screenshot shows a dashboard with a bar chart titled 'Total Invoiced Revenue by Service Line Name'. The chart has a y-axis labeled 'Revenue' and an x-axis labeled 'Service Line Name'. There are several bars of varying heights. Above the chart, there are tabs for 'Invoiced Revenue', 'Service Line Name', and 'Proposed Event Dates - Last 12 months'. Below the chart, there are search and filter options, including a search bar with the text 'Full-Customer Insights' and a search button.

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5) Use Intelligent Analytics

Data Error Detection

- proposals without terms
- appointments without durations or locations
- locations without valid addresses
- work without time -> profit/hr goes exponential
- invoices with unrealistic dates
- ...

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5) Use Intelligent Analytics

Cheat Code:
A good FSM has Intelligent Analytics ready for you

What To Look For:

- Excellent semantic modeling
- Pre-build dashboards for the standard stuff
- Ability to build custom reports
- **Ability to ask natural language questions**

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Practical Application

Which activity actually drives growth?

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SELL

The goal isn't more contracts.

The goal is enough of the **right** contracts.

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Ground Truth Data

- Asset Inventories
- Asset Conditions
- People: Contacts, Leads, etc
- Prices Offered
- Revisions & Win/Loss

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The Right Questions

- ✓ What's our **Ideal Customer Profile**?
- ✓ What's assets pose risks?
- ✓ Are we offering the right services?
- ✓ Are our prices optimized?

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The Key Metric

Contract Approval Rate

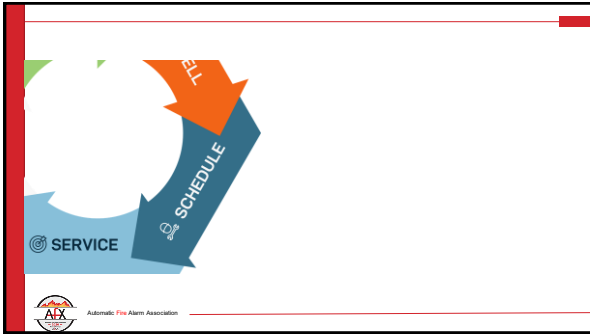
- ✓ Approval rate by rep
- ✓ Approval rate by vertical
- ✓ Contract profitability over time

Dimensioned by:

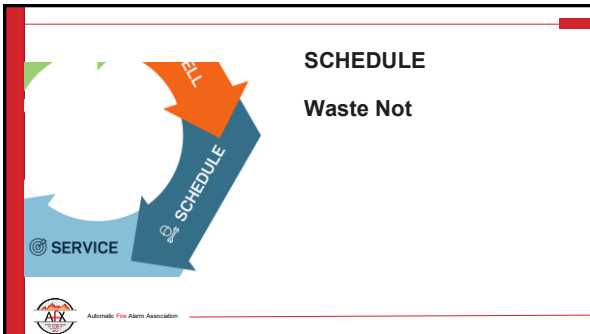
- ICP
- Risk

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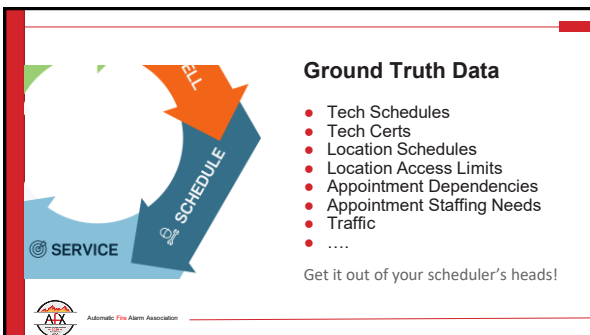
30



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The Right Questions

- ✓ Are you maximizing billable work?
- ✓ Is the work you're NOT doing the least valuable work?

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The Key Metric

% Shift Billable

- ✓ Drive time
- ✓ Job duration
- ✓ Route history
- ✓ Technician productivity

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SERVICE

Goals:

- 1) **Generate Ground Truth Data**
- 2) **Do the work**

(ok, maybe I'm biased)

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Ground Truth Data

- *Deficiencies Identified*
- Extra Asset Details
- Work Comments
- Location Comments
- Contact Information
- Clock Events

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The Right Questions

- ✓ Who is identifying the most deficiencies?
- ✓ How efficiently is the work getting done.
- ✓ Who is generating institutional knowledge (comments).

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The Key Metric

Pull-through Rate

- ✓ Deficiencies reported per inspection
- ✓ Rate of deficiencies quoted

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Analytics Reveals

Inspection Compliance

- ✓ Deficiency identification rates by technician
- ✓ Common deficiencies across inspections
- ✓ Inspection coverage gaps
- ✓ Equipment inspection frequency
- ✓ Technician behavior

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AI Analysis Reveals

- ✓ Equipment aging & failure patterns. (impacts everything)
- ✓ Work durations stats & location constraints
- ✓ Repair knowledge

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SERVICE

Your inspection database is a predictive maintenance dataset.


We can answer: What are you going to do tomorrow?



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QUOTE PULL-THROUGH

Goal: Convert Deficiencies Into Revenue



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Groud Truth Data

- ✓ Prices
- ✓ Quote Revisions & Timing
- ✓ Acceptance/Rejection

(deficiencies from prior phase)

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The Right Questions

- ✓ What's our Quote Pipeline?
- ✓ How fast are we getting quotes out?
- ✓ Where do we win/lose?
- ✓ Price elasticity analysis?

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The Key Metric

Time to Quote

why: **Speed converts deficiencies into revenue.**

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Analytics Reveals
Revenue leakage between inspection and repair.

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INVOICE

QUOTE

REPAIR

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INVOICE

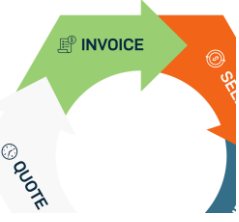
QUOTE

REPAIR

Is cash flowing through fast enough to fuel growth?

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Ground Truth Data


- ✓ Time to pay

The Right Questions

- ✓ What's delaying getting paid?

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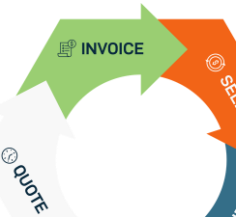


The Key Metric

Days Sales Outstanding (DSO)

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Analytics Reveals

- Customers who consistently pay late
- Billing disputes
- Delays between job completion and invoicing

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INVOICE

Cash flow makes the company grow.

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The Service Flywheel

FIELD REVENUE DELIVERED

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Can You Answer?

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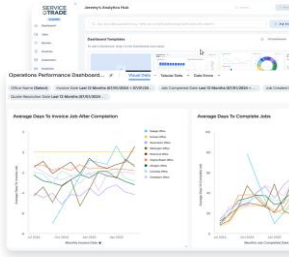

FIELD REVENUE DELIVERED

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Final Takeaways

Stop guessing.
Start growing.

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Questions?

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