

Setting Up a Data Ecosystem to Maximize Availability

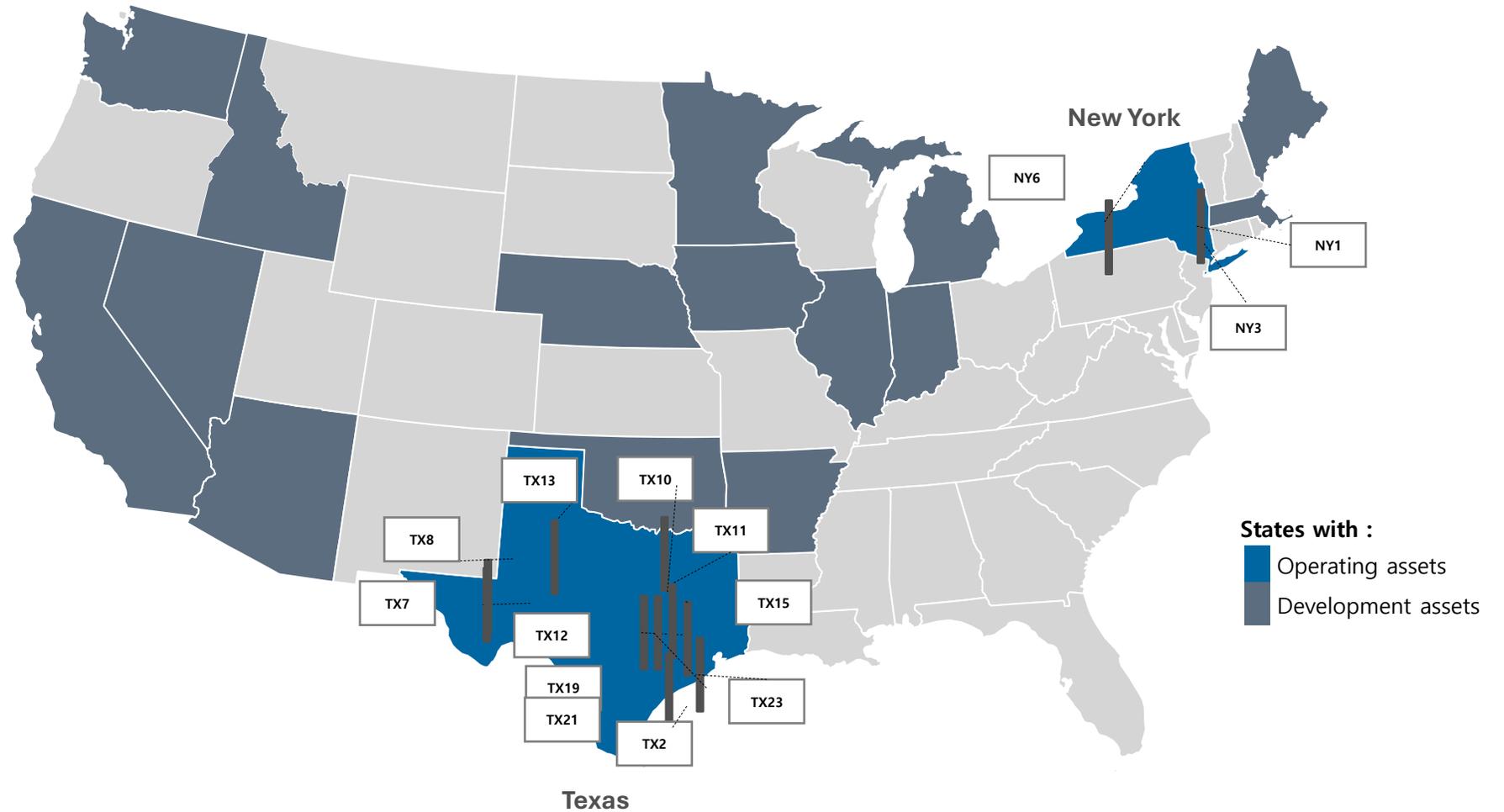
Battery Asset Management Conference

November 2025



Key Capture Energy: Building the Grid of Tomorrow, Today

623 MW Fully Operating to Date
7-8 GW In Development Pipeline
18 States Operating & Development Footprint
9 Years Operating and Developing BESS Projects



Designing a Data Ecosystem to Sustain High Availability

★ To achieve high availability, we need **systems that connect, organize, act on data**, not just people solving problems ad hoc



Expert Quotes



Agenda

“ ” You do not rise to the level of your goals. You fall to the level of your systems
– **James Clear**

“ ” A bad system will beat a good person every time
– **W. Edwards Deming**

“ ” If you can't describe what you are doing as a process, you don't know what you're doing
– **W. Edwards Deming**

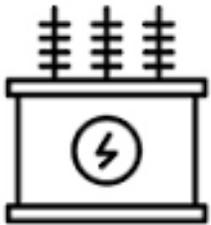
“ ” Systems run the business, and people run the systems
– **Michael Gerber**

- **What data** we're talking about
- **How to define** this data ecosystem
- **Why** this matters and the value it brings
- **How** to connect disparate data sources
- **A case study:** What KCE has focused on and lessons learned

The Scale of Our Data

A single **100 MW site**, generates **tens of millions of** data points per day, and that's before adding other operational information

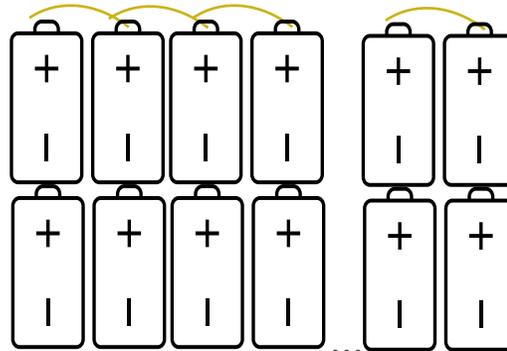
25 Power Conversion Systems



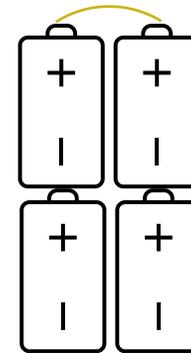
100 containers



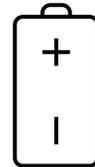
750 strings



5,000 modules

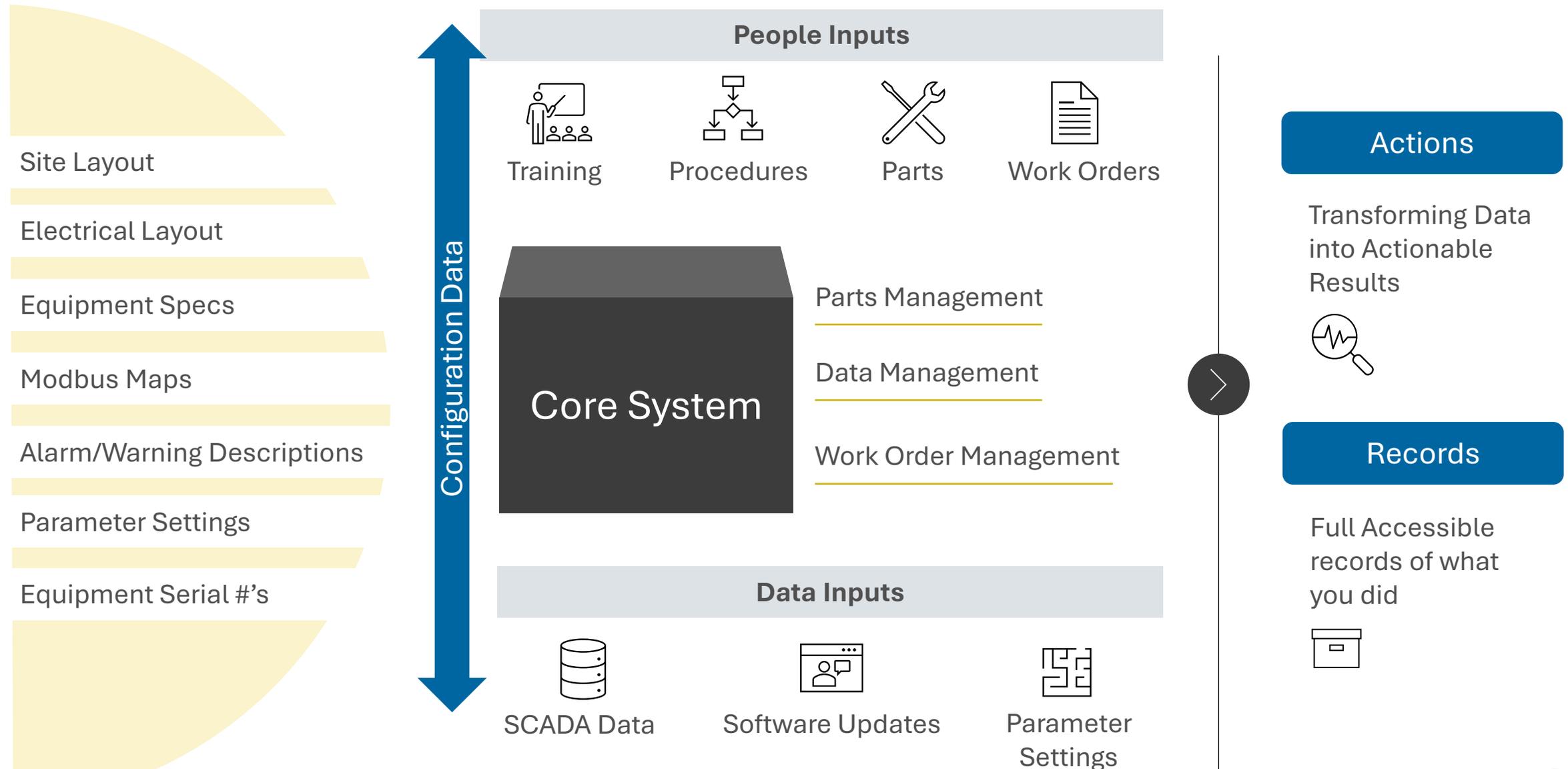


300,000 cells



Beyond raw data, there are countless other sources of information. The real challenge is connecting all of these dots to turn data into insight

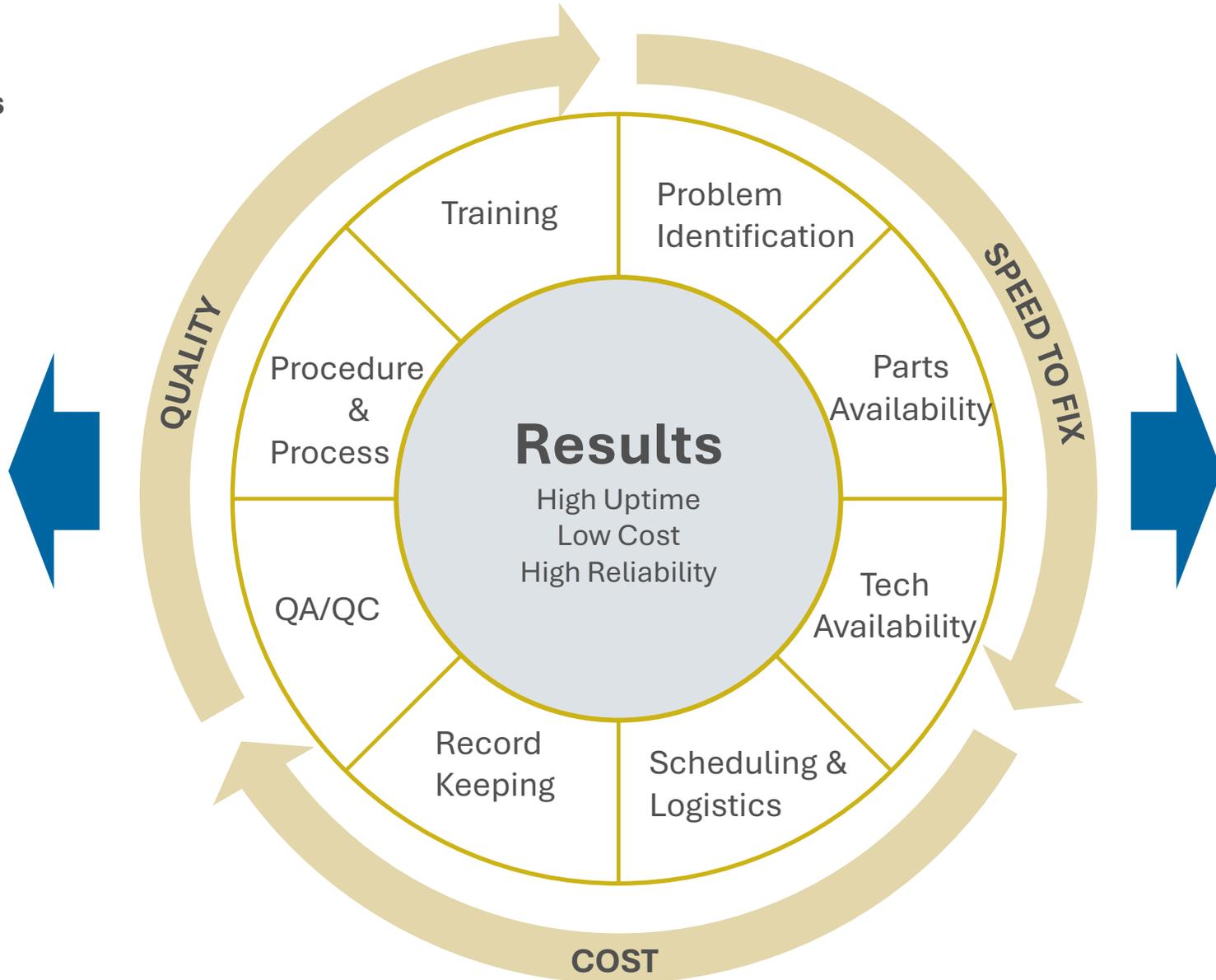
Defining the Data Ecosystem



Achieving Results Through Process

Without strong process

- Rework
- Inconsistency
- Lack of Transparency
- Lack of Accountability

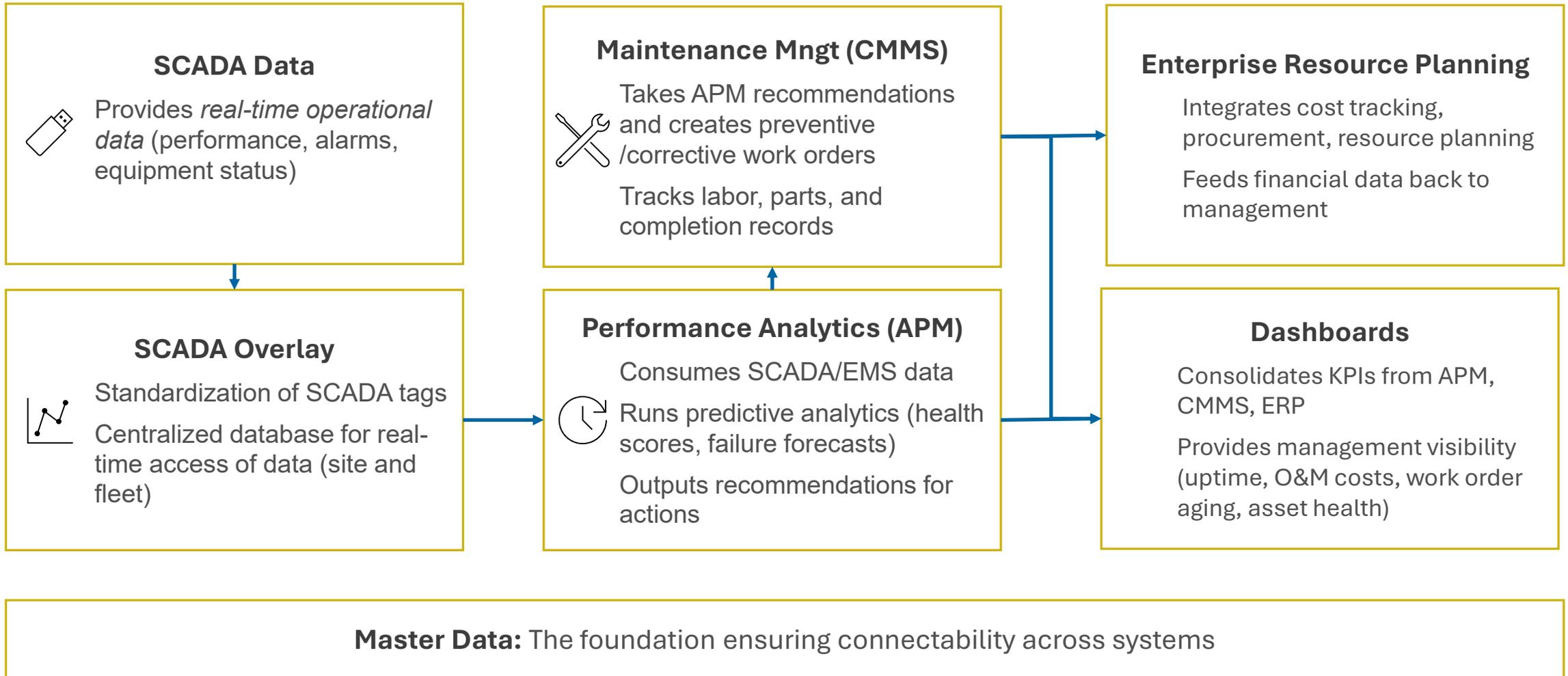


Without strong process

- Parts Swapping vs Root Cause Identification
- Expediting/Rush Orders
- Multiple/Repeat Visits

Creating a Unified Data Ecosystem

Building a connected data framework that transforms information into performance



Setting up your Master Data

Challenges

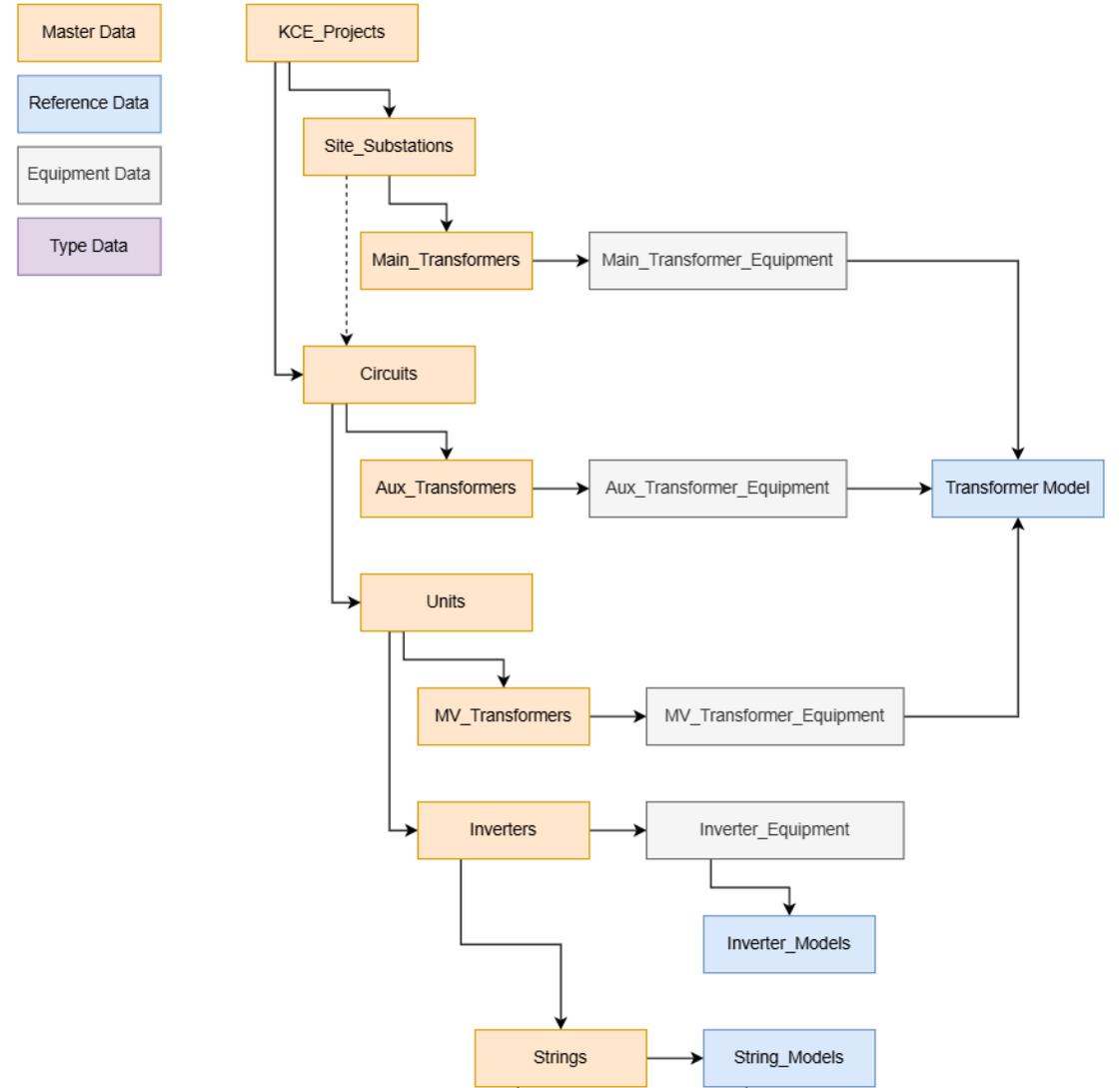
- Defining clear equipment hierarchy.
- Capturing detailed specs like serial #'s and ratings.

Why It Matters

- Creates a single, easy-to-access database.
- Real value comes when it connects with other systems like SCADA and maintenance records.

Lessons Learned

- A scalable universal hierarchy takes planning.
- Missing data at commissioning is a major lift to collect.



Standardize SCADA Configuration to Ensure Data Control and Scalability

Challenges

- Collecting mod-bus maps and alarm definitions.
- Standardizing configs and tags across the fleet.
- Managing large volumes of cell-level data.

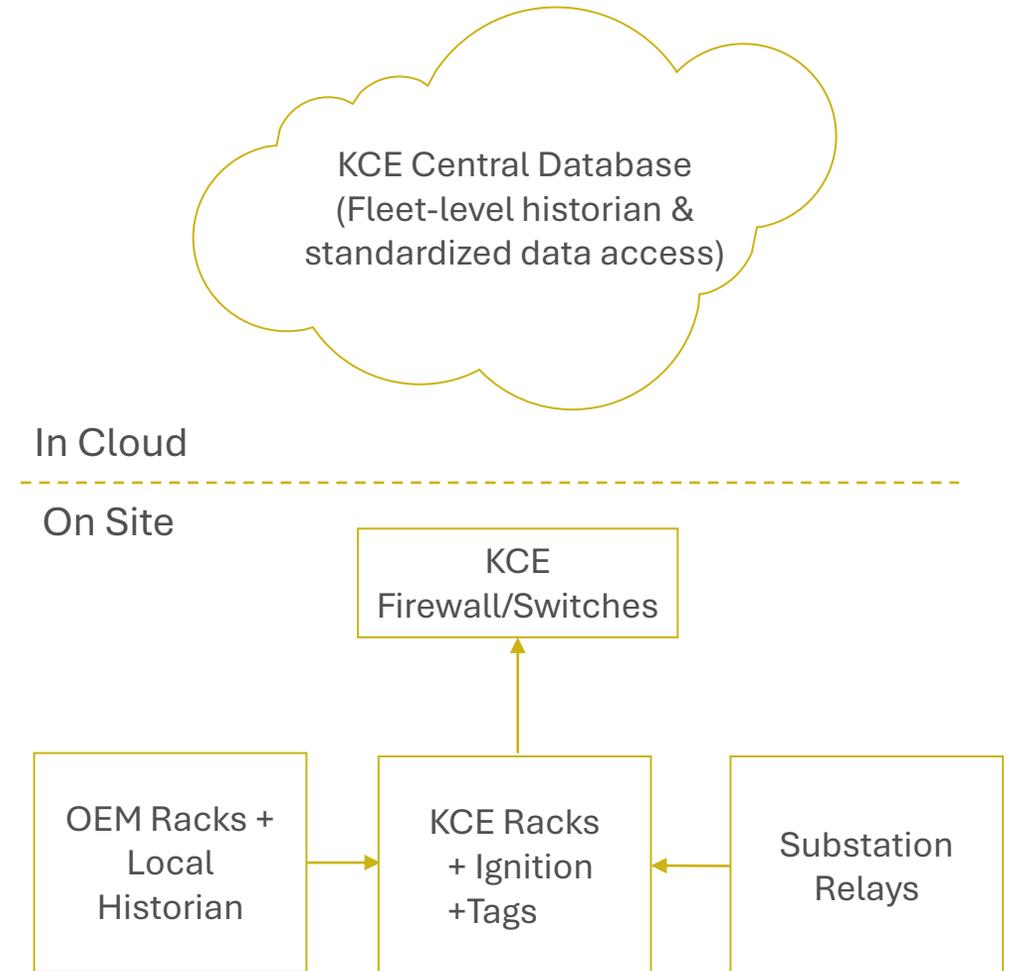
Why It Matters

- Gives full control of data.
- Enables fleet-wide consistency and scalability.

Lessons Learned

- Keep data control with the owner — local historian + central access.
- Capture full mod-bus, SCADA, and alarm tag data during commissioning.
- Define ownership and access rights early in contracts.

KCE Setup



Managing your Maintenance Reports

Challenges

- Most OEMs lack strong, integrated ticketing systems.
- Subcontractors make tracking and accountability harder.
- Work must be tracked down to the component level and tied to master data.

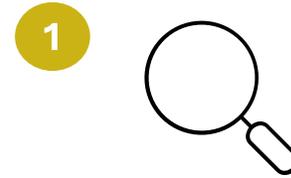
Why It Matters

- Builds full work history by component and site.
- Links work orders with downtime and SCADA data for better root cause analysis.

Lessons Learned

- Standardized work order procedures are key.
- Free-form entries hurt data quality.
- Integrate CMMS/CRM tools for consistent workflows.

Define your Process



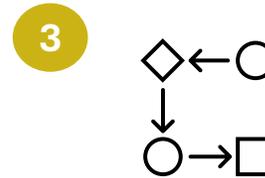
1

Issue Identified



2

Work Order Created



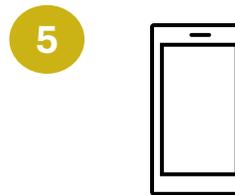
3

Work Procedure
Attached



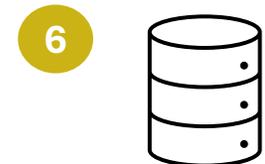
4

Assign/Dispatch



5

Procedure with
QA/QC filled out



6

Documentation Logged &
Work Order Closed

Work Procedures and Training

Challenges

- Rapid industry growth — many OEMs lack solid work instructions and QC.
- Inconsistent execution and poor vendor alignment cause rework.

Why It Matters

- Ensures consistent quality across sites and technicians.
- Builds accountability, traceability, and confidence in results.

Lessons Learned

- Spreadsheets aren't scalable for tracking work.
- Many OEMs focus on sales over operations.
- Weak processes lead to downtime and tribal knowledge.

Ford Pick-ups
2015 thru 2020
Full-size □ F-150 □ 2WD & 4WD □ All models

Haynes
36063

Haynes Repair Manual
Based on a complete teardown and rebuild

1-30 Chapter 1 Tune-up and routine maintenance

23.7 Rotate the tensioner arm to relieve belt tension

23.8a The drivebelt routing schematic for 6.2L V8 models

1 Crankshaft pulley 5 Alternator pulley
2 Air conditioning compressor 6 Idler pulley
3 Tensioner and pulley 7 Power steering pump pulley
4 Idler pulley 8 Water pump pulley

23.8b The drivebelt routing schematic for 6.7L diesel models (with single alternator)

23.8c The drivebelt routing schematic for 6.7L diesel models (with dual alternators)

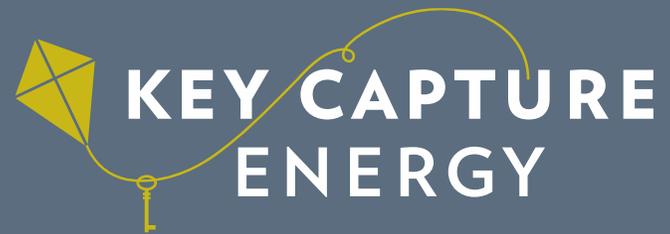
1 Crankshaft pulley 6 Alternator 11 Cooling fan drive
2 Air conditioning compressor 7 Idler pulley 10 Secondary water pump
3 Tensioner and pulley 8 Alternator 9 Power steering pump
4 Secondary water pump 10 Secondary water pump 11 Cooling fan drive
5 Idler pulley

Includes essential information for today's technician

Strong Foundations, Strong Performance

- Master the fundamentals — that's what drives performance.
- The BESS industry needs stronger building blocks.
- Good systems and data create accountability.
- Focus on leading indicators, not just availability.
- Strong fundamentals = better market performance.





Contact Details

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