



CREATECH

SOFTWARE · AUTOMATION · ARTIFICIAL INTELLIGENCE

OVERVIEW · SEPTEMBER 2026

BLE RTLS & AoA

One location and identity layer, from the plant to the field.

PLANT

Precise position with
AoA

LOGISTICS

Delivery and
telemetry

SAFETY

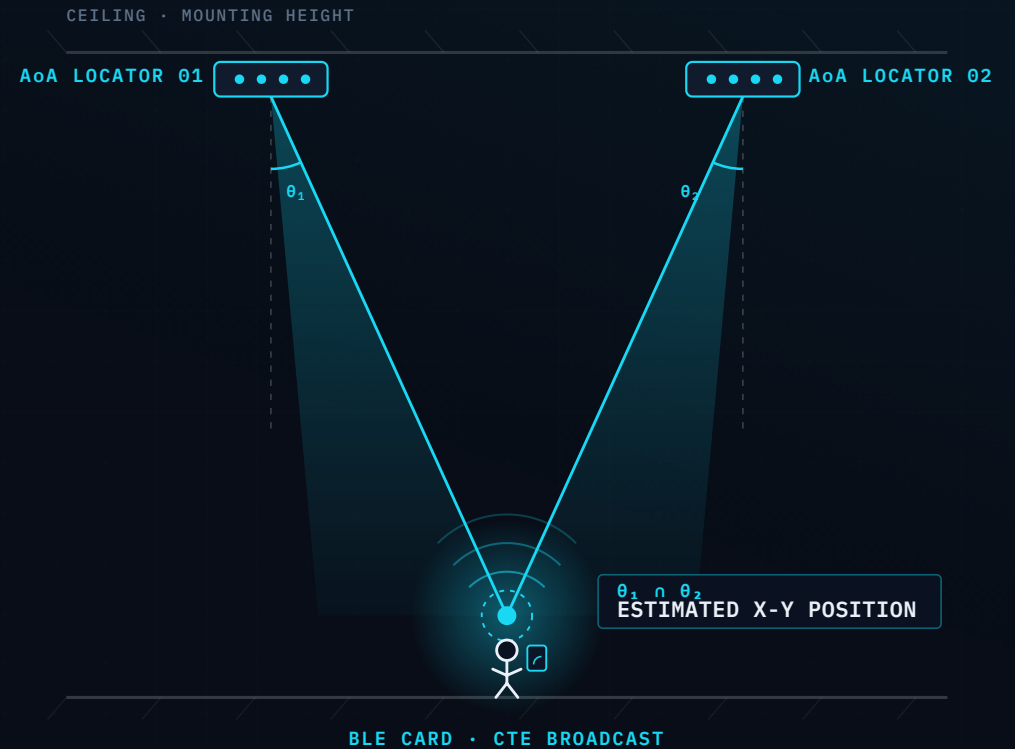
AI-powered vision

ABOUT THIS DOCUMENT

This is a 10-page overview. For the engineering detail, site design criteria and the accuracy calculation, ask us for the **26-page BLE RTLS & AoA technical document**.

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AT A GLANCE

Location data is not an application but an infrastructure to build scenarios on

Broadcasts from BLE cards and tags are picked up by field devices and turned into positions by a central engine. **Staff, forklifts, pallets and equipment** become visible on the same network — and when goods leave the door, monitoring does not stop; only the measuring hardware changes.

ALL IN ONE IDENTITY AND LOCATION DATA MODEL — CREALOG PLATFORM · CREAAI

01 · INSIDE THE PLANT

BLE location network · AoA
Forklift safety · muster drill
Pallets, equipment, stock count
COLD CHAIN · LINE AUTOMATION

02 · LOADING AND DOCUMENTS

RF-ID / barcode verification
Delivery on the tablet
Delivery note and invoice flow
HANDOVER POINT · LOADING DOCK

03 · ON THE VEHICLE

Telemetry · on-board unit
Cloud camera · blind spot radar
Route and dispatch optimization
UNBROKEN FLOW OVER 4G / 5G

04 · SAFETY AND AI

CCTV + AI · card-less person
Driver behaviour analysis
Geofence · event recording
A SECOND SENSING LAYER

WHY AN INFRASTRUCTURE?

One investment, many scenarios

Once the network is in place, new tag types and software modules join the same platform. A deployment that starts with staff tracking grows into forklift safety, pallet tracking, stock counting and muster management with no further hardware investment.

WHY AOA?

As much accuracy as each area needs

In offices and the general warehouse, “which zone?” is answered economically. Along forklift routes, production lines and loading bays the decision turns on sub-metre differences — and that is where **angle of arrival (AoA)** measurement comes in.

WHY CREATECH?

Hardware to software, one team

Electronic board design, embedded software, site installation, the platform and the AI models are all developed in our own R&D centre. Installation, acceptance testing and the service that follows are carried out by the same team.

WHAT CAN BE ADDED TO THE SAME NETWORK LATER

AOA PRECISION AREA

NEW TAG TYPE

FORKLIFT SAFETY

PALLETs, EQUIPMENT

STOCK COUNTING

MUSTER DRILL

GEOFENCE

LONE WORKER

IN-VEHICLE GATEWAY

CCTV + AI

DELIVERY MANAGEMENT

API / ERP

IN ONE SENTENCE

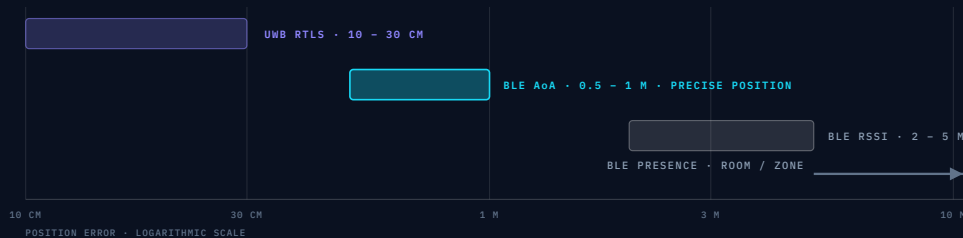
Not a tracking system, but a **shared location and identity layer** that new assets and modules can be added to.

01 · INSIDE THE PLANT

Which accuracy in which area: a hybrid architecture

Position accuracy is not a product feature but a **design decision**. Because several methods can be combined on the same BLE infrastructure, accuracy is chosen according to the business value of each area.

TYPICAL ACCURACY RANGES · BY TECHNOLOGY CLASS



These are typical ranges for each technology class; the real accuracy of an installation depends on the RF environment, device layout, mounting and calibration.

HOW IS AN ACCURACY COMMITMENT GIVEN?

A theoretical accuracy figure is never written into a contract. Precision is defined after a **site survey, RF analysis and pilot installation**, as a measurable acceptance criterion based on points measured in the plant's real conditions.

STANDARD AREAS

Zone detection is enough

Offices, canteen and general warehouse: "which zone?" is answered economically from signal strength, covering a wide area with few devices.

CRITICAL AREAS

Precise X-Y position with AoA

Forklift routes, production lines and loading bays: the angle at which the signal reaches the antenna array is measured, and several devices' angles are intersected to estimate position.

MOBILE AREAS

Coverage extends beyond the site

The BLE device in shuttle and delivery vehicles reads the same staff card; data flows to the platform over 4G/5G and the identity layer stays whole.

RETURN ON INVESTMENT

There is no need to fit the whole site with the most precise technology. When the accuracy class is chosen zone by zone, **the same budget buys wider coverage** and more scenarios; a zone's class can be raised later without touching the software.

02 · USE CASES

Eight scenarios running on one shared infrastructure

Once the location layer is in place, each additional scenario means **a new rule set and a new screen** rather than a new hardware investment.

01 · STAFF

Zone and position visibility

In-plant zone data, entry/exit flow and time on task; zone density reported per shift.

02 · FORKLIFTS

Position, route and utilization

Vehicle position, route taken, zone density and idle time; an input to fleet-size decisions.

03 · SAFETY

Dangerous proximity

Alongside distance, the forklift's **direction of travel and speed** are weighed; a record, a warning or an alarm follows from the approach vector.

04 · PALLETS AND EQUIPMENT

Last seen position

Where and when an asset was last seen is on record; “where is it?” is answered by a query.

05 · STOCK COUNTING

Automatic zone-based control

Zone-based control of tagged assets shortens counting and exposes the gap against the record.

06 · MUSTER DRILL

Assembled and still inside

In an emergency, the number who have reached the assembly point and those still inside is tracked.

07 · GEOFENCE

Unauthorized zone entry

Unauthorized entry into a transformer room, chemical store or maintenance bay raises an alarm.

08 · LONE WORKER

Working alone detection

A person left alone in a hazardous zone, a lack of movement or an unusually long stay is monitored.

THE SCENARIOS FEED ONE ANOTHER

The same track data produces the safety alarm, the forklift utilization report and the post-incident review. Infrastructure built for one scenario **needs no further hardware investment** when the others are commissioned.

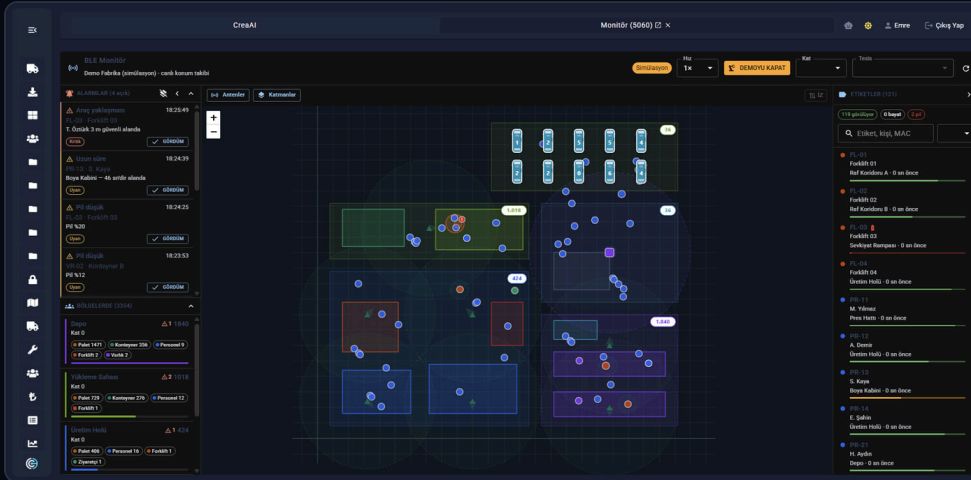
ENGINEERING NOTE · WORKPLACE SAFETY

In safety-critical applications, a central location system **does not replace** the local sensors and warning systems on the vehicle; it complements them. Alarm thresholds are set together with the site's own safety procedures.

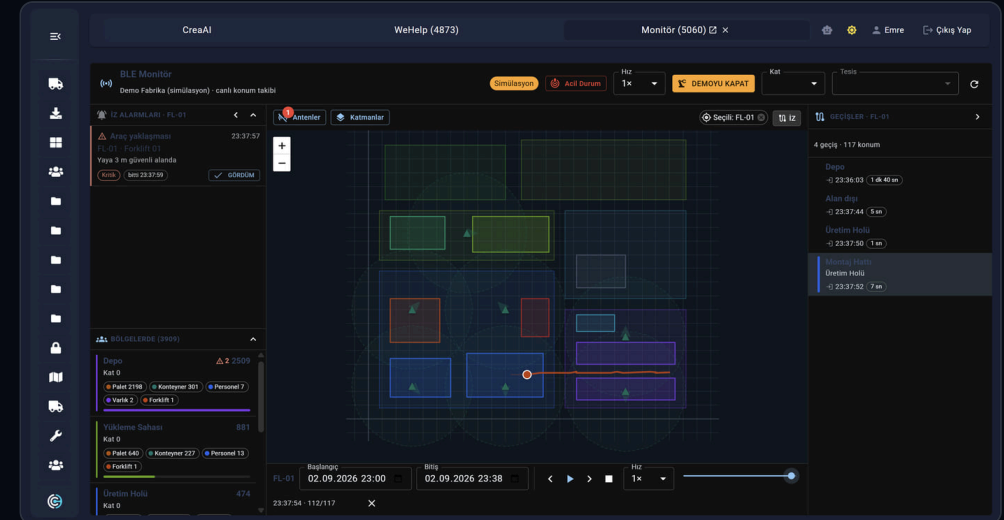
03 · PRODUCT

One interface that watches the site live and reviews the past

Both tenses of location data come together in the same product: in an emergency, **who is where now**; after an incident, **what happened then**.



LIVE POSITION Every tag's current position on the site plan. The left panel holds open alarms and zone headcounts, the right panel the tag list with last-seen information. Screen labels are in Turkish.



TRACK REPLAY The selected tag's track over a chosen time range is drawn on the plan and played back and forth on a timeline. Zone crossings are listed with their dwell times. Screen labels are in Turkish.

LIVE MAP

Current position, coverage areas and zone headcounts on the floor plan.

ALARMS AND EVENTS

Proximity, zone breach, excessive dwell and low battery events listed by priority.

SETUP

Site, zone, level, Locator, tag and alarm-rule inventory from one screen.

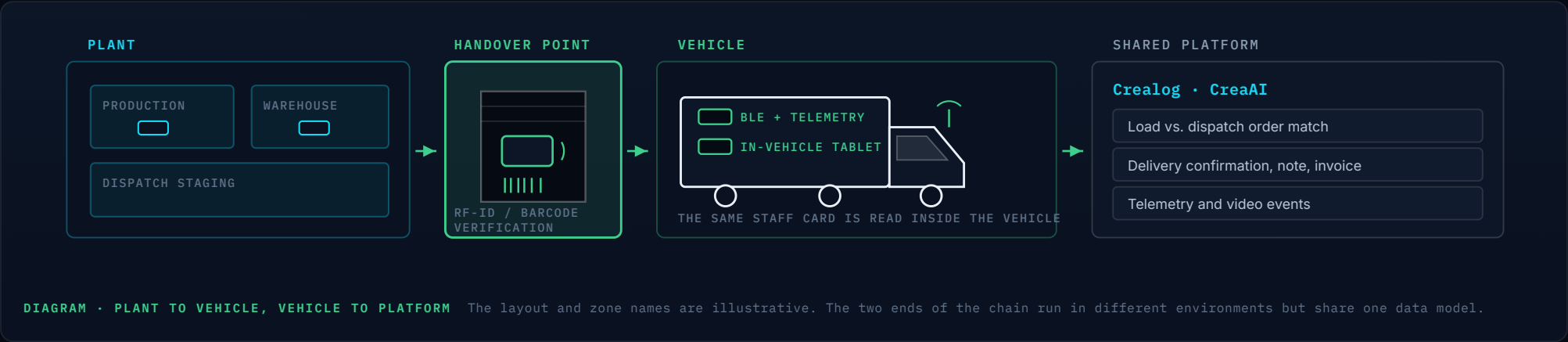
REPORTS AND API

Retrospective reports, Excel output and integration with your existing ERP.

The screenshots come from a simulation environment running on demo data; the plan, zone names and figures are illustrative.

When goods leave the door, monitoring does not stop

The handover point between plant and vehicle is the **loading dock**: pallets are read by RF-ID or barcode and booked onto the vehicle. The scanned load is compared against the dispatch order, so anything missing, extra or loaded onto the wrong vehicle is caught before it leaves.



LOAD VERIFICATION

RF-ID and barcode

Pallets, crates and cases are read at the dock and booked onto the vehicle, so an error becomes visible before the goods leave.

IN-VEHICLE TABLET

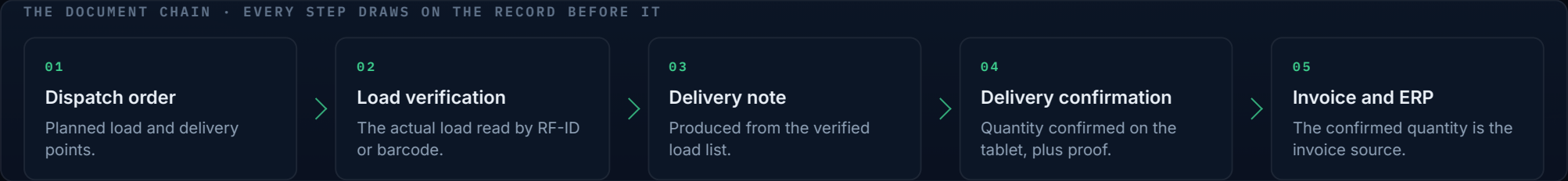
Delivery is captured in the field

The driver sees the delivery sequence and load contents on the tablet. Quantity confirmation, partial delivery, returns and refusals are captured there, with a signature and photo attached.

DOCUMENT FLOW

Note and invoice from one source

The list verified at loading becomes the delivery note, and the quantity confirmed at delivery becomes the invoice. Documents are pushed to your existing ERP or e-document platform.



05 · TELEMETRY AND FIELD HARDWARE

The on-vehicle layer: far more than position

Position, speed, fuel, door, drum and sensor data are collected by the on-board unit and sent to the control center. The driver sees the task sequence and alerts on the tablet, and **when a deviation or anomaly is detected the system steps in immediately.**



EVENT TYPES PRODUCED FROM TELEMETRY

ROUTE DEVIATION

GEOFENCE BREACH

SPEEDING

EXCESSIVE IDLING

HARSH BRAKING

DOOR OPENING

FUEL DROP

TEMPERATURE BREACH

DRUM ROTATION

UNPLANNED STOP

CLOUD CAMERA

Reach it from anywhere

Cameras covering the area around the vehicle carry live and recorded footage to the control center over the cloud. Critical events are backed up automatically and the archive is filtered event by event.

BLIND SPOT RADAR

See the unseen

Pedestrians and vehicles in the blind spots at the front, sides and rear are detected by radar; an audible and visual warning triggers in the cab and the event is logged.

ROUTE OPTIMIZATION

Vehicle positions, live traffic data and delivery priorities are analysed at the same time to determine the most efficient route. Time windows, compartment capacity, geofences and driver hours all enter the plan as constraints.

SECTOR EXAMPLES

Concrete: the mixer drum's direction and speed of rotation are read and the moment of discharge is detected. **Cold chain:** storage temperature monitoring continues through the in-vehicle sensors.

A second sensing layer: CCTV + artificial intelligence

Thanks to the camera integration and AI models developed by our R&D team, if a person detected in the footage is in a zone with no matching BLE card signal, the system can treat that as a **“card-less person” event**.



DRIVER ANALYSIS

In-cab behaviour

Phone use, smoking, seat belt, fatigue and distraction are analysed on the vehicle. The warning comes first in the cab; each driver's violation history and safety score is tracked on the central dashboard.

EVENT-BASED RECORDING

Keeping the right moment

When a defined event occurs, recording is triggered at once; the footage from before and after is merged automatically into one file, archived and sent to the people concerned.

GEOFENCE AND COMPLIANCE

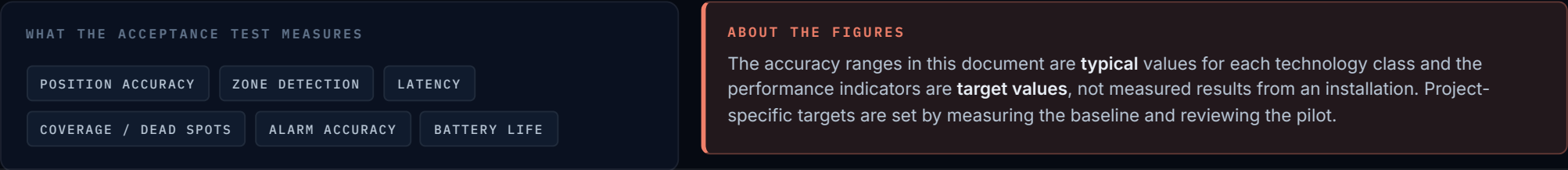
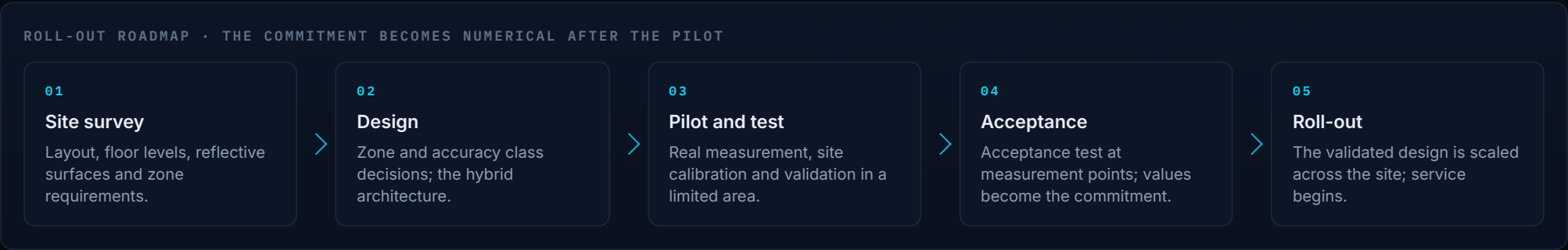
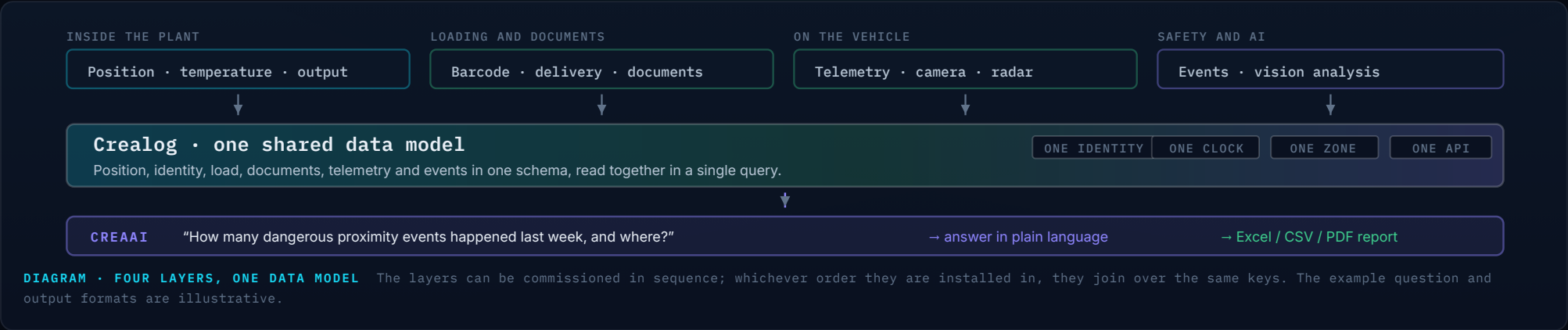
Automatic shutdown where required

Sites where recording is prohibited are marked on the map once; the camera switches off on entry and on again on exit. When and where it happened is logged as a compliance record.

07 · ONE PLATFORM AND ROLL-OUT

The whole chain comes together in one data model

Location and temperature data from inside the plant, the barcode reads captured at loading, the delivery confirmations taken on the tablet and the telemetry, camera and vision analysis output from the vehicle all come together **in one data model on the Crealog platform**. CreaAI sits on top of that body of data.



NEXT STEP

Not a tracking system, but a **digital infrastructure**

Infrastructure that starts with staff tracking can grow into forklift safety, pallet and equipment tracking, stock counting, shuttle vehicles, delivery management, telemetry and AI-powered vision analysis. The investment is never tied to a single problem.

Solving today's need while running tomorrow's scenarios on the same infrastructure.

01

Site survey

The site's RF environment, zone requirements and accuracy classes are determined together.

02

Pilot area

Real measurement in a limited area; the commitment becomes numerical from it.

03

Demo

A walkthrough of the live position, setup and reporting screens.

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THE DETAILED TECHNICAL DOCUMENT

For the phase difference geometry, multi-locator estimation, site engineering criteria and the acceptance test items, ask us for the **26-page technical document**.

OUR OTHER SOLUTIONS

ENERGY

FOOD · COLD CHAIN

CONCRETE / CEMENT

PUBLIC TRANSPORT

ENVIRONMENTAL MONITORING

AUTOMATION

CREAAI

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