FOOD CORPORATION OF INDIA

A monitoring system for grain movement from procurement to distribution.

This document sets out the capabilities of a proposed operations-monitoring system for the Food Corporation of India, illustrated through a working prototype, together with an assessment of what would be required before deployment.

> *Consolidated tracking of grain in transit, automated reconciliation of weight and bag count at receipt, and pattern-based identification of recurring loss.*

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SYSTEM OVERVIEW

Basis for the proposed system

Foodgrain moves in large volumes between procurement centres, storage depots and distribution points under the Corporation's supply chain. Given the scale and distances involved, gaining full visibility into transit conditions, weight variance and stoppages from manifest records alone can be difficult. The capabilities below are intended to add a layer of real-time visibility and analysis on top of the Corporation's existing operational framework.

01

Live tracking & geofencing

GPS/AIS-140 positions of the truck fleet on a live map, with alerts the moment a truck stops or deviates unexpectedly.

02

Weight & bag reconciliation

Declared vs. received weight and bag count logged automatically at every depot, with a seal-intact check to confirm shipment integrity at receipt.

03

AI risk scoring

Every shipment and route gets a confidence-scored risk profile built from pattern history, not a single rule triggering a single alert.

04

Leakage pattern detection

Surfaces recurring patterns that are easy to miss manually: geographic stop clusters, systematic weight variance on one route, jute-bag discrepancies, each with an estimated ₹ impact.

05

Decision engine with sign-off

Recommends the next action with its evidence and alternatives considered, so an officer can review and sign off before anything is actioned.

06

Vigilance case management

Flagged patterns become case files with a full evidence chain, tracked to closure, FIR filing, or amount recovered.

SYSTEM OVERVIEW

How the pieces connect

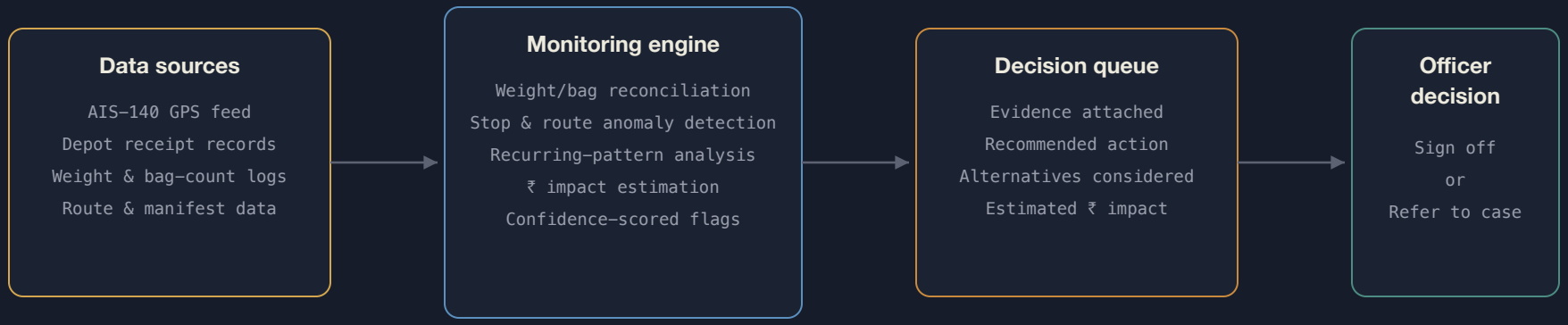


Figure 1. Data flow from source systems to a signed-off officer decision

PROTOTYPE DEMONSTRATION

Foodgrain Supply Chain Monitoring Dashboard

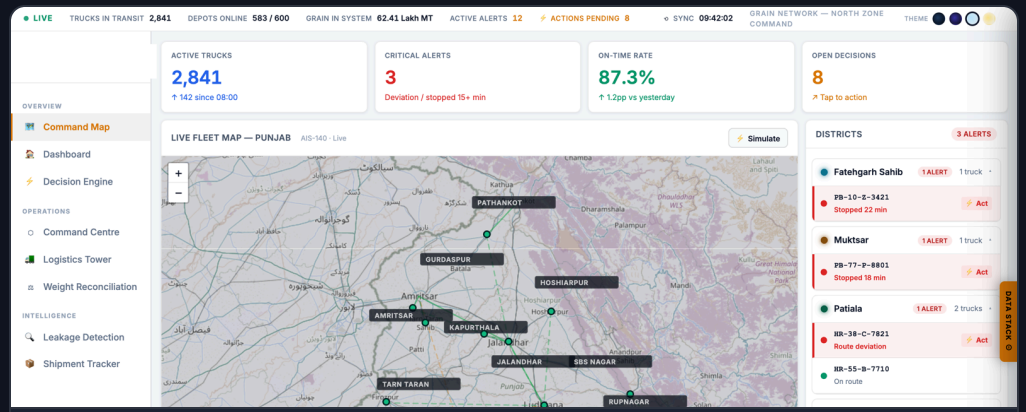
This is a functional prototype, not a static mockup: the screens described below are interactive and demonstrated in person, across four role-based views.

- Command Centre: national zone health, grain-flow pipeline, live alert feed
- Logistics Tower: fleet map, shipment/weight/journey timelines, driver comms
- Depot dashboard: incoming loads, storage %, weight & bag reconciliation
- Leakage Detection: risk donut, top risk routes, pattern cards with ₹ estimate and confidence
- Vigilance case files: evidence chain, closure outcomes, FIR & recovery tracking
- 4 role-based views: District Officer, Logistics Manager, Depot Supervisor, Vigilance Inspector

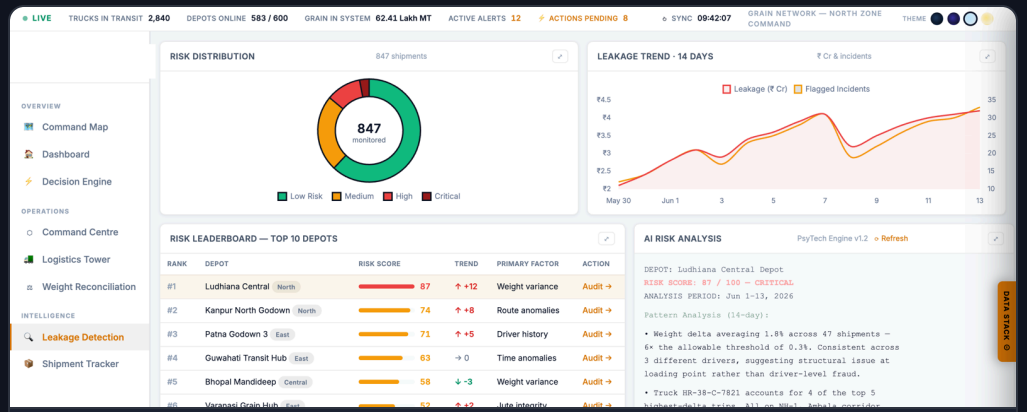
62.4L MT	2,841	₹4.2 Cr	76%	₹1.8 Cr
grain tracked nationally	trucks live on AIS-140 GPS	monthly leakage addressed	AI actions resolved, MTD	leakage prevented, MTD

PROTOTYPE DEMONSTRATION

Screens from the working prototype



Command Centre: live fleet map, district alerts, network-wide status



Leakage Detection: recurring loss patterns with confidence and ₹ estimate

CASE HANDLING WORKFLOW

From flagged pattern to officer decision

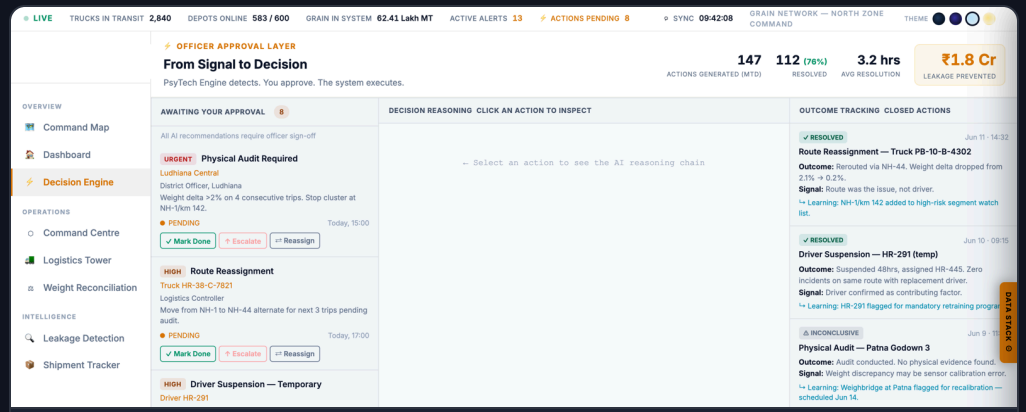
01
Shipments reconciled
Declared vs. received weight and bag count logged at every receipt

02
Pattern surfaces
Same route/lessee shows systematic variance across many shipments

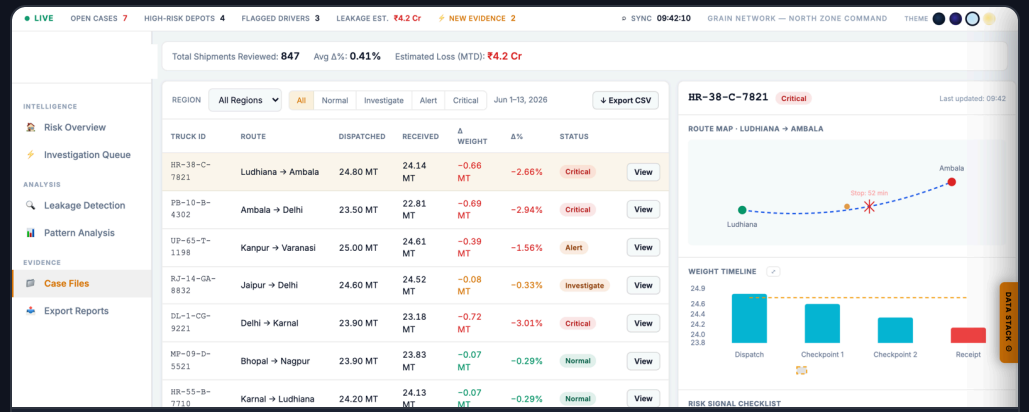
03
Decision recommended
Specific action with evidence and alternatives considered

04
Officer signs off
Required before any action executes; unresolved cases route to Vigilance

Figure 2. Case lifecycle, weight-variance pattern example



Decision Engine: recommended action with supporting evidence, pending officer sign-off



Vigilance Inspector: case record with evidence chain and outcome tracking

IMPLEMENTATION STATUS

Present state of the prototype and requirements for deployment

The prototype currently operates on illustrative data. Deployment for departmental use would require integration with the systems listed below.

CAPABILITY	STATUS	WHAT'S NEEDED FOR PRODUCTION
Command Centre, Logistics Tower, depot dashboard, case files, alert engine	DEMO-READY	Re-skin with FCI branding; connect to an existing user directory for role/login.
Risk scoring & pattern detection logic	TO BUILD	Model tuned on historical shipment data; needs a data-sharing agreement.
Live GPS feed (AIS-140 / vehicle telematics)	NEEDS INTEGRATION	API access to the existing GPS/AIS-140 vendor or fleet telematics provider.
Panic button / IoT seal sensors	NEEDS HARDWARE	Only where sensor hardware isn't already deployed on vehicles/depots.

NEXT STEPS

Demonstration

The dashboard is available for a full walkthrough, including role-based views, a flagged pattern, and the resulting officer decision.