

STATION DEMAND FORECASTING WITH A PAPER TRAIL

Plan the week before it arrives.

AION Rakshak forecasts the registration load on each police station seven days ahead, with uncertainty bands. Every override, surge alert and dispatch decision is written to a tamper-evident ledger the moment it happens.

7DAYS AHEAD,
STATION BY DAY**80%**NOMINAL
UNCERTAINTY BAND**5**ROLES, EACH SCOPED
TO A ZONE**0**NAMES IN THE
FORECASTING STORE

THE SIGNAL WAS ALREADY THERE

Every station keeps a shape. Almost nobody was reading it.

Public FIR registers carry minute-resolution registration times. In the registers we have read in full, station after station traces the same curve: quiet before dawn, a slow climb through the afternoon, a hard peak at night, and a quieter Sunday.

Control rooms plan beats and reserves against that load every day, usually from memory and last week's register. **Rakshak reads a state's own published record first** and turns it into a seven-day forecast, before a single new dataset is requested.

WHAT THE FORECAST LEARNS FROM

- **Each station's own history:** registrations 1, 7, 14 and 28 days back, and its 7- and 28-day averages.
- **The calendar:** day of week, weekends and the state's public holidays.
- **Weather:** daily maximum temperature and rainfall at each station.
- **Where the record is thin:** a coverage check flags months the public list has not yet filled in, so a late upload is not read as a quiet month.



Registrations by hour of day, one station. Illustrative shape, not a state's data. The night hours are shaded darker.

A forecast the control room can act on, with a paper trail behind it.



One station: the last 14 days registered (dots), the median forecast for the next 7 days (line) and its uncertainty band. Illustrative shape, not a state's data.

Station-by-day forecasts

A gradient-boosted count model per station and day, one to seven days out, with an 80% band from a fitted dispersion, not a point guess.

Pattern surface

Station rank, share, year-on-year change, seasonality and a 7×24 registration heat map built on the full public record.

Surge alerts with a floor

An alert fires only when a busy day is at least one in ten likely and at least twice the station's own recent norm, so quiet stations do not cry wolf.

Overrides are welcome

A station house officer can override any forecast. The override, the reason and who made it go into the ledger, and the forecast they replaced stays readable.

Watchfloor

Station map with a satellite base layer, a 24-hour district ribbon, a coverage timeline and per-station drill-down, behind single sign-on.

Honest bands

Bands are checked in backtest against what was actually registered, so an 80% band is expected to hold about 80% of days, and the check is repeated as data arrives.

Scored against a simple baseline. Recorded so it cannot be quietly edited.

HOW THE MODEL EARNS ITS PLACE

- **A baseline to beat.** Every backtest puts the model against a same-weekday average over the trailing four weeks, on identical station-days.
- **Scored on counts, not colours.** Poisson deviance for the daily numbers, precision and recall for surge days, and band coverage for the uncertainty.
- **Month by month.** The comparison is repeated for every backtest month, so one good month cannot carry the result.
- **Forecasts stored as issued.** Each run is kept with its model version, so a forecast can be compared with what happened long after the day.

No accuracy figures in marketing

You will not find a score in this brochure. The backtest is run on your state's record and read by your team before anyone quotes it.

THE LEDGER

- 1 Every decision is an event:** forecast issued, override recorded, surge alert raised, alert acknowledged, dispatch plan issued.
- 2 Chained by hash.** Each entry's SHA-256 covers its content and the previous entry's hash, so changing one entry breaks every entry after it.
- 3 Sealed.** Periodic seals anchor the head of the chain for fast verification by an auditor.
- 4 Breaks stay visible.** A known divergence is acknowledged as its own ledger entry, and verification continues past it so it cannot mask a new one.
- 5 Certified.** Electronic-record certificates under section 63 of the Bharatiya Sakshya Adhiniyam, 2023, for any range of entries.

What DPDP-by-design means in Rakshak, in plain terms.

The Digital Personal Data Protection Act, 2023 applies to personal data. The simplest protection is not to hold any, so Rakshak's forecasting runs on data that identifies no one. Where personal data may one day be needed, the safeguards come first and the data second.

HELD	NOT HELD
Police station, FIR number, district and registration time, from the state's own public FIR list	Names of complainants, victims, accused or witnesses: the forecasting store has no column for them
Forecasts per station and day, with uncertainty bands	Any score, rank or prediction about an individual
Who did what, when: logins, overrides, alerts and dispatch decisions	Passwords or machine tokens in readable form: only their hashes are stored

Five roles, scoped to a zone
Administrator, controller, station house officer, auditor and viewer, each limited to the police zones assigned to that account.

Changes take effect at once
The role is read from the database on every request, so demoting or disabling an account cuts off an open session immediately.

Strong sign-in
Bcrypt password hashing, an optional TOTP second factor, and lockout after repeated failed attempts, with every sign-in written to an access log.

Scoped machine access
Integration tokens carry a role, are shown once at creation, stored only as a hash, and can be revoked at any time.

Who is responsible for what
Under the Act the police force is the Data Fiduciary, and AION acts as its Data Processor, processing only on the force's documented instructions under a written agreement.

Retention is set by the force
The Act exempts much State processing for the prevention and investigation of offences, including some erasure duties (section 17). How long data is kept, and for what purpose, is decided by the police force as Data Fiduciary, and AION processes it on those instructions.

Before any personal data
Any person-level features only behind a formal data extract, an auditor's co-sign on every list and an outside ethics review, and it is never used to rank people for patrol.

Win on evidence, one stage at a time.

State-system integrations

Signed, outbound event push to existing state systems. Code ready; wired when a receiving endpoint is agreed.

Traffic and camera fusion

Accident records and camera challans folded in so patrol and traffic forecasts share one demand picture. Needs a data MoU.

Seasonal surge model

Tourist arrivals, occupancy and the event-permission calendar as drivers, for states whose demand is seasonal. Needs a data MoU.

Hotspot beat layer

Beat polygons and a shared GIS layer, adapted from AION's existing patrol-optimiser module. Code ready.

Investigator lookup

A case lookup for investigating officers, never a ranked list pushed to patrol and never complainant or victim data. Behind a formal extract, an auditor co-sign and an outside ethics review.

Multi-state replication

The same engine already runs a live deployment outside law enforcement; expansion is a data agreement, not a rebuild.

HOW IT STARTS

- 0 Prove it on the public record.** Pattern surface and backtest built entirely from data the state already publishes. Nominal cost, recovered only on a go decision.
- 1 Pilot on the formal extract.** A read-only CCTNS or 112 feed, a block-level backtest and two control stations.
- 2 Fixed-fee pilot.** The state pays for the pilot, and the reference story builds alongside the rollout.
- 3 Statewide, outcome-linked.** An annual subscription with a component tied to the same test-and-control measures the pilot was judged on.

Deployment

On AION infrastructure behind single sign-on, or on the state's own. One service, one database, one ledger.

What we need from you

The name of the public FIR register to start from, a station list with zones, and one control-room officer who knows how the week is planned today.

What you get first

A pattern surface and a backtest on your own public record, read by your team before any decision to go further.



The record already exists. The only question is who reads it first.

Write to info@aionpl.com for a demo of the watchfloor and the ledger. We will show you the pattern your own public record already holds.

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AION RAKSHAK

Station demand forecasting for
police control rooms

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