

# Meesho DICE Challenge — One-Pager (Tech Track)

**Title:** Prevent Address ■ PIN Mismatch at Checkout

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**Elevator Pitch (1 line):** Prevent incorrect deliveries and reduce RTO by validating that the entered city/locality/state matches the supplied postal PIN code before order confirmation.

## Problem Statement

Meesho's checkout currently accepts orders where the typed address (street, city, state) does not match the provided postal PIN code. The platform validates PIN format but does not cross-check geographic consistency, allowing mismatched orders to be processed and shipped.

## Concrete Example

*Example:* User enters: **Address:** Connaught Place, New Delhi — **PIN:** 221002 (Varanasi). System accepts the order. Result: Failed delivery attempts, RTO and wasted logistics cost.

## Business & Operational Impact

- Delivery partners: More failed delivery attempts, re-routes, wasted time and fuel.
- Sellers: Increased RTOs, reverse-logistics costs, delayed settlements and revenue loss.
- Buyers: Delays, cancellations, negative experience and reduced trust in the platform.
- Platform: Higher ops costs, degraded delivery success rate, and damage to marketplace credibility.

## Root Causes

- No cross-field geo-validation between free-text address fields and PIN code at checkout.
- Lack of an authoritative PIN → (city, state, locality) mapping in the validation flow.
- Absence of real-time geocoding / fuzzy matching and user prompt for correction.

## Proposed Solution (summary)

Integrate an Address Validation Service (AVS) at checkout that cross-checks the entered city/locality/state against the supplied PIN code using India Post data and geocoding APIs (MapMyIndia / Google Maps). Block or prompt correction for mismatches, and maintain an internal 'high-risk' flagging system.

## Technical Approach

- **Client-side:** Inline validation for address fields with auto-suggest and immediate mismatch warnings.
- **Server-side AVS:** Service that checks PIN → (city, district, state, pincode coverage) mapping + geocoding fallback.
- **Data sources:** India Post official database (primary), MapMyIndia/Google geocoding (secondary), cached mapping for low latency.
- **Orchestration:** If mismatch detected, show explicit correction prompt; for high-risk orders, require phone verification or manual review.

## Data Requirements

- Authoritative pincode → {city, district, state, localities} mapping (India Post / Govt DB).
- Historical order + delivery outcomes by pincode and locality (to compute risk scores).
- Courier RTO stats by pincode for prioritization.

## MVP Plan & Timeline (6 weeks)

**Week 0–1:** Analytics: quantify current mismatch volume and RTO impact by pincode.

**Week 2–3:** Build AVS prototype (India Post dataset + simple API) + client-side validation UI.

**Week 4:** Run controlled A/B in select pincodes (show prompt vs. no prompt).

**Week 5–6:** Integrate geocoding fallback, add risk-based enforcement, iterate on UX.

## Success Metrics (examples)

- Delivery success rate (first-attempt) — target +X% within 8 weeks.
- RTO rate reduction — target 20–30% relative reduction in tested pincodes.
- Reduction in failed-delivery trips per 1,000 orders.
- Decrease in dispute cases and reverse logistics cost per order.

## Risks & Mitigations

- **Risk:** Intrusive validation may reduce conversion. **Mitigation:** soft prompt first, escalate only for high-risk patterns.
- **Risk:** Authoritative PIN DB licensing. **Mitigation:** negotiate India Post / use MapMyIndia fallback.

## Dependencies & Deliverables

- Access to India Post or licensed pincode mapping dataset.
- Geocoding API account (MapMyIndia / Google) for fallback and auto-suggest.
- A/B test infrastructure and courier delivery outcome logs.
- Deliverables: AVS API, client validation UI, A/B test report, deployment playbook.

## Expected Impact (quantified example)

If baseline RTO due to address issues is 5% in targeted regions, a conservative 25% relative reduction would reduce RTO to 3.75%, saving logistics cost and improving seller margins. (Actual gains require baseline measurement during analytics sprint.)

## Appendix — Suggested APIs & References

- India Post PIN code dataset (official).
- MapMyIndia / Google Geocoding API for address normalization and reverse geocoding.
- Internal courier RTO and delivery outcome logs for risk scoring.