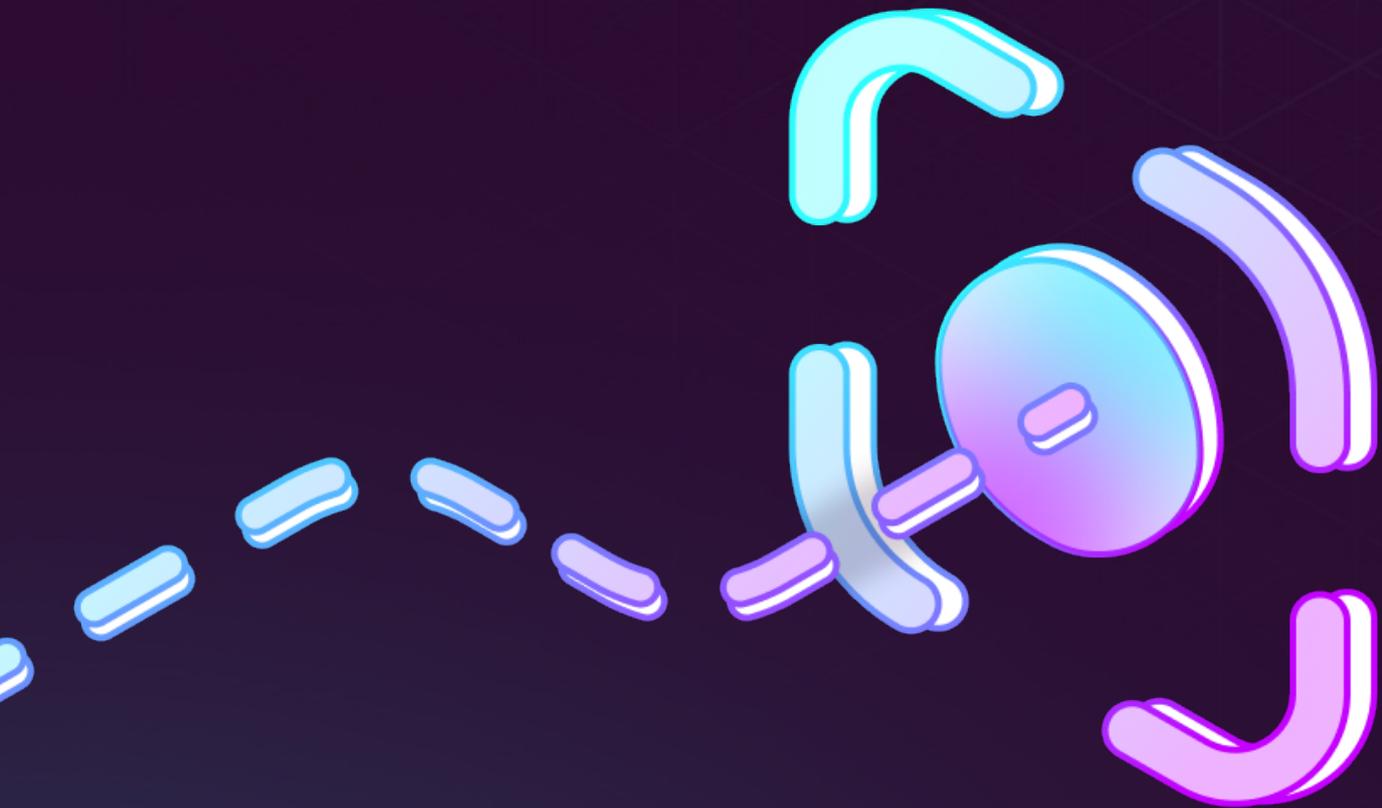




Solution Brief

Last Mile Integrity Intelligence



AI-Powered Detection of Delivery Fraud, Driver Misconduct, Operational Errors & Post-Delivery Theft makes Beamup a leader in this high-stakes last-mile integrity space.

The last mile is one of the most vulnerable and costly segments of the supply chain. Delivery fraud, scanning inconsistencies, route deviations, insider theft, and post-delivery claims all erode customer trust and drive preventable losses.

Beamup provides an AI-driven integrity layer across the end-to-end delivery journey, combining GPS, scan events, mobile-app signatures, route behavior, fulfillment data, complaint patterns, and anomaly detection to protect revenue, reduce concessions, and elevate customer confidence.

Beamup Last Mile Advantage



Predictive Fraud & Theft Detection

AI identifies inconsistencies in GPS, scans, route adherence, evidence artifacts, and complaint patterns.



End-to-End Signal Fusion

Combines mobile app data, FC operations, route logic, historical behavior, and customer interactions.



Human-Validated, Automation-Ready

Risk signals are reviewed by operations, trust & safety, or loss-prevention teams—with automation available as confidence grows.

Proven Impact

Organizations achieve measurable improvements across:



Delivery confirmation confidence



Misdelivery and lost package rates



Pick-pack and staging accuracy



Theft and fraud incident reduction



Customer satisfaction and trust

From fulfillment to doorstep, Beamup protects revenue, prevents fraud, and ensures delivery trust—turning last mile risk into a predictable, manageable, AI-driven process.

Ready to transform your supply chain?

Please contact us at sales@beamup.ai

Appendix. Key Use Case Categories

1. Driver Theft & Intentional Misconduct

ROOT CAUSES:

Package received but contents missing; multi-box orders with missing cartons.

BEAMUP CAPABILITIES:

- Validates delivery authenticity using GPS, image analysis, signature matching, and multi-box scan sequences.
- Detects tampering or nonstandard delivery patterns.

SUCCESS OUTCOMES:

- Higher delivery confirmation confidence.
- Reduced tampering incidents.
- Reduced Delivery vs GPS Mismatch rate.

Driver or third party swaps the intended parcel/contents and uses staged POD to “prove” delivery.

- Detects staged POD (device/app integrity, photo analysis, scan/GPS alignment) and flags swap risk via scan/ID anomalies and chain-of-custody breaks.
- Carton integrity signals (if available): weight/dims anomalies, seal ID/serial continuity.
- Repeat-offender & hotspot analytics: route/driver patterns.

- Fewer fraudulent substitutions.
- Fewer customer concessions.

Package is on the truck but never scanned; often associated with concealment or theft.

- Step-level scan compliance enforcement.
- Timeline + geofence validation.
- Load-to-route reconciliation.

- Improved scan compliance.
- Reduced missing packages traced back to driver behavior.

Order is canceled only *after* truck departure—strong indicator of targeted theft.

- Cancellation timing anomaly detection.
- Customer pattern controls: repeat-cancel accounts.

- Reduced fraudulent en-route cancellations.
- Higher recovery of suspicious activity.

1. Driver Theft & Intentional Misconduct (cont.)

ROOT CAUSES:

Customer claims delivery not received, driver has proof of delivery.

BEAMUP CAPABILITIES:

- POD integrity validation: device/app integrity, photo authenticity/duplication checks, timestamp consistency.
- Delivery radius + address matching.
- Repeat-claim clustering: customer/address repeat DNR patterns vs driver-specific patterns.

SUCCESS OUTCOMES:

- Fewer invalid DNR claims.
- Faster resolution of customer disputes.

Driver intentionally delivers to the wrong address.

- Address-level validation: geofence to parcel's address.
- Misdelivery network detection: recurring wrong-address deliveries linked to the same driver/route.

- Lower complaint frequency.
- Identification of repeat driver misconduct.

2. Driver Error (Unintentional)

ROOT CAUSES:

Package scanned to wrong address.

BEAMUP CAPABILITIES:

- Flags deliveries occurring outside the valid delivery radius or at incorrect coordinates.
- Address-match validation: compare scan location to the intended stop geofence and the sequence of stops.

SUCCESS OUTCOMES:

- Improved first-attempt delivery accuracy.
- Reduced downstream DNR/misdelivery claims.
- Higher scan-to-stop match rate.

Lost package (never scanned).

- Load-to-route reconciliation.
- Route-level anomaly detection: clusters of "never scanned" on the same route/shift can indicate process breakdown.

- Fewer packages lost before first scan.
- Better route-level compliance.
- Reduced reships/refunds caused by driver process errors.

3. Post-Delivery Theft & Customer Fraud

ROOT CAUSES:

Fraudulent claims / concession abuse.

BEAMUP CAPABILITIES:

- Segments claims using concession history, repeat-offender/linkage signals (account/address/device/payment), claim timing, and POD/scan/GPS evidence consistency to flag likely abuse and generate actionable review dispositions.

SUCCESS OUTCOMES:

- Reduction in concession abuse.
- Lower incident rate from high-risk consumers.

Package was delivered correctly but stolen after delivery from an exposed drop location.

- Verifies delivery authenticity (scan/GPS/POD integrity), classifies drop location and exposure risk using POD + geofence signals, and corroborates theft claims via timing and repeat-pattern analytics to trigger targeted prevention actions.

- Better categorization of true theft vs false claims.
- Improved downstream loss-prevention strategies.

4. Pre-Delivery Upstream Errors

ROOT CAUSES:

Wrong item picked/packed in fulfillment center.

BEAMUP CAPABILITIES:

- Scan reconciliation, sequence. and timing checks, staging to load compliance.
- Hotspot & repeat-offender analytics.

SUCCESS OUTCOMES:

- Higher fulfillment accuracy.
- Fewer customer complaints tied to FC mistakes.
- Stronger staging-to-loading compliance.

Inventory staging errors / packages not loaded on truck.

- Staging to load reconciliation, chain of custody tracking, staging location integrity.

- Reduced staging loss.
- Increased load accuracy.
- Better FC-to-driver chain of custody tracking.

5. Pre-Delivery Insider Theft (Distribution Centers)

ROOT CAUSES:

Bricked package (box shipments with no valid product inside).

Intentional wrong product shipment.

BEAMUP CAPABILITIES:

- Detects weight anomalies, scan discrepancies, shortage claims tied to specific stations or employees.
- Packout verification and carton lifecycle integrity.

- Carton integrity signals, pack-out SKU verification, sequence & behavior anomaly detection, hot spot detection.

SUCCESS OUTCOMES:

- Significant reduction in fraudulent DC behavior.
- Improved accuracy in identifying internal theft.
- Reduced repeat incidents at flagged stations/shifts.

- Reduced outbound fraud.
- Stronger chain-of-custody integrity.
- Improved detection of repeat offenders or high-risk stations.