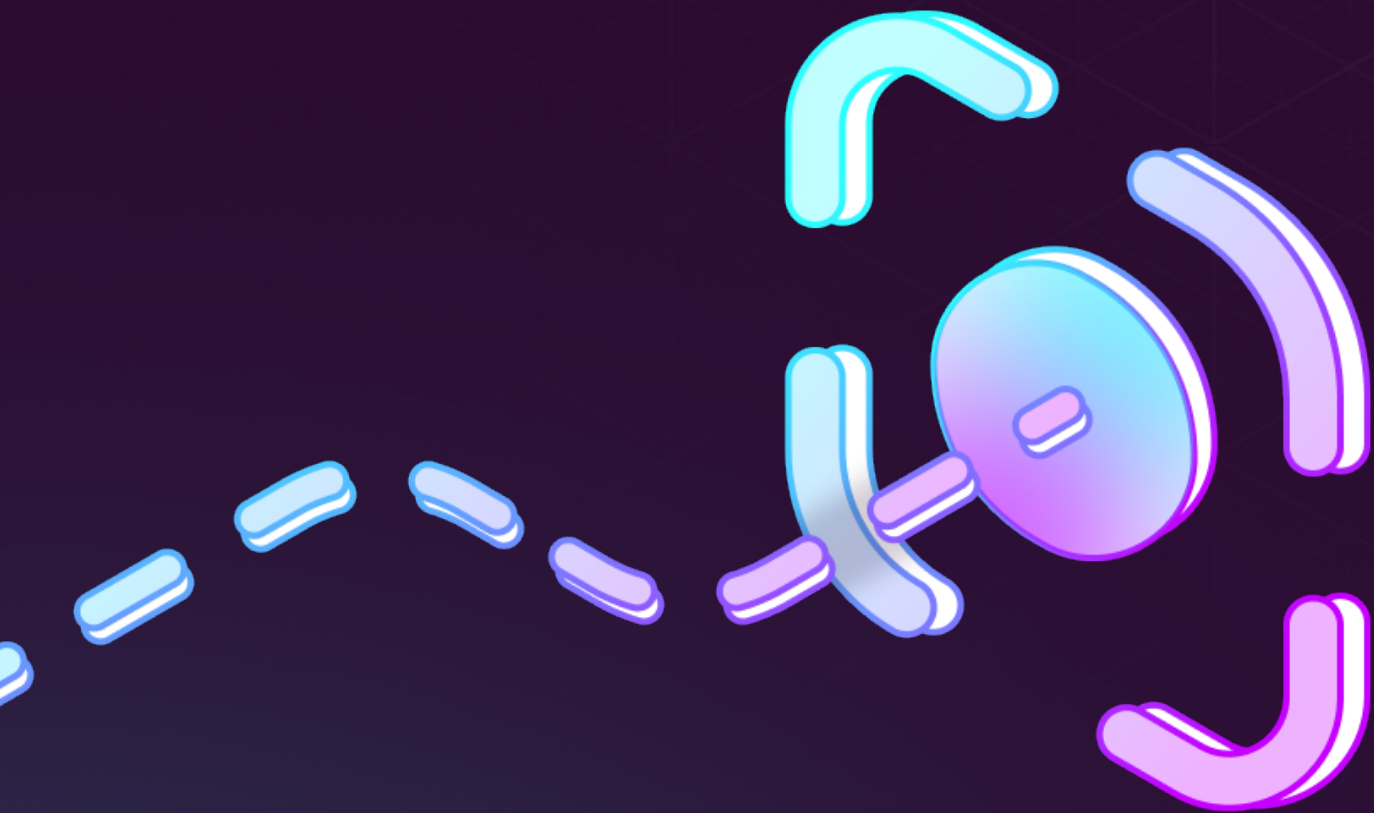**Beamup**

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**

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Appendix. Key Use Case Categories

1. Driver Theft & Intentional Misconduct

ROOT CAUSES:	BEAMUP CAPABILITIES:	SUCCESS OUTCOMES:
Package received but contents missing; multi-box orders with missing cartons.	• Validates delivery authenticity using GPS, image analysis, signature matching, and multi-box scan sequences. • Detects tampering or nonstandard delivery patterns.	• 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.

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1. Driver Theft & Intentional Misconduct *(cont.)*

ROOT CAUSES:	BEAMUP CAPABILITIES:	SUCCESS OUTCOMES:
Customer claims delivery not received, driver has proof of delivery.	• 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.	• 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:	BEAMUP CAPABILITIES:	SUCCESS OUTCOMES:
Package scanned to wrong address.	• 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.	• 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.

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3. Post-Delivery Theft & Customer Fraud

ROOT CAUSES:	BEAMUP CAPABILITIES:	SUCCESS OUTCOMES:
Fraudulent claims / concession abuse.	• 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.	• 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:	BEAMUP CAPABILITIES:	SUCCESS OUTCOMES:
Wrong item picked/packed in fulfillment center.	• Scan reconciliation, sequence. and timing checks, staging to load compliance. • Hotspot & repeat-offender analytics.	• 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.

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5. Pre-Delivery Insider Theft (Distribution Centers)

ROOT CAUSES:	BEAMUP CAPABILITIES:	SUCCESS OUTCOMES:
Bricked package (box shipments with no valid product inside).	• Detects weight anomalies, scan discrepancies, shortage claims tied to specific stations or employees. • Packout verification and carton lifecycle integrity.	• Significant reduction in fraudulent DC behavior. • Improved accuracy in identifying internal theft. • Reduced repeat incidents at flagged stations/shifts.
Intentional wrong product shipment.	• Carton integrity signals, pack-out SKU verification, sequence & behavior anomaly detection, hot spot detection.	• Reduced outbound fraud. • Stronger chain-of-custody integrity. • Improved detection of repeat offenders or high-risk stations.

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