

Piece-Level Visibility in Cargo Operations



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OPERATIONAL CONTEXT



Accurate counting, sorting, storage, and routing of cargo shipments to the correct arrival and delivery processes are critical for operational continuity, service quality, and load safety in cargo operations. At SmartIST, Turkish Cargo's main hub facility, Istanbul-bound import cargo is registered in the system on an AWB basis after ULD breakdown and stored in the Temporary Storage Warehouse (TSW) to be prepared for delivery processes.

Within this flow, where approximately 10,000 cargo pieces are handled daily, scanning the AWB/barcode label of each individual piece becomes challenging, especially for multi-piece shipments arriving in bulk, due to operational speed requirements. Manual counting and control processes increase the risks of undercounting or overcounting, incorrect storage, misrouting, and operational delays.

How Does The Counting And Tracking Process Work For Bulk Cargo Shipments?

For Istanbul-bound import cargo arriving at the Turkish Cargo SmartIST warehouse, the acceptance, sorting, storage, and delivery/routing processes proceed through the following steps:

- 1. Acceptance and Sorting:** ULDs unloaded from the aircraft are opened through the breakdown process. Shipments are registered via AWB in the system with piece count, weight, and content information.
- 2. Storage and Location Assignment:** Sorted shipments are routed to the relevant storage areas or process points according to the operational flow. Cargo moved into the TSW area is mostly tracked through optical barcodes and manual controls.
- 3. Delivery and Exit Controls:** For cargo routed to exit points such as the Main Gate and Express Gate, discrepancies may occur between the shipment information shown in the system and the physical cargo. Missing, excess, or misrouted shipments are identified by operation teams, and corrective actions are taken through coordination with the relevant units.

How Might We Canvas

Who?

who are the stakeholders that get effected?

TSW/warehouse teams, delivery and exit control teams, arrival stations, sender/receiver customers, and customs authorities.

What?

what is the problem that needs to be solved?

In high-volume bulk cargo shipments, the difficulty of registering each piece individually may lead to missed or incorrect records, causing errors in shipment counts, routing information, and piece-level tracking.

Why?

why is this problem worth solving?

Incorrect or missing counts may lead to wrong storage, incomplete delivery, routing to the wrong station, international customs penalties, customer dissatisfaction, and revenue loss.

How?

how can this problem be eliminated?

Through RFID, RTLS, or similar tracking systems that enable cargo pieces to be counted, verified, and location-tracked without requiring manual scanning, while also alerting teams in cases of incorrect routing.

Challenge:

How might we enable multi-piece shipments arriving in bulk within high-volume import cargo flows to be counted, verified, tracked, and routed to the correct delivery process at the AWB level, without relying on manual counting or piece-by-piece scanning?