MODULE 3

Documentation in Logistics

12 Documenting and Information Flow: Advices, Planning, FTL, LTL

In modern supply chain ecosystems, the physical movement of goods is entirely dependent on the digital and physical information that precedes, accompanies, and follows it. If the information flow is broken, physical distribution grinds to a halt.

The Dynamics of Information Flow

Information in logistics moves in two directions:

- **Forward Flow:** Includes inventory status, shipping instructions, advanced notices, and delivery schedules moving from the supplier toward the end consumer.
- **Backward Flow:** Includes purchase orders, tracking requests, service feedback, and return authorizations (reverse logistics) moving from the consumer back to the supplier.

Shipping Advices & Advanced Shipping Notices (ASN)

A **Shipping Advice** is a formal communication sent by a seller to a buyer confirming that a shipment has been dispatched. In digitized supply chains, this has evolved into the **Advanced Shipping Notice (ASN)**.

How it works: An ASN is sent electronically via Electronic Data Interchange (EDI) or API *before* the physical delivery truck arrives at the destination warehouse.

Operational Importance: It contains granular details—such as the exact time of departure, estimated time of arrival (ETA), purchase order numbers, SKU counts, batch numbers, and pallet configurations. This allows the receiving warehouse manager to plan labor, allocate dock doors, and optimize cross-docking schedules in advance, preventing warehouse congestion.

Logistics Planning and Documentation

Before a wheel turns, logistics planning systems must generate documentation that optimizes routes and resources. Documentation at the planning phase includes:

- **Load Tender Documents:** Offers a shipment to a specific carrier, detailing the weight, volume, commodity type, and rate.
- **Route Manifests:** A master document provided to drivers outlining the sequence of drop-offs, optimized travel paths, and delivery windows to minimize empty miles.

FTL vs. LTL Documentation Flow

The administrative burden and operational flow alter significantly depending on the load configuration:

Full Truckload (FTL) Documentation:
Highly streamlined. One truck, one shipper, one destination. A single **Bill of Lading (BOL)** is generated at the point of origin. The document remains with the driver throughout the direct route and is signed once at the final destination as proof of delivery (POD). The risk of document mismatch or cargo loss is exceptionally low.

Less-than-Truckload (LTL) Documentation:
Highly complex. Multiple shippers, multiple destinations, consolidated into a single vehicle. Every individual shipment within the truck requires its own independent BOL. As the truck moves through intermediate cross-dock facilities, pieces of freight are unloaded, sorted, and re-routed. LTL tracking relies heavily on **PRO Numbers** (Progressive Routing Numbers) assigned to each shipment. A master **Consolidation Manifest** links all these individual tracking numbers together. If one document or barcode fails to scan at a cross-dock, a single sub-shipment can become lost, causing an entire branch of the supply chain to stall. LTL also requires routine *Re-weigh and Inspection Certificates* when weight disparities occur at carrier terminals.

13 Documentation, Road Receipts / Truck Receipts / Way Bills (RR / LR)

Surface transport documentation serves as a legal contract, a commercial receipt, and a tool for regulatory compliance.

Legal Nature of Lorry Receipts & Railway Receipts

The **Lorry Receipt (LR)** is a critical legal document issued by a domestic road transport carrier upon taking custody of a consignment. It acts as an operational contract between the consignor (shipper) and the transport company.

Core Functions of an LR:

- **Acknowledgment of Goods:** It serves as definitive proof that the transport company has received the goods from the shipper in a specified condition.
- **Contract of Carriage:** It outlines the terms and conditions of transportation, including freight charges (whether "Prepaid" or "To-Pay" at destination), liability limitations for damage, and delivery clauses.
- **Document of Title:** A "Consignee Copy" of the LR often acts as a title document. The carrier will not release the physical cargo at the destination unless the receiver presents the original, stamped LR copy.

Railway Receipt (RR)

Similar to the LR, the **Railway Receipt (RR)** is issued by the rail authority (such as national railway boards) when goods are accepted for rail freight transport.

Operational Distinctions:

- **Negotiable vs. Non-Negotiable:** An RR can be issued in a negotiable form, meaning the ownership of the goods can be transferred to a third party (such as a bank or an intermediate buyer) while the cargo is physically in transit on the tracks.
- **Station-to-Station Handover:** Unlike road transport, which handles door-to-door delivery, the RR strictly governs station-to-station movement. The documentation must specify demurrage conditions (fees charged if the receiver takes too long to unload wagons at the rail terminal).

Waybills and e-Waybills

A **Waybill** is a document issued by a carrier giving details and instructions relating to the shipment of a consignment of goods. It travels *with* the vehicle and shows the names of the consignor, consignee, point of origin, destination, and the route.

The Electronic Waybill (e-Waybill) Paradigm: In modern regulatory environments, the traditional paper waybill has been replaced by the statutory **e-Waybill** system. Generated online via specialized government portals, it tracks the movement of goods in real time.

- **Tax Compliance & Fraud Prevention:** It is mandated for any domestic movement of goods exceeding a specific monetary threshold. It binds the commercial invoice data to the vehicle's registration number.
- **Validity Caps:** e-Waybills feature hard mathematical validity timelines based on the travel distance (e.g., valid for 1 day for every 200 kilometers). If a truck breaks down or faces logistical delays and the e-Waybill expires without being officially extended online, the carrier can face massive statutory penalties and vehicle seizure by enforcement authorities.

14 Consignment Note CMR

When road transport transitions from domestic corridors to cross-border international highways, standard domestic Lorry Receipts are legally insufficient. Operations must comply with the **CMR Convention**.

Understanding CMR

The term **CMR** stands for *Convention relative au contrat de transport international de marchandises par route* (Convention on the Contract for the International Carriage of Goods by Road). It is a United Nations treaty ratified by over 50 countries across Europe, Asia, and North Africa to standardize the legal frameworks of cross-border road shipping.

The CMR Consignment Note

The CMR Consignment Note is the standardized, mandatory document utilized to execute a contract under this international treaty. It uniformizes carrier liabilities, transit documentation, and dispute resolutions.

CMR International Pad Routing Architecture

COPY 1 (RED) Sent to the Consignor / Shipper as immediate proof of cargo handover.

COPY 2 (BLUE) Despatched with the vehicle; travels with physical cargo to the final Consignee.

COPY 3 (GREEN) Retained securely by the Carrier as legal verification of the carriage contract.

COPY 4 (BLACK) Managed internally for administrative records, cross-border border clearings, and freight auditing.

Granular Elements of the CMR Note:

- **Quadruplicate Copy System:** Every CMR pad contains four color-coded carbon copies with distinct destinations to prevent cross-border disputes as illustrated in the schematic flow above.
- **Reservations Clause (Box 18):** If a carrier notices that the packaging is damaged or the pallet counts are incorrect during loading, they must write explicit reservations in Box 18. If they leave this blank, the law assumes the goods were handed over in perfect condition, making the carrier liable for any damages discovered at destination.
- **Strict Liability Caps:** The CMR convention establishes strict caps on how much money a carrier can be sued for if goods are damaged. This liability is calculated using **SDR (Special Drawing Rights)**—a global basket currency index managed by the IMF—limiting payouts to 8.33 SDR per kilogram of gross weight, insulating carriers from catastrophic financial ruin over high-value cargo.

15 Booking, Invoicing & Information Flow

The integration of commercial booking and financial invoicing with real-time operational data forms the lifecycle of execution in logistics.

1. The Booking Phase

Logistics execution begins when an order triggers a freight request within a **Transportation Management System (TMS)**.

- **Spot Bookings:** Executed when a business utilizes the immediate open market to procure a truck or container. Rates fluctuate daily based on sudden supply-demand imbalances.
- **Contract Bookings:** Pre-negotiated agreements where a carrier guarantees a fixed volume capacity at a stabilized rate over a set duration (e.g., 6 months).
- **Information Output:** The booking phase generates a **Booking Confirmation Note**, which reserves equipment, schedules pick-up slots at the facility, and alerts warehouse teams to prepare inventory.

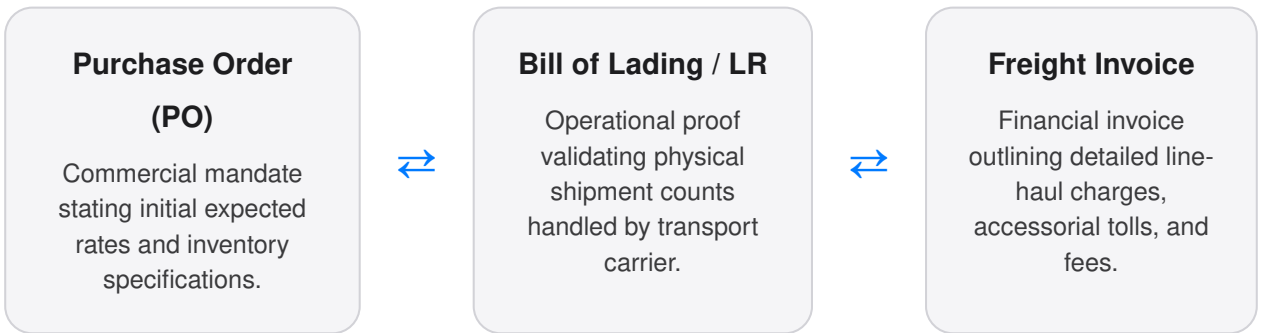
2. The Invoicing & Financial Auditing Phase

Once a shipment is delivered and the signed Proof of Delivery (POD) is uploaded into the system, the financial transaction triggers.

- **The Commercial Invoice:** Created by the seller to detail the transaction value of the physical goods sold to the buyer.
- **The Freight Invoice:** Created by the logistics carrier billing the shipper for the transportation services rendered (including baseline line-haul charges, fuel surcharges, accessorial fees, and toll adjustments).

The Freight Audit and "Three-Way Match"

Freight billing is notoriously prone to clerical errors due to complex accessorial charges (such as detention fees, lift-gate fees, or unexpected residential delivery fees). Advanced systems execute an automated **Three-Way Match** to approve a payout:



If the data matches within an acceptable variance window, payment is released automatically. If it misaligns (e.g., a carrier charges for FTL when the PO stated LTL), the system automatically flags the invoice for manual dispute resolution.

16 GPS –RFID

Modern logistics has evolved from passive tracking (knowing where a shipment *was* yesterday) to active tracking (knowing exactly what a shipment *is doing* right now). This real-time visibility is driven by combining GPS and RFID technologies.

Global Positioning System (GPS) in Logistics

GPS uses a network of orbit satellites to pinpoint the geographical coordinates of an asset. In logistics, hardware tracking modules are hardwired into truck fleets, trailers, or individual ocean containers.

Operational Depth Beyond Basic Tracking:

- **Dynamic Geofencing:** Managers draw invisible, digital perimeters around critical waypoints (e.g., a 1-kilometer radius around a distribution center). When a GPS-tracked truck crosses this virtual boundary, it automatically triggers an automated email or API alert to the warehouse dock crew to prepare for immediate unloading.
- **Advanced Telematics & Sensor Blends:** Modern GPS hardware does more than track position. It functions as a sensor hub, transmitting real-time operational diagnostics:
  - *Cold-Chain Monitoring:* Inside refrigerated trucks, temperature and humidity sensors feed live data to the GPS unit. If the temperature rises above a safe threshold, an alert is sent instantly to prevent cargo spoilage.
  - *Driver Behavior Metrics:* Captures abrupt braking, aggressive cornering, and engine idling times to improve fleet safety and fuel efficiency.

Radio Frequency Identification (RFID)

Unlike GPS, which tracks long-distance movement via satellites, RFID is a localized wireless technology used to manage assets inside warehouses, shipping yards, and manufacturing facilities without requiring manual optical scanning.

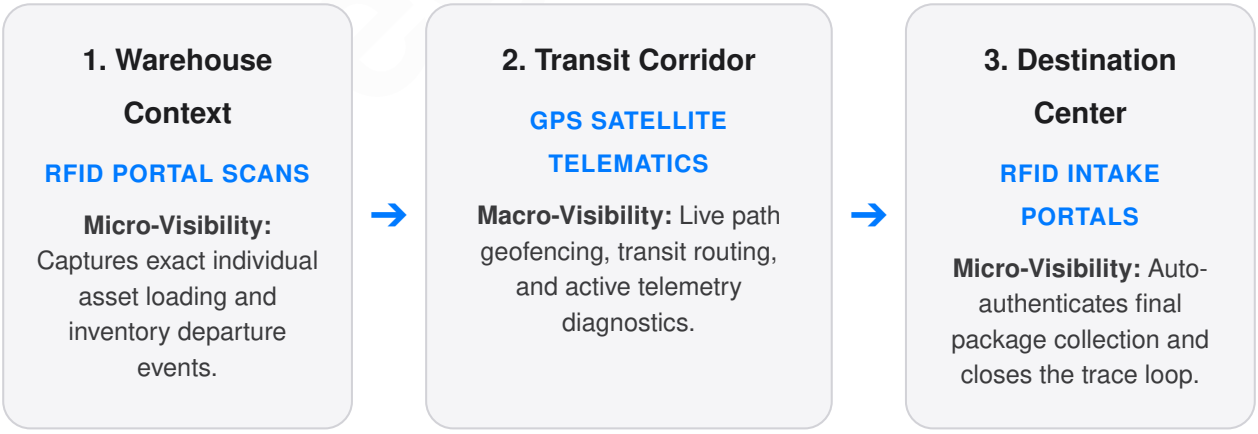
Technical Components:

- **RFID Tags:** Small microchips attached to products, cartons, or pallets. They are split into:
  - *Passive Tags:* Have no internal power source. They remain dormant until energized by the radio waves emitted from an RFID reader. They are cheap, thin, and have a short reading range (up to 10 meters).
  - *Active Tags:* Contain an internal battery, allowing them to continuously broadcast a signal over longer distances (up to 100 meters). These are used to track high-value equipment or entire shipping containers inside a port yard.
- **RFID Readers (Antennas):** Installed at strategic locations, such as warehouse entry and exit dock doors.

The Operational Leap Over Barcodes: Barcodes require line-of-sight scanning, meaning an operator must point a laser directly at an individual label. RFID eliminates this bottleneck entirely. For example, a forklift drives an entire pallet containing 200 individual electronic boxes through an RFID dock door. The reader scans all 200 passive tags simultaneously in a fraction of a second, instantly updating the inventory system without the operator needing to break open the protective shrink-wrap.

The Visibility Synergy: GPS + RFID Working Together

To build a seamless, modern logistics operation, companies use both technologies in tandem to cover different environments:



By linking localized RFID event logging with macro-level GPS tracking, logistics platforms maintain complete end-to-end visibility across the entire distribution network.

End of Module 3