B2E Gift Card Platform – Non‑Technical Product Requirements (v1.1)

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1) Purpose & Goals

This document defines the **non‑technical** product rules and behaviors for a B2E gift‑card issuing platform. It is written so Backend, Frontend, and Design can each derive their own implementation docs without needing API or database details.

Primary goals

- Enable **Admins** to onboard business **Clients**, accept offline payments, manage catalogs, and view reports.
- Enable **Clients** to fund wallets, create **Voucher (PIN) cards** in bundles, distribute them, and manage status.
- Enable **Customers** to authenticate with a PIN and order product **Gift Cards** from the assigned catalog, with delivery by SMS/WhatsApp/Email or download.
- Enforce strict business rules for currencies, FX, pricing/discounts, vouchers, orders, ledgers, and auditability.

Out of scope (v1)

- KYC/identity verification of clients or customers.
- Automatic notifications for expiry or stock delays.
- Multi‑factor auth/OTP for customers.
- Automated delivery fallback (manual retries only).

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2) Personas & Roles

Admin

- **Super Admin:** full visibility across all clients and actions.

- **Scoped Admin:** can see and manage only assigned clients (manual assignment by Super Admin).
- **Accountant:** global **read‑only** access to reports and finance extracts; **no operational actions**.

Client (Business)

- **Business Owner:** full access to own organization.
- **Client Accountant:** view reports and financials for own organization.

Customer (End‑user)

- Authenticates with a **PIN** (voucher card). Places orders for gift cards within the catalog assigned to that PIN.

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3) Glossary

- **Client:** a business using the platform. May hold multiple **wallets** (one per enabled currency).
- **Customer:** end‑user who authenticates with a **Voucher (PIN) card**.
- **Voucher (PIN card):** a balance‑bearing access token tied to exactly **one catalog**; used by customers to purchase gift cards. Identified by a 16‑character PIN and an integer **serial**.
- **Gift card (product card):** the final product voucher code delivered to a customer for a specific product and value.
- **System Product List (System Products):** platform‑wide master list of products managed by Admin/Stock integration.
- **Client Catalog (per‑wallet):** a catalog of products (with per‑product percentage discounts) that an Admin assigns to a specific Client wallet. **One wallet → exactly one Client Catalog.** A single Client Catalog may be assigned to multiple wallets.
- **Product List (Client Product List):** a Client‑defined **subset of the assigned Client Catalog** used to restrict which products can be ordered with vouchers from a specific bundle. Selected during **voucher bundle creation**, then **frozen** for that bundle. Products inside a Product List have an **active** flag.
- **Wallet:** a client balance container in a specific currency. Used to fund voucher creation and to check spending capacity.
- **Order:** a customer purchase for **up to 5 gift cards** of **one product**.

Hierarchy of subsets:

System Product List ⊇ Client Catalog ⊇ Product List

4) High-Level Journeys

4.1 Admin

1. Create Client and initial Wallets.
2. Record an **offline payment** (amount, currency, reference, date, payer name) → increases the Client's wallet balance.
3. Create or edit **Client Catalogs** (products + % discounts). Assign a catalog to each wallet (1 wallet ↔ 1 Client Catalog; 1 catalog ↔ many wallets).
4. View and export reports (balances, issued vouchers, delivery outcomes, stock outcomes, refunds).

4.2 Client

1. View wallet balances and the **Client Catalog** assigned to each wallet.
   1a) **Create and manage Product Lists** (Client-defined subsets of the assigned Client Catalog) to control which products will be available for a voucher bundle.
2. **Create Voucher Bundles**: select **Product List**, confirm wallet's **Client Catalog** (implicit via wallet), set **expiry (UTC)**, **count**, **face value** per voucher, and **delivery method** (download CSV or send via uploaded CSV of recipients).
3. On creation, platform checks total required funds and debits the wallet; vouchers start as **Active** with the set face value and expiry.
4. Manage vouchers: search by **serial** or PIN, and **deactivate** unused vouchers (cannot deactivate if any purchase exists).
5. **Stop Bundle** (new): stop all vouchers in a bundle to make them unusable at any stage.
6. View reports and export CSVs.

4.3 Customer

1. Enter PIN (case-insensitive; hyphens/spacing ignored).
2. See remaining balance and expiry (UTC) of the voucher card.
3. Pick **one product** from the voucher's **Product List** (subset of its wallet's Client Catalog), obeying product rules; place an **Order** for up to 5 gift cards.
4. Choose delivery: **WhatsApp**, **SMS**, **Email**, or **Download** (file).
5. Receive receipt/summary; can re-send or re-download past orders.

5) Business Rules

5.1 Markets, Tax, Refund/Chargeback

- **Markets:** no geographic restrictions (v1).
- **Tax/VAT:** none applied or displayed (v1).
- **Refund/chargeback of client top-ups: never** allowed in this platform.
- **Stock timing:** stock may respond **synchronously** or via **webhook**; platform waits for stock response (**no platform-side timeouts/decisions**).

5.2 Wallets & Currency

- A Client can have **multiple wallets**, typically **one per currency** enabled for them.
- **Supported currencies** are defined in a system list; only some may be enabled per client.
- **Precision: two decimals** for **all currencies**, using **round half-up**.
- **Negative balances: disallowed**.
- Wallet **display:** show value only in wallet currency.

5.3 FX & Pricing

- Cross-currency is allowed when **product currency ≠ wallet/voucher currency**.
- FX rates come from an **Exchange service**, cached **every 6 hours**. Pairs are **static and manually entered**.
- **Rate lock:** at **order submit**; the same locked rate applies to related refunds.
- If cache is **older than 6 hours**, **block** cross-currency orders with a clear error.
- **Discount order:** apply **percentage discount** in **product currency first**, then convert to wallet currency for balance checks and captures.

5.4 Client Catalogs & System Products

- **System Product List** is the master list.
- A **Client Catalog** (assigned per wallet) is a **subset** of the System Product List.
- **Discount: percentage** per product within the Client Catalog.
- **Lifecycle:** Admin can create/edit/deactivate a Client Catalog. If a Client Catalog is **Inactive**, all vouchers tied to wallets using that catalog are **blocked from all usage**, including balance checks.
- **Assignment:** 1 Client Catalog ↔ **many** wallets; 1 wallet ↔ **exactly one** Client Catalog.
- **Active flags – orderability rule:** a product is **orderable** only if **all** are true at time of order:
    1. Product is **active** in **System Products**,
    2. Product is **active** in the **Client Catalog**, and
    3. Product is **active** in the **Product List** attached to the voucher's bundle.
- **Admin disable effect:** if Admin disables a product in a Client Catalog, that product becomes **not orderable immediately** for all vouchers using that catalog, regardless of Product List status.

5.5 Product Lists (Client-Managed)

- **Definition:** a Client‑created list of products that is a **subset** of the wallet's **Client Catalog**.
- **Active flags:** each product in a Product List has an **active** flag; if inactive, it is **not orderable** even if active in System Products and the Client Catalog.
- **Selection & Freeze:** a **Product List must be selected** during **voucher bundle creation**. Once the bundle is created, its Product List is **frozen** and **cannot be changed** for that bundle.
- **Editing:** Clients can edit Product Lists **at any time** (add/remove/toggle active) for **future bundles**; edits **do not**change the Product List of already‑created bundles.

5.6 Vouchers (PIN Cards)

- **PIN format:** 16 characters; digits and uppercase letters; **exclude** ambiguous chars: 0, 1, 2, 5, 8, I, O, S, B.
    - Input tolerance: case‑insensitive; ignore spaces/hyphens.
    - Display format: XXXX-XXXX-XXXX-XXXX.
- **Serial:** integer auto‑increment (exposed to Client for search/deactivation).
- **States:** Active, Inactive (client‑deactivated), Expired, Exhausted (balance 0), Blocked (fraud), **Stopped (bundle‑stopped)**.
- **Expiry:** set per **bundle** at creation; stored/evaluated in **UTC**; **immutable** once set.
- **Partial use:** allowed across multiple orders until balance is 0.
- **Deactivation:** Client may deactivate **only if not used at all** (i.e., **no purchase transactions**). Deactivating does **not**return balance to wallet.
- **Catalog effect:** if the wallet's Client Catalog becomes **Inactive**, vouchers under it are **blocked** from any action.
- **Product List inheritance:** vouchers inherit the **Product List** from their bundle; this association is **immutable**.

5.7 Voucher Bundles (Client)

- **Inputs:** wallet's **Client Catalog** (implicit via wallet), **Product List**, expiry (UTC), number of vouchers, face value per voucher, delivery method (download vs. send via recipient CSV).
- **Bundle limits:** soft cap **1,000 vouchers** per bundle (UI warning; policy override by Admin if needed).
- **Balance check:** face_value × count must be **≤ wallet balance** at creation; otherwise block.
- **On create:** wallet is debited; vouchers are created **Active** with face value and expiry; ledger entries recorded.
- **Delivery (download):** produce a **CSV** with PINs, serials, expiry, and face value. **No retention limit** (per v1 decision).
- **Delivery (send):** upload CSV matching the number of vouchers. One channel per bundle.
    - **Headers:**

        - Email: recipient_email[, recipient_name]
        - SMS/WhatsApp: recipient_phone_e164[, recipient_name] (strict **E.164** validation)
    - If line count ≠ number of vouchers → **error**; do not create/send.
    - **Rate limits:** soft **5 msgs/sec per channel per client** with backoff queues.
    - **Duplicates:** allowed; system **warns**.
    - **Retries:** manual re‑send only; **no auto‑fallback** to other channels.
- **Stop Bundle (new action):** a Client can **Stop** a bundle at any time.
    - **Effect:** All vouchers in that bundle move to **Stopped (bundle‑stopped)** and are **not usable at any stage** (no authentication, no new reservations or orders).
    - Any **pending reservations** are **released**. Orders already submitted to Stock continue to final resolution per Stock status; no further spending is allowed after stop.
    - Stopping a bundle **does not** automatically move value back to the Client wallet.

5.8 Customer Ordering

- **Auth: PIN‑only**. After **5 failed attempts**, lockout for **15 minutes**; error text indicates wait time.
- **Card view:** show remaining balance and expiry (UTC) and catalog name.
- **Product visibility/orderability:** customer sees and can order **only** products that are active in **System Products**, active in the **Client Catalog**, **and** active in the bundle's **Product List**.
- **Order size:** up to **5 gift cards** per order; one **product** per order. No min/max value unless enforced by the product/stock.
- **Denominations:** enforce stock product rules (fixed denominations, min/max). If product supports "any value," allow free amount.
- **Pricing & FX:** apply discount in product currency; convert using locked rate at submit; **round half‑up** to two decimals.
- **Payment model:** on **order creation**, record a **Purchase** transaction **immediately** (capture).
    - If stock returns **FAILED/Rejected**, issue **Refund** for the failed amount.
    - If stock returns **PARTIAL/PENDING**, order stays **Pending** until stock provides final status (platform does **not** auto‑timeout).
- **Delivery options:** WhatsApp, SMS, Email, or **Download** (file).
    - Download produces a file; include **watermark** with order ID; rate‑limit repeated downloads.
- **Receipts:** send order receipt/summary. **Full PIN may be shown** in outbound messages (per decision).
- **Order history:** customer can view past orders and **re‑send** or **re‑download** gift cards.
- **Stopped bundles:** if a voucher's bundle is **Stopped**, login and ordering are **blocked**.

5.9 Integrations

- **Stock service**
    - Sync product fields: id, name, currency, denominations, availability, min/max value.
    - Stock decides order statuses; platform reflects **all** stock statuses (FULFILLED, FAILED, PENDING, PARTIAL, etc.).
    - Use a **UUID** reference for idempotency when placing stock orders.
    - On **FAILED/Rejected**, platform creates **Refund** for the failed amount.
- **Messaging** (Email/SMS/WhatsApp)
    - One provider per channel (v1).
    - Track outcomes per recipient: accepted, delivered, failed.
    - No auto‑fallback; allow **manual retry**.
- **Exchange**
    - Currency pairs are static and manually maintained.
    - Rates refreshed every **6 hours**.
    - If rate cache **>6h** old at submit, **block** cross‑currency orders.

5.10 Money Movement & Ledgers

- **Voucher ledger** entries:
    - **Charge** (at bundle creation; funds allocated from client wallet to vouchers),
    - **Purchase** (captured at order submit),
    - **Refund** (on stock failure).
- **Client wallet ledger** entries:
    - **Credit** via Admin‑recorded offline payment,
    - **Debit** at bundle creation (sum of face values),
    - **No movement** on deactivation of unused vouchers (per decision),
    - **No movement** on expiry (breakage retained).
- **Timestamps:** all recorded in **UTC**.

5.11 Reporting & Analytics

- **Admin reports:** client balances, issued vouchers, Active vs Expired ratios, sends by channel, delivery success/failure, stock outcomes (fulfilled/failed/pending), refunds, revenue/discount impact.
- **Client reports:** wallet balance, issued bundles, voucher statuses, customer orders, delivery outcomes.
- **Dimensions/Filters:** include **Client Catalog** and **Product List** identifiers (e.g., orders by Product List, voucher value by Product List).
- **Filters:** date range, client, catalog, status; export **CSV**.
- **Access scope:** each user sees only data per their role.
- **Dashboard KPIs (examples):** total active vouchers, unspent value, 24h delivery failure rate, stock failure rate, refund value, top products ordered.

5.12 Security, Risk & Compliance

- **PIN attempt policy:** lock after **5** failed attempts for **15 minutes**.
- **Fraud flags (examples):** unusual spend velocity, mismatched geography of delivery vs. client market, repeated failed **PIN** attempts, high number of resend/downloads in short window.
- **PII policy:** store only what's necessary (emails/phones, recipient names, order/delivery logs). **Data retention duration = TBD** (see §8).
- **Audit log:** record **who/what/when/IP** for: client creation, offline payments, Client Catalog create/edit/deactivate, catalog↔wallet assignment, Product List create/edit/delete and product active toggle, bundle create, CSV upload, download/export, voucher deactivate, **Stop Bundle**, role/scope changes, delivery resend, and any balance‑affecting action.
- **Consent:** capture opt‑in/opt‑out where required by channel policies.

5.13 UX Content & Localization

- **Language:** English (v1).
- **Numbers & dates:** show in the user's locale/timezone; **hover/secondary** shows UTC.
- **Error copy:** plain language with cause + next steps; include a short **error code** for support.
- **Guidance:** provide CSV templates and clear PIN entry tips (case‑insensitive; XXXX-XXXX-XXXX-XXXX).

5.14 Operations & Playbooks

- **Delivery failures:** show per‑recipient failure status with a **Retry** action. No auto‑fallback.
- **Stock delays/timeouts:** platform does **not** auto-decide; it **waits** for stock response (synchronous, webhook, or manual check).
- **Lost/exposed PIN:** allow Client to **block** an **unused** voucher and **reissue** a replacement (same value & expiry); record in audit log.
- **Expiry approaching:** no notifications (v1).
- **Backups & incidents:** high‑level expectation that data is backed up and incident comms exist (details in technical docs).

5.15 Known Risks (v1 decisions)

- **Indefinite stock wait** can hold customer funds and create operational load; mitigate with dashboards and manual escalation SOPs.
- **No download expiry** increases exposure of sensitive PIN data; mitigate with client education and audit logs.
- **Fixed two‑decimal rule** may mismatch certain currencies; ensure unsupported currencies are not enabled in v1.

6) Acceptance Criteria (Feature‑Level)

6.1 Client Wallet & Offline Payments

- Admin can create a client, add a wallet in any allowed currency, and record offline payments with: amount, currency, reference, date, payer name.
- Recording an offline payment increases the wallet balance by the exact amount (two‑decimal, half‑up rounding).
- Wallet balance can never go negative.

6.2 Client Catalog Management

- Admin can create/edit a Client Catalog with products and % discounts.
- Admin can **assign** a Client Catalog to a wallet (one catalog per wallet; a catalog can be assigned to many wallets).
- When a Client Catalog is **Inactive**, vouchers tied to wallets using that catalog are **blocked from all usage**.

6.3 Product Lists (new)

- A Client can **create**, **edit**, and **delete Product Lists** that contain only products from the wallet's **Client Catalog**.
- Each product inside a Product List has an **active** flag; toggling it immediately affects **visibility/orderability** rules.
- A Product List can be **selected** during **voucher bundle creation**; the **selected list is frozen** for that bundle and cannot be changed afterward.
- Reports and exports include **Product List** identifiers where relevant.

6.4 Voucher Bundle Creation (amended)

- Must select a **Product List** (subset of the wallet's Client Catalog) at creation time; validation blocks selection if any product lies outside the Client Catalog.
- Balance check ensures face_value × count ≤ wallet balance.
- On success: wallet is debited and vouchers are created **Active** with the defined face value and expiry.
- **Download:** system produces a **CSV** containing PINs, serials, expiry, and face value.
- **Send:** system validates recipient CSV headers per channel, enforces exact line count match, validates E.164 where relevant, and queues deliveries with soft rate limits.

6.5 Voucher Management (amended)

- Client can search vouchers by **serial**, partial PIN, status, balance range, expiry range.
- Client can **deactivate** vouchers that have **no purchase transactions**; deactivation does **not** return funds to wallet.

- When a **bundle is stopped**, all vouchers in that bundle move to **Stopped (bundle‑stopped)** and become **not usable**for authentication or ordering.
- Any **pending reservations** on those vouchers are **released**. There is **no automatic wallet refund** due to stopping the bundle.

6.6 Customer Authentication & Order Placement (amended)

- Customer signs in by entering PIN (case‑insensitive; spaces/hyphens ignored). After 5 failed attempts, further attempts are blocked for 15 minutes.
- Upon sign‑in, customer sees voucher balance, expiry (UTC), and associated catalog.
- Customer can select **one product** and request up to **5** gift cards in a single order, obeying product denomination/min/max rules.
- On order submit: platform records a **Purchase** for the full order amount using the **locked FX rate** at submit time.
- If stock returns **FAILED**, platform issues a **Refund** for the failed amount.
- If stock returns **PARTIAL/PENDING**, the order remains **Pending** until a final resolution is received from stock.
- Customer receives a receipt/summary; **full PIN may be shown**.
- Customer can view order history and **re‑send** or **re‑download** gift cards.
- If the voucher's **bundle is Stopped**, customer authentication and ordering are **blocked** with a clear error.

6.7 Messaging & Delivery

- System supports **one channel per bundle** when sending vouchers: Email **or** SMS **or** WhatsApp.
- Per‑recipient delivery status is tracked as accepted, delivered, or failed.
- Users can manually **retry** failed deliveries. No automatic fallback across channels.
- **Download** provides a file and rate‑limits repeated downloads; include a watermark with the order ID.

6.8 FX & Pricing

- When product currency differs from wallet currency, discount is applied in the **product currency**, then converted at the **locked** submit‑time rate, rounded to **two decimals** (half‑up).
- If the rate cache is older than **6 hours**, cross‑currency orders are **blocked** with a clear error.

6.9 Reporting & Exports (amended)

- Admin and Client users can filter and **export CSV** for reports within allowed scopes.
- Reports include delivery success/failure, stock outcomes, refunds, voucher states, balances, and now **Client Catalog/Product List** fields.

6.10 Audit & Security (amended)

- Audit log records the required actions with user identity, timestamp (UTC), and source IP, including **Product List**operations and **Stop Bundle**.

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7) Error & Empty State Content (examples)

- **Invalid PIN (<5 attempts):** “We can’t find a card with that PIN. Check the characters and try again.”
- **PIN locked:** “Too many attempts. Please wait 15 minutes before trying again.”
- **Catalog inactive:** “This card’s catalog is unavailable. Contact your provider.”
- **Bundle stopped:** “This card’s bundle has been stopped and can’t be used.”
- **Product not orderable:** “This product isn’t available with your card right now.”
- **Insufficient wallet funds at bundle creation:** “Your wallet balance is too low to create this bundle.”
- **FX unavailable:** “Currency conversion is unavailable right now. Please try again later.”
- **CSV line mismatch:** “Your recipient list must have exactly {N} rows.”
- **Invalid phone format:** “Phone numbers must be in international format (e.g., +12025550123).”

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8) Open TBDs (to be decided outside this doc)

- **PII data retention:** propose **18 months** for messaging logs and recipient PII; **7 years** for financial ledgers and audit events. (Confirm.)
- **Breakage accounting:** confirm whether expired unspent balances are recognized as revenue and at what time.
- **Soft cap overrides:** who can approve bundles >1,000 cards or higher send rates.
- **Fraud monitoring thresholds:** exact limits for unusual spend velocity and resend/download rate.
- **Optional download hardening:** whether to add expiring/signed links in a later release.

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9) Appendices

- **CSV templates** (informational):
  - *Email bundle*: recipient_email,recipient_name
  - *SMS/WhatsApp bundle*: recipient_phone_e164,recipient_name

- **Masking guidance:** Outbound messages **may show full PIN** (per decision), but UI should avoid exposing full PIN except when explicitly requested by the user.
- **Time display:** UI shows local timezone; provide UTC on hover or detail screens.

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10) Detailed Flows (Swimlane-style, textual)

10.1 Admin Onboarding & Catalog Assignment

1. **Create Client** → confirm organization details.
2. **Create Wallet(s)** for required currencies.
3. **Record Offline Payment(s)** → wallet balance increases.
4. **Create/Edit Client Catalog** → pick products from System Products; set % discounts; set product active flags.
5. **Assign Catalog to Wallet** (1 wallet ↔ 1 catalog).
6. **Review Reports** as needed.

Guards & Outcomes

- Catalog can be deactivated; doing so blocks all vouchers under wallets using it.
- Disabling a product in the Client Catalog instantly makes it not orderable, regardless of Product Lists.

10.2 Client Product Lists (Creation & Maintenance)

1. **Open Wallet** → view its assigned Client Catalog.
2. **Create Product List** → select subset of products from the Client Catalog; set product active flags within the list.
3. **Edit Product List** anytime (add/remove/toggle active) for future bundles.
4. **Delete Product List** if not referenced by an active bundle.

Guards & Outcomes

- Orderability requires product active in **System Products**, **Client Catalog**, **and Product List**.
- Edits do **not** affect Product Lists already frozen into existing bundles.

10.3 Voucher Bundle Creation & Delivery

1. **Select Wallet** (defines the Client Catalog).
2. **Select Product List** (subset of the Client Catalog).
3. **Enter Bundle Params**: expiry (UTC), count, face value, delivery mode (download or send).

4. **Balance Check**: ensure face value × count ≤ wallet balance.
5. **Create Bundle**: debit wallet; create vouchers (Active).
   6a) **Download**: generate CSV (PIN, serial, expiry, value).
   6b) **Send**: upload recipients CSV (one channel); validate headers/rows; queue deliveries (soft rate limits).

Guards & Outcomes

- Product List becomes **frozen** for the bundle.
- No automatic retention limit on download links/files (v1 decision).

10.4 Customer Authentication & Ordering

1. **Enter PIN** (case‑insensitive; hyphens/spaces ignored).
2. If **PIN valid & voucher usable** → show balance, expiry, allowed products (intersection of System Products, Client Catalog, Product List).
3. **Choose 1 product**, set up to 5 gift cards (respect denominations/min/max).
4. **Submit Order** → record **Purchase** at locked FX; send to Stock.
5. **Delivery Choice** → WhatsApp/SMS/Email/Download; provide receipt (full PIN allowed).
6. **Order Resolution** → FULFILLED (done) / FAILED (Refund) / PARTIAL/PENDING (await stock response).

Guards & Outcomes

- After **5 failed PIN attempts**, 15‑minute lockout.
- If **bundle Stopped** or **catalog inactive**, login and ordering are blocked.

10.5 Bundle Stop

1. **Client selects bundle → Stop**.
2. System sets all vouchers to **Stopped (bundle‑stopped)**.
3. New authentication and orders are **blocked**; pending reservations **released**.
4. Orders already submitted to Stock proceed to final status; no further spending.

10.6 Deactivation & Expiration

- **Deactivation (voucher‑level)**: allowed only if voucher has **no purchase transactions**; funds **do not** return to wallet.
- **Expiration**: on expiry, any remaining balance becomes **breakage** (no wallet return).

10.7 Stock & Ledger Flow (Summary)

- **Submit to Stock** → record **Purchase** (captured).
- **FAILED/Rejected** → record **Refund**.
- **PARTIAL/PENDING** → remain Pending until stock resolves (no auto‑timeout).

End of PRD (v1.1)