**PRD-31 — Digital Product Passport (DPP) Readiness**

**Intent**

Capture provenance/repairability/chemical & sustainability metadata and produce a QR/NFC payload so you can populate DPP where/when required—without changing core flows.

**Preconditions**

• Product has versions, PCVs, attachments (PRD-11), serial/lot (PRD-17) where relevant.

• DPP schema registry (tenant-selectable) and signer keys for passport payloads.

**Steps**

• Schema Select: tenant chooses a DPP profile (region/program). App loads required fields and optional extensions.

• Data Capture: add DPP section to product: manufacturer/site IDs, materials, repairability scores, spare availability, warranty, chemicals list, recycling instructions, sustainability claims (each a governed field with source).

• AI Assist (advisory): parse datasheets/MSDS to propose values + page citations; reviewer accepts/edits.

• Evidence Bind: link every DPP field to a source artifact (attachment hash, lab result, supplier declaration).

• Passport Build: on publish, generate DPP Payload (JSON/CBOR) containing product version id, PCV refs, evidence hashes; sign and store a DPP Receipt (hash + time + signer).

• QR/NFC Export: generate QR image and (optionally) NDEF blob; expose short URL with access controls.

• Change Hooks: any governed change or new snapshot triggers DPP Pending Update; publish only after review.

**Edge cases**

• Missing mandatory field → block DPP publish; show exact WHY + FIX links.

• Sensitive claims (e.g., recycled content) without evidence → allow Claim Removed mode until proof is attached.

**Done when**

• Each published product has a signed DPP payload, a scannable QR, and a DPP Proof Bundle (inputs, hashes, signer) reproducible for audit.