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Executive brief

Connect the account

Commercial identity for the DSCSA pharmaceutical supply chain. A verified account-binding profile that borrows proven ad-tech coordination mechanics, set out as an executive decision brief and a technical package.

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Proposed profile, not a compliance certification. No FDA, GS1, HIBCC, PDG, HDA, OCI or IAB approval is claimed. Evidence checked 27 September 2026.

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Executive brief

How to read this package. The executive brief (E1 to E10) is written for the people who will approve a pilot. The technical package is published separately.

Reference numbers are shared across both tracks and link to the source list. Evidence labels: established, documented, proposed, open dependency. The interactive edition is at dscsa.centillion.ai.

Executive narrative and decision brief

Pharmaceutical supply chain transparency

Connect the account. Keep the product trace. A practical plan for manufacturers, wholesalers and dispensers, written for the people who will approve it.

E1 The decision

The recommendation

Improve the customer relationships already recorded in pharmaceutical systems. Add a small, verifiable account crosswalk, a link from each customer account to its organization, location and role, only where cleanup and existing provider configuration are insufficient. Keep the product trace exactly where it is.

1 / The problem

Two systems agree on the drug and disagree on the customer

A product record and a commercial customer record can refer to the same activity without agreeing on the account, the location, the purchasing relationship or the relevant date. The friction is documented. Its identity-related cost is not yet quantified.

2 / Why it persists

Records are distributed and updates do not propagate

Different companies maintain different records and rules. Contractual reporting rights do not create common definitions. A shared GLN, HIN or street address does not make two commercial relationships interchangeable.

3 / How to address it

Extend what exists; reference, do not re-issue

Retain EPCIS and existing security. Extend issuer customer masters with effective-dated account relationships, evidence, explicit lookup results and a durable reference to the version used. The added profile is a proposal.

4 / The intended outcome

Fewer avoidable disputes, reproducible interpretation

Fewer mapping disputes and manual handoffs; reproducible customer interpretation; clearer exception ownership. Measure the benefit against a strengthened existing-system baseline before expanding.

The boundary that makes this workable

Product tracing and commercial transparency are related but distinct. FDA recommends EPCIS for tracing-data exchange; manufacturers obtain downstream sales and account information through commercial arrangements. A new schema creates neither disclosure rights nor proof of product authenticity. Established

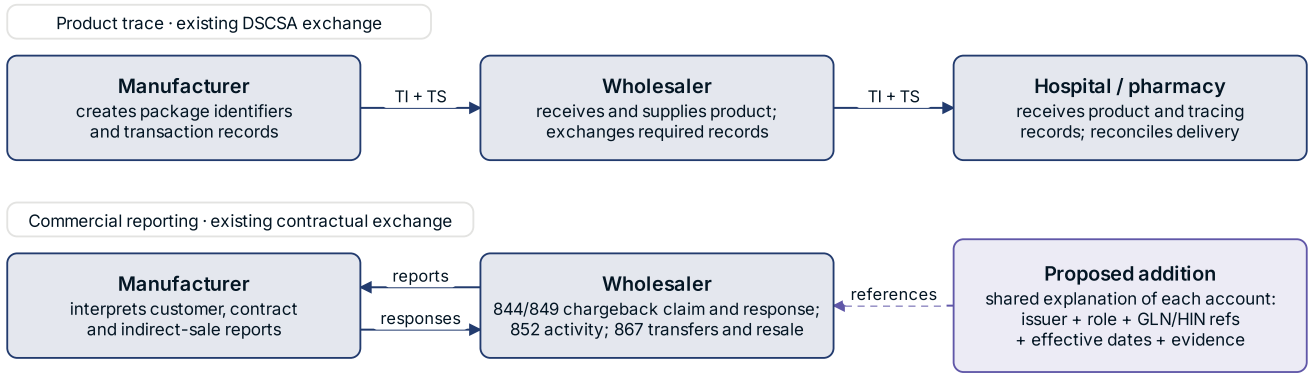
What you are asked to approve

A measured pilot with gates, not a new standard and not a promised savings number. The pilot first establishes how much of the observed friction is caused by account identity, then tests whether the small extension beats cleanup alone. If cleanup wins, cleanup is the answer.

Evidence labels used in this package: Established Documented Proposed Open dependency

E2 Two information flows, not one missing ledger

Keep product tracing separate from the manufacturer's commercial reporting.



The product trace (top) already moves one hop at a time under DSCSA. Commercial reporting (bottom) already moves between manufacturer and wholesaler under data agreements. The proposal adds a shared explanation of each account to the bottom flow. It adds nothing to the top.

What already exists Established

Product trace. Transaction Information and Transaction Statements, serialized package records, transfer-party references, aggregation and correction mechanisms. EPCIS is the exchange model. A Verification Router Service routes product-identifier verification; it is not a universal commercial-account directory. [1, 2, 3, 4]

Commercial interpretation. Customer masters, HIN and GLN references, contract and membership records, price authorization and chargeback processing. The 844/849, 852 and 867 message families serve different purposes, and their availability depends on the trading-partner arrangement. [5, 6, 7]

> **Trace history is not a commercial reporting right**
>
> FDA states that routine Transaction History exchange effectively ended on November 27, 2023. DSCSA did not create a general manufacturer entitlement to all downstream Transaction Information. Investigation-related information gathering remains a separate statutory workflow. [2, 8]

E3 Dispenser problem: correct accounts, stale shared data

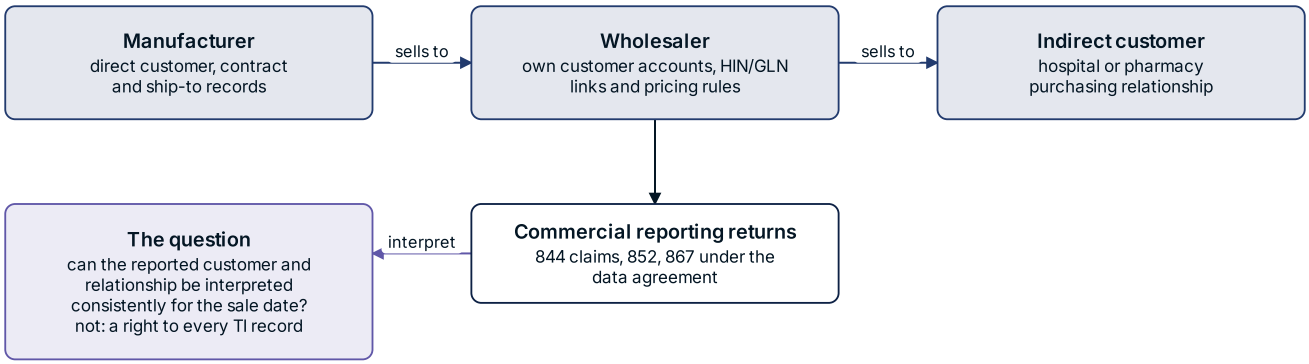
Cencora's September 2024 guidance ties WAC, GPO and 340B accounts at one physical location to one location GLN. The three commercial relationships remain distinct. The failure is not the existence of three accounts; it is a duplicate or retired GLN that remains in a partner system after cleanup, leaving a correct account linked to stale location data. [9]

Documented friction	Why it matters and the narrow response
Duplicate and inactive GLNs	The 2024 cleanup required customer-master updates. GS1 already supports inactive and replacement handling. Synchronize the confirmed successor; do not merge accounts blindly. [9, 10]
Portals and onboarding	The 2025 PDG town hall reports portal fragmentation. One provider cited 192 percent connection growth. A 2018 manufacturer-onboarding pilot reported two to three months per manufacturer; that is a historical observation, not a current service level. [11, 12]
Drop-ship purchase order mismatch	A dispenser may receive the distributor's purchase-order reference instead of its own. Preserve both typed references and their issuers; do not invent another custody chain. [11]
340B inventory context	Participants reported difficulty distinguishing 340B inventory in tracing systems. Keep purchasing context separate from product identity; the proposed binding does not determine patient or program eligibility. [11]
Exception communication	PDG categories and structured notification assets already exist. The July 2026 design still supports email for the near term. Reuse the message model before adding transport automation. [13, 14, 15]

Removed from the gap diagram: an unsupported "four accounts" prevalence claim, account-string collisions as a measured industry failure, and NPI-to-staff linkage. Namespace conflicts remain a defensive test, not a demonstrated business case.

E4 Manufacturer problem: interpret the indirect customer

The opportunity is better commercial interpretation, not access to every downstream tracing record.



Commercial reporting returns to the manufacturer under the data agreement. The question is whether a reported customer and relationship can be interpreted consistently for the relevant sale date, not whether the manufacturer has a right to every downstream record.

Customer interpretation today

HIN changes, split customer records, local class-of-trade definitions and out-of-date relationship data.

Proposed intervention

Resolve the reported account to the existing identifiers and preserve the exact relationship version used.

Why existing identifiers do not settle every dispute

HIN was built to connect trading partners' customer records. Its guide already includes audit fields and a referback link when a move leads to a replacement HIN. Different service and location records can be legitimate. The remaining question is whether each partner uses the right record and relationship at the right time. [5, 16]

Class-of-trade definitions and eligibility rules differ between organizations. A correct account match still requires the applicable contract, product scope, membership and date rules before eligibility is decided. [6]

Evidence is historical, and the addressable dollar share is unknown Documented

The 2018 HDA and Rutgers report cites a 0.7 percent weighted chargeback rejection rate from the 2017 HDA Factbook. In two survey subgroups, 43 percent and 46 percent of respondents cited eligibility. These are not identity-error rates or shares of disputed dollars. The report could not derive an industry cost. [6]

Commercial gate: agree on which downstream fields may be shared, who may use them, correction duties and retention. No reliable 852/867 error-rate estimate was established in the reviewed evidence. Morningstar's June 2025 analysis placed the three national wholesalers above 90 percent of United States distribution revenue; one willing wholesaler is the practical pilot partner, not proof of universal adoption. [17]

E5 What ad tech contributes

Borrow coordination mechanics. Do not transplant an advertising identity system.

Digital advertising is a market in which every participant keeps its own account numbers for the same counterparties and no central directory was ever trusted. Between 2017 and 2024 it produced a set of coordination patterns that solved that ambiguity without a registry. Six of them fit the pharmaceutical problem, plus three implementation patterns learned from the same industry.

Mechanic and origin	Proposed pharmaceutical use	What changes
Issuer-scoped lookup `sellers.json` [18]	Keep the account issuer attached to each identifier. Resolve richer metadata outside the transaction through a permissioned customer-master interface.	Makes the source of account meaning explicit. No public customer registry.
Mapping provenance **OpenRTB extended identifiers** [19]	Record who asserted the relationship, who inserted it, who matched it and how. Tie claims to evidence and the issuer's authority.	A recipient can investigate a crosswalk instead of trusting an unexplained match.
Batch resolution and refresh **Unified ID 2.0 mapping v3** [20]	Support batch lookup, per-item outcomes and refresh timestamps. Keep durable pharmaceutical identifiers; use domain-specific unresolved reasons.	Reduces repetitive lookup work and makes failure visible. Does not infer identity from hashing.
Versioned vocabulary **IAB taxonomy practice** [21]	Use small code systems for account roles and mapping methods. Preserve source codes and exact, broader, narrower, ambiguous or unmapped crosswalks.	Makes meaning and version changes explicit without replacing CBV or PDG categories.
Evidence label fields **Data Transparency Standard** [22]	Attach source, checked-at date, method and evidence reference. Keep the fields; do not import a paid audit program.	Shows freshness and accountability. A label is not a guarantee of correctness.
Two-sided corroboration `ads.txt` **against** `sellers.json` [23]	A second authorized source can confirm a new or disputed relationship. Apply it on a risk basis to new, changed or conflicting routes.	A useful verification pattern, not a universal prerequisite and not proof that an undeclared existing account is invalid.
Partner adapter contract **Prebid Server adapter discipline** [24]	Isolate each partner's interface behind a small, tested contract that declares identifier types, schema versions, lookup capabilities and error mappings.	Reduces repeated bespoke logic without pretending every partner has the same data model.
Activity-specific controls **Prebid activity controls** [25]	Check the authenticated actor, operation, resource and fields before an adapter runs and before data is released.	Permission is decided per operation, not inferred from a label.

Mechanic and origin	Proposed pharmaceutical use	What changes
Configuration acknowledgment and polling repair **IAB Tech Lab Deals API** [26]	When a roster, relationship or endpoint changes, publish an immutable version; the receiver acknowledges receipt and separately records whether it applied it; periodic reconciliation catches missed updates.	Silent update loss becomes detectable. An acknowledgment is not contract acceptance.

Violet marks a proposed adaptation, not an IAB-approved pharmaceutical standard

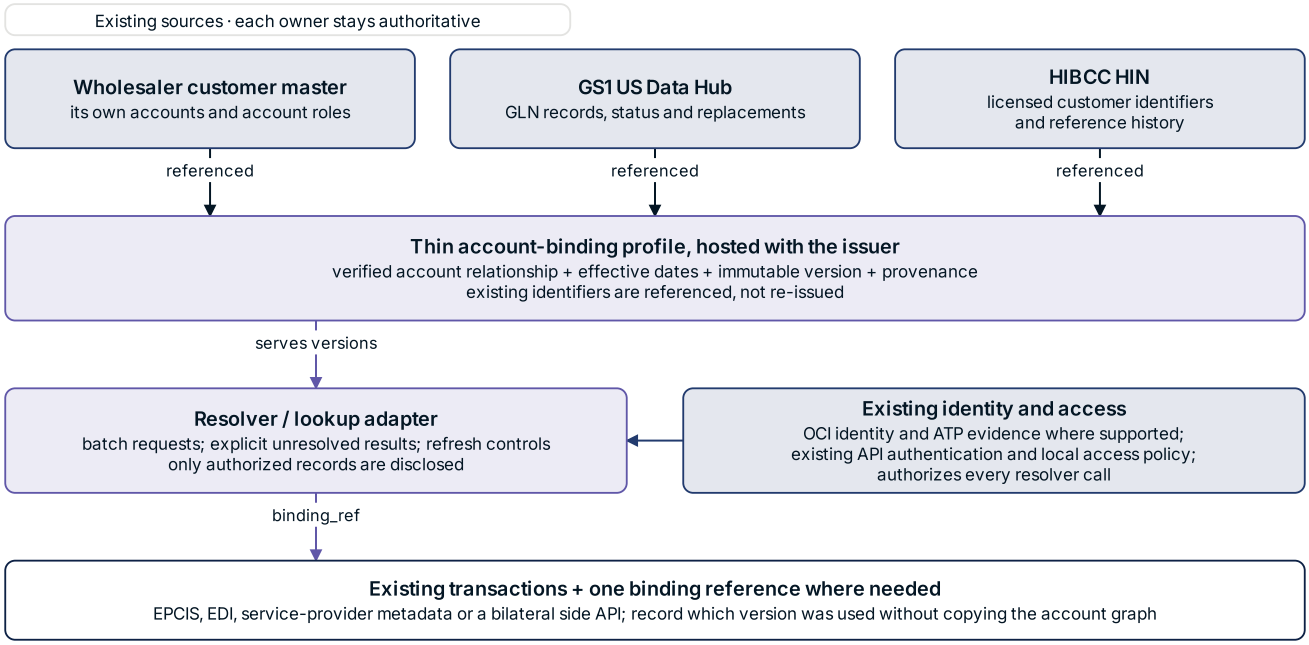
The lookup and provenance concepts are adaptations of published ad-tech mechanisms. Unified ID 2.0 is an adjacent framework, not an IAB-owned pharmaceutical identifier. Existing GS1, HIBCC, PDG, HDA and OCI capabilities remain the starting point. Governance for any shared vocabulary would be sought from PDG or HDA in alignment with GS1 and HIBCC; their agreement has not been obtained.

What stays in advertising

Consumer identity values and rotating tokens. Consumer consent semantics. Signed resale chains (the product trace already records each hop). ads.cert (existing OCI and enterprise security are stronger for this purpose). Private clean-room matching, deferred until a confidential-roster need is measured. A paid data-label audit program. A public directory of all commercial accounts. A compact binary envelope. Any claim that an identifier proves authorization or authenticity.

E6 The smallest useful solution

Extend the customer master. Reference established registries. Preserve the existing transaction channels.



Each existing source stays authoritative for its own records. The thin binding profile is hosted with the issuer and references, never re-issues, the identifiers those sources hold. The resolver discloses only authorized records. Existing transactions carry one binding reference where needed. "Federated" means authorized lookup against existing sources, not a pooled registry and not a claim that those registries have accepted this schema. [4, 5, 10]

Implementation boundary. The issuer remains authoritative for its accounts. The manufacturer receives only its permitted commercial subset. Registry access, licensing and archival rights must be verified before integration. A successful lookup is not an access grant. The extension may be a few columns and a versioned API, not a new platform.

Keep two things out of the binding

Product facts stay in EPCIS and transaction records. **Contract eligibility** stays with the applicable contract and membership rules. The binding supplies verified relationship context; it does not replace either system.

E7 How one transaction would work

Proposed workflow, illustrated with three price-class accounts at one hospital site. The scenario is fictional and shaped by the documented pattern.

1 **Establish rights.**
Manufacturer and wholesaler agree on commercial fields, permitted recipients and correction responsibilities. Confirm registry licensing and provider delegation.

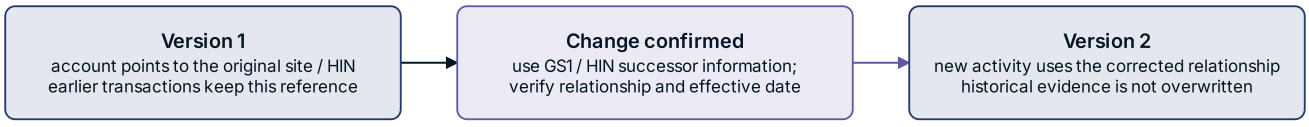
2 **Verify the relationship.**
The wholesaler confirms its account record. The hospital confirms the intended site and receiving service. GLN and HIN conflicts are resolved through the source owner.

3 **Publish a version.**
Expose the active relationship with effective dates, evidence and source record version. An unresolved or ambiguous match stays out of automatic disclosure.

4 **Use the right context.**
An order on the GPO account resolves to that account relationship and destination. Other accounts at the same site remain separate. Drop ships retain both purchase-order references.

5 **Exchange and reconcile.**
Use the existing tracing or commercial channel. Log the binding version used. Distinguish message received, data accepted, records stored and physical product reconciled.

6 **Evaluate and correct.**
Apply contract rules separately for chargebacks. Correct relationship records by issuing successors; correct product events through the established EPCIS procedure.



A confirmed change produces a successor version. Earlier transactions keep their reference to the original version. Store when the relationship applied and when the system learned it, so a retrospective correction is separate from the decision made at the time.

Minimum record, only when the baseline lacks it Proposed

Identity of the relationship: issuer, source-system namespace, account ID, durable binding ID and version. **Meaning:** existing party, location and HIN references, account role, effective interval. **Evidence:** asserted, inserted and matched by, method, evidence reference, last verification time. **Use:** status, separately verified endpoint delegation, and the existing transaction's binding reference. Many values already exist locally. No real customer identifiers or production payloads are asserted here.

E8 Adversarial review: keep the useful parts, remove the rest

Design agreement is not a claim that every operational, legal or economic question is closed. The design was narrowed through recorded challenge rounds. The table records what was proposed, how it was tested and what survived.

Proposal challenged	Red-team test	Resolved design
New national account registry	Would this duplicate HIN, GS1 and customer masters?	No registry. Extend issuer records and integrate existing licensed sources.
Automatic matching	Does name, address or identifier similarity prove authority?	No. Only source-confirmed relationships drive disclosure. Keep candidate matches separate.
Rotating identifiers	Will rotation improve a durable business relationship?	No default rotation. Borrow the resolver contract and refresh discipline only.
ads.cert or new security	Does a domain or account ID prove licensure and permission?	Reuse OCI evidence where supported, plus existing authentication, authorization and revocation controls.
Signed resale chains	Does a second chain establish physical truth?	Drop them. Keep EPCIS and authenticated tracing exchanges; signatures do not make false source data true.
Purpose determines disclosure	Can a code be abused to claim a right?	A request declares its workflow context and it is logged, but authority and scope are verified separately. No purpose is treated as an entitlement.
Both parties must declare every account	Would a new dependency block correct existing exchanges?	Risk-based corroboration for new, changed or conflicting routes. Verified existing routes continue.
NPI, clean rooms, audit program	Is a measured problem present that needs these components?	Exclude NPI linkage and the audit program from this pilot. Defer private matching absent a demonstrated confidential-roster need.

Security and continuity are acceptance criteria

A stale, conflicting or unauthorized binding cannot redirect records. Endpoint changes require delegated authority. Retain bounded approved fallback routes, isolate unresolved data, and preserve correction history. Missing optional metadata must not itself replace an established compliant exchange with a guess.

What the source checks changed

Earlier claim	Treatment in this package
"HIN has a history-linking gap"	Too broad. The HIBCC guide includes audit fields and a referback link to a prior HIN after a move. The pilot tests whether partners use existing history consistently. [5]
"HDA has five categories; transport is email"	Editions differ. The supplied HDA guide has six named scenario sections; PDG Chapter 3 v1.6 uses five categories. PDG notification v1.0.1 includes structured fields and a JSON schema; email is a supported near-term approach, not the only transport. [13, 14, 15, 27]
"OpenRTB 2.6-202402 adds provenance"	The release history places inserter, matcher and match method in 2.6-202409. The proposed pharmaceutical fields are adaptations, not source-standard fields. [19]
"UID2 supplies all proposed unmapped reasons"	The current v3 API documents opt-out and invalid-identifier outcomes. Pharmaceutical reasons such as ambiguous or inactive must be defined as new vocabulary. [20]
"72 percent of DSCSA transactions failed"	Not supported. Cardinal Health's 507 logged pilot samples were exception and support oriented, not a representative transaction sample. Product before data was 114 of 507; missing master data 40; master-data setup 6. Do not infer industry prevalence. [28]
"A unanimous panel reached 100 percent"	Retired. The same decisions are recorded as a design-assurance register. Agreement on a design is not evidence about outcomes; outcomes require the pilot in E9.
"This is a proven commercial return"	Not established. The identity share of dispute dollars and 852/867 error rates remain unquantified.

Regulatory note, checked 27 September 2026

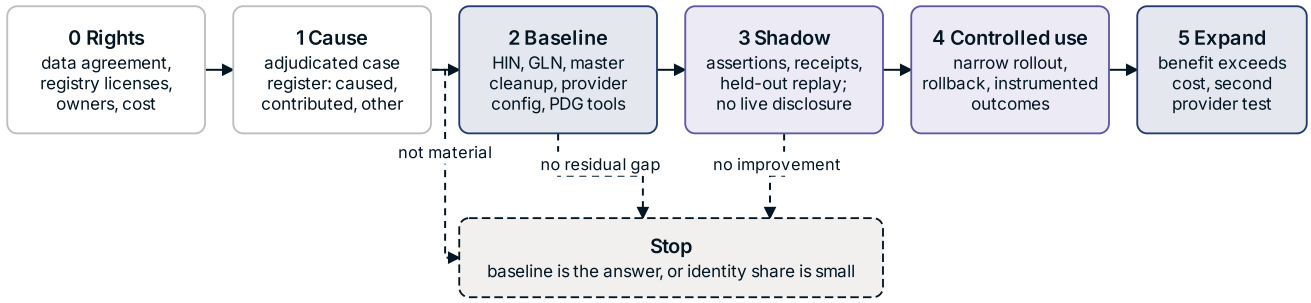
FDA's August 6, 2026 letter extends specified relief through November 27, 2027 for qualifying small business dispensers and applicable trading-partner activities. The definition uses 25 or fewer full-time pharmacist and technician employees across the owning corporate entity, measured as of November 27, 2026. Other DSCSA requirements remain; partner-specific status needs verification. [29]

E9 The outcome must be earned

Approve a measured pilot, not a new standard or a promised savings number.

Intended end state

A manufacturer can interpret the permitted indirect-customer record using the relationship that applied at the sale date. A dispenser can receive the correct records without collapsing legitimate purchasing accounts. Both can identify the source of a mapping and reproduce its history.



Six gates. Each requires evidence before the next begins, and the pilot can stop at any gate. Gate 1 answers the question this package cannot: how much of the observed friction is caused by account identity.

Outcome sought	Measure and decision rule
Less avoidable work	Manual touches and median and 95th-percentile resolution time for attributable account issues, compared with the improved baseline.
Fewer account-related rejections	Root-cause-reviewed counts and dollars, with transaction volume and case mix reported. No inferred industry savings.
Safer, reproducible routing	Wrong-recipient test cases, confirmed endpoint changes, stale-binding behavior and historical reconstruction. Any unauthorized routing fails the release gate.
No new bottleneck	Data availability, physical reconciliation latency, lookup overhead and fallback behavior must not deteriorate.

Stop criterion

If cleanup and existing provider capabilities deliver the same benefit, retain those improvements and do not build the profile. If the identity-attributable problem is small, redirect work to the larger observed causes. All outcomes above are proposed targets, not measured results.

E10 Sources and evidence notes

Sources cited in the executive brief. Numbers are shared with the technical package, which lists every source.

1. **FDA** · DSCSA standards for the interoperable exchange of information for tracing, final guidance (September 2023)
   EPCIS recommendation, exchange architecture and protection of confidential commercial information.
2. **FDA** · Enhanced drug distribution security at the package level, guidance (January 2024, procedural revision 1)
   Reconciliation, information gathering and protected exchange.
3. **GS1** · EPCIS 2.0.1
   Event model, ErrorDeclaration, capture and query interfaces and extension mechanisms.
4. **Open Credentialing Initiative** · DSCSA interoperability profile, v3.4 series
   Identity and ATP credential profiles; deployment support must be confirmed.
5. **HIBCC** · The HIN system: a user guide
   Undated guide. Account-number bridge, audit fields and referback after a move; not a current API contract.
6. **HDA Research Foundation and Rutgers University** · Change management: best practices in contract and chargeback administration (2018)
   Weighted 0.7 percent rejection rate from the 2017 HDA Factbook; eligibility survey subgroups; industry cost not derived.
7. **X12** · Transaction set descriptions
   844 and 849 product transfer account adjustment and response; 845, 852 and 867 per the X12 catalog. No segment-level validation claimed.
8. **FDA** · Exemptions from the enhanced drug distribution security requirements of section 582(g)(1) (October 9, 2024)
   States that section 582(k)(1) effectively ended routine Transaction History exchange on November 27, 2023; phased exemption dates by trading partner type.
9. **Cencora** · DSCSA: understanding GLN requirements (September 13, 2024)
   Company-specific WAC, GPO and 340B account example and the 2024 duplicate GLN cleanup.
10. **GS1 US** · Location data quality, Data Hub help
    Inactive and replacement GLN handling; registry data and access remain source-controlled.
11. **PDG and FDA** · 2025 dispenser town hall report (November 2025)
    Participant reports of portal growth, misrouted files, drop-ship references and 340B context; not a prevalence survey.
12. **AmerisourceBergen** · Exceptions pilot white paper (2018)
    Historical manufacturer-onboarding duration.
13. **PDG** · Interoperability blueprint, chapter 3 (v1.5, January 2026; v1.6, July 2026)
    TI and TS design, exception categories and near-term email notification.
14. **PDG** · Exception notification guideline v1.0.1
    Structured notification content; not a universal transport mandate.
15. **PDG** · Blueprint resources: exception notification JSON schema and connection template
    Confirm the partner-supported schema before implementation.
16. **HIDA** · Navigating healthcare identifiers: HIN assignments and updates
    Webinar resource on HIN assignment, location distinctions and updates.
17. **Morningstar** · Drug distribution industry trends (June 2025)
    Concentration by revenue, not shipment share.
18. **IAB Tech Lab** · sellers.json and the SupplyChain object
    Issuer-scoped seller identifiers and out-of-band participant metadata.
19. **IAB Tech Lab** · OpenRTB 2.x release history
    2.6-202409 adds the EID inserter, matcher and mm fields; latest tagged release observed is 2.6-202606.
20. **Unified ID 2.0** · POST /v3/identity/map
    Batch results, refresh timestamp and temporary prior identifier; not archival versioning.

21. **IAB Tech Lab** · Taxonomies repository
    Independently versioned taxonomies and mappings; no pharmaceutical ownership implied.
22. **IAB Tech Lab** · Data Transparency Standard
    Data-label disclosure; does not certify the correctness of a mapping.
23. **IAB Tech Lab** · ads.txt: authorized digital sellers
    Authorized-seller publication mechanics.
24. **Prebid.org** · Prebid Server: new bid adapter (Go)
    Adapter JSON schemas, fixture tests and endpoint restrictions.
25. **Prebid.org** · Activity controls
    Per-activity permission rules; permissive defaults are not adopted.
26. **IAB Tech Lab** · Deals API v1.0 (released for public comment, December 4, 2025)
    Origin-scoped deal identity, receiver status and polling repair.
27. **HDA** · Exceptions handling guidelines for DSCSA (2023)
    Six named scenario sections in the edition reviewed.
28. **Cardinal Health, hosted by FDA** · Interoperability data exchange errors and exception handling DSCSA pilot project, final report
    Logged exception and support samples, May 2017 to January 2020; not a representative transaction sample.
29. **FDA** · Small business dispenser exemption extension (letter, August 6, 2026)
    Specified relief through November 27, 2027; size measured at the owning corporate entity as of November 27, 2026.

Evidence checked 27 September 2026. Proposed profile, not a compliance certification. No customer master, commercial agreement, live claim dataset or partner system was inspected. No FDA, GS1, HIBCC, PDG, HDA, OCI or IAB approval is claimed.