The Hidden Cost of Rebate Complexity

Re-Envisioning Payer Rebate Adjudication in Life Sciences

Revised: April 2026

Executive Summary

Rebate adjudication is one of the most financially consequential yet least visible control functions in life sciences commercial operations. Each year, manufacturers manage more than $350 billion in gross-to-net reductions[1], with commercial rebates representing one of the largest and most operationally complex components across numerous payer and PBM agreements. Every rebate claim must be evaluated against evolving eligibility rules, formulary requirements, and performance thresholds, creating structural risk that traditional adjudication approaches often fail to fully detect.

Key Takeaways

- Rebate overpayments often go undetected because legacy systems validate transactions but do not fully evaluate contract logic.
- Fragmented data and delayed contract updates create structural blind spots in rebate operations.
- Small claim-level errors can compound into millions of dollars in revenue leakage.
- AI-driven adjudication enables manufacturers to detect anomalies earlier, understand payer behavior at scale, and strengthen financial controls.

Yet many organizations still rely on adjudication systems that were designed for a far simpler contracting environment. Legacy platforms and manual workflows were built primarily to validate transactions, not to determine whether claims are correct under the full complexity of contract logic. As a result, manufacturers frequently approve rebate payments that are processed successfully but do not satisfy the letter or intent of the associated rebate contracts.

The financial consequences are significant. Fragmented data sources, delayed contract updates, limited validation logic, and manual reconciliation processes create structural blind spots in rebate operations. Small discrepancies at the claim level, such as incorrect tiers, outdated formulary status, intra-period and prior-period duplicate submissions, or eligibility drift associated with evolving policy criteria, can compound across thousands of transactions into millions of dollars in preventable revenue leakage each year.

Thirdsight was founded to address this structural problem. By combining deep domain expertise in life sciences pricing and contracting with modern machine learning and natural

[1] Fein, Adam J., PhD. *Gross-to-Net Bubble Hits $356B in 2024—But Growth Slows to 10-Year Low.* Drug Channels Institute, July 15, 2025. https://www.drugchannels.net/2025/07/gross-to-net-bubble-hits-356b-in.html

language processing capabilities, Thirdsight has developed a purpose-built approach to rebate adjudication designed for the complexity of today's payer environment.

In a recent engagement, Thirdsight's platform identified more than $2 million in rebate overpayments within an 18-month period for a single rare-disease biopharmaceutical manufacturer. These errors had gone undetected within the company's existing rebate processing environment and represented about 15% of their total paid rebates during that same time.

This white paper examines four foundations of a re-envisioned approach to rebate adjudication:

1. **Contract aware adjudication** evaluates claims against the full structure of payer agreements rather than simplified rule checks.
2. **Accelerated data integration** reduces the lag between contract changes and adjudication decisions.
3. **Intelligent anomaly detection** identifies statistically abnormal claim behavior across payers and time periods.
4. **Payer behavior intelligence** reveals systemic behavioral patterns that cannot be detected through claim level review alone.

Together, these capabilities shift rebate adjudication from a reactive reconciliation process to a proactive revenue intelligence capability. Manufacturers gain the ability to detect leakage earlier, strengthen payer oversight, and develop a clearer understanding of the true performance of their contracts.

The Scale of Rebate Complexity in Life Sciences

Rebate contracting has become one of the largest financial flows in the life sciences commercial ecosystem. For many manufacturers, rebates represent a significant portion of gross-to-net adjustments and directly influence product profitability. In this paper, "rebates" refers primarily to commercial payer rebate agreements with health plans, PBMs, and IDNs.

Several industry trends have contributed to the growing complexity of rebate adjudication:

- Manufacturers often maintain dozens or hundreds of active contracts across commercial plans, PBMs, and IDNs.
- Individual agreements frequently include multi-tier rebate structures, performance thresholds, and channel-specific conditions.
- Formulary positioning and coverage policies can change multiple times within a contract year, creating operational challenges for adjudication systems.
- Claims volumes continue to grow as manufacturers expand across therapeutic areas and distribution channels.

As a result, rebate adjudication has evolved into a highly data-intensive process that requires integrating information from multiple sources, including contract terms, formulary files, eligibility records, prior authorizations, pricing data, and claims submissions.

Why Legacy Rebate Adjudication Struggles

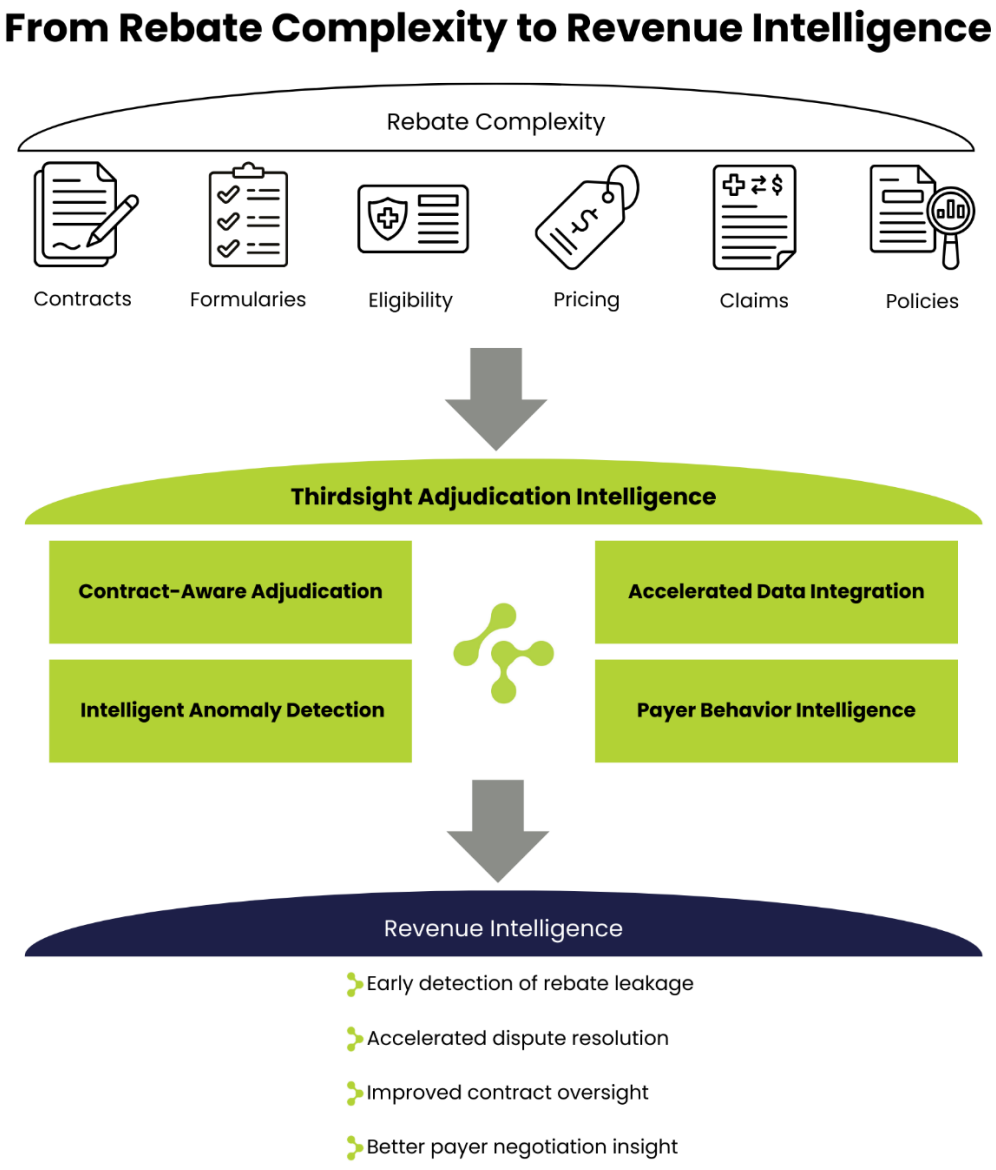
Despite the scale and financial importance of adjudication processes, many manufacturers still rely on legacy systems and manual reconciliation workflows that were designed for far simpler contract structures. These approaches typically focus on validating whether a claim meets basic eligibility criteria rather than determining whether it is correct under the full complexity of contract terms and payer behavior. As contract structures grow more sophisticated and claim volumes increase, this limitation becomes more significant. The result is a structural risk environment in which small claim-level discrepancies can accumulate across thousands of transactions, leading to material financial leakage that may remain undetected for extended periods.

Thirdsight Adjudication Intelligence

Addressing modern rebate complexity requires more than incremental improvements to legacy systems. It requires a fundamentally different approach to rebate adjudication.

Thirdsight addresses this challenge through **Thirdsight Adjudication Intelligence**, an integrated set of foundations that combines contract-aware adjudication, accelerated data integration, intelligent anomaly detection, and payer behavior intelligence to deliver a more complete and proactive view of rebate performance.

Together, these four foundations transform rebate adjudication from a reactive validation process into a proactive revenue intelligence capability.



Foundation One: Contract-Aware Adjudication

The foundation of the Thirdsight platform is a reimagined adjudication engine — TSAI-RE — that replaces basic validation with a multi-layered, contract-aware framework. The design principle is simple: adjudication must reflect the full complexity of the contract, not a simplified approximation of it.

Beyond Basic Validation

The first requirement for accurate rebate management is adjudication logic that reflects the full complexity of payer contracts. Where legacy systems perform basic eligibility validation, TSAI-RE asks a richer set of questions:

- Is this drug on formulary in the correct tier?
- Does the claim fall within the contract's effective period?
- Have contractual performance thresholds (such as market share or utilization targets) been achieved?
- Is the claim associated with a contractually eligible covered life during the applicable measurement period?
- Are units, NDCs, and dosage forms contractually eligible?

This layered approach requires a unified data model that connects drug master data, contract terms, formulary data, eligibility records, and claims — all reconciled in real time during adjudication rather than batch-processed after the fact.

Dispute Tracking and Root Cause Analysis

When adjudication failures occur, TSAI-RE does not simply flag an error — it classifies the root cause. Using machine learning, the system generates probabilistic predictions of why a claim failed, drawing on historical patterns across thousands of prior adjudication events. This root cause intelligence dramatically accelerates dispute resolution and informs targeted improvements to contract language, data feeds, and internal processes.

The result is an adjudication engine that gets smarter with every cycle as it continuously learns from new failure patterns and incorporates them into future predictions.

Outcome

By applying contract-aware adjudication logic, Thirdsight enables manufacturers to identify root causes of rebate discrepancies that traditional validation processes often miss. These insights help strengthen financial controls, improve dispute readiness, and reduce the risk of recurring leakage across adjudication cycles.

Foundation Two: Accelerated Data Integration

Sophisticated adjudication logic is only as good as the data it operates on. One of the most underappreciated bottlenecks in rebate management is data latency — the lag between when source data changes and when those changes are reflected in the adjudication environment.

The Data Velocity Problem

In many rebate environments, the delay between a contract change and its operationalization in the adjudication system can span weeks. During this period, claims may be evaluated using outdated contract conditions. These delays can directly affect rebate accuracy and may also reduce the window available to dispute incorrect claims.

Thirdsight's Approach to Data Load Performance

Thirdsight addresses this challenge through two complementary modules. First, TSAI-F (Formulary Parsing) automates the ingestion and cataloging of formulary data — scraping and structuring drug lists, tier assignments, coverage conditions, and plan design metadata from payer sources at a cadence that would be challenging to replicate manually.

Second, TSAI-C (Contract Parsing) converts contract text and tables into structured, queryable data. Using models trained on pharmaceutical contracting terminology, the system can recognize threshold structures, escalation clauses, exclusivity conditions, and retroactive adjustment provisions that traditional text extraction tools often miss.

Together, these capabilities compress the cycle from contract execution or formulary change to active adjudication — reducing data latency from weeks to days, and in some cases, to hours.

Policy Document Intelligence

Thirdsight's forthcoming TSAI-POL module extends this capability to clinical and medical policies — extracting drug-specific criteria, comparative thresholds, and step therapy requirements from payer policy documents. As prior authorization and coverage policy complexity increases, the ability to rapidly parse and operationalize policy changes is becoming a critical competitive differentiator for market access teams.

Foundation Three: Intelligent Anomaly Detection

Even with improved adjudication logic and faster data ingestion, certain categories of risk remain. Some claims may technically satisfy system rules but still fall outside expected behavioral patterns. Detecting these anomalies requires machine learning.

What Anomaly Detection Catches

TSAI-RE's anomaly detection layer continuously monitors claim patterns across multiple dimensions — volume, timing, covered lives, NDC mix, and payer-level aggregates — and flags deviations that fall outside statistically normal ranges. These anomalies often represent:

- **Duplicate submissions**
  Claims submitted multiple times by the same payer, sometimes with small identifier variations
- **Tier miscalculations**
  Rebate rates applied at incorrect tier levels, often due to payer system configuration issues
- **Eligibility drift**
  Claims submitted for covered lives that no longer meet contract eligibility criteria
- **Measurement period violations**
  Claims submitted outside the defined contractual measurement window

From Detection to Insight

Anomaly detection generates actionable intelligence, not just alerts. Each flagged anomaly is accompanied by a root cause classification, a confidence score, and a recommended remediation path. This transforms the review process from open-ended investigation to structured triage — allowing analysts to focus their expertise on high-confidence, high-value anomalies while automated processes handle routine exceptions.

Over time, the model learns from analyst decisions, refining its classification logic and improving confidence scores. As TSAI-RE processes additional adjudication cycles, detection rates improve as the model accumulates domain-specific training data.

Client Feedback

"Thirdsight's approach to tackling the toughest market access operations challenges is unparalleled. Their purpose-built, AI-driven rebate software has helped uncover millions in overpayments that were missed by our legacy rebate processor."

— Senior Director, Pricing & Contracting

Foundation Four: Payer Behavior Intelligence

While claim-level errors are important, the most valuable insights often emerge when data is analyzed at the payer level — in behavioral patterns that reveal systemic issues with how specific payers are submitting, calculating, or reporting rebate claims.

Understanding Payer Behavior at Scale

Thirdsight's platform aggregates adjudication data across a manufacturer's payers, channels, and time periods to build behavioral profiles that surface patterns that cannot be detected through traditional claim-level validation. These profiles track dimensions including:

- **Submission timing patterns**
  Does a specific payer consistently submit near or after deadline? Are late submissions correlated with higher error rates or overpayment risk?
- **Error type clustering**
  Are certain payer segments disproportionately responsible for specific error categories? Does clustering suggest a systemic process issue?
- **Threshold behavior**
  How do payers track contractual performance thresholds quarter-by-quarter? Are there patterns suggesting strategic behavior around threshold attainment?
- **Formulary alignment**
  Does the payer's actual claims mix align with their formulary tier commitments? Does misalignment indicate unreported formulary changes or coverage policy shifts?

From Patterns to Strategy

Payer behavior intelligence transforms rebate management from a backwards-looking compliance function into a forward-looking strategic capability. When a manufacturer can see that a specific payer consistently underreports in Q3 and corrects in Q4, they can proactively model the financial impact and adjust reserves accordingly. When a payer's

claims mix diverges from formulary commitments, the commercial team can engage proactively — before the contract cycle closes and the window for negotiation narrows.

This level of visibility also strengthens the manufacturer's position in contract negotiations. Data-driven insight into payer performance history, compliance patterns, and behavioral tendencies enables more informed term-setting, better-structured thresholds, and more defensible dispute positions.

The Thirdsight Difference: Domain Expertise Meets AI

What distinguishes Thirdsight is the combination of deep life sciences domain expertise and modern AI architecture. This combination allows Thirdsight to address challenges that traditional rebate processing platforms were never designed to solve. The founders have extensive experience in pharmaceutical commercial operations, including pricing, contracting, revenue management, and system implementations. This expertise informs the design of the platform and ensures that the intelligence generated by the system reflects real-world operational realities.

This combination matters because pharmaceutical rebate management is a domain where generic AI tools fail. The language of contracts, the nuances of formulary design, the intricacies of government price reporting, and the behavioral dynamics of payer relationships require a trained interpretive lens that cannot be abstracted away. Thirdsight's models are trained on domain-specific data and validated by domain experts — ensuring that the intelligence they produce is not just statistically sound, but commercially actionable.

Conclusion: From Complexity Comes Clarity

As rebate complexity continues to increase, manufacturers will require adjudication capabilities that combine domain expertise, data integration, and intelligent analytics. Organizations that adopt these capabilities will be better positioned to protect revenue, strengthen payer oversight, and make more informed contracting decisions.

By unifying fragmented data, accelerating the contract-to-adjudication cycle, and applying purpose-built machine learning to identify anomalies and patterns, Thirdsight helps manufacturers move from reactive reconciliation to proactive revenue management. The result is greater accuracy, faster insight, and the ability to uncover the hidden cost of rebate complexity. Revenue management re-envisioned.