AI in Payment Integrity and Adjudication



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02 Market Shifts and the AI Revolution

03 The Actuarial Expertise in Payment Integrity using AI

04 Implementation Challenges & Real-World Risks

SECTION 1

The Landscape of Payment Integrity

Payment Integrity (PI) 101

Payment Integrity (PI) ensures accurate claims adjudication and proper reimbursement for healthcare services.

The Payment Integrity Continuum

Phase 1

Pre-Bill

Provider

Coding accuracy, CDI, and internal provider revenue maximization audits.

Phase 2

Pre-Submission

Clearinghouse

Automated claim scrubbers, eligibility screening, and Never Event filters.

Phase 3

Pre-Payment

Payer Engine

Claims engine rules, FWA detection flags, and down-coding algorithms.

Phase 4

Post-Payment

Audit

Complex clinical audits, COB recovery, fraud investigation, and data mining.

Core objectives driving modern payment integrity programs:

Improve Accuracy

Enhance claim adjudication precision and clinical validity across all lines of business.

Eliminate Waste

Systematically remove administrative costs, complex rework, and duplicate filings.

Reduce Provider Abrasion

Minimize audit friction and payment disputes through transparent and timely workflows.

Reduce Overpayments

Maximize capital retention by preventing incorrect disbursements before claims are settled.

Why Payment Integrity is Crucial: Scale and Complexity

Immense Scale: The U.S. healthcare system processes over 5 billion claims annually (roughly 15 claims per U.S. citizen per year).

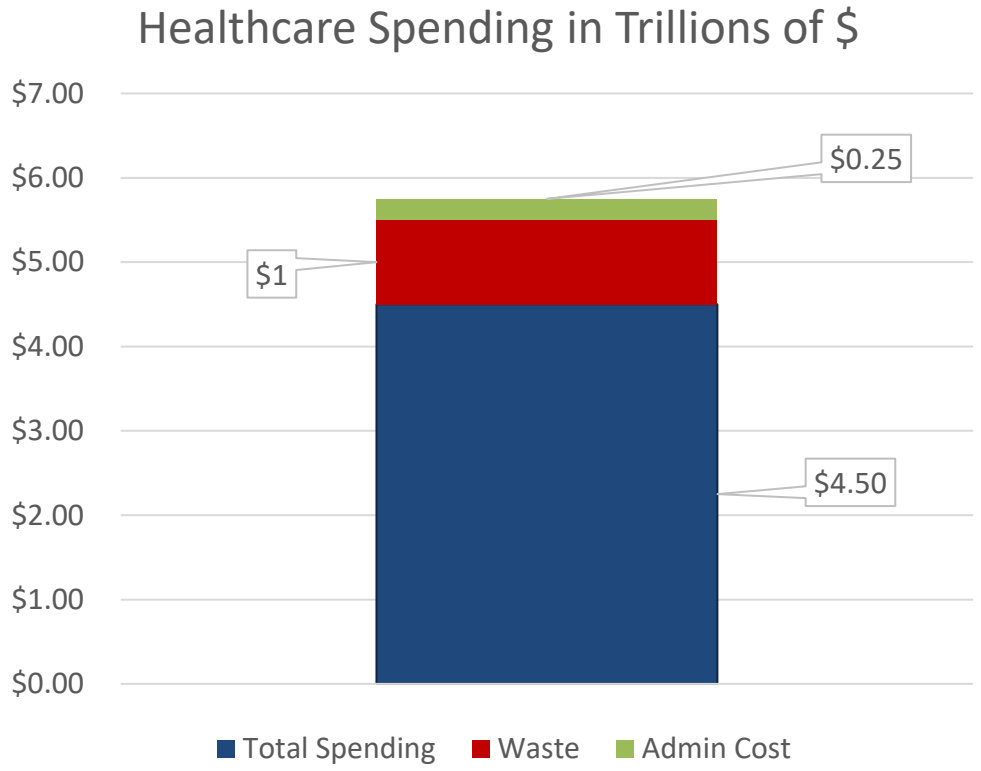
Enormous Waste: Total U.S. healthcare spend is ~$4.5 Trillion. An estimated 20-25% ($900 Billion to $1.1 Trillion) is considered waste.

Coding Complexity: ~150,000 diagnosis/procedure codes updated annually.

Contract Complexity: Payer-provider contracts span hundreds of pages with unique rates for thousands of scenarios.

Policy Changes: Ongoing guidance from CMS and state Medicaid agencies.

New Care Models: Alternate care settings (home/virtual care) necessitate new billing guidelines.



Citations: U.S. Healthcare Industry Claim Volume Reports; National Health Expenditure Accounts (NHEA); JAMA study on Waste in the US Health Care System; CMS ICD-10-CM and ICD-10-PCS classification updates.

SECTION 2

Market Shifts & The AI Revolution

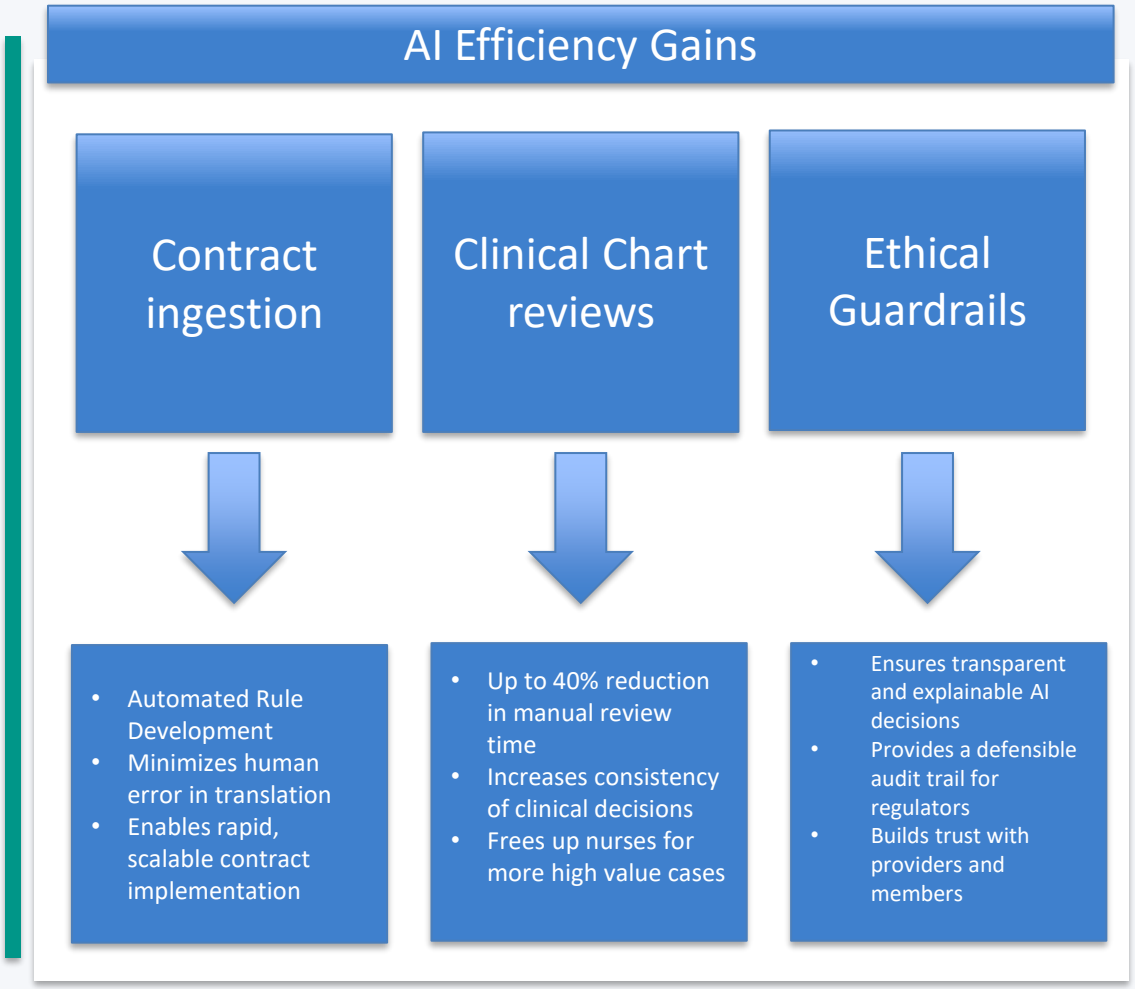
AI's Current Role in Payer Payment Integrity

Many payers have been leveraging AI for over a decade, processing millions of claims daily.

Scaling Error Detection: LLMs convert complex provider contracts into machine-readable rules, speeding up claim edit development.

Augmenting Human Reviews: AI extracts specific clinical terminology, cutting manual chart review time by up to 40%.

Ethical AI: Emphasizing robust guardrails and third-party reviews to ensure transparent, explainable, and compliant models.



The Tug of War

Provider Profits vs. Payer Healthcare Trends

PROVIDER PROFITS | **HEALTHCARE COSTS**



TENSION POINT

PROVIDER PROFIT ENABLERS

- Premium service mix and aggressive contract negotiations
- Operational efficiencies, AI and Automation enablers
- Strategic consolidation, private equity players

COST ESCALATION DRIVERS

- Rising drug prices, new technology and GLP1s
- Regulatory changes and increasing compliance costs
- Fraud, Waste and Abuse. Aggressive coding practices

KEY TAKEAWAYS

Neither side is decisively winning.
System tensions remain entrenched.

THREE PIVOT POINTS

POLICY SHIFTS
Price controls & mandate rules.

TECHNOLOGY
AI & admin task automation.

NEGOTIATIONS
Outcomes-based contracts.

Current Payer PI Scope (Rules-Based & Static):

- Focuses on individual claims
- Vulnerability
- What It Catches

Future Payer PI Scope (Dynamic and behavioral):

- Behavior Analysis
- Detect AI Driven Provider Coding Changes
- Inform Fee Schedules using latest coding patterns

AI's Transformative Role in the Future of Payer Payment Integrity

Transforming claims adjudication from reactive "pay-and-chase" to real-time prevention

Predictive FWA Detection
Analyzes provider billing behaviors dynamically; flags outliers and complex fraud networks in real time.

NLP Clinical Validation
Ingests unstructured EHR notes and clinical charts to automatically verify if billed services match documentation.

Intelligent "Shift-Left"
Migrates post-payment retrospective audit rules into live, pre-payment claims processing engines automatically.

STRATEGIC EVOLUTION

Capability	Rules-Based	AI-Enabled
Speed	Retrospective	Real-time
Data Scope	Structured Claims	NLP Chart Ingestion
Abrasion	High friction	Low friction

⚠ KEY WATCHOUTS

Explainability: Decisions must hold up to provider appeals and regulation.

Algorithmic Bias: Ensure models do not reproduce historical inequities in denials.

SECTION 3

The Actuarial Expertise in Payment Integrity using AI

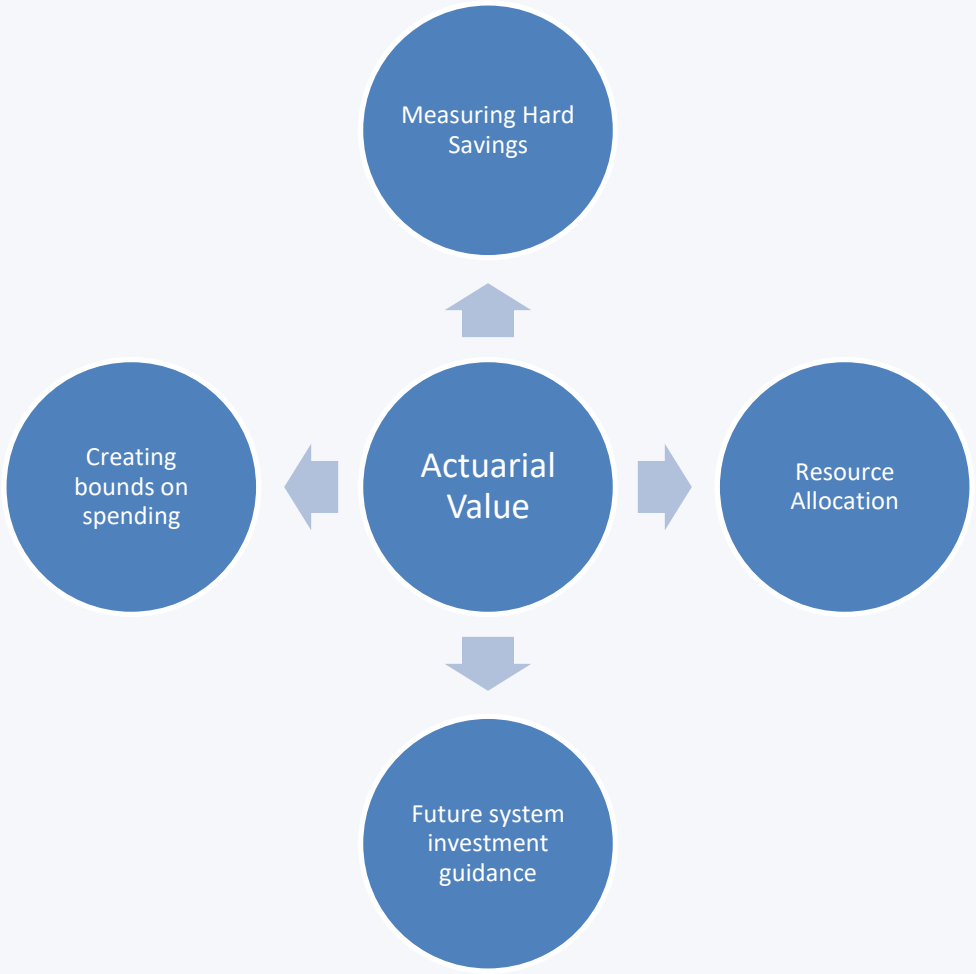
Actuarial Involvement in AI and Payment Integrity

Actuaries are critical to estimating the value of payment integrity models, and act as important stakeholders in informing PI strategy.

Central to ROI Measurement: Actuaries establish rigorous ROI calculations for PI investments.

Innovating Deterrence Measurement: Creating defensible upper and lower bounds on averted spending.

Informing Resource Allocation: Guiding executives on whether to invest in prepayment software vs. post-payment audit teams based on yields.



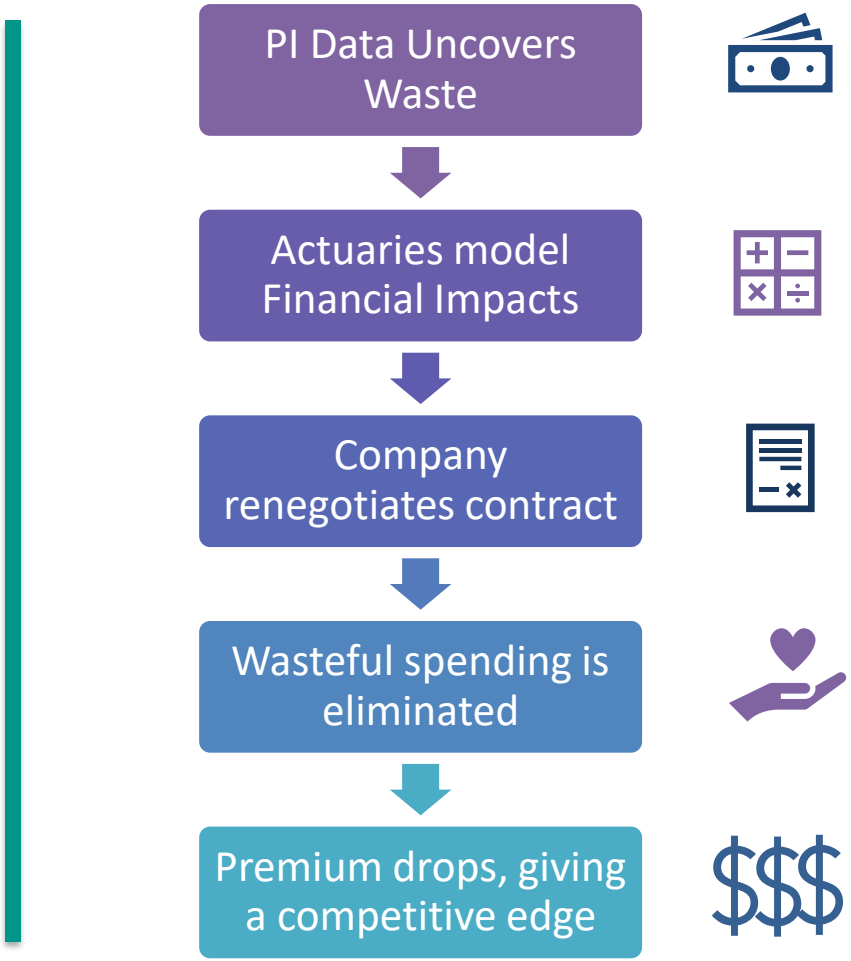
Impact on Pricing Projections & Influencing the Payment System

Redefining the Actuary: From 'Scorekeeper' to 'Strategic Partner'. Actuaries can actively influence payment systems to reduce healthcare costs.

Direct Reduction in Claims Costs: Proactive PI directly decreases the underlying cost curve. Actuaries use these insights to lower projected medical costs, enabling highly competitive premium pricing in the market.

Designing Smart Contracts: Actuaries leverage PI data to design VBC risk-sharing models with capped downside risk and precise quality metrics.

Negotiating Power: Equipping network contracting teams with PI anomaly data to negotiate stricter fee schedules or penalize chronic upcoders.



What Happens to Reserving Projections?

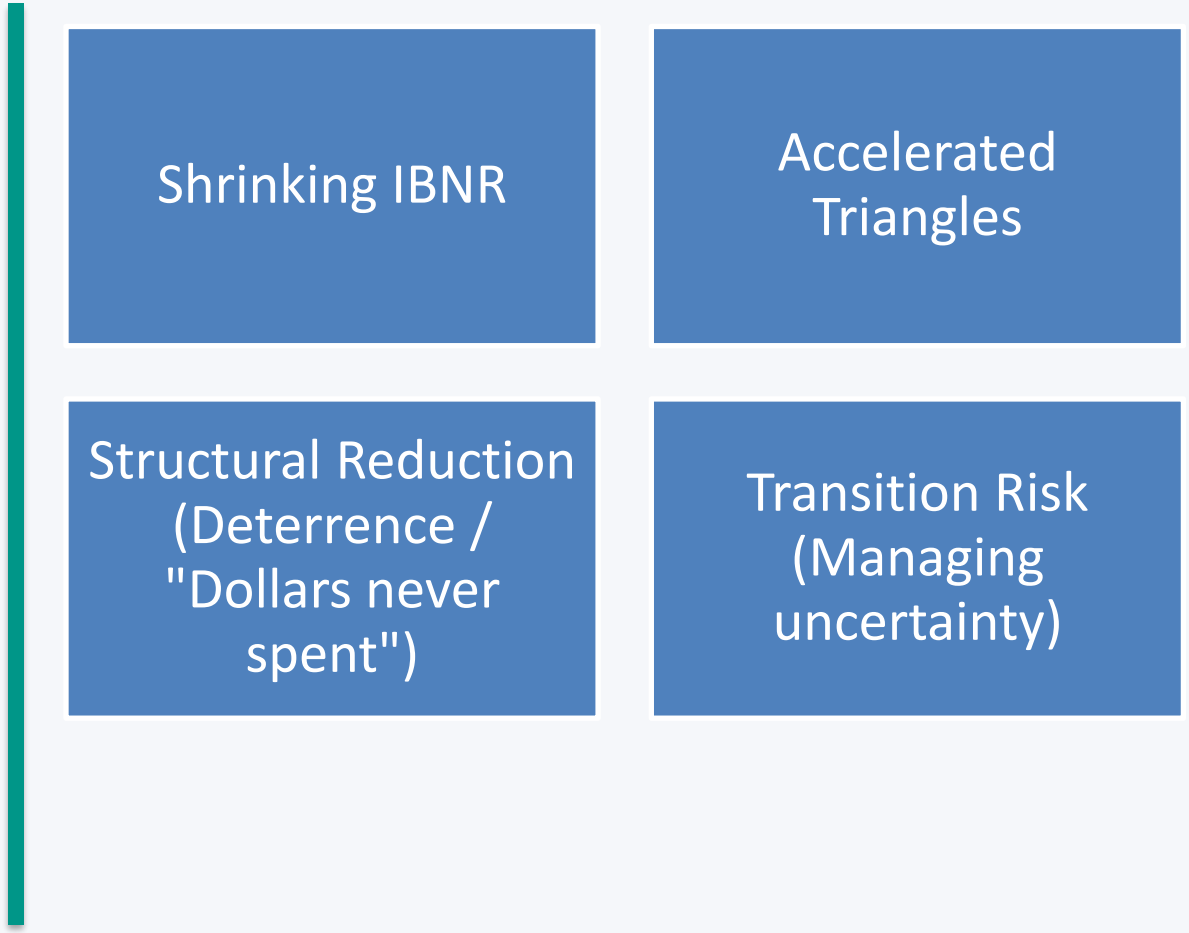
Isolating the effect — all else held equal

Improved IBNR Estimates: Highly effective PI lowers expected ultimate costs, **shrinking IBNR reserves and freeing up capital.**

Faster Claim Resolution: Real-time AI adjudication shortens payment lags, dramatically changing claim development patterns and run-off triangles. **Benefit would be less volatility/restatements.**

'Dollars Never Spent': Accounting for deterrence as a **structural reduction in future liabilities.**

Managing Uncertainty: Close monitoring of claims emergence during new AI-PI system rollouts is critical to **prevent under-reserving** during transition periods.



SECTION 4

Implementation Challenges & Real-World Risks

Challenge 1: Stakeholder Engagement & Adoption

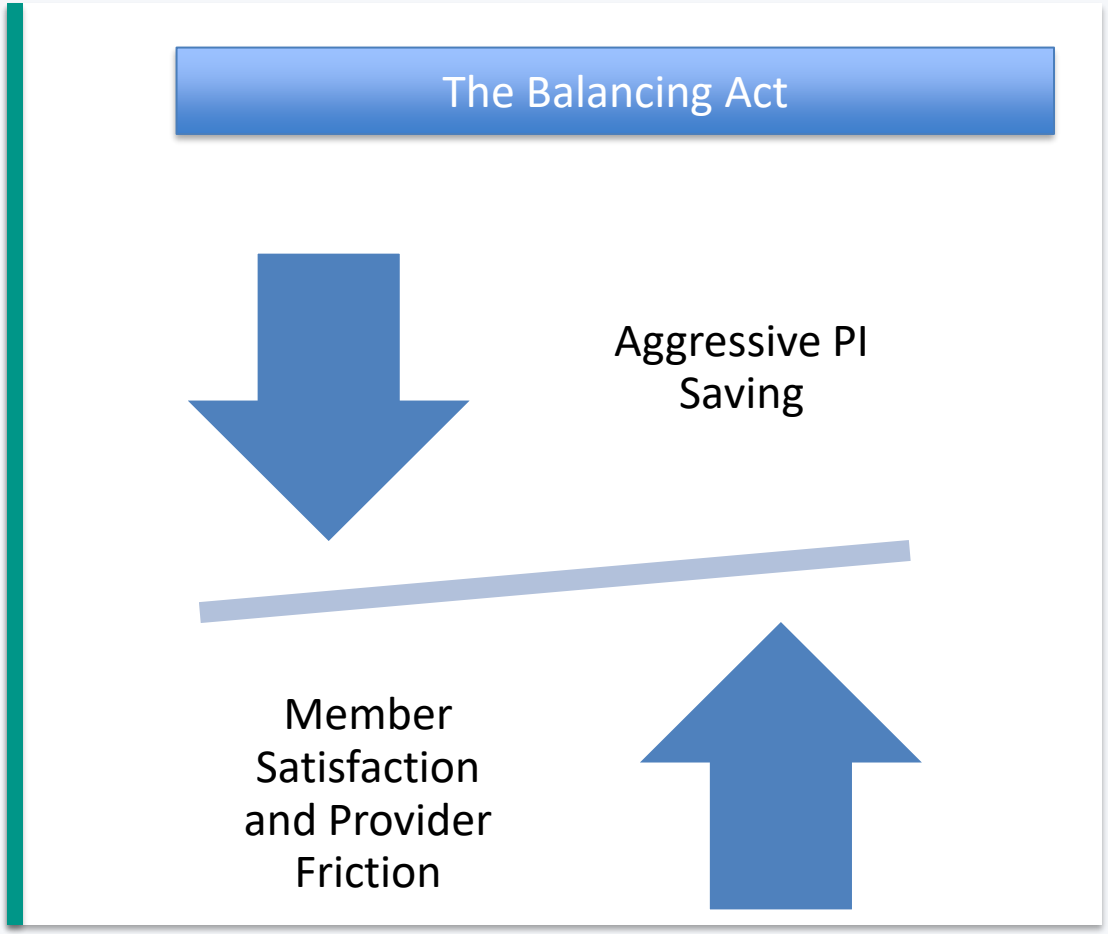
Internal Payer Resistance: Budget silos inadvertently reward 'Pay and Chase' recovery units over prevention efforts.

External Provider Resistance & Provider Abrasion:

Intense friction with hospital systems over increased AI denials.

Providers utilizing AI counter-strategies to mask upcoding.

Patient Impact: High denial rates can threaten patient access to care and degrade member satisfaction scores.



Challenge 2: Regulatory Landscape, State Rules, and Reputation

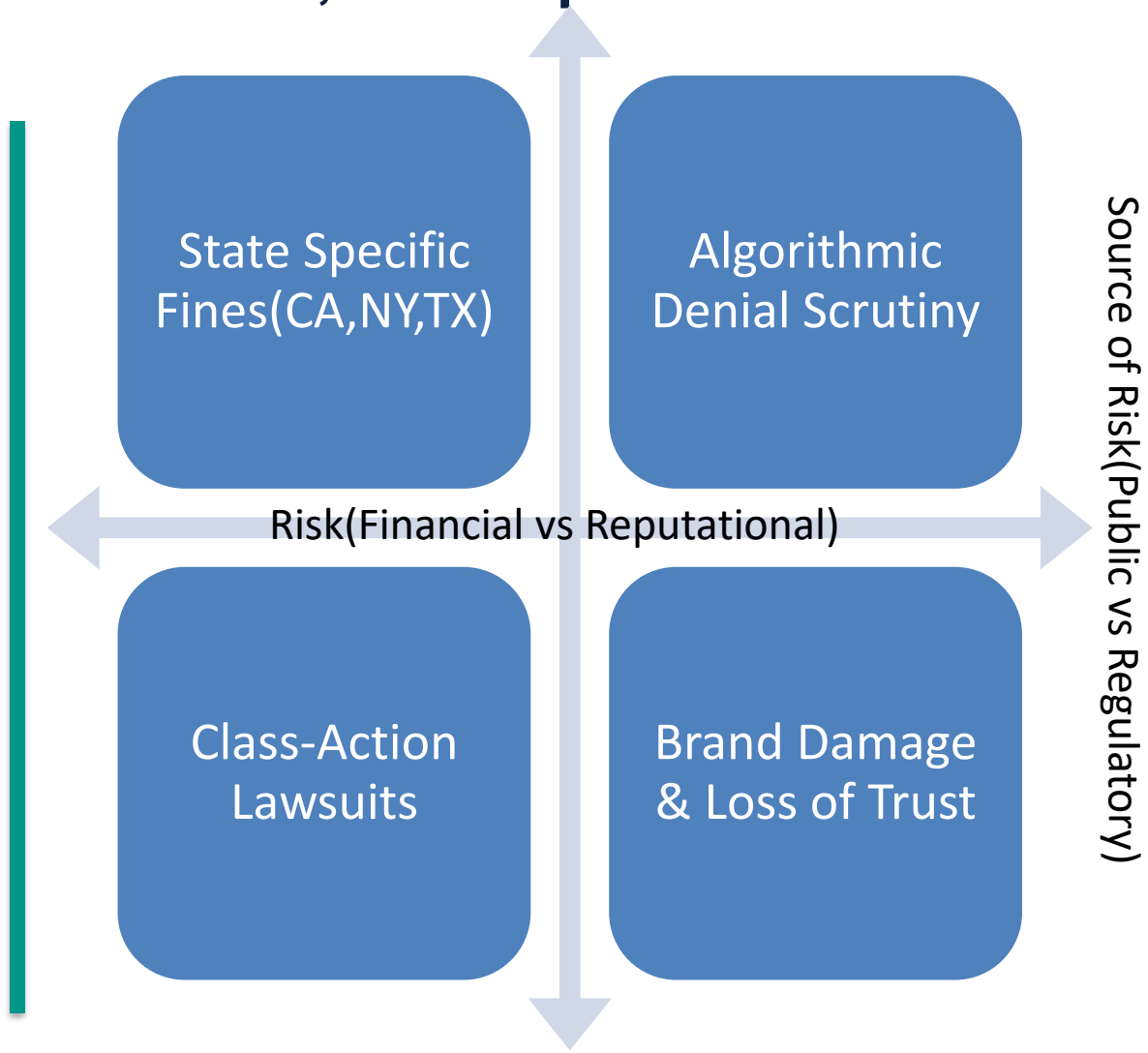
Rapidly Evolving Domain: AI advances faster than CMS/state regulations.

California (Knox-Keene Act): DMHC enforces strict rules, levying massive penalties for unfair payment patterns, algorithmic denial without human review, or claims processing delays. Legislation is also proposed to fine insurers if half of appeals are overturned in a year

Other States (NY, TX): Strict timely payment laws; AI systems that delay payments for extended audits can trigger severe interest penalties.

Negative Public Perception: Algorithmic spikes in denials can lead to headline news, class-action lawsuits, and accusations of prioritizing profits over patients.

Brand Damage: Severe loss of trust among employer groups and members.



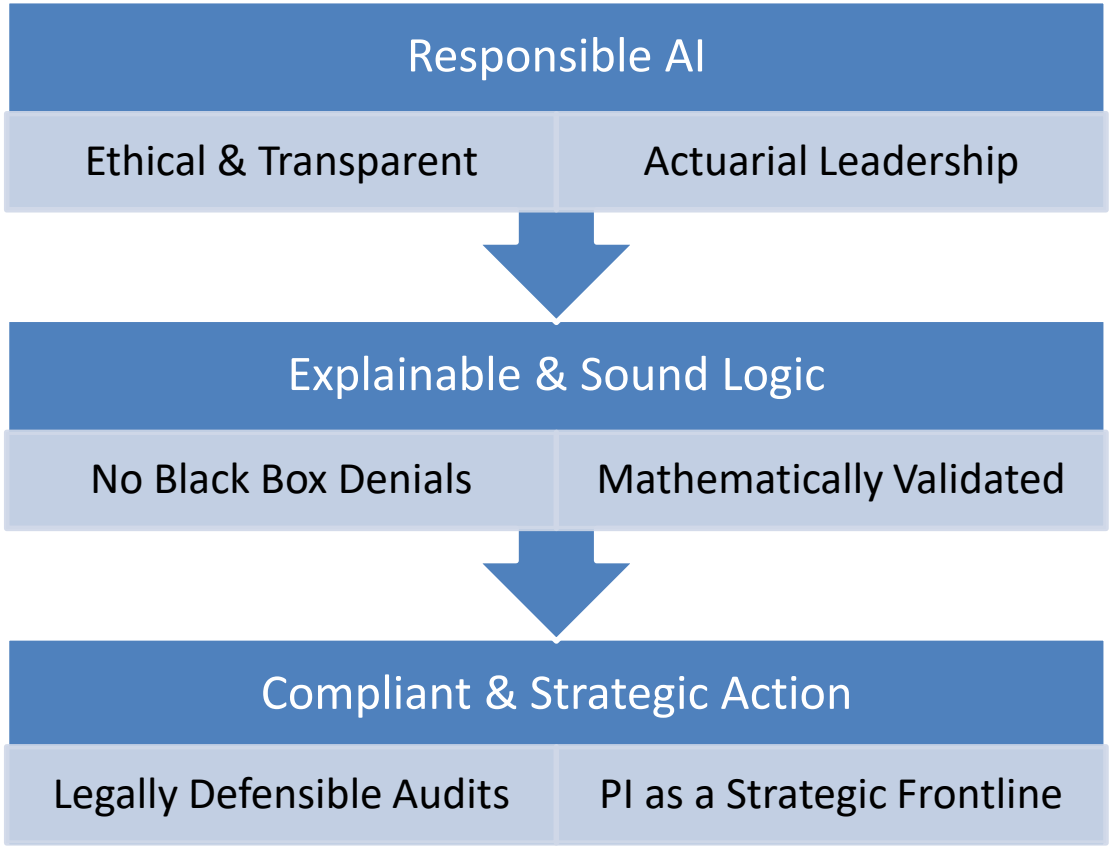
Navigating the Future: Responsible AI & Trust

The payer-provider AI arms race is here. Payment Integrity is no longer just a back-office function—it is the strategic frontline of healthcare sustainability.

The 'Responsible AI' Imperative: AI must be ethical, transparent, explainable, and designed to do no harm.

Explainability: 'Black box' neural networks cannot be used to deny claims. The logic must be easily translated to a human provider.

Actuarial Leadership: Actuaries must ensure that the pursuit of payment accuracy remains mathematically sound, legally compliant, and deeply ethical.



Questions?