

# What It Takes to Get to Outcomes: Tech, Trust, and the Right Healthcare Strategy

# Agenda

- **Introduction:** Databricks and Health Catalyst
- **Outcomes** Driven Development
- **Rising** with Health Catalyst Ignite
- **Use Case** Demonstration
- **Q&A**

# Our Speakers



**Daniel Samarov**  
Chief AI Officer



**Mark Lee**  
Industry Ecosystems GTM HLS



# What It Takes to Get to Outcomes

A new approach to healthcare outcomes: Fast, Measurable, Scalable

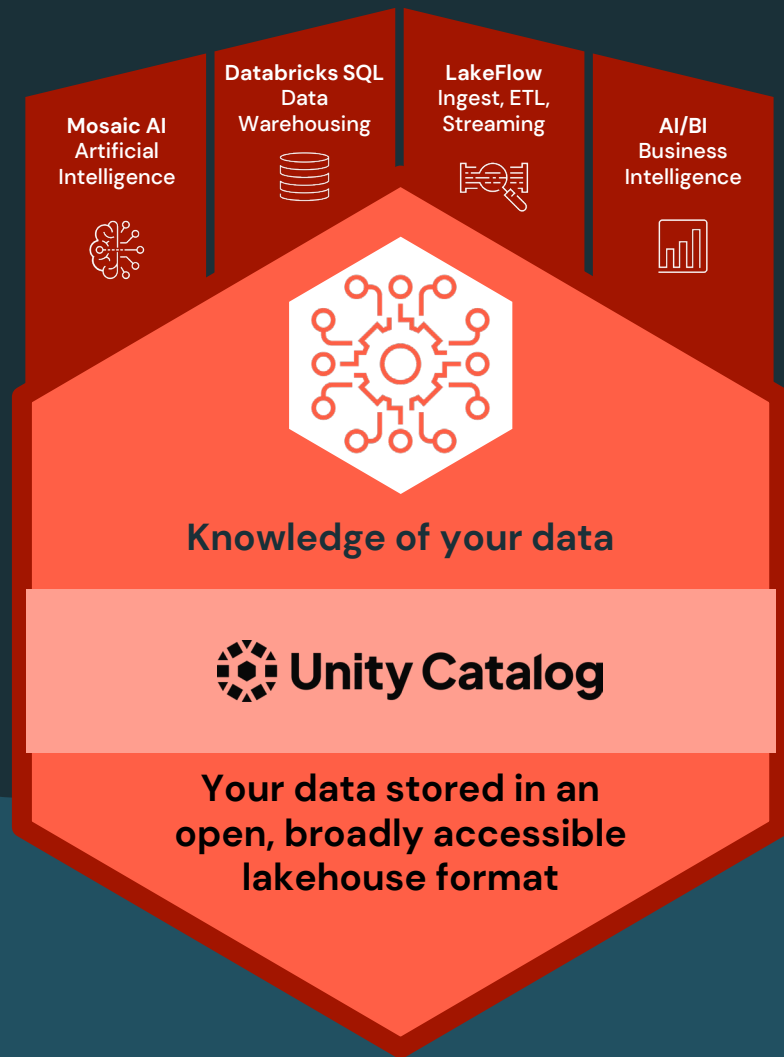


&



**databricks**

# Data Intelligence Platform





aggreko

AstraZeneca



Humana

Schneider Electric

CONDÉ NAST

MARS



cfpb

sam's club

S&P Global



gousto



CMS



cvsvHealth.



DOLLAR SHAVE CLUB

AMGEN

DAIMLER



Leaders across every industry are succeeding today

devon

Grab

OPTUM



COMCAST



zalando

NHS



SHOWTIME

ExxonMobil



SCRIBD

H&M

ABN-AMRO

Quby

REGENERON



BUTCHER BOX

TOTAL



Discovered two new drug targets for Alzheimer's and Parkinson's in 15 minutes



ABN-AMRO

10x faster delivery of new data and AI initiatives to stay ahead of the market



Rolls-Royce

50% extension in time between maintenance, saving costs and improving customer experiences

BURBERRY

Hyper-personalization for customers by reacting to real-time digital activity



# HLS Industry Outcomes

## Life Sciences

### Increase R&D Productivity

Accelerate Drug  
Discovery

Streamline Clinical  
Development

Build a FAIR  
Data Platform

### Optimize Supply Chain & Manufacturing

Create E2E  
Supply Chain Visibility

Implement Smart  
Manufacturing

### Improve Commercial Effectiveness

Generate Real  
World Evidence

Deliver Provider  
Next-Best-Action

Personalize Patient  
Engagement

## Healthcare

### Streamline Operations

Implement  
Interoperability

Automate Clinical  
Note Review

Improve  
Operating  
Efficiency

### Improve Provider Quality & Network Management

Drive Quality of Care

Optimize Network & Referrals

### Deliver Better Patient Outcomes & Experience

Predict Disease  
Risk

Personalize  
Engagement

Improve  
Retention

# The Stakes: Pressure Without Progress

## Market Forces Are Colliding

- Medicaid redeterminations + payer shifts are creating volatility in patient mix
- CMS mandates (e.g., FHIR APIs, price transparency, quality reporting) are increasing compliance complexity
- Financial pressure: *Nearly 4 in 10 hospitals ended 2023 with negative margins* (KFF, Dec '24)

## The Platform Investment Gap

- Most health systems have invested in cloud/data/AI tools — but still can't measure real ROI
- Infrastructure exists — but outcomes haven't caught up

## Leaders Are Asking

- “What are we actually getting from this spend?”
- “How do we scale outcomes fast enough to match our financial risk?”
- “Is AI just another promise that won't pay off?”



# Audience Poll 1

What's the biggest barrier to achieving outcomes from your data & analytics investments?

A

We have the data, but can't turn it into actionable insights

B

Our infrastructure isn't flexible or scalable enough

C

Clinical, financial, and operational teams are too siloed

D

We don't have the time or resources to build what we need

# Why Most Platforms Stall in Healthcare

Three common approaches — and why they fall short when outcomes matter

Approach	What You Get	Why It Fails
Generic Platforms	Flexibility	No healthcare logic, too slow to value
Point Solutions	Specialized depth	Can't scale, hard to justify ROI
Mega Platforms	Enterprise power	Too rigid, hard to adapt, deprioritize healthcare

Healthcare leaders are forced to choose between speed, specificity, and scalability — but they shouldn't have to.

# What's Been Missing: The Right Combination

Modern infrastructure + healthcare intelligence = outcomes you can trust

Databricks Enables	Health Catalyst Adds
Unified data platform	Clinical & financial logic models
Scalability + AI foundation	Prebuilt dashboards + benchmarks
Secure, FHIR-ready	Regulatory compliance + submission workflows
Delta Sharing	Healthcare-specific data enrichment

# Better Together: The Power of Partnership

A modern foundation plus healthcare intelligence

## UNIFIED

Unified architecture +  
domain expertise



## VISUAL

Value stack or layered  
diagram

## MESSAGE

Don't trade scale for specificity  
— you can have both



*After risk, the most common roadblocks are  
"insufficient capability, data and tech  
infrastructure, and proof of value,"*

*(McKinsey & Company)*

# The Promise vs. The Reality

## HEADLINES

- “AI will revolutionize healthcare
- “Reduce physician burnout by 50%
- “Save billions in healthcare costs

## VS REALITY

- 77% of health systems cite immature AI tools as primary barrier
- Only 53% report high success with AI clinical documentation
- Some studies suggest AI scribes reduce documentation time by less than 1 minute\*



*Adoption of artificial intelligence in healthcare: survey of health system priorities, successes, and challenges*  
\*[Poon, et al. \(2025\)](#)

# Laying the Foundations

## Enabling Impactful and Scalable AI: Infrastructure and Data

### The Hard Truth



- AI amplifies what you already have
- Accurate/reliable data + AI = Better insights
- Inaccurate/unreliable data + AI = Expensive bad insights

### Pre-AI Checklist



- Data completeness and accuracy
- Data availability (if applicable in real-time)
- Integration capabilities
- Data quality
- Robust data architecture
- Governance structures in place

### A Platform for Building Data and AI Solutions



- From an data product/AI perspective the Ignite platform is foundational for value enablement – allowing our customers and us to build and deliver scalable, high-impact solutions faster and reliably
- If you want to go fast, go alone. If you want to go far, go together.

# The Health Catalyst Differentiation

**Many AI Companies** start with a technology, find healthcare applications second

**Health Catalyst** started with delivering measurable improvements in healthcare, scaled and enhanced with AI second



## Our Competitive Advantage

- Thousands of successful improvement initiatives as our foundation
- Deep understanding of healthcare operational realities
- Proven methodologies ready for AI-powered scaling
- Track record of measurable, sustainable outcomes



# The Wrong Question:

How can we use AI?

Versus

# The Right Question:

What problem(s) are we trying to solve? >>>

1

**Narrow Focus** → Start specific, scale later

2

**Clear Value** → Measurable cost, time, or outcome improvement

3

**Willing Users/Partners** → Find your early adopters, subject matter experts & champions

4

**Existing Workflow** → Integrate, don't disrupt

5

**Refine & Learn** → based on feedback and results → **Return to Focus** with lessons learned

6

**Scale** successful patterns to broader use cases

# Ignite as an Enablement Platform

Build with confidence: solid, scalable foundations and expert partnership



## Ignite is the foundation of our solutions

- The Ignite platform and data models are built to help facilitate data accessibility
- Healthcare specific
- Comprehensive and intuitive
- Enables rapid testing, experimentation, evaluation and prototyping of data, AI and ML systems and models
- Databricks provides the foundation for easy, rapid deployment and model management
- Measure the impact of your AI: Leverage our robust, purpose built performance tracking and evaluation AI capabilities to measure the impact of your AI initiatives

***Example: Clinical Cost Intelligence (CCI)***

# Realizing Cost Efficiencies

Mounting pressure to reduce costs

“

*We need to reduce health system wide costs by 30% over the next five years*

“

*Our goal as a health system is to eliminate \$300 million in costs over the next three to five years*

“

*With CMS rolling out the Transforming Episode Accountability Model (TEAM) it's critical that we maximize efficiency in our cost of care delivery*

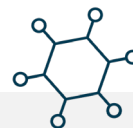
# CCI: AI + Activity-Based Costing

Clinical Cost Efficiencies at Your Fingertips — from weeks or months of analysis to real-time insights

ABC allows us to understand the true cost of care over the course of a patient's journey.



- Hundreds of thousands of combinations of providers, procedures, supplies, etc.
- Our goal is to identify cost and reimbursement variations/irregularities
- Deliver insights as understandable, actionable and measurable financial efficiencies



## Multistep/Multi-Agent Framework

- Supply name normalization (LLM agent)
- Ontology mapping (LLM agent)
- Variational analysis (Stat/ML models)
- Opportunity screen (LLM agent + Stat/ML models)
- Quality Improvement (QI) (LLM agent)

# Expert Data Collections

## Healthcare specific data models

### Readily Accessible

#### Costing data

- Supply, labor, lab/imaging/pham

#### Risk/complexity metrics

- Elixhauser, Charlson/Deyo, demographics

#### Outcomes

- LOS, 30 day readmission

### ... and many others

The screenshot displays the HealthCatalyst Catalog Explorer interface. On the left, a sidebar titled 'Catalog' shows a search bar and a list of datasets. The 'supply' dataset is selected and highlighted. The main panel on the right shows the 'supply' dataset details. It includes a 'Description' section with the text 'Supply attributes.' and a 'Filter columns...' search bar. Below this is a table with columns: 'Column', 'Type', 'Comment', and 'Tags'. The table lists various attributes of the 'supply' dataset.

Column	Type	Comment	Tags
ItemID	string	Unique identifier for the item.	
ItemTypeNM	string	Item type name, such as Instrument, Equipment, etc.	
ItemDSC	string	Item description.	
VendorID	string	Vendor ID.	
VendorNM	string	Vendor name.	
TypeOfItemDSC	string	Item type description.	
meta_dataset_name	string		
meta_surrogate_key	string		
meta_checksum	string		
meta_updated	timestamp		
meta_created	timestamp		

# Supply Name Normalization

Databricks Built in AI capabilities: Leverage Health Catalyst agents or easily build your own

## SUPPLIES

COMP FEM TRIATH CR SZ4 LEFT - S\*  
TRIATH CRUCIATE RETAINING  
FEMORAL #4 LEFT TYPE CR  
TRIATHLON FEM CR SZ7 LEFT - LOG506950  
Triathlon X3 Symmetric Patella  
PATELLA SYMMETRIC TRIATHLON -  
LOG523639  
Stryker TriathlonSymmetric Patella S36mm x  
10mm  
INSERT TIBIAL TRIATH X3 #4 9MM -  
LOG548761  
INSERT TRIATHLON X3 #6 13MM -  
LOG528528  
INSERT TIBIAL TRIATH X3 #5 9MM - S\*

## NORMALIZING AGENT

### femoral component triathlon cruciate retaining

COMP FEM TRIATH CR SZ4 LEFT - S\*  
TRIATH CRUCIATE RETAINING  
FEMORAL #4 LEFT TYPE CR  
TRIATHLON FEM CR SZ7 LEFT - LOG506950

### patella symmetric triathlon

Triathlon X3 Symmetric Patella  
PATELLA SYMMETRIC TRIATHLON - LOG523639  
Stryker TriathlonSymmetric Patella S36mm x 10mm

### tibial insert triathlon

INSERT TIBIAL TRIATH X3 #4 9MM - LOG548761  
INSERT TRIATHLON X3 #6 13MM - LOG528528  
INSERT TIBIAL TRIATH X3 #5 9MM - S\*

# Ontology Mapping

Similar process to normalization

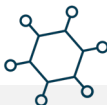
## Supply Groups

- Femoral Components: Replace distal femur; CR = cruciate retaining, PS = posterior stabilized.
- Tibial Baseplates: Base metal platform for tibial component.
- Tibial Inserts / Bearings: Polyethylene insert providing articulation surface.
- Bone Cement: Fixation material for components.
- Patella Components: Resurface the underside of the patella.
- Stems & Augments: Additional fixation or extension for femoral/tibial components
- Screws & Fixation Aids: Used for fixation when cementless or hybrid approaches used
- System / Bundle Products: Descriptive or bundle-level supply names; may not be specific components
- Miscellaneous: Any supply that does not fit into the other groups or for which no appropriate new group can be recommended.

# Models Adapted to ABC



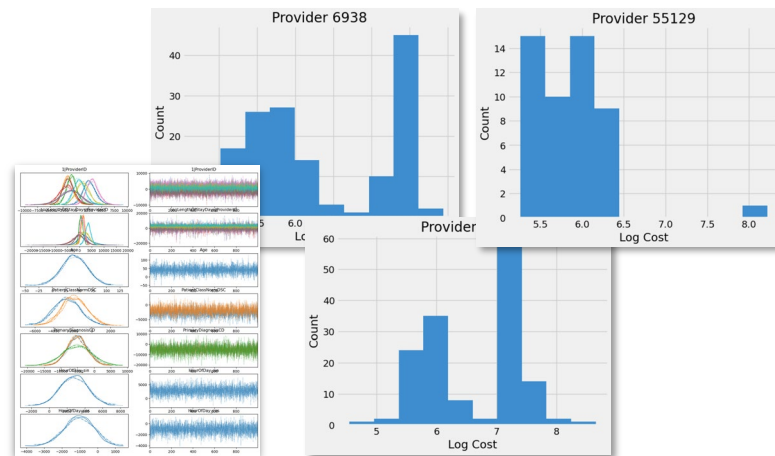
- We want to isolate provider specific variation in a scalable and generalizable manner
- Standard summary statistics, e.g., mean, median, CV, etc. will miss important nuance in the underlying data distribution



- Must account for procedure and patient specific factors, e.g., diagnosis, if the case was planned, time-of-day, other patient factors
- Opportunities – Ensure we minimize false positives, maximize true positives

- As development progressed - as is commonly the case we recognized we needed to pull in additional fields
- With Ignite iterating on the fields and inputs we're using is easy and fast

**Distribution of supply costs for the same procedure across providers**





# Quality Improvement Agent

## Guidelines (Overview)

Apply each of the 7 steps from the Health Catalyst framework

For each step, include a **Cross-Check & Validation Section** that examines:

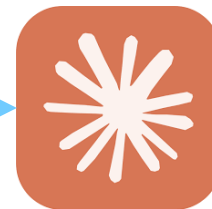
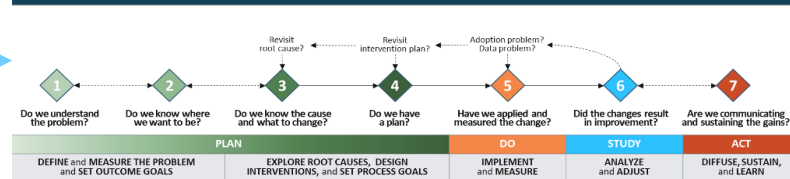
- Are there valid clinical reasons that could explain these patterns?
- What additional data would strengthen or challenge our conclusions?
- How might this provider's case mix, patient population, or circumstances differ?
- What unintended consequences could our recommendations create?
- Are there system-wide factors (equipment, training, protocols) contributing to variation?
- Which stakeholders should validate our assumptions before proceeding?

## Analytical Approach:

- Present findings as opportunities for improvement and standardization
- Consider both provider-specific and system-wide contributing factors
- Balance cost optimization with clinical effectiveness and safety
- Identify potential best practices that could be shared across providers
- Frame recommendations as collaborative improvement rather than corrective action

## Instructions: Improvement Framework

### DOMAIN- or INITIATIVE-FOCUSED 7 Guiding Questions Improvement Framework



# Quality Improvement Agent

Provider_A	Provider_B	mean_difference	ci_lower	ci_upper	prob_A_more_expensive	significant	avg_case_cost_A	avg_case_cost_B	n_cases_A	n_cases_B
10281	11750	605.270133	271.834676	973.711003	1.000	True	1041.093000	337.337619	140	21
10281	55129	597.194542	372.335684	868.286748	1.000	True	1041.093000	418.456600	140	50
10281	6938	185.899145	8.659693	360.861813	0.981	True	1041.093000	835.598276	140	145
10313	11750	948.086177	610.651495	1326.305802	1.000	True	1363.583623	337.337619	69	21
10313	519671	561.347846	-108.240862	1268.177854	0.939	False	1363.583623	398.970000	69	1
10313	55129	940.010587	691.170802	1222.064246	1.000	True	1363.583623	418.456600	69	50
10313	6938	528.715190	331.232523	721.158029	1.000	True	1363.583623	835.598276	69	145
18237	55129	853.763153	482.478669	1284.444054	1.000	True	1410.790909	418.456600	11	50
18237	6938	442.467756	107.023209	804.968529	0.996	True	1410.790909	835.598276	11	145

1

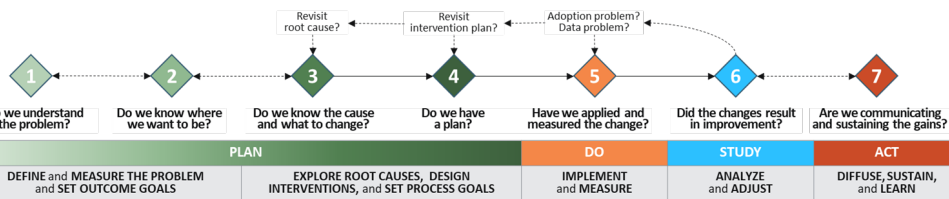
Do we understand the problem?

## Problem Statement:

Provider 10281 shows variable utilization rates of disposable ureteroscopes (ureteroscope disp aptra and ureteroscope disp aptra revers) ranging from 9.2% to 20% across different diagnosis codes, while other providers (6938, 11750, 55129) show either no usage or minimal usage (1.75%) of these expensive disposable devices. This represents a potential cost savings opportunity given the significant price difference between disposable and reusable ureteroscopes.

## QI Agent

### DOMAIN- or INITIATIVE-FOCUSED 7 Guiding Questions Improvement Framework



## High Variation in Disposable Ureteroscopes Use

CPT: 52356 ⓘ

✓ Risk Adjusted ⓘ

Supplies

New | 7/18/25 | 2

### ⓘ Variation Detected

Provider Curnin shows inconsistent use of costly disposable ureteroscopes (9.2%–20% across diagnosis codes), while peers use them minimally (1.75%) or not at all.

### ⓘ Suggested Action

95% of providers use reusable scopes for this procedure. Around 5% use reverse disposable scopes selectively.

### \$ Cost Savings Opportunity

Annually

**\$150K - \$300K**

Avg savings per case: **\$2,450**

### 📈 Case Volume

Cases Annually

**450**

Peer mean : 320 ⓘ

### 📉 Variation

Provider Avg

**15.2%**

Peer mean: 4.8%

### 📊 Clinical Outcomes

Length Of Stay (Days)

**5.2**

Peer mean: 4.4

30-Day Readmission

**9.8%**

Peer mean: 5.7%

✓ Show More

⊗ Dismiss

👤 Share

🚩 Flag for Review

## High Variation in Knee Replacement Supply Costs

Inpatient - Total Knee Arthroplasty (Cemented) ⓘ

✓ Risk Adjusted ⓘ

Supplies

New | 7/18/25

### ⓘ Variation Detected

- Provider 515965's average supply cost for total knee replacements is **63%** higher than Provider 10457's.
- The difference is tied to procurement strategy, inventory complexity, and surgeon preferences.

### ⓘ Suggested Actions

- 94% of lower-cost providers use bundled implant systems and a single cement type.

### \$ Cost Savings Opportunity

Annually

**\$1.2M - \$2.5M**

Avg savings per case: **\$2,700**

### 📈 Case Volume

Cases Annually

**500–900**

### 📉 Variation

Provider

**+63%**

✓ Show More

⊗ Dismiss

👤 Share

🚩 Flag for Review

# Making the process of getting started easier



"... one leader broke down a structured progression from individual adoption to system-wide transformation that can ultimately rearchitect entire healthcare processes.

***The first level of change happens with an individual who recognizes the power of AI and gets more comfortable with integrating AI into their daily workflow. This individual's experience ultimately expands to their larger working group. Then, once multiple working groups collaborate with each other, we're not just implementing AI in healthcare — we're rebuilding entire value chains."***

*(Define VC – 2025 AI Summit)*

## Enabling the transformation from idea to product





















The future of AI in health care will favor organizations that treat infrastructure, governance, and validation as core competencies and not afterthoughts. ... Without foundational infrastructure, AI tools risk becoming unmanageable. Poorly integrated algorithms can introduce bias, erode clinician trust, and create operational inefficiencies rather than solving them.

*(UPMC Enterprises)*



# What Success Looks Like

## Health Catalyst Solutions using Databricks

 Health Catalyst <span>Free</span> <b>Reducing Avoidable Emergency Department Visits</b> Identify potentially avoidable ED visits and utilize predictive forecasting and generative AI to improve patient outcome 	 Health Catalyst <span>Free</span> <b>Patient Appointment Access Optimization</b> Transform patient access and improve clinical outcomes through data-driven appointment optimization 	 Health Catalyst <span>Free</span> <b>Improving Surgical Outcomes for Elective Procedures</b> Systematically identify and address modifiable preoperative risk factors for elective procedures 	 Health Catalyst <span>Free</span> <b>Optimizing Patient Throughput</b> Patient flow analytics provide crucial information to identify bottlenecks that create delays throughout the system. 
 Health Catalyst <span>Free</span> <b>Improving HEDIS Scores</b> Analytics-driven care gaps closure support for improving HEDIS scores with AI/ML modeling 	 Health Catalyst <span>Free</span> <b>Predicting Patient Satisfaction Scores</b> Improve patient satisfaction through advanced analytics integrated with HCAHPS data. 	 Health Catalyst <span>Free</span> <b>Preventing Hospital Readmissions</b> Utilize advanced analytics, machine learning models, and gen AI integrations to transform readmission reduction... 	 Health Catalyst <span>Free</span> <b>Optimizing Inpatient Length of Stay</b> Transforming hospital operations through data-driven length of stay reduction strategies 
 Health Catalyst <span>Free</span> <b>Matching Patient to Provider Panels</b> Optimize patient provider panels for maximum clinical and financial impact 	 Health Catalyst <span>Free</span> <b>Detecting Sudden Patient Satisfaction Anomalies</b> By catching dissatisfaction trends early through automations, health orgs can transform patient outcomes 		

# The Tech Foundation That Enables Speed

Why Databricks is the infrastructure of choice for modern healthcare data

## TRANSFORM

## INTO

## TO ACHIEVE

Massive, Siloed, and  
Fast-Moving Data

Unified data across  
the enterprise

Budget freed up for investment  
into new data and AI initiatives

Strict Regulatory  
Demands

Unified governance  
for all assets

Quality data that meets business  
and regulatory demands

Complexity of AI  
Integration

AI-driven insights  
and performance

Data-driven innovation that's  
easily scaled to every  
department



# Build vs. Partner: What's the Smarter Bet?

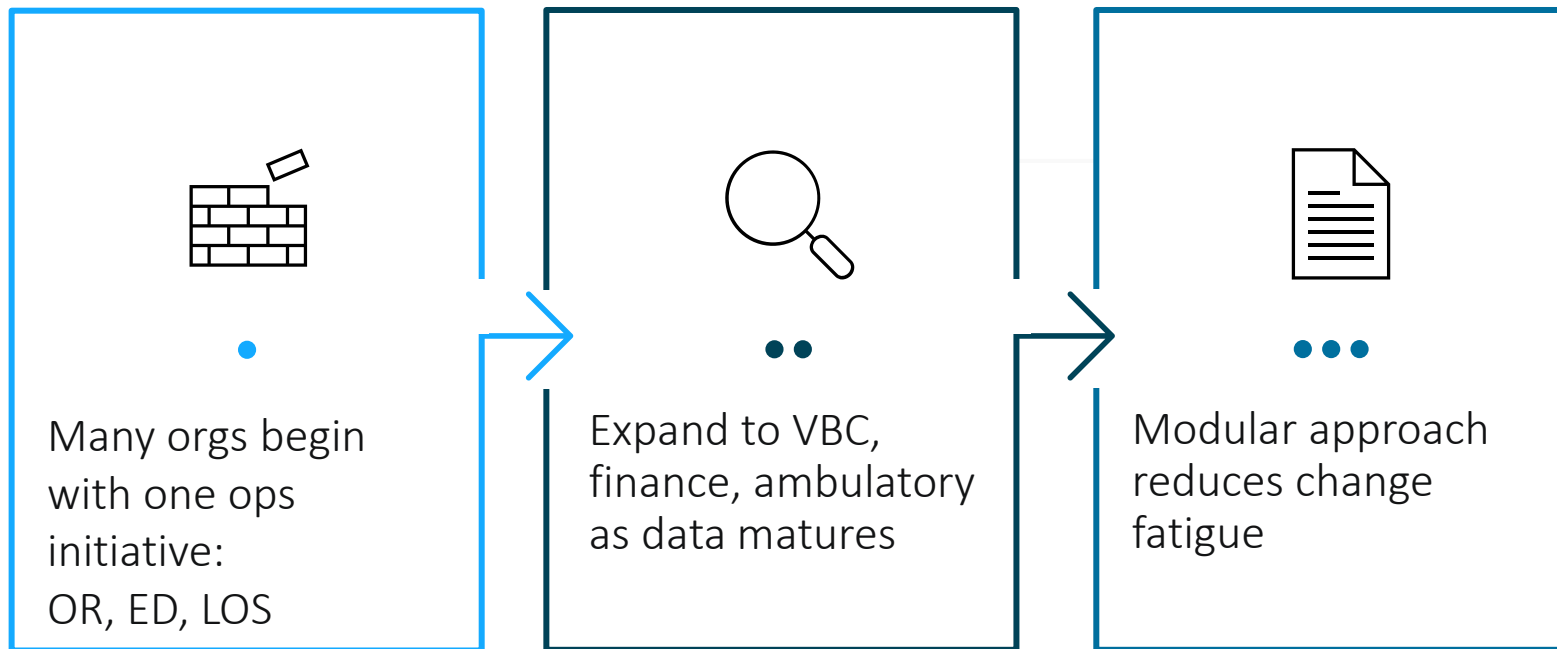
Speed matters. Risk matters. Results matter.

## HCAT Ignite + Databricks

- ***Faster Insights***: Databricks' infrastructure paired with Health Catalyst's healthcare intelligence delivers quicker, more accurate insights for improved clinical and financial outcomes.
- ***Healthcare-Focused***: Purpose-built with pre-built connectors, compliance frameworks (HIPAA, GDPR), and healthcare-specific AI, reducing time to value and minimizing risks.
- ***Proven Results***: Serving 500+ clients with 300+ success stories, Health Catalyst drives real-world improvements across clinical, operational, and financial areas.
- ***Seamless Integration***: Healthcare models on Databricks' scalable platform ensure smooth data integration across systems (EHRs, claims, pharmacy, lab, billing) for unified patient views.
- ***Future-Proof Flexibility***: Adaptable data models allow seamless integration of new technologies and innovations, ensuring long-term scalability and keeping organizations ahead of evolving healthcare needs.

# From Pilot to Enterprise-Scale Impact

Start where the pain is. Scale across clinical, financial, and operational domains.





# Why the Status Quo Is No Longer Safe

Legacy strategies can't keep up with today's risks, complexity, and pace

Strategic Risk	What It Looks Like	Why It Matters
<b>Stalled ROI</b>	Years into platform buildouts, but still relying on manual reports	Boards are losing patience — execs are under pressure to deliver value
<b>Fragmentation</b>	Multiple dashboards, disconnected teams, costly point solutions	Impossible to align clinical, ops, and financial outcomes without integration
<b>Compliance Headwinds</b>	CMS rules, Medicaid redetermination, growing AI scrutiny	Regulatory risk is real — and manual workarounds won't scale

Ignite gives you the infrastructure + intelligence to cut through complexity — and deliver.

# Takeaways & Strategic Next Step

If you're ready to move faster, we're ready to help



Health Catalyst +  
Databricks =  
faster path to  
outcomes



Measurable ROI,  
faster time to  
value, trusted  
support



Schedule a  
strategy session  
or readiness  
review



QR code or link  
to schedule



# Questions?

**Mark Lee** | Industry Ecosystem GTM, HLS; Databricks

**Daniel Samarov** | Chief AI Officer, Health Catalyst

*Alora Martin | Webinar Program Manager*

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