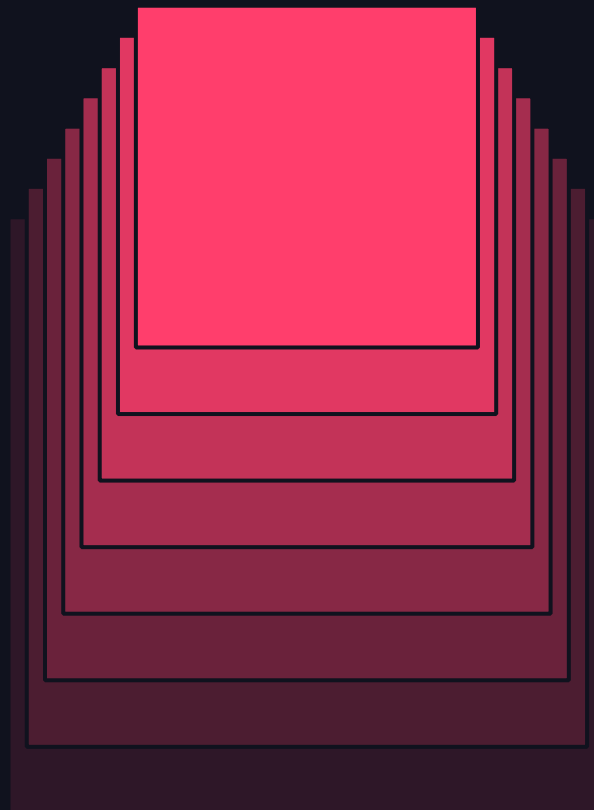


Texas Rangers' World Series Success with a Data Intelligence Platform

Texas Rangers Baseball Operations
6/12/2024



Who We Are

Texas Rangers Baseball Club

Alexander Booth

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Joined the club in 2018
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Oliver Dykstra

Data Engineer, R&D
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Joined the club in 2022
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What We're Talking About

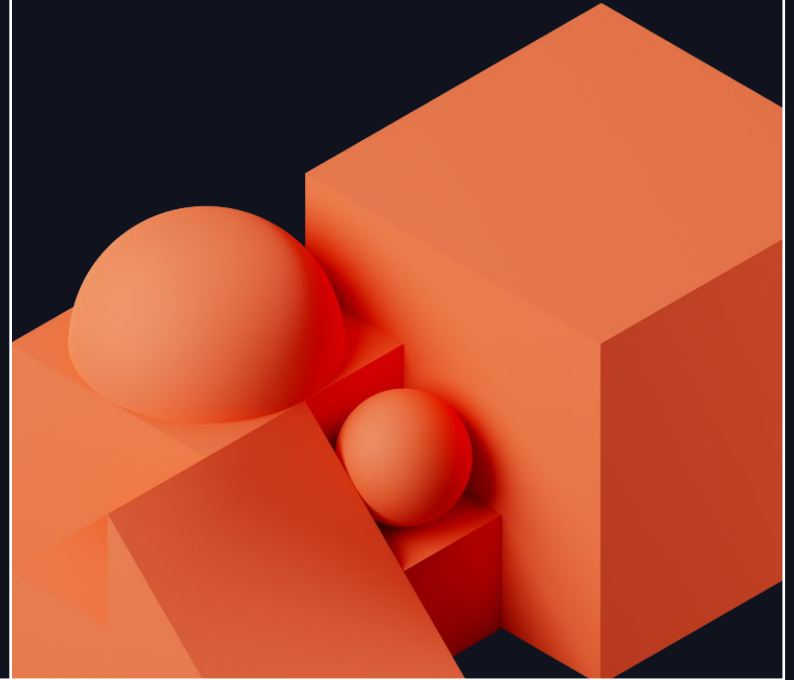
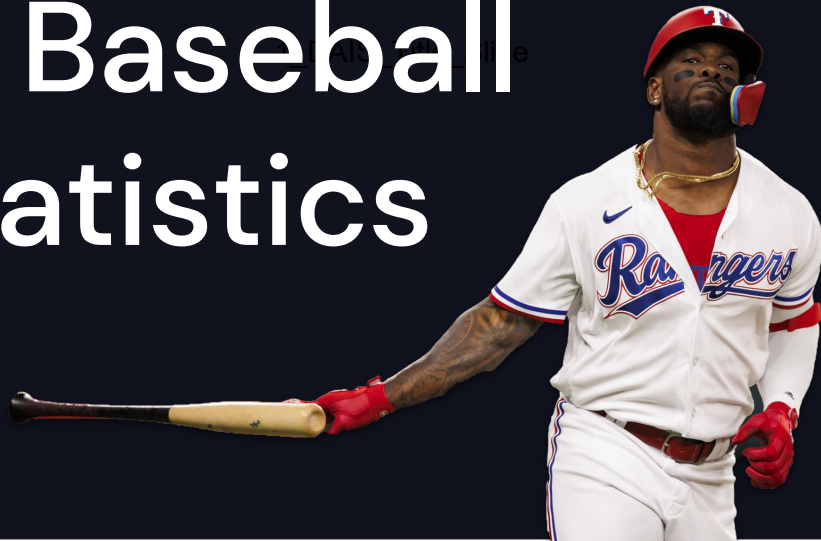
Texas Rangers Baseball Club

- History of Baseball Statistics
- Big Data Baseball
- The Winning Formula:
 - Cutting-Edge Data Engineering
 - Mastering Data Governance
 - Unleashing AI-Driven Analytics
- Putting it all together:

World Series Victory



A Brief History of Baseball Statistics



That's all baseball is, is numbers; it's run
by numbers, averages, percentages and
odds...

– Rollie Fingers
(Hall of Fame Pitcher)

Think Outside the Box (Score)

A Brief History of Baseball Statistics

1859 - Henry Chadwick publishes the first Box Score, a set of statistics compiling the runs, hits, outs, assists and errors.

Chadwick also coined the term "strike-out"! Further, to this day the reason a strikeout is recorded as a K is because Chadwick used the phrase "the batter was struck."

The First Baseball Box Score Ever Published
 An Interesting Excursion Into the History of Baseball Journalism in an Effort to Discover the Inventor of that Summary of a Ball Game, the Box Score
 By H. W. WHITKRE

It is a recorded fact in the history of American literature that Henry Chadwick, the great author of the game, was the first to publish the box score of a game.

The first recorded fact in the history of American literature is that Henry Chadwick, the great author of the game, was the first to publish the box score of a game.

Henry Chadwick, sometimes called "The Father of Baseball," who is credited with the first baseball box score, was born in 1824.

Just ten years after his invention of the box score, Chadwick was the first to publish the first box score of a game.

The First Recorded Box Score of a Ball Game

Team	Runs	Hits	Errors
Brooklyn	1	10	1
New York	2	12	0

Think Outside the Box (Score)

A Brief History of Baseball Statistics

1941 - Former major leaguer Ethan Allen invents All-Star Baseball, a tabletop game that allows kids to imitate major league games with a spinner on top of circular discs.

1952 - Topps adds full statistics lines on the back of their annual baseball cards.

Baseball statistics start to proliferate through popular culture.



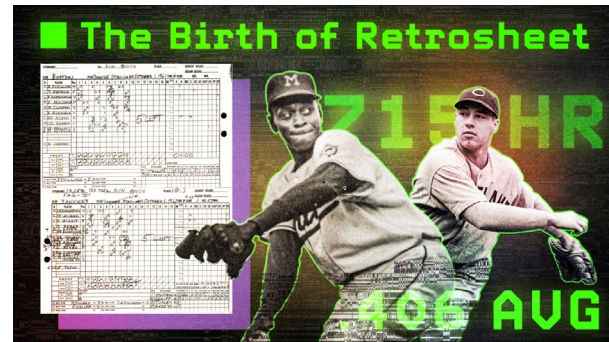
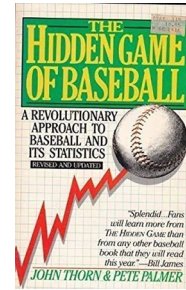
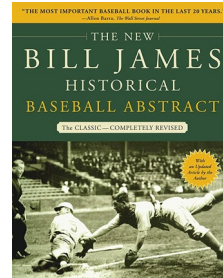
Think Outside the Box (Score)

A Brief History of Baseball Statistics

1977 - Bill James publishes his first “Baseball Abstract” which becomes a national bestseller in the early 80s.

1989 - Retrosheet begins massive compilation and online publishing of old box scores and play-by-plays, allowing droves of historical research never before possible.

1996 - Baseball Prospectus begins publication of their annual and website - introduces statistics community to VORP, PECOTA, Pitcher Abuse points and more.



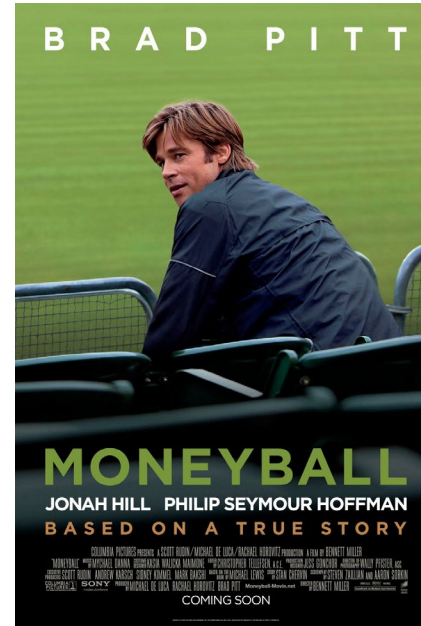
Think Outside the Box (Score)

A Brief History of Baseball Statistics

2001 - 2003 - Billy Beane's Moneyball A's use data-driven insights to identify market inefficiencies within the game of baseball.

2003 - Michael Lewis publishes his book, "Moneyball: The Art of Winning an Unfair Game" about those A's.

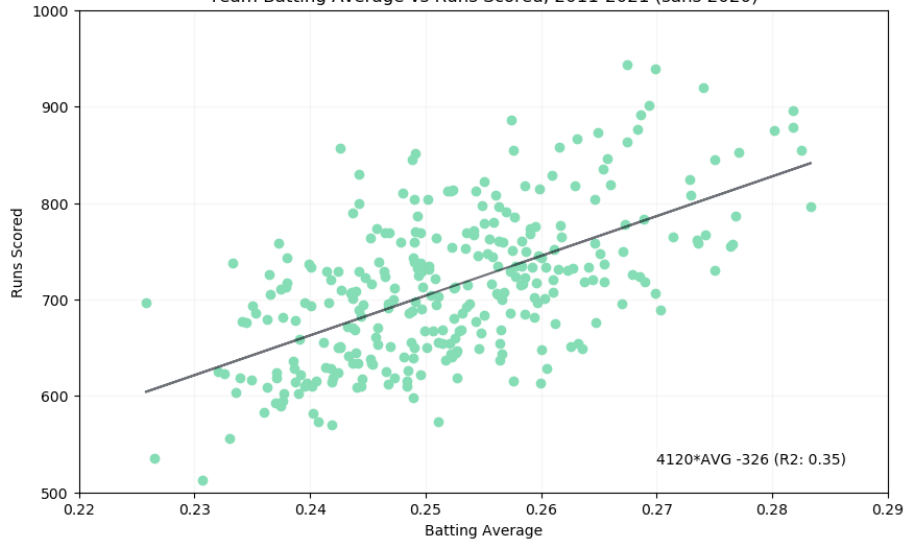
2011 - Brad Pitt stars in the movie adaptation of the same name.



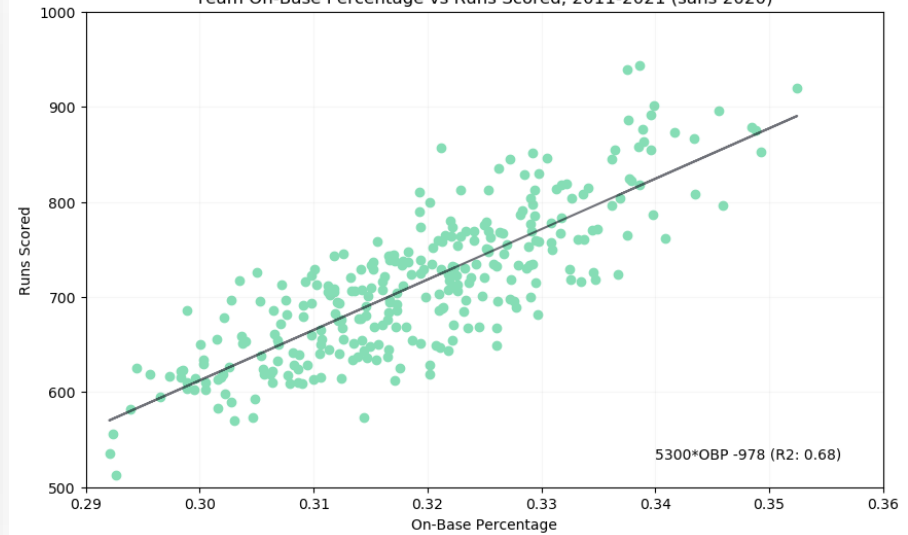
Think Outside the Box (Score)

A Brief History of Baseball Statistics

Team Batting Average vs Runs Scored, 2011-2021 (sans 2020)



Team On-Base Percentage vs Runs Scored, 2011-2021 (sans 2020)



Think Outside the Box (Score)

A Brief History of Baseball Statistics

Billy Beane identified a **market inefficiency**.

The market priced players with high batting averages higher than those with high on-base percentages. However, on-base percentage has a **higher correlation** to total runs scored.

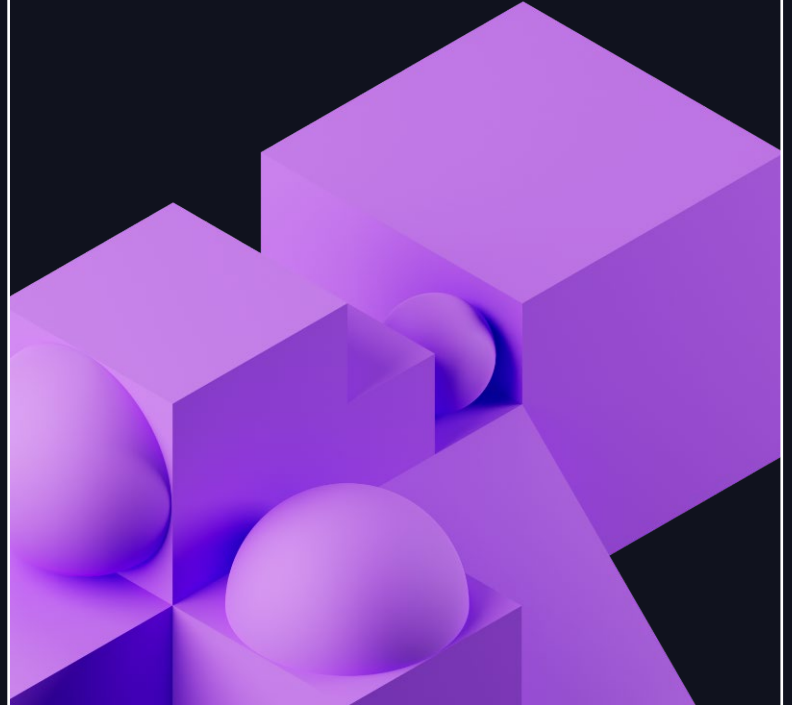
The Oakland A's used this information to acquire players undervalued by the market that could help them compete with higher payroll teams.

This data-driven decision **disrupted the industry** and left a legacy far beyond baseball.



Big Data Baseball

1_DAIS_Title



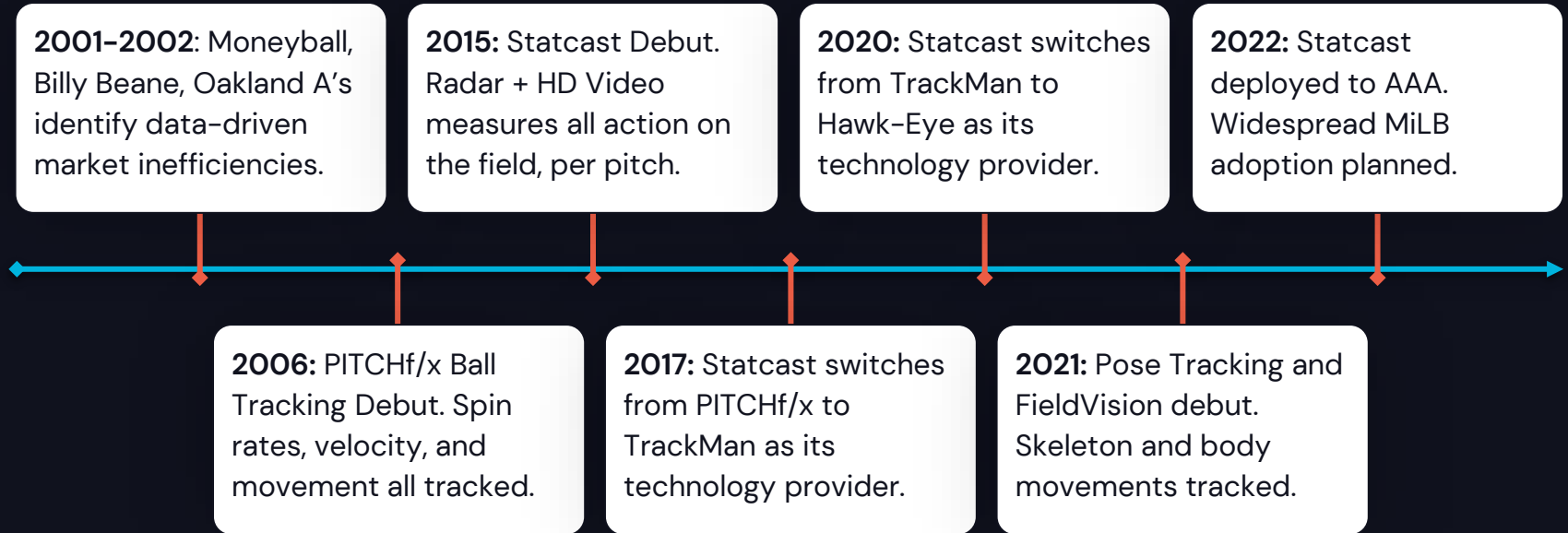
“If you challenge conventional wisdom, you will find ways to do things much better than they are currently done.”

– Bill James

(Founder of Sabermetrics)

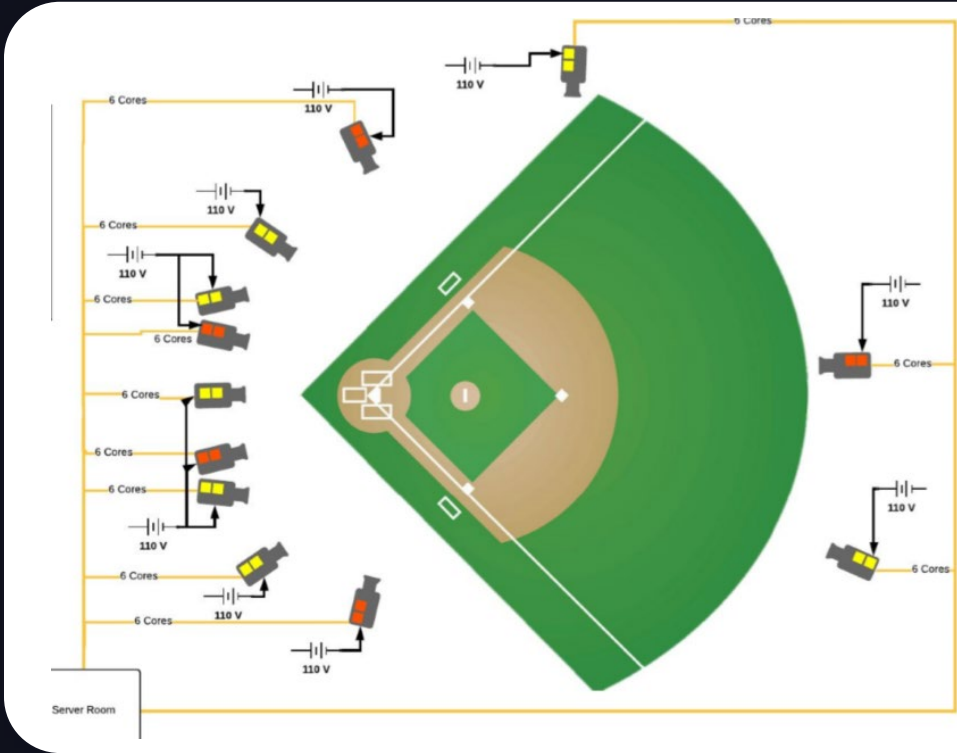
Big Data Baseball

The Statcast Revolution



Big Data Baseball

The Statcast Revolution



Big Data Baseball

The Statcast Revolution



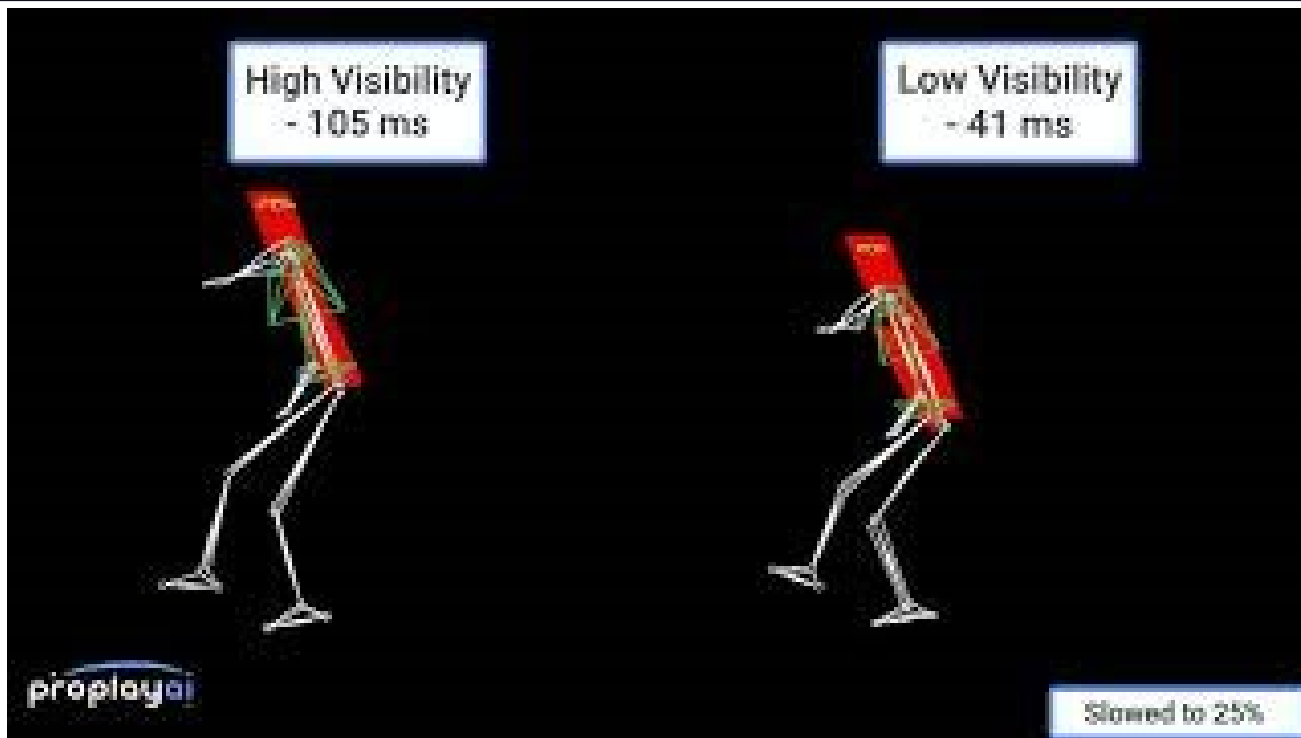
Big Data Baseball

The Statcast Revolution



Big Data Baseball

The Statcast Revolution



Big Data Baseball

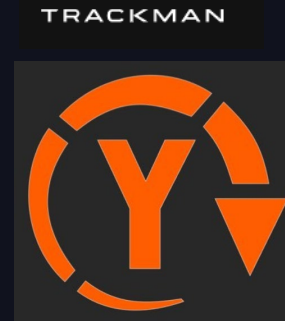
The Statcast Revolution



TELEVISION:
BASEBALL

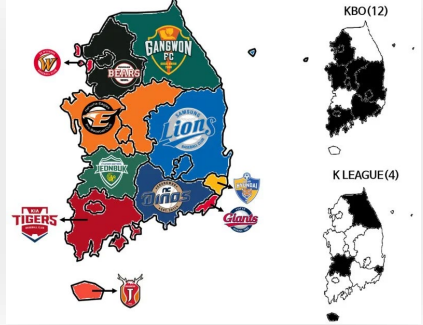
Big Data Baseball

The Statcast Revolution



Big Data Baseball

The Statcast Revolution



REGIONE PIEMONTE #EBC2021

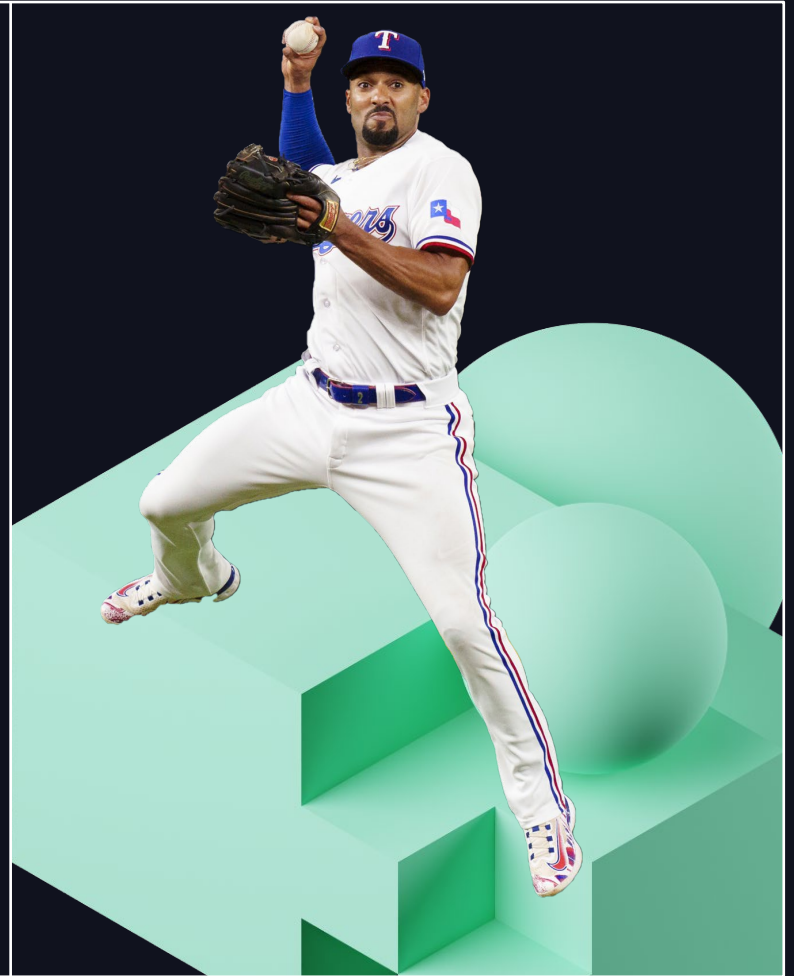
Group A	Group B	Group C	Group D
ITALY	SPAIN	ISRAEL	THE NETHERLANDS
AUSTRIA	CROATIA	GREAT BRITAIN	SWEDEN
BELGIUM	GERMANY	FRANCE	CZECH REPUBLIC
QUALIFIER UTENA	QUALIFIER BELGRADO	QUALIFIER MOSCA	QUALIFIER BRATISLAVA

METTOLA



The Winning
Formula:

Cutting-Edge Data
Engineering



“It’s math-y, but there’s still the whole arts-and-science debate [with big data]. I’d argue there is an art to that sort of stuff.”

– Mike Fitzgerald
(VP of R&D for the Diamondbacks)

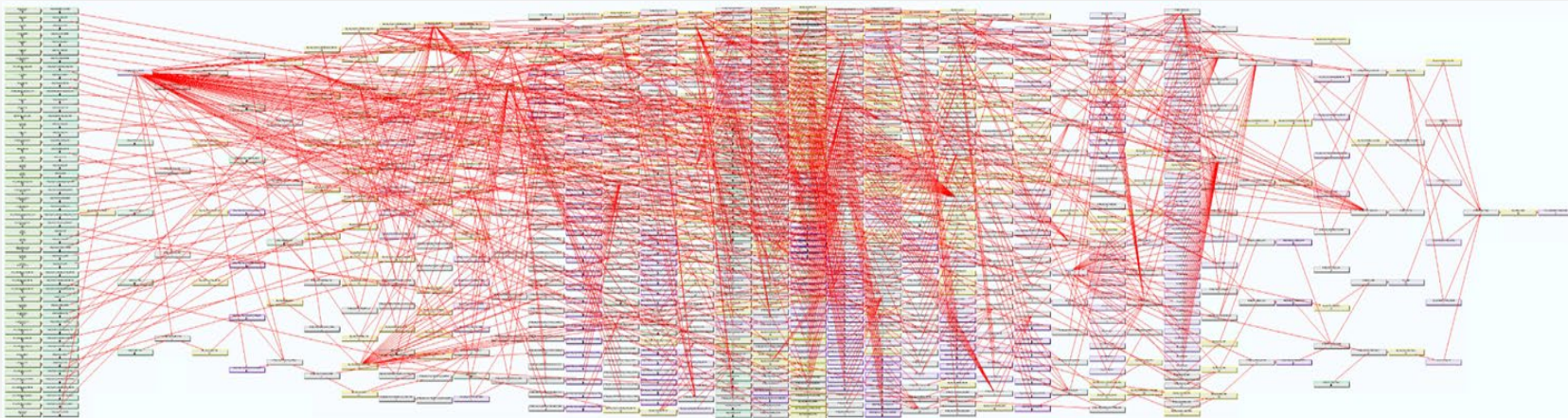
The Obstacles

Original Complexity

Our first data solution failed to adapt as we started ingesting big data.

Problems:

- Difficult to make changes
- Hard to troubleshoot
- Tough to explain



The Obstacles

Limitations of Two-Tier Architecture

Technical limitations:

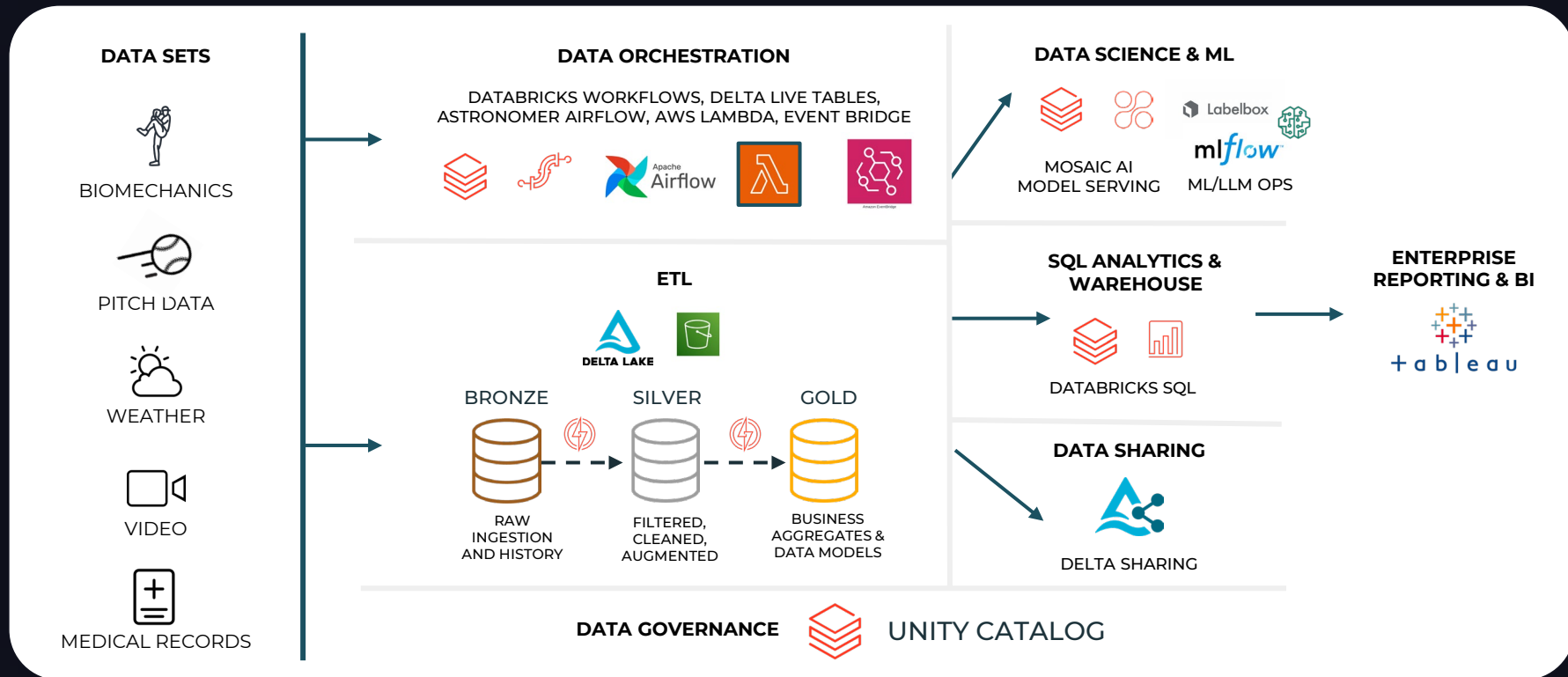
- Time-consuming and expensive maintenance efforts
- Cost prohibitive proprietary formats and redundant data replications
- Integrated storage and compute lead to inefficient and brittle transformation layers
- Not flexible enough for a variety of data formats or semi-structured data

When you're asked how the cloud migration is going:



The New Potential

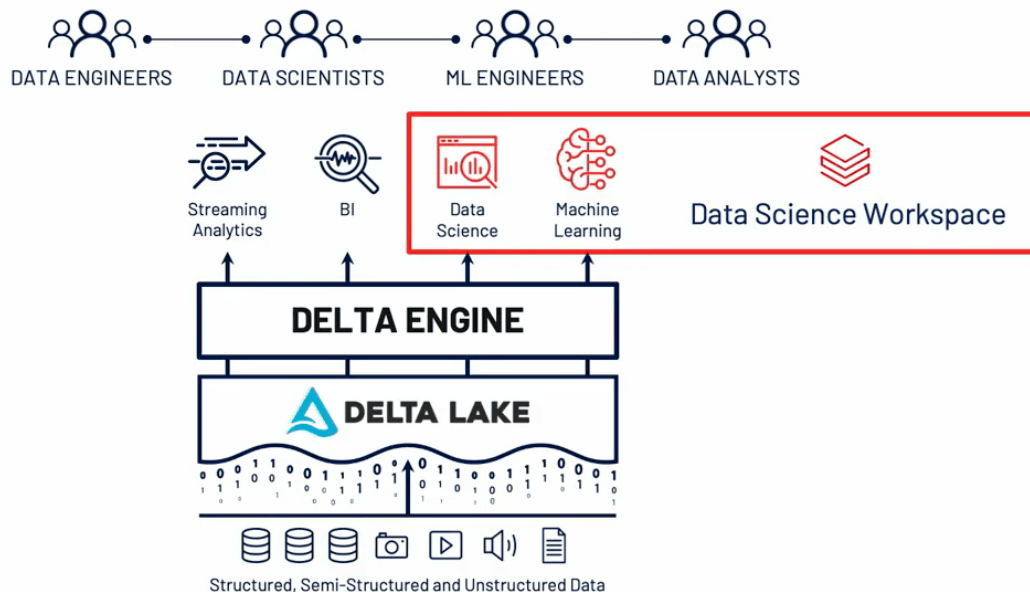
A Unified Data Platform



The New Potential

A Unified Data Platform

Solving the world's toughest problems is a team sport



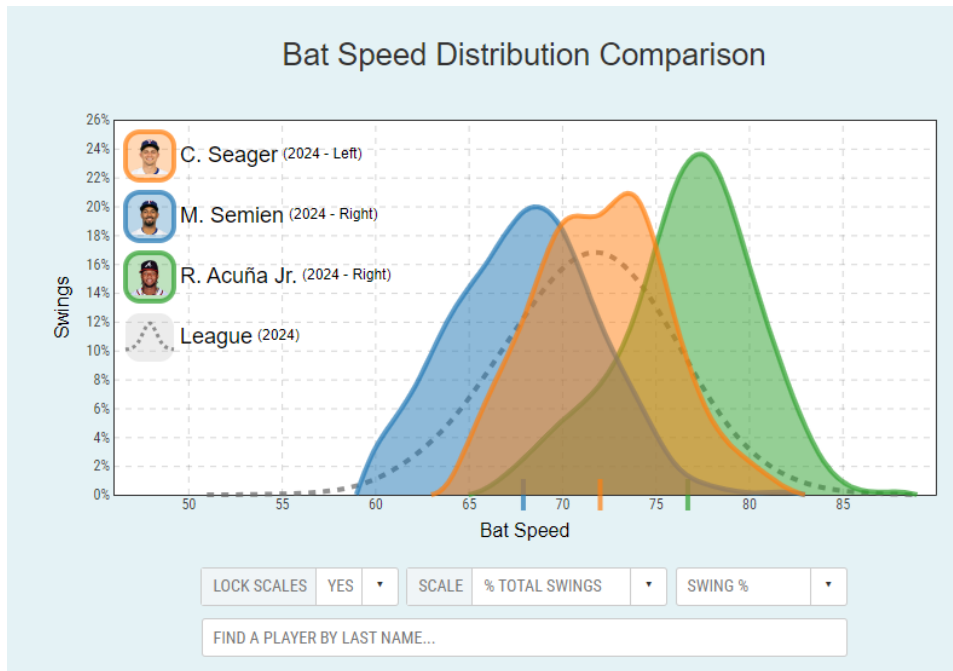
The New Potential

New Data Sources

Statcast **bat tracking** is available beginning with the 2024 season.

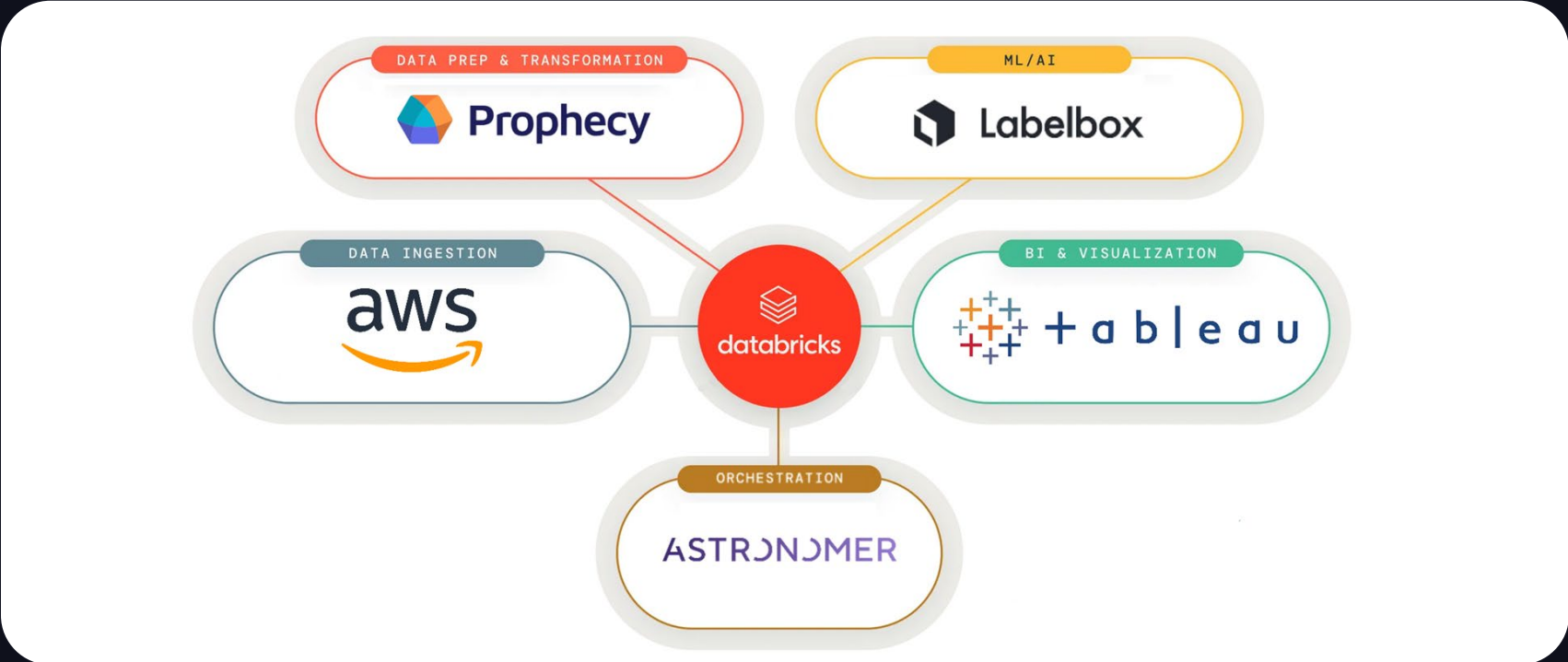
Since different parts of a bat can move at different speeds, an individual swing's speed is measured at the point six inches from the head of the bat, what is popularly called *"the sweet-spot."*

Swing length tracks the sum distance traveled by the head of the bat in XYZ space from the start of data until contact point.



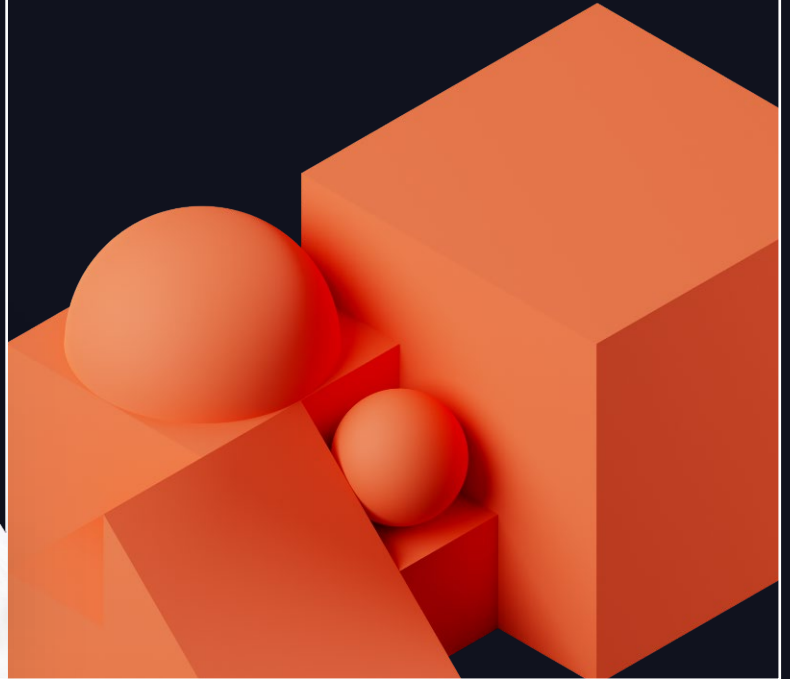
Open Source and Partner Solutions

A Pantheon of Partner Solution



The Winning
Formula:

Mastering Data
Governance

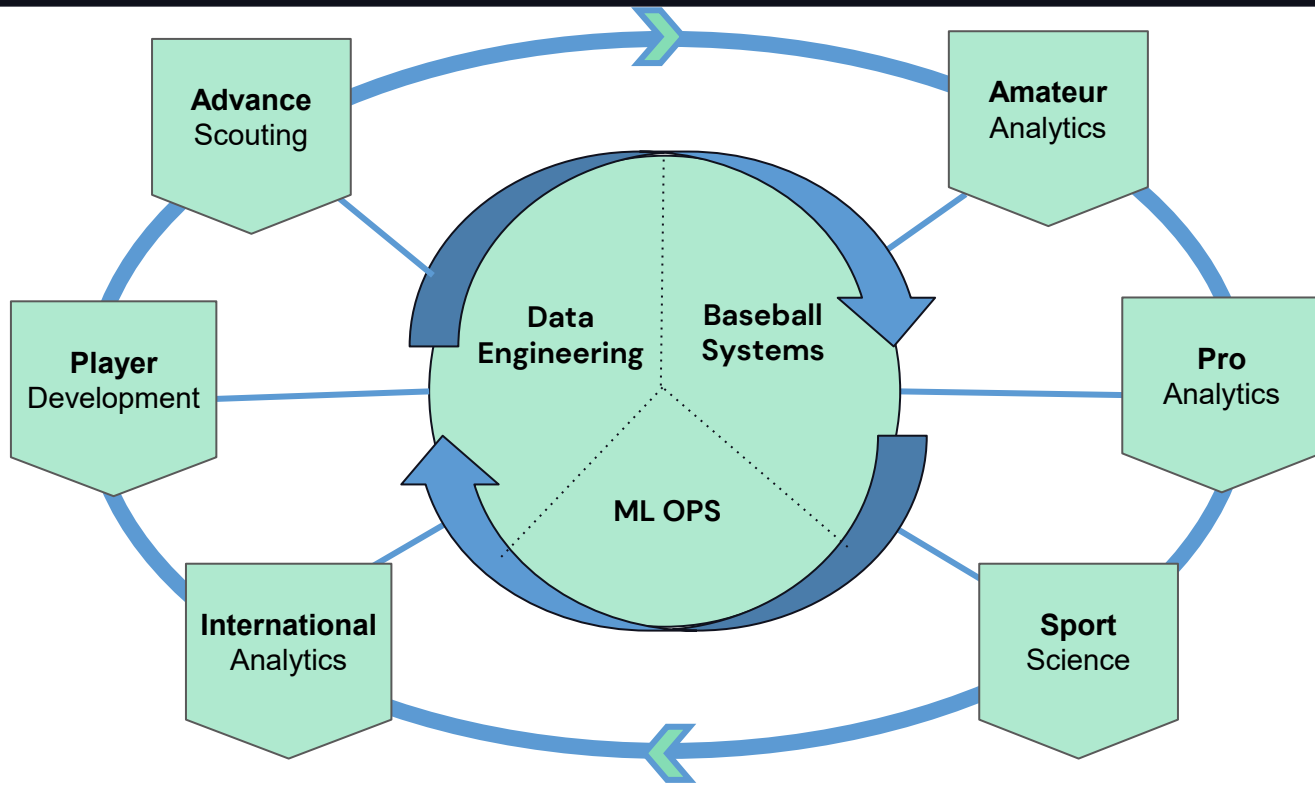


“There were too many things that were taken for granted that shouldn’t have been.”

– Ben Lindbergh
(Author and Analyst)

Mastering Data Governance

Hub and Spoke Federation



Mastering Data Governance

A World Wide Presence

Affiliates

- DSL Rangers (DR, Rk)
- ACL Rangers (Arizona, Rk)
- Down East Wood Ducks (NC, A)
- Hickory Crawdads (NC, A+)
- Frisco RoughRiders (Texas, AA)
- Round Rock Express (Texas, AAA)

- Texas Rangers (Texas, MLB)



Mastering Data Governance

Sensitive Information

Secure Data Sources

- Medical Information
- Addresses, PII
- Contract Details
- Financials
- Education History - Amateur Draft
- FERPA, HIPAA

Texas Rangers Injuries

More MLB Teams ▾

May 31



Tyler Mahle SP
Status ● 60-day il

Mahle (elbow) threw a bullpen session off a game mound May 18, Evan Grant of The Dallas Morning News reports.

May 29



Josh Jung 3B
Status ● 60-day il

Rangers manager Bruce Bochy said Wednesday that Jung (wrist) "looks great" after resuming hitting, Shawn McFarland of The Dallas Morning News reports.

May 28



Evan Carter LF
Status ● 10-day il

Carter was placed on the 10-day injured list Tuesday with lower-back tightness, Kennedy Landry of MLB.com reports.



Max Scherzer SP
Status ● 60-day il

Scherzer (back/arm) will throw a "full" bullpen session Wednesday, Evan Grant of The Dallas Morning News reports.

Mastering Data Governance

Glizzies 🌭

Case Study: NY Mets 4/30/2024

“SNY sideline reporter Steve Gelbs, dressed as a hot dog, did a hard-hitting report in front of the “\$1 Wiener Boys” where he explained that the Mets normally sell 4,100 hot dogs per game. For \$1 hot dog night, *the team ordered 70,00 frankfurters...*

When all was said and done, the attendance for the Cubs-Mets game was 22,880 and *44,269 hot dogs were sold.*”



Mastering Data Governance

Glizzies 🌭

Machine Learning & AI can help predict how many \$1 hot dogs will be consumed - leading to more *optimized inventory management*.

However, knowing the **starting pitcher or lineup, the weather, or expected score** would likely affect attendance and consequent hot dog sales.

Therefore, *governing shared data* between the business, baseball, and concessions departments is necessary.



Source:

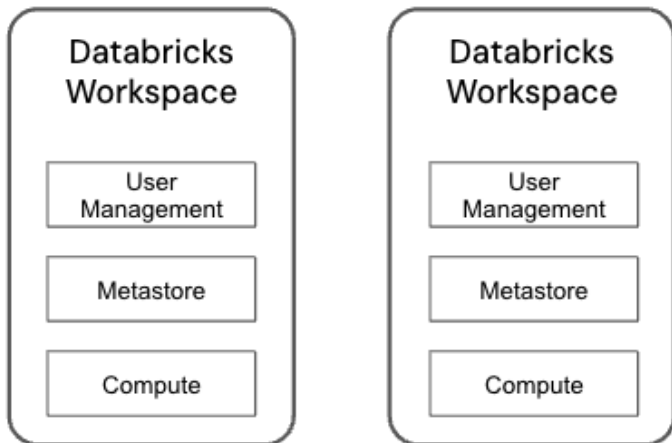
<https://www.si.com/mlb/2024/05/01/mets-dollar-hot-dog-night-madness>

Mastering Data Governance

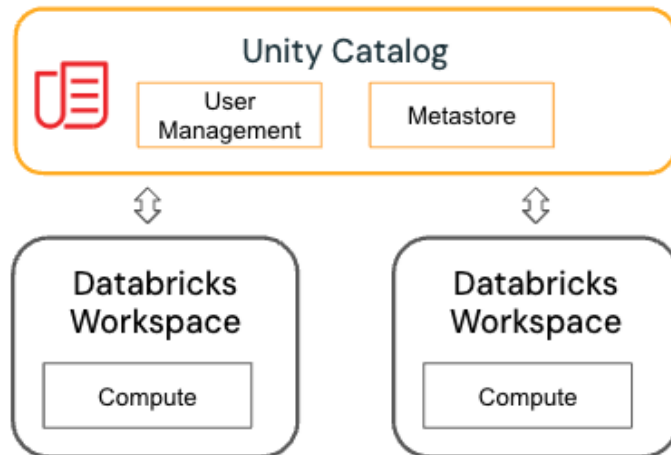
Unity Catalog



Without Unity Catalog



With Unity Catalog



Mastering Data Governance

Unity Catalog

Unity Catalog enables centralized, **fine-grained access control** and governance across our diverse data teams, such as player development and amateur scouting, while **ensuring compliance** with FERPA and HIPAA.

It provides **secure, unified access** to data from our minor league teams nationwide, while **safeguarding sensitive information** like contract financials and medical records. UC allows us to maintain transparency, ensure data integrity, and support compliance, all within a **single, integrated platform**.

Databricks Unity Catalog

Unified governance for all data and AI assets

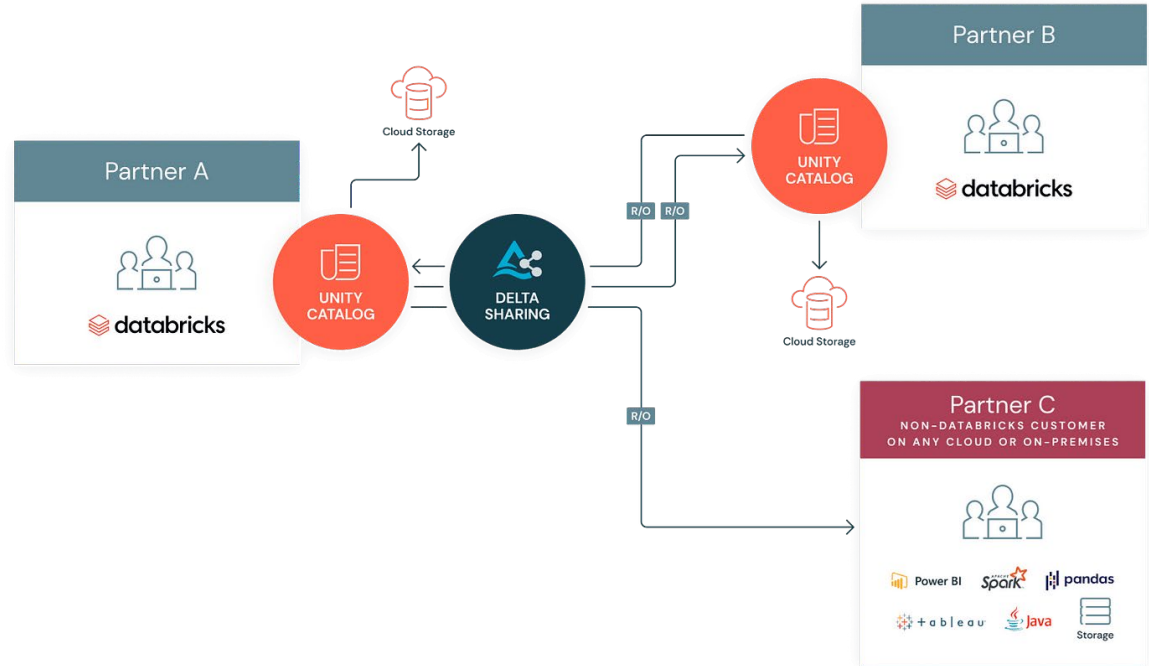


Mastering Data Governance

Delta Sharing

Unity Catalog with **Delta Sharing** allows us to connect seamlessly with data partners both on Databricks as well as on other platforms.

UC facilitates secure and efficient data sharing across our baseball and business ecosystem.



The Winning
Formula:

Unleashing AI-
Driven
Analytics



“Half of it’s art... it’s creativity, and then half of it is just knowing the data you’re working with and being able to manipulate it in the direction that will benefit the player.”

– Brian Bannister
(Director of Pitching,
Chicago White Sox)



Using data intelligence to optimize performance delivers competitive advantage



Talent Acquisition

MLB DRAFT ANALYSIS



Player Performance

BIOMECHANICS

SWING ADJUSTMENT

PITCH OPTIMIZATION



In-Game Strategy

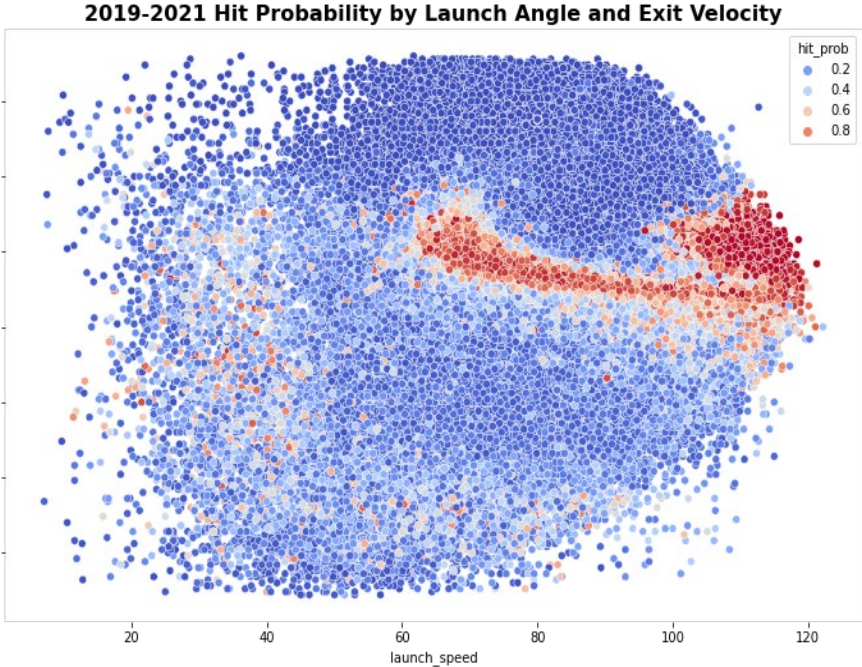
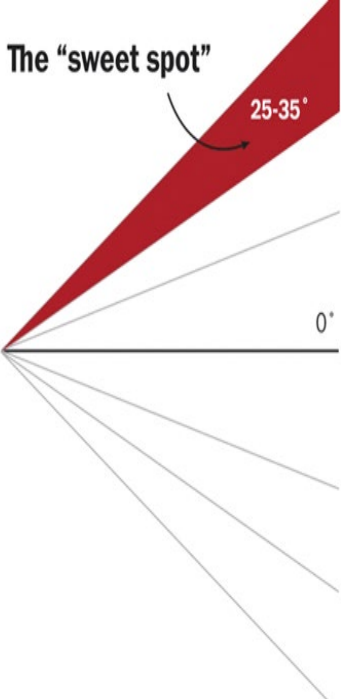
DEFENSIVE
POSITIONING

LINE-UP OPTIMIZATION

BULLPEN MATCH-UPS

Unleashing AI-Driven Analytics

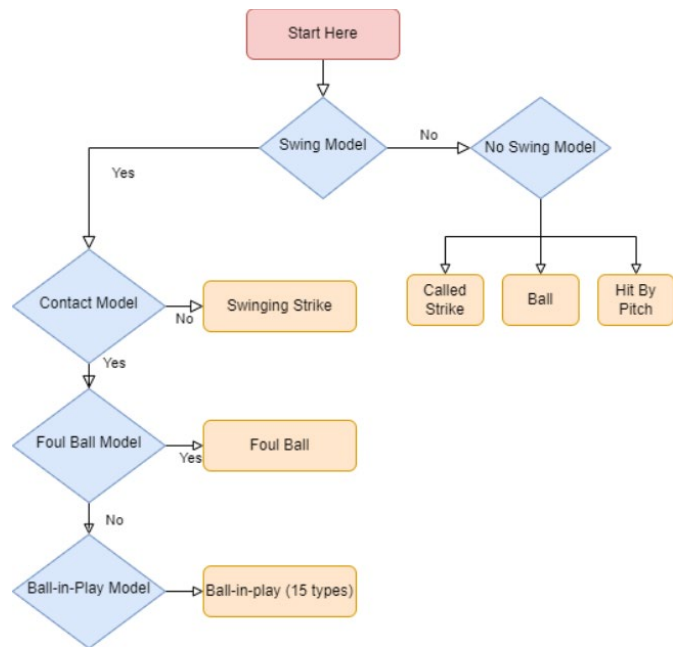
The Launch Angle Revolution



Unleashing AI-Driven Analytics

Grading Pitch Quality

- Model pitch-tracking data to assess the quality of a pitch given its expected results
 - PitchingBot & Stuff+ are public models from Fangraphs
 - Often a combination of many sub-models



Unleashing AI-Driven Analytics

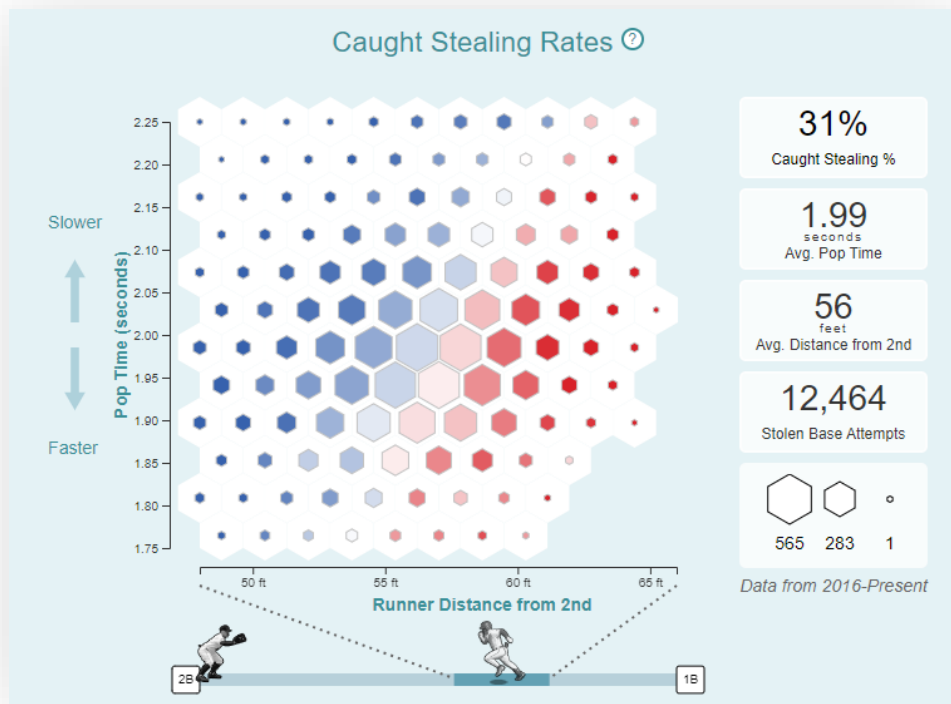
Base Stealing Probability



Catcher Throwing Leaderboard

What is this? A [Statcast metric](#) designed to express the skill of catchers at throwing out runners on steal attempts, given the specifics of the opportunities they are presented with.

How this works: Each steal attempt is assigned a *modeled probability* of being successful or not based on several features at the time the pitch crosses the plate, most notably: runner distance from 2B, runner speed, catcher pop time, pitch location, and pitcher/batter handedness.

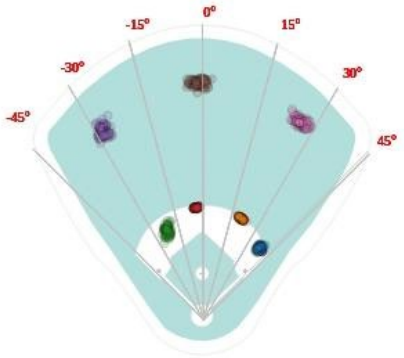



Unleashing AI-Driven Analytics

Defensive Positioning

Left Handed Hitters

MLB Player Positioning
Avg. Starting Point, Situational

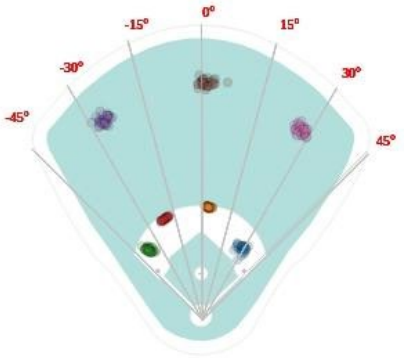



FIELDER POSITIONING



Right Handed Hitters

MLB Player Positioning
Avg. Starting Point, Situational



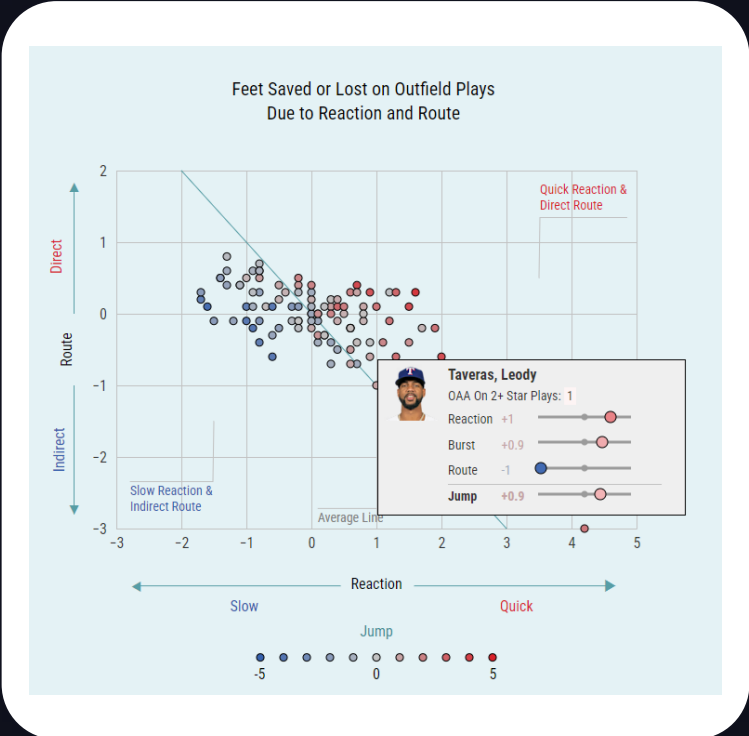
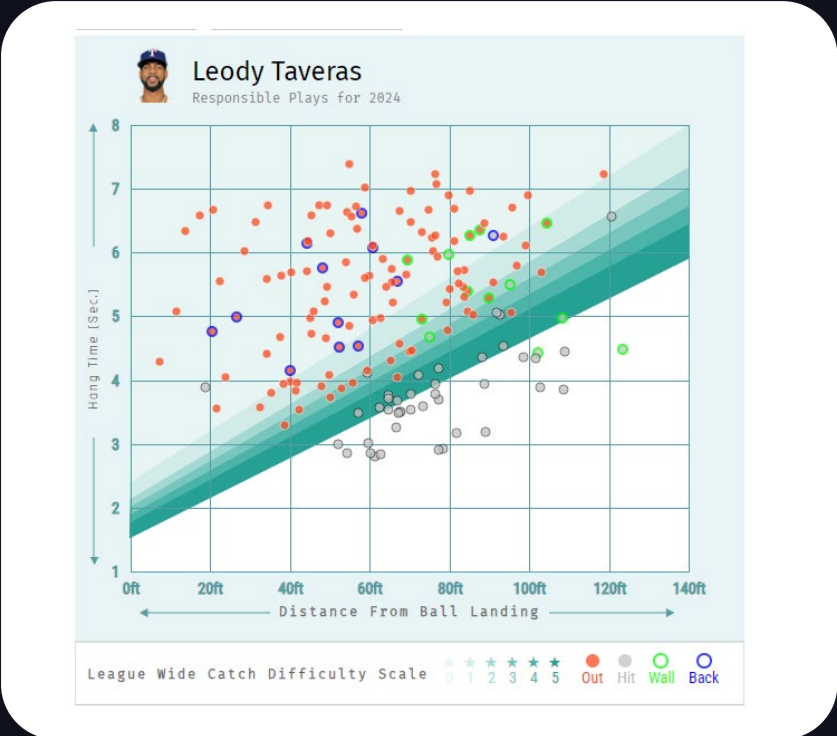
FIELDER POSITIONING



Various modeling frameworks can recommend positioning for each player and pitcher combo

Unleashing AI-Driven Analytics

Analyzing Defense




Unleashing AI-Driven Analytics

Player Projections

Statistical and machine learning models predict player projections.

Projections give us confidence into future player performance and expected returns from trades and free agents.

[ZiPS](#) on Fangraphs is one example of a projections system in the public sphere.



2024 Projections

Data Export [Members Only]

1 < 1 of 18 > | Page Size: 30

1 - 30 of 517 results

#	Name	Team	G	PA	HR	R	RBI	SB	BB%	K%	ISO	BABIP	AVG	OBP	SLG	wOBA	wRC+	BsR	Off	Def	WAR
1	Aaron Judge	NY Yankees	87	376	27	59	67	3	15.8%	26.8%	.314	.309	.272	.389	.585	.413	174	-0.4	31.5	2.3	4.8
2	Juan Soto	NY Yankees	99	435	22	67	71	7	18.8%	16.2%	.248	.296	.284	.420	.532	.410	172	-0.9	34.7	-4.5	4.6
3	Ronald Acuña Jr.	Atlanta Braves	101	456	25	90	68	34	12.7%	18.0%	.253	.315	.294	.393	.546	.406	165	3.2	37.4	-3.1	5.2
4	Yordan Alvarez	Houston Astros	90	383	22	58	65	2	11.7%	19.3%	.265	.315	.292	.384	.557	.402	165	-0.9	27.8	-7.5	3.4
5	Mookie Betts	Los Angeles Dodgers	94	427	19	73	62	9	13.5%	14.1%	.227	.303	.291	.392	.517	.395	162	0.3	30.7	0.9	4.8
6	Shohei Ohtani	Los Angeles Dodgers	95	405	25	62	76	13	12.2%	23.2%	.286	.308	.276	.367	.562	.393	160	0.5	28.5	-10.2	3.3
7	Bryce Harper	Philadelphia Phillies	85	363	18	55	57	7	14.6%	21.8%	.247	.316	.277	.385	.524	.389	155	-0.5	22.2	-4.9	3.1
8	Kyle Tucker	Houston Astros	99	415	21	60	67	15	12.4%	15.4%	.250	.278	.273	.364	.523	.381	151	1.4	25.5	-2.9	3.8
9	Freddie Freeman	Los Angeles Dodgers	97	433	15	67	60	8	11.4%	16.2%	.197	.330	.298	.387	.494	.380	152	0.2	25.9	-7.4	3.5
10	Mike Trout	Los Angeles Angels	58	248	15	37	37	3	13.2%	26.7%	.267	.289	.250	.358	.517	.376	145	-0.1	12.6	-1.2	2.0
11	Corey Seager	Texas Rangers	85	376	19	53	55	1	10.3%	16.3%	.223	.302	.287	.365	.510	.375	144	-0.7	18.0	2.9	3.5
12	Rafael Devers	Boston Red Sox	96	414	21	60	65	2	9.5%	20.0%	.239	.308	.280	.355	.519	.374	139	-0.7	17.9	-3.7	2.9
13	Triston Casas	Boston Red Sox	74	293	14	39	40	1	13.7%	24.3%	.221	.311	.262	.364	.483	.369	135	-0.9	11.0	-6.9	1.4
14	Matt Olson	Atlanta Braves	103	443	23	60	74	1	12.4%	23.0%	.242	.287	.255	.353	.497	.367	139	-1.1	18.7	-6.9	2.8
15	Vladimir Guerrero Jr.	Toronto Blue Jays	102	444	18	56	63	3	10.7%	15.3%	.194	.299	.281	.363	.476	.366	141	-0.9	19.8	-10.2	2.5



Unleashing AI-Driven Analytics

Generative AI

Beyond Copilots, Databricks Genie Rooms allow for tabular data queries using natural language.

This example finds top players this season by sorting on the KPI “Expected WOBA”.

Our own Corey Seager makes the top 10!

A Which Batters in the 2024 season, with at least 50 balls in play, have the highest expected WOBA? Bring back the season, their name, team, observed balls in play, expected WOBA and actual WOBA.

This query retrieves the expected weighted on-base average (WOBA) and actual WOBA for batters in the 2024 season. It filters for batters who have had at least 50 balls in play and sorts the results by expected WOBA in descending order.

	1.2 SEASON	2.0 PLAYER_NAME_LAST_FIRST	3.0 TEAM_NAME_ABBR	4.2 BALLS_IN_PLAY	1.2 EXPECTED_WOBA	1.2 WOBA
1	2024	Soto, Juan	NY Yankees	182	0.462	0.428
2	2024	Judge, Aaron	NY Yankees	144	0.461	0.429
3	2024	Ohtani, Shohei	LAD Dodgers	174	0.457	0.432
4	2024	Ozuna, Marcell	ATL Braves	150	0.445	0.426
5	2024	Witt Jr., Bobby	KC Royals	190	0.426	0.386
6	2024	Wade Jr., LaMonte	SF Giants	96	0.419	0.404
7	2024	Tucker, Kyle	HOU Astros	164	0.418	0.42
8	2024	Trout, Mike	LAA Angels	82	0.407	0.371
9	2024	Perez, Salvador	KC Royals	170	0.404	0.393
10	2024	Seager, Corey	TEX Rangers	157	0.4	0.354
11	2024	O'Hearn, Ryan	RAI Red Sox	125	0.398	0.347

344 rows



> Show generated code

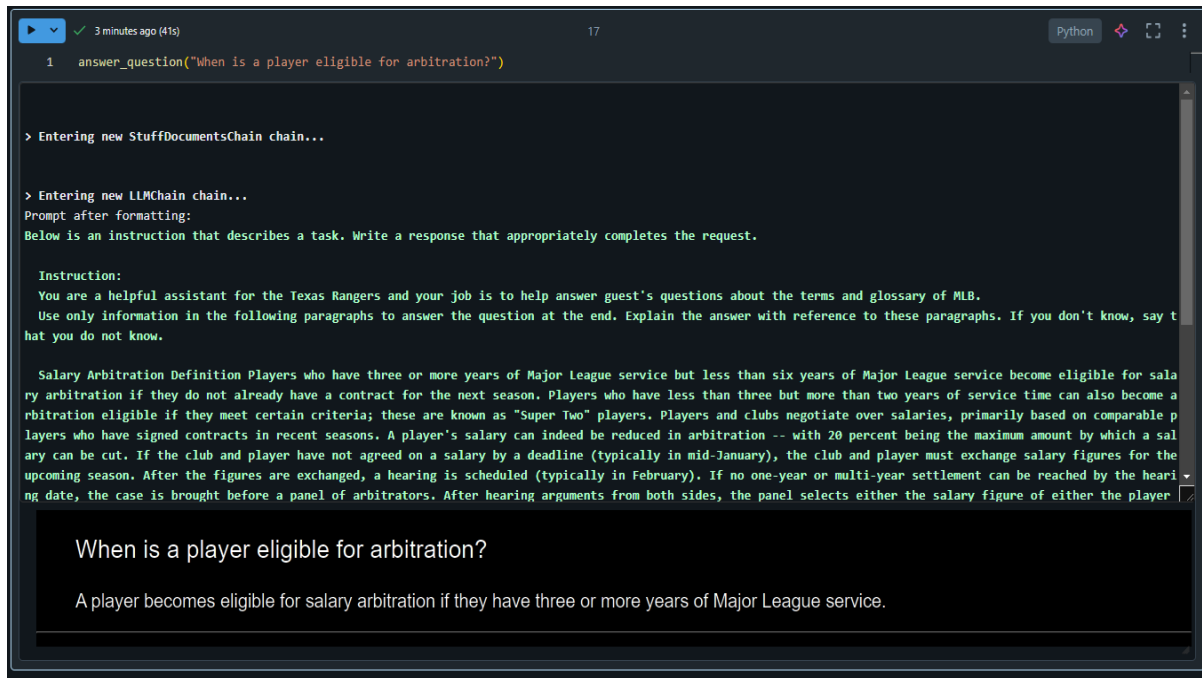


Unleashing AI-Driven Analytics

Generative AI

Using LangChain, Chroma DB, HuggingFace and DBRX, we have built RAG chat applications from entirely open-source technologies on top of our own documentation and glossaries.

These are used to quickly *query and summarize* our written documents given baseball specific language.



```
1 answer_question("When is a player eligible for arbitration?")

> Entering new StuffDocumentsChain chain...

> Entering new LLMChain chain...
Prompt after formatting:
Below is an instruction that describes a task. Write a response that appropriately completes the request.

Instruction:
You are a helpful assistant for the Texas Rangers and your job is to help answer guest's questions about the terms and glossary of MLB.
Use only information in the following paragraphs to answer the question at the end. Explain the answer with reference to these paragraphs. If you don't know, say that you do not know.

Salary Arbitration Definition Players who have three or more years of Major League service but less than six years of Major League service become eligible for salary arbitration if they do not already have a contract for the next season. Players who have less than three but more than two years of service time can also become arbitration eligible if they meet certain criteria; these are known as "Super Two" players. Players and clubs negotiate over salaries, primarily based on comparable players who have signed contracts in recent seasons. A player's salary can indeed be reduced in arbitration -- with 20 percent being the maximum amount by which a salary can be cut. If the club and player have not agreed on a salary by a deadline (typically in mid-January), the club and player must exchange salary figures for the upcoming season. After the figures are exchanged, a hearing is scheduled (typically in February). If no one-year or multi-year settlement can be reached by the hearing date, the case is brought before a panel of arbitrators. After hearing arguments from both sides, the panel selects either the salary figure of either the player

When is a player eligible for arbitration?

A player becomes eligible for salary arbitration if they have three or more years of Major League service.
```

Unleashing AI-Driven Analytics

Generative AI - Fan Engagement



Putting It All
Together:

1_DAIS_Title_Slide

*World Series
Victory*



“If you can make yourself half a percent better... then that’s a win. It can be the difference between making the playoffs and not making the playoffs.”

– Ryan Murray
(Sr. Director of Baseball R&D,
Texas Rangers)

Putting It All Together

Reports and Visualizations

Pitching More

Emmanuel Clase

Slider

Pitch Speed	94.6	MPH
Spin Rate	2650	RPM
Extension	6.5	FT
Pitch Height	3.06	FT

Hitting More

Andy Ibanez

Flyout

Exit Velocity	80.1	MPH
Launch Angle	52	DEG
Distance	227	FT
Home Run in X Ballparks	0	
Hang Time	5.7	SEC
Opportunity Time	6.1	SEC
Hit Probability	4	PCT
Barrel	No	

Video Simulator 3D Simulator Summary Preview Calibration

Live Hawkeye Report: Dane Dunning Game Date: 2021-10-03

Slider Changeup Knuckle Curve Cutter

Pitches: 72 IP: 3.0 H:5 SO: 3 BB: 2

Pitch Usage **Movement Plot** **Spin Axis**

Season Average **Game Average**

Pitch Type	In%	Spin	V%	H%	A%	HS	CS	Out	Pitch Type	In%	Spin	V%	H%	A%	HS	CS	Out
Slider	86.1	2.27%	13.9%	14.3%	8.7%	16.3%	5.8%	12.1%	Slider	82.8	2.27%	13.9%	14.3%	8.7%	16.3%	5.8%	12.1%
Cutter	86.1	2.27%	13.9%	14.3%	8.7%	16.3%	5.8%	12.1%	Cutter	86.8	2.16%	12.4%	13.6%	8.9%	16.2%	5.9%	12.6%
Slider	86.0	2.27%	13.9%	14.3%	8.7%	16.3%	5.8%	12.1%	Slider	73.2	2.27%	13.9%	14.3%	8.7%	16.3%	5.8%	12.1%
Changeup	78.3	2.24%	8.4%	9.0%	14.3%	16.3%	12.7%	12.0%	Changeup	71.8	2.24%	7.8%	14.3%	13.9%	16.3%	5.8%	12.4%
Changeup	84.7	1.58%	2.1%	17.4%	8.7%	17.2%	9.9%	12.7%	Changeup	78.4	2.24%	2.1%	16.9%	8.7%	16.3%	5.8%	12.7%

Catcher Framing - Strikes Gained **Catcher Framing - Strikes Lost** **Catcher Blocking**

inning	date	pitcher	batter	count	pitch type	strike prob.	call	result	score	out
1	0	Dane Dunning	Jose Ramirez	0-0	Cutter	88.7%	Ball	Called	0-0	0
1	0	Dane Dunning	Brandon Zimmer	0-0	Changeup	65.0%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	0-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	1-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	2-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	3-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	4-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	5-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	6-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	7-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	8-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	9-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	10-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	11-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	12-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	13-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	14-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	15-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	16-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	17-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	18-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	19-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	20-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	21-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	22-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	23-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	24-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	25-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	26-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	27-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	28-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	29-0	Slider	81.3%	Ball	Called	0-0	0
1	0	Dane Dunning	Shane Bieber	30-0	Slider	81.3%	Ball	Called	0-0	0

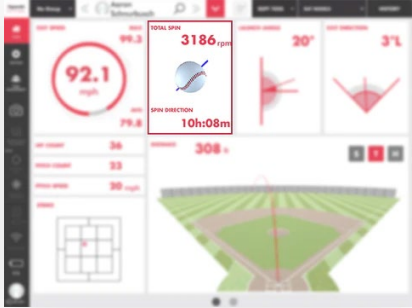
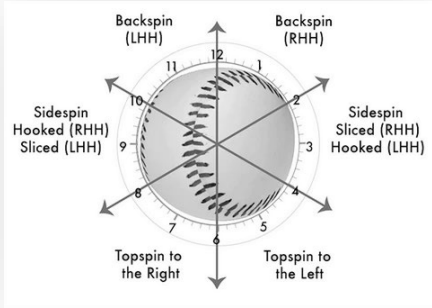
FB vs LHB **FB vs RHB** **Rolling (Last 3) Movement Metric: velocity**

BBB vs LHB **BBB vs RHB** **Rolling (Last 5) Movement Metric: rotation rate**

OS vs LHB **OS vs RHB**

Putting It All Together

KPIs and Development



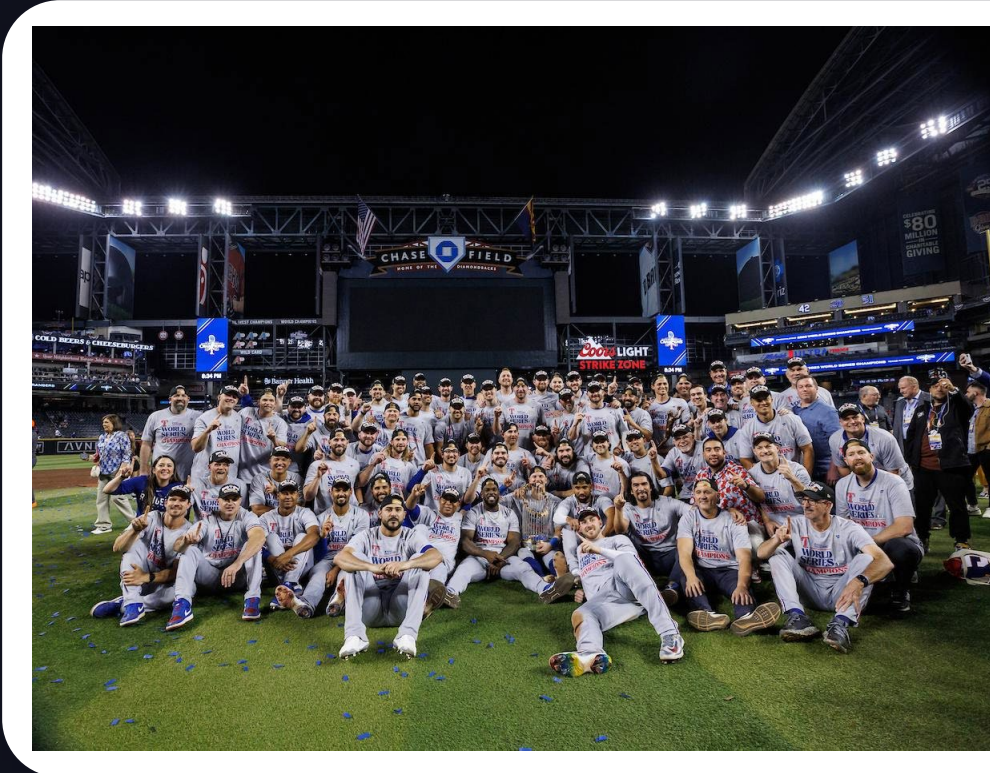
Putting It All Together

World Series Victory



Putting It All Together

World Series Victory



Putting It All Together

World Series Victory



The Payoff

1_DAIS_Title_Slide





Databricks is delivering the data intelligence that helps the Rangers to win

4X

more data at the same cost as other multi-cloud data warehouses

300+

users accessing data securely under a unified governance model

10X

faster democratization of insights across the organization

1ST

ever world series championship

ANALYSTS/PLAYERS / COACHES / SCOUTS /
BUSINESS OPS



We're just getting started

Thank You!

