



PLA X PLA

MACHINE-LEARNING,
IN GAME PLAY-BY-PLAY
BETTING ENGINE

The Opportunity in 196 Words

The sports betting industry is booming. But underneath all of that growth lurks a growing concern. Sports books make their money largely by targeting one type of customer. And while these customers seemingly have an insatiable appetite for betting, like anyone else, they have limits to how much money they can spend.

And when they reach those limits, betting companies will need to expand into new market segments.

And this the problem.

While it's possible to create games that appeal to these new audiences, it's not possible to hedge the risks created by these games. The reason behind this is simple: sports books don't have the ability to model the outcomes associated with these new games. Without this modeling ability, they can't possibly know what their risks are.

And in the gaming industry, unknowable risks are unacceptable.

To solve this problem, you have to deploy a different type of betting platform. If you could do this, you would not only open new and massive markets, but you would also have a risk management model which is far more accurate.

This deck is dedicated to showing you how.



THE PROBLEM

Even in a growing industry, there are limits to growth.

Unless you've been living under a rock, you know that the sports betting industry is booming. But much like an oil boom, there's some shaky ground underneath. That's because **the industry is dominated by one type of customer: the Core Bettor**. The problem is that they're only 3% of the sports consumer market. And they're reaching their limit.

The Core Bettor is a dream customer. They bet to win or lose and are dedicated and active. They either believe they have an edge or will keep working to find one. They're a prime customer, because they will always come back for more.

But there's a downside to focusing on this type of customer.

Because like anyone else, they have their limits.

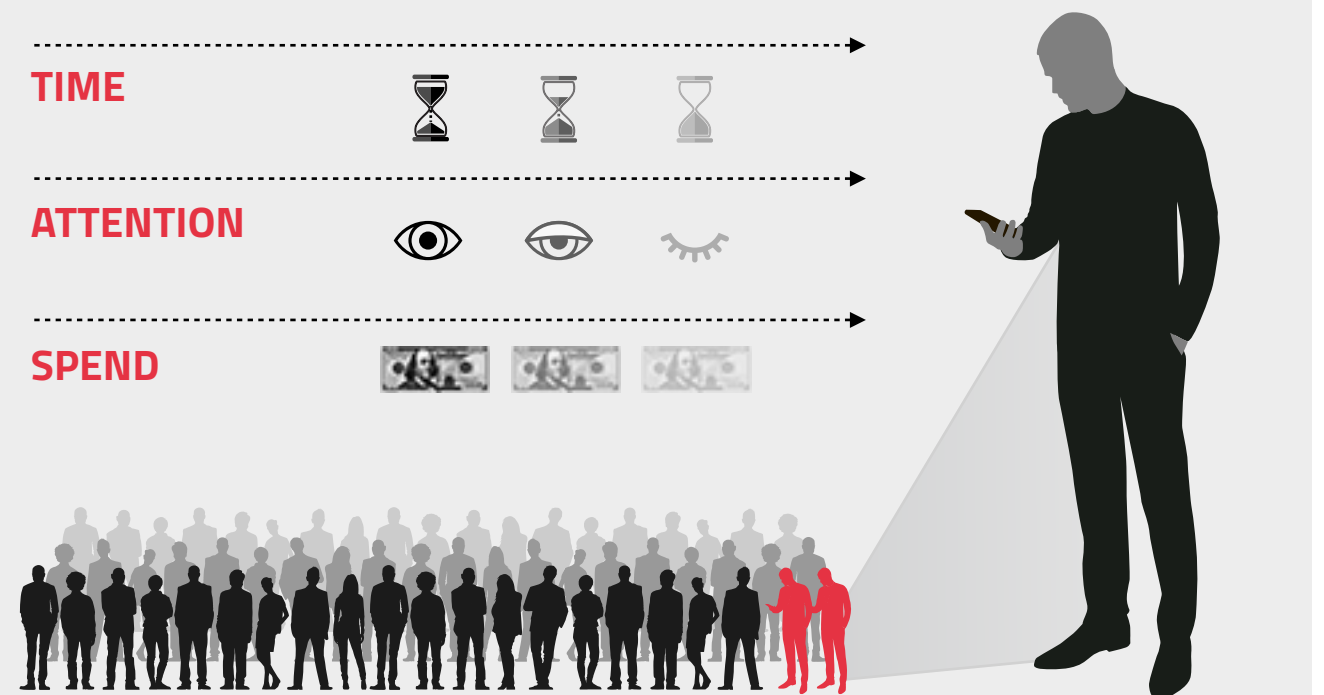
Each Core Bettor has only so much time, attention span and discretionary income to spend. And because they're constantly seeking the best odds and payouts, they won't hesitate to switch to another platform.

If there's one bet that's a sure thing, it's this: every market in every industry has always reached its ceiling. It's only a question of when. And this makes the Core Bettor a risky proposition.

Just like in the stock market, the smartest way to manage your risk is to diversify. And the best way to do that is to expand your audience to a different type of customer.

A SMALL MARKET WITH AN APPROACHING CEILING.

The Core Bettor represents just 3% of your possible audience. And they're reaching their limits.



An Untapped Market 27x the Size

While sports books have typically focused on the Core Bettor, **80% of the sports consumer market remains largely ignored.** And they're ripe for capture.

There's a new type of sports fan waiting to be captured. This customer has totally changed how broadcasts are viewed, content is consumed and even how stadiums are designed.

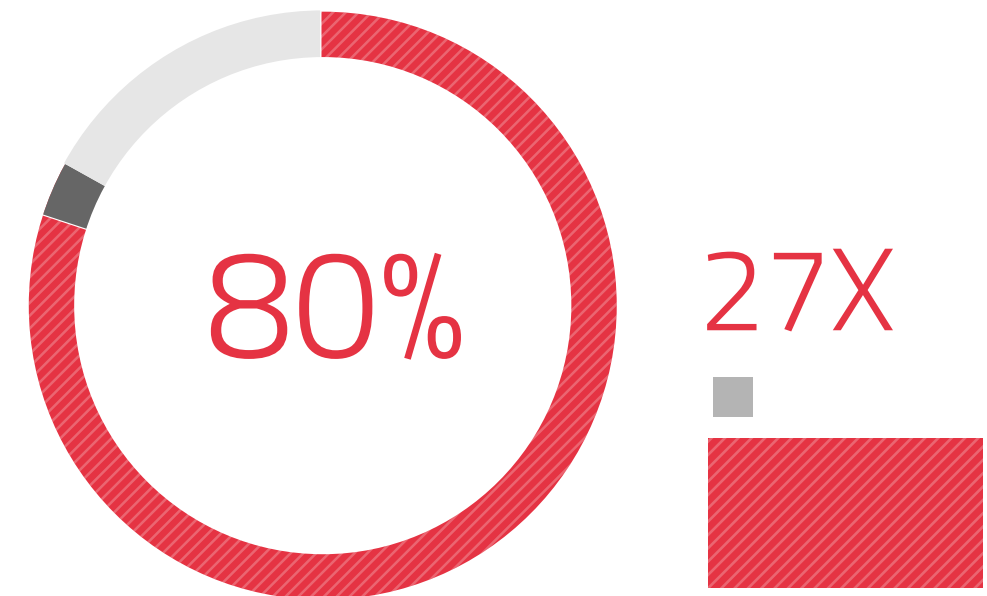
Behaviorally, this customer is very different from the Core Bettor. They don't play to win. They play to have fun. Instead, they want to participate and engage while they're watching the game. Their only option is daily fantasy, but the games don't come close to scratching their itch.

They have money and will spend it on sports betting - but because they are behaviorally different from the Core Bettor, they want different gaming options.

This means that the bet types must be more participatory and engaging, and must flow and change with the game action.

Options and odds must constantly change, based on what's occurring on the field. And bets must be hyper-targeted and personalized, so the customer sees - and can play - the specific betting scenarios that personally appeal to him.

Delivering this requires a completely new betting engine.



OF THE SPORTS CONSUMER MARKET IS UNDER-MONETIZED & WILLING TO BET

These customers would play if the games were designed to engage them. They're 27 times the size of the Core Bettor audience, but they remain largely untapped.

New Gaming Options Require New Outcome Models

Sports books have limits to the bets and odds they can offer, because **they can't quantify the one thing that drives outcomes**: the intent of the players on the field.

Traditional casino games - blackjack, roulette, craps and slots - don't have this problem.

They're specifically engineered to deliver mathematically known outcomes. The house controls the rules, the game's parameters, how many people can play and the betting limits. And because the casinos control almost everything, they also control the outcomes.

But sports don't work like this. They're controlled by players on the field, each acting on his own intentions and emotions. Outcomes are decided not by betting rules but by countless interactions amongst players, bounces of the ball and, sometimes, sheer luck.

YOU CAN'T HEDGE WHAT YOU CAN'T MODEL

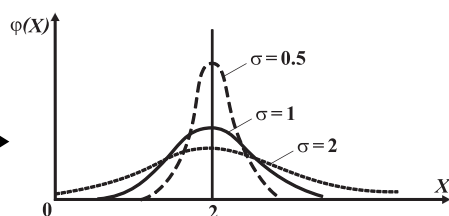
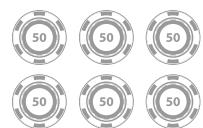
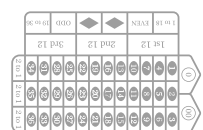
Because these factors have been impossible to quantify, sports books must find another way to hedge their risks – by evening out the bets on either side of the book. Since risk management lies at the heart of any betting operation, game and bet types are limited to those in which risk can be managed.

New bet types and odds engines would be possible, except the risks are unknowable. And you can't hedge what you don't know. This makes offering games which appeal to the 80% virtually impossible.



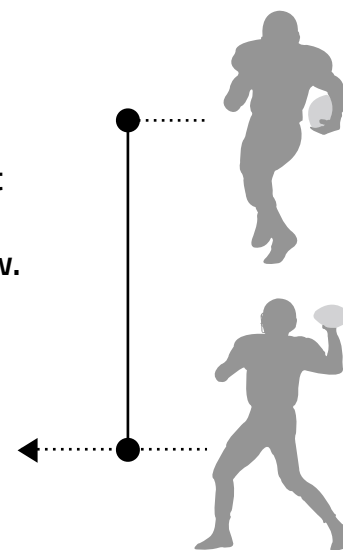
CASINOS CAN ENGINEER OUTCOMES

Because they control almost all of the parameters, the house can mathematically engineer precise odds for every game.



SPORTS BOOKS CAN'T CONTROL OUTCOMES

Sports are decided by the people on the field. The best books can do is set general odds to even the money flow.



Any way you slice it, the conclusion is the same: Sports betting is an oversaturated market in which companies are competing for the same sets of eyeballs. Coupled with new advertising regulations and anti-addiction campaigns, it's clear that, like all markets, this one will reach its tipping point.

The disruption is just getting started.

With the American market now entering the fray, the world's largest market is just now beginning to deploy its capital and innovation. And when it does, the nature of gaming will change forever.

The only way to change this dynamic is to capture untapped and under-monetized audiences. And the only way to do that is to introduce an entirely new model for sports betting

That model is here.



WELCOME TO

PLA x PLA

The PLA x PLA Betting Engine

PLA x PLA is the machine-learning, in-game, betting platform. We analyze and quantify the key factors which drive bettable outcomes within each game: the tendencies and intentions of the players on the field.

Our proprietary Scanning Engine identifies - in real-time - the strategic decision making and intent behind what is happening during the game. This, in turn, allows us to isolate and quantify the elements which drive outcomes.

Unlike other gaming tech which conduct probability analysis to set odds on generic things like point spread, over/under, next touchdown or field goal and, perhaps, turnovers. PLA x PLA goes much deeper.

We analyze the behaviors and tendencies of individual players, teams, game situations and formations to yield mathematically-driven outcome scenarios for every bettable in-game scenario.

This deep level intelligence frees sports books from relying on evening the money flow and opens the door to a much wider range of risk hedging, bet accuracy and outcome modeling.

The result is up to 1,800 bettable opportunities that occur within the unique flow of each individual game.

OFFENSE

- Run
- Pass
- Play Direction
- Play Distance
- Player
- Fumble
- Interception
- TD
- First Down

DEFENSE

- Tackle
- Sack
- Forced Fumble
- Fumble Recovery
- Interception
- Pass Defensed
- Defensive TD

OTHER

- Field Goal
- Punt
- Special Teams TD
- Penalty

TIME INTERVAL

- Downs
- Possession
- Quarter
- Half

HOW IT WORKS

Our Betting Engine

PLA x PLA's 7-step model delivers 1,800+ betting opportunities per game. The result is more betting options for existing customers, and a completely new category of games for untapped markets. Our platform delivers a level of immersion and engagement that has never been seen before in sports betting.

1 IDENTIFY the Game Situation

Our real-time Scanning Technology identifies formation, players on the field, opponent, score, time on clock and other player decision-making elements.

2 MAP Tendencies

Our algorithms then construct tendencies based on this scenario. These tendencies dictate what both the team and individual players are likely to do in this situation.

3 CONSTRUCT Probabilities

These tendencies then yield mathematical probabilities for specific, in-game outcomes for any player on the pitch.

4 CONSTRUCT Money Lines

These probabilities are then translated into money odds: 100 for even money, < 100 for lower payouts and > 100 for higher payouts.

5 DELIVER Gaming Options

Betting options are then delivered for each player on the pitch, for outcomes such as run or pass, play direction, turnovers, touchdowns, first downs, tackles, sacks and much more...

6 ADJUST Odds for Gameplay

PLA x PLA odds are delivered only to the sports book, who can then change the odds delivered to customers. You can steer money flow to specific bets and specific bets to individual customers.

7 UPDATE in Real-Time

As the game flows, the odds for each outcome are updated in real-time. The result is a far more immersive and engaging experience for the customer.

A background image of an American football game, showing players in action on a field. The image is overlaid with a dark blue semi-transparent filter. The text and statistics are presented in white and light green colors.

76%

HOLD RATE USING
PLA X PLA

36%

INCREASE IN HOLD RATES
VS. TRADITIONAL SPORTS
BETTING

85%

ACCURACY IN
BET OUTCOMES

80%

TARGET MARKET OUTSIDE
CURRENT AUDIENCE

27x

INCREASE IN
AUDIENCE SHARE

A photograph of the New England Patriots football team in action on the field. The players are wearing their blue and white uniforms with red accents. The image is darkened and serves as a background for the text.

HOW IT WORKS

NFL IN-GAME
BETTING SCENARIO



STEP 1

MAP PLAY TENDENCIES

Our proprietary scanning engine mines years of game data to uncover the tendencies for each team. These tendencies are based on a multitude of data points, with millions of possible combinations. Our advanced algorithms then identify the key factors which drive bettable outcomes. Each outcome is then assigned a probability and an associated money line.



PLAYER	TYPE	PROB %
Julian Edelman	Short Left	2.11%
	Short Mid	9.89%
	Short Right	13.45%
	Med Left	1.79%
	Med Middle	6.75%
	Med Right	7.02%
	Deep Left	3.47%
	Deep Middle	2.01%
	Deep Right	1.98%
James Develin	Short Left	1.01%
	Short Mid	2.09%
	Short Right	2.22%
	Med Left	1.79%
	Med Middle	0.01%
	Med Right	0.57%
	Deep Left	0.00%
	Deep Middle	0.00%
	Deep Right	0.00%
Josh Gordon	Short Left	7.90%
	Short Mid	5.67%
	Short Right	0.67%
	Med Left	2.67%
	Med Middle	5.15%
	Med Right	3.55%
	Deep Left	7.09%
	Deep Middle	6.79%
	Deep Right	0.89%
Rob Gronkowski	Short Left	3.45%

Last Play KC: H.Butker kicks 65 yards from KC 35 to end zone, Touchback.

KC DEFENSE
NE OFFENSE
Run
Pass
Play

OUTCOME:
Touchdown
1 First Down
Penalty
Fumble
Interception



STEP 2

CONSTRUCT BET PROBABILITIES

Based on the the tendencies from Step 1, our machine-learning engine goes deeper, building out probabilities for specific play types for each player on the pitch. This yields specific betting odds for each outcome for every individual “flow sequence” during the course of the game, including:

1. Offense: Run vs. Pass, Direction, Distance, Player, Interception and Fumble
2. Defense: Tackle, Sack, Interception, Pass Defensed Forced Fumble, Fumble Recovery, Touchdown
3. Other: Field Goal, Punt, Return TD, Penalty



2018 - Week 6

Last Play KC: H.Butker kicks 65 yards from KC 35 to end zone, Touchback.

KC DEFENSE



NE OFFENSE



Run

Pass

Play



OUTCOME

Touchdown

1 First Down

Penalty

Fumble

Interception

Pass | Left | 0-10 Yards
J. Gordon or J. White | First Down

+455 (Bet \$100 to win \$455)

PASS

-135

Direction

- Left +150
- Middle +370
- Right -290

Distance

- 0-10 Yards +605
- 10-20 Yards -145
- 20+ Yards +765

Player

- Julian Edelman ★ +550
- James Develin ★ -290
- Rob Gronkowski ★ +370
- Josh Gordon ★ +410
- James White ★ +175



STEP 3

DELIVER BETTING & GAME OPTIONS

The betting odds for each outcome are then simplified, giving each customer playable bets. Bet options can range from simple to more complex, depending on the profile of the customer or application of the game.

Even more, different bet types and bet volumes can be delivered to each player. We call this “bet targeting”, and it allows for an engaging experience specifically customized for each customer on your platform.



KC DEFENSE

NE OFFENSE

Run (+245)

Pass (-135)

Play

Left +150 Middle +370 Right -290

Deep

+730 +985 +165

20+ yds +765

Medium

+115 +290 -405

10-20 yds -145

Short

+825 +1095 +380

0-10 yds +605

KC 9 NE 17 1st and 10, Ball on NE 25 2nd 6:21 :09

Touchdown 1 First Down Penalty Fumble INT

+595 (Bet \$100 to win \$595)

Pass | Left | 0-10 Yards | Julian Edelman or James White | First Down

	RB	46	James Develin	+690	★
	RB	28	James White	-175	★
	TE	87	Rob Gronkowski	+370	★
	WR	11	Julian Edelman	+335	★
	WR	10	Josh Gordon	-275	★



Ezekiel Elliot

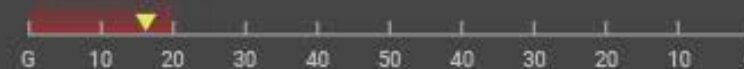
RB #21 Dal v JAX ★

Run (-385)

Pass (+425)

	Left	Middle	Right	
	+250	-175	-390	
Deep	-	-	-	20+ yds +765
Medium	-395	-415	-505	10-20 yds -475
Short	-675	-995	-805	0-10 yds -885

2nd 10:05 1st and 10 Dal at Jax 17



JAX 0 DAL 10 1st and 10, Ball on JAX 17 2nd 10:05 :32

Touchdown 1 First Down Penalty Fumble INT

-400 (Bet \$100 to win \$25)

- This Play +125
- This Set of Downs -395
- This Possession -505
- This Quarter -565
- This Half -565

GAME STATS
 Rushing
 12 att, 53 yards
 Receiving
 2 rec, 19 yards
 0 Fumbles

Run | Right | 10-20 Yards | Ezekiel Elliot | Touchdown | This Set of Downs

PLA X PLA PRODUCTS

PLAY-BY-PLAY SPORTS



NFL & COLLEGE FOOTBALL



MAJOR LEAGUE BASEBALL

FLOW SPORTS



NBA & NCAA BASKETBALL



NHL



INTERNATIONAL SOCCER



**INTERNATIONAL
SOCCER**



NHL



**NBA & NCAA
BASKETBALL**



**NFL &
COLLEGE FOOTBALL**



**MAJOR LEAGUE
BASEBALL**

The Benefits of the PLA x PLA Platform

1 INCREASE Your Hold Rates

PLA x PLA achieves up to a 76% hold rate. This significantly increases profitability and provides a much larger cushion against adverse outcomes.

2 IMPROVE Risk Management

Our platform provides mathematically-driven, probability-based outcomes for superior risk management and outcome modeling.

3 ADD 1,800+ Betting Opportunities per Game

Multiple bets for each player and odds that constantly change as the game flows give you thousands of new bets to push to your audience.

4 STEER Odds & Bets

Because each bet has an attached probability, you can adjust odds to steer money towards specific bets, based on risk, money flow or user preference.

5 HYPER-TARGET Bets to Individuals

PLA x PLA offers a brand new model of engagement. Bets can be targeted to individuals, so each customer has a unique & customized experience.

6 DEPLOY Simple or Complex Games

With so many options available for every in-game sequence, you can create a variety of games to significantly expand your revenue sources.

7 CAPTURE 27x More Audience Share

PLA x PLA is specifically designed to the behavioral preferences of the core sports fan. This opens you up to a much larger share of the market to.

8 OPTIMIZE Your Existing Market

Multiple options and hyper-targeted odds also appeal to the Core Bettor, who will now have more variety and opportunities to bet in-game.

9 EXPAND Into the Coveted U.S. Market

Our platform is ideal for America. With products for NFL football, NBA, MLB and NHL, you'll be in prime position to capture the world's biggest market.

About Us

PLA x PLA was born from over 60 years' combined experience in the sports, technology and consumer behavior industries. Our team has worked with the largest sports franchises and leagues around the world, including the NFL, NBA, MLB, NHL, Premier League and Formula 1. **In short, we KNOW what sports fans want, how they will engage and, most importantly, what they'll pay for.**

THE 3 PILLARS: HOW PLA X PLA WAS BORN

Predictive Consumer Behavior Platform.

Our proprietary consumer algorithms have predicted spending and interaction patterns for consumer across the sports industry. These models have been used to design and build over 20 of the largest and most successful stadiums in the world, including, AT&T Stadium in Dallas, U.S Bank Stadium in Minneapolis and Stan Kroenke's \$5 billion mixed-used stadium and real estate development in Los Angeles. Our predictive platform is up to 95% accurate and has resulted in ROI's of 2x - 3x vs.comparable stadium.

Sports Bettor Behavior Models

With the dawn of legalized sports betting in the U.S., we have been working with several team ownership groups to model the next phase in stadium development: sports books.

As part of this process, we analyzed and developed the behavioral profiles of unique customer groups within the sports betting market. This led us to the deep insight that there is a much larger - but untapped - segment of the sports fan market that will bet, but will only do so if offered new games and more engaging experiences.

Football Film Analysis Technology

The PLA x PLA Scanning Engine was initially developed by Tom Woods, a former data scientist in the U.S. defense industry. Our platform was originally deployed to analyze tendencies for American college football.

Due to the highly technical and complex nature of the sport, we needed to developed advanced recognition and probability engines.

Combined with our advanced behavioral models, PLA x PLA was born.

HOW TO ENGAGE WITH PLA X PLA

PLA x PLA is delivered as an API feed to your betting platform.

1. Our engine provides the outcome probabilities for all possible bets.
2. Based on those probabilities, you can then assign odds to each possible bet, either in aggregate or targeted to specific customers.
3. In addition, our predictive consumer behavioral engine can be further leveraged to develop new products, games and betting options for both existing and new customers.



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