



# DATA-INFORMED PRAGMATISM: PARMA CALCIO'S USE OF ANALYTICS IN SOCCER

Complex Sport Caen  
June 29<sup>th</sup>, 2023



## **Performance & Analytics Department – Origins & Missions**

### **Analytics Unit – Structure & Tasks**

### **Working Hand in Hand – Examples**

### **Future & Perspectives**



# **Performance & Analytics Department – Origins & Missions**

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**Future & Perspectives**

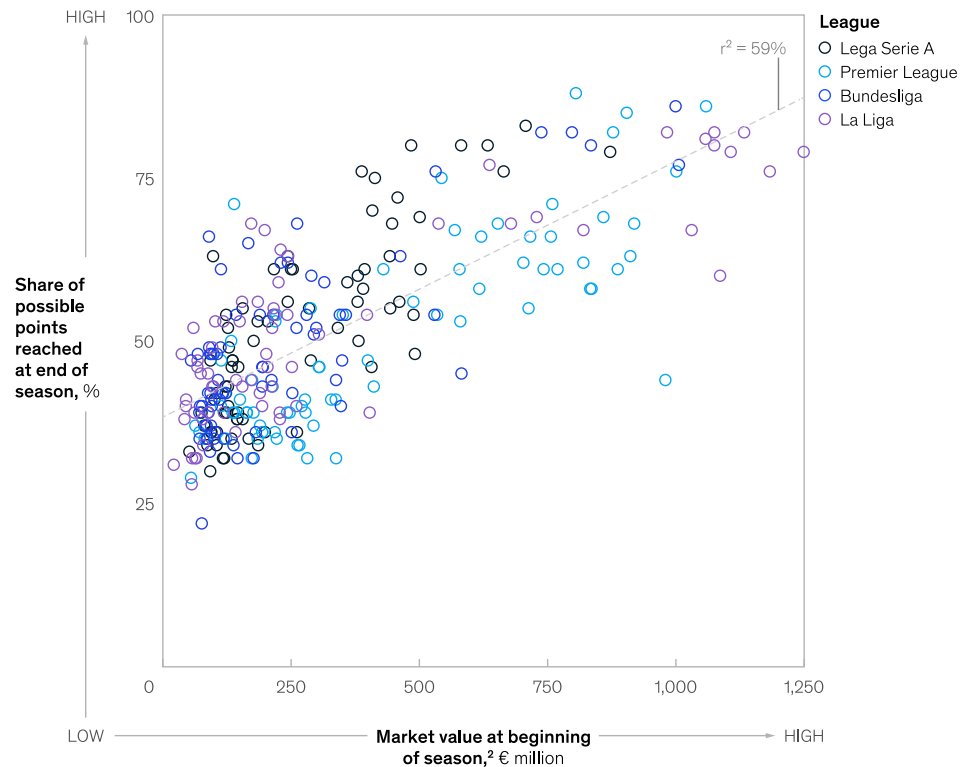


# IN SOCCER, MONEY KIND OF MEANS SUCCESS

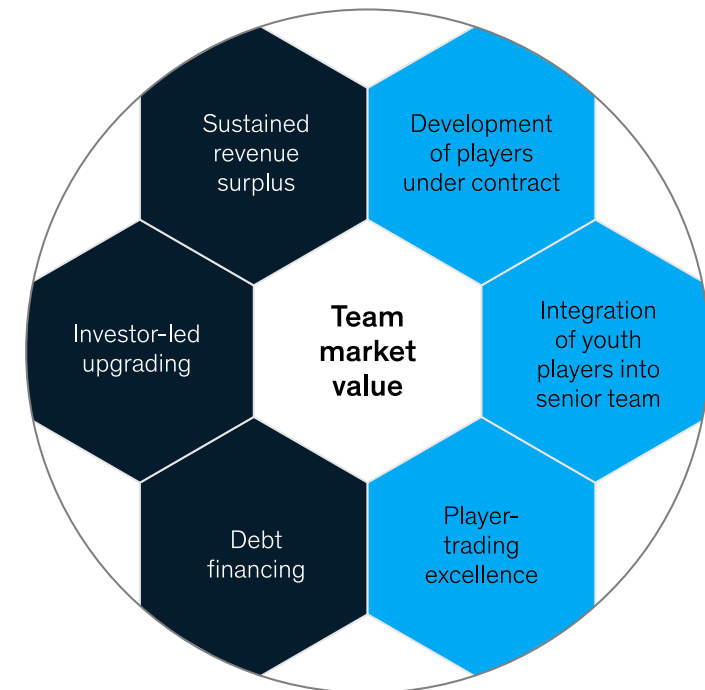
There is a **STRONG** correlation between market value and points scored...

... and 6 main ways to increase the market value of a team

Relationship between points at end of season and team value at beginning of the season, 2014–15 to 2018–19<sup>1</sup>

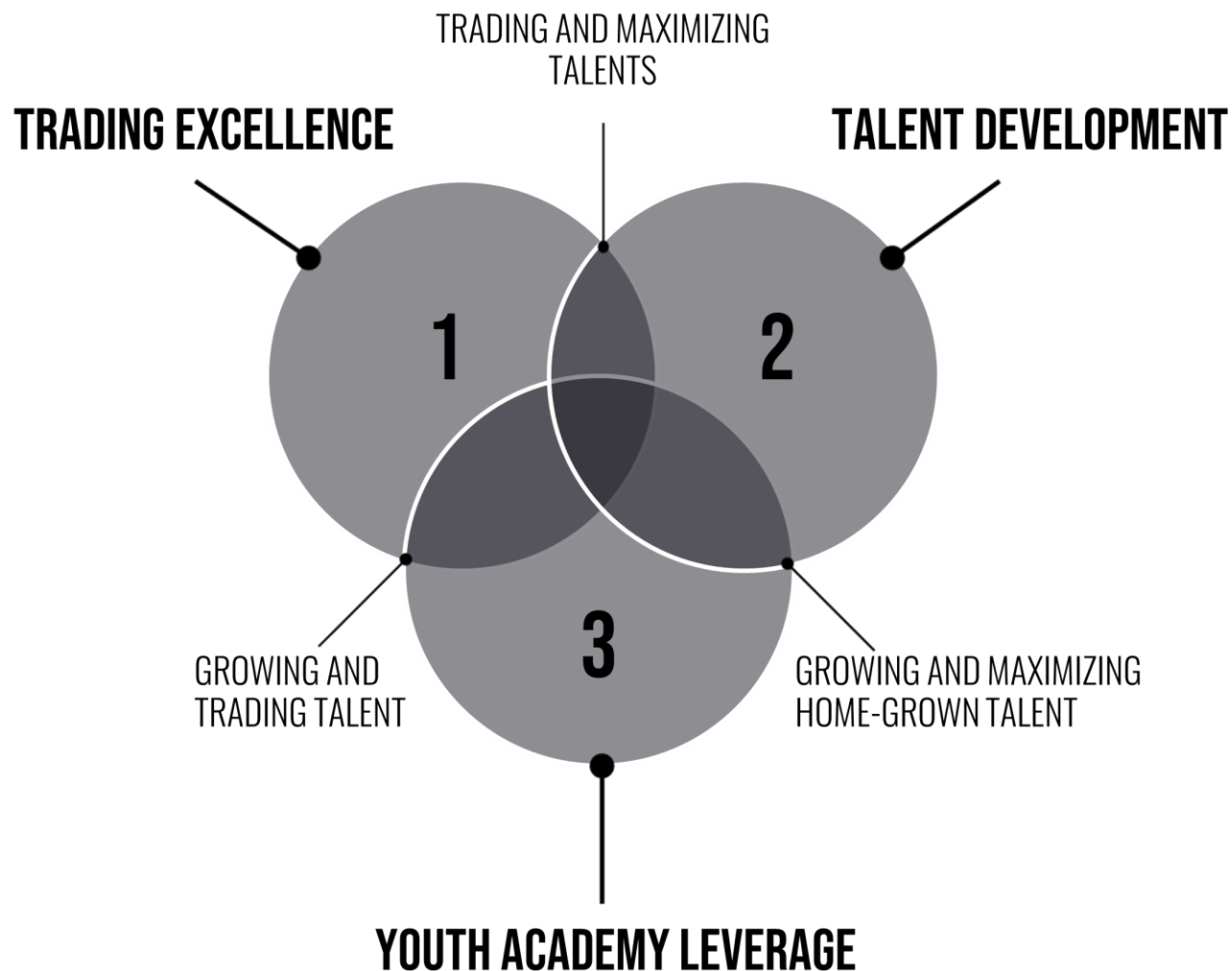


■ Net investment    ■ Strategic team-value management





# THE TRUE ROLE OF THE PERFORMANCE & ANALYTICS DEPARTMENT



**“FOOTBALL IS A BUSINESS UNLIKE ANY OTHER.”**

**WHILE MONEY IS IMPORTANT, THE WINNING FORMULA IS MORE ABOUT THE SOUND MANAGEMENT OF A CLUB’S MOST IMPORTANT ASSET: ITS TEAM.”**

Everyone does mistakes, the business of football is high uncertainty. We need to make sure that **information and data are embedded into decision processes, to reduce uncertainty.**

**THIS IS THE ROLE OF THE PERFORMANCE & ANALYTICS DEPT.**



# OUR VISION

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**WE SUPPORT THE BOARD, COACHES, STAFF, AND PLAYERS WITH OBJECTIVE INFORMATION AND SCIENTIFIC SUPPORT TO MAKE BETTER DECISIONS AND PERFORM ON THE PITCH.**

**SUPPORT:** We provide assistance, guidance, and resources to help people achieve their goals and address their challenges

**BOARD, COACHES, STAFF, AND PLAYERS:** We are operating across the different functions, supporting all key decision-makers

**OBJECTIVE INFORMATION:** Data and insights that are unbiased, fact-based, and impartial

**SCIENTIST SUPPORT:** Rigorous and systematic methods based on scientific principles and disciplines such as physiology, biology, psychology, coaching, or mathematics

**BETTER DECISIONS AND PERFORMANCE:** We are focused on Performance improvement and decision-making optimization.



# OUR VISION

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# #1

## PEOPLE

Football is a human capital industry. Ensuring to have the right person in the right position is key to ensuring the proper growth of the structure

# #2

## TECHNOLOGY

Ensuring operations run smoothly requires up-to-date technologies and aligned data collection within the organization

# #3

## MANAGEMENT

Football organizations need to favor the learning and growth of people and knowledge. For this purpose, we can't simply manage people as the season goes on.

# #4

## PROCESSES

To allow for the best evidence-based and data-informed decision to be made, all the data value chain needed to be improved and reviewed





# HIGH LEVEL ORGANIZATION OF THE DEPARTMENT



The Performance & Analytics unit is composed of **6 units**: four of them focussed aggregated under the Human Performance area. Each function is led by a **function manager**, in charge of the roadmap and the improvement of its services. These persons manage various numbers of collaborators embedded in the different divisions and teams.





# HIGH LEVEL ORGANIZATION OF THE DEPARTMENT

	<b>SPORTS SCIENCE</b>	<b>NUTRITION</b>	<b>STRENGTH &amp; COND.</b>	<b>PERFORMANCE PSYCHOLOGY</b>	<b>GAME ANALYSIS</b>	<b>DATA &amp; ANALYTICS</b>	<b>HEAD OF PERF. YOUTH</b>
	<b>M. MANDORINO</b>	<b>C. GAVIOLI</b>	<b>M. MORABITO</b>	<b>C. CONTI</b>	<b>F. CORRADINI</b>	<b>S. COUSTOU</b>	<b>R. KAVANAGH</b>
<b>EDUCATION</b>	PhD	MSc	MSc	PhD	MSc	MSc	PhD
<b>INTERNATIONAL EXPERIENCE</b>	✓	✓	✓		✓	✓	✓
<b>ANALYTICS MINDSET</b>	✓	✓	✓	✓	✓	✓	✓



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# ORGANIZATION OF THE UNIT

## DATA & ANALYTICS

**S. COUSTOU**  
HEAD OF DATA & ANALYTICS

**M. MATTEOTTI**  
MACHINE LEARNING SPECIALIST

**N. VAN LIESHOUT**  
DATA VISUALIZATION SPECIALIST

**MLG**  
DATA ANALYST INTERN

**TKO**  
DATA VISUALIZATION INTERN

**YMO**  
DATA SCIENTIST INTERN

**TBD**  
DATA SCIENTIST



# QUICK INTRO ABOUT ME

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Coming from the world of Data & Analytics, applied it to the Sports industry



**2016**

Data Science Intern

Analyzing the impact of load over non-muscular injuries



**2017**

Data Scientist

Retail & Luxury Data Scientist  
Product & Customer analytics



**2018-2021**

CEO

Worked with 15+ teams solving data oriented problems



**2022**

Head of Data & Analytics

Data Architect, Data Engineer,  
Data Scientist, Data Analyst,  
Data...



# CORE PRINCIPLES

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## SCALABLE & COST-EFFECTIVE

**Maximize impact; reduce waste**

**Capable to serve multiple teams**

**Capable to serve multiple clubs**

**Same data in, same insights out**

## BUILD FOR LONG TERM PURPOSE

**Transparent, documented, automated**

**Transparent because trust comes from well-defined processes**

**Documented because long term project might need more than one architect**

**Automated to keep focusing on building, not running the business**

## LEAN AT CORE

**Build, measure, learn**

**We build initial products and services quickly**

**We measure initial feedbacks and usage**

**We learn and iterate, fast**



# KEY ACTIVITIES

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**1**

**BUILD & MAINTAIN THE  
SINGLE SOURCE OF TRUST**

**2**

**DELIVER ON-DEMAND  
INSIGHTS & ANALYSES**

**3**

**DEVELOP & AUTOMATIZE  
TOOLS & DASHBOARDS**

**In support of all sporting areas of the club**

**SENIOR MANAGEMENT**

**SCOUTING**

**HUMAN PERFORMANCE**

**TECHNICAL STAFF**

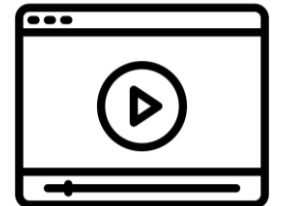
**SPORTS MEDICINE**



# BUILD AND MAINTAIN THE SINGLE SOURCE OF TRUST

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20+ data sources covering all areas





# DATA VOLUMES



45k players  
50k matches  
105M events – 250 qualifiers



80k players  
26k teams  
1.7M transfers  
3.2M season performances



11k players  
16k matches in tracking & agg  
1B frames  
25B positions (x,y)



110k players  
120k injuries



445k players  
330k matches  
12.5M matches/players stats



165 players (3 teams)  
1700 sessions, since Nov '21  
5M minutes of training

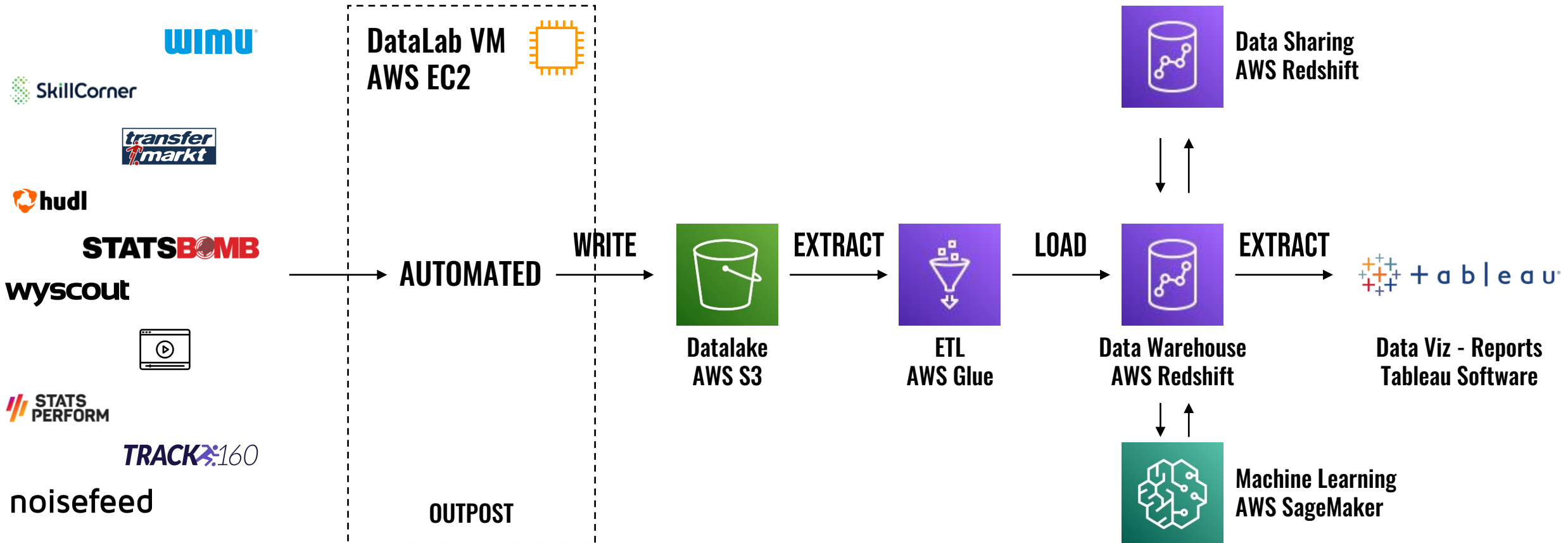




# BUILD AND MAINTAIN THE SINGLE SOURCE OF TRUST



We integrate many data sources into our own databases, ensure cleaning and availability so we can answer key questions within impact-time





# ENHANCING DATA THROUGH MACHINE LEARNING

Having cleaned data allows us to enhance it using machine learning

**EXPECTED GOALS**

**POST SHOT EXPECTED GOALS**

**EXPECTED THREAT**

**VAEP**  
(discontinued)

**PLAYING STYLE**

**PRE-MATCH xPOINTS**

**EXPECTED ASSISTS**

**EXPECTED WIN/POINTS**

**DEFENSIVE xTHREAT**

**EXPECTED HEART RATE**

**PLAYER SIMILARITY**

**CHANGE LEAGUE IMPACT**

**EXPECTED TRANSFER VALUE**



# AUTOMATED PROCESSES

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Data is refreshed or updated periodically

HOURLY/DAILY



WEEKLY/MONTHLY



ON-DEMAND





# AUTOMATED PROCESSES

**Calculations, dashboard generation, and distribution are automated**

**They all run on their schedule or on-demand depending on the use cases**

**Reports are available via Tableau, and sent via email or WhatsApp automatically**

The screenshot displays a WhatsApp chat interface for Parma Calcio 1913. At the top, there is a header with the club's logo and the text "PERFORMANCE & ANALYTICS MATCH REPORT" next to a background image of fans. Below this, the chat messages are as follows:

- A greeting: "Ciao Sebastien, Our game at Modena (1:1) just finished. You can download the game report for that match below." A blue "DOWN" button is visible to the left.
- A message from "Parma Calcio 1913" (verified account) at 7:00 PM: "Post-game report Ciao Sebastien, Our match at A.S. Cittadella 0:1 just finished. You can download the game report by clicking the button bellow. P&A Department" with a "Get report" button.
- A second message from "Parma Calcio 1913" at 10:54 PM: "Post-game report Ciao Sebastien, Our match at Modena (1:1) just finished. You can download the game report by clicking the button bellow. P&A Department" with a "Get report" button.



# BUILDING A CLUB-WIDE ASSET

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**Instead of working in siloes, we centralize all the data club-wide, and merge them to analyze data from multiple angles, all at once**

**SENIOR MANAGEMENT**

**SCOUTING**

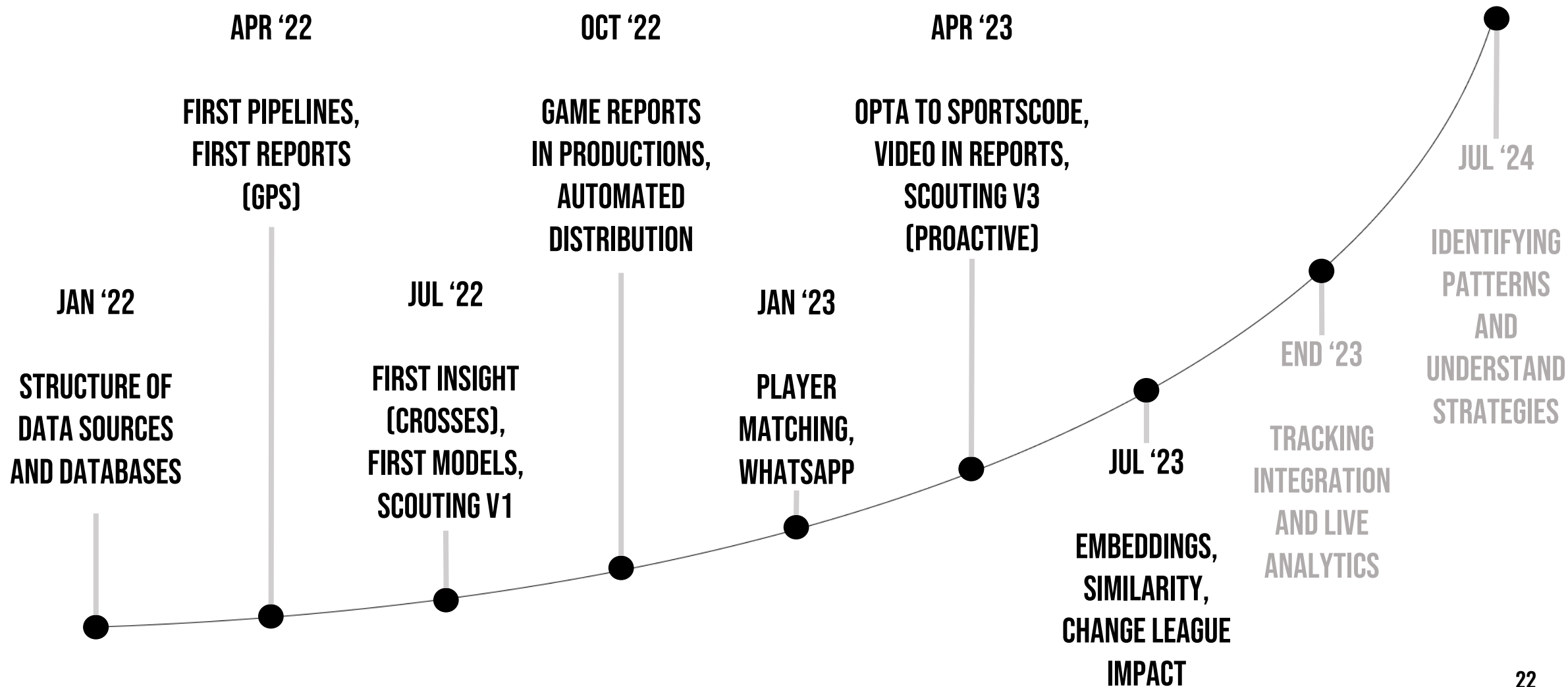
**TECHNICAL STAFF**

**HUMAN PERFORMANCE**

**SPORTS MEDICINE**

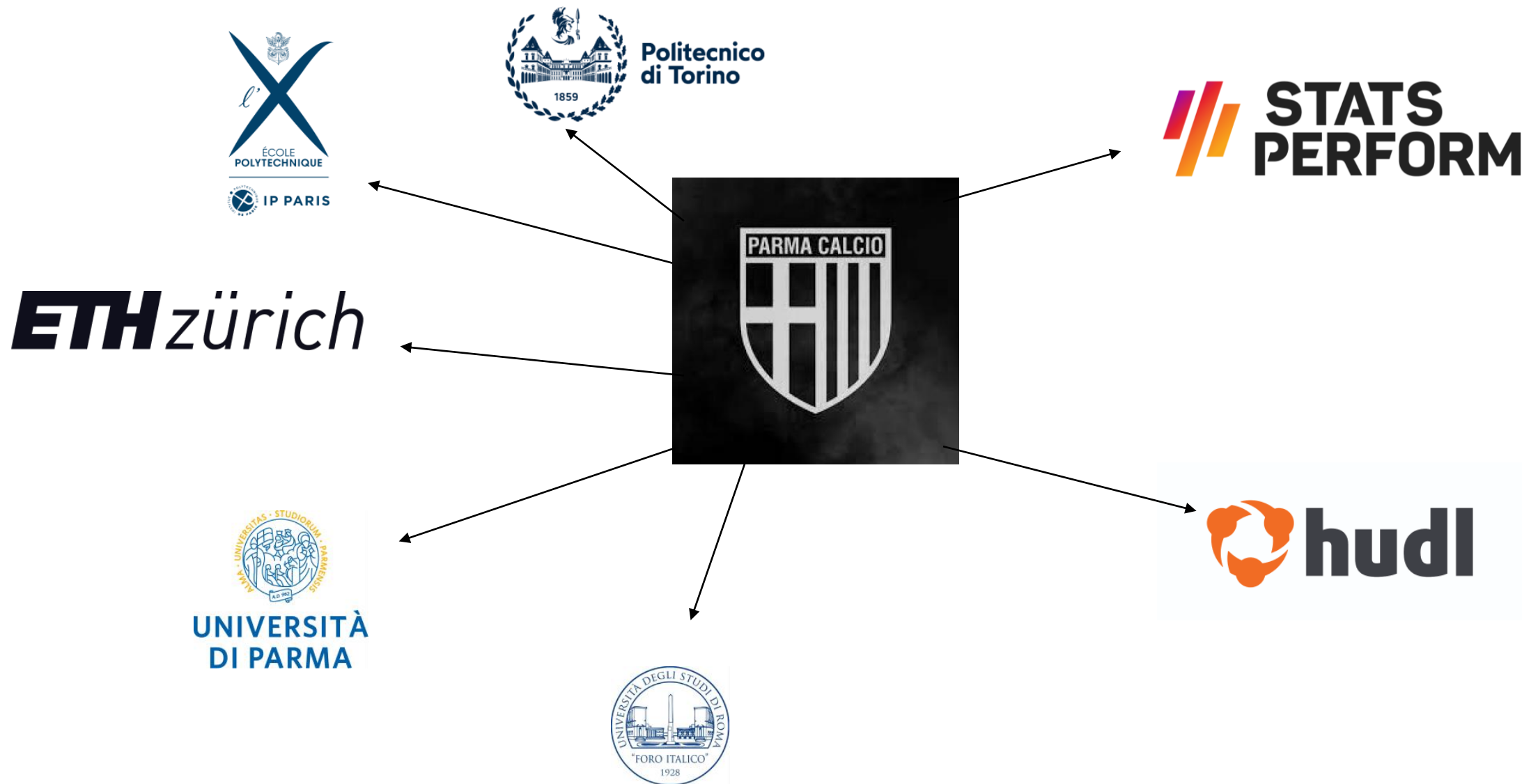


# MAJOR ACHIEVEMENTS AND ROADMAP





# BUILD AND DEVELOP STRONG PARTNERSHIPS





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**Senior Management**

**Scouting**

**Match Analysis**

**Sports Science**



# SUPPORTING DIVISIONS – SENIOR MANAGEMENT

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**Squad profile analysis (squad depth, performance profile, playing style analysis)**

**Automation of KPIs tracking**

**Financials analytics**

**Expected Rankings**

**Other on-demand analytics (players, coaches, team analyses)**

**Youth Management**



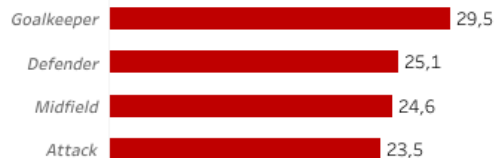


# FOLLOWING AGE AND CONTRACT DURATION



Avg. age of the team the 22/12/2022:

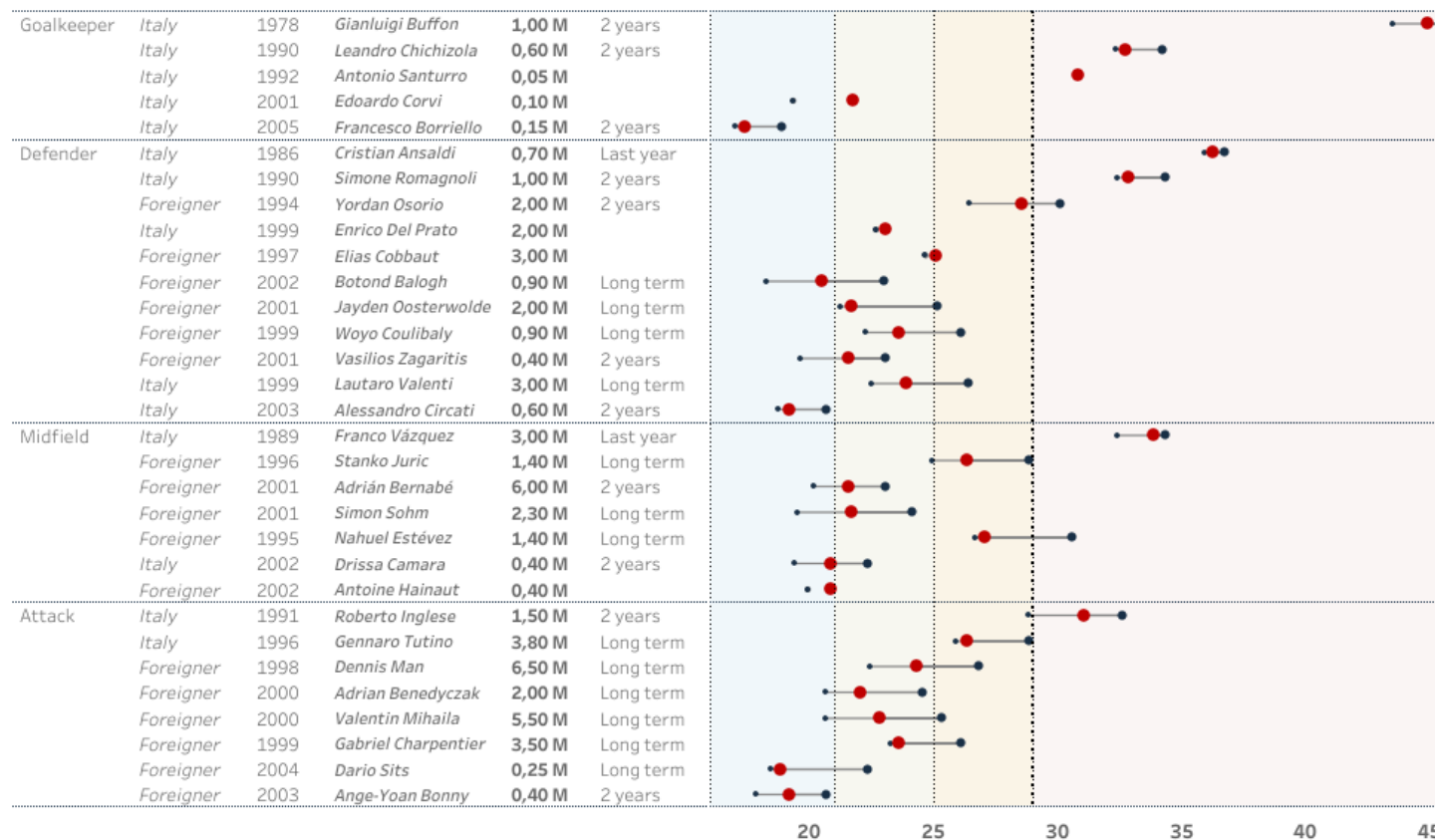
**26,7**



Current Market Value

56,8M€

## Squad Profiles - • age at start and end of the contract | • age at 22/12/2022 .





# TRACKING AGE AND TIME PLAYED TO PROFILE THE TEAM

## Squad Depth - Parma

Serie B • 2022/2023

### 26,6 years

Avg. Age of the team weighted by Playing Time

Select a Team

Parma

Select a Competition

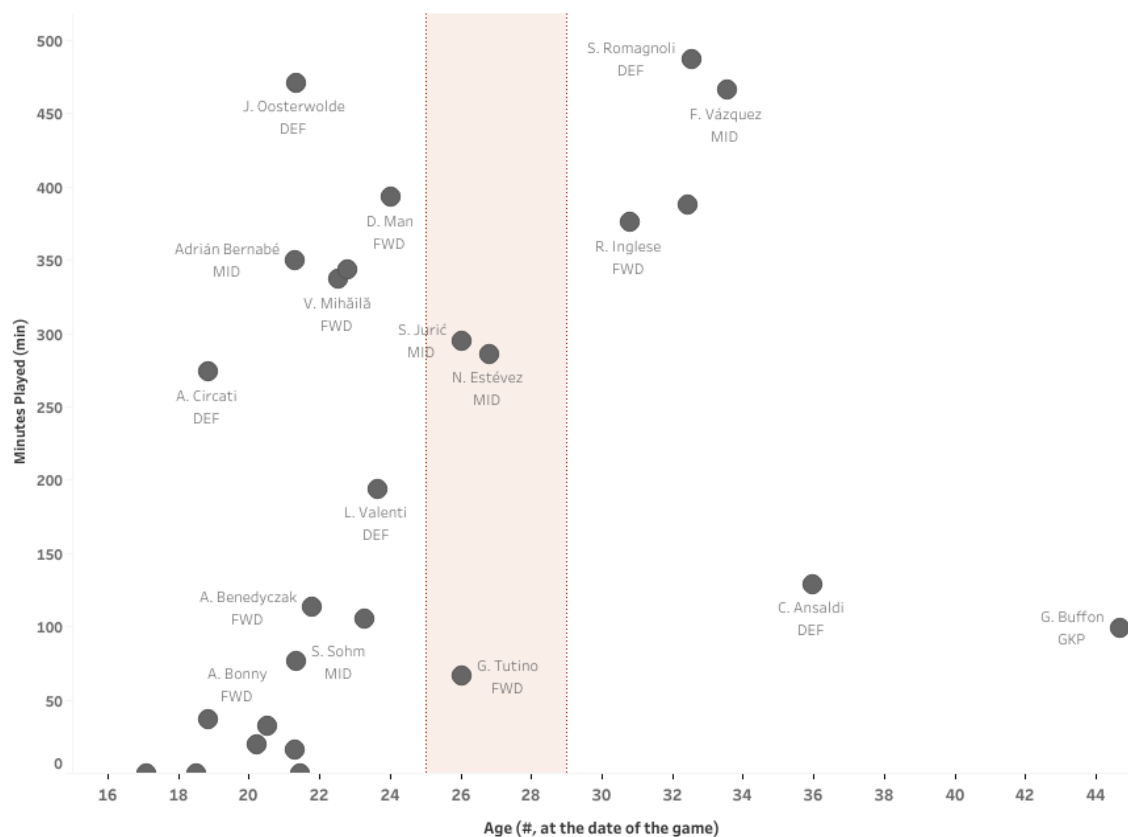
Serie B

Highlight Position

Aucun élément sélectionné

Select a Season

2022/2023



### Players used (#)

23

### Useful squad (#)

\* >500min players

0

### Starting XI

% of Playing Time

Starting XI 78%

Others

Young

Peak

Old



# BEYOND WINS AND LOSSES, EXPECTED POINTS



## Team results Forecasted chance of Winning & Expected points

Select a Team  
Parma Calcio 1913

Pick your season  
Season 2022/2023

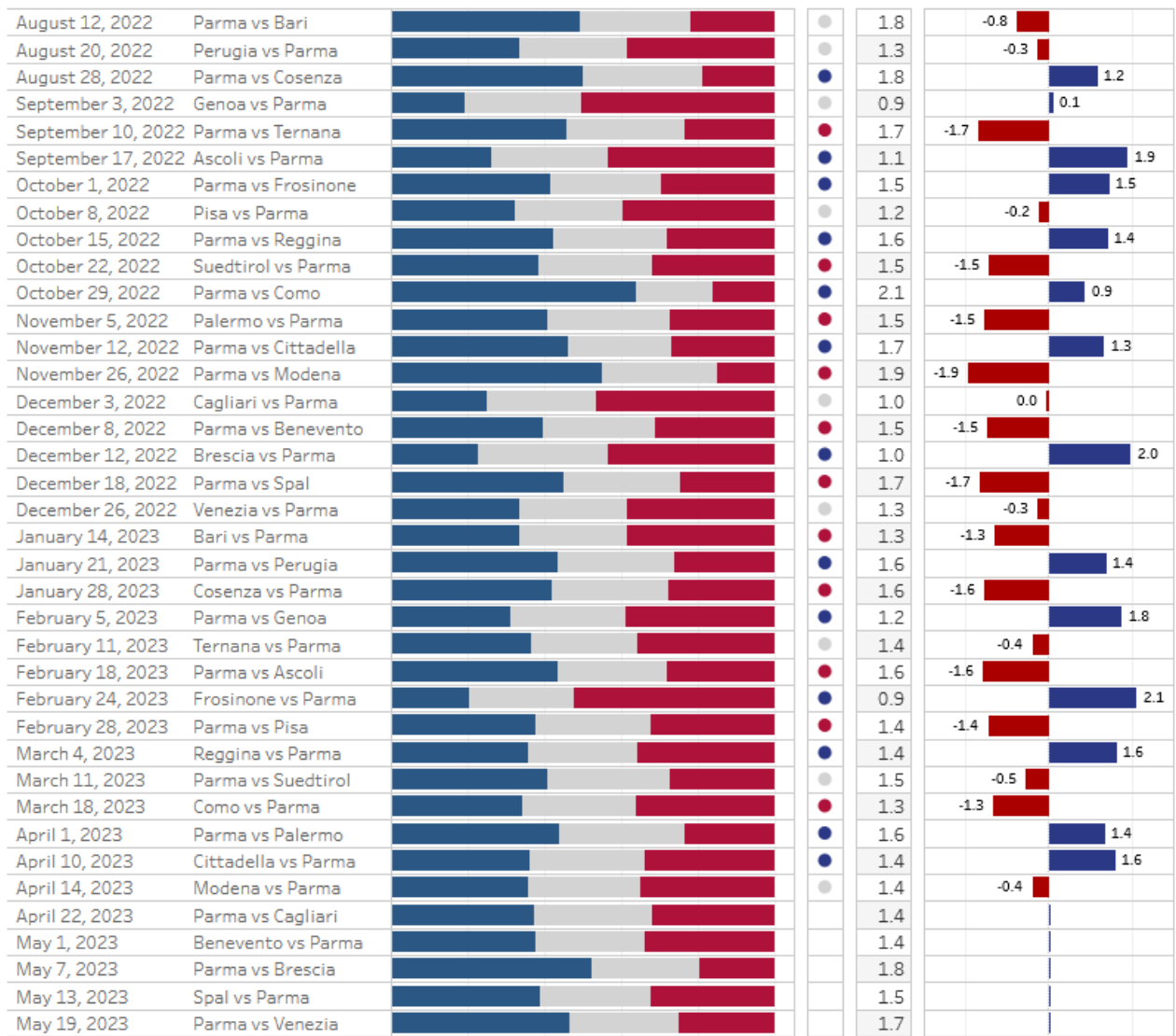
Select a Competition  
Italian Serie B

Match Week  
1 38

Game Date	Side	Home Team	Away Team	Score	xScore	% Chance of Win - Draw - Loose	xPoints "5 Games" rolling average
1	12-Aug-22	Parma	Bari	2-2	1.2 1.2	35% 28% 37%	1.3
2	20-Aug-22	Perugia	Parma	0-0	1.0 1.6	56% 37%	2.0
3	28-Aug-22	Parma	Cosenza	1-0	1.0 0.2	14% 26% 60%	0.7
4	03-Sep-22	Genoa	Parma	3-3	1.5 0.6	16% 23% 61%	0.7
5	10-Sep-22	Parma	Ternana Unicusano	2-3	2.5 1.3	59% 22% 20%	2.0
6	17-Sep-22	Ascoli	Parma	1-3	1.8 0.8	47% 30% 23%	1.7
7	01-Oct-22	Parma	Frosinone	2-1	1.9 1.0	57% 38%	2.1
8	08-Oct-22	Pisa	Parma	0-0	0.7 1.6	40% 32% 28%	1.5
9	15-Oct-22	Parma	Reggina	2-0	1.2 0.8	77% 17%	2.5
10	22-Oct-22	Südtirol	Parma	1-0	0.1 1.0	37% 25% 39%	1.4
11	29-Oct-22	Parma	Como	1-0	0.6 1.3	79% 13%	2.5
12	05-Nov-22	Palermo	Parma	1-0	0.8 1.0	35% 25% 40%	1.3
13	12-Nov-22	Parma	Cittadella	3-1	2.1 0.4	60% 18% 22%	2.0
14	26-Nov-22	Parma	Modena	1-2	2.1 0.4	23% 39% 38%	1.1
15	03-Dec-22	Cagliari	Parma	1-1	1.5 1.5	47% 29% 24%	1.7
16	08-Dec-22	Parma	Benevento	0-1	2.7 0.7	22% 39% 39%	1.0
17	12-Dec-22	Brescia	Parma	0-2	0.5 1.0	36% 26% 38%	1.3
18	18-Dec-22	Parma	SPAL	0-1	1.3 1.4	54% 34%	0.9
19	26-Dec-22	Venezia	Parma	2-2	1.6 2.6	65% 21% 15%	2.1
20	14-Jan-23	Bari	Parma	4-0	2.3 1.0	46% 39% 15%	1.8
21	21-Jan-23	Parma	Perugia	2-0	0.5 0.8	39% 36% 25%	1.5
22	28-Jan-23	Cosenza	Parma	1-0	0.8 1.3		
23	05-Feb-23	Parma	Genoa	2-0	1.9 0.5		
24	11-Feb-23	Ternana	Parma	1-1	0.8 0.5		
25	18-Feb-23	Parma	Ascoli	0-1	1.3 1.4		
26	24-Feb-23	Frosinone	Parma	3-4	1.8 1.0		
27	28-Feb-23	Parma	Pisa	0-1	0.2 0.5		
28	04-Mar-23	Reggina	Parma	0-1	0.6 2.0		
29	11-Mar-23	Parma	Südtirol	0-0	1.0 0.1		
30	18-Mar-23	Como	Parma	2-0	0.4 0.9		
31	01-Apr-23	Parma	Palermo	2-1	0.9 0.6		
32	10-Apr-23	Cittadella	Parma	0-1	0.8 0.5		
33	14-Apr-23	Modena	Parma	1-1	0.5 0.5		1.6



# ESTIMATING RESULTS BEFORE THE GAME





# QUANTIFYING PLAYERS' ROTATION AND TIME PLAYED

## Playing Time Tracking • Parma

2022/2023

Selected a Team  
Parma  
Selected Competition(s)  
Serie B  
Selected a Season  
2022/2023



Position	Name	Minutes	Rotation %	Games	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End		
Goalkeeper	A. Santurro	0	0%	0																																				
	B. Maliszewsz...	0	0%	0																																				
	E. Corvi	387	13%	4																																				
	F. Borriello	0	0%	0																																				
	G. Buffon	1,170	40%	12																																				
Defender	L. Chichizola	1,474	50%	16																																				
	A. Circati	794	27%	11																																				
	B. Balogh	710	24%	11																																				
	C. Ansaldo	846	29%	17																																				
	E. Cobbaut	386	13%	6																																				
	E. Del Prato	2,491	85%	27																																				
	J. Oosterwol...	1,552	53%	17																																				
	L. Valenti	2,097	71%	22																																				
	S. Romagnoli	533	18%	6																																				
	V. Zagaritis	524	18%	12																																				
	W. Coulibaly	691	23%	14																																				
	Y. Osorio	2,062	70%	23																																				
	Midfielder	A. Hainaut	410	14%	12																																			
		Adrián Berna...	1,751	59%	22																																			
		D. Camara	631	21%	16																																			
F. Vázquez		2,753	93%	29																																				
N. Buayi-Kiala		0	0%	0																																				
N. Estévez		2,145	73%	29																																				
S. Jurić		1,852	63%	25																																				
S. Sohm		1,060	36%	21																																				
V. Mihăiliă		493	17%	11																																				
Forward		A. Benedyczak	1,173	40%	25																																			
	A. Bonny	693	24%	20																																				
	D. Man	1,485	50%	22																																				
	D. Šits	49	2%	2																																				
	G. Charpentier	189	6%	7																																				
	G. Tutino	724	25%	16																																				
	L. Zanicchi	765	26%	10																																				
	R. Inglese	1,370	47%	22																																				



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# SUPPORTING DIVISIONS – SCOUTING

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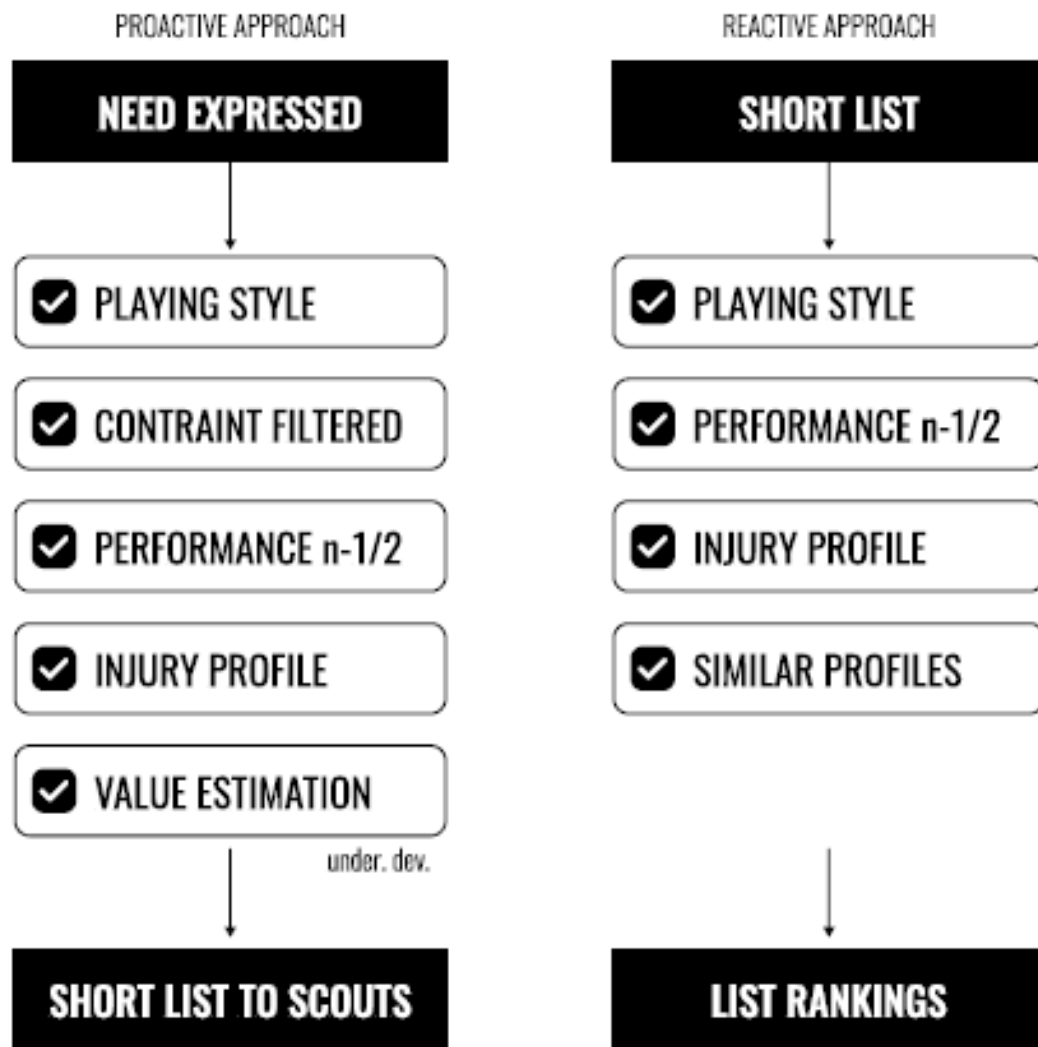
**Our scouting department is supported by leveraging our database of 45 000 players, combining Opta StatsPerform, NoiseFeed and TransfertMarkt data**

**Using machine learning models, the team is developing specific metrics to understand danger creation, defensive capabilities and scoring abilities of players**





# TWO APPROACHES OF SCOUTING: REACTIVE AND PROACTIVE





# REACTIVE SCOUTING - DUE DILIGENCES (21.22 WINTER)

## Pasquale Schiattarella - 34,6 y.

Midfielder  
Italy

Born in: Napoli, Italy - DOB: 30/05/1987  
Avg 1.604 min played per season (20.21 and 21.22)



Player selected

Pasquale Schiattarella

Position Midfielder Season(s) (M...)

Mins Played 1000 3464

### Passes - per 90 (#)



### Passes %- Rank Percentiles

83%

### Passes - success rate (%)



### Passes %- Rank Percentiles

62%

### Passes into last thirs - per 90 (#)



### P. In L.1/3 - Rank Perc.

58%

### Passes into last third - success rate (%)



### P. In L.1/3 % - Rank Perc.

35%

### Touches in Opposition Box - per 90 (#)



### T. In OppoBox - Rank Perc.

11%

### Shots on Target - per 90 (#)



### SOT - Rank Percentiles

31%

### Shots on Target - success rate (%)



### SOT% - Rank Percentiles

97%

### Defensive tackles - per 90 (#)



### Def. Tackles - Rank Perc.

37%

### Defensive Tackles - success rate (%)



### Def. Tackles % - Rank Perc.

47%

## 10 Most similar players

Name	Country	Position	Height (cm)	Weight (kg)	Passes (#)	Passes (%)	Final 1/3 P. (#)	Final 1/3 P. (%)	T. Opp.Box (#)	Shots (#)	OT Shots (%)	Tackles (#)	Tackles (%)
Christoph Kramer	Germany	Midfielder	191	76	57,4	86%	10,8	72%	0,6	0,5	13%	2,3	62%
Darwin Cerén	El Salvador	Midfielder	178	73	46,7	84%	13,5	76%	0,9	0,7	35%	2,0	58%
Júnior Moreno	Venezuela	Midfielder	175	70	47,0	85%	10,2	76%	0,3	0,5	25%	2,2	59%
Martin Hongla	Cameroon	Midfielder	181	77	57,5	85%	14,3	76%	0,7	0,8	24%	1,2	58%
Mickaël Malsa	Martinique	Midfielder	178	69	50,5	84%	10,7	68%	0,5	0,9	28%	2,4	46%
Patrick de Lucca	Brazil	Defender	#NA	#NA	53,9	85%	12,9	73%	1,2	0,5	31%	1,8	71%
Pedro Mosquera	Spain	Midfielder	184	75	51,9	85%	10,0	70%	0,2	0,4	31%	1,6	51%
Waleed Bakshwn	Saudi Arabia	Midfielder	175	70	48,5	83%	15,0	72%	0,7	0,7	20%	2,3	46%
Wil Trapp	USA	Midfielder	173	69	54,5	87%	15,4	81%	0,1	0,4	26%	2,1	57%
Wout Brama	Netherlands	Midfielder	176	77	51,6	82%	14,9	69%	0,1	0,5	23%	1,4	44%




# REACTIVE SCOUTING - DUE DILIGENCES (21.22 SUMMER)

## Kylian Mbappé


*Born in Paris • December 20, 1998*  
*Passport • France*  
*Height: 178*

*attack - Centre-Forward*  
 Paris Saint-Germain • joined July 2018  
 Contract End • June 2022

Latest Market Value  
**160.0M**  
December 2021



Season playing time  
**2 702 min**




Progression

Succ. Passes to Box (#)

**6.53**


86P



Succ. Through Passes (#)

**0.13**


20P



Progressive Passes (%)

**4.29**


57P



Progressive Passes (%)

**0.67**


54P



Progressives Runs (#)

**6.66**


90P



xThreat • Carry

**0.14**

95P




Finition

Goals (#)

**0.73**


94P



npGoals

**0.63**


93P



Shots on Target (#)

**1.86**


95P



xG Shots

**0.61**


90P



np xG per Shot

**0.54**


90P



Δ Goals - xG

**0.73**

90P



Misc • INJURIES

Last 2 years - Missed due to injury

66 days

9 games

Injury From <-> To	Injury type	Day(s) Missed	Game(s) Missed
07-2020 - 08-2020	Ankle injury	40	1
09-2020 - 09-2020	Corona virus	11	3
<b>20/21</b> 11-2020 - 11-2020	Thigh Problems	14	2
04-2021 - 05-2021	Calf Injury	4	1
05-2021 - 05-2021	Calf Injury	6	1
<b>21/22</b> 09-2021 - 09-2021	Calf Injury	8	1
10-2021 - 11-2021	Infection	7	1



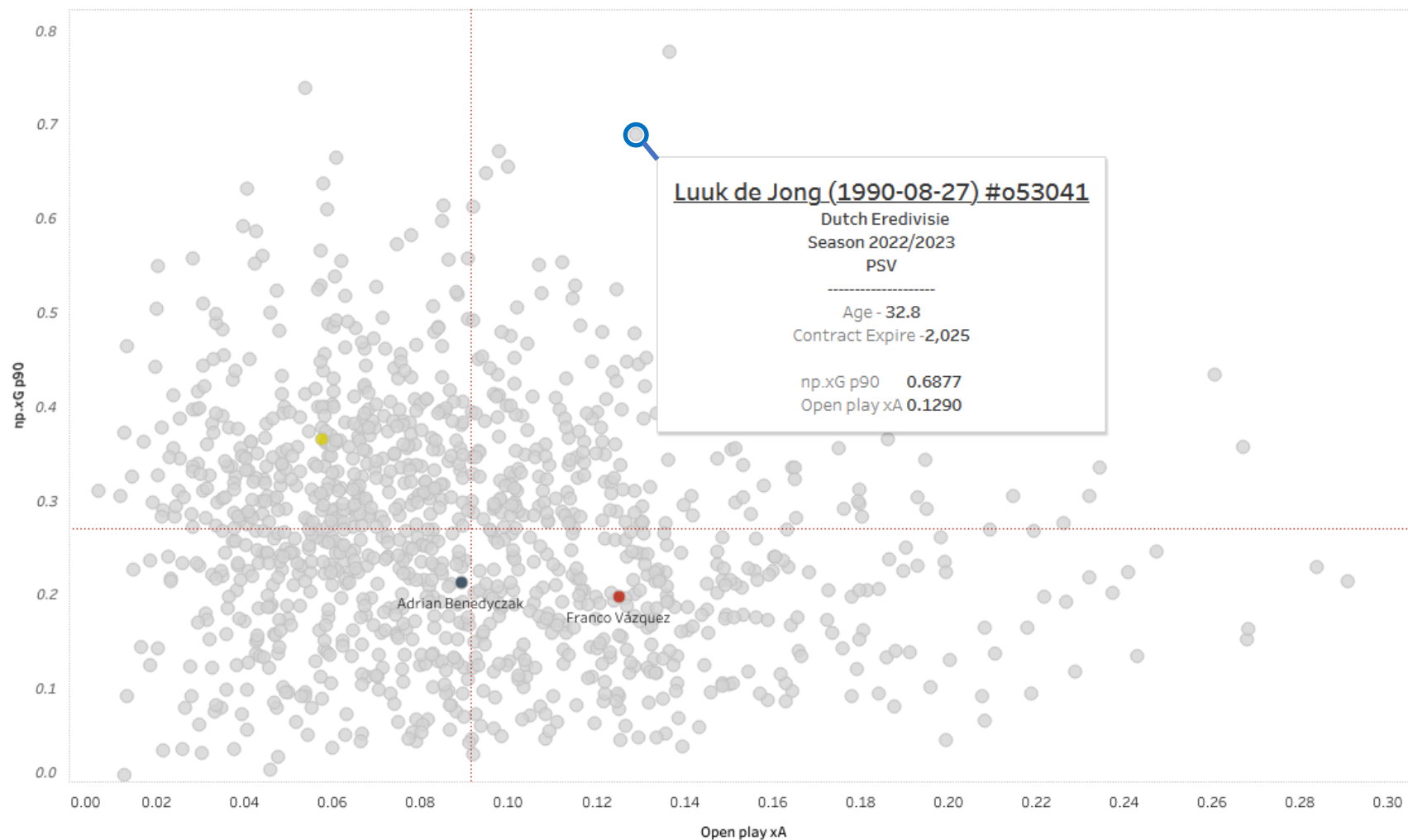
# PROACTIVE SCOUTING (23.24 SUMMER)

## EXPLORE

Tools to find and explore in-depth performance of players



Select Metric 1: np.xG p90 | Select Metric 2: Open play xA | Analyzed player: Franco Vázquez (1989-02-2...) | Compared player: Adrian Benedyczak (2000-11-24) #o... | Team Name Selected: Parma Calcio 1913





# PROACTIVE SCOUTING (23.24 SUMMER)

## COMPARE

Tools to compare players on-field performance

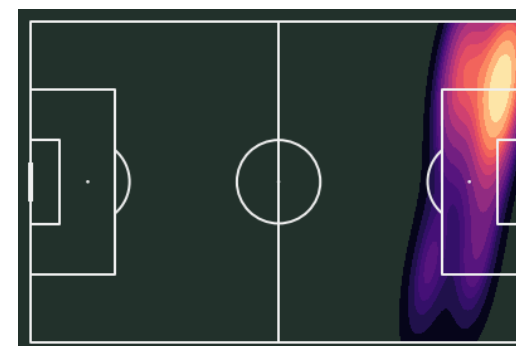
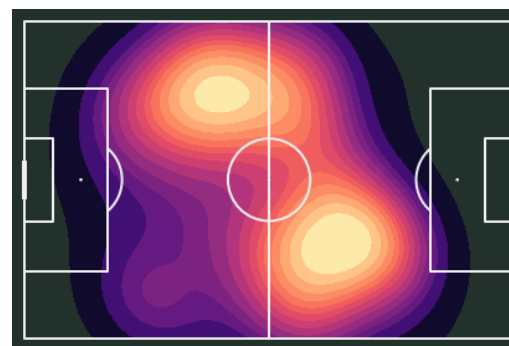
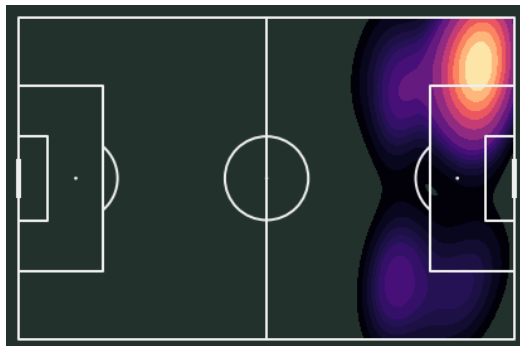
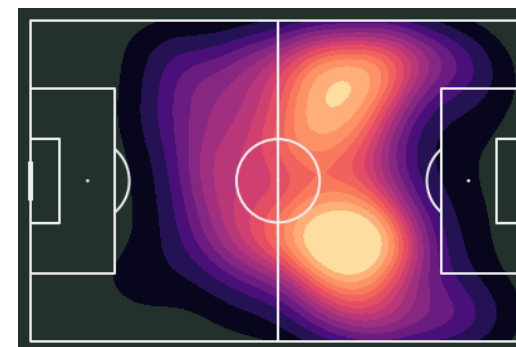
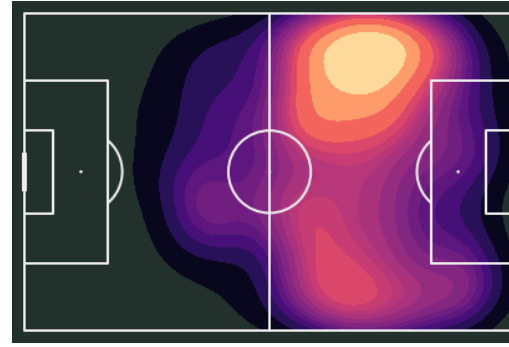
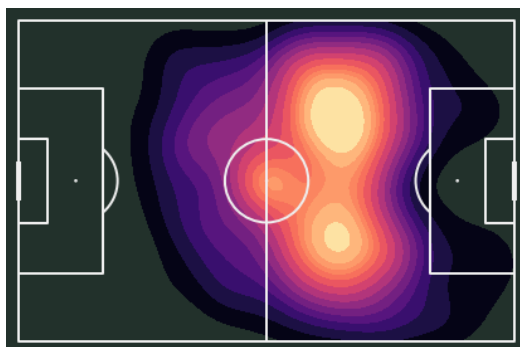
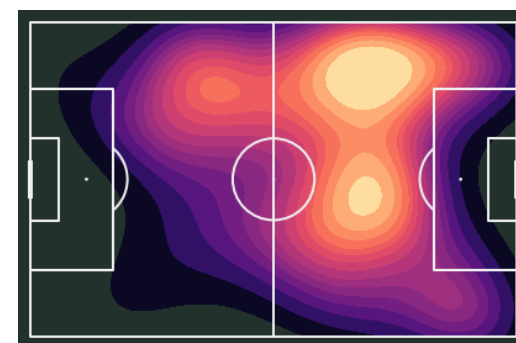
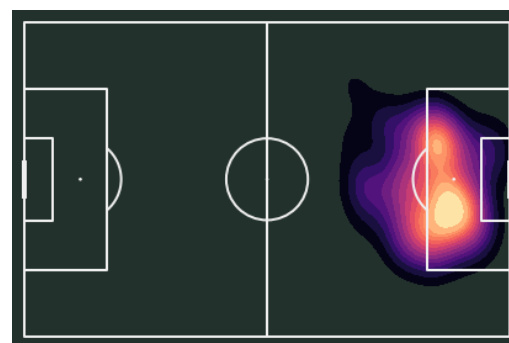
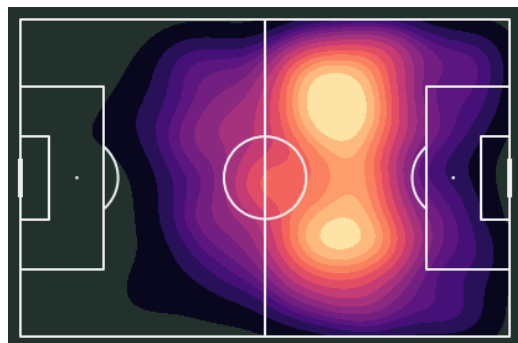
Competition(s)	Season(s)	Search players	Position	Rank by (score)									
Italian Serie B	Season 2022/2023	Multiple values	Full Backs	Def Aerials Duels Won	Aerial Duels Wons	Ground Duels Wons	Ball recoveries	Intercep..	Crosses	Passes Ending in..	xT Total	Progress..	Verticality Index
Alessandro Circ..	19.7	Italian Serie B • Season 2022/2023	801 min	69%									
Yordan Osorio	29.1	Italian Serie B • Season 2022/2023	2261 min	96%									
Botond Balogh	21.0	Italian Serie B • Season 2022/2023	917 min	67%									
Elias Cobbaut	25.6	Italian Serie B • Season 2022/2023	615 min	67%									
Lautaro Valenti	24.4	Italian Serie B • Season 2022/2023	2068 min	100%									



# PLAYER SIMILARITY AND PLAYING STYLE (M. MATTEOTTI'S THESIS)

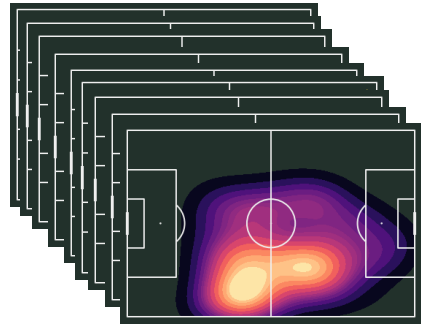


Vazquez season  
2022/2023

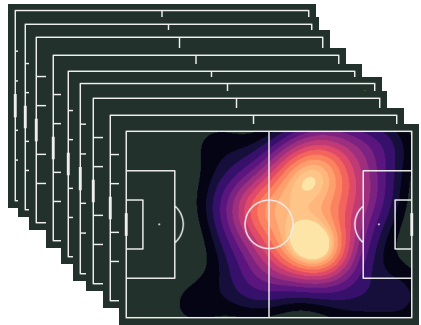




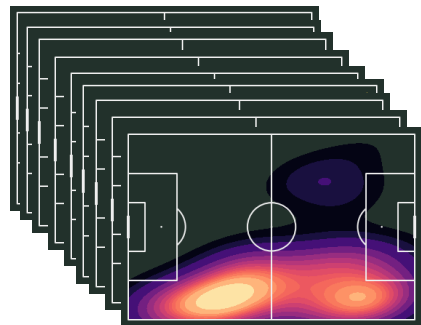
# PLAYER SIMILARITY AND PLAYING STYLE (M. MATTEOTTI'S THESIS)



52.8	31.5	9.6	10.0
------	------	-----	------



0.47	19.7	87.1	42.2
------	------	------	------



30.1	36.3	45.9	1.71
------	------	------	------



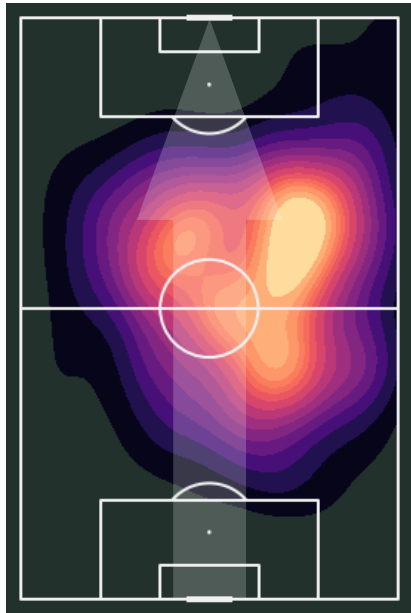




# PLAYER SIMILARITY AND PLAYING STYLE (M. MATTEOTTI'S THESIS)



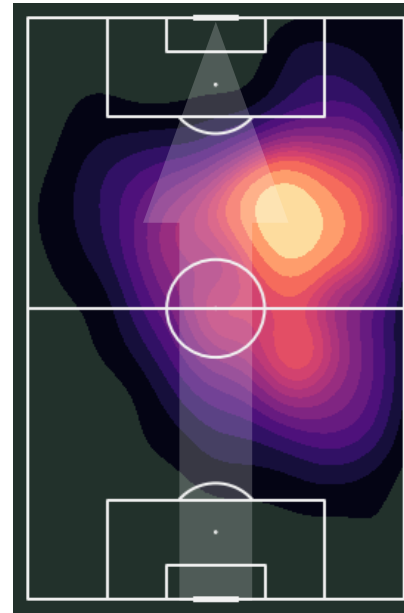
**A. Bernabé**



**D. Bisoli**



**G. Bonaventura**

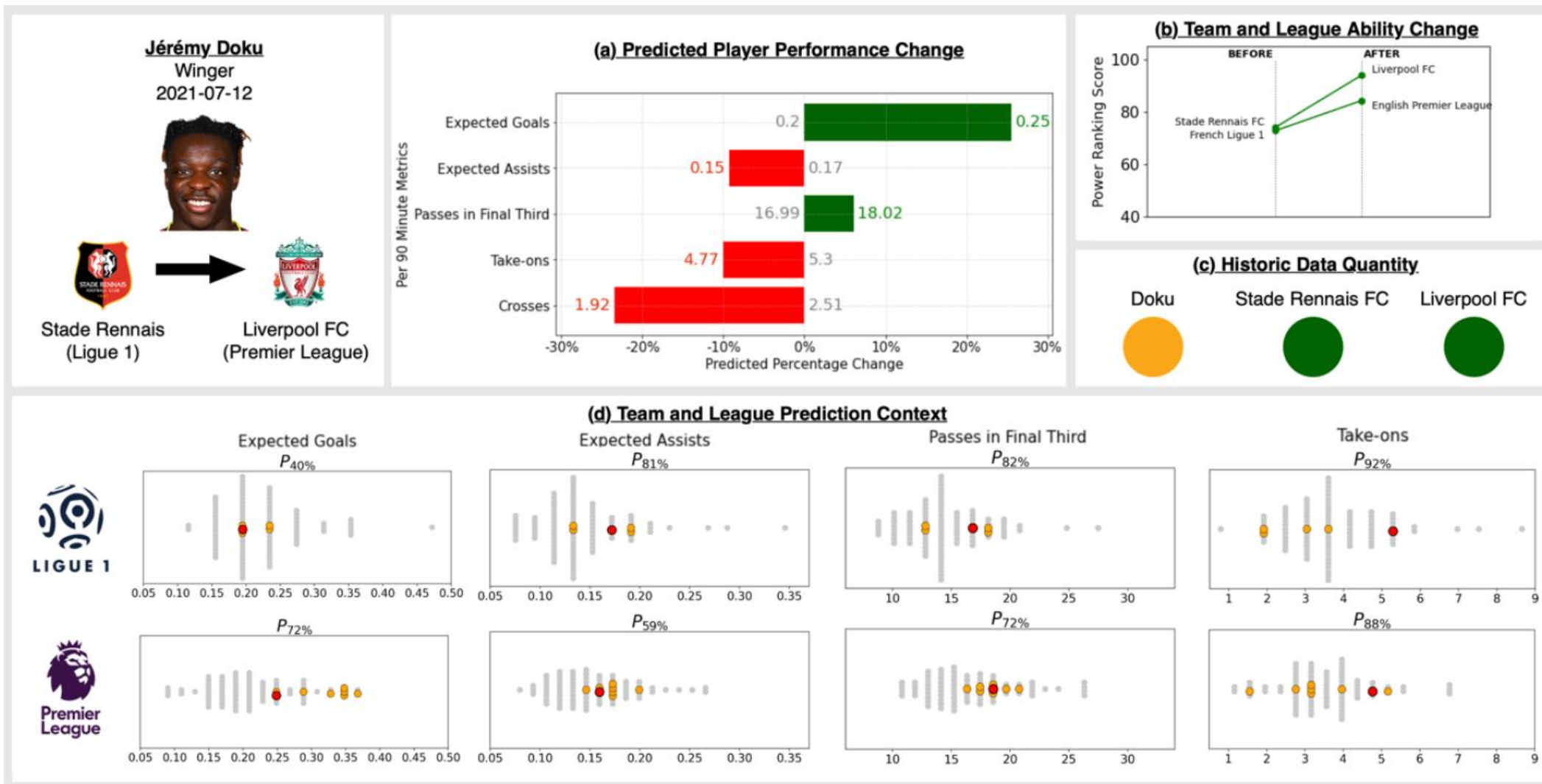


**S. Zurkowski**





# CHANGE LEAGUE IMPACT (M. MATTEOTTI'S THESIS)





# TEAM CHEMISTRY

2022-08-12	Parma v Bari	1.8	25	0.04	0.06
2022-08-20	Perugia v Parma	1.3	7	0.04	0.00
2022-08-28	Parma v Cosenza	1.8			
2022-09-03	Genoa v Parma	0.9			
2022-09-10	Parma v Ternana Unicus..	1.7			
2022-09-17	Ascoli v Parma	1.1	56	0.23	0.16
2022-10-01	Parma v Frosinone	1.5	48	1.15	0.53
2022-10-08	Pisa v Parma	1.2			
2022-10-15	Parma v Reggina	1.6			
2022-10-22	Südtirol v Parma	1.5			
2022-10-29	Parma v Como	2.1			
2022-11-05	Palermo v Parma	1.5	34	0.25	0.00
2022-11-12	Parma v Cittadella	1.7	49	1.55	0.39
2022-11-26	Parma v Modena	1.9	50	1.23	0.13
2022-12-03	Cagliari v Parma	1.0	75	1.22	1.05
2022-12-08	Parma v Benevento	1.5			
2022-12-12	Brescia v Parma	1.0			
2022-12-18	Parma v SPAL	1.7			
2022-12-26	Venezia v Parma	1.3	17	0.41	0.59
2023-01-14	Bari v Parma	1.3	49	0.55	0.57
2023-01-21	Parma v Perugia	1.6	40	0.35	0.43
2023-01-28	Cosenza v Parma	1.6			
2023-02-05	Parma v Genoa	1.2			
2023-02-11	Ternana v Parma	1.4			
2023-02-18	Parma v Ascoli	1.6	33	0.74	0.00
2023-02-24	Frosinone v Parma	0.9	27	0.06	0.45
2023-02-28	Parma v Pisa	1.4			
2023-03-04	Reggina v Parma	1.4	38	0.68	0.25
2023-03-11	Parma v Südtirol	1.5	24	0.21	0.00
2023-03-18	Como v Parma	1.3			
2023-04-01	Parma v Palermo	1.6			
2023-04-10	Cittadella v Parma	1.4	61	0.45	0.54
2023-04-14	Modena v Parma	1.4	47	0.11	0.28
2023-04-22	Parma v Cagliari	1.4	52	2.04	0.95
2023-05-01	Benevento v Parma	1.5	37	0.59	0.76
2023-05-07	Parma v Brescia	1.7	24	0.37	0.52
2023-05-13	SPAL v Parma	1.5	52	1.43	0.67



# EXPECTED TRANSFER VALUE

With a simple tool, we can estimate and simulate any player's market value, with interactive parameters

Choose a player and a date of transfer

Current Competition	Current Club Name	Player Name	Choose Date Transfer
ES1	Real Betis Balompié	William Carvalho	2023/07/01

Select competitions and if player will play European competition or not

From Competition	To Competition	Will Play Champions League?	Will Play Europa League?
BRA1	BRA1	Yes	Yes

Profile

Transfer Age :	Poste :	Is_Communaury :	Preferred foot :	Experience :
31.23	Midfield	True	Right	131

Info Transfer

Months Remaining :	Type Mercato :	Time Summer :
35.98	Summer	Early

Selection

Is International U16 - U18 :	Is International U19 - U23 :	Is International Olympic :	Is International First :
Yes	Yes	No	Yes

Injuries

Days_missed last 2 years :	Games missed last 2 years :	Has long injury - 2 years :
0	0	0

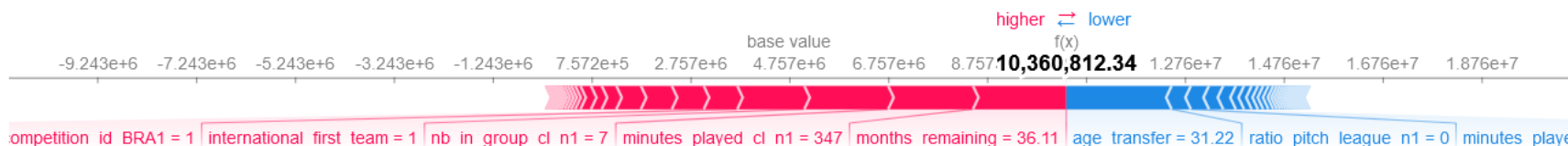
Next Year Forecast - Championship

nb_goals_league_n1	nb_assists_league_n1	nb_in_group_league_n1	nb_on_pitch_league_n1	ratio_pitch_league_n1 :	minutes_played_league_n1
0	0	0	0	0	0



Market Value (22/23) according to Parma Calcio : 10,360,812.34€

Viewing results with plot - Money (22/23 too)





## **Performance & Analytics Department – Origins & Missions**

### **Analytics Unit – Structure & Tasks**

### **Working Hand in Hand – Examples**

**Senior Management**

**Scouting**

**Match Analysis**

**Sports Science**



# SUPPORTING DIVISIONS – MATCH ANALYSIS

---

**We support match analysts and technical staffs, from First Team men and women, to Agonistica (U19-U16)**

**Depending on the team, the Data & Analytics unit is providing pre-game report, post-game reports (in PDF by mail, via WhatsApp, and with synchronized video in Tableau software)**

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**On-demand, other deeper analyses of specific aspects of the game are done**





# OUR "GAME DAY" DATA PROVIDERS



FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----



FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----



FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----



FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----



# PRE-GAME ANALYSIS – HOW ARE TEAMS PLAYING?



## Team Comparison



Offensive statistics - Finition

	Competition Italian Serie B	Season Season 2022/2023	Club Comparison Modena	Matchday All			
Frosinone Calcio	1.55 [#1]	14.9 [#1]	4.64 [#1]	1.39 [#2]	1.48 [#1]	0.093 [#9]	0.15 [#3]
FC Bari 1908	1.50 [#2]	11.5 [#14]	3.88 [#9]	1.01 [#15]	1.15 [#7]	0.088 [#11]	0.13 [#4]
Reggina	1.34 [#3]	12.3 [#11]	4.31 [#3]	1.25 [#7]	1.35 [#2]	0.101 [#4]	0.09 [#7]
Genoa	1.33 [#4]	13.4 [#4]	4.61 [#2]	1.39 [#1]	1.27 [#3]	0.104 [#2]	0.06 [#14]
Pisa	1.31 [#5]	12.6 [#7]	4.00 [#7]	1.09 [#9]	1.11 [#9]	0.087 [#12]	0.09 [#7]
Modena	1.28 [#6]	12.5 [#8]	3.81 [#11]	1.07 [#12]	1.02 [#12]	0.086 [#16]	0.09 [#7]
Palermo	1.22 [#7]	11.5 [#16]	4.00 [#7]	1.09 [#10]	1.03 [#11]	0.095 [#8]	0.06 [#11]
Como	1.22 [#7]	13.4 [#3]	4.16 [#4]	1.32 [#4]	1.11 [#8]	0.098 [#6]	0.19 [#2]
Cagliari	1.22 [#7]	14.0 [#2]	4.03 [#6]	1.39 [#3]	1.11 [#10]	0.099 [#5]	0.06 [#11]
Parma Calcio 1913	1.18 [#10]	13.1 [#5]	4.15 [#5]	1.13 [#8]	1.16 [#6]	0.087 [#14]	0.21 [#1]
Südtirol	1.09 [#11]	10.2 [#19]	3.47 [#17]	0.99 [#16]	0.95 [#15]	0.097 [#7]	0.06 [#11]
S.P.A.L. 2013	1.09 [#11]	12.5 [#8]	3.78 [#12]	1.08 [#11]	0.99 [#13]	0.087 [#13]	0.13 [#4]
Venezia FC	1.06 [#13]	12.4 [#10]	3.72 [#13]	1.28 [#5]	1.18 [#5]	0.103 [#3]	0.03 [#16]
Ascoli	1.06 [#13]	11.9 [#13]	3.47 [#17]	1.02 [#14]	0.94 [#16]	0.086 [#15]	0.00 [#18]
A.C. Perugia	1.03 [#15]	12.6 [#6]	3.85 [#10]	1.04 [#13]	0.98 [#14]	0.083 [#17]	0.06 [#14]
Ternana Calcio	0.94 [#16]	11.4 [#17]	3.63 [#15]	1.26 [#6]	1.19 [#4]	0.111 [#1]	0.13 [#4]
A.S. Cittadella	0.88 [#17]	12.1 [#12]	3.52 [#16]	0.91 [#18]	0.78 [#19]	0.075 [#20]	0.00 [#18]
Brescia Calcio	0.84 [#18]	11.5 [#14]	3.72 [#13]	0.90 [#19]	0.89 [#18]	0.078 [#18]	0.03 [#16]
Cosenza	0.82 [#19]	10.1 [#20]	3.00 [#19]	0.93 [#17]	0.92 [#17]	0.092 [#10]	0.09 [#10]
Benevento	0.75 [#20]	10.8 [#18]	2.88 [#20]	0.83 [#20]	0.71 [#20]	0.077 [#19]	0.00 [#18]

Goals

Shots

Shot on T

xG

PSxG

xG per shot

1v1





# POST-GAME ANALYSIS - HOW ARE TEAMS PLAYING?

	Genoa				Parma Calcio 1913					
	MT1		MT2		MT1		MT2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
% Possession	56%	60%	57%	49%	55%	45%	44%	40%	43%	51%
% Territorial Dom.	51%	67%	59%	45%	56%	44%	49%	33%	41%	55%
% Field Tilt	56%	90%	58%	32%	59%	41%	44%	10%	42%	68%
Goals	1	1	1	0	50%	50%	1	1	0	1
Shots	3	4	1	5	57%	43%	4	2	0	4
Shots on Target	1	3	1	0	56%	44%	2	1	0	1
xG	0.35	0.23	0.79	0.13	74%	26%	0.23	0.08	0.00	0.21
Crosses	3	4	4	1	46%	54%	3	1	2	8
Crosses Successful	1	0	1	0	33%	67%	1	0	0	3
Passes	148	98	69	75	55%	45%	116	66	53	78
Passes Successful	131	76	50	53	57%	43%	92	51	35	52
% Verticality	30%	39%	40%	48%			29%	49%	45%	46%
Passes leading to Shot	1	2	0	3	67%	33%	1	1	0	1
xThreat Passes	0.22	0.15	0.16	0.07	47%	53%	0.19	0.16	0.04	0.28
Low Passes > 15m - Left	4	1	1	3	39%	61%	4	4	4	2
Low Passes > 15m -	8	8	1	4	54%	46%	5	4	2	7
Low Passes > 15m -	3	2	2	3	45%	55%	4	6	2	0
Aerials Duels	2	5	6	4	50%	50%	2	5	6	4
Aerials Duels Won	1	4	2	0	41%	59%	1	1	4	4

30'

GAME

DATA COLLECTION

DATA INTEGRATION

DATA MANIPULATION

REPORT SHARING





# TREND ANALYSIS – CROSSES INSIGHTS



What are the most dangerous zone to cross from?

*A Insights from 1,546,048 crosses*

Filter competitions

(All) ▾

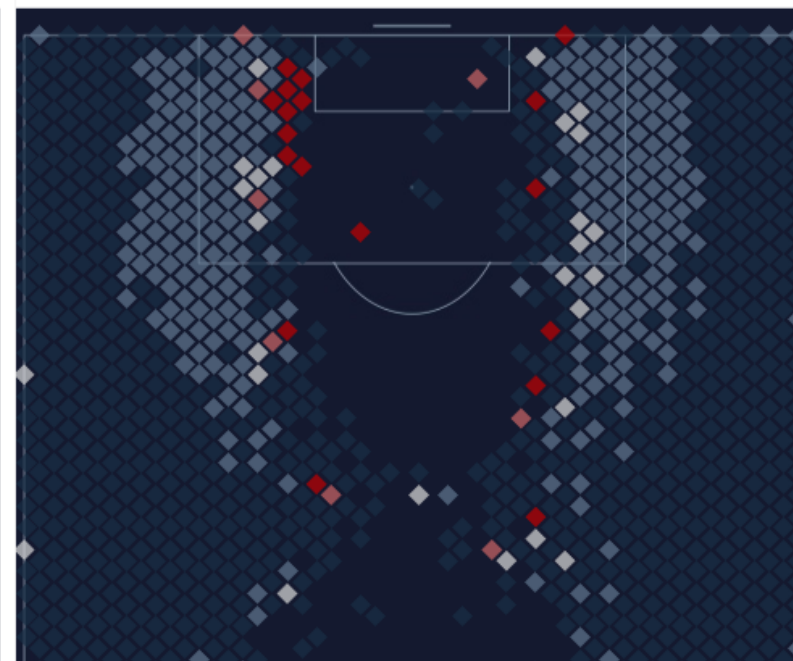
Filter seasons

(All) ▾

% of Shot Within 3 Seconds (%)  
0% 40%



Max xG generated within 3 Seconds (#)  
0.00 0.10





# LINKING DATA & VIDEO

Game Selection Team Main Page • [P] Game state • [P] Game state • Possessions • [P] Shots Page • [P] Set Pieces • [P] Pass Map • H Pass Map • A Last Third >

Start Time Before Events

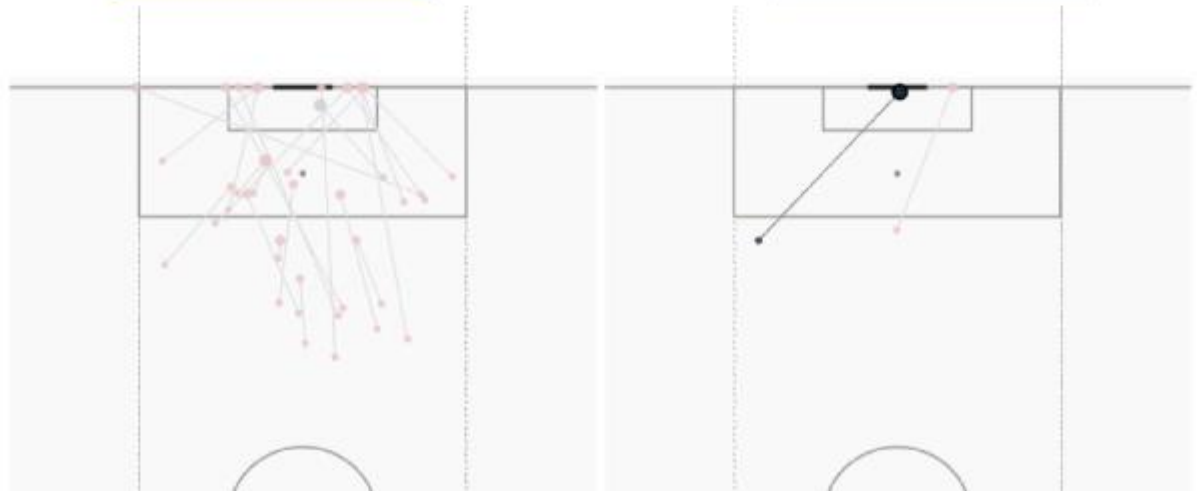
End Time After Events



Parma Calcio 1913

Südtirol

- Adrián Berna
- Luca Zanina
- Adrian Bene
- Yordan Osorio
- Cristian Ansa
- Woyo Coulib
- Simon Schim
- Nahuel Estév
- Lautaro Vale
- Drissa Camar
- Dennis Man



Matteo Rover



# TEACHING “SELF-SERVICE ANALYTICS”

Home  
Heatmaps

## Heatmap generator

Select match  
2023-04-14 Modena-Parma Calcio 1913 (1-1) #2314446

Select player  
Franco Vazquez (1989-02-22) #100731

Select heatmap  
Start passes

Load heatmap

2023-04-14 Modena-Parma Calcio 1913 - Franco Vazquez  
Start passes



# NEXT BIG CHUNK OF WORK, LEVERAGING TRACKING



## TRACKING MODELS

OFF THE BALL ACTIONS



## DECISION MAKING

RISK/REWARDS - xT UNDER PRESSURE



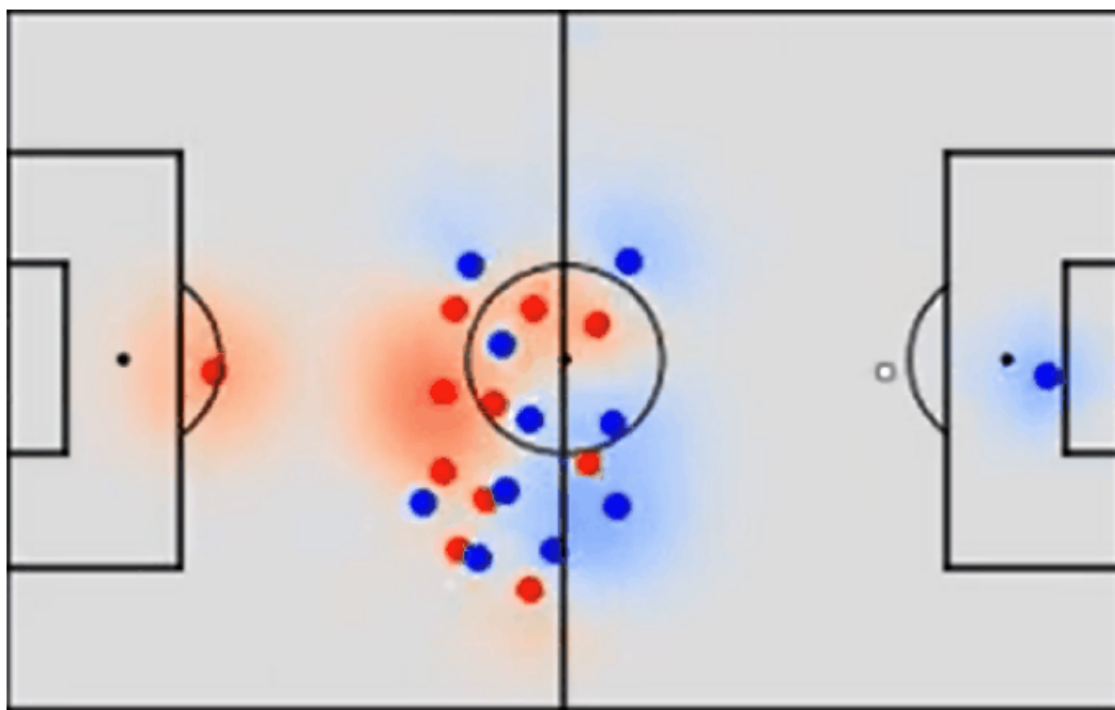
## MACHINE LEARNING

MLOps framework



## BIG DATA

Large volume of data



## PITCH CONTROL



## TEAM SPREAD & SHAPE



## GK SPECIFIC METRICS



## LINES DETECTIONS



## PRESSURES & OPEN SPACES

## SET PIECES



## **Performance & Analytics Department – Origins & Missions**

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### **Working Hand in Hand – Examples**

**Senior Management**

**Scouting**

**Match Analysis**

**Sports Science**



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FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----



FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----



FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----



FT	U19	U18	U17	U16	U15	WFT
----	-----	-----	-----	-----	-----	-----





# PRE-TRAINING REPORTS



## Players availability and warnings

s22.23 • PRIMA SQUADRA • w25  
23 décembre 2022  
D+5 • D-3

Select\_Date 22/12/2022

Team PRIMA SQUADRA

Player Disp.. All

Available • 20

Injured • 2

Players status	7-days roll sum				Previous Training Day				Speed protectio..	Physios comments		
	TD	D>19.8	D>25.2	MW	RPE	TD	D>19.8	D>25.2	MW	Days..		
DEF	37683	1746	354	243	5	7710	695	178	45	● 4		
	31824	2603	527	362	6	7252	955	233	57	● 0		
	28989	2044	455	299	5	7214	707	190	60	✗ 22		
	36730	2889	657	235	5	7235	892	248	25	✗ 22		
	32019	1446	183	193	5	7091	390	60	39	💡 10		
	35272	2103	241	172	5	8458	953	136	33	● 0		
	38495	2646	432	289	6	7588	890	210	52	💡 14		
	33692	2496	418	235	6	7568	953	185	55	✗ 27		
MID	38090	2148	193	296	7	7757	591	70	45	💡 14		
	BUAYI ●	33593	2044	209	297	7	8138	590	46	49	● 7	
		41386	2489	127	260	6	8866	642	30	47	● 4	
		32397	3156	688	355	6	7479	1020	234	72	● 0	
		42472	2455	256	310	4	9137	900	141	52	✗ 47	
		37405	2824	438	236	6	8084	817	188	30	● 4	
		36006	2037	103	280	7	7689	743	72	36	✗ 19	
FWD												
<b>Out of team training</b>												
DEF												
MID												



# POST-TRAINING REPORTS

Parma Calcio 1913 | First Team  
**DRILLS ANALYSIS - PER PLAYERS**

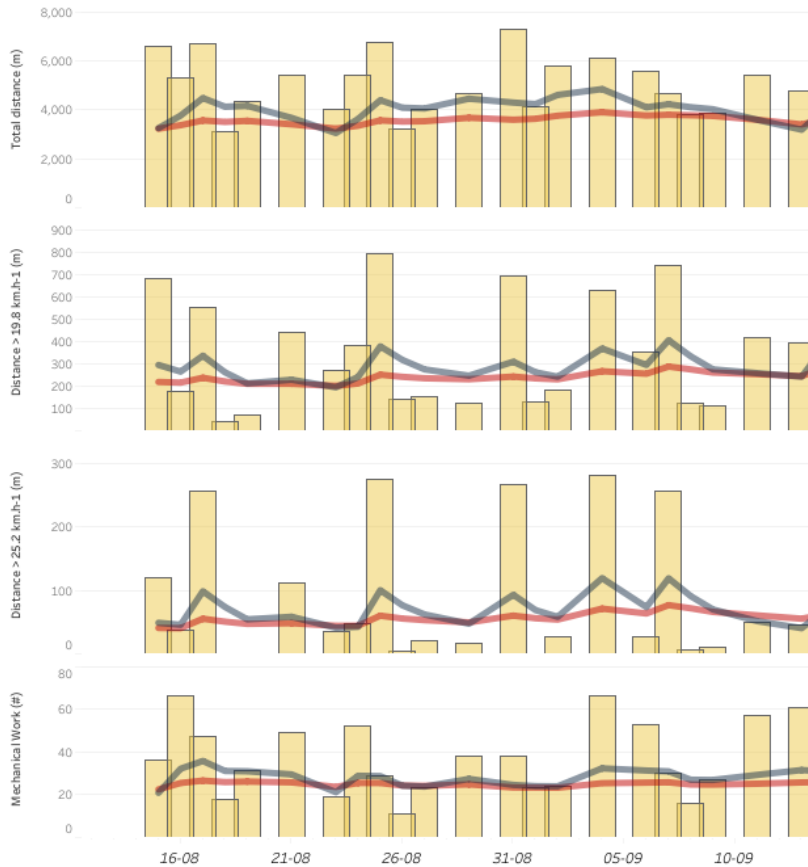
Training day - FP - s22.23  
**5-December-22 - 1100**

D+2 | D-3  
w23

Parma Calcio 1913 | First Team  
**Last 2 months load dynamic**  
**Trainings & Games | 7d Acute & 28d Chronic Loads**

Type of Drill: **Full Training**  
Game Format:  
Pitch Size:  
Description:  
N Sets: , Duration: , Recovery Time:  
Area per Player: **m²**

Drill duration  
76 min



Full Training  
DEF.  
MID.  
FWD.  
TUTINO  
Partial Training  
DEF.  
MID.  
FWD.

	Overall Load				High Speed Running			Neuromuscular Load									
	TD (m)	D>14.4 km/h (m)	D>19.8 km/h (m)	D>25.2 km/h (m)	Vmax (km/h)	# Sprints	Acc (# Acc > 2.5)	High Acc (# Acc > 3.5)	Max Acc (m.s-2)	Dec (# Dec > 2.5)	High Dec (# Dec > 3.5)	Max Dec (m.s-2)	MechW (#)	Work: Rec Ratio	RPE	S-RPE	
<b>Overall</b>	6,586 m	1,276 m	703 m	61 m	29 km/h	# 6	# 67	# 21	5.1	# 56	# 19	5.4	38	0.90	6	420	
DEF.	7191	1,439	697	145	28.5	8	93	36	5.2	101	37	5.9	73	1.14	6	450	
MID.	7201	1,207	703	45	26.7	5	67	17	5.3	50	6	7.3	23	1.09	8	600	
FWD.	6365	1,028	693	57	31.0	6	37	10	4.3	29	12	4.9	22	0.80	5	375	
TUTINO	6883	1,288	722	168	28.1	9	64	20	5.3	63	14	5.6	34	0.90	6	450	
	6267	1,259	769	160	31.7	8	86	34	5.9	65	31	5.4	65	0.80	7	525	
	6761	1,220	629	28	29.2	1	44	17	4.9	47	15	5.2	32	1.04	6	450	
	7253	1,662	855	235	29.6	15	94	37	5.5	81	30	5.7	67	1.04	5	375	
	6545	1,354	754	46	27.2	5	67	16	5.8	51	13	4.6	29	0.96	6	450	
	7702	1,835	817	97	29.4	7	73	31	5.7	68	27	5.9	58	1.25	5	375	
	6528	1,286	719	96	26.4	8	66	27	5.1	57	23	5.4	50	0.80	5	375	
	7410	1,396	660	61	26.9	5	58	22	4.8	80	26	5.1	48	1.24	4	300	
	6586	1,387	768	97	29.2	6	57	19	4.6	51	17	5.1	36	0.96	7	525	
	6732	1,479	777	69	29.7	6	82	28	5.1	75	35	6.4	63	0.88	8	600	
	6525	1,387	635	0	25.0	0	56	11	4.5	47	17	5.6	28	4.59	4	300	
	6327	1,360	772	134	28.0	10	85	33	5.4	68	30	5.4	63	0.71	8	600	
	6526	1,344	733	207	29.5	9	63	21	5.2	53	20	7.2	41	0.70	4	300	
	6715	1,309	619	37	29.1	4	67	19	4.4	56	19	6.1	38	0.87	6	450	
	5468	458	105	19	29.8	2	71	21	4.7	53	12	5.2	33	0.70	3	210	
	3809	844	575	8	25.4	1	31	9	4.1	12	5	3.9	14	0.43	3	150	
	6790	1,081	256	2	25.4	1	81	25	4.5	93	35	7.9	60	1.21	6	420	
	4604	1,167	648	36	28.7	3	43	12	4.4	38	10	4.6	22	0.50	4	200	



# MONITORING PROCESS



## Weekly monitoring report

Legend.

Current test. • Average of Previous • ▲▼ changes

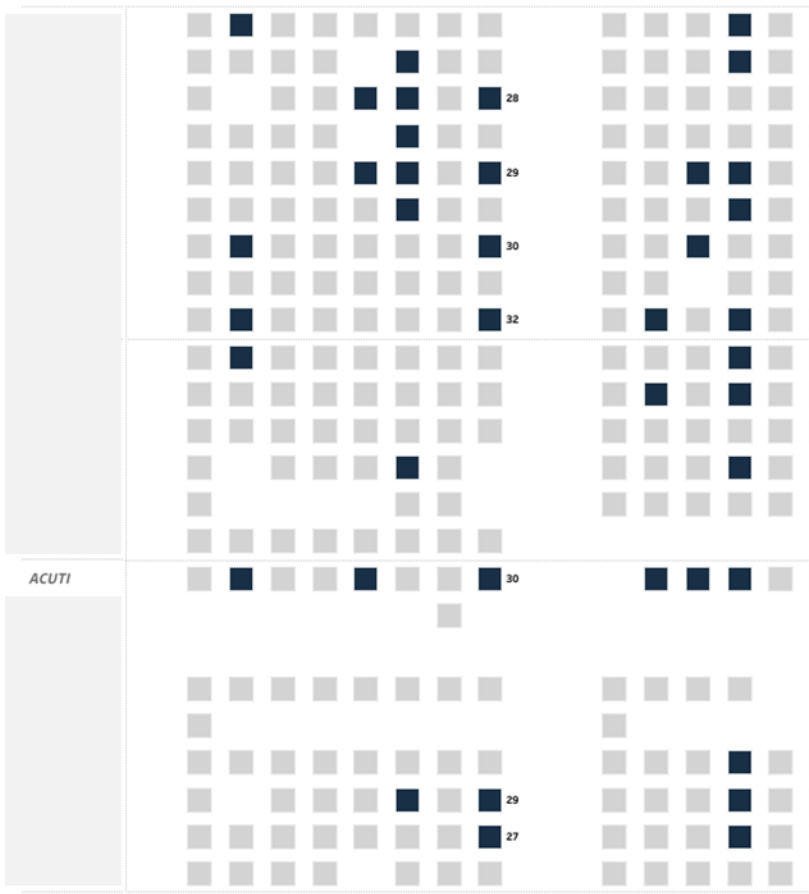
Date Selected  
17/10/2022

Team Selected  
WOMEN TEAM

Player Display Name  
Multiple values

Did the players reached 90% of their max speed recently?

Yes • No



Players	Last 7 days (sum)				Neuromuscular (Box to Box)		Fitness (Sub. max Run)		Subjective (Wellbeing)		Recovery (TQR)	
	TD	19.8	25.2	MW	Current - Previous	Current - Previous	Current - Previous	Current - Previous				
DEF.	41.601	1.940	243	333	1,36	1,33	168	169	12	11	7	7
	43.625	1.587	180	304	1,37	1,44 ▼	159	159	19	12 ▼	4	6 ▼
	49.787	1.297	82	170	1,47	1,70	156	133	15	12 ▼	4	5 ▼
	24.467	452	36	123	1,62	1,76	160	167	15	12 ▼	4	5
	45.797	1.181	87	195	1,41	1,50 ▼	148	157	19	14 ▼	3	5 ▼
MID.	37.972	712	56	105	1,81	2,13	152	167 ▼	18	14 ▼	3	5
	41.367	1.206	168	134	1,42	1,56	165	164	12	13	7	6
	18.587	821	136	109	1,48	1,73	174	175	12	13	7	6
GEMMA PUNTONI	37.300	1.078	117	143	1,52	1,52	158	161	14	13 ▼	4	5
	43.011	821	76	147	1,59	1,75	161	161	12	12	5	5
FWD.	24.760	892	140	179	1,48		168		13		5	
	34.002	697	78	168	1,56	1,53	179	173	19	11 ▼	3	5
	44.089	905	44	279	1,61	1,60	138	140	7	11	7	6
	22.486	371	5	80	1,15	1,30	170	164	12	13	5	5
	28.138	719	60	141	1,51	1,69	132	71 ▲	14	15	6	5

Day of Date (Uc008 Daily Training Data) [2022]

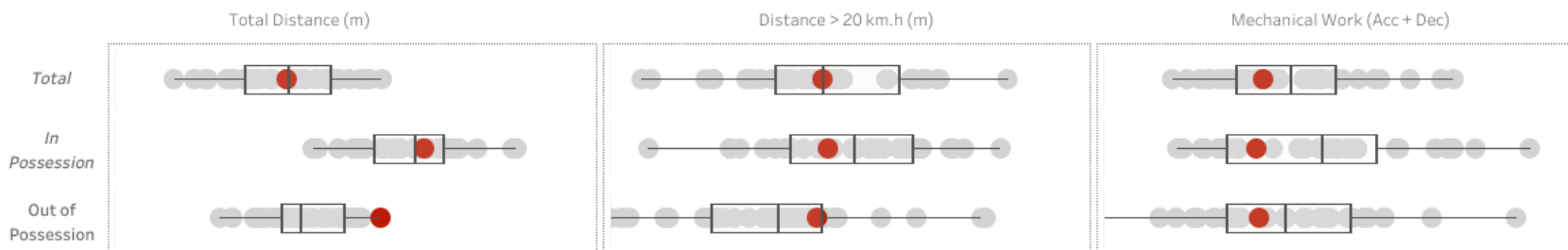


# PHYSICAL MATCH REPORT



## POST-GAME REPORT • EXECUTIVE VERSION

Serie B • 12-08-2022  
Parma Calcio 19 vs Bari



Parma Calcio 19											Bari											
Player	Global				In Possession			Out of Possession			Player	Global				In Possession			Out of Possession			
	TP	TD	HS	MW	TD	HS	MW	TD	HS	MW		TP	TD	HS	MW	TD	HS	MW	TD	HS	MW	
<b>Team Total</b>	95	109,005	7,249	217	133	9.6	0.15	153	14.4	0.22	<b>Team Total</b>	99	105,387	6,898	245	136	12.0	0.19	140	10.4	0.23	
Romagnoli	99	9,934	533	15	113	2.3	0.10	147	15.1	0.15	Bosisio	7	538	60	3							
Valenti	99	9,671	418	16	111	2.6	0.07	143	10.6	0.15	Di Cesare	99	9,139	286	13	108	2.4	0.11	129	6.5	0.14	
Benedyczak	25	2,998	239	7	147	16.0	0.15	173	17.8	0.00	Terranova	99	9,739	261	18	118	1.0	0.04	134	7.3	0.21	
Inglese	60	6,600	468	12	129	7.6	0.12	151	18.3	0.18	Antenucci	92	9,495	723	28	137	18.6	0.42	123	6.1	0.14	
Del Prato	99	10,763	771	22	129	10.4	0.10	150	14.6	0.26	Botta	74	8,417	671	24	154	17.9	0.19	141	10.6	0.40	
Oosterwolde	99	10,598	811	21	127	9.1	0.10	150	17.1	0.29	Cangiano	14	1,693	128	2	172	19.2	0.35	177	13.6	0.00	
Bernabé	74	8,769	513	12	149	11.3	0.18	165	10.9	0.19	Cheddira	85	9,233	808	29	146	20.9	0.29	134	9.2	0.28	
Estévez	48	5,803	422	10	144	6.8	0.07	181	25.8	0.26	Galano	14	1,555	123	3	178	19.2	0.35	138	10.2	0.00	
Juric	51	6,493	502	11	147	7.1	0.13	179	23.8	0.32	Pucino	99	9,779	674	22	125	13.3	0.18	132	9.8	0.21	
Sohm	39	4,423	272	8	134	7.1	0.09	163	16.0	0.18	Ricci	99	10,462	810	32	130	12.5	0.18	144	14.0	0.38	
Vazquez	78	8,810	360	18	141	7.9	0.21	145	6.9	0.13	Folorunsho	85	9,071	702	24	134	13.7	0.20	139	12.6	0.20	
Camara	25	2,790	330	12	142	28.4	0.31	160	18.9	0.58	Maiello	99	12,047	614	21	151	5.9	0.11	168	14.0	0.21	
Man	74	7,807	580	16	130	16.6	0.18	138	8.4	0.19	Maita	99	11,359	802	21	152	12.4	0.11	151	13.7	0.24	
Mihaila	99	11,454	906	32	147	16.8	0.28	154	13.1	0.29	Mallamo	25	2,860	236	5	153	24.2	0.29	156	8.7	0.15	
Tutino	20	2,092	124	5	138	13.1	0.38	144	10.8	0.00												

### PARMA'S TOP 3

Total Distance		High Speed Distance		Mechanical Work	
Del Prato	10,763	Mihaila	906	Mihaila	32
Mihaila	11,454	Oosterwolde	811	Del Prato	22
Oosterwolde	10,598	Del Prato	771	Oosterwolde	21



# WEEKLY LOAD REPORTS



## Parma Calcio 1913 ANALYSIS OF WEEKLY TRAINING LOAD

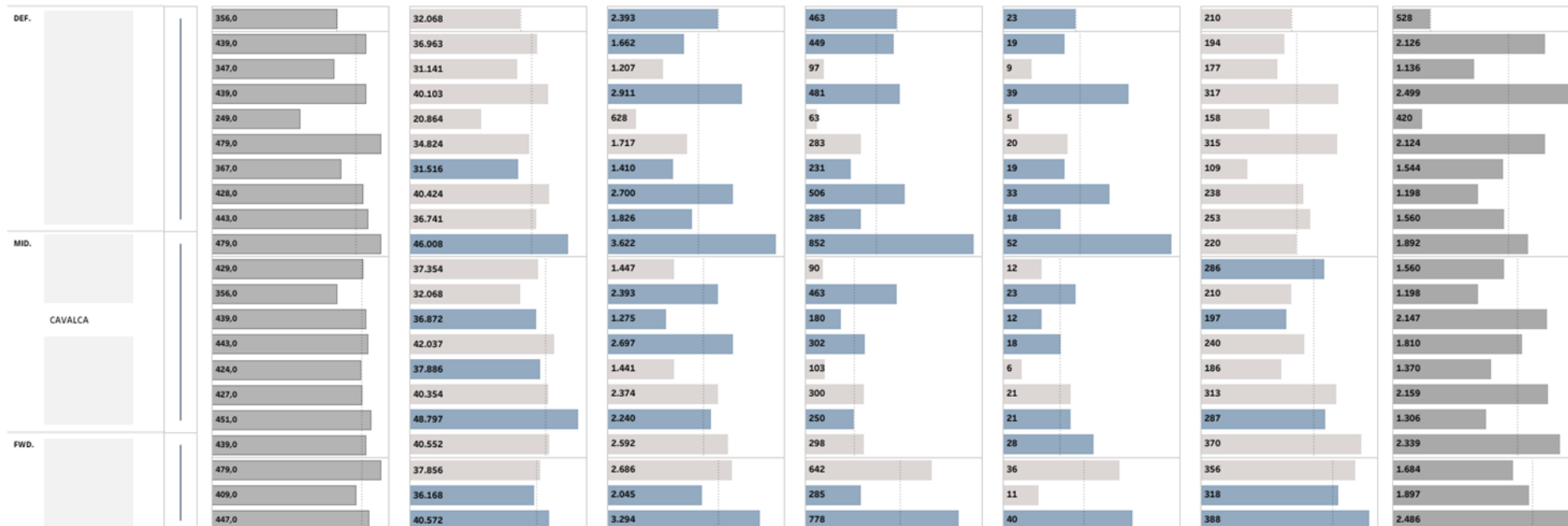
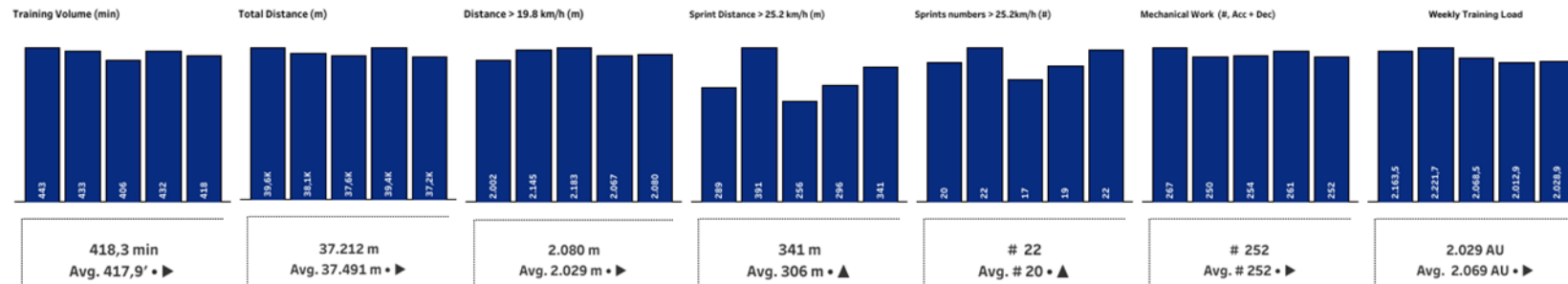
Team  
PRIMAVERA U19

team\_training  
PRIM

Player  
All

Data Selected  
12/03/2023

Week Start Parameter  
06/03/2023





# PHYSICAL TESTING



## FITNESS TESTS RESULTS PER TEAM

TEAM: U18 • PERIOD: Jan-23 - Mar-23

### Legend

- ▲ - 20% of best performance.
- ▼ - 20% of worst performance
- Skinfolds - < 50 • > 60

Tests Start  
Jan-23

Select a Team  
U18

Tests End  
Mar-23

Position selected  
Tutte le posezioni

PLAYER	AGE (Y)	WEIGHT (KG)	HEIGHT (CM)	SUM 8 SKINFOLDS (MM)	30-15 IFT (KM/H)	10 M (S)	30 M (S)	JUMP HEIGHT (CM)	RSI mod (M/S)	CON. POWER / BM (W/KG)
P	17.8	78.8	179.5	78.0		1.68	4.06	38.6	0.44	28.7 ▼
	17.5	72.5	184.5	48.8 ▲		1.59 ▲	3.92 ▲	50.4 ▲	0.55 ▲	35.7 ▲
	17.6					1.76 ▼	4.29 ▼	33.9	0.48	28.8 ▼
	17.7	77.0	188.5	55.8		1.63	4.05	41.4 ▲	0.55 ▲	30.5
D CONDE BERNARDO	16.6	83.4	187.0	65.4		1.69	4.03	30.0 ▼	0.38 ▼	28.4 ▼
	17.3	68.9	186.0	56.0 ▼		1.64	4.03	29.7 ▼	0.37 ▼	24.0
						1.64	4.04	36.1	0.50	30.5
	17.3	77.3	200.0	46.4 ▼		1.62 ▲	4.04	34.5	0.50	26.5
	17.7	75.4	186.5	53.8		1.63	4.00	33.8	0.52	28.5
	17.8	71.5	177.0	54.8 ▲		1.66	3.98 ▲	42.5 ▲	0.57 ▲	32.5
	17.1	69.8	174.0	56.2						
C	17.6	69.7	172.0	49.0		1.76 ▼	4.20 ▼	35.3	0.48	27.2
	16.9	74.2	187.0	66.2 ▲		1.64	4.01	32.0 ▼	0.49	32.5 ▼
	17.8	65.4	176.5	41.9 ▲		1.68	4.07	41.6 ▲	0.60 ▲	31.5 ▲
	16.2	76.4	190.0	54.2 ▼		1.73 ▼	4.21 ▼	37.8	0.52	27.1
	18.0	61.0	170.5	48.0 ▼		1.70 ▼	4.14 ▼	28.6 ▼	0.38 ▼	24.6
	18.0	70.1	183.5	50.6		1.66	4.06	33.4	0.46	28.1
	18.0	67.5	174.0	67.8						
	17.8	66.2	180.0	60.4		1.67	4.00 ▲	34.2	0.41 ▼	27.3 ▼
	17.8	65.2	179.0	46.2		1.66	4.03	35.7	0.54	31.2 ▲
	18.0	74.1	183.0	68.4						
	17.8	68.4	186.5	44.4		1.60 ▲	3.95 ▲	39.0 ▲	0.54	30.8 ▲
	17.7	68.0	189.0	46.6 ▼		1.73 ▼	4.22 ▼	32.5 ▼	0.40 ▼	26.9
A	17.3	68.4	178.0	51.8						
	17.8	71.1	187.0	49.0 ▲		1.58 ▲	3.95 ▲	37.5	0.60 ▲	33.0



## **Performance & Analytics Department – Origins & Missions**

### **Analytics Unit – Structure & Tasks**

### **Working Hand in Hand – Examples**

### **Future & Perspectives**



# ON-GOING/FUTURE PROJECTS

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**Identifying team formation & shapes**

**Understanding patterns of pressing/counterpressing**

**Detect patterns of passes and runs leading to dangerous situations**

**Calculate risks taken and expected reward from a player**

**Integrating tracking derived metrics (Pitch Control, EPV, ...) in our scouting processes**

**Define set pieces strategies based on tracking and event data**

**Increase awareness via Hackathons, Challenges, Data Sharing, etc**





**Grazie mille!**  
**Questions?**

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