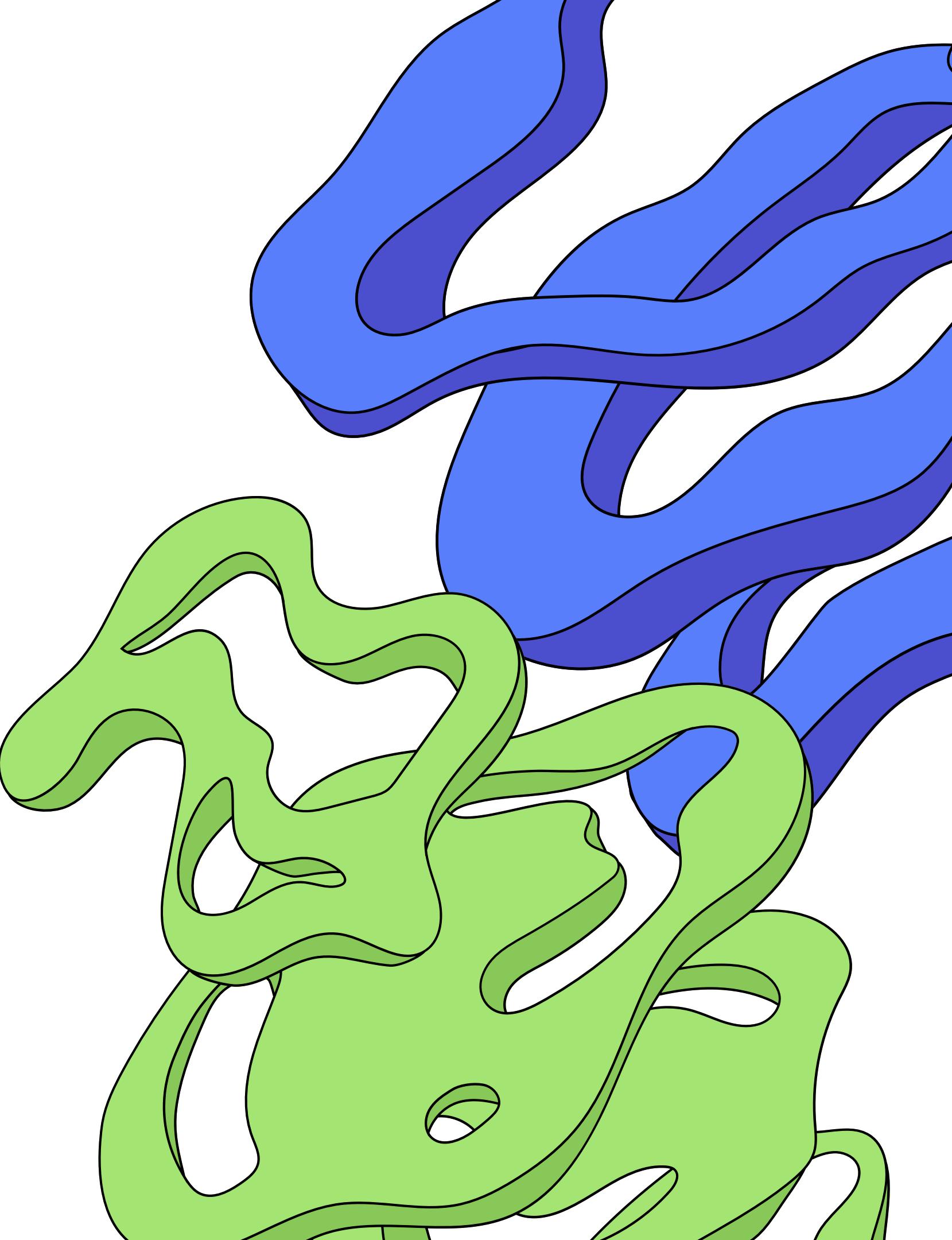
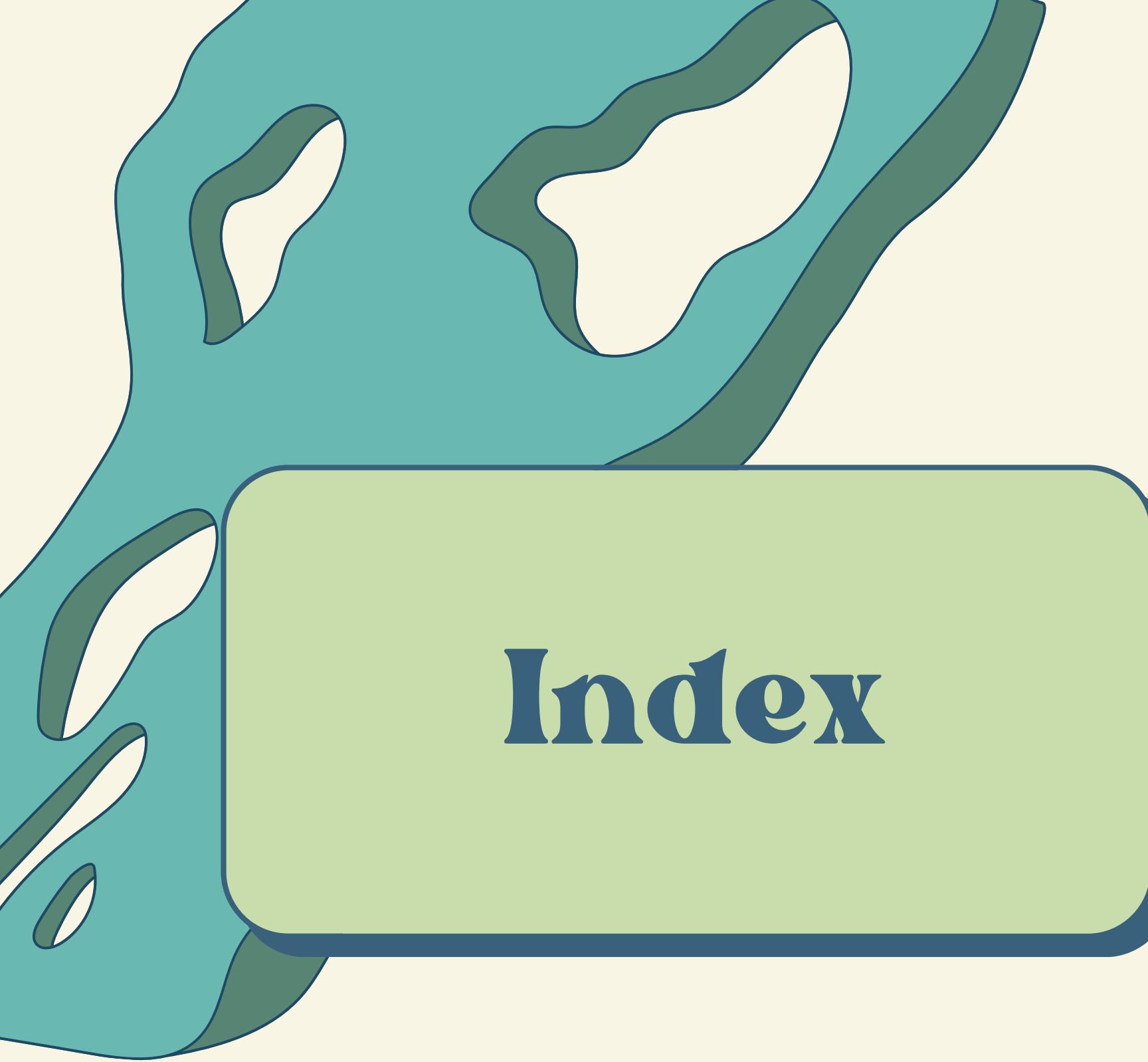


BALL AND PLAYERS TRACKING IN PADEL MATCHES VIDEOS

Andrea Cauda - s343386
Davide Tonetti - s334297
Antonio Visciglia - s346837

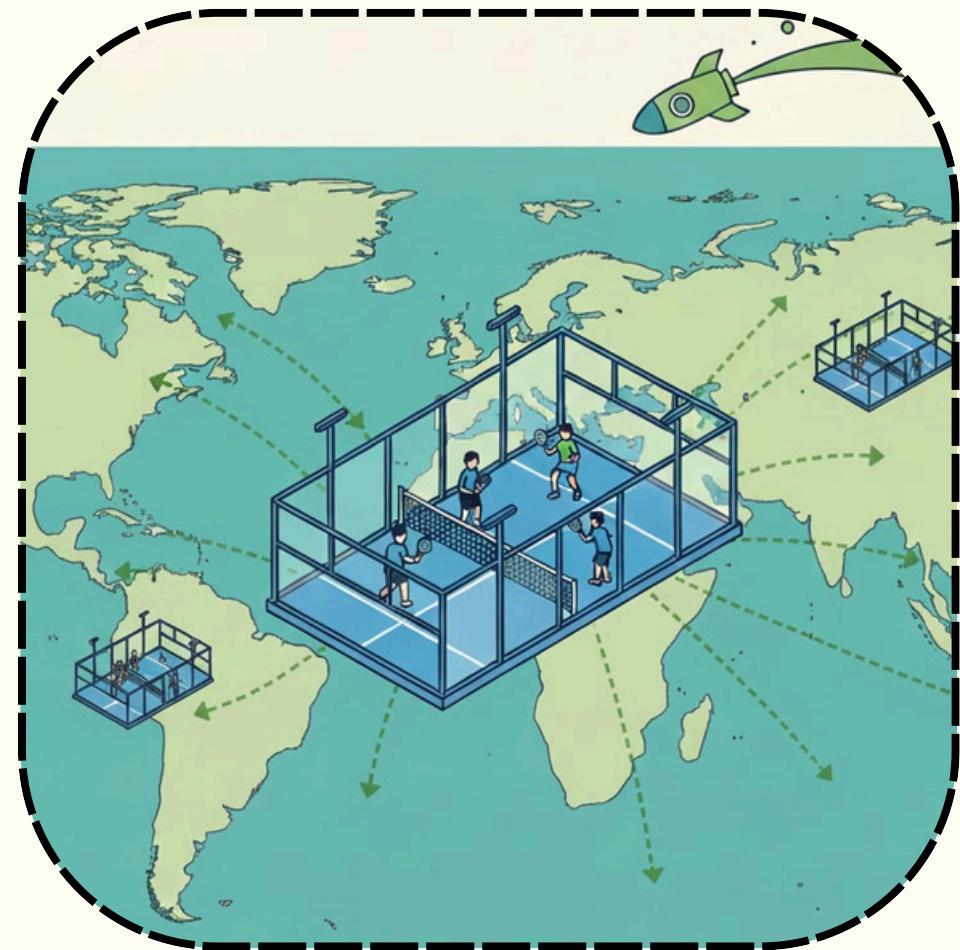




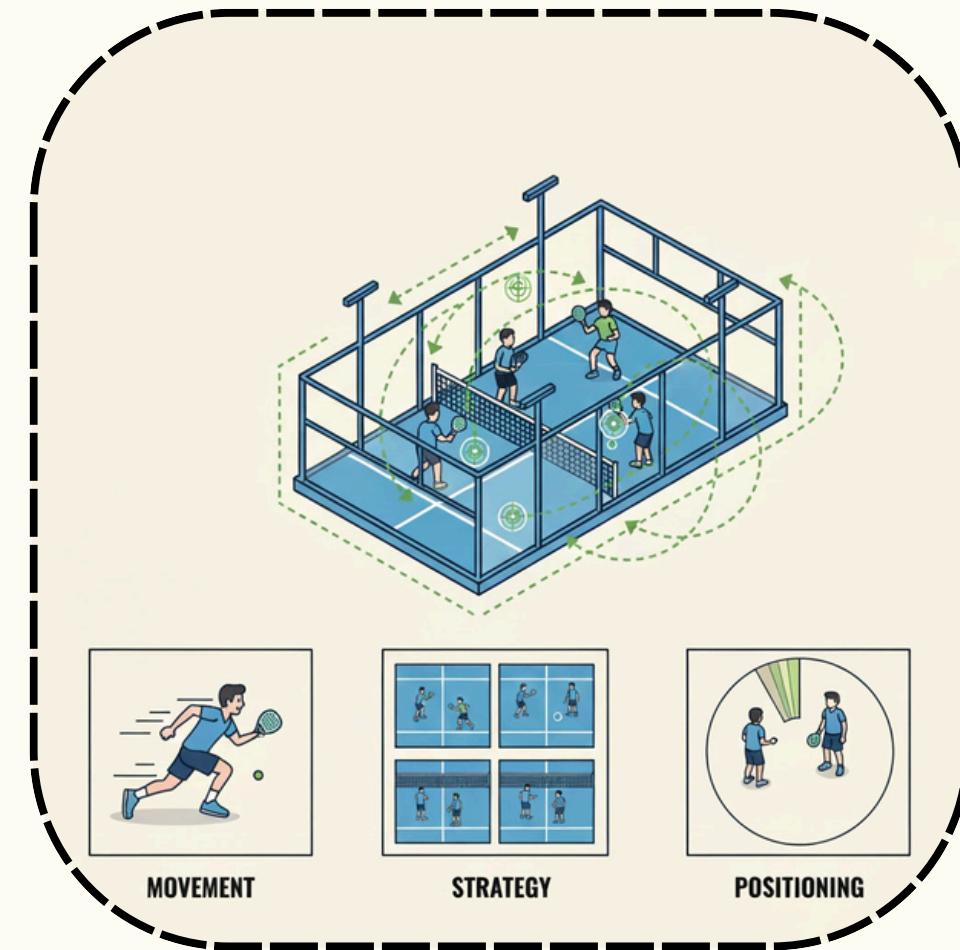
Index

- Context
- Problems
- Solution
- SDG Goals
- Stakeholders
- Personas
- Functional requirements
- Functional diagram
- Risk and challenges
- Management

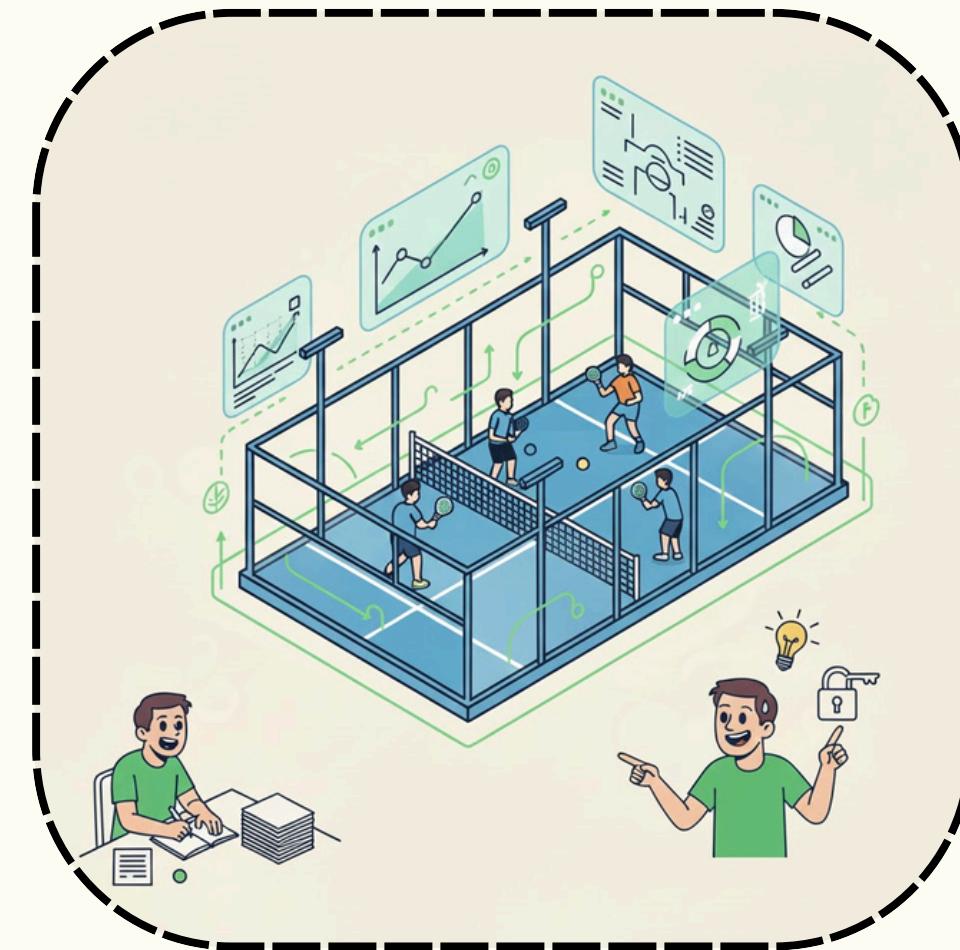
Context



**Fastest-growing racket
sport globally***



**High-speed, complex
interactions**

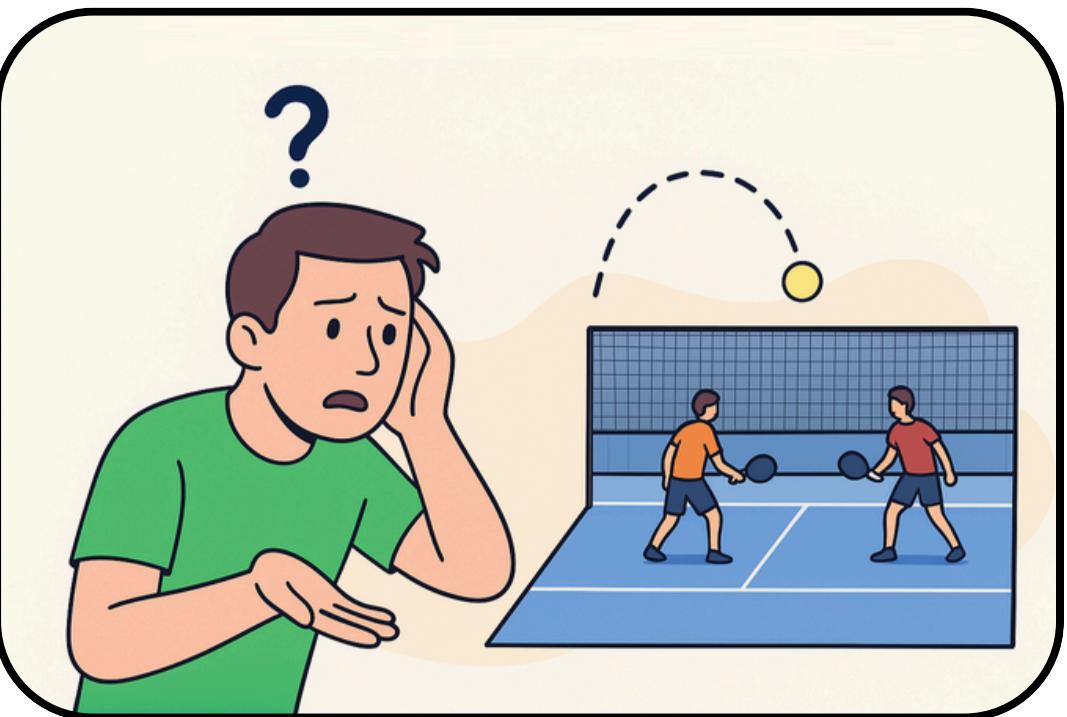


**Opportunity for data-driven
improvement**

Problems



Slow manual analysis



Hard to track objects



No automated insights

Solution

An AI-powered computer vision system for ball and players tracking

↑ Tactical preparation, performance evaluation, data-driven coaching, engaging visual analytics



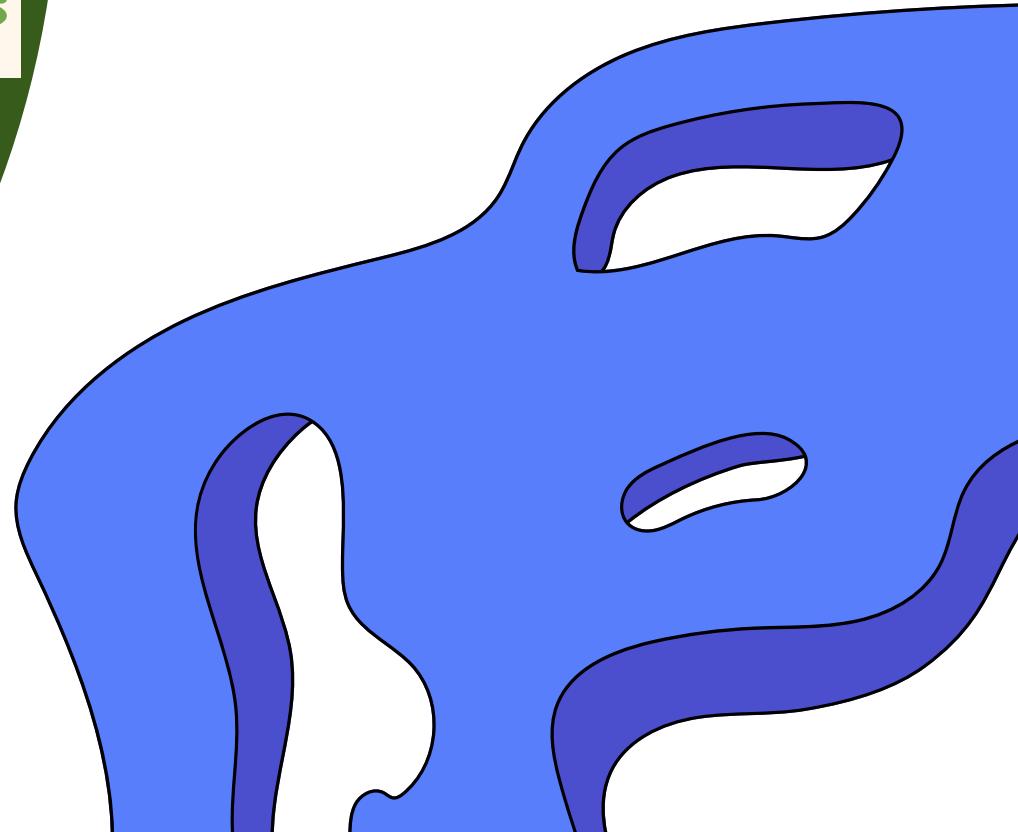
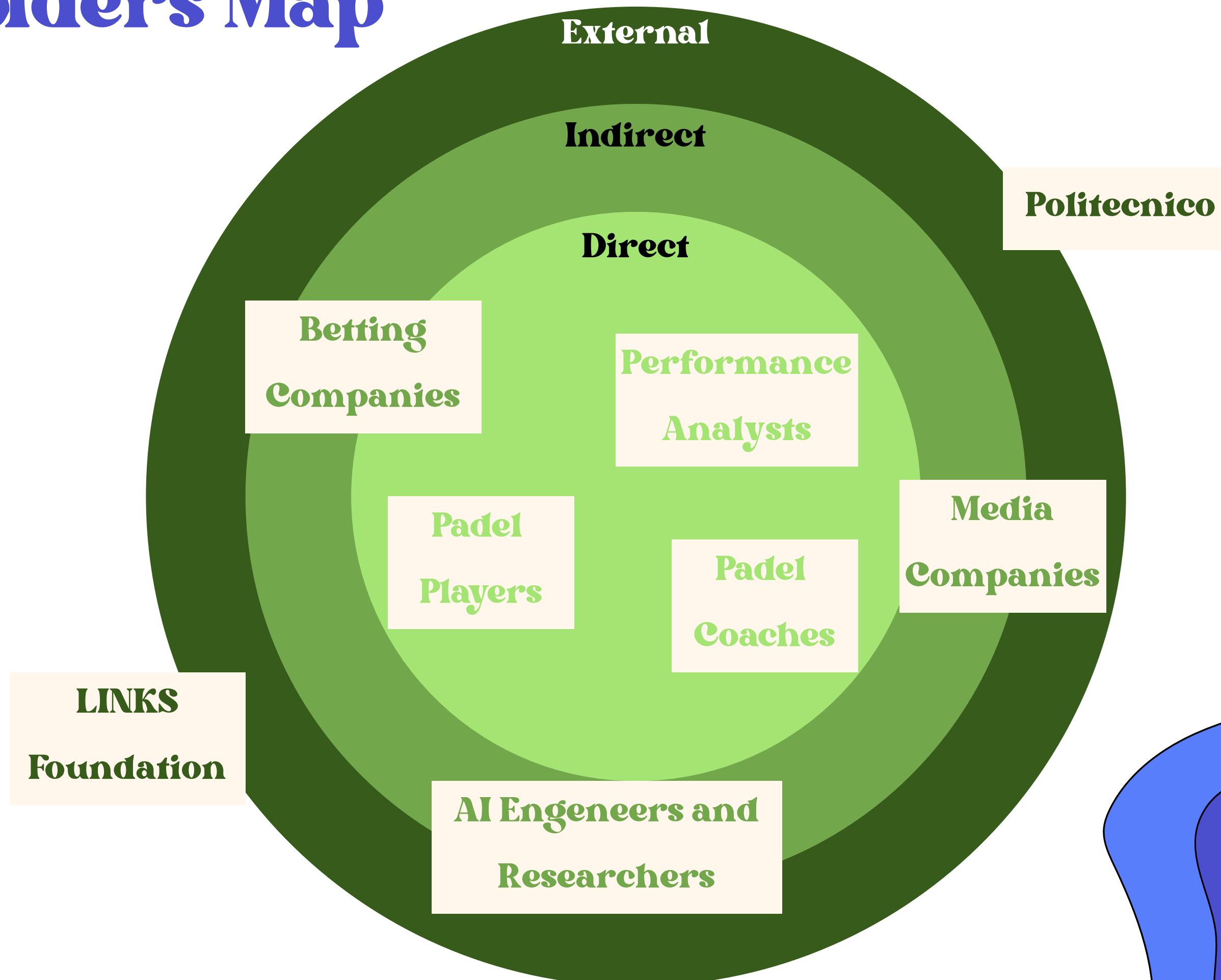
SDG Goals



- Promoting activity
- Technological advancement
- R&D investment
- Digital infrastructure



Stakeholders Map



The Personas



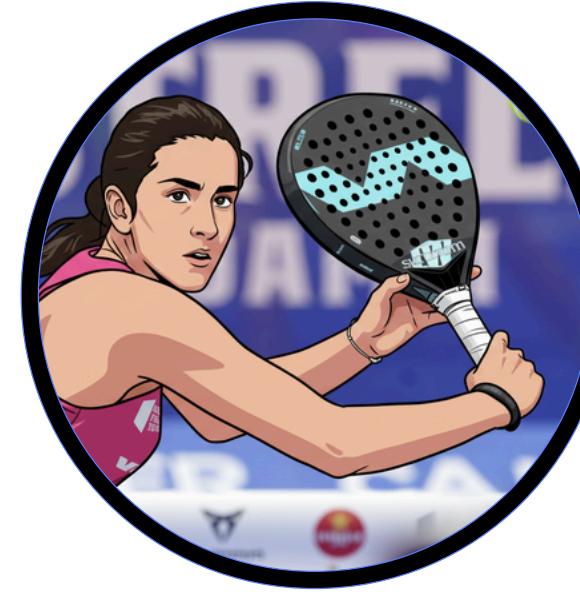
Mauro Martini

*Padel Performance
Analyst*



Antonio Mazzarri

Head Coach



Stella Paolini

*Professional Padel
Player*

Goals: They want to improve athlete performance, optimize training time and maximize the effectiveness of his/her practice translating it in competitive performance

Pain Point: Traditional video analysis is subjective and time consuming, the athlete needs data that isolates well one variable/flaw in order to focus on it during training and improve performance

The Personas



Sarah Vinci

*Media Company
Manager*

Goal: Reach an higher level of user entertainment and engagement by providing insightful statistics during matches

Pain Point: Lack of meaningful statistics about the players



Nevio Cozzone

*Betting Company
Manager*

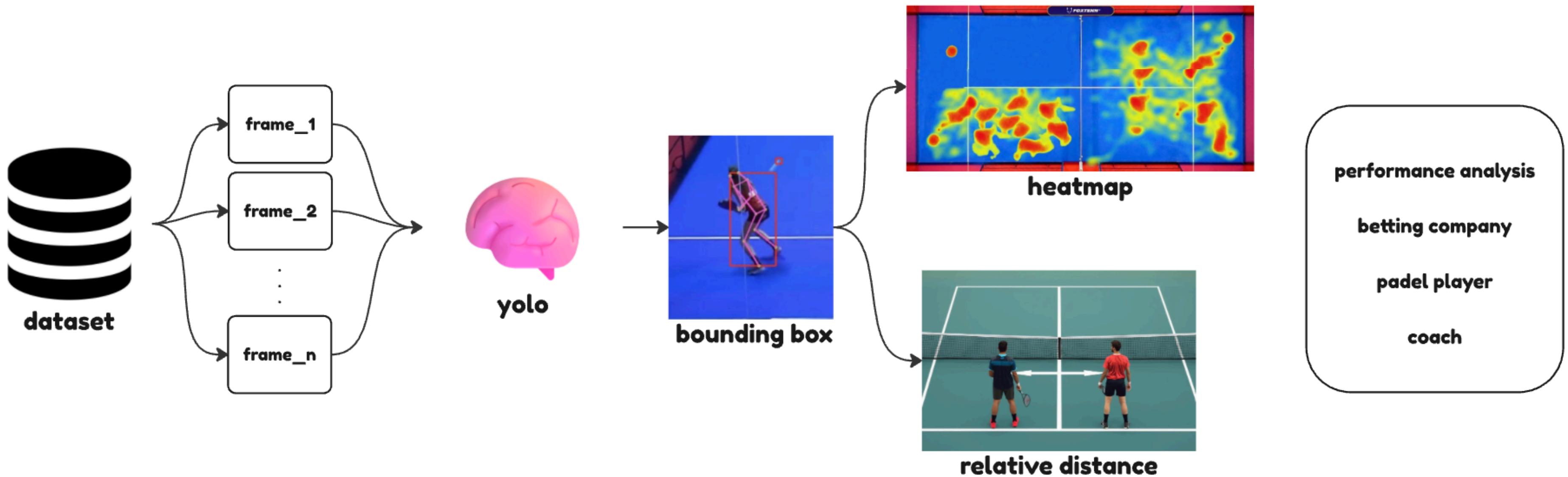
Goal: Be able to evaluate trends and performances of the players to adjust betting quotas

Pain Point: Lack of meaningful statistics about the players

Functional Requirements

Priority	Functional	Non-Functional
M	Locate: the model must be able to consistently locate the ball and the players throughout the videos.	Accuracy: the model must ensure that the statistic produced are accurate and relevant for their scope
S	Project: the model should be able to transform the screen coordinates into real-world court coordinates. Generalize: the model should be able to perform well even on unseen data	Frame Rate: the model should be able to analyze videos with frame rates of up to 30fps
C	Track: the model could be able to track ball and players trajectories	Speed: the model could provide results without requiring excessive amount of time
W	Real time: the model will not be able to analyze data in real time	User friendliness: the model will not be equipped with a user interface

Functional diagram



Risks and Challenges



- **Ball Tracking:** size and speed
- **Inter Player Occlusion:** position of the players
- **Dynamic Background:** viewers/staff
- **Reflection:** glass walls

Management



Development

Started working on the development, functional diagram, and risks and challenges sections.



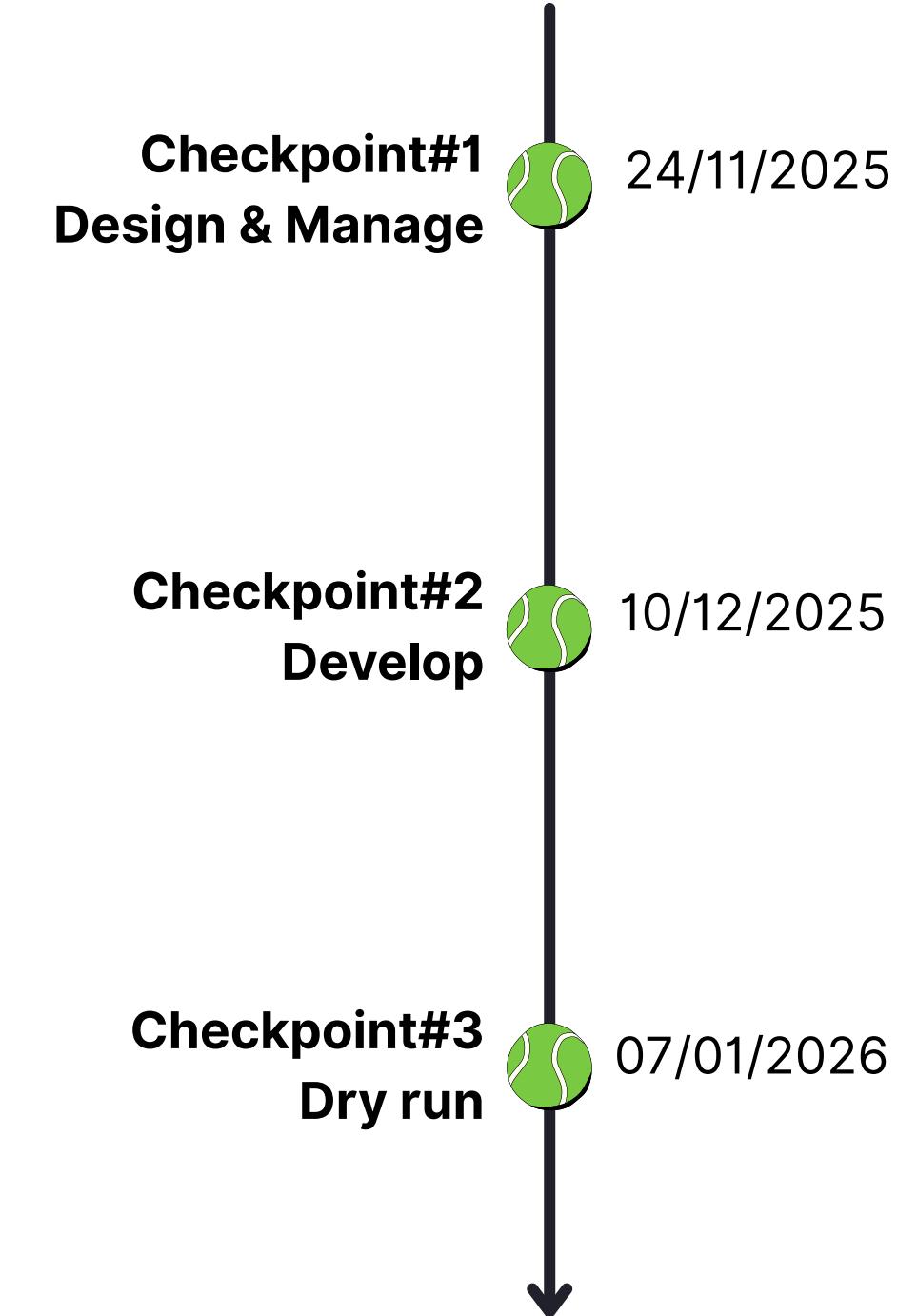
Communication

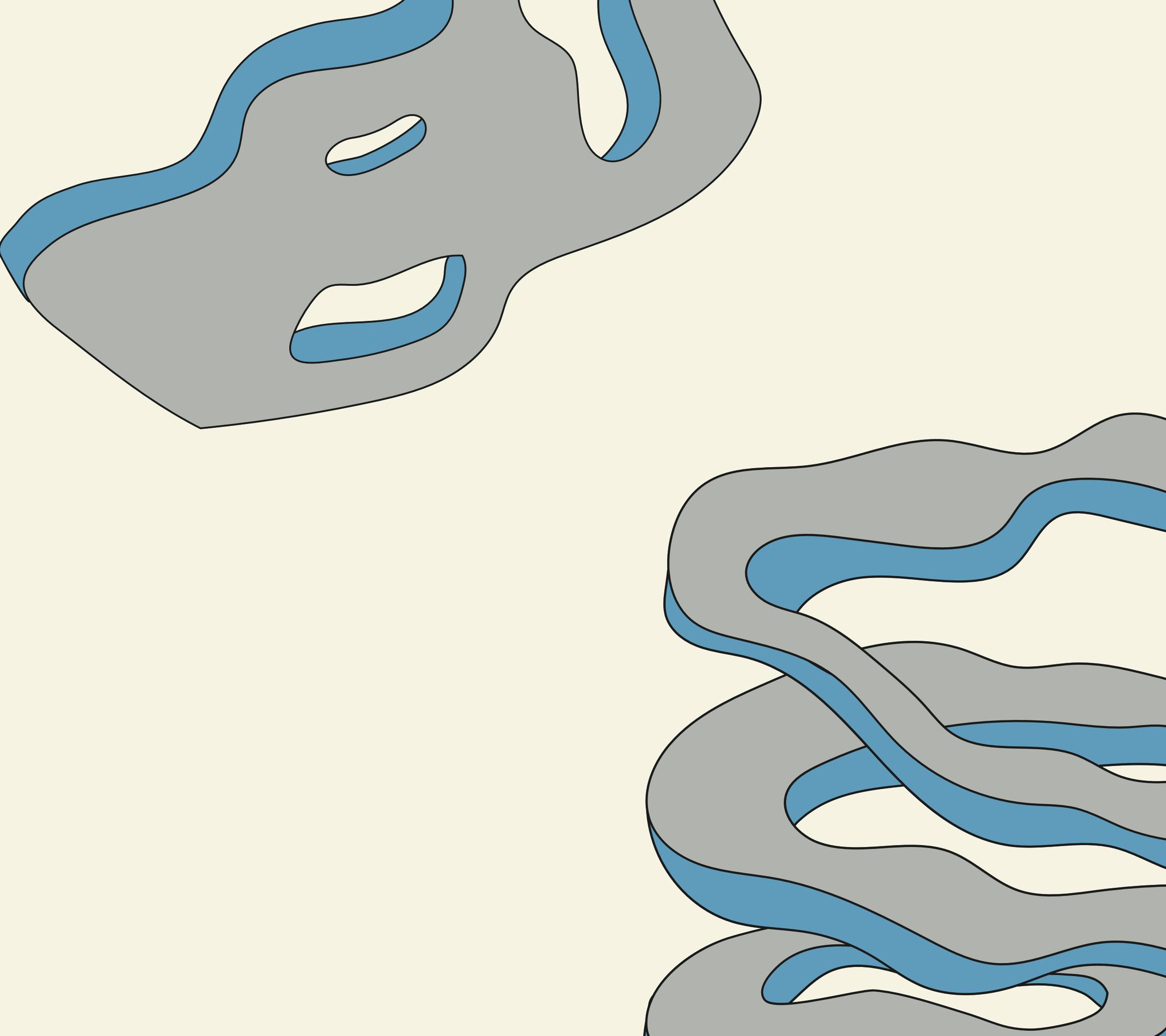
Took care of the presentation's structure and the value proposition of the project.



Design

Worked on the design aspect, therefore stakeholders and user personas.





Thank you!

