

# RECOMMENDATION ENGINES FOR SOCCER TRANSFERS

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## Problem Statement:

- Given a team and a player who is about to leave the team, how can we find the best replacement with given restrictions:
  - Age
  - Salary
  - Transfer\Loan Cost
  - Time constraint (transfer seasons)
  - etc.

## THE NEED:

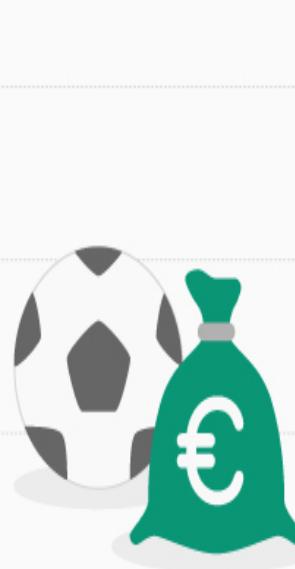
- Soccer clubs spend millions to transfer the most skilled players (transfer fees have increased exponentially within the last decade)
- Only teams with large amounts of revenue can afford players with high transfer fees and salaries
- COVID-19 and the resulting recession have drastically affected team revenues (games are postponed but salaries are still paid)
- Players are protected under strict FIFA rules and teams cannot layoff their players unless they pay the full amount of the contract

#	Player	Age	Market value	Nat.	Joined	Fee
1	 <b>Kai Havertz</b> Attacking Midfield	21	€81.00m		 <b>Chelsea</b>  Premier League	€80.00m
2	 <b>Arthur</b> Central Midfield	24	€56.00m		 <b>Juventus</b>  Serie A	€72.00m
3	 <b>Victor Osimhen</b> Centre-Forward	21	€40.00m		 <b>SSC Napoli</b>  Serie A	€70.00m
4	 <b>Rúben Dias</b> Centre-Back	23	€35.00m		 <b>Man City</b>  Premier League	€68.00m
5	 <b>Miralem Pjanic</b> Defensive Midfield	30	€45.00m	 	 <b>FC Barcelona</b>  LaLiga	€60.00m
6	 <b>Timo Werner</b> Centre-Forward	24	€64.00m		 <b>Chelsea</b>  Premier League	€53.00m
7	 <b>Ben Chilwell</b> Left-Back	23	€40.00m		 <b>Chelsea</b>  Premier League	€50.20m
8	 <b>Mauro Icardi</b> Centre-Forward	27	€60.00m	 	 <b>Paris SG</b>  Ligue 1	€50.00m
9	 <b>Thomas</b> Defensive Midfield	27	€40.00m		 <b>Arsenal</b>  Premier League	€50.00m
10	 <b>Nathan Aké</b> Centre-Back	25	€28.00m	 	 <b>Man City</b>  Premier League	€45.30m

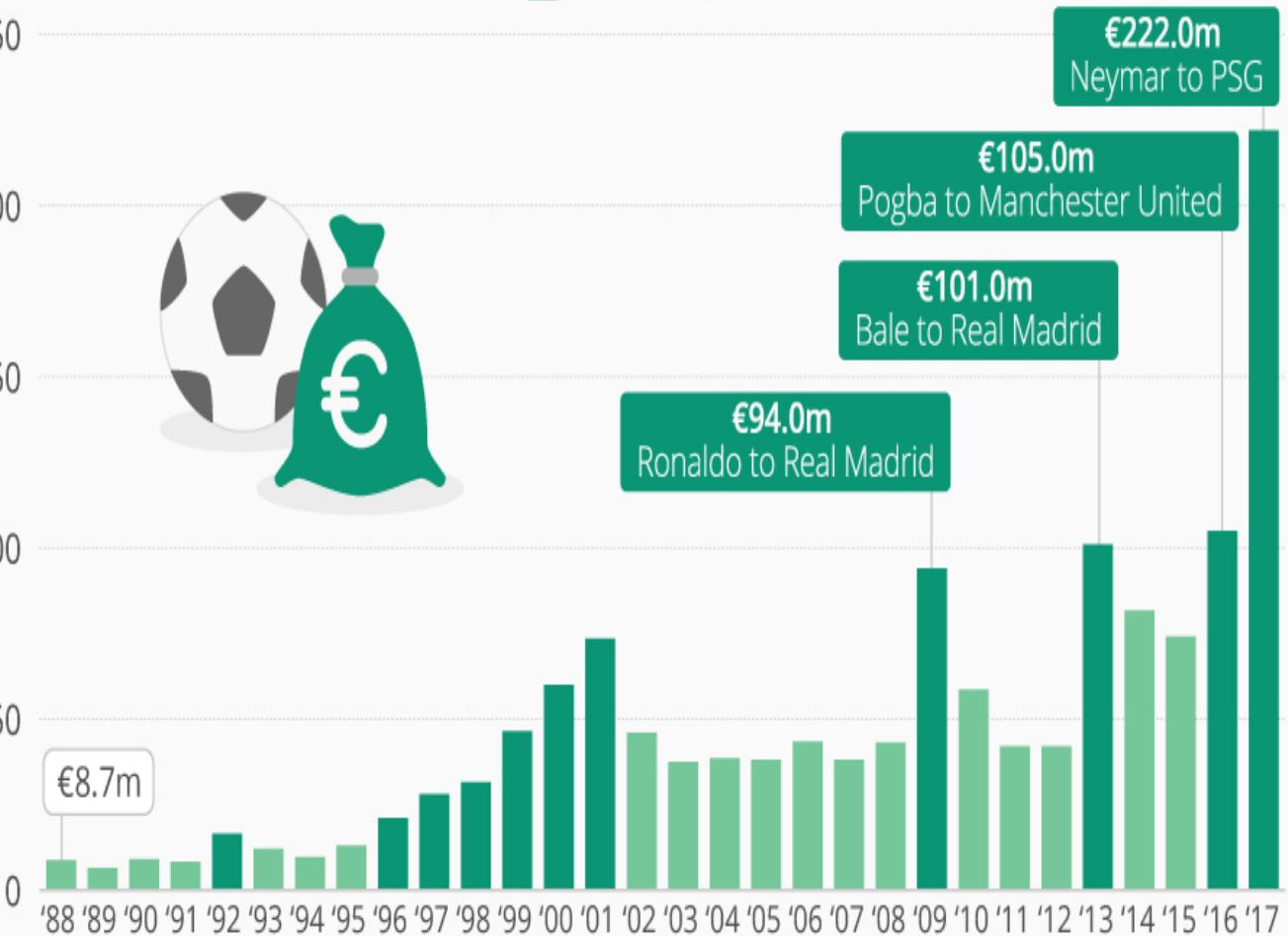
Total : 598.5 M €  
~ 708.68 M \$

# Boy, That Escalated Quickly

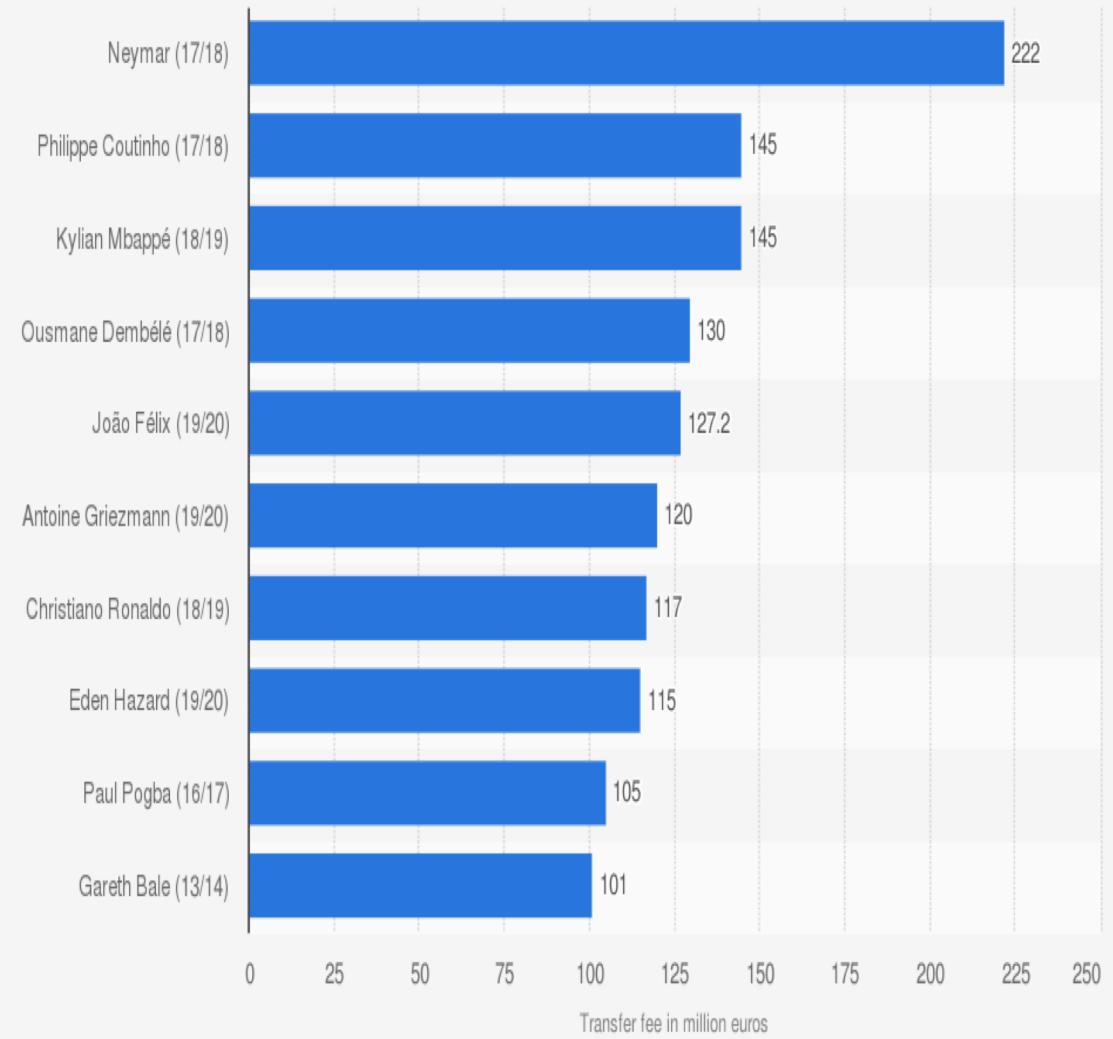
Highest fee paid for a soccer player in each of the following seasons (in million Euros)



New record



Soccer player transfers by highest all-time transfer fee worldwide as of October 2020  
(in million euros)



# Soccer Transfer Fees Reach Record High

Global spending on soccer transfer fees by year (billion U.S. dollars)



Source: FIFA



# The World's Highest-Earning Soccer Players

Soccer players with the highest earnings in 2020\*



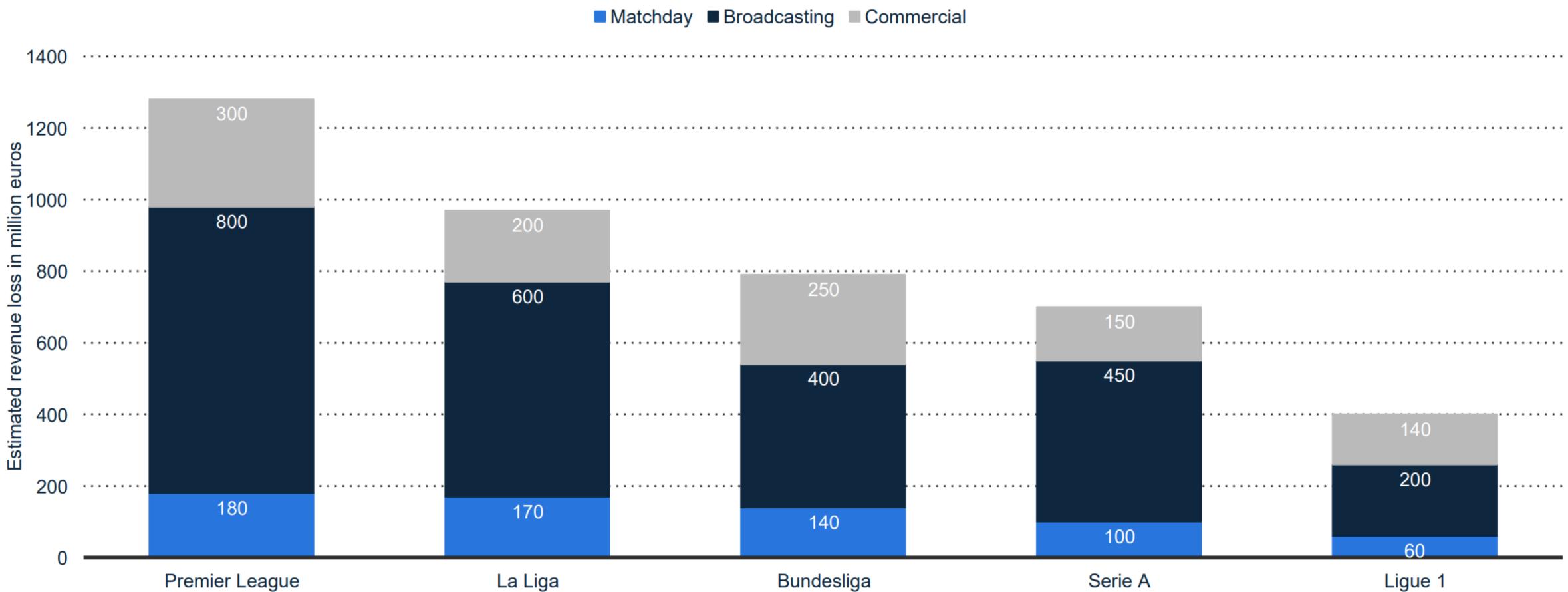
\* Pretax earnings including salary, bonuses and endorsements over the past 12 months (excludes transfer fees).

Source: Forbes



# Potential maximum revenue loss of European football leagues due to the coronavirus (COVID-19) in the season 2019/2020, by source (in million euros)

Potential revenue loss of European football leagues due to the coronavirus



So, now let's imagine Chelsea FC got an offer too good to refuse for N'Golo Kante in the summer 2020 transfer season. We are trying to find a good replacement for N'Golo Kante, but we have limited time and resources as the end of the transfer season approaches and there are a lot of uncertainty due to COVID19 and revenues are plummeting.

Some of the options in hand:

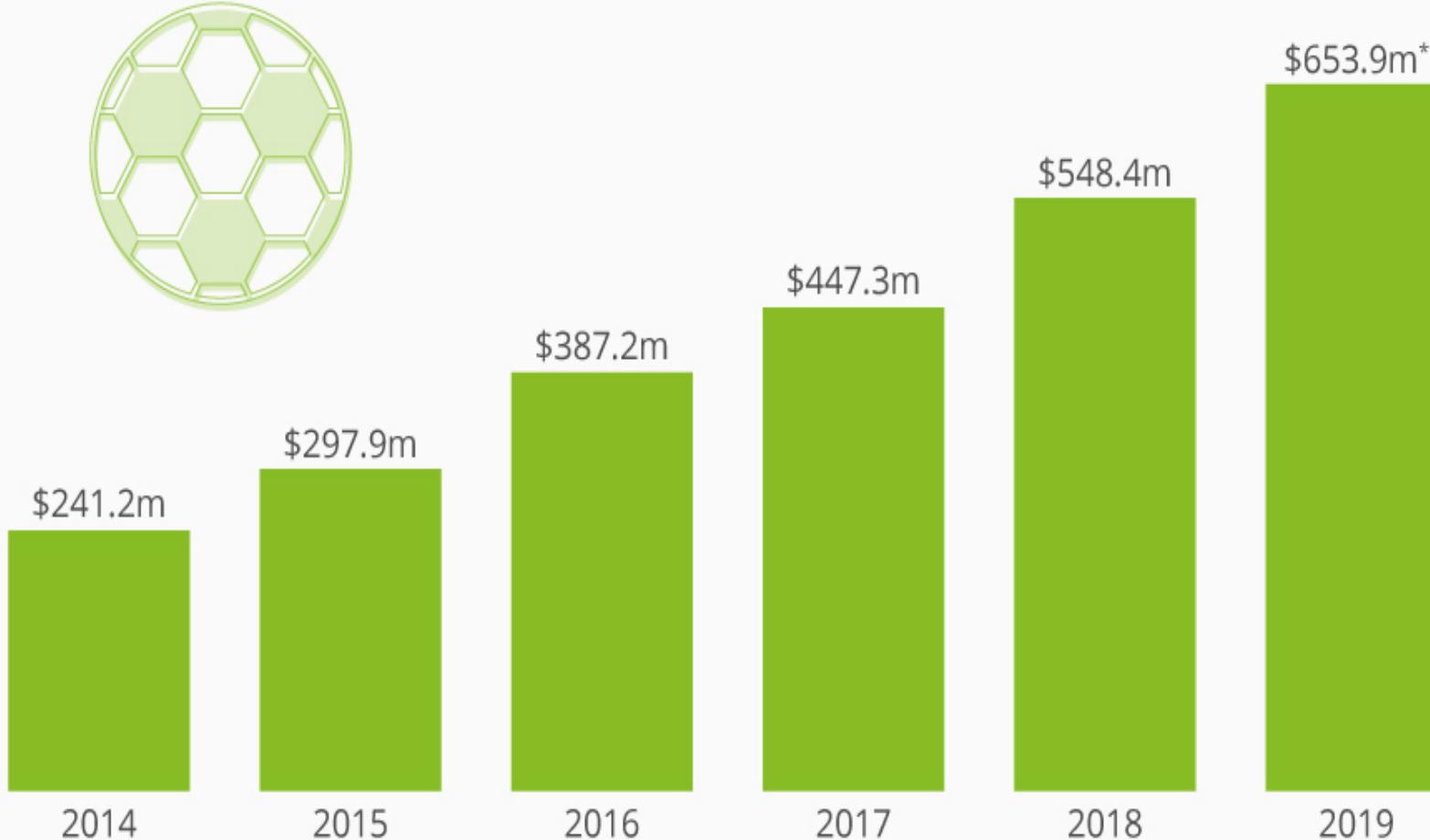
- Contact scouts to watch players that can replace Kanté
- Contact manager agencies to find players with similar skillset

# PROBLEMS WITH ABOVE MENTIONED OPTIONS:

- Scouting is often time consuming, and now impractical
- Manager expenses have skyrocketed within the last decades

# FIFA: Agent Fees Topped \$650 Million In 2019

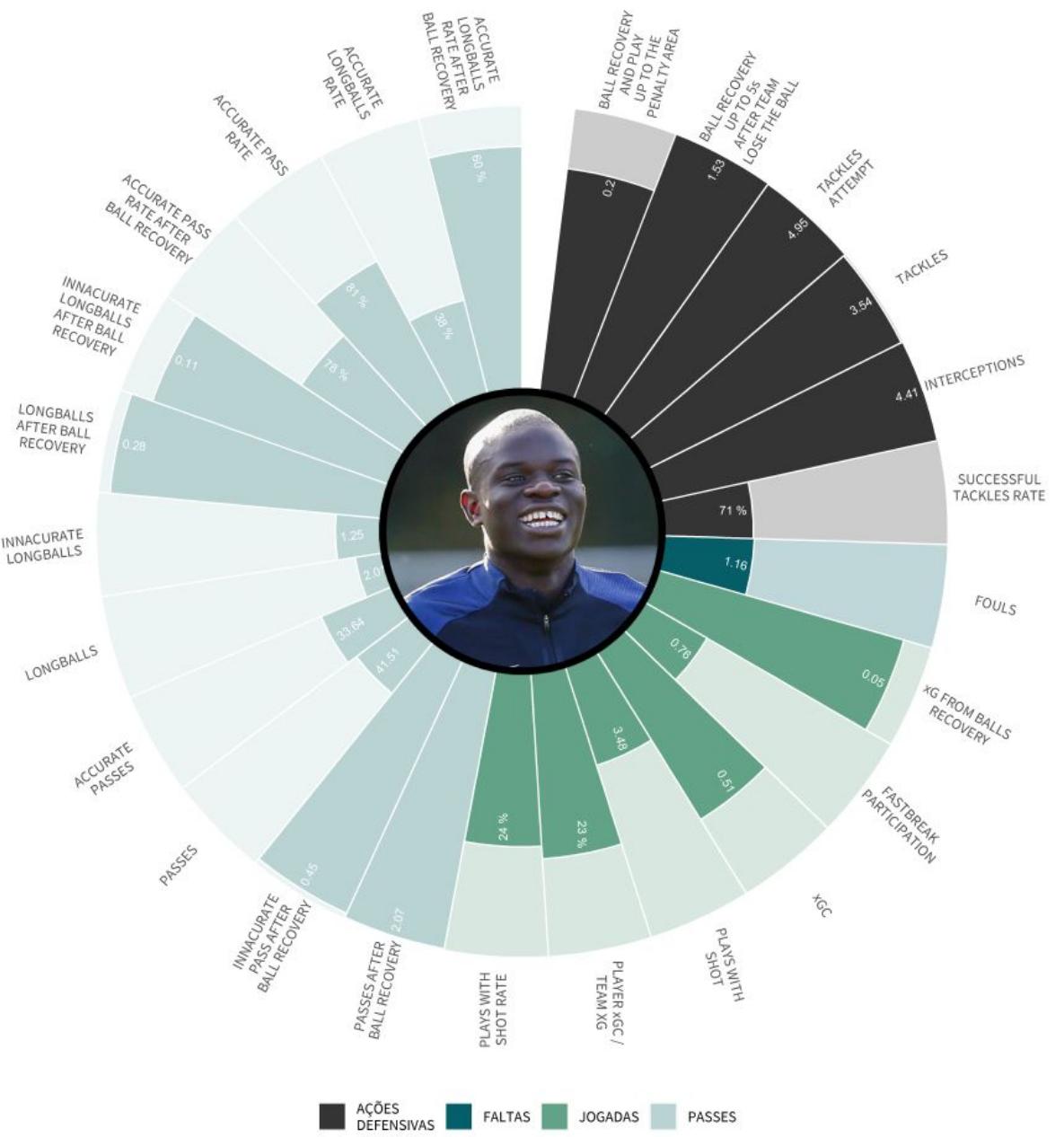
Commissions earned by agents/intermediaries involved in international soccer transfers



# PROPOSAL

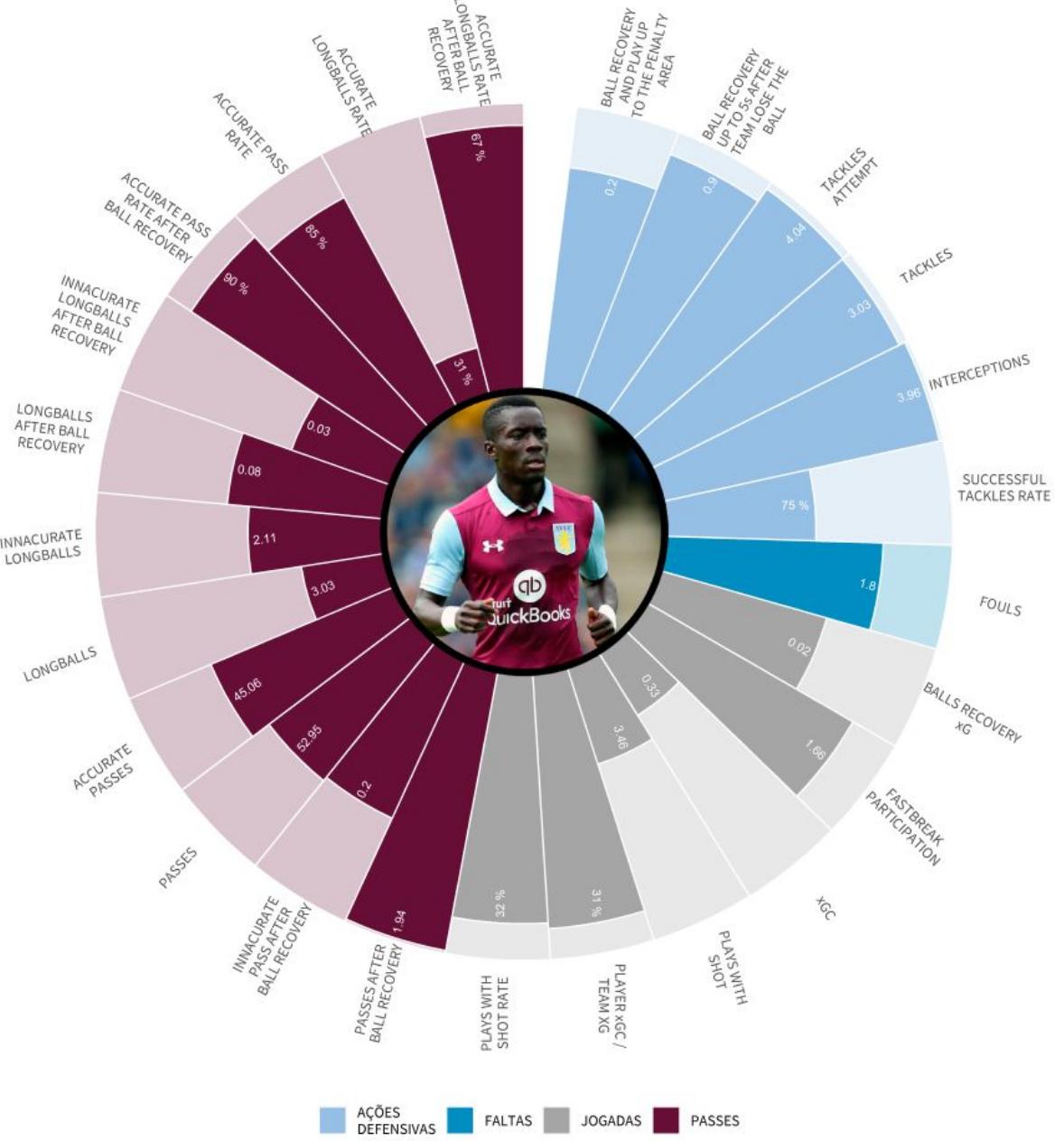
- Utilize Artificial Intelligence and Machine Learning algorithms to reduce the time and capital constraints
- Recommendation systems can be used to help soccer clubs, or scout teams to reduce the eligible options and find an optimal player

# N'GOLO KANTÉ



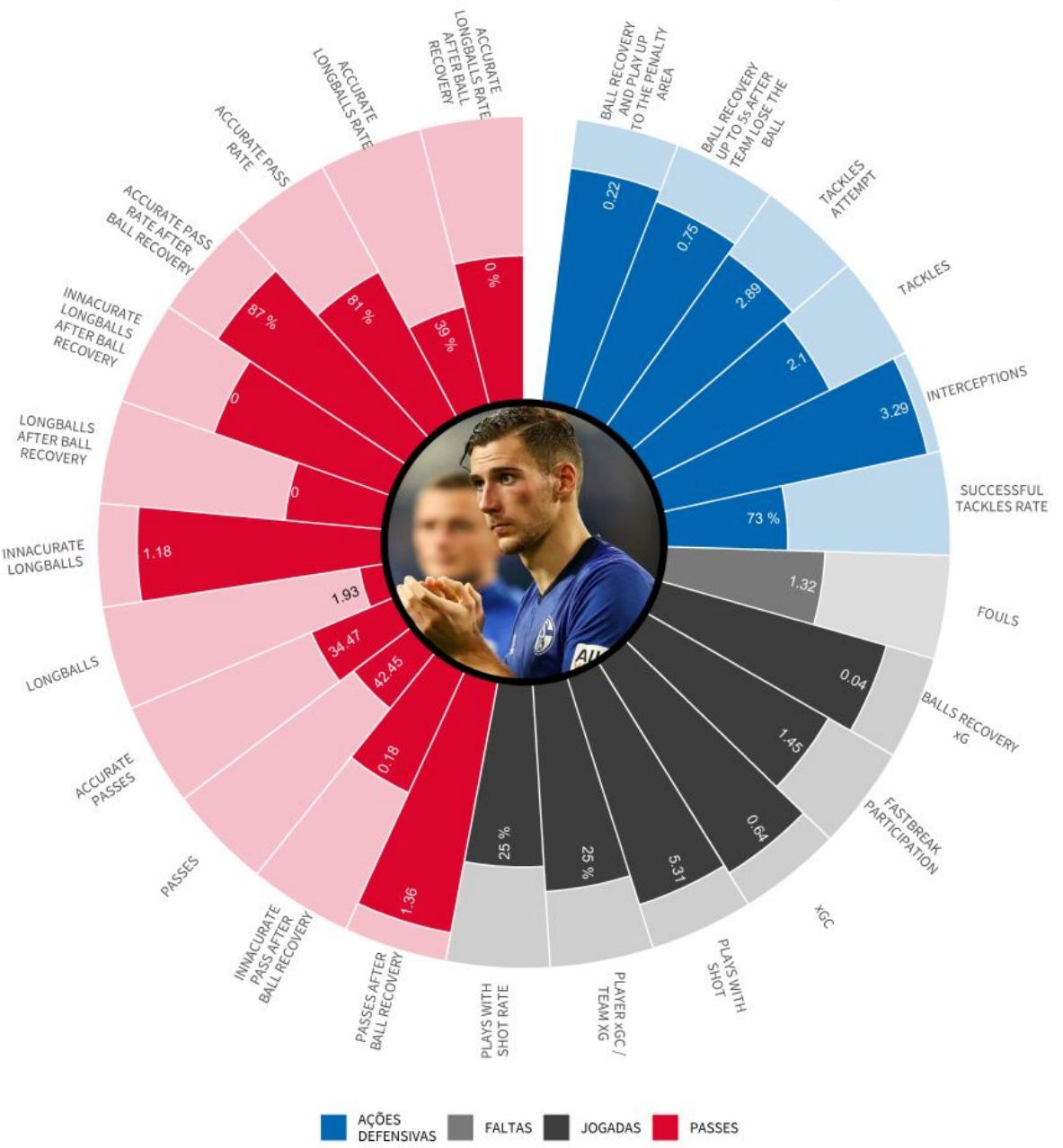
\*ACTIONS PER 90 MINUTES

# IDRISSA GUEYE (ASTON VILLA)



\*ACTIONS PER 90 MINUTES

# LEON GORETZKA (SCHALKE 04)



\*ACTIONS PER 90 MINUTES

# ULTIMATE GOAL OF THE PROJECT

- Create a website using Heroku app and one of the state-of-the-art data visualization dashboards such as Dash, Streamlit, etc.
- Rank similar players depending on given constraints, such as:
  - Age
  - Salary
  - Transfer/Loan Cost
  - Etc.

Example player skills comparison: [Messi vs Ronaldo](#)

# THANK YOU FOR LISTENING!

## References

- 1) <https://www.statista.com/>
- 2) <https://www.somazerofc.com/>
- 3) <https://www.instagram.com/somazerofc/>
- 4) <https://www.transfermarkt.com/statistik/saisontransfers>