Figures and analyses created using R

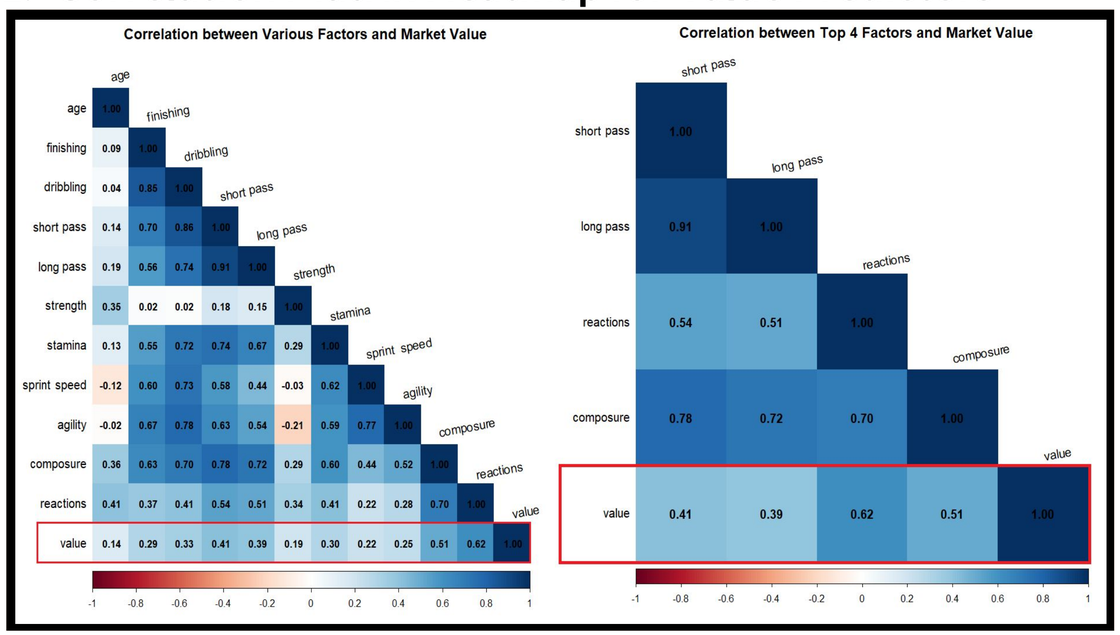
WHAT MAKES A SOCCER PLAYER VALUABLE?

Introduction, Question, and Method

Soccer clubs invest millions of dollars into their players, but what specific skills and attributes contribute to a player's value? By using R to examine a global dataset of **5,682** professional players and their ratings from FIFA analysts, this poster aims to identify factors that impact player valuation. It aims to help analysts and scouts better evaluate players, and provide fans with insights into what makes their favorite players the best.

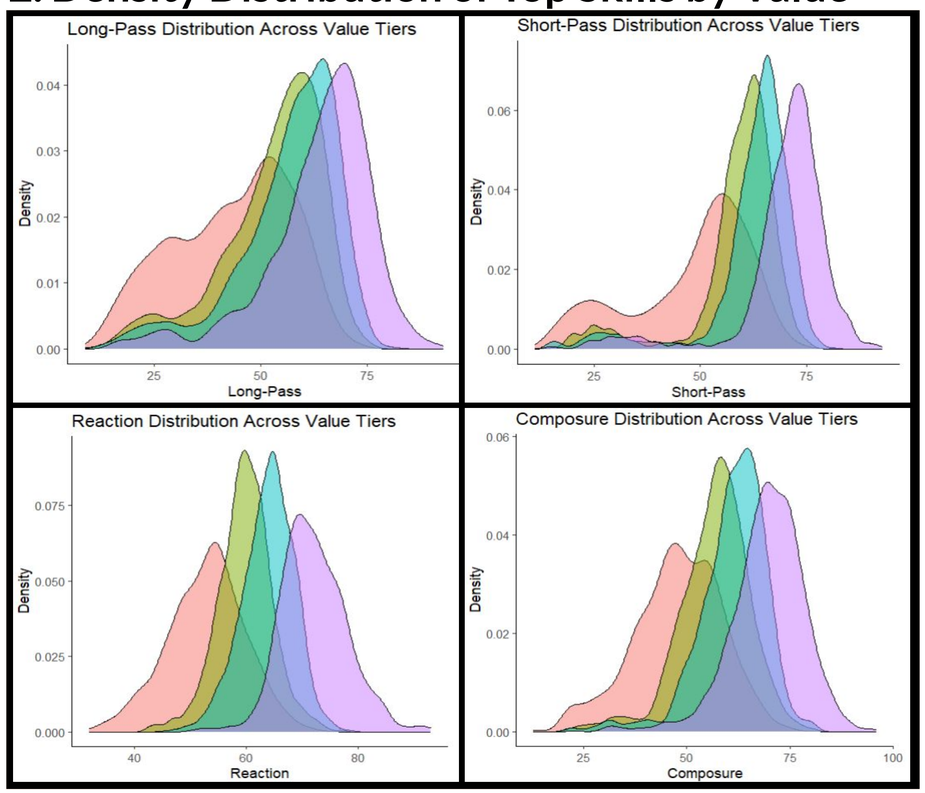
Results and Discussion

1. Correlation Matrix Heatmap for Value Predictors



The heatmap shows that the four factors most correlated with value are reactions **(r=0.62)**, composure **(r=0.51)**, short passing **(r=0.41)**, and long passing **(r=0.39)**. These factors are also highly correlated with each other: Short and long passes **(r=0.91)**, and composure and reactions **(r=0.70).**

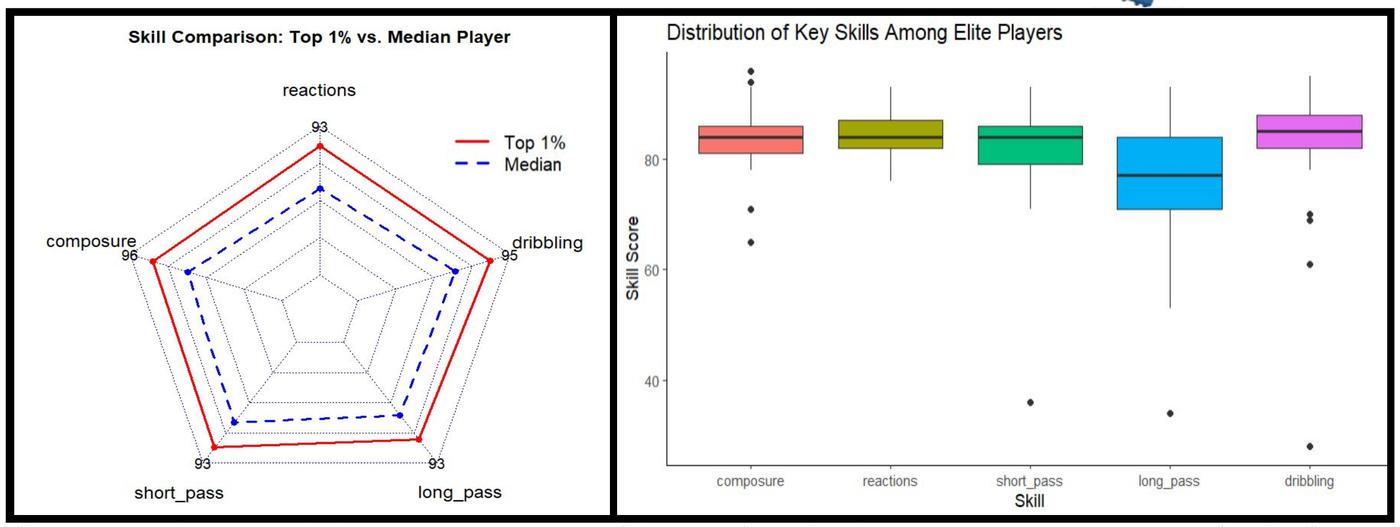
2. Density Distribution of Top Skills by Value



(Divided by quartile)

Across all 4 skills, high and elite players have more concentrated scores, while lower-valued players have more variability. The density of **reactions** is the most concentrated, with no elite or players scoring <40. High-value players are more consistent in their scores.

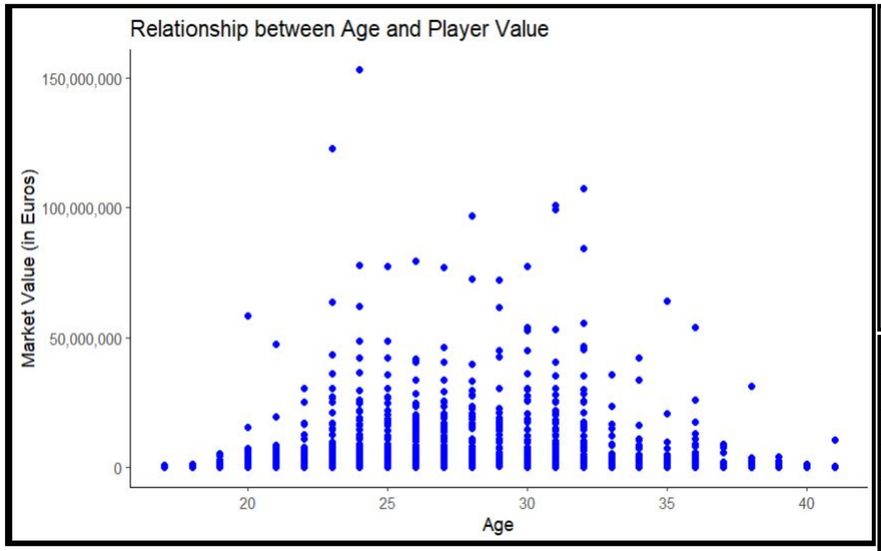
3. What Skills Make a Player "Elite?"



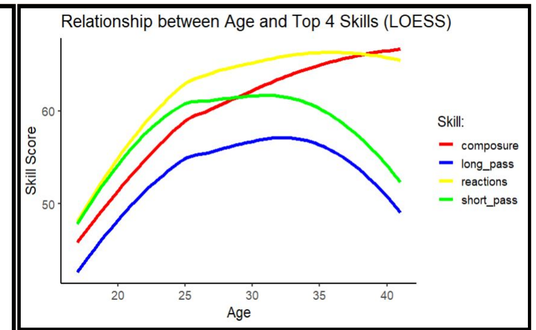
"Elite players" are defined as the top 1% of players by value, versus the median (50th percentile) player. The skills used are the five most correlated with value (from Fig. 1.)

Elite players score higher than the median player in all five skills, but the difference is most notable in **reactions** and **short passing.** Despite *n = 57*, there are only a few outliers for each skill– meaning that elite players **consistently score highly** on these skills.

4. How does Age Affect a Player's Value?



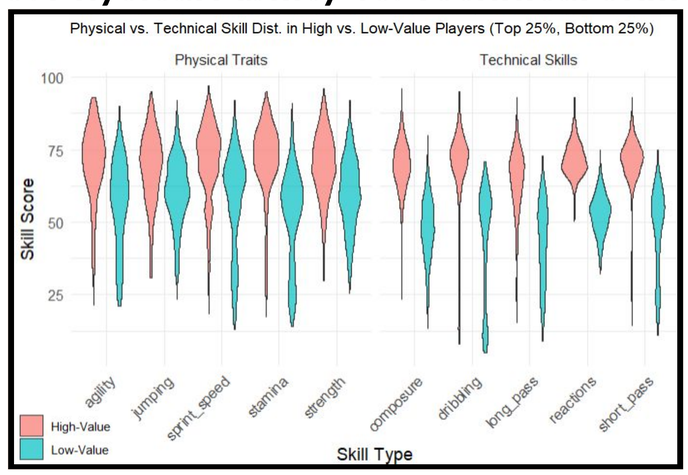
Spearman's Rank Correlation Coefficient returns a p-value of **< 2.2e-16,** and a rho of **0.275.** It suggests a statistically significant, nonlinear positive correlation.



NAME (Top 5 Players)	AGE
Kylian Mbappé	24
Erling Haaland	23
Kevin de Bruyne	32
Sadio Mane	31
Mohamed Salah	31
AVERAGE AGE	**28.2**

Players seem to peak in both value and playing skill at around **25-30 years**, but several outliers exist. Age is a **significant predictor** for certain physical and technical skills, but doesn't always predict value.

5. Physical Ability vs. Technical Skill



Conclusion

This poster demonstrates that **reactions, composure, short passing, and long passing** are significantly correlated with value, with **technical skills** being consistently more important than raw physical ability. When predicting a player's value, emphasis should be placed on proficiency in technical skills, high scores in the top skills, and consistent performances.

Future Research

- Analyzing the effect of skills on value for players in different positions (e.g attacking vs. defending)
- Multivariate analysis of the synergies of multiple factors and value (two factors combined vs. just one or another)
- Varying impacts of certain attributes in different leagues

Bibliography:

Ahmed, Rehan. *FIFA 24 Player Stats Dataset*. Kaggle, 2024.
https://www.kaggle.com/datasets/rehandl23/fifa-24-player-stats-dataset/data

Slide Icon: https://graphicriver.net/soccer+kick-and-cartoon-graphics

Data and Spreadsheet:

https://docs.google.com/spreadsheets/d/1iaIfcRHowPafMFca0EM96IdJgI1ZFBaMWHebPkIawg8/edit
^ Notes about data cleaning and interpretation can be found on the above spreadsheet.

Glossary:

Age: A player's age, which can influence their physical peak and game experience.

Finishing: A player's ability to turn goal opportunities into actual goals, especially in one-on-one (dueling) situations.

Dribbling: The skill of maneuvering the ball past opponents while maintaining control.

Short Pass: The accuracy and effectiveness of a player’s rapid passes over short distances.

Long Pass: The accuracy and effectiveness in passing the ball over long distances, usually across the midfield line.

Strength: A player's raw physical power.

Stamina: The endurance of a player, determining how long they can perform at a high level throughout a match.

Sprint Speed: The top speed a player can reach in short bursts.

Agility: How quickly and efficiently a player can change direction while maintaining control of the ball.

Composure: A player’s ability to remain calm under pressure, especially during duels or goal opportunities.

Reactions: How quickly a player responds to changing situations, such as unexpected moves or shots.

Value: The estimated worth of a player in the transfer market (trading from team-to-team,) in Euros.