

NBA Insights

DAT 560E Final Group Project

Group 1

520389 Kuan Lin, 519095 Bosan Hsu, 519636 Lilo Hsiung

Overview

To deepen our understanding of the NBA through data, we're developing three interactive dashboards:

1. **Player Performance Dashboard:** This dashboard serves as the foundation, focusing on individual players. It offers insights into players' scores, positions, and overall ratings, allowing us to dissect their contributions on the court.
2. **Team Performance Dashboard:** Building on player insights, this dashboard examines the performance across all 30 NBA teams. By analyzing their records, we aim to uncover the elements that contribute to a team's success.
3. **Team Net Worth Dashboard:** Recognizing the NBA as not just a sports league but also a thriving business entity, this dashboard delves into the financial aspect, examining the net worth of teams. Our goal is to understand the factors driving a team's value.

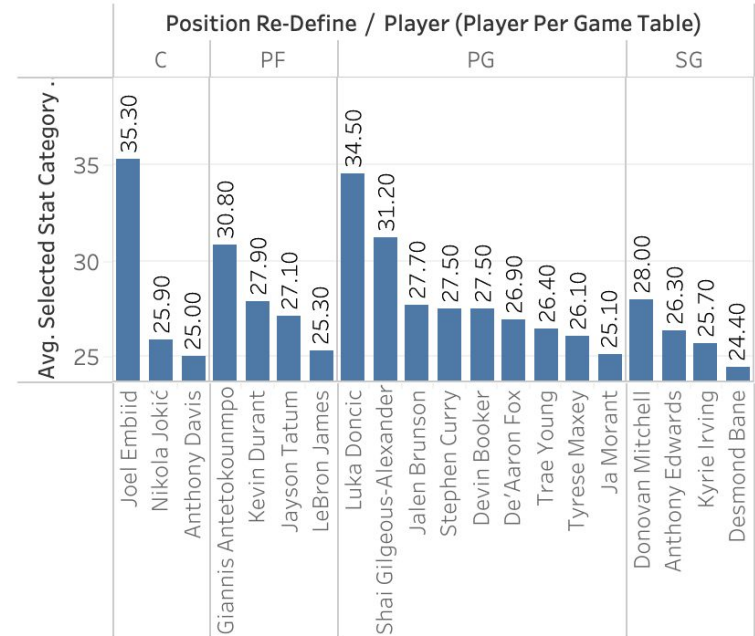
Player Performance

Data source: [Basketball Reference](#)

Player Performance - Player Stat per Game

In “Player Stats per Game,” viewers can navigate to a specific stat, a specific range of stat, or a specific player. The example shows the players with 20+ PPG and NBA today has more 20+ players in PG and PF.

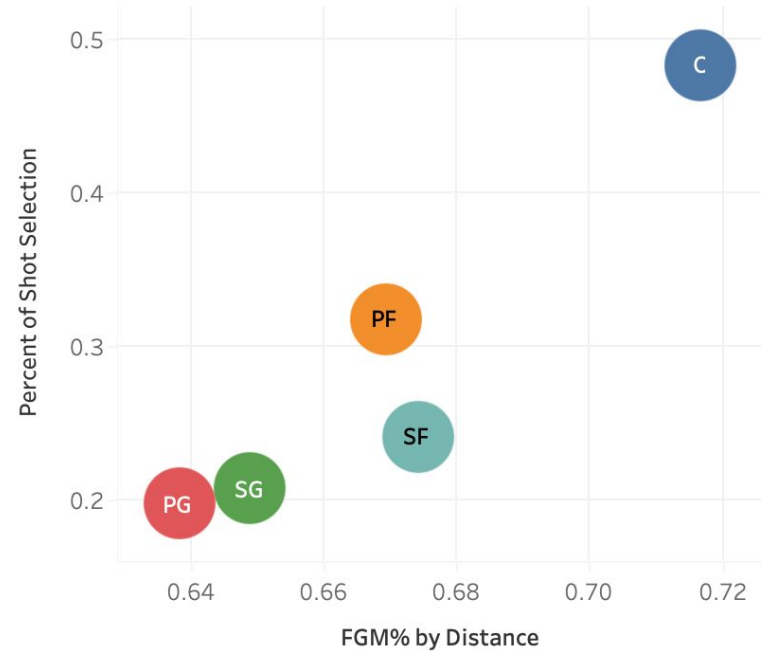
Player Stat per Game - PTS



Player Performance - Shot Selection & Made% by Position

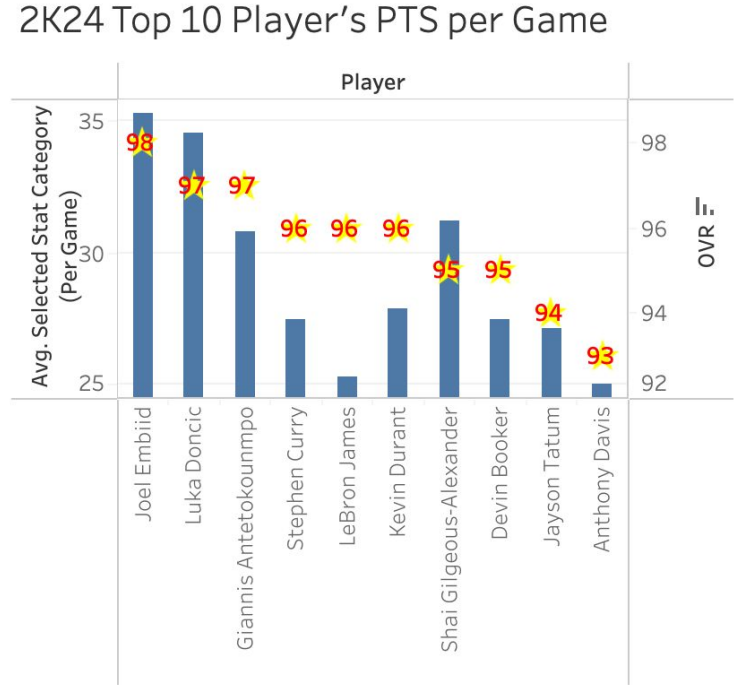
In “Shot Selection and Made% by Position,” viewers can select a specific distance and observe the distribution of shot made decision by positions. NBA players nowadays are required to have long-range shooting ability. Thus, for most of the positions, except for centers, the shooting range would be far.

Shot Selection and Made% by Position



Player Performance - 2K24 Top 10 Players

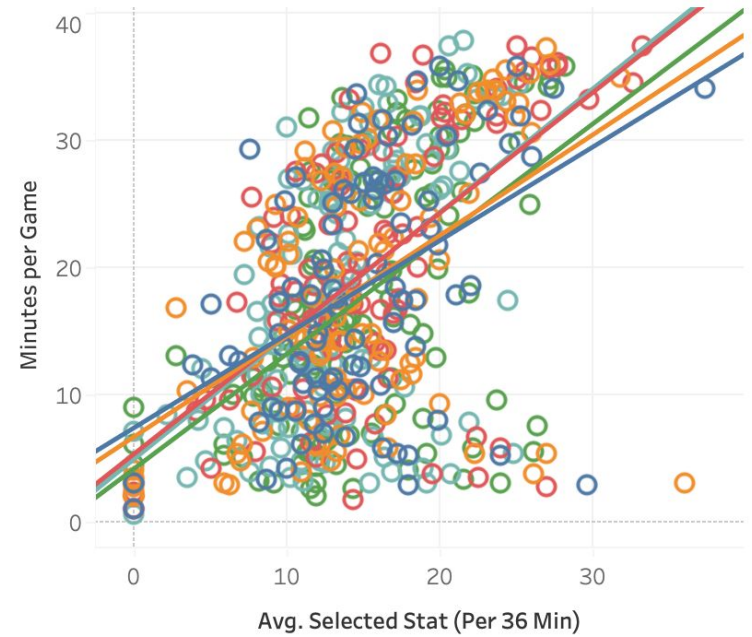
In “2K24 Top 10 Players,” viewers can compare the 10 highest 2K24 players’ stat and see their attributes. Despite their similar total ratings, their game types are different, so their performance in different categories differs a lot.



Player Performance - What might earn more minutes?

In “What might earn more minutes?” viewers can navigate to a specific stat (per 36 minutes) to see what attribute the most crucial factor might be to play on the court by positions.

What might earn more minutes? - PTS

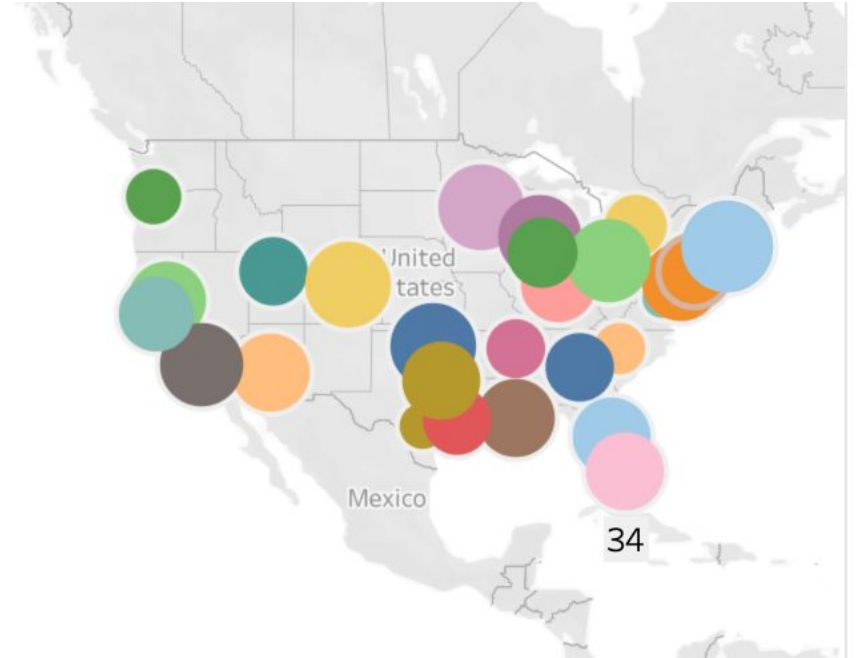


Team Performance

Data source: [2023-24 NBA Standings](#)

Team Performance - General Map

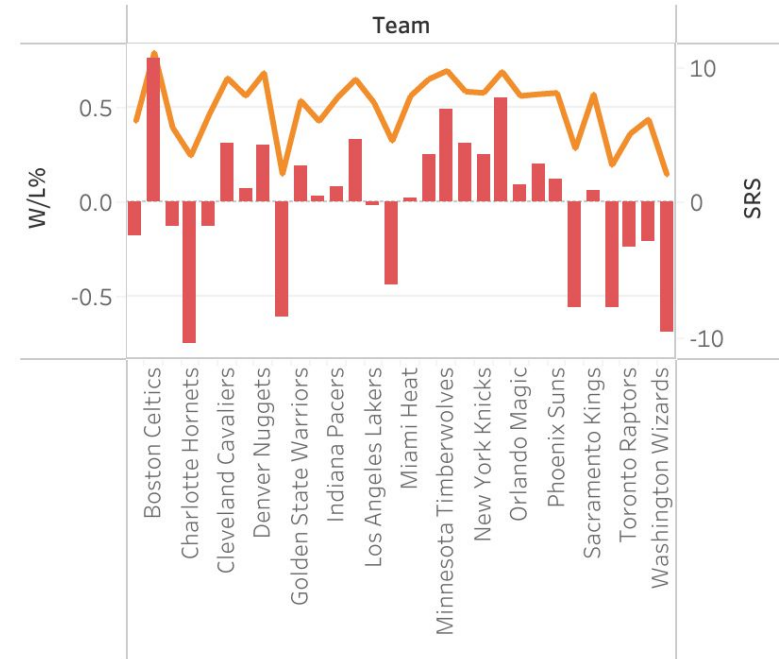
In the interactive General Map, users can explore not just the geographical spread of each team, but also key performance indicators such as field goal rate and win rate. We've introduced functionality that allows users to click on a team to view its team ratings, created by some institutions.



Team Performance - SRS vs. Win Rate

The second visualization investigates the relationship between team ratings and actual win rates. Our analysis reveals a robust positive correlation, suggesting that win rate might have great influences on the calculation of our team ratings.

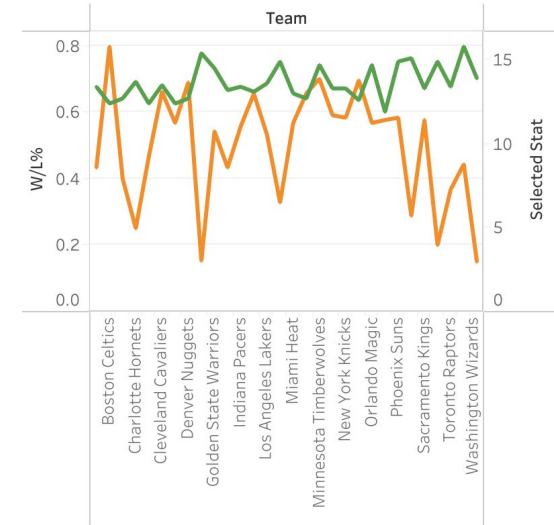
SRS vs WinRate



Team Performance - Offensive and Defensive

In the first part of the third visualization, we examine the impact of offensive (PS/G) and defensive (PA/G) performances on win rates. This analysis shows a positive correlation between a team's scoring ability and its win rate, indicating that offensive prowess is crucial for success. Conversely, the points scored by opponents do not display a clear correlation, suggesting that defensive performance, as measured by opponents' scores, may not be as critical.

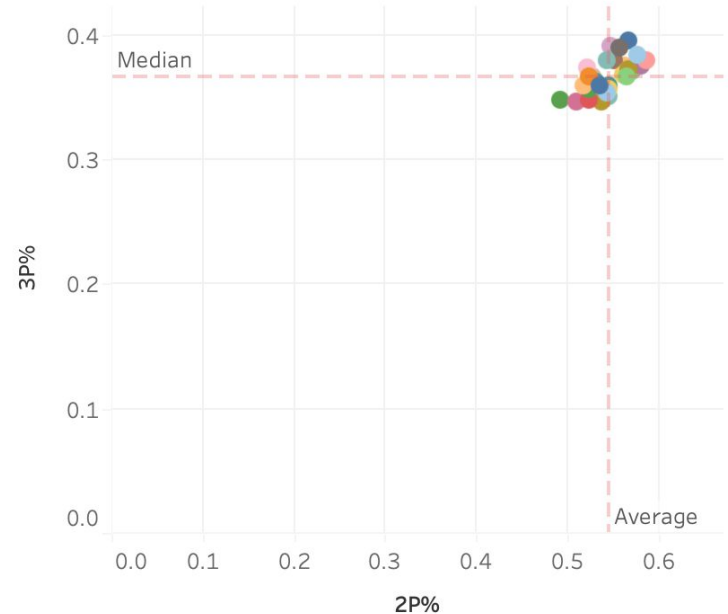
The second part of the third graph allows users to assess other team statistics (excluding scoring metrics) and their influence on win rates. We find that rebounds and assists have a positive correlation with win rates, whereas turnovers and personal fouls do not show a significant relationship.



Team Performance - 2P% vs. 3P%

Finally, in the scatter plot analysis, we specifically extract three-point and two-point field goal percentages to evaluate the hypothesis that shooting accuracy correlates with higher win rates. The data supports this assumption, reinforcing the idea presented in the third graph's first part: that scoring capability is a key determinant in winning games.

2P% vs 3P% Scatter Plot

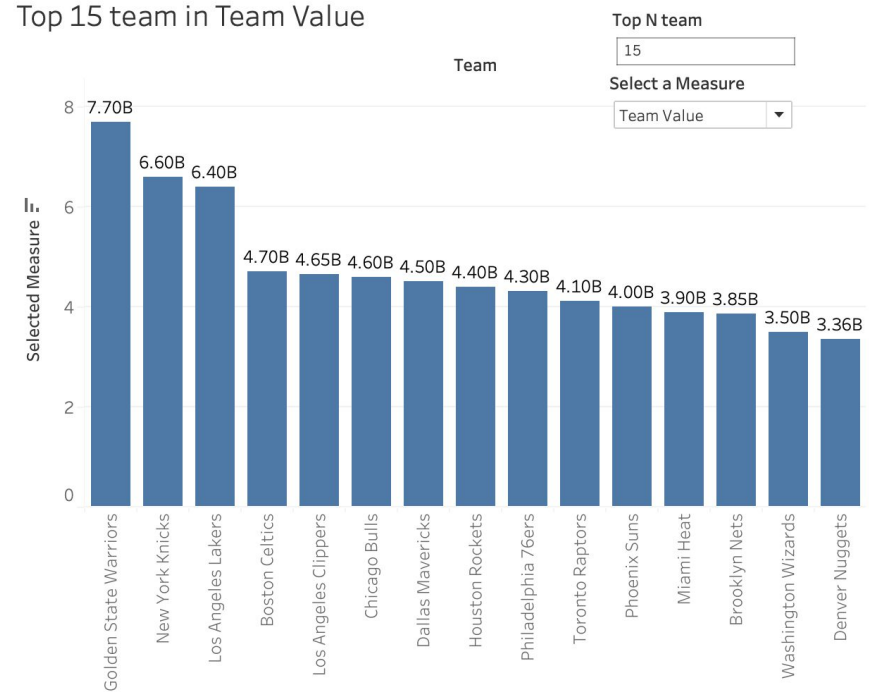


Team Net Worth

Data source: [Forbes NBA Valuations](#)

Team Net Worth - Top N team in Selected Measure

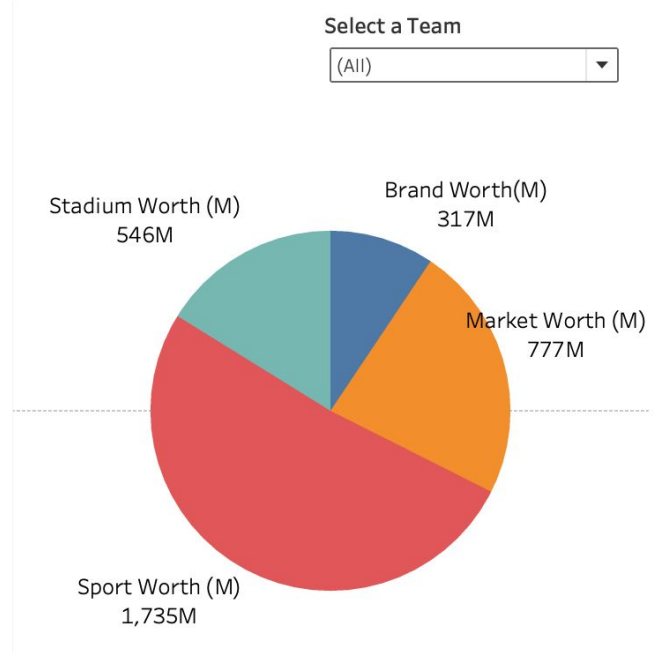
In this interactive bar chart, viewers can select a desired measurement from Team Value, Brand Worth, Market Worth, Sport Worth and Stadium Worth. Viewers can also limit the number of results to only see teams that are ranked high in the category.



Team Net Worth - Team Worth Breakdown

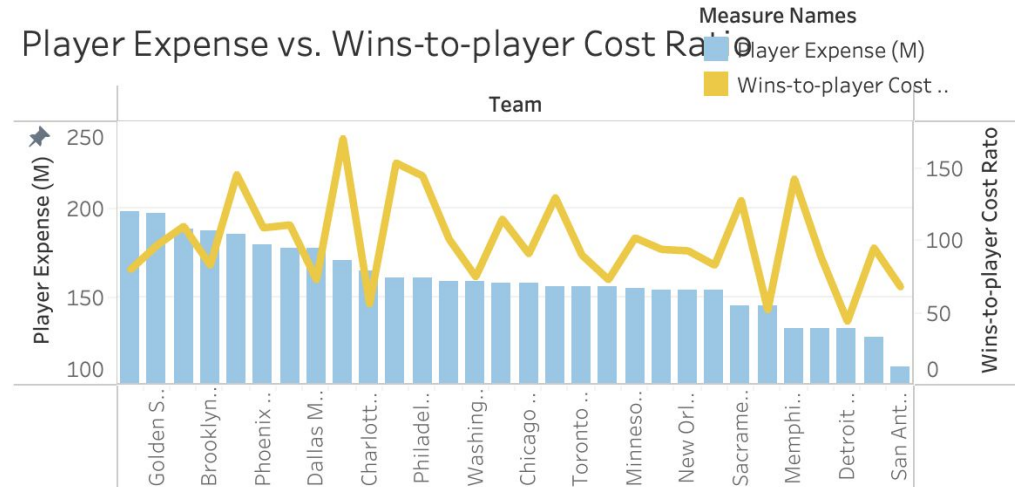
This pie chart give viewer a chance to dig deeper on how a team perform in different part of the valuation. Viewer can select a team on the dashboard or can simply hover to the team shown in the “Top N in Selected Measure” chart

Team Worth Breakdown



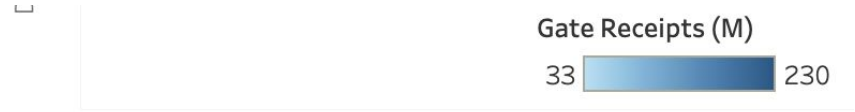
Team Net Worth - Player expense vs. Wins-to-player / cost

This chart put the Player expense and Wins-to-player cost ratio in comparison. We learn that the higher a team spends on a player does not necessarily have a higher wins-to-player cost ratio.



Team Net Worth - Revenue per fan vs. Gate receipts

In this map, we compare Revenue per fan and Gate receipts to know more about how fans can contribute to the earnings. We figured that higher gate receipts could result in higher revenue per fan, but this is not guaranteed. Fans might have different spending power on merchandise among teams.



Revenue per fan vs. Gate receipts

