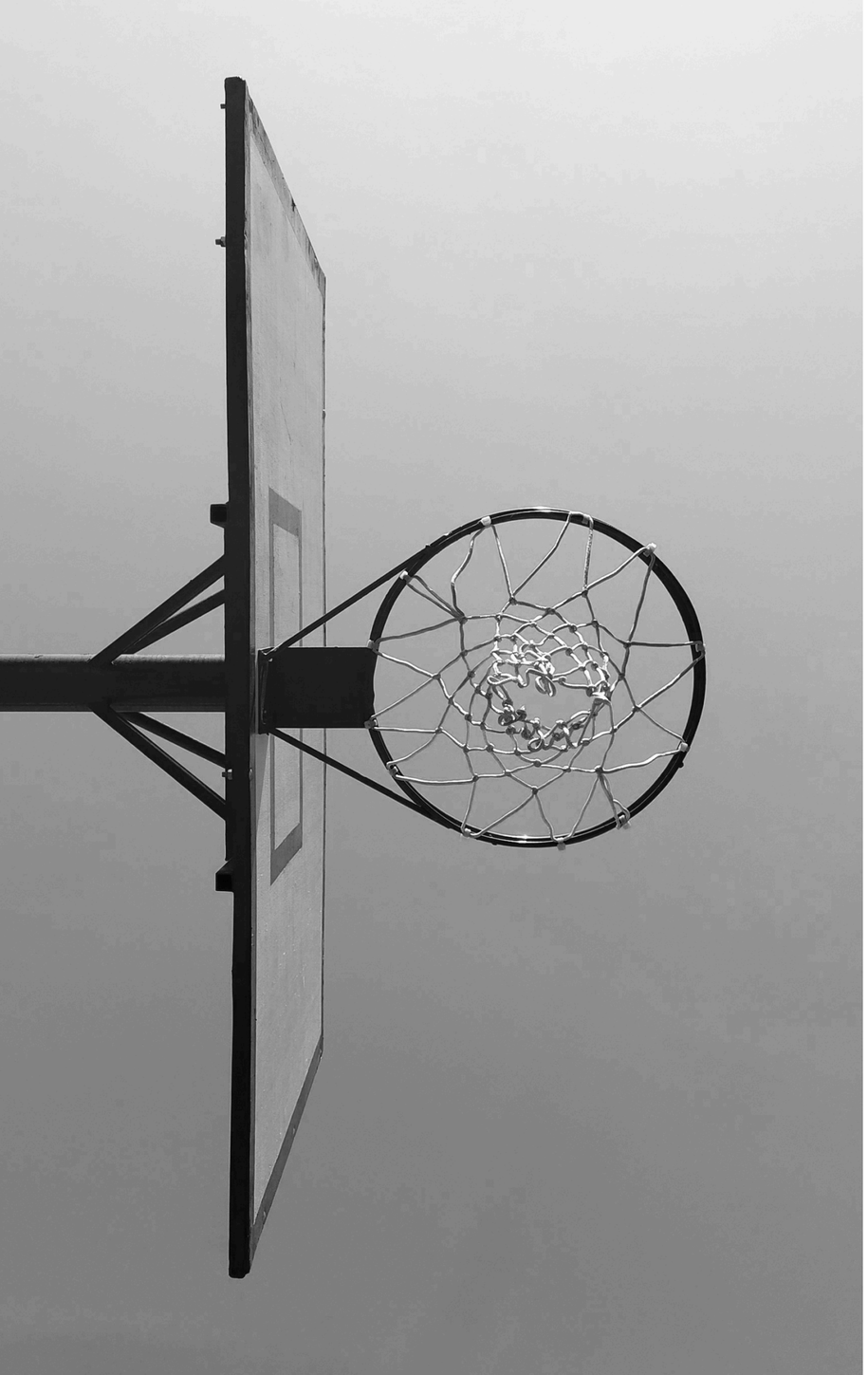
DOES HAVING MORE “STAR” PLAYERS TRANSLATE TO WINS?

Tim Dames
https://github.com/TKDames/NBA_Stars_to_Wins

3 All-stars/Hall of Famers, ~.500 regular seasons, and no rings over 2 seasons



IS IT EFFICIENT TO HAVE MULTIPLE STAR PLAYERS ON THE SAME TEAM?

DEFINING A STAR PLAYER

- PLAYER EFFICIENCY RATING > 20
  - RAW PRODUCTIVITY PER MINUTE
- WIN SHARE >= 5
  - ACTUAL IMPACT ON TEAM WINS
- BOX +/- >= 2
  - ON COURT IMPACT PER 100 POSSESSIONS

About the job

Title: Business Intelligence Analyst

Department: Strategy & Analytics

Reports to: Manager, Data Science

FLSA Status: Exempt

Job Summary: The Sacramento Kings strive to improve and evolve every aspect of the way sports teams do business, and data-driven decision-making serves as the engine behind much of the team's innovation. The Business Intelligence Analyst position belongs to one of the most sophisticated and forward-thinking business analytics groups in professional sports and will be tasked with harnessing the power of data, applied analytics, and technology to drive results across all business units.

Qualifications

- Strong quantitative, financial, and modeling skills, including exposure to SQL and relational databases
- (Preferred) Demonstrated ability to design and implement statistical models in R and/or Python
- Proficiency with Microsoft Office, in particular Microsoft Excel
- Familiarity with Tableau or other similar data visualization tools
- Strong communication, prioritization, and organization skills.
- Excellent problem-solving and critical thinking skills.
- Commitment to teamwork by way of supporting the needs of internal stakeholders.
- Ability to manage multiple priorities and deadlines.
- Capable of working extended hours.

STAR PLAYER INSIGHTS START WITH DATA

WHY IS THIS RELEVANT?

NBA Rest API

Data Collected:

- player_id
- team_id
- season
- games
- minutes_played
- win_shares
- per
- ts_percent
- usage_percent
- box_plus_minus

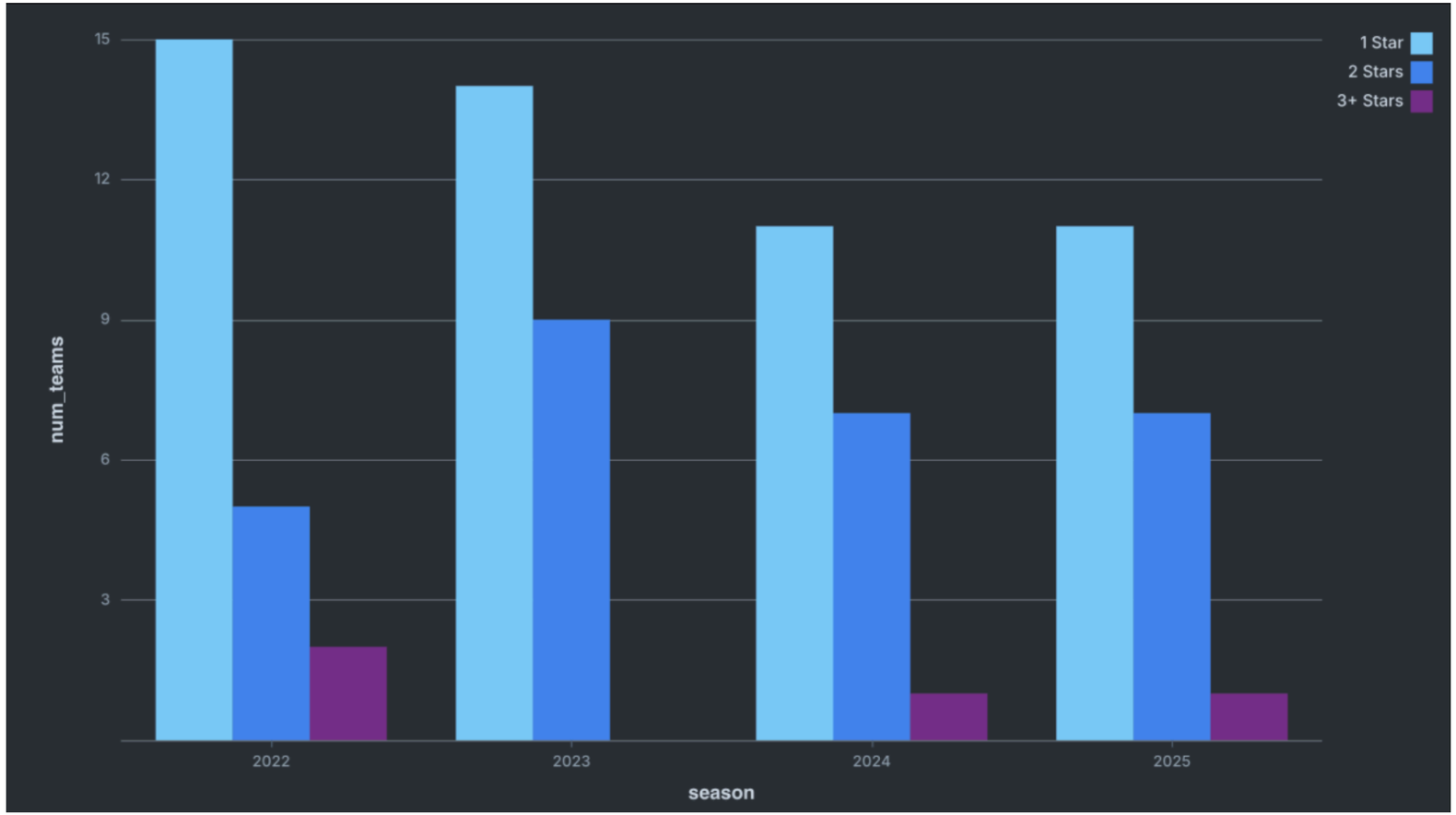
Player performances affect many aspects of the organization's business operations:

Jersey Sales

Ticket sales

Organizational Growth

HOW HAS THE NUMBER OF TEAMS WITH 1, 2, OR 3+ STAR PLAYERS CHANGED OVER TIME?



Most NBA teams rely on one star player, with multi-star rosters remaining rare across seasons.

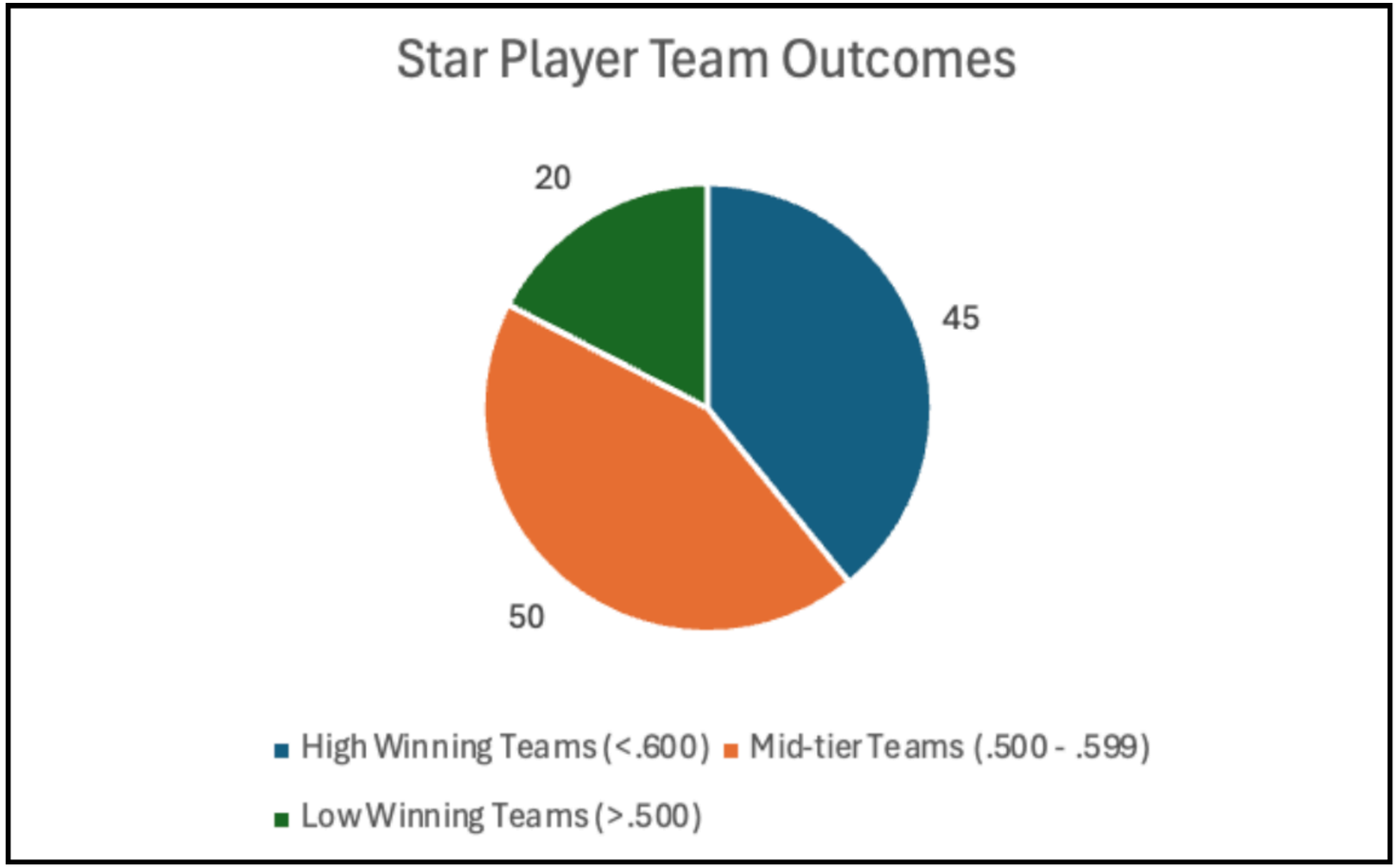
Recommendation

- Focus development efforts on finding a reliable franchise star
- Look into which category of team plays the best

Prediction

- 1 Star team will remain as the majority
- Focus could shift to prioritize teams with 2 stars

ARE STAR PLAYERS CLUSTERED ON HIGH-WIN TEAMS, OR SPREAD OUT?



Star players are spread across the win spectrum, and not just on top teams.

Recommendation

- Evaluate the broader context around each star player
- Consider team composition, playing style, and front-office decisions.

Prediction

- Star players will remain distributed across various team tiers
- Player evaluation and roster optimization critical even for lower-tier teams.

TRACKING TEAM PERFORMANCE TO CONTEXTUALIZE STAR POWER

ESPN webscrape

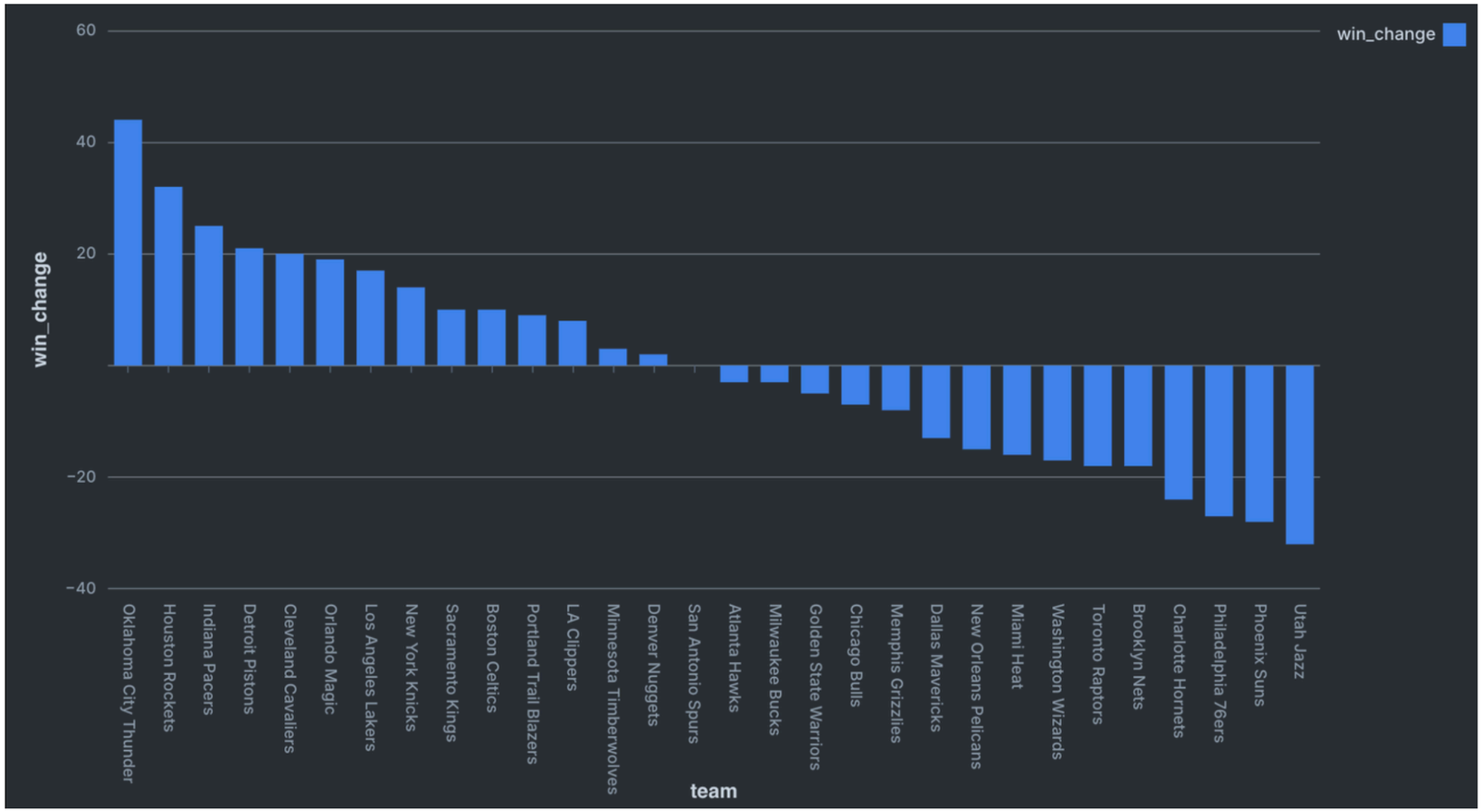
HOW DOES TEAM PERFORMANCE COMPLETE THE PICTURE?

Data Collected:

- team_id
- season
- wins
- losses
- ppg
- opp_ppg

- Determine how top talent translates to actual team success
- Kind of analysis that supports organizational growth and innovation.

WHICH TEAMS EXPERIENCED THE MOST DRAMATIC SHIFTS IN PERFORMANCE FROM 2022 TO 2025?



Team trajectories vary widely. Performance swings are the norm, not the exception.

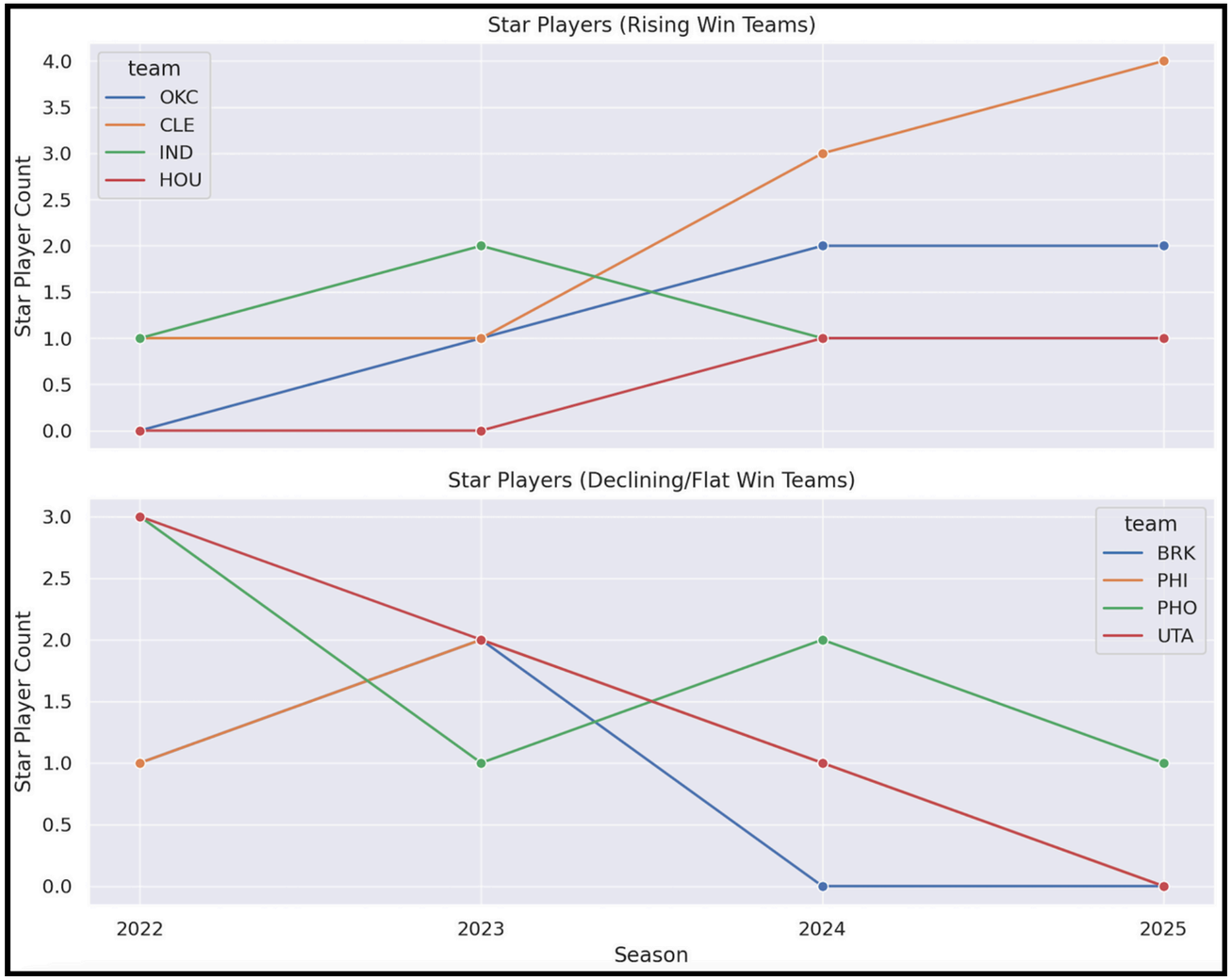
Recommendation

- Look into underlying causes of record fluctuations
- Identify where adjustments may be necessary

Prediction

- Expect continued volitility with roster turnover and strategy changes

HOW HAVE RISING AND DECLINING TEAMS DEVELOPED STAR TALENT FROM 2022 TO 2025?



Star player growth and decline mirrors team trajectories

Recommendation

- Growing teams (OKC, CLE, IND, HOU) should keep building through internal development.
- Declining teams (PHI, PHO, UTA, BRK) need to reassess talent pipelines.

Prediction

- Teams with rising star counts will likely sustain upward momentum
- Stagnant teams may face continued struggles.

API & WEBSCRAPED DATA PIPELINE FLOW

NBA Rest API

[API Source: api-nba-v1.p.rapidapi.com]
↓
[Notebook: rest_nbaapi_API_Extract_Load_Raw.ipynb]
- Calls player stats by team using requests
- Filters for season 2021–2025
- Selects top 5 players by win shares
- Appends team + season data into one DataFrame

↓
[Transform]
- Standardizes columns: player, team, season, win_shares, PER, VORP, etc.
- Adds filters for specific seasons

↓
[Load]
- Connects to AWS RDS PostgreSQL using SQLAlchemy
- Loads to table: **sql_project.nba_api_player_stats**

↓
[Trigger]
- GitHub Actions: `rest_nbaapi_api_pipeline.yml`
- Scheduled weekly or on manual dispatch

Websraping Team Standings

[Web Source: https://www.espn.com/nba/standings/]
↓
[Notebook: ESPN_Web_Scrape_Extract_Load_Raw.ipynb]
- Scrapes team standings from 2021–2025
- Extracts: team name, wins, losses, PPG, OPP_PPG
- Matches team stats with correct season

↓
[Transform]
- Converts numeric columns using pandas
- Adds 'Season' column for multi-year comparison

↓
[Load]
- Connects to AWS RDS PostgreSQL using SQLAlchemy
- Loads to table: **sql_project.web_scraped_standings**

↓
[Trigger]
- GitHub Actions: `espn_web_scrape_pipeline.yml`
- Scheduled weekly or on manual dispatch

PROJECT SUMMARY & KEY INSIGHTS

- Analyzed NBA player data using SQL and web scraping
- Defined star players using performance-based thresholds
- Tracked changes in team star player distribution

- Found inconsistent clustering on high-win teams
- Star player count doesn’t guarantee team success

JOB ALIGNMENT & FIT

- Built SQL queries aligned with real-world business questions
- Generated insights using only raw data and team metrics
- Communicated findings clearly through diagnostic visualizations
- Mirrored Kings' focus on innovation through data storytelling
- Confident in supporting strategic decisions through analytics