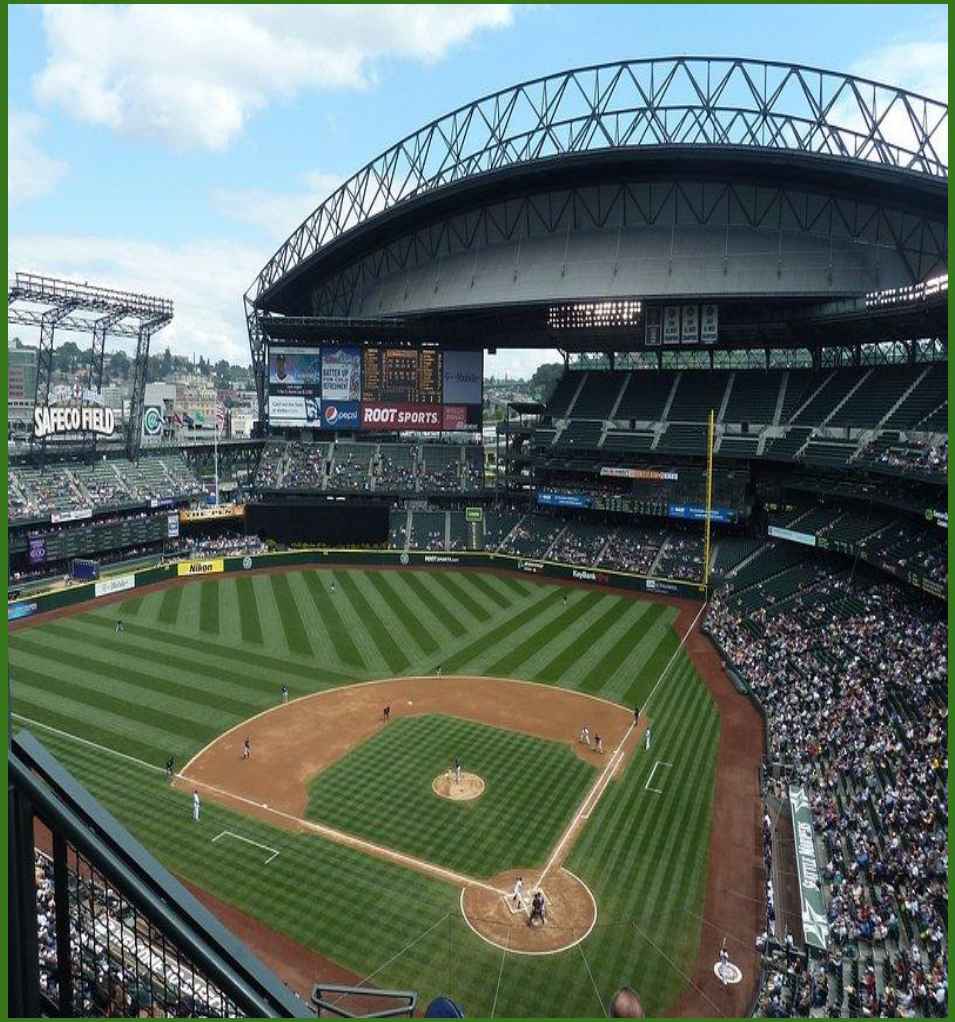
MLB Pitch Analysis

January 4, 2024



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Agenda

Business Problem

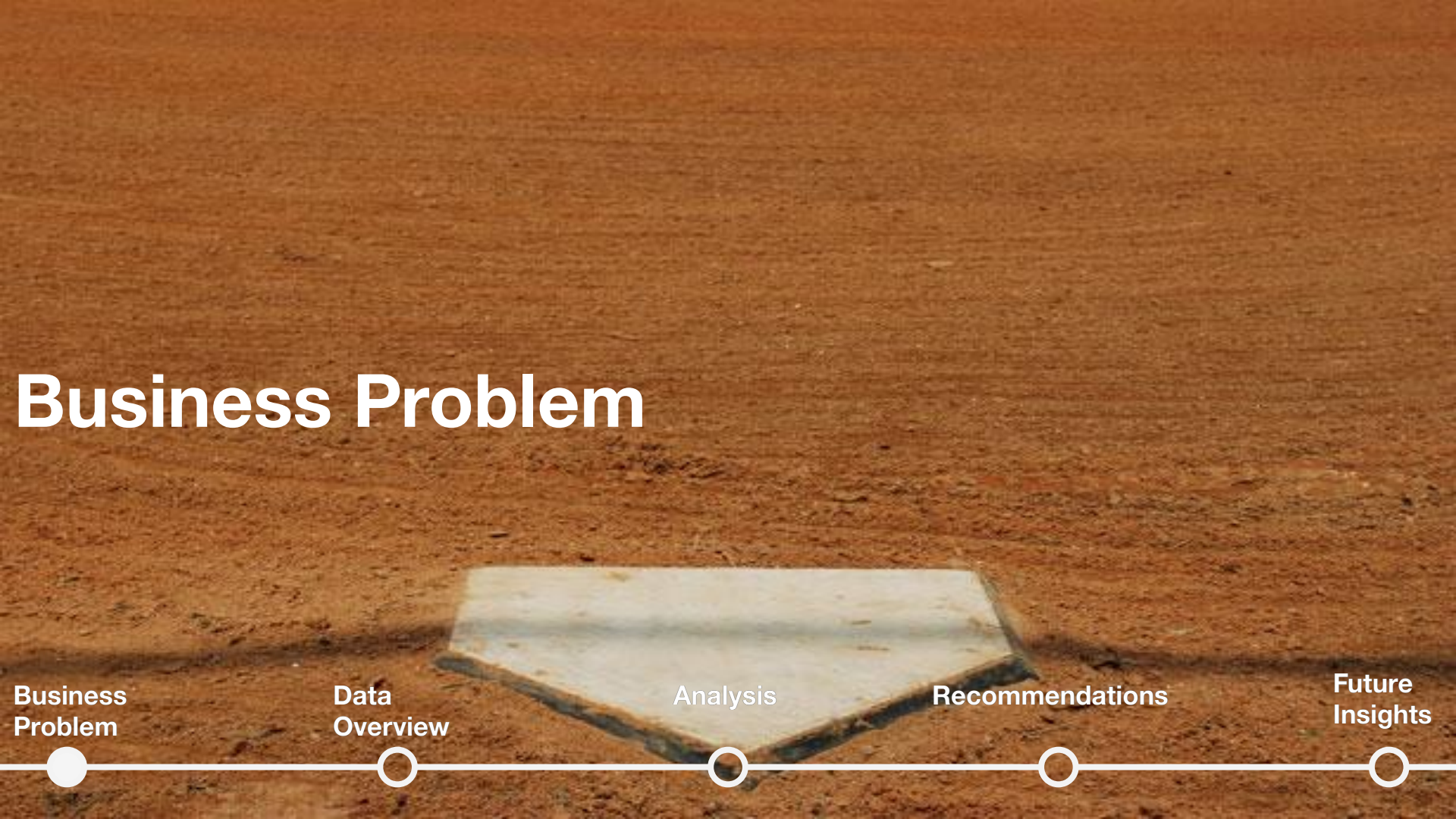
Data Overview

Analysis

Recommendations

Future Insights

Business Problem



Business Problem

- Look at different features of pitches
- Predict whether the batter makes an out or reaches base

Fastball

Finding

The model accurately predicts the outcome of an at bat 58% of the time.

Curveball

Data Overview

Business Problem | Data Overview | Analysis | Recommendations | Future Insights

Data Overview

Data
- ❏ 3.5 million pitches from 2015-2019
- ❏ Obtained from kaggle.com

Conditions
- ❏ Events grouped by out made or not
- ❏ Pitches with highest ratio of getting outs
- ❏ 283,887 records for modeling

Limitations
- ❏ Explanation of some columns lacking
- ❏ 2019 data not recorded for some variables

Slider

Analysis

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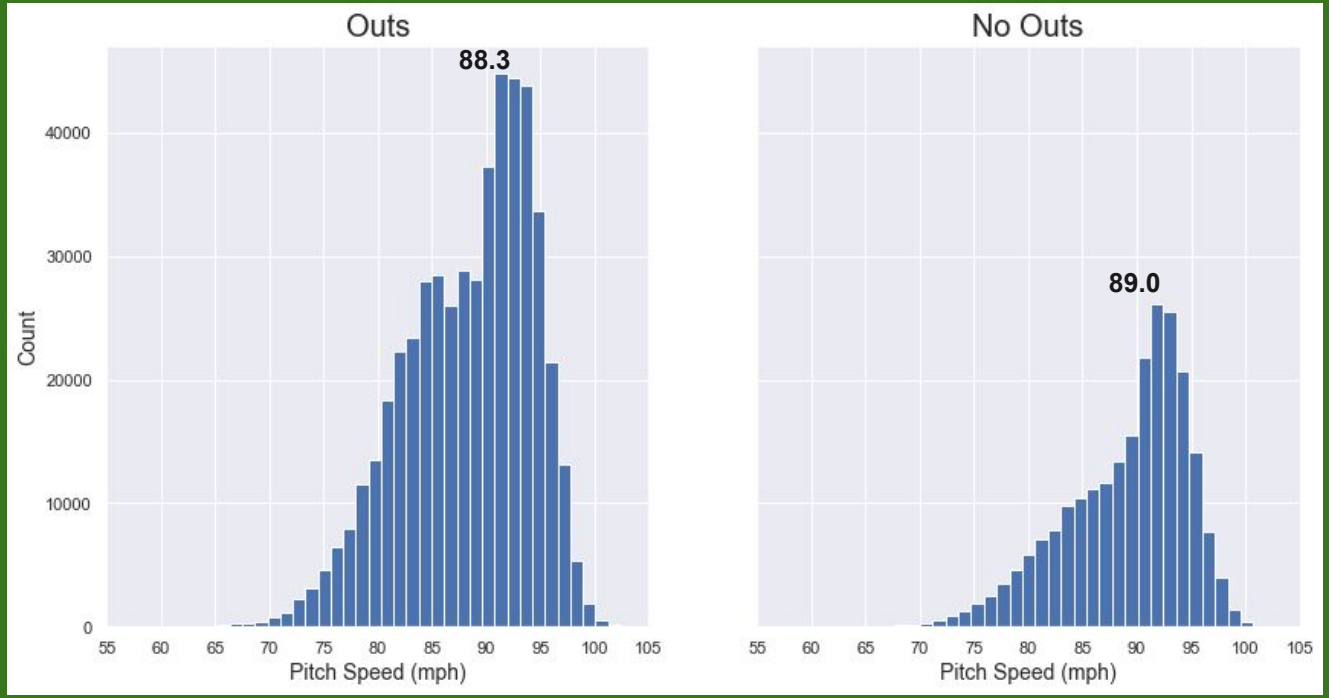
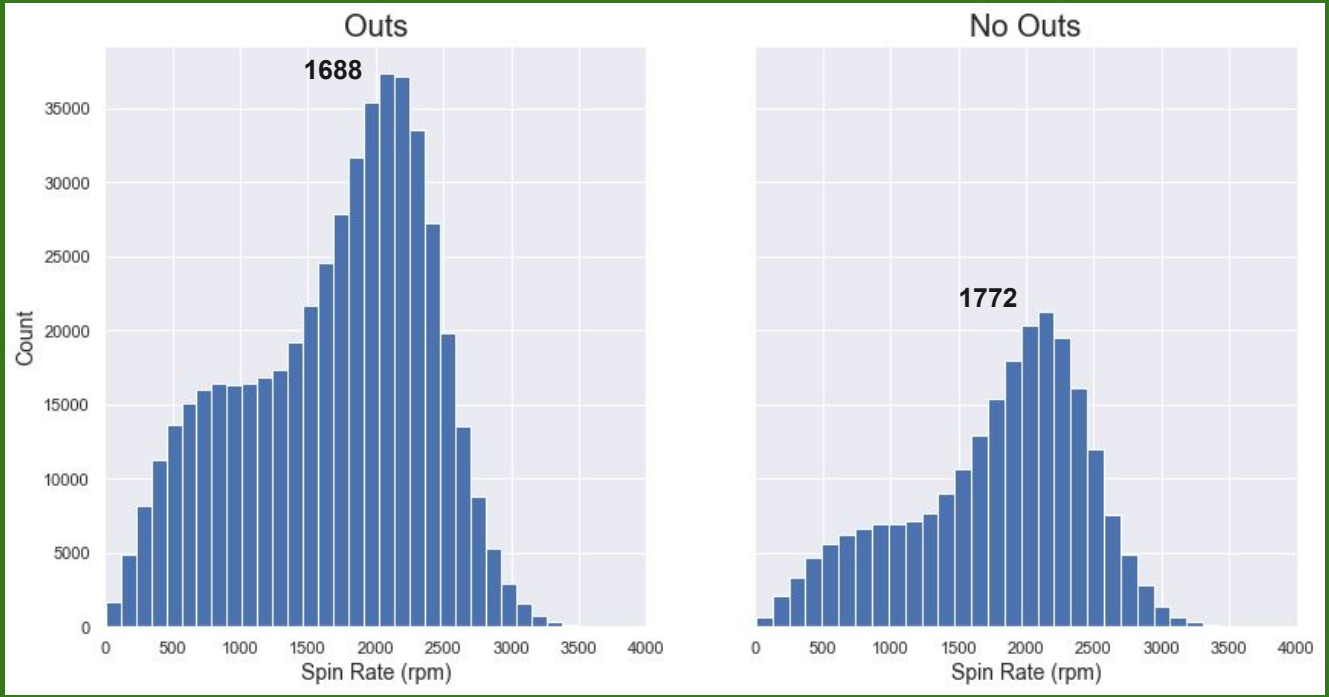
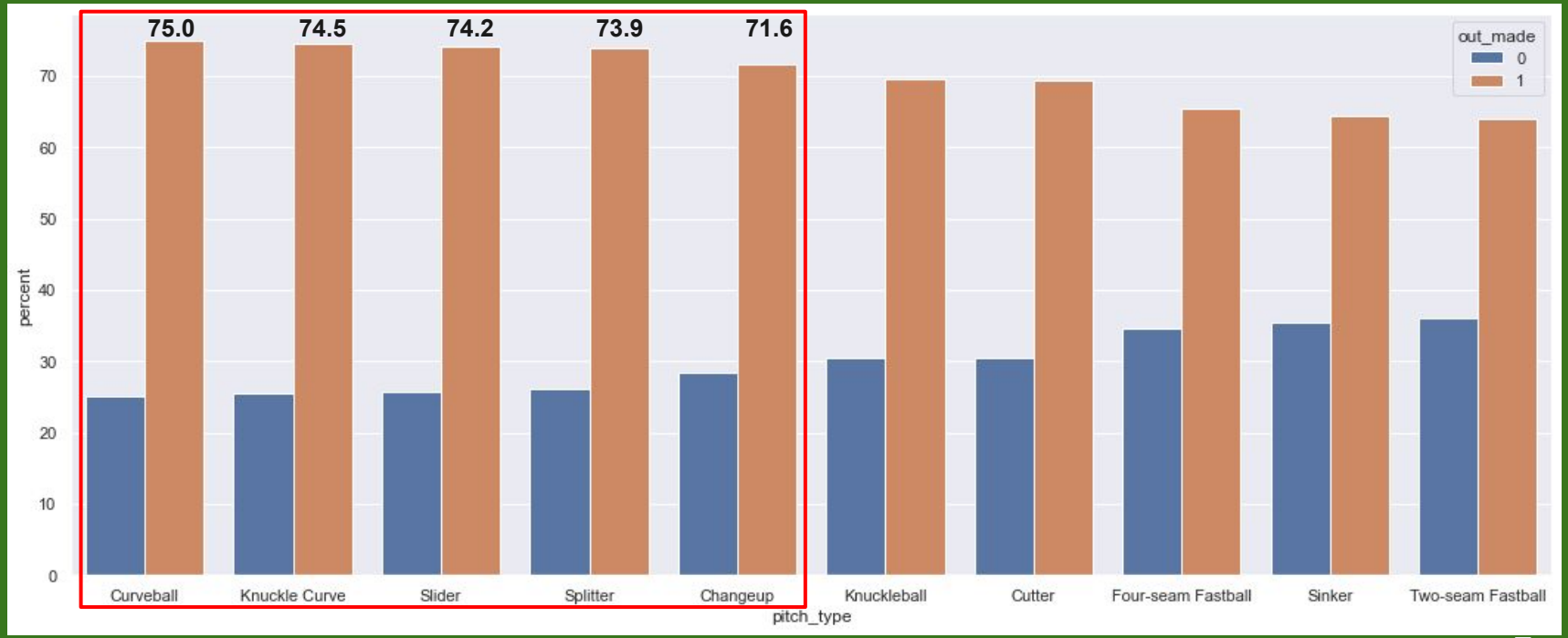
Pitch Speed not predictive on its own



Spin Rate not predictive on its own



Pitch Types that get the most outs



Business Problem

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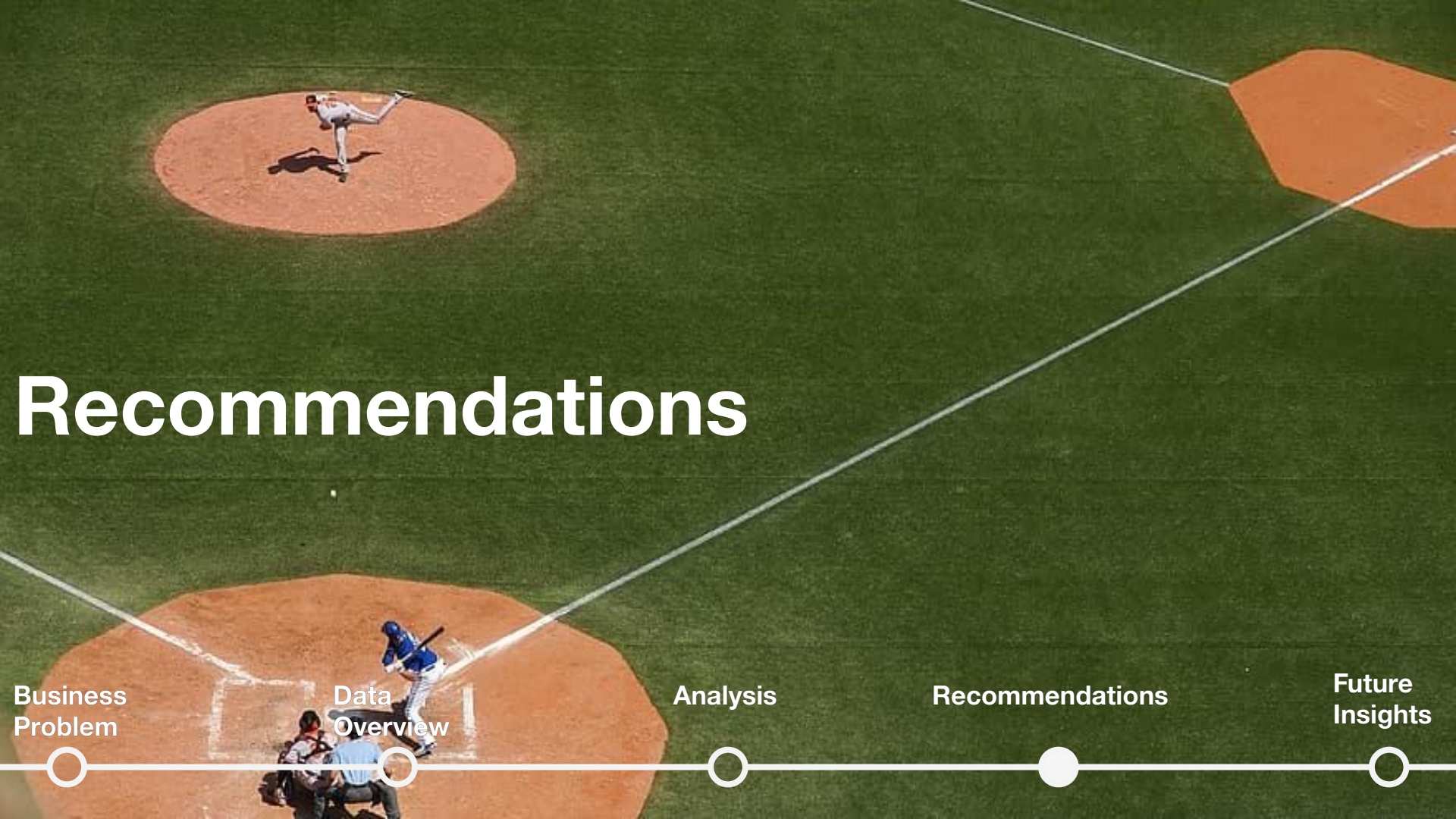
Model Analysis



Recommendations

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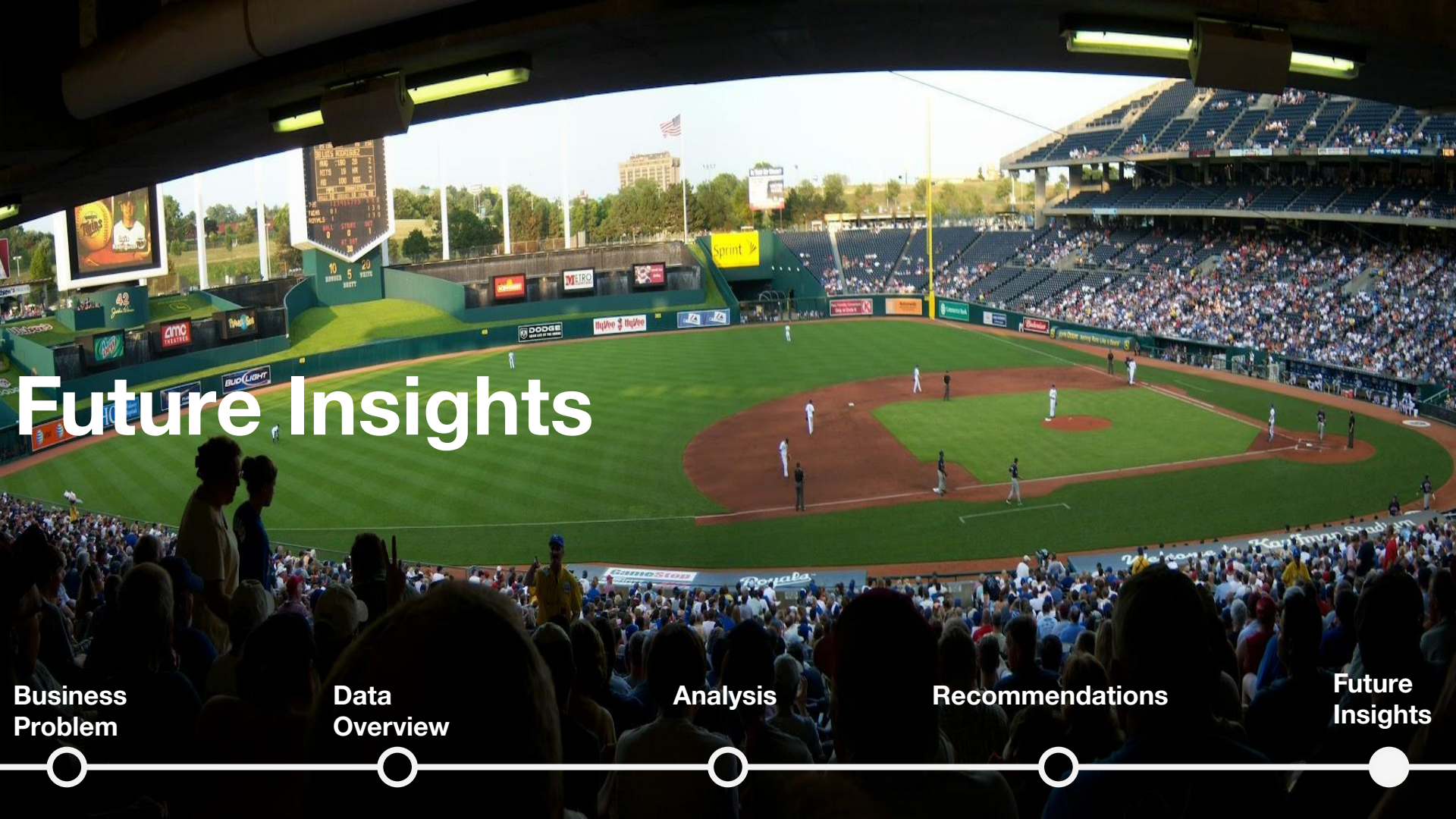
Recommendations

- ★ Teach young players the pitches getting outs most often
  - ○ Curve, knuckle curve, slider, splitter, changeup
- ★ Individualize which pitch or pitches work with each pitcher
- ★ Use additional pitch data (including minor league data) to enhance results and further coaching

Changeup



Future Insights

Business Problem

Data Overview

Analysis

Recommendations

Future Insights

Future Insights

- Study pitch sequencing
  - How the order of pitches affects results
- Measure other targets
  - Exit velocity
  - Launch angle
- Monitor trends in the game
  - Rule changes
    - Pitch clock
    - Automated balls and strikes

Thank you

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