NFL DATA MEMORANDUM

TO: Roger Goodell, NFL/Commissioner, Team Owners (32)

FROM: Sai Kavya Padmaraju, James Baertlein, Nala Ford, Matt Adeola

SUBJECT: NFL Key Performance Indicators

DATE: April 11, 2021

INTRODUCTION

In this memorandum, we have provided an analysis of key performance indicators (KPIs) to provide insight into successful patterns that result in maximizing wins. We selected three categories to analyze, which include home-field advantage in comparison to on-the-road games, the impact of turnovers per game, and total yardage. The scope of data was limited to the previous 5-seasons (2016-2020), including the post-season game outcomes. Our established baseline for comparison was total season wins and losses.

MAIN FINDINGS

Home vs. Away

From our defined scope of data, we concluded that the location of the game made an impact on the outcome. In the combined games played (1,337, 5 seasons) where a specific team had a disadvantage of playing at the opposing field, a winning outcome was observed at 44.5% (595 games), and 55.5% (742 games) resulted in a loss. Also, when reviewing individual seasons, a winning outcome was observed 41.6%, 42.7%,40.5%,47.9%, and 49.8% respectively.

Turnovers/Total Yards

In our analysis, we used the data of turnovers and total yards to see how it impacts a team's performance. We assume that turnovers and total yards are key indicators because it affects the outcome of the game and the other data in this model. As we further analyzed this

model, we determined that the model is most sensitive to total yards and the total number of turnovers. From the given data, we can see the difference turnovers have on the game. We examined this assumption and created a pivot table for the performance of teams over 5 seasons and documented their win/loss ratio. We created a key indicator for turnovers and defined the absolute value target to be zero turnovers ranging up to three. As a result, we found that a majority of teams experienced a loss due to a positive number of turnovers. In additions, a winning outcome was more likely observed by teams that accumulated fewer turnovers than their opposing team.

When utilizing a KPI of total yards per game, through our dashboard, we can observe that when evaluating the team's performance on total yards, we can observe an impact to the game outcome. We developed an absolute target value of 350 yards, with a range of 300-350 yards. Using this measure, we determined that an accumulation of 350 yards or more is optimal towards obtaining a winning outcome whereas total yards below 300 would be significantly detrimental to a positive outcome. From our measures, we analyzed how these variables impacted the team's performance and when looking at both KPIs, we concluded that obtaining fewer turnovers and capturing more total game yards versus an opposing team can greatly impact a team's performance/outcome.

CONCLUSION

Our conclusion based on this analysis is that there several variables that impact the outcome of a football game. By using a combination of the KPIs we identified in our analysis, any team could better strategize their playbook, play calls, and team roster set-up to capitalize on the other team's deficiencies to achieve an optimal outcome throughout the season. To gain further insight on the KPIs that we identified in our analysis, we recommend gathering more data

from seasons past 5 years and future seasons. In addition, to more seasonal data, data that outlines the type of turnovers and yards ran would be interesting to look at. Moving forward, compounding data from future season outcomes into the current dashboard will enhance the insights that we identified.