Analyzing 2022 NFL 4th Down Success by Team

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```
library(nflfastR)
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.4.0      v purrr   0.3.5
## v tibble  3.1.8      v dplyr   1.0.10
## v tidyr   1.2.1      v stringr 1.4.1
## v readr   2.1.3      v forcats 0.5.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(ggrepel)
library(nflplotR)
```

```
stats_2022 <- load_pbp(2022)
team_4th <- stats_2022 %>%
  filter(down == 4 & (play_type == "run" | play_type == "pass")) %>%
  filter(wp > 0.02 & wp < 0.98) %>%
  group_by(posteam) %>%
  summarise(avg_yds_to_go = mean(ydstogo),
            avg_field_pos = mean(yardline_100),
            count = n(),
            success_rate = sum(fourth_down_converted) / count,
            avg_gained = sum(yards_gained) / count) %>%
  arrange(desc(success_rate))
team_4th
```

```
## # A tibble: 32 x 6
##    posteam avg_yds_to_go avg_field_pos count success_rate avg_gained
##    <chr>           <dbl>         <dbl> <int>        <dbl>      <dbl>
##  1 PIT              2.7           47.2    10        0.9         5.2
##  2 LA               2.64          46.9    11        0.818       2.64
##  3 KC               2.71          22.9     7        0.714       2.29
##  4 PHI              2.37          26.8    19        0.684       1.74
##  5 HOU              5             34.3     6        0.667       2.33
##  6 WAS              3             46      11        0.636       4.18
##  7 MIN              4.6           39.8    10        0.6         7
##  8 DET              2.41          34.1    22        0.591       5.23
##  9 MIA              2.67          39.8    12        0.583       6.58
## 10 CLE              2.62          36.1    21        0.571       4.05
## # ... with 22 more rows
```

```
ggplot(team_4th, aes(x = success_rate, y = avg_gained)) +
  geom_nfl_logos(aes(team_abbr = posteam), width = team_4th$count / 300, alpha = 0.75) +
  geom_hline(yintercept = mean(team_4th$avg_gained), color = "red", linetype = "dashed", alpha=0.5) +
  geom_vline(xintercept =  mean(team_4th$success_rate), color = "red", linetype = "dashed", alpha=0.5) +
  labs(title = "4th Down Success vs. Average Yards Gained on 4th Down",
       subtitle = "2022 NFL Games, WP between 0.02 and 0.98, Logo Size = # Qualifying Plays",
       y = "Average Yards Gained", x = "4th Down Success Rate", caption = "@nflfastR")
```