Football Scouting Report Presentation

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Abstract & Research Questions

This project investigates offensive play-calling tendencies in Nova Scotia high school football. I manually tagged five games, analyzing each play based on situation and play type.

I aimed to answer two key questions: 1. How often does a team run or pass based on down and distance? 2. Which formations are strongly predictive of run vs. pass?

Dataset Overview

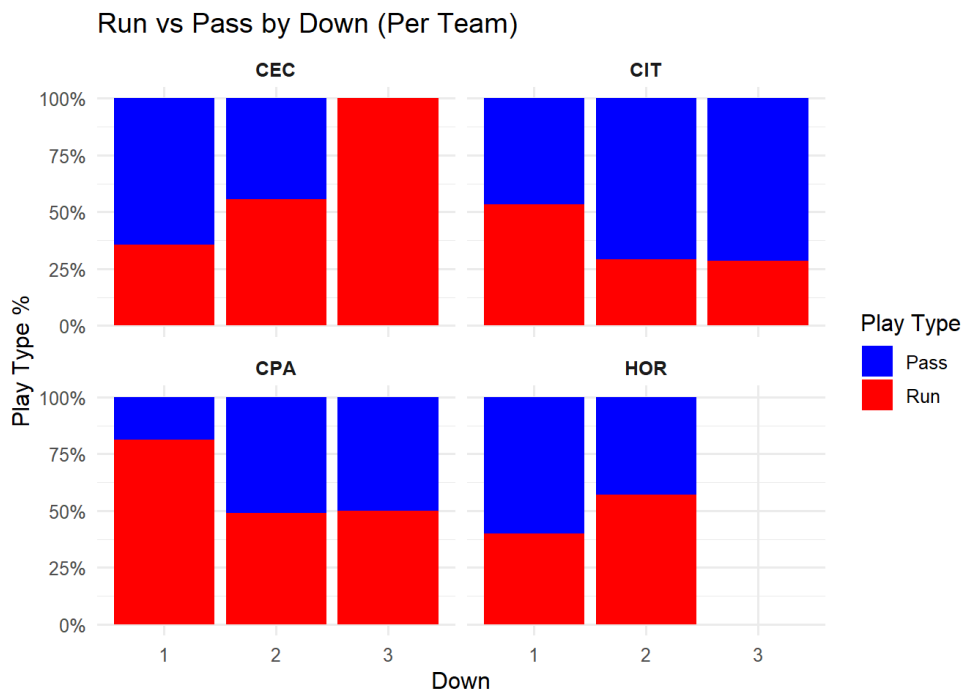
- **Source**: Manually tagged game film from 2024–2025 season
- **Categorical variables**:

  `Offense_Team`, `Play_Type`, `Offense_Formation`, `Field_Zone`

- **Quantitative variables**:

  `Start_Yardline`, `Down`, `Distance`

Team-Level Run vs Pass Tendencies by Down

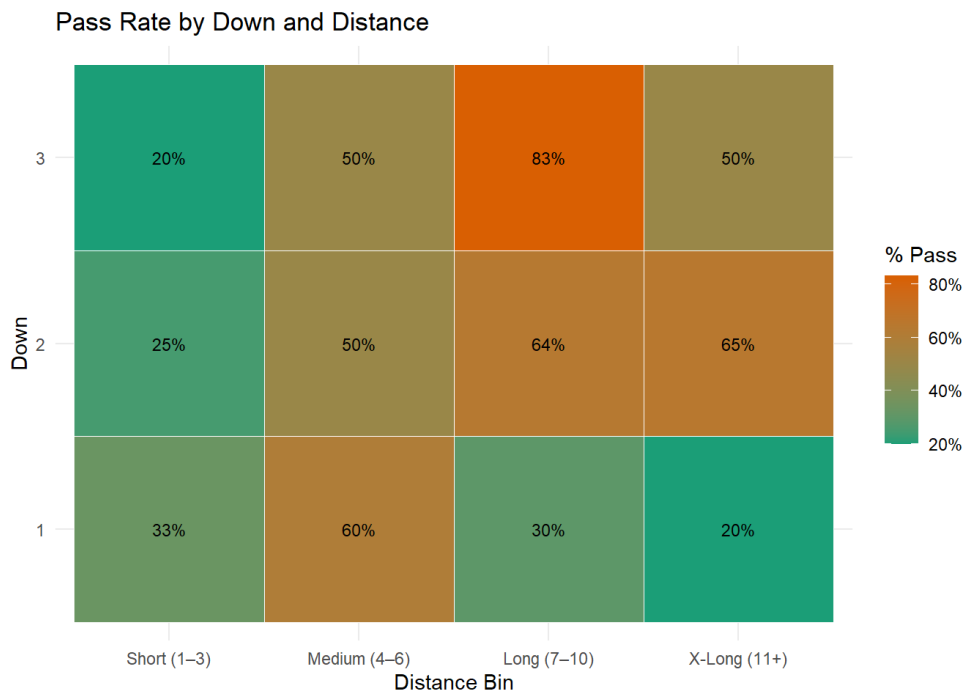


Team Tendencies

Team Play Calling by Down

- Highlights variation in play calling across teams
- Run-heavy vs pass-heavy tendencies by down

Summary: Pass Rate by Down and Distance

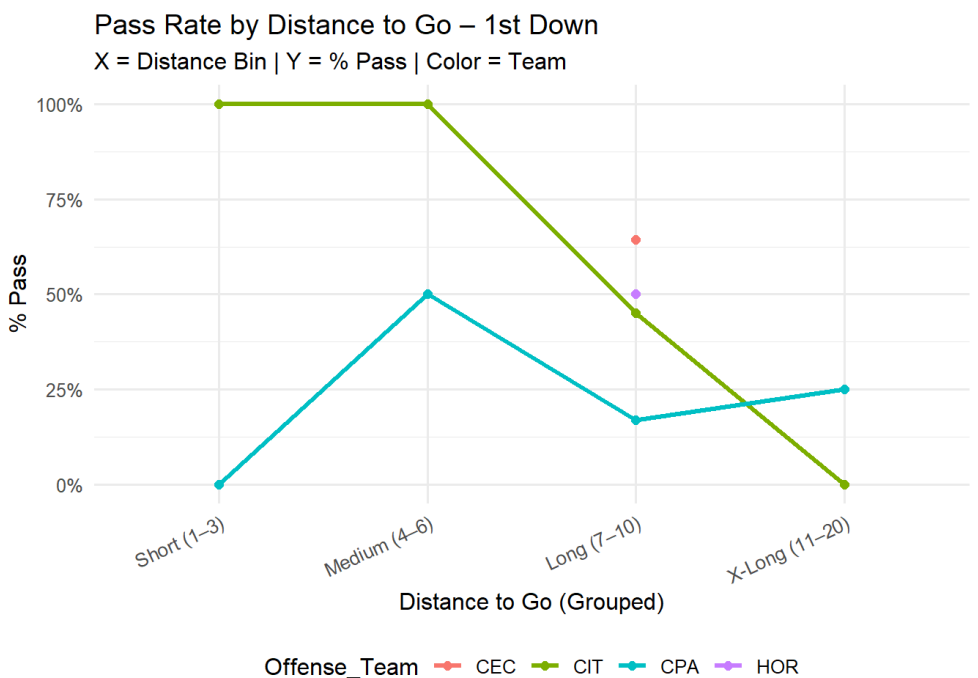


Heatmap

Heatmap Summary

- Higher % pass on 2nd/3rd & long
- Lower % pass on early downs or short yardage

First Down Pass Rates by Distance

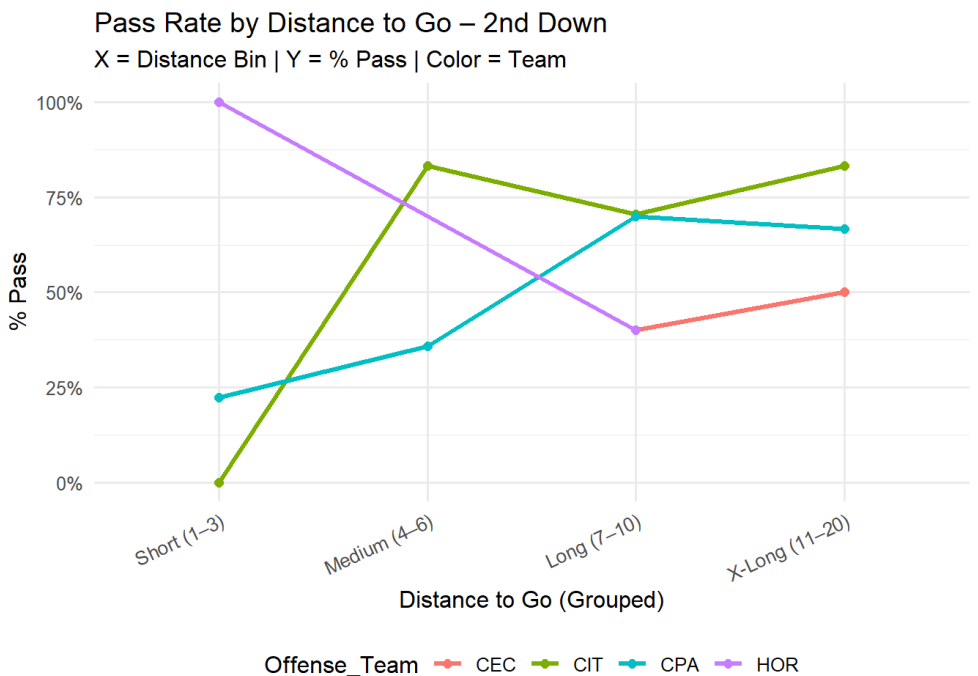


Trends on 1st Down

- Teams tend to run more on short yardage
- CPA has balanced look; CIT very pass-heavy

First Down

Second Down Pass Rates by Distance

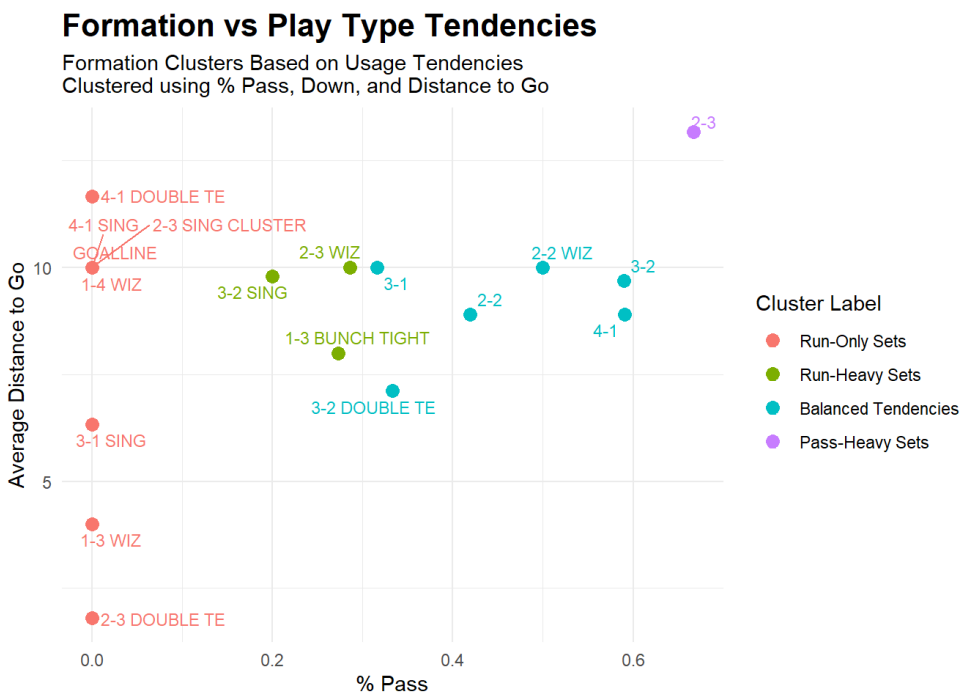


Trends on 2nd Down

- More aggressive play calling emerges
- CIT passes more as distance increases

Second Down

Formation vs Play Type Tendencies

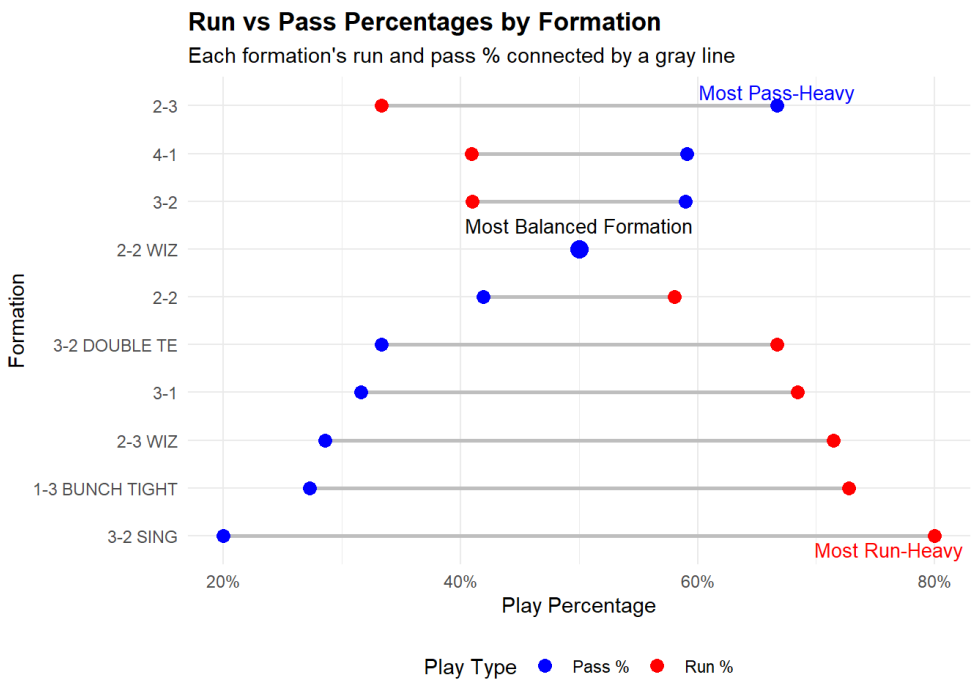


KMeans

K-Means Clustering

- Clusters formations by % pass, avg down, and distance
- Labels: Run-Only, Run-Heavy, Balanced, Pass-Heavy

Run vs Pass Percentages by Formation



Dumbbell Chart

- Spread between run/pass shown per formation
- Flags most extreme & balanced formations

Dumbbell

Conclusion & Thank you!!!

Key Takeaways

- Strong tendencies exist by team, down, and formation
- Situational awareness is critical (distance + down)
- Formations strongly indicate play type in many cases

Thank You

Thanks for watching!

I’m happy to answer any follow-up questions.

Contributions & References

Liam Cook – Sole contributor to the analysis, report, and presentation.

References

- ggplot2 Documentation: https://ggplot2.tidyverse.org/
- Plotly for R: https://plotly.com/
- ggrepel Documentation: https://ggrepel.slowkow.com/
- Tidyverse Project: https://www.tidyverse.org/
- Quarto RStudio Tutorial: https://quarto.org/docs/get-started/hello/rstudio.html