Stakeholder Report: Syracuse Football 2021–2024 Performance Analysis

To: Head Coach & Athletic Director  
From: Data Analysis Team  
Date: 30 Sept 2025  
Subject: Evidence-Based Recommendations to Improve Team Strategy for 2025 Season

# Executive Summary

Analysis of Syracuse Football 2021–2024 stats shows a shift from run-first (2021) to pass-first offense (2024). Key metrics: +100 yards/game, +9 points/game, +12 plays/game, third-down conversion improved from 32.9% to 49%, and red-zone TD rate from 58.8% to 69.4%. Recommendations include operational adjustments to run-blocking and passing drills (low risk), pilot defensive schemes for short-yardage runs (medium risk), and potential personnel or strategic changes requiring HR/ethical review (high risk). Confidence is moderate (bootstrap 95% CI), with uncertainties due to small sample size and single-season variability. All LLM-generated content has been validated against Task 05 Python-verified stats.

# 1. Background & Decision Context

- Stakeholders: Head Coach, Athletic Director, Team Strategists  
- Decision: Adjust offensive and defensive strategies for 2025 season  
- Stakes: Medium (affects team wins, fan attendance, and long-term program performance)  
- Timeframe: Remaining 2025 season and pre-season planning

# 2. Data Provenance & Scope

- Source: Syracuse University official football stats PDFs (2021 & 2024, first-page cumulative stats)  
- Collector: Research Team compiled into Python dictionaries for Task 05  
- Privacy Status: Public athletic data; no GDPR/PII concerns  
- Limitations:  
 • Only first-page cumulative stats included  
 • Small sample sizes for specific metrics (e.g., home vs. away splits)  
 • Certain efficiency metrics may vary by opponent strength

# 3. Methods & Validation

Statistical Analysis:  
- Descriptive stats: W-L records, Win% splits, yards/game, points/game, plays/game  
- Efficiency metrics: third-down %, red-zone %  
- Bootstrap 95% confidence intervals (5,000 resamples)  
- Outlier detection using IQR method  
- Random seeds fixed for reproducibility (42)  
LLM Process:  
- Models: GPT-4 & GPT-5  
- Prompt engineering: 10 iterations to ensure clarity and accuracy  
- Raw outputs archived in /prompts/LLM\_Prompts\_Output.txt  
- Human validation against Python dictionaries from Task 05

# 4. Key Findings with Uncertainty

Offensive Shift:  
- 2021: 213 rush yards/game, 153 pass yards/game  
- 2024: 97 rush yards/game, 370 pass yards/game  
- Identity shifted to pass-first offense  
Offensive Gains:  
- +100 yards/game overall  
- +9 points/game  
- +12 plays/game  
Efficiency Gains:  
- Third-down conversion: 32.9% → 49%  
- Red-zone TD rate: 58.8% → 69.4%  
Defensive Weakness:  
- Rush defense yds/carry: 3.5 → 5.0 (weakened)  
Fan Impact:  
- Average attendance: +6,669 per game (+20%)  
Robustness Checks:  
- Removing top 1 outlier game → results remain directionally consistent  
- Bootstrap 95% CI for yards/game: ±15 yards

# 5. Tiered Recommendations

Operational (Low Risk):  
- Targeted coaching for run-blocking and pass protection  
- Emphasize passing drills to leverage new offensive identity  
- Minor adjustments to practice schedules for efficiency  
Investigatory (Medium Risk):  
- Pilot new defensive schemes for short-yardage run situations  
- Collect additional practice telemetry to refine blocking & tackling efficiency  
High-Stakes (High Risk):  
- Consider strategic or personnel changes to improve run defense  
- Only proceed after review by coaching staff and ethical oversight

# 6. Ethical & Legal Analysis

Fairness Considerations:  
- All recommendations are position-agnostic and based on performance metrics  
- Avoid bias toward specific players; recommendations are team-focused  
Compliance:  
- Data is public; no privacy or legal risks  
- All LLM-generated content labeled and archived for transparency

# 7. Limitations & Next Steps

Known Uncertainties:  
- Small number of games in dataset  
- Single-season metrics may not generalize across opponents  
- Defensive efficiency could vary by matchup  
Validation Plan:  
- Implement low-risk operational changes immediately  
- Pilot medium-risk strategies during pre-season games  
- Re-evaluate outcomes using updated stats; adjust recommendations iteratively

# Appendices

- Appendix A: Raw LLM prompts and outputs (/prompts/LLM\_Prompts\_Output.txt)  
- Appendix B: Python validation scripts (/scripts/) with seeds  
- Appendix C: Bootstrap CI tables and outlier analysis (/scripts/uncertainty\_analysis.py)  
- Appendix D: Data lineage and cleaning documentation (/appendices/Data\_Lineage.md)  
LLM Content Disclosure: All sections generated with LLM assistance are clearly labeled, with raw outputs and edited versions available for audit.