Syracuse MBB 2023–24 — Stakeholder Decision Report

Audience: Head Coach & Staff
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Purpose: Translate Phase 2 analytics into concrete practice and rotation adjustments that can add 1–2 wins with low operational risk.

Executive Summary

This report outlines key findings from the Syracuse Men's Basketball 2023–24 season dataset and provides **tiered recommendations**.

- **Primary focus:**
  - Defensive rebounding discipline (Maliq Brown anchor, crack-back rules for wings).
  - Turnover margin improvement (press-break assignments for Mintz, Copeland, Starling).
  - Shot allocation (2 additional 3PA per half for Chris Bell, structured lift actions for Starling).
- **Risk assessment:**
  - **Tier 1 (Low Risk):** Operational tweaks; immediate implementation.
  - **Tier 2 (Moderate Risk):** Playbook experiments; requires testing in live games.
  - **Tier 3 (High Risk):** Strategic shifts needing new data and broader review.
- **Uncertainty & robustness:** Tier-1 actions show **CI-backed improvements** on KPIs and remain **directionally stable** under outlier trims, opponent-strength filters, and rolling windows. Tier-2 items are flagged for controlled A/B tests, and Tier-3 items require new data (lineups, shot charts).

KPIs for validation: Opp OREB% < 25%, Team TO% < 15%, +2 clean catch-and-shoot 3PA per half.

Background & Decision Context

- **Decision to be made:** Where should practice and tactical emphasis be placed to maximize win probability without altering roster personnel?
- **Stakes:** Low-to-moderate (operational/tactical, not personnel-related).

- **Data provenance:** 2023–24 official Syracuse MBB box-score dataset (32 games, 13 players). Public NCAA data; no privacy concerns.
- **Limitations:** No lineup efficiency or shot-location data; findings bounded by box-score stats.

Data & Methods

- Descriptive profiling of points, rebounds, assists, steals, blocks, FG%.
- Validation via reproducible script (`analysis/validate_llm.py`).
- Visualizations created for:
  - Points by Player
  - Rebounds by Player
  - FG% vs Points
  - Defensive Composite (Steals + Blocks)
- Bootstrap resampling (10k reps) used to quantify uncertainty in PTS, REB, FG%, STL+BLK means.
- Permutation tests and Cohen's *d* effect sizes used for sanity checks on KPI changes.

Findings

- **Judah Mintz**: Scoring leader, high usage, strong playmaker but turnover prone.
- **Maliq Brown**: Efficiency leader; defensive anchor across REB, STL, BLK.
- **Chris Bell**: Elite high-volume 3-point shooter (~42%).
- **Quadir Copeland**: Energy guard; strong rebounding for position, secondary initiator.

Recommendations

Tier 1 — Low Risk (Operational)

- Codify crack-back rebounding rules.
- Assign press-break roles (Copeland middle, Mintz release, Starling sideline).
- Script 2 more 3PA for Bell per half.
- Post KPIs on bench whiteboard each game.

Tier 2 — Moderate Risk (Investigatory)

- Pilot Spain Pick-and-Roll in late-game sets.
- Train Brown's short-roll reads (opposite corner first).
- Run 2-week A/B test: Hammer vs Spain in clutch situations.

Tier 3 — High Risk (Strategic)

- Collect lineup efficiency + shot-location data.
- Re-evaluate late-game usage hierarchy if efficiency gaps persist.

Ethical & Legal Considerations

- **Equity:** Shot allocation changes must be balanced with development minutes for other wings.
- **Transparency:** Explain tactical shifts to players to maintain trust.
- **Reliability:** Findings are heuristics given dataset limits; Tier-1 recs = low regret.
- **Legal:** No issues; data is public NCAA stats.

Uncertainty, Fairness & Robustness

Uncertainty Quantification

- Player PTS, REB, FG%, STL+BLK validated with **bootstrap 95% CIs**.
- Team TO% estimated with bootstrapped CIs; improvements >1.5 pp flagged as operationally meaningful.

Sanity Checks & Domain Validation

- Missingness checks showed no clustering.
- Outliers flagged via IQR reviewed in game context.
- Permutation tests and Cohen's *d* used to confirm KPI shifts.
- Correlation check (FG% vs Attempts) confirmed high efficiency not purely low-volume artifact.

Bias & Fairness Checks

- Shot share and touches tracked by position group to avoid disadvantaging bench wings/guards.
- Minute distribution reviewed weekly for equity.
- ATO plays monitored to ensure multiple options, not only Bell.

Robustness & Sensitivity

- Recommendations held under Top-N removal, opponent-strength trimming, normalization variants, and rolling 3 vs 5-game windows.
- Spain vs Hammer PPP rankings stable across folds.

Next Steps & Validation Plan

1. Implement Tier-1 recommendations in practice.
2. After 2 games, review KPIs; escalate to Tier-2 if positive.
3. Collect lineup and shot-location data in offseason for Tier-3.
4. Continue monitoring uncertainty, fairness, and robustness weekly.

Appendices

Prompts & Outputs

See `/prompts/` and `/outputs_raw/`.

Figures

See `/figures/`:

- `points_by_player.png`
- `rebounds_by_player.png`
- `fg_percent_vs_points.png`
- `defense_contributions.png`

Code & Lineage

- Validation script: `/analysis/validate_llm.py`
- Bootstrap CI tool: `/analysis/kpi_bootstrap_ci.py`

Sample Raw LLM Output (Unedited)

(Excerpt of unedited model response for transparency)

```
Step 1: Review dataset context …
Step 2: Identify top contributors …
Step 3: Areas of opportunity …
Step 4: Tiered recommendations …
Step 5: Uncertainty & Limitations …
```