

Philadelphia Union: Roster Efficiency & Player Value Report

1. EXECUTIVE SUMMARY

The Philadelphia Union's roster shows a strong percentage of valuable players and a net-negative average impact, indicating solid overall efficiency. The single greatest strength is the Goalkeeper TAM slot, which has consistently delivered elite negative percent change values (-10% to -21%) across multiple seasons. The most urgent roster need is the Designated Midfielder position, where multiple players show positive (harmful) percent change (+6% to +12%), representing a significant inefficiency in midfield DP investment.

2. PLAYER ABSENCE IMPACT METRIC

The *Player Absence Impact* metric, derived from the Lasso regression model, quantifies an individual player's marginal contribution to team performance. The process simulates the team's Pythagorean Expectation (PE) score with the player on the roster and then recalculates it after removing that single player.

The resulting **percent change** (% change) is the key indicator:

- **Negative percent change** (e.g., -21.5%) means the team's PE score *decreases* without the player, identifying a **valuable** asset.
- **Positive percent change** means the team's PE score *increases* without the player, identifying a **replaceable** or potentially harmful contract.

This metric allows the front office to evaluate roster construction efficiency by isolating each player's true on-field impact.

3. ROSTER HEALTH OVERVIEW

- **Genuinely Impactful (Percent change < -5.0%): 16.8%** (23 of 137 player-seasons). These players significantly hurt the team if removed.
- **Not Impactful / Replaceable (Percent change > 5.0%): 10.2%** (14 of 137 player-seasons). The team performs better without these players.

Team Summary (from team_summary.csv):

- Total player-seasons analyzed: 137
- Percentage of roster that is valuable (percent change < 0): **53.3%**
- Average percent change across all players: **-0.17%** (net-negative, meaning on average the team is marginally better with these players)
- Average impact magnitude: 3.1%

4. DESIGNATED PLAYER ROI AUDIT

Player	Year	Salary	PE % change	Value Verdict
2021 M	2021	\$1,476,250	+6.68%	Harmful
2022 F	2022	\$1,582,500	-4.61%	Core
2022 F (Young DP)	2022	\$900,000	+0.34%	Marginal
2023 F	2023	\$1,940,000	-5.25%	Core
2023 M	2023	\$1,355,000	+9.80%	Harmful
2023 F (Young DP)	2023	\$950,000	-4.65%	Core
2024 F	2024	\$2,040,000	-0.17%	Core (Marginal)
2024 M	2024	\$1,757,500	+11.96%	Severely Harmful
2025 F	2025	\$2,240,000	+1.33%	Marginal
2025 F (Young DP, Intl.)	2025	\$726,700	-0.98%	Core

- **Flagged (Percent change < 0 - Valuable):** 5 of 10 Designated Player seasons show negative percent change. Forward DPs are generally valuable; midfielder DPs are consistently harmful.
- **Flagged (Percent change > 0 - Harmful): 5 players** – midfielder DPs are the primary concern. The 2024 M DP (+11.96%) is the worst. The Union should restrict DP investment to forwards.

5. ALLOCATION MONEY EFFICIENCY (TAM / U22-INITIATIVE)

- **TAM Contributors (Negative Percent change):** TAM players are a clear strength, particularly in goal. Valuable TAM contributors include a 2022 GK TAM (-10.69%), 2022 D TAM (-0.14%), 2023 D TAM (+1.44% - *positive*), 2023 GK TAM (-15.95%), 2023 D TAM (+2.49% - *positive*), 2024 D TAM (-1.04%, -0.32%, -0.02%), 2024 GK TAM (-17.47%), 2024 F TAM (-1.95%), 2025 D TAM (-0.81%), 2025 GK TAM (-21.51%), 2025 F TAM (-1.16%). However, several TAM players show positive percent change: 2025 M TAM (+2.44%).
- **U22-Initiative Impact:** U22 slots are generally effective:
 - 2023 D U22 (Intl.): -2.61% (valuable)
 - 2024 D U22 (Intl.): -3.60% (valuable)
 - 2025 M U22: +1.30% (marginal)
 - 2025 D U22 (Intl.): -2.70% (valuable)

Top 3 TAM "Steals" (Most Negative Percent change):

1. **2025 GK TAM** (\$1,181,250, -21.51%)

2. **2024 GK TAM** (\$981,250, -17.47%)

3. **2023 GK TAM** (\$894,375, -15.95%)

6. HOMEGROWN PLAYER EVALUATION

Player	Year	Salary	PE % change
2025 M Homegrown	2025	\$364,000	+0.87%
2025 M Homegrown	2025	\$161,125	-1.12%
2025 M Homegrown	2025	\$94,287	-1.80%
2025 D Homegrown	2025	\$92,127	-3.45%
2025 GK Homegrown	2025	\$90,537	+4.93%
2024 M Homegrown	2024	\$364,000	-0.52%
2024 D Homegrown	2024	\$171,500	-3.82%
2024 M Homegrown	2024	\$153,500	-1.86%
2024 M Homegrown	2024	\$107,636	-2.60%
2024 M Homegrown	2024	\$87,281	-3.23%
2024 M Homegrown	2024	\$85,066	-3.25%
2023 M Homegrown	2023	\$186,533	+3.17%
2023 M Homegrown	2023	\$123,500	+2.16%
2023 M Homegrown	2023	\$93,080	+1.86%
2022 M Homegrown	2022	\$103,500	-0.94%
2022 M Homegrown	2022	\$97,825	-1.00%
2022 M Homegrown	2022	\$74,774	-1.21%
2021 M Homegrown	2021	\$67,047	-0.88%

- **Ready for Roster Promotion (Negative Percent change + Low Salary):**

- **2025 D Homegrown (\$92,127, -3.45%):** Strong negative impact approaching the elite threshold.
- **2024 D Homegrown (\$171,500, -3.82%):** Solid value from a homegrown defender.
- **2024 M Homegrown group (-2.6% to -3.3%):** Multiple midfielders providing consistent negative impact.
- **2022-2021 M Homegrown group (-0.9% to -1.2%):** Consistent depth contributors.

7. INTERNATIONAL SLOT OPTIMIZATION

Player	Year	Pos	Salary	PE % change	Justifies Slot?
2023 F TAM	2023	F	\$710,000	0.00%	Neutral
2023 D U22	2023	D	\$188,875	-2.61%	Yes
2024 F TAM	2024	F	\$760,000	-1.95%	Yes
2024 M TAM	2024	M	\$602,100	+0.96%	No
2024 M	2024	M	\$312,625	-0.56%	Yes
2024 D U22	2024	D	\$263,875	-3.60%	Yes
2024 GK	2024	GK	\$106,040	+4.34%	No
2025 F Young DP	2025	F	\$726,700	-0.98%	Yes
2025 M TAM	2025	M	\$652,100	+2.44%	No
2025 D U22	2025	D	\$288,875	-2.70%	Yes
2025 M	2025	M	\$329,875	+1.19%	No
2025 GK	2025	GK	\$166,324	+5.35%	No

- **Flagged Slot Misuse (Percent change > 5%):**

- 2025 GK (\$166,324, +5.35%) – supplemental international slot misuse

8. POSITIONAL DEPTH AUDIT

Position	Senior Count	Supplemental Count	Critical Upgrade Need?	Strength Area?
F (Forward)	15	6	No	Yes (DP forwards are generally valuable; TAM forwards are effective)
M (Midfielder)	18	8	Yes	No (DP midfielders are consistently harmful; TAM midfielders are mixed; homegrown midfielders are valuable)
D (Defender)	18	7	No	Yes (TAM defenders are generally effective; homegrown defenders provide

Position	Senior Count	Supplemental Count	Critical Upgrade Need?	Strength Area?
				strong value)
GK (Goalkeeper)	6	5	No	Yes (TAM goalkeepers are elite; homegrown GKs are mixed)

- **Critical Need:** Midfielder position at the DP level. The Union cannot afford to continue investing DP slots in midfielders.
- **Strength:** Goalkeeper position is an elite organizational strength, with TAM GKs delivering -10% to -21% impact. Forward DP investment is also consistently valuable.

9. SALARY vs. VALUE MATRIX

Quadrant	Definition	Players (Top 5 or All)
CORE ASSET	% change < 0 & Salary > \$500K	2025 GK TAM (\$1.18M, -21.51%), 2024 GK TAM (\$981K, -17.47%), 2023 GK TAM (\$894K, -15.95%), 2022 GK TAM (\$869K, -10.69%), 2023 F DP (\$1.94M, -5.25%)
HIDDEN GEM	% change < 0 & Salary ≤ \$500K	2024 D Homegrown (\$172K, -3.82%), 2025 D Homegrown (\$92K, -3.45%), 2024 M Homegrown (\$107K, -2.60%), 2024 M Homegrown (\$87K, -3.23%), 2024 M Homegrown (\$85K, -3.25%)
OVERPAID	% change ≥ 0 & Salary > \$500K	All in this quadrant: 2024 M DP (\$1.76M, +11.96%), 2023 M DP (\$1.36M, +9.80%), 2021 M DP (\$1.48M, +6.68%), 2025 F DP (\$2.24M, +1.33%), 2022 F Young DP (\$900K, +0.34%), 2025 M TAM (\$652K, +2.44%)
REPLACEABLE	% change ≥ 0 & Salary ≤ \$500K	Several senior defenders and midfielders with marginal positive percent change, some TAM players, and a portion of the supplemental roster.

10. YEAR-OVER-YEAR TRENDS

- **Designated Player ROI: Bimodal.** Forward DPs are consistently valuable (-0.2% to -5.3%). Midfielder DPs are consistently harmful (+6.7% to +12.0%). The Union should restrict DP investment to forwards.
- **TAM Efficiency: Elite at goalkeeper, good on defense, mixed elsewhere.** TAM goalkeepers deliver -10% to -21% impact – best-in-class. TAM defenders are generally effective (-0.1% to -1.0%). TAM midfielders and forwards are mixed.
- **U22 Efficiency: Good.** Most U22 players show negative percent change (-2.6% to -3.6%). This roster mechanism is being used effectively.
- **Homegrown Impact: Strong on defense and midfield.** Homegrown players consistently show negative percent change (-0.9% to -3.8%) across multiple seasons. This is a clear organizational strength and a model for other MLS teams.
- **Goalkeeper Trend: Elite when using TAM.** Philadelphia's investment in TAM goalkeepers has paid exceptional dividends (-10% to -21%). This is a best-practice model for other MLS teams.

11. SUMMARY FIGURES

Figure 1 - Designation Analysis
 (Negative % = Team Gets Worse Without Player = Valuable Player)

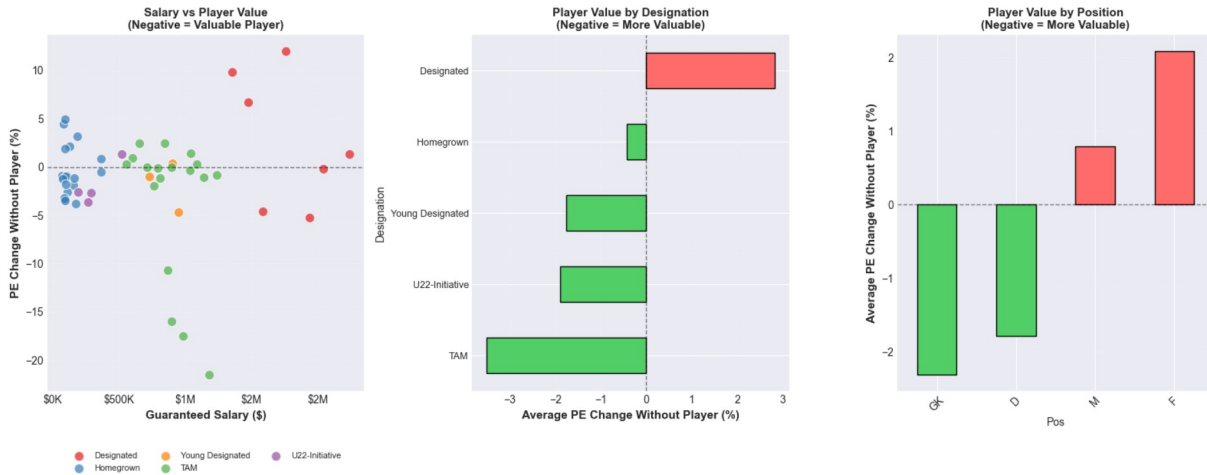


Figure 2 - International Analysis
 (Negative % = Team Gets Worse Without Player = Valuable Player)

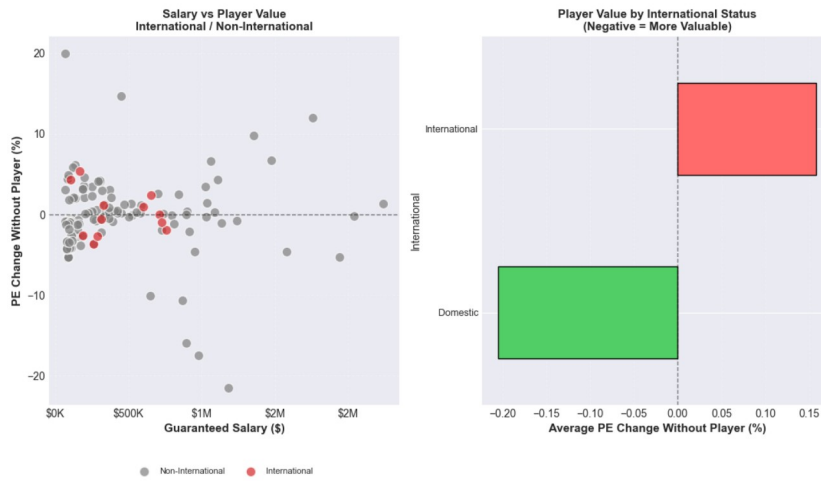


Figure 3 - Senior/Supplemental Analysis
 (Negative % = Team Gets Worse Without Player = Valuable Player)

