DATA VISUALIZATION PROJECT

AESTHETICS *VS* EFFICIENCY

Is the "Beautiful Game" a Trap? A data-driven story of why style didn't equal substance in the 2024/25 Season.

STUDENT

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RESEARCH QUESTIONS

PRIMARY QUESTION

"Does dominance in Ball Possession guarantee success, or is there a disconnection between 'Playing Well' and 'Winning'?"

PHASE 1: THE MACRO ANALYSIS

Why did **Como** play "Elite" football metrics-wise but ended up mid-table? Investigating the correlation between aesthetic metrics and concrete results across the league.

PHASE 2: THE EFFICIENCY GAP

Analyzing the relationship between Offensive Production (xG, SCA) and Finishing Quality. Does creating volume matter if conversion rates are low?

PHASE 3: THE WINNING PROFILE (CASE STUDY)

Investigating the Champion's metrics: Did **Antonio Conte's Napoli** rely on aesthetic dominance or a distinct efficiency model?

THE ITALIAN DILEMMA

In Italy, football is religion, but the denomination is split. For decades, a fierce debate has raged between two philosophies:

🎨 "Giochisti" (The Aesthetes)

Those who believe that beautiful, proactive, possession-based football is the only sustainable path to victory. *"If you play well, you win."*

🛡️ "Risultatisti" (The Pragmatists)

Those who care only about the final score. They argue that ball possession is vanity and defensive solidity is sanity. *"Winning is the only thing that matters."*

This analysis uses data to settle the score: in 2024, is the "Beautiful Game" actually efficient?

ABOUT DATA

DATASET & SOURCE

FBref.com (via StatsBomb)

Dataset covers the full 24/25 Serie A season.

Scope: 20 Teams, 38 Matchweeks.

ANALYST'S NOTE: WHAT IS XG?

"Expected Goals" (xG) measures the probability of a shot becoming a goal.

High xG + Low Goals = Wasteful

Low xG + High Goals = Clinical

KEY METRICS

AESTHETICS (STYLE)

Poss: Ball Possession %

Field Tilt: Dominance in Final 3rd

Cmp%: Passing Accuracy

EFFICIENCY (OUTPUT)

npxG: Non-Penalty xG Created

G-xG: Finishing Overperformance

SCA90: Shot Creating Actions

SOLIDITY (DEFENSE)

xGA: Expected Goals Against

High Press: Att 3rd Def Actions

TklW: Tackles Won

BOUNDARIES AND CONSTRAINTS

- **Event Data Only:** The dataset tracks "on-ball" events. Player movement without the ball (positional play) is not captured.
- **Efficiency Variance:** Finishing overperformance (Goals > xG) over a single season may reflect temporary form (variance) rather than sustainable structural quality.
- **Proxy Approximation:** Tactical concepts like "Pressing" are approximated using proxies (e.g., Def Actions) lacking true tracking metrics like *PPDA*.

METHODOLOGY

1. DATA COLLECTION

Manual extraction for Understat (.xslx) for 2024/25 season.
Tables merged into one database with 20 observations (one for each team) and 70 variables.

2. PROCESSING & VISUALIZATION TOOLS

Python Pandas library: Cleaning, Merging & Normalization.
Python Viz Libraries (Matplotlib/Seaborn): Visualizations.
Datawrapper: Dumbbell plot for xG differential.

3. TRANSFORMATION

Z-Scores: Calculated to standardize metrics with different scales (e.g.,Possession % vs Shots) for RadarCharts and PizzaPlot.
npxG: xG - Penalty_xG.
Per 90 Normalization: Volume metrics scaled to 90 minutes to represent the average output per full match.

4. AI TOOLS

LLM employed to debug code, optimize the plotting and refine narrative structure.

5. STATISTICAL FRAMEWORK

Clustering (K-Means): Used to categorize teams into tactical identities based on style metrics.
Correlation Analysis: Testing relationships between Possession, Field Tilt, and Points.
Residual Analysis: Measuring efficiency by calculating the divergence between Expected (xG) and Actual outcomes.

6. REPRODUCIBILITY

Analysis reproducible via public data.

🔗 View Code & Notebooks on GitHub

PART 1

TACTICAL LANDSCAPE & STYLE ANALYSIS

Examining the disconnect between possession and control.

THE TACTICAL MATRIX

MAPPING THE LEAGUE'S STYLE: POSSESSION VS DIRECTNESS

ℹ️ HOW TO READ THIS PLOT
- X-AXIS (DIRECTNESS): Right = Fast attacks / Long balls.
- Y-AXIS (POSSESSION): Top = Dominates the ball.
- DOTS (COLOR AND SIZE): The brighter and the bigger the dots, the higher the number of chances created.
- QUADRANTS: Top-Left is "Control", Bottom-Right is "Chaos".

BOLOGNA'S TACTICAL HIGHLIGHTS

Vertical Possession: High possession but high directness. They keep the ball but constantly break lines.

THE COMO EXPERIMENT

Como shares the quadrant with top tier teams such as Inter or Juventus. Under Fabregas, they attempted to dominate the ball. Statistically brave, but risking defensive exposure.

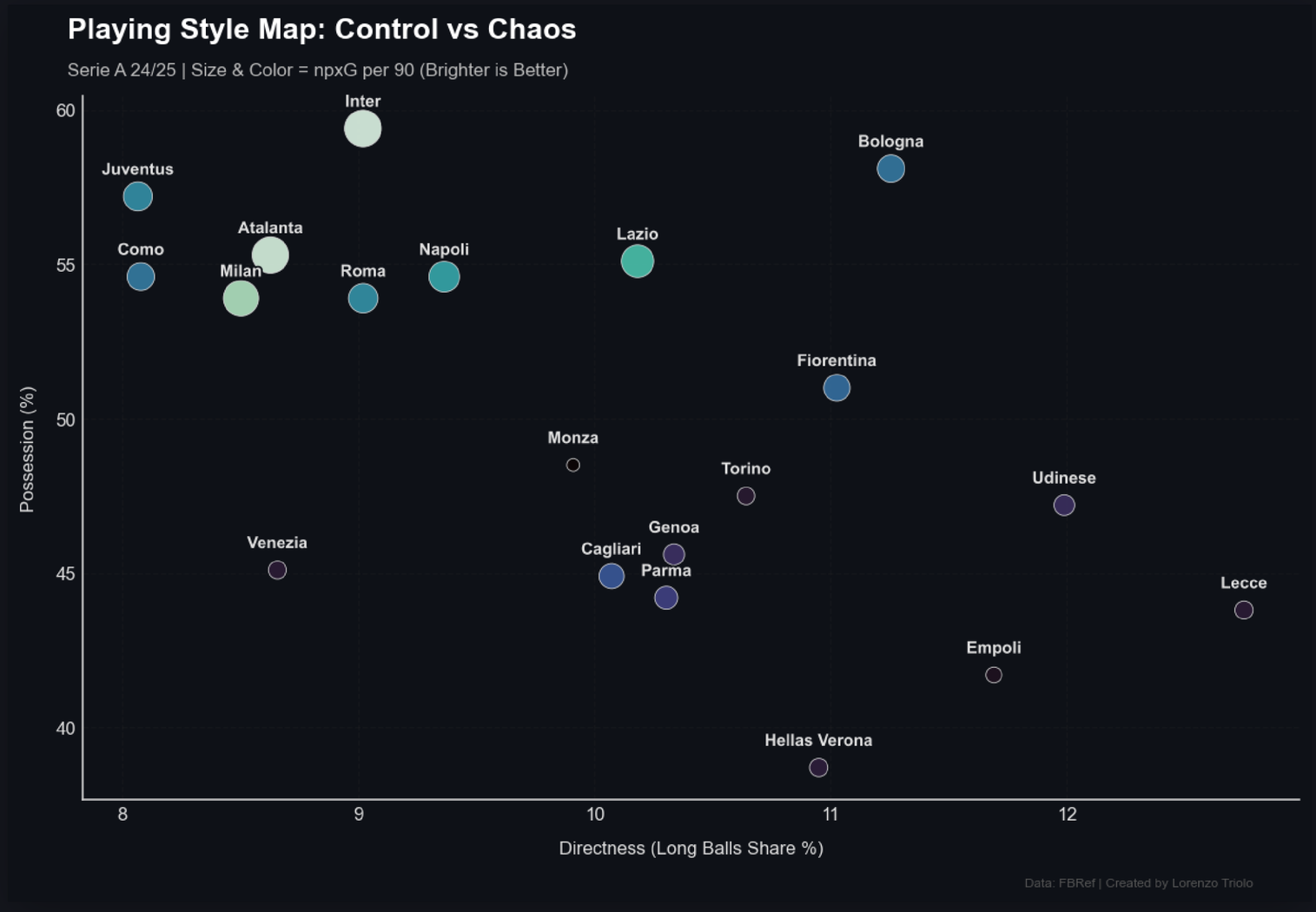

Fig 1. Playing Style Map: Control vs Chaos

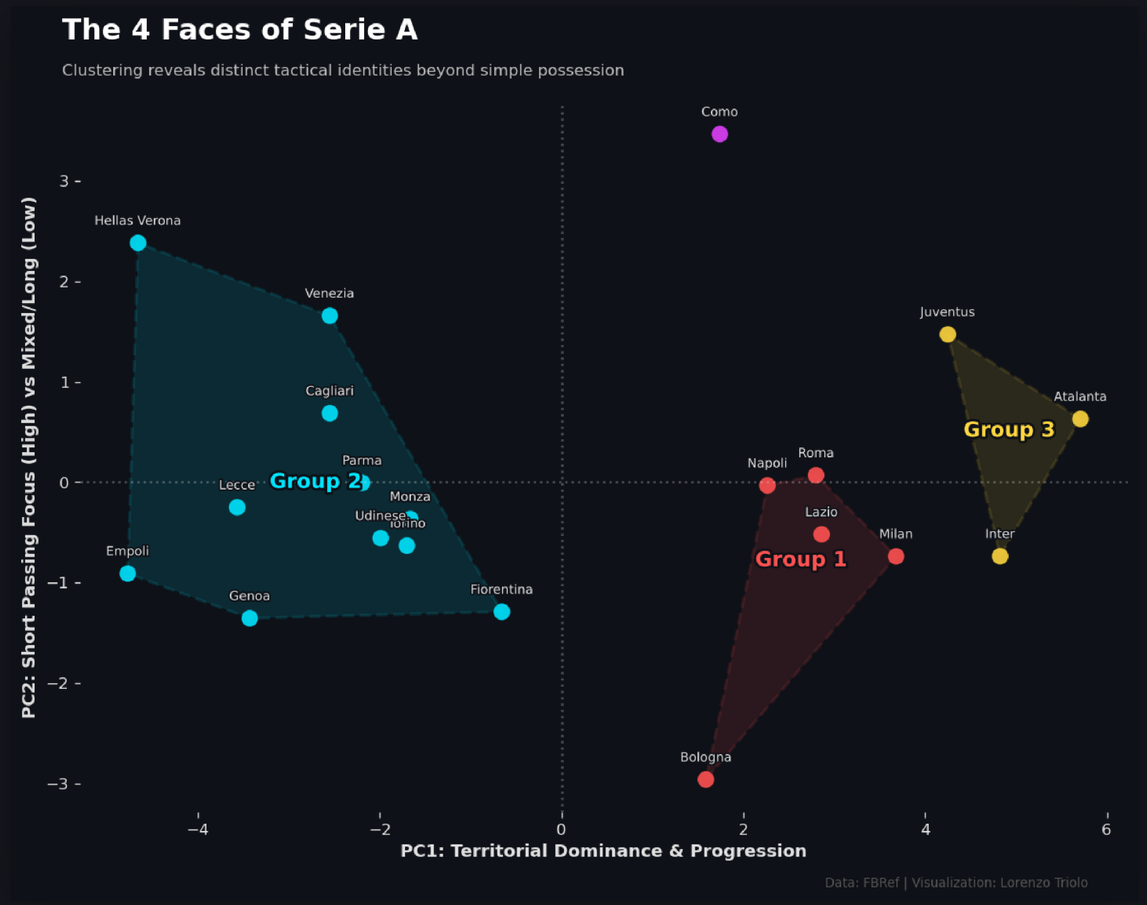

Fig 2. The 4 Faces of Serie A

THE 4 FACES OF SERIE A: COMO'S UNIQUENESS

K-Means clustering confirms distinct tactical identities:

- **Group 3 (Elite Aggressors):** Inter, Juve, Atalanta. High Possession, High Intensity.
- **Group 1 (Patient Strategists):** Napoli, Bologna, Roma. Control and patience.
- **Group 2 (Survival Mode):** Low block teams. Focus on rigid defense.
- **The Outlier (Como):** Mathematically isolated. Trying to play like Group 3 without their squad depth.

CLUSTER MORE IN DETAIL

LAZIO VS COMO AS EXAMPLE OF CONCRETENESS

ℹ️ READING A RADAR
The further out the line, the better the stat. Overlapping lines mean similar playing styles.

THE DIVERGENCE

Como (Pink) matches Lazio (Red) in **Build-up**. But look at the top: Lazio dominates in **Shots & Goals**. Como has the Style but lacks the Substance.

🎯 MARKET INSIGHT: THE "CHAOS" INJECTION

Realizing this sterile dominance (High Build-up, Low Goals), Como signed dribblers like **Jesus Rodriguez**, **Addai**, and **Kuhn** in the summer. A clear move to add individual chaos to their rigid structure.

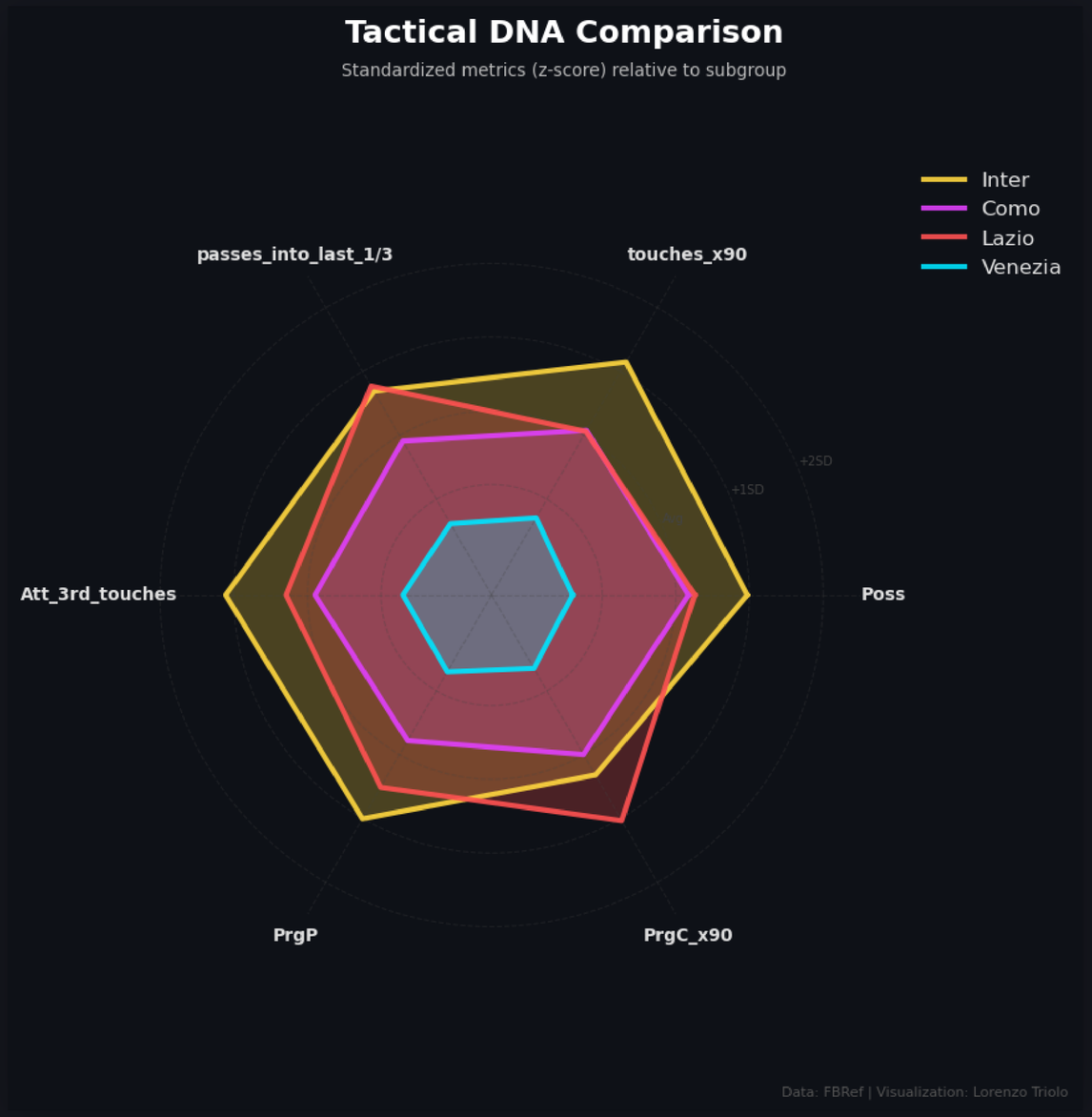

Fig 3. Tactical DNA Comparison

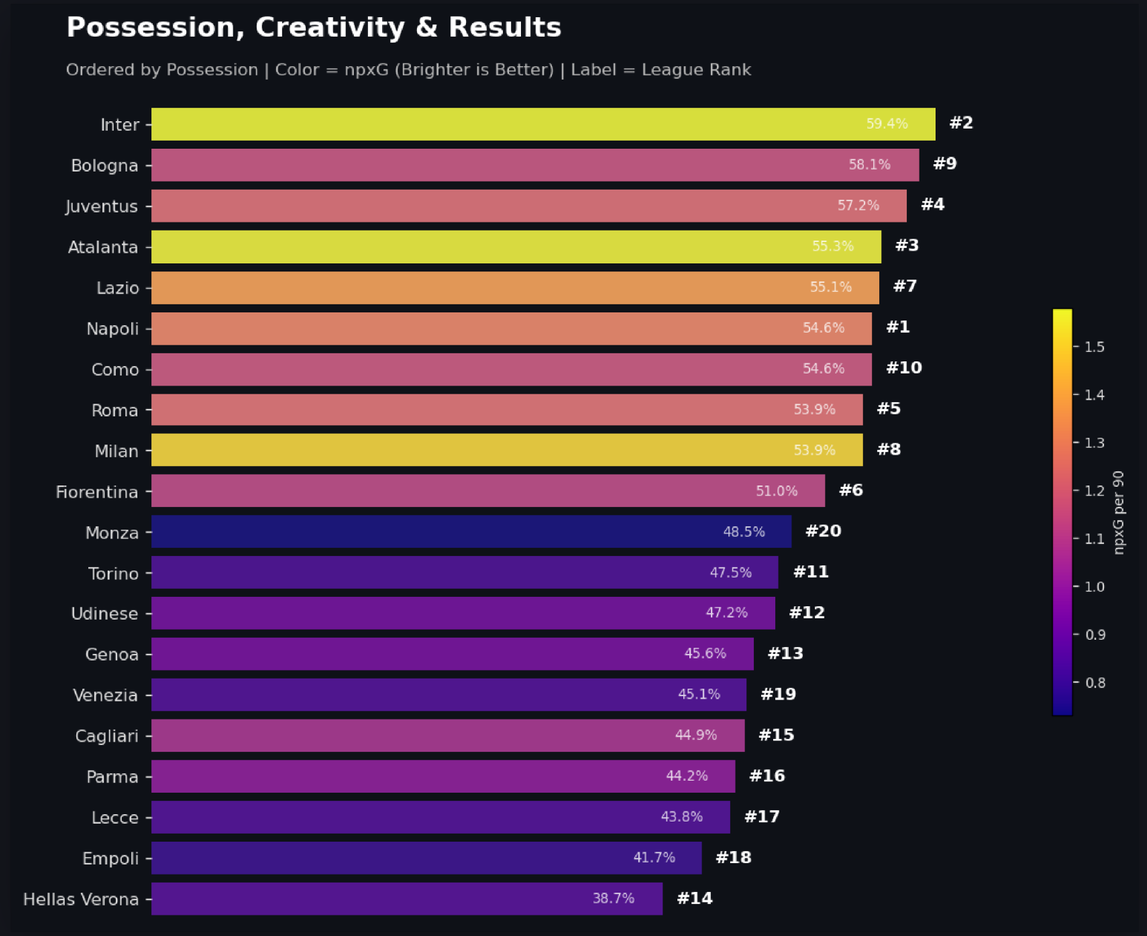

Fig 4. Possession, Creativity & Results

THE POSSESSION PARADOX

POSSESSION IS A TOOL, NOT A RESULT

ℹ️ HOW TO READ THIS PLOT
- BARS: Sorted by Possession % (Top = Highest).
- COLOR: Brighter color = Higher npxG (Offensive Quality).
- LABEL: League Table Rank.

The Hypothesis: If style dictated results, this chart would mirror the league table perfectly.
But as the data shows, it doesn't.

THE CONTRAST

Compare **Bologna** (2nd Bar) vs **Napoli** (Champion). Bologna kept the ball significantly more, yet Napoli won the league.

This discrepancy proves that **Sterile Dominance** is less valuable than **Vertical Efficiency**.

STERILE DOMINANCE

FIELD TILT VS XG

ℹ️ HOW TO READ THIS PLOT
- FIELD TILT (X): Share of possession in the final third.
- OFFENSIVE QUALITY (Y): npxG created per 90.
- TREND LINE: Teams above the line are efficient; below are wasteful.

THE DISCONNECT

While Inter and Atalanta convert territory into xG (Top Right), teams like Roma or Bologna dominate the territory but create average xG. **They bark but don't bite.**

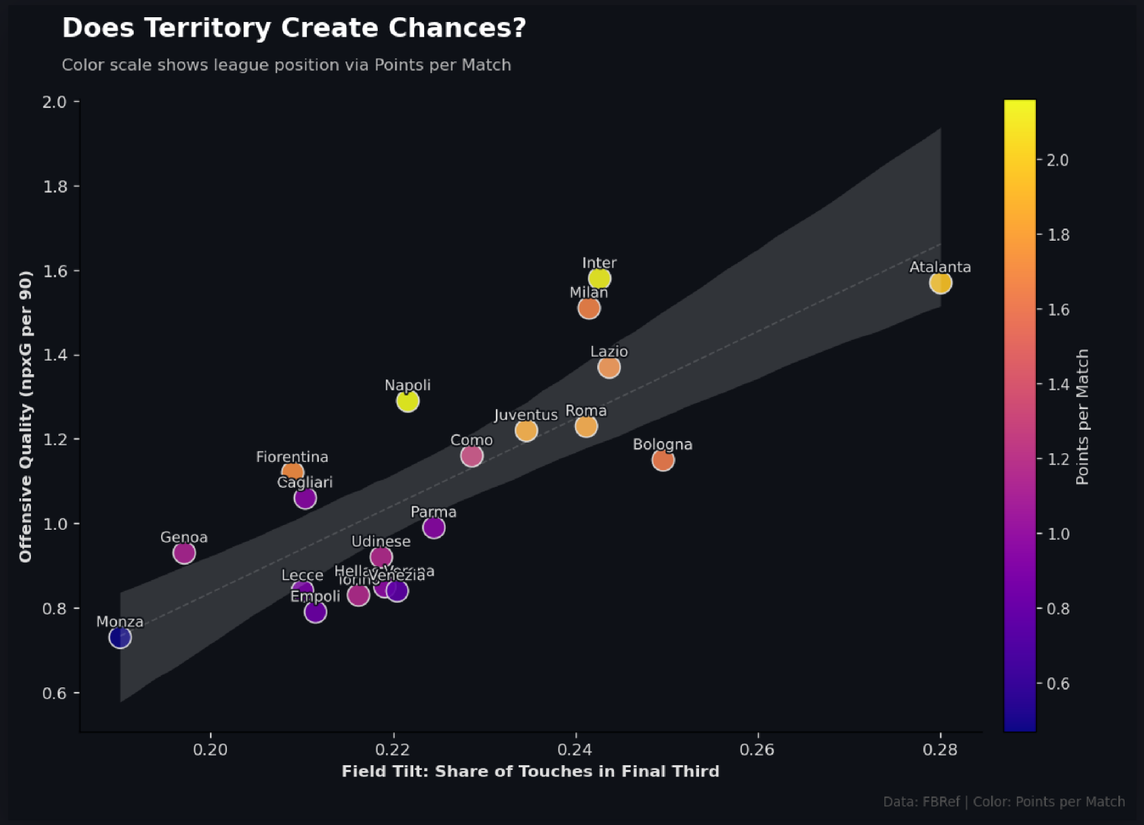

Fig 5. Field Tilt vs Offensive Quality

PART 2

OFFENSIVE EFFICIENCY & METRICS

Shifting focus from "Playing Well" to "Scoring Goals".

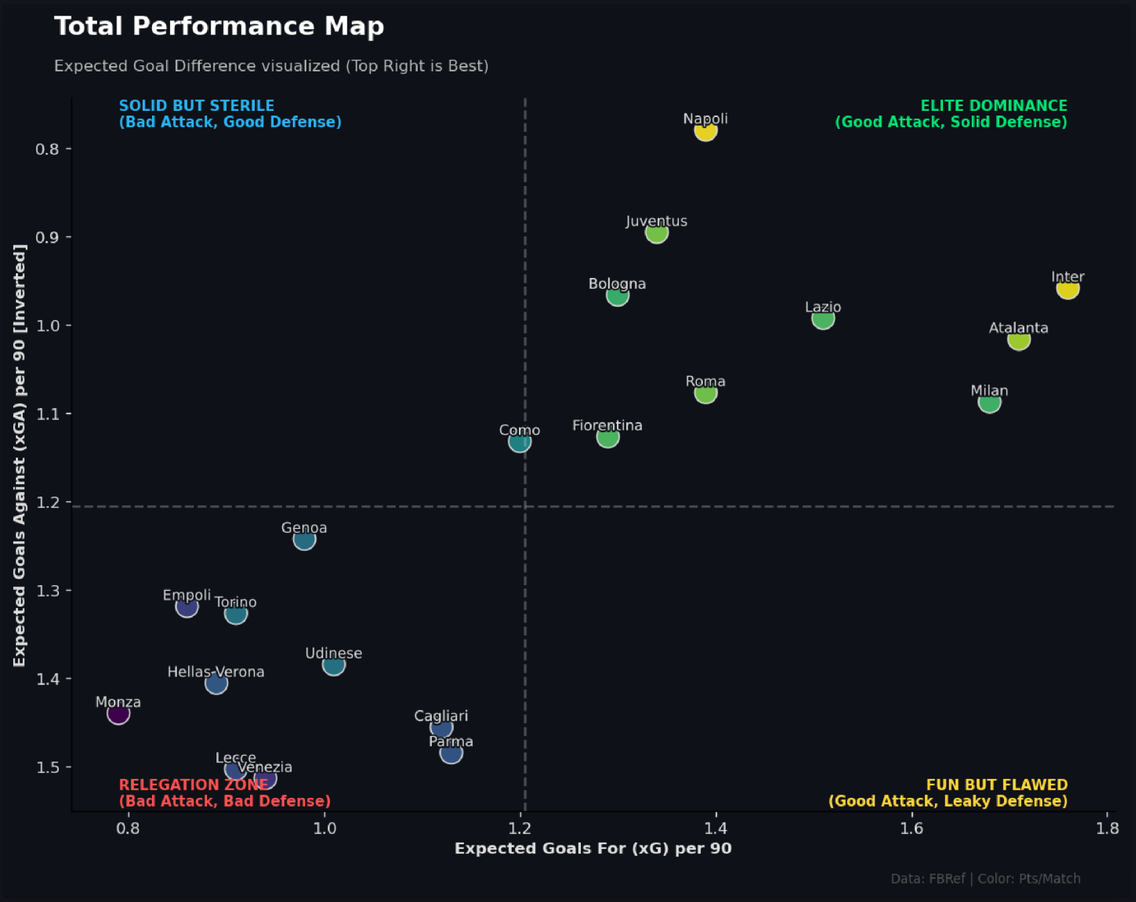

Fig 6. Total Performance Map

EXPECTED GOALS OVERVIEW

XG VS XGA

ℹ️ HOW TO READ THIS PLOT
- X-AXIS (ATTACK): xG Created (Right is better).
- Y-AXIS (DEFENSE): xG Conceded (Top is better/less).
- TOP RIGHT: The "Elite Zone".

THE ELITE ZONE

Top-Right: Teams that create much more than they concede. Note how isolated Inter and Atalanta are.

THE VENEZIA PARADOX

Bottom Left: High risk, no reward. They produce offensively but leave the back door open, getting relegated at the end of the season.

THE EFFICIENCY VERDICT

WASTEFUL VS CLINICAL

ℹ️ HOW TO READ THIS PLOT
- RED DOT: Expected Goals (xG).
- GREEN DOT: Actual Goals.
- GAP: If Green is to the right of Red = Overperformance (Clinical).

THE 24/25 ANOMALY: ATALANTA

Last season, Atalanta scored +11 goals above expected. This massive overperformance was driven by **Retegui**'s clinical finishing.

📉 MARKET CONSEQUENCE: THE REGRESSION

During the first part of 2025/26 Atalanta struggled much more than expected. Why? They sold **Retegui** and replaced him with **Krstovic** (from Lecce), who was statistically the most wasteful striker last year (-7.6 goals) during last season and they soon realized it.

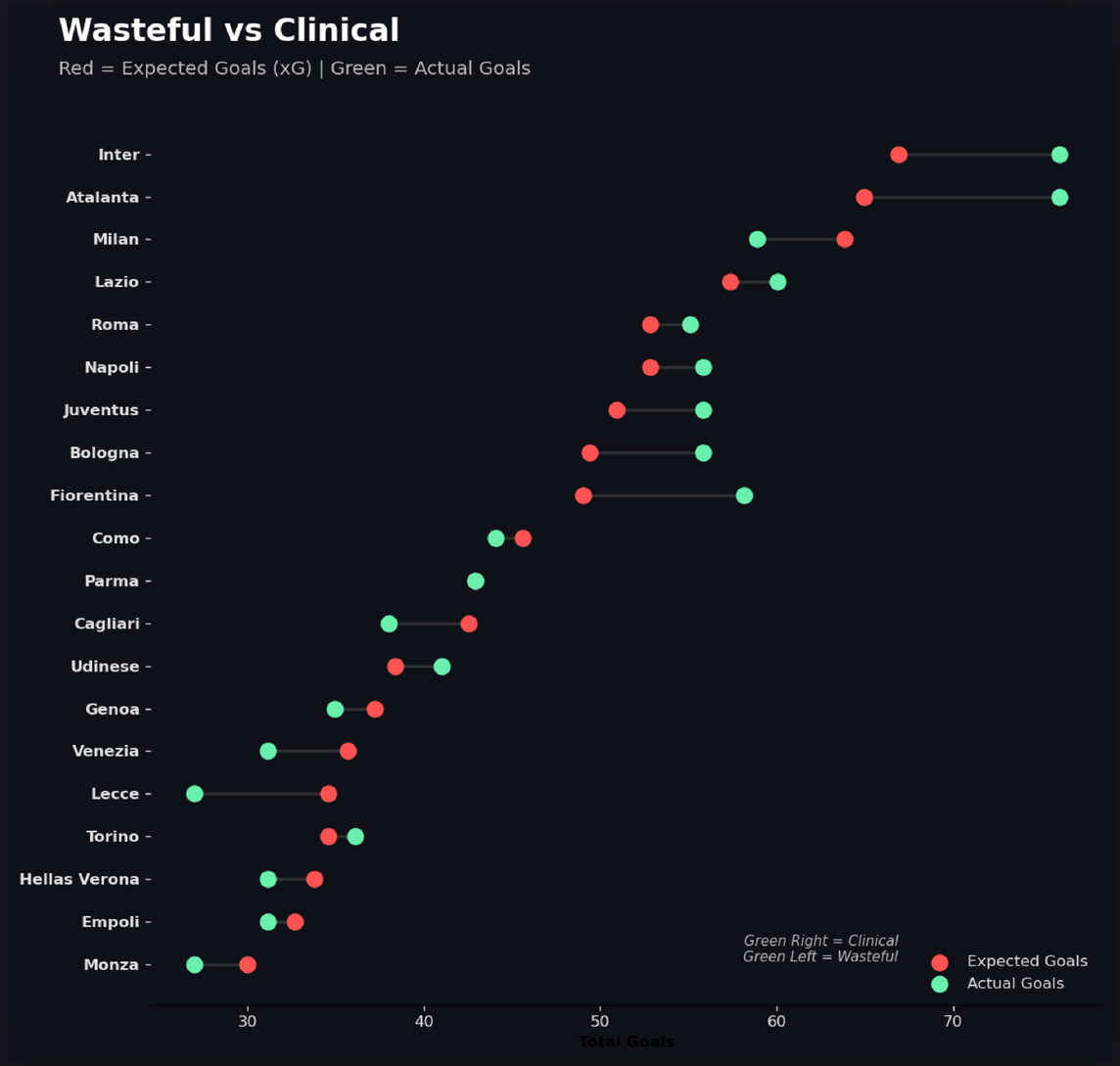

Fig 7. Wasteful vs Clinical

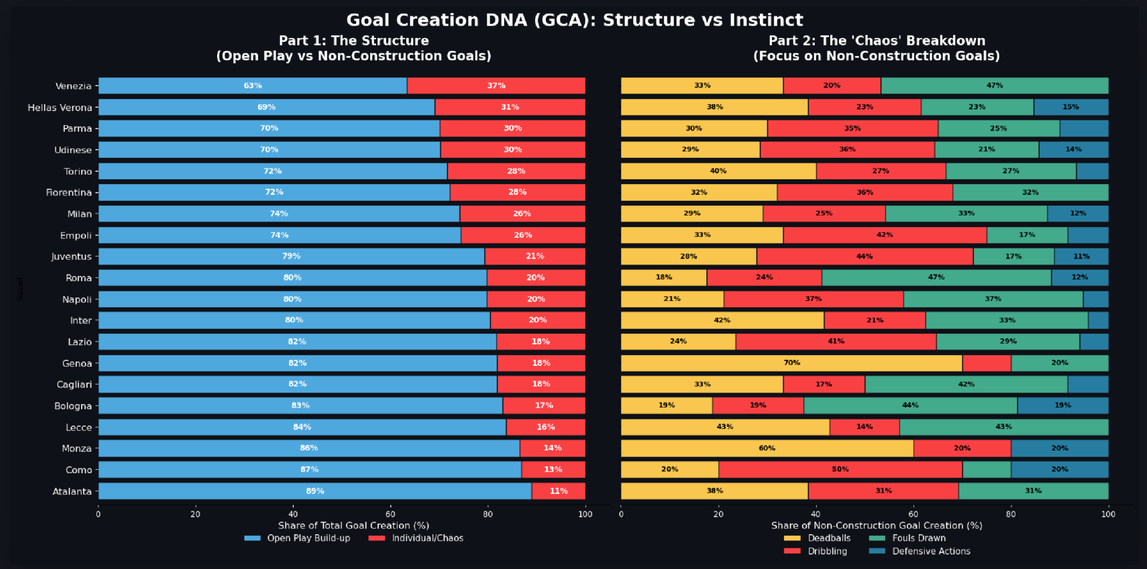

Fig 8. Goal Creation DNA

THE LETHAL DNA

STRUCTURE VS INSTINCT

HOW TO READ THIS PLOT
Breakdown of how teams create Goal Creating Actions (GCA). Shows reliance on System vs Individual brilliance.

System (Blue): Teams like Inter score via structure and collective passing.

Instinct (Red): Milan relied heavily on Leao's individual dribbles.

Deadballs (Yellow): Small teams survive on set-pieces.

PART 3

PERFORMANCE OPTIMIZATION

How Napoli won by mastering efficiency in the game.

THE CHAMPION'S PROFILE

NAPOLI 24/25 ANALYSIS

ℹ️ HOW TO READ THIS PLOT
Percentile Ranks (0-100). The further the slice reaches the edge, the better the team is compared to the league average.

BALANCED, NOT DOMINANT

Napoli has no 100th percentile spikes in Attack. However, look at the **xGA** in the Defense sector: it's elite (95th percentile). They won through defensive solidity.

🎯 MARKET STRATEGY: TARGETED QUALITY

Addressing the specific limits seen in build-up (passing volume), Napoli signed during the Summer '25 transfer window **Kevin De Bruyne** (Elite Creator) and also **Noa Lang** to fill the void left by **Kvaratskhelia**.

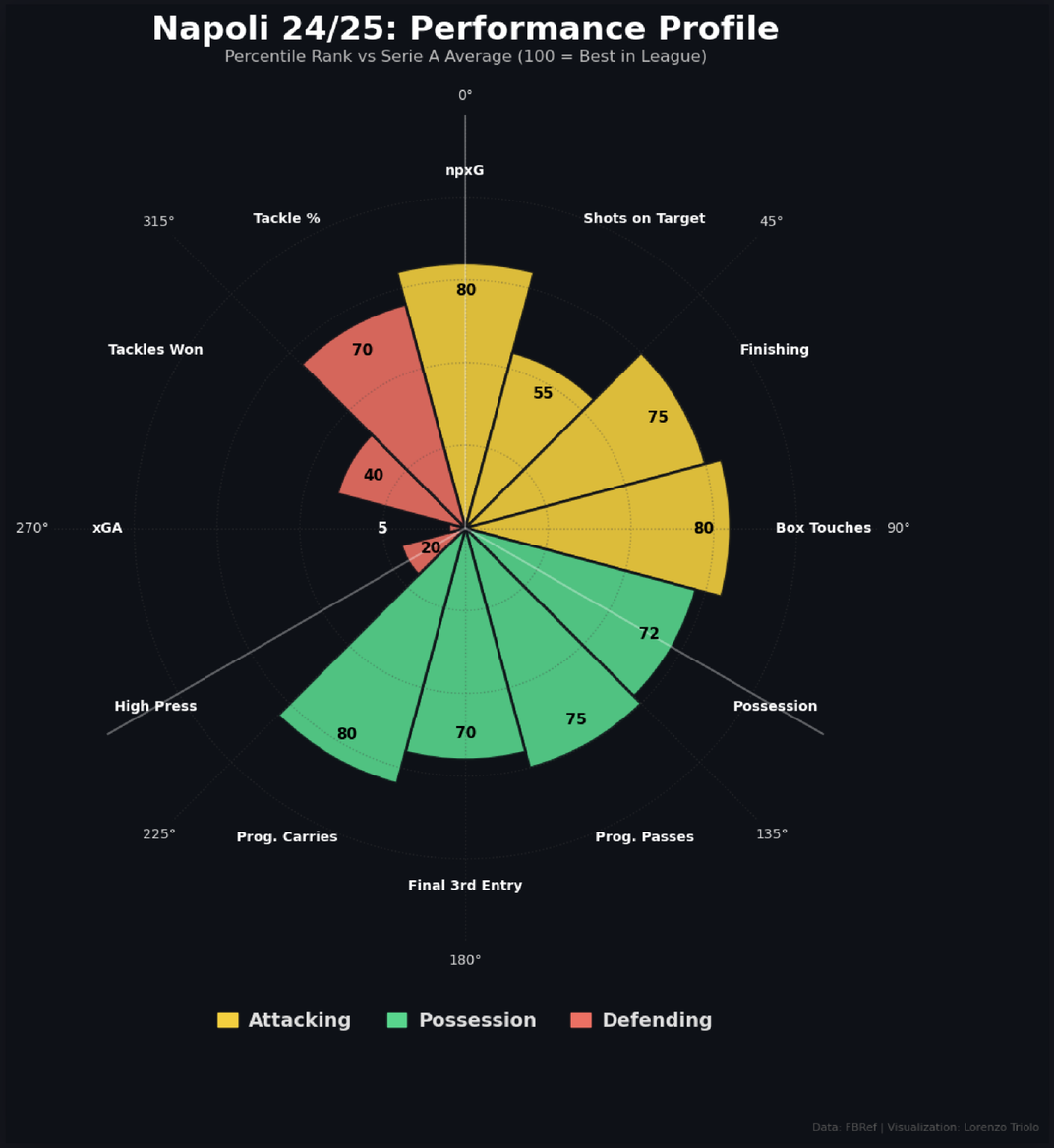

Fig 9. Napoli 24/25: The overall performance

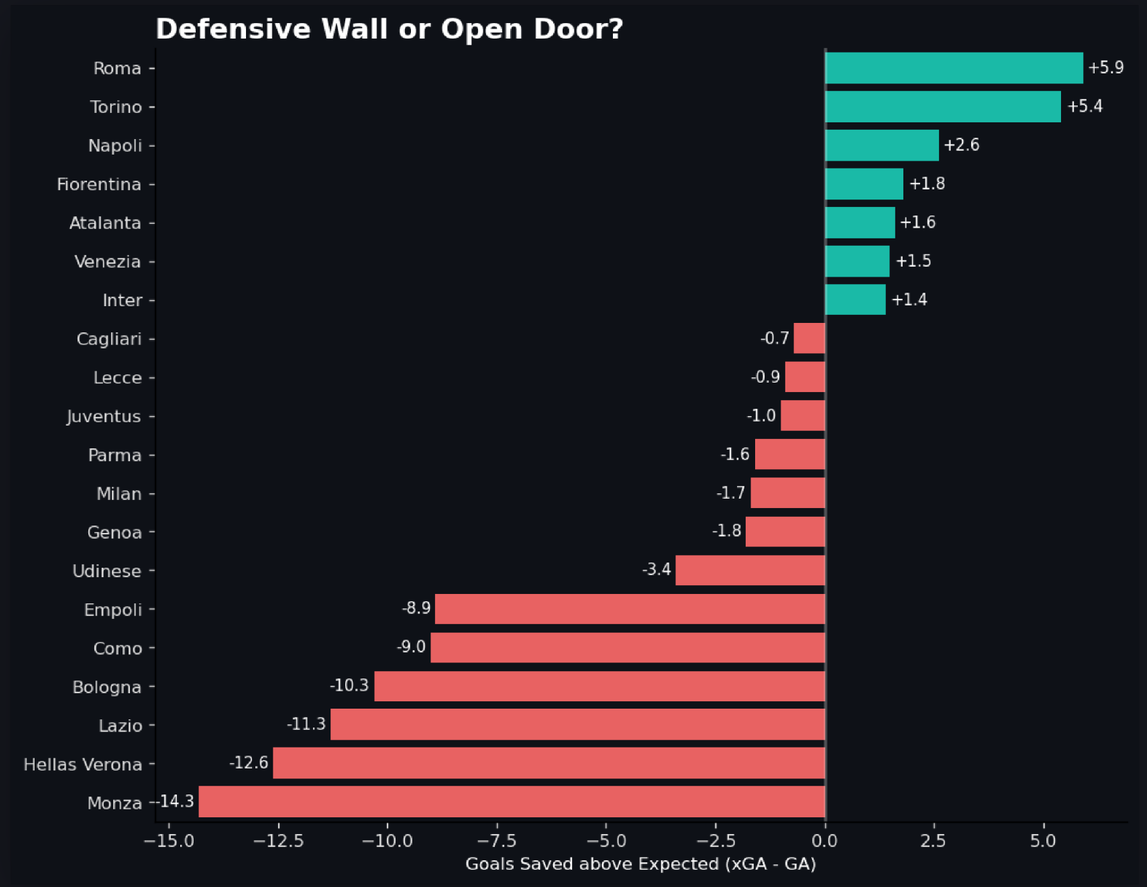

Fig 10. Defensive Wall or Open Door?

THE HIDDEN STRENGTH

THE CONTE EFFECT

ℹ️ HOW TO READ THIS PLOT
XGA - ACTUAL GOALS CONCEDED.
- Positive (Green) = Saved more goals than expected (Great Defense/Keeper).
- Negative (Red) = Conceded more than expected.

THE WALL: +2.6 GOALS SAVED

Napoli's defense overperformed expected metrics at crucial times. This is the "Conte DNA", who has always prioritized solidity over aesthetics.

THE OPEN DOOR: LAZIO (-11.3)

Conversely, Lazio played well but conceded 11.3 goals more than they should have. A defensive collapse that costed them European spots.

THE FINAL VERDICT

STERILE DOMINANCE

The data confirms a weak correlation between **Possession** and **Points**, but still that's not enough. Como's case proves that dominating the ball without creativity in the final 3rd is a trap, not a strategy.

CONVERSION EFFICIENCY

Volume (xG) is vanity, Conversion is sanity. The season showed that **Finishing Overperformance** (Clinicality) is a much stronger predictor of success than simple offensive production.

THE PRAGMATIC MODEL

Substance beat Style. Napoli didn't win by dominating the pitch, but by mastering **Defensive Efficiency** (Low xGA) and balance. A victory for pragmatism.

LICENSE & CREDITS

"Aesthetics vs. Efficiency: Is the 'Beautiful Game' a Trap?"

by Lorenzo Triolo

Developed using data from the **FBref.com (via StatsBomb)** database, with charts and analyses produced in **Python (Pandas, Matplotlib)** and **DataWrapper**.

Access Project Repository

Data source:
FBref.com provided by StatsBomb, Serie A 2024/2025 Season Data.
https://fbref.com/en/comps/11/2024-2025/2024-2025-Serie-A-Stats