MAJOR LEAGUE SOCCER ANALYTICS

The Current State of MLS Analytics

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By Navid Mashinchi

Objective:

In this analysis, the goal was to examine the current state of Analytics in Major League Soccer (MLS). How do clubs structure their analytics department, and what kind of positions entail data-related tasks. The majority of MLS franchises follow the culture of being data-driven decision-makers on the club's business side. However, there has also been a tremendous rise of clubs using data in their decision-making regarding the sporting side. The focus of this report lies from the soccer operations perspective. With over four years of analytics experience within the MLS, I wanted to analyze the current state of analytics within the league. The questions that I am trying to answer are the following:

- *What is each team's current state about staffing? Specifically, we only look at positions that involve working with data.*
- *Is there a difference in terms of staffing between the Eastern and Western Conference?*
- *How does data flow throughout the different departments within soccer operations?*

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Method:

Data Collection: The first step was to collect the data to conduct this analysis. I gathered the data on my own from each club's website and through my contacts within the MLS analytics community. **Note:** Miami FC didn't release any information about their analytics staff in the past. I had to do some research on my own using LinkedIn and other platforms.

Variables: Below is a list of all variables that are in the dataset. I also explain all variables and what skills one needs to be a successful candidate for that particular role.

Teams: The analysis includes all the teams that have participated in the 2020 MLS season.

- *Atlanta United*
- *Chicago Fire*
- *Colorado Rapids*
- *Columbus Crew*
- *DC United*
- *FC Cincinnati*
- *FC Dallas*
- *Houston Dynamo*
- *LA FC*
- *LA Galaxy*
- *Miami CF*
- *Minnesota United*
- *Montreal Impact*
- *Nashville SC*
- *New England Revolution*
- *New York City FC*
- *New York Red Bulls*
- *Orlando City SC*
- *Philadelphia Union*
- *Portland Timbers*
- *Real Salt Lake*
- *San Jose Earthquakes*
- *Seattle Sounders*

- *Sporting Kansas City*
- *Toronto FC*
- *Vancouver Whitecaps*

Head of Sports Performance Science: Needs to have strong analytical skills. When assessing an injured athlete's condition, the performance scientist needs to observe the injury and analyze and interpret the data correctly to determine its extent.

Sports Scientist/Performance Specialist: Needs to have strong analytical skills and collect and extract data. Sports Scientists are responsible for monitoring players' performance and tracking physical data to assess the fatigue level and prevent injuries. Besides the technical, analytical skills, they also need to lead and develop fitness training programs.

Director of Soccer Analytics/Data Science: Needs to collect and process data for analysis. The director of soccer analytics is responsible for integrating analytics and data science into every soccer aspect of the club, including opposition analysis, domestic and international player recruitment, and performance forecasting. Usually supervises performance analysts and data analysts.

Performance Analyst: Needs to have strong analytical skills. A performance analyst is responsible for the pre-match and post-match analysis. The performance analyst is also responsible for live match-day coding and editing game and training footage for analysis. Create reports on various aspects of performance. Interpret performance data to staff and players. Also, responsible for keeping statistical and video database up to date.

Data Analyst: Needs to be a technical expert in data collection and extraction from databases and other technologies. Duty entails designing and maintain databases, mining data from various sources, use statistical tools to interpret data sets, and prepare reports for staff, players, and executive leadership.

Video/Data Analyst: See descriptions for Performance Analyst and Data Analyst above. Clubs with lower budget hire a person who is responsible for both video and data analysis.

GM/Assistant GM: As technology evolves and professional sports franchises are using more data, general managers need to have good analytical skills. They don't deal with raw data but need to understand and interpret solutions that have been developed with the help of data. There is a rising trend of data analysts or performance analysts getting promoted to Assistant GM roles or even to General Manager.

Director of Scouting/Technical Director/Assistant Coach: The demands of coaches, scouts, and technical directors have also increased. They need to be more comfortable with technologies and platforms such as Wyscout, Instat, Opta, etc. There is a growing trend of Assistant Coaches conducting video analysis instead of having a full-time video analyst.

Division: Teams are split into the Eastern (E) conference and Western (W) conference.

Results:

As of January 14, 2021, Atlanta United and Vancouver Whitecaps have the most employees who use data to some extent in their daily tasks.

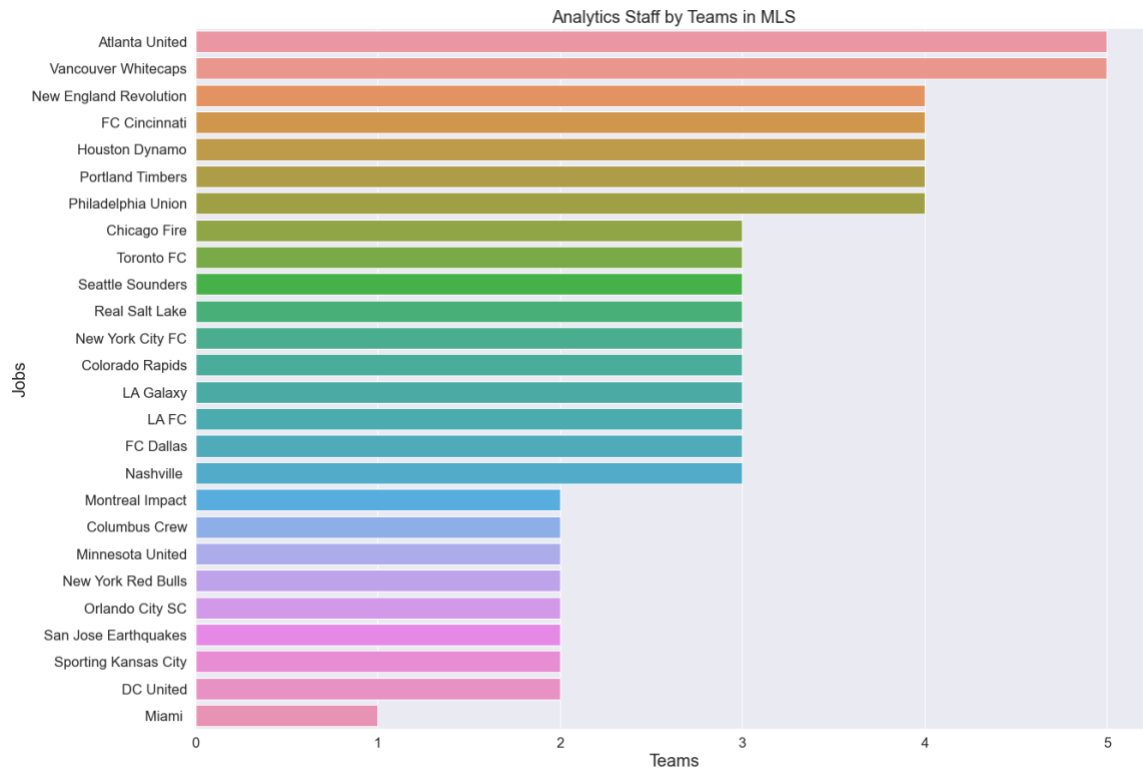Analytics Staff by Teams in MLS

Image by author

Atlanta United has an employee with the title "Director of Sports Performance Science," three Performance Analysts, and a Director of Soccer Analytics. The Whitecaps also have an employee with the title "Director of Sports Performance Science," two Performance Analysts and two Data Scientists. On average, each club has three full-time employees within the soccer operations department that work with data.
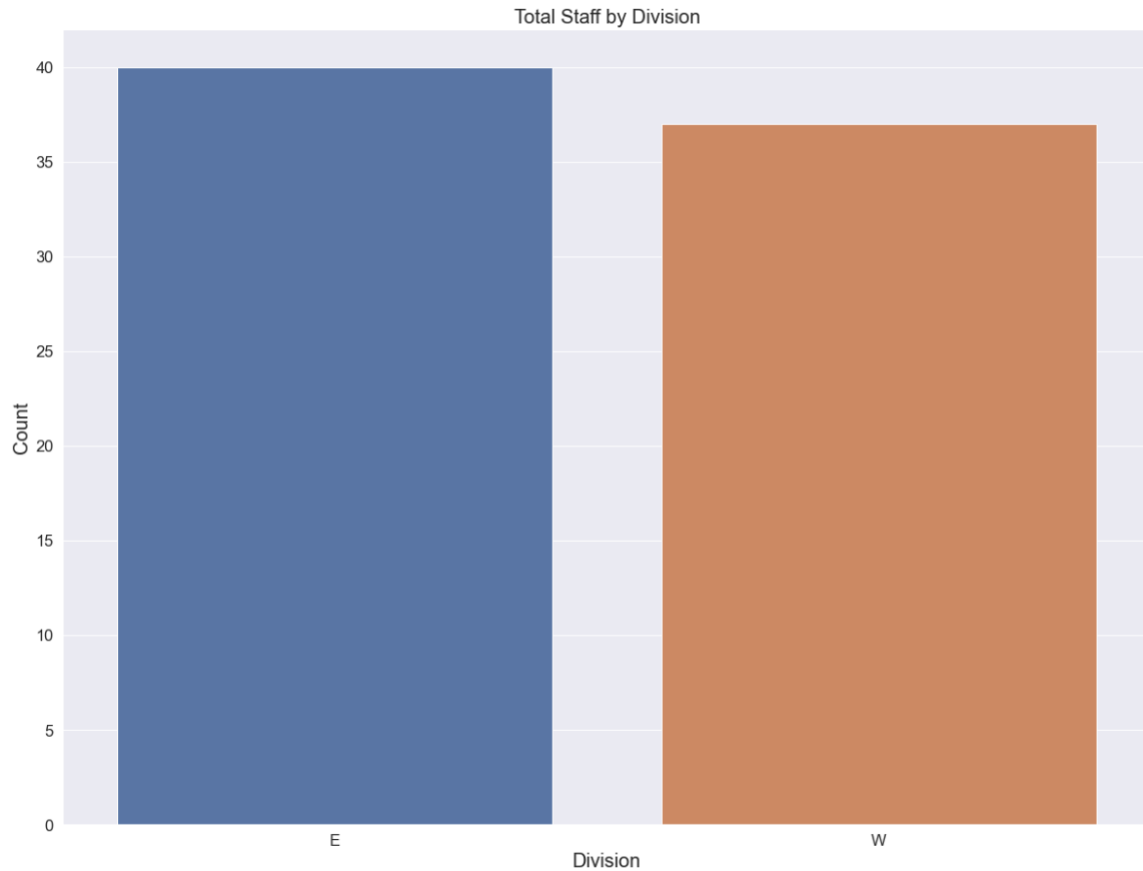
Image by author

When we look at total staff by Conference (East & West), we can see that both conferences are very close. The Eastern Conference has 40 staff, and the Western Conference has a total of 37. A number that stood out to me is that the Eastern Conference teams have almost twice as many employees with the title "Performance Analyst." Eastern Conference teams have 20 performance analysts, and the Western Conference teams have a total of 11.
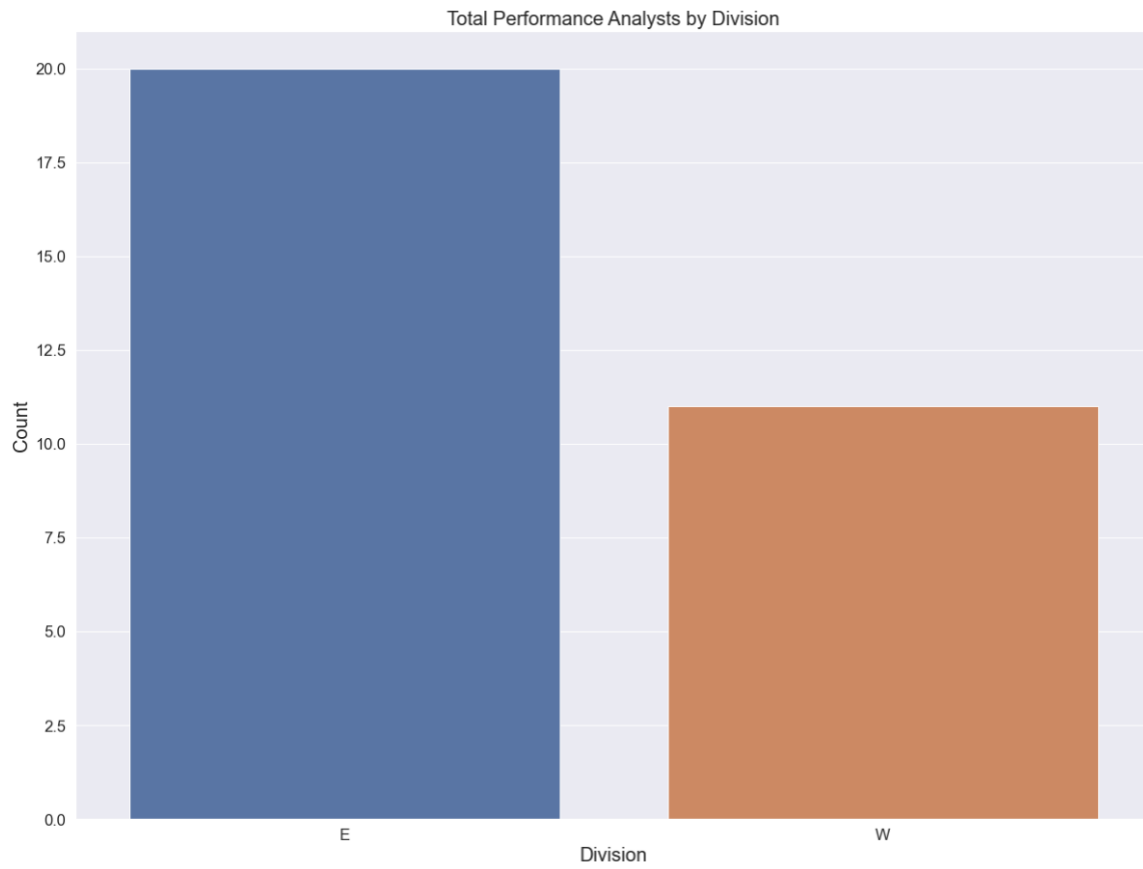
Total Performance Analysts by Division

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Generally speaking, there is a standard organizational structure amongst teams within the MLS regarding how data flows throughout the different departments within soccer operations. There is at least one employee who is technically skilled in soccer operations who deals with raw data. The person could be either a data scientist, data analyst, or the director of soccer analytics. It's hard to imagine, but you find clubs that don't have an in-house analytics department from time to time. However, they find different ways to run their analytics. For example, the San Jose Earthquakes team up with local universities that support them with their analytics, or clubs hire third-party providers to conduct their analysis as the Chicago Fire did in the past.
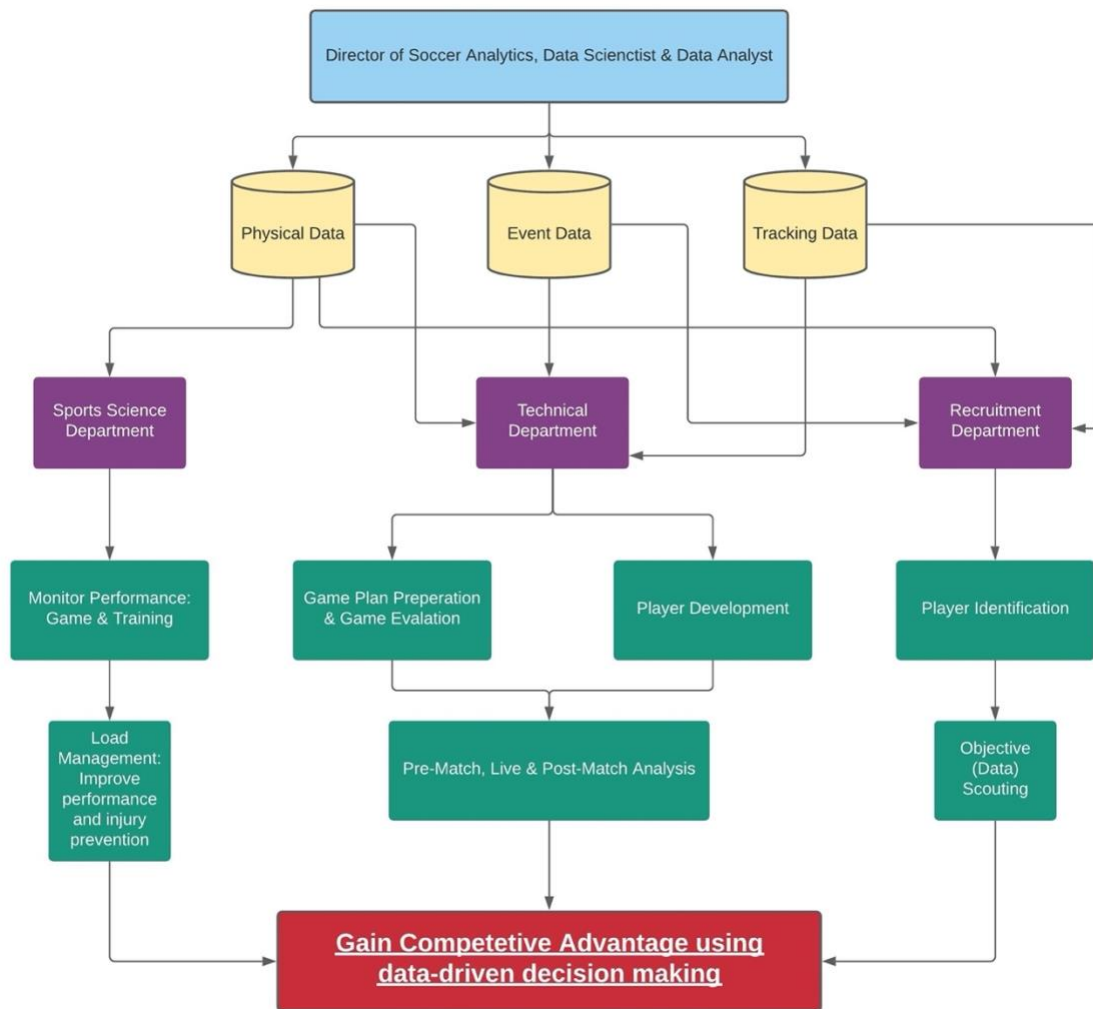
Image by author

When we look at the Data Flow chart above, we see three different types of data. In soccer, data is split up into physical data, event data, and tracking data. To better understand how the data flows in different departments, we need first to understand what each means.

Physical Data: As you can imagine, physical data provide us with information on the player's physical performance. For example, speed, distance covered, heart rate, etc.

Event Data: This type of data describes what happens on the ball. Event data can be shots, passes, crosses, tackles, etc.

Tracking Data: Here, we describe all the players' positional coordinates on and off the ball.

Event data is available everywhere these days. Most teams in MLS work with Opta, Instat, and Wyscout. On the other hand, physical information becomes available through wearables such as the catapult or camera installs in the stadium. The MLS partnered up in early 2020 with Second Spectrum, which uses machine learning and artificial intelligence to collect tracking, physical, and event data altogether. As a result, optical tracking systems had to be installed in every MLS stadium. Click here to see what Second Spectrum has to offer.

As the data flow chart shows, data flows through three different departments within soccer operations. One is Sports Science, two Technical department and three Recruitment department.

The data that flows through the sports science department is mainly physical data. The purpose is to manage players load throughout training and games with the ultimate goal to improve performance and prevent injuries. The technical and recruitment department includes all three different types of data in their analysis. Coaches incorporate event data and tracking data concerning Opposition analysis, game evaluation, or player development. In addition to that, the technical staff also uses data through their Live-Match analysis. Physical data is mostly used to plan training by the advice from the sports science team. The recruitment department also includes all three data types in their daily work. Event data is mostly used at the beginning stage of identifying a player. For example, if a club is looking for a striker, a particular striker's goal record is the first statistic one would look at. If a striker hasn't scored in the last two seasons, for example, you would imagine he wouldn't be good at doing his job. Once a player has been identified, one would get into more detail and use all three data types in more depth. Back to our striker example, physical data could become handy to see how much distance the striker covers on average. This could potentially help the scout answer the question if the striker works hard off the ball. Tracking data also become in handy when it comes to player comparison. One can compare coordinates with other strikers to see if the movements are similar. Ultimately, each department's final goal is for the club to gain a competitive advantage over other teams.

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Conclusion:

Based on our findings in the data and our research, we can come to the following conclusions:

- On average, clubs in the MLS have three employees in the soccer operations department that work with data in some capacity.
- There is almost an equal spread between data-related employees between both conferences (40 in the East vs. 37 in the West).
- There are almost twice as many performance analysts in the Eastern Conference than the Western Conference. (20 in the East vs. 11 in the West). Atlanta United and New York City FC lead the race when it comes to the total number of performance analysts per club at the 1st team level. Both have a total of three.
- Even though most MLS clubs have similar structures on how they incorporate data and analytics into their operational procedure, some teams still do things differently. For example, as mentioned above, San Jose Earthquakes is the only team within the league that entirely relies on their local university partnerships when it comes to analytics. Being in Silicon Valley helps since the amount and talent pool of tech-savvy students' in the surrounding local universities is high. Even though many MLS clubs have partnerships with local universities, the Earthquakes are the only club that solely don't have an in-house analytics department.
- Even though most clubs have full-time performance analysts, there are some clubs where the assistant coach is fully responsible for the video analysis. Again, one example is San Jose with their current head coach Matias Almeyda or Inter Miami who's video analyst was part of their coaching staff last season.

- There is a trend of former performance analysts or other data-related positions getting promoted to the assistant general manager or general manager roles. The Montreal Impact, LAFC, Colorado Rapids, to name a few, have general managers or assistant general managers coming from an analytics background.

I hope this analysis was insightful and gives you a better understanding of the current state of Analytics within MLS.