



Sports Analytics III

Produced by Dr. Mario
UNC STOR 538

Industry Past

- Sports Analytics Use Survey (2013)
- Sample of 27 People (NFL, MLB, NBA, EPL)
- How Many Different Sources?
 - 1-2 (6.7%)
 - 3-4 (33.3%)
 - 5-6 (13.3%)
 - >6 (46.71%)



Industry Past

- How Much Data is Centralized?
 - All (31.3%)
 - Most (37.4%)
 - Some (31.3%)
- How Much Data is Dependent on One Person?
 - Some (50.0%)
 - Most (43.7%)
 - All Data Centralized (6.3%)



Industry Past

- Is Data Checked for Errors?
 - Always (31.3%)
 - Usually (37.5%)
 - Sometimes (18.8%)
 - Occasionally (6.1%)
 - Rarely (6.3%)
- How Many Database Programmers are Employed?
 - 0 (37.5%)
 - 1-2 (50.0%)
 - 3-4 (0.0%)
 - >5 (12.5%)



Industry Past

- How Many Statistical Analysts are Employed?
 - 0 (20.0%)
 - 1-2 (66.6%)
 - 3-4 (0.0%)
 - >5 (13.3%)
- Roadblock: Difficulty Identifying Strong Applicant
- Difficulty in Both Hiring and Evaluating



Industry Past

- Clear Process for Hiring/Evaluating Analysts
 - Strongly Agree (13.3%/14.3%)
 - Somewhat Agree (13.3%/14.3%)
 - Neutral (26.7%/28.6%)
 - Somewhat Disagree (13.4%/21.4%)
 - Strongly Disagree (33.3%/21.4%)
- Analytic Resources in Line with Strategic Game Plan
 - Strongly Agree (26.7%)
 - Somewhat Agree (33.3%)
 - Neutral (33.3%)
 - Strongly Disagree (6.7%)



From Past to Present

- Ben Alamar Updated Survey in 2nd Edition
 - 163 People, 119 Orgs., 15 Sports
 - 53% Use Statistics Regularly in Decision Making
 - 58% Report Data is Mostly/Fully Centralized
 - 32% Say Data is Regularly Presented Clearly and Consistently
 - 83% Confirmed Analytics Group Will Grow in Next 5 Yrs.
- Notable Differences Since 2013
 - Larger Datasets (Million Rows Per Game)
 - Due to Player Tracking (Approx. 25 Measurements Per Sec)
 - Measurements Across Whole Body
 - Speed at Which Questions Can be Answered is A Lot Faster



Industry Present

- Value Placed on Sports Analytics
 - Business Research Company Analysis
 - Global Sports Industry \$470.42B to \$495.38B
 - Actual CAGR of 5.3%
 - Expected to Grow to \$617.57B in 2029 (CAGR 5.7%)
 - Deloitte Article Sports Analytics Industry Trends 2024
 - Fan Data Aggregated and Managed
 - Increased Use in Generative AI



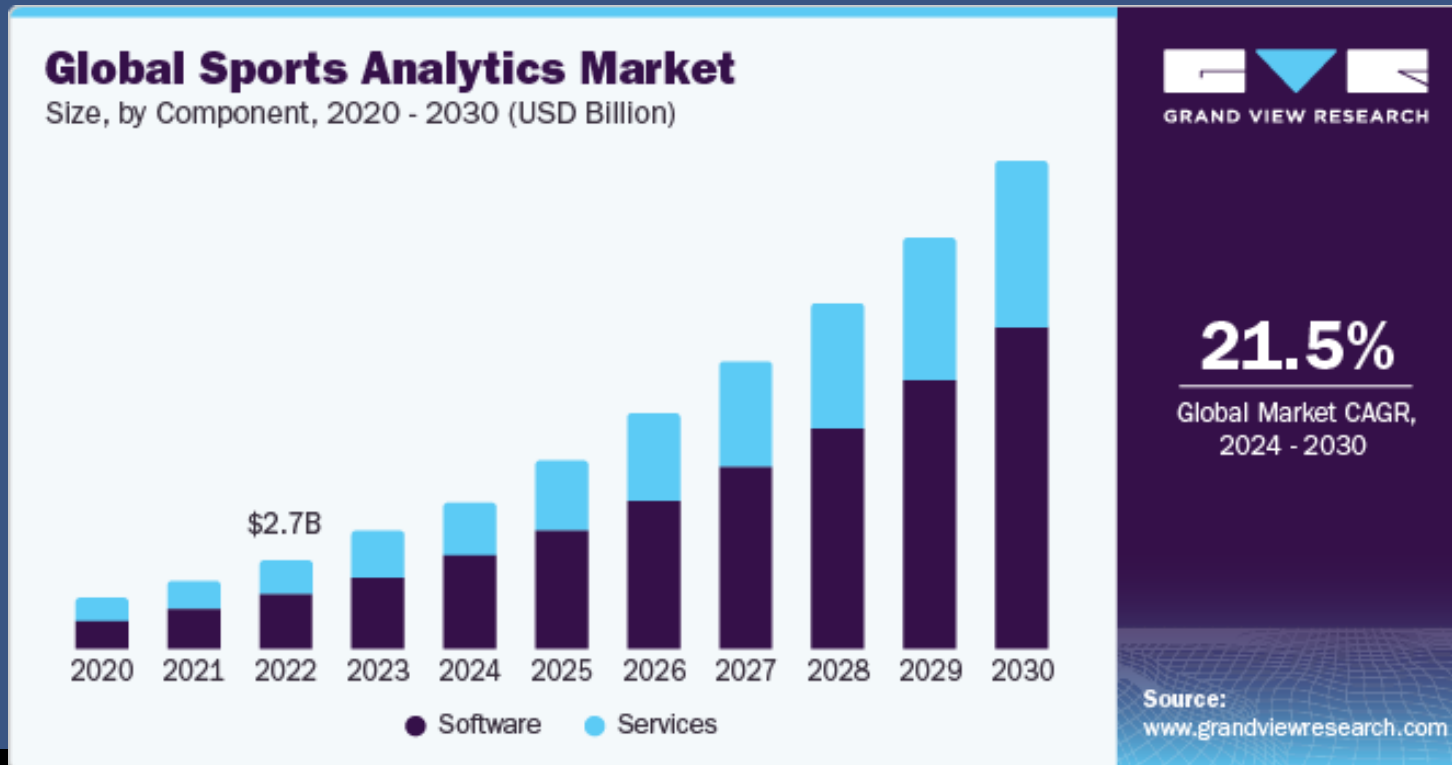
Industry Present

- Value Placed on Sports Analytics
 - Grand View Research on Sports Analytics Market
 - Valued at \$3.52B in 2023 and \$4.47B in 2024
 - Expected CAGR Between 2025 and 2030 is 20.6%
 - Projection in 2030 = $5.68 * (1 + CAGR)^5 = 14.49$*
 - Software Segment Dominates Services
 - On-Field Analytics Dominates Off-Field Analytics



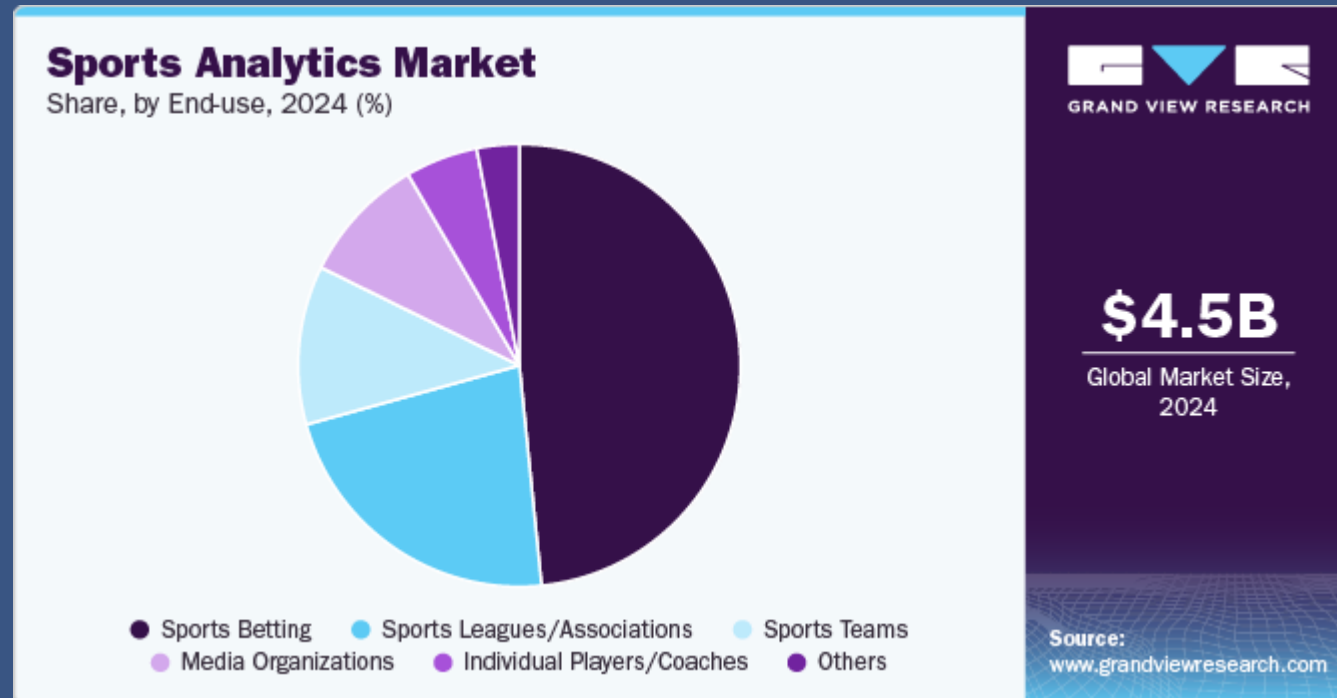
Industry Present

- Value Placed on Sports Analytics
 - Grand View Research on Sports Analytics Market



Industry Present

- Value Placed on Sports Analytics
- Grand View Research on Sports Analytics Market



Industry Present

- Value Placed on Sports Analytics
 - Grand View Research on Sports Analytics Market



Industry Present

- Value Placed on Sports Analytics
 - Grand View Research on Sports Analytics Market
 - Agile Sports Analytics, LLC
 - Catapult Sports
 - ChrynoHego Corporation
 - Deltatre
 - Experfy Inc.
 - Genius Sports Group
 - IBM Corporation
 - Oracle Corporation
 - SAP SE
 - SAS Institute Inc.
 - Sportradar AG
 - Stats Perform



Industry Present

- Modern Applications of Sports Analytics
 - Forbes Article from 2021 by Abhas Ricky
- Helping the Team Win
 - Automated Video Analysis (Lincoln City, UK Football)
 - 3D Depth Camera (NBA)
 - Wearable Technology (NBA, NHL)
- Improving the Fan Experience
 - Analysis of Digital Engagement
 - Sentiment in Social Media
 - Analysis of Fan Behavior in Stadium (New England Patriots)
 - Wireless Internet and Phone Apps
 - Apps Supply Game Analytics, Parking Information, Promotions, and Traffic Information to the Fans (NFL)



Industry Present

- Modern Applications of Sports Analytics
 - Benefiting Other Stakeholders
 - Tracking Fan Behavior Outside the Stadium
 - Telecommunication, Retailers, Payment Providers, Ticket Agencies, and Sponsorships
 - Adapt to Quick Changes in Consumer Behavior
 - Optimizing the Back-Office
 - HR Practices
 - Game Scheduling
 - Supply Chain Management and Logistics
 - Marketing and Promotions
 - Procurement of Goods and Services



Industry Present

- Modern Applications of Sports Analytics
 - Advancing Sports Gambling
 - Supreme Court Ruling Previous Statute Violated 10th Amendment (Murphy v. National Collegiate Athletic Association)
 - States Free to Legislate Gambling
 - Improvement of Gambling Products
 - Data Aggregation and Visualization for Bettors
 - Develop Daily Fantasy Sports
 - Grandview Research of US Market
 - US Market Valued at \$17.94B in 2024
 - Expected CAGR of 10.9% from 2025 to 2030

$$\text{Projection in 2030} = 19.76 * (1 + 0.109)^5 = \$33.15\text{B}$$



Your Industry Future

- Prerequisites by Howard Hamilton (Soccermetrics)
 - Technical Skills
 - Mathematics (Linear Algebra/Probability Essential)
 - Statistics (Frequentist and Bayesian Perspectives)
 - Machine Learning (Supervised and Unsupervised)
 - Programming (R/Python, Data Structures, OOP)
 - Databases
 - Visualization
 - Socials Skills, Ethics, and the Law
 - Knowledgeable About All Aspects of the Sport



Your Industry Future

- Real Jobs (Builtin.com)
 - Data Engineering, DraftKings
 - Former 538 Student Works There
 - 3+ Years Experience
 - Proficiency in SQL, Snowflake, Tableau
 - Tools: Kafka, Airflow, Terraform, Python, Datadog
 - Lead Analyst, DraftKings
 - 4 Years in Analytics or Data Science
 - Bachelors Degree in STEM
 - SQL, EXCEL, TABLEAU, R, Python



Your Industry Future

- Real Jobs (Builtin.com)
 - Basketball Data Scientist, Swish Analytics
 - Betting and Fantasy Startup in San Francisco
 - Bachelors Degree in STEM; Masters Preferred
 - Advanced Knowledge of Math and Statistics
 - SQL/Python/GitHub/AWS
 - Database Administrator, Sporty Group
 - Company from London (Remote Option)
 - Managing Database, Queries, Dashboards
 - MySQL and MongoDB
 - AWS, Redshift



Your Industry Future

- Real Jobs (Builtin.com)
 - Sr. Data Engineer, Boston Red Sox
 - Bachelors Degree in CS-related Field
 - Strong SQL Experience
 - Snowflake, DBT, GraphQL
 - Lead Data Scientist, Dicks Sporting Goods
 - Not Entry Level
 - Elastic, SOLR
 - Engineering of APIs
 - TensorFlow, PyTor



Your Industry Future

- Real Jobs (ZipRecruiter)
 - Quantitative Analyst, Philadelphia Phillies
 - Focus on Computer Vision and Machine Learning
 - BS, MS, or PhD in STEM
 - PyTorch, TensorFlow, Keras, OpenCV



Your Industry Future

- Real Jobs (tealhq.com)
 - Associate (Intern), Milwaukee Brewers
 - Baseball Research and Development
 - Develop Visuals and Other for Disseminating Analytical Results
 - BS or Working on BS in STEM
 - Analyst, Minnesota Twins
 - Advanced Scouting
 - Travel with Team
 - In-Game Strategy
 - R, Python, MATLAB, Julia, STAN,
 - SQL



Your Industry Future

- Conferences

- MIT Sloan (March)
- International Sports Analytics Conference (July)
- UConn Sports Analytics Symposium (April)
- OSU Sports Analytics Conference (April)
- Carnegie Mellon Sports Analytics Conference (?)
- New England Symposium on Stat. in Sports (2025)
- Great Lakes Data and Analytics (April)
- International Conference on Sports Analytics and Data Visualization (August)
- More International Conferences (See Link on Website)





Final Inspiration

Defense wins championships.
Offense wins contracts.
Be offensive.

- Mahatma Mario