



# 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

- Updated Survey in 2<sup>nd</sup> Edition (2024)
  - 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



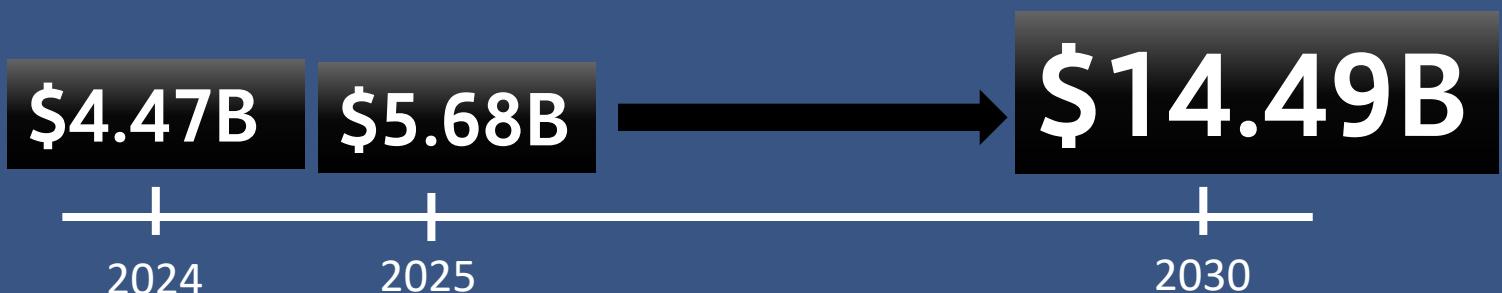
# Industry Present

- Value Placed on Sports Analytics
  - Business Research Company Analysis
    - Global Sports Industry Valued at \$495.38B (2025)
    - Expected CAGR in 2026 is 5.3%
    - Expected to Grow to \$654.22B in 2030 (CAGR 5.8%)
    - North America = Largest / Africa = Fastest Growing
  - Deloitte Article on Sports Industry Trends 2024
    - Continued Growth in Sports Industry
    - Fan Data Aggregated and Managed
    - Increased Use in Generative AI
    - Massive Amounts of Data from “Mega Events” Means that Data Privacy and Security Will Be Important.



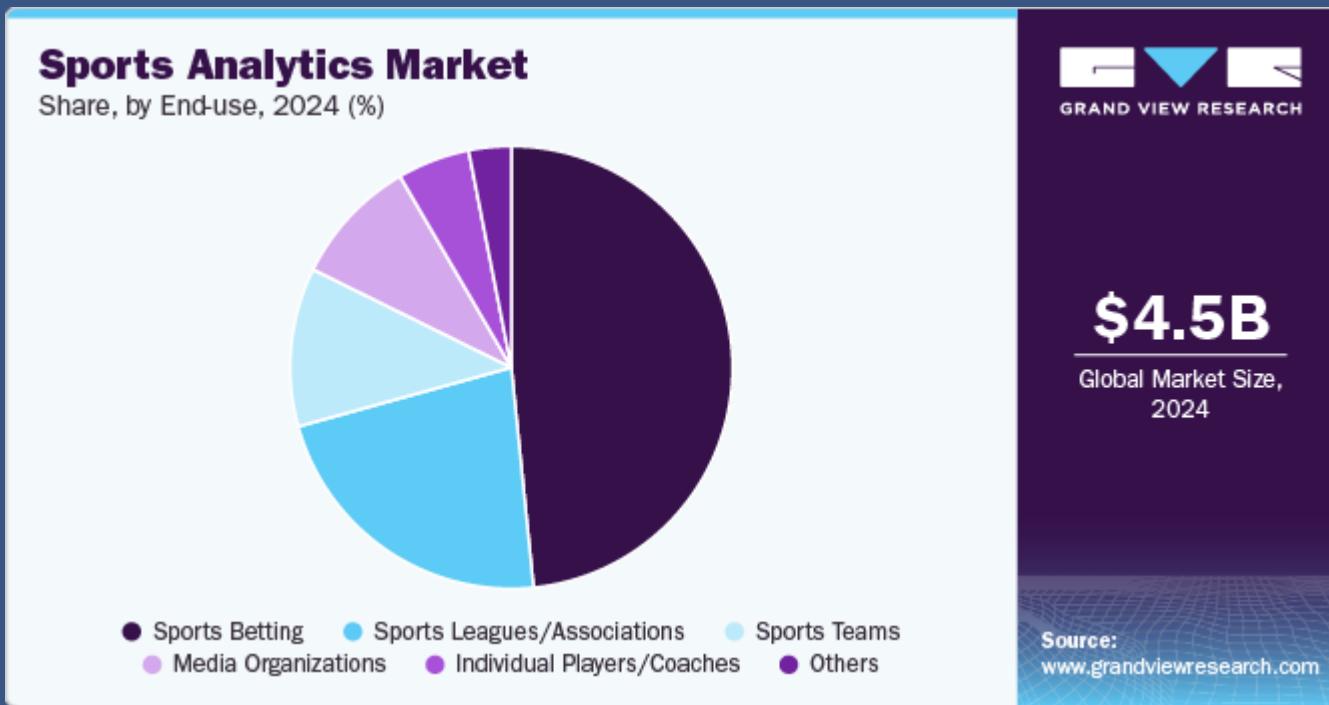
# Industry Present

- 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
    - Agile Sports Analytics, LLC
    - Catapult Sports
    - ChrynoHego Corporation
    - Deltatre
    - Experfy Inc.
    - Genius Sports Group
    - IBM Corporation
    - Oracle Corporation
    - SAP SE
    - Aercont Vision Coaster LLC
    - The Sportradar Group
    - Stats LLC



# 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 10<sup>th</sup> 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 and \$19.76B in 2025
      - Expected CAGR of 10.9% from 2025 to 2030

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



# 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](https://www.builtin.com))
  - Senior Analytics Engineer, Underdog
    - Build Models and Ensure Data Quality
    - SQL and Data Modeling Expert (4+ Years)
    - Skilled in dbt and Cloud Data Warehouses
  - Statistical Analyst, The Athletic
    - Media Organization Under the NYT
    - Data Visualizations, Interactive Projects
    - Design Tools Like Figma or Adobe CS
    - No Mention of Data Science Background or Tools



# Your Industry Future

- Real Jobs ([BuiltIn.com](https://www.builtin.com))
  - Data Scientist, Teamworks
    - Company Located in Durham, NC
    - Masters or PhD in Quantitative Field
    - Experience with Sports Tracking Datasets
  - Lead Data Scientist, Dicks Sporting Goods
    - Not Entry Level
    - Elastic, SOLR
    - Engineering of APIs
    - TensorFlow, PyTorch



# Your Industry Future

- Real Jobs ([TeamworkOnline](#))
  - Data Engineer, LA Angels
    - Python (2+ Years), SQL APIs
    - Familiar with Relational Databases
  - Director of Data Science, Real Salt Lake
    - Oversee All Sport Science (GPS, Heart Rate, Force Plates, etc.)
    - Dashboard Development
    - Communication of Complex Data
    - Bachelors Degree in Exercise Science, Data Science, etc.
    - Proficiency in R, Python, SQL, Power BI, Tableau



# Your Industry Future

- Real Jobs (TeamworkOnline)
  - Football Data Analyst, Indianapolis Colts
    - Posted 3+ Months Ago
    - Research NFL and NCAA data
    - Strong in Python or R
    - Familiarity with Machine Learning and Statistical Models
  - Data Scientist, Tampa Bay Lightning
    - STEM Degree
    - 3-5 Years Experience in Python
    - Docker, SQL
    - Time Series Data



# Your Industry Future

- Real Jobs ([TeamworkOnline](#))
  - Senior Data Scientist, Edmonton Oilers
    - Cloud Platforms and Databricks
    - MLOps/ModelOps, Use MLFlow
    - Bachelors in Quantitative Field and 5+ Years Experience.
  - Director of Data Science, Real Salt Lake
    - Oversee All Sport Science (GPS, Heart Rate, Force Plates, etc.)
    - Dashboard Development
    - Communication of Complex Data
    - Bachelors Degree in Exercise Science, Data Science, etc.
    - Proficiency in R, Python, SQL, Power BI, Tableau



# Your Industry Future

- Real Jobs (TeamworkOnline)
  - Data Scientist Fellow, Baltimore Orioles
    - Entry Level
    - SQL, R/Python, Statistical Analyses
  - Data Analytics Intern, Riddell
    - Entry Level
    - Working on Degree in STEM
    - SQL, Python, R, Power BI, Looker, Tableau
  - Data Quality and Reporting, USA Baseball
    - Entry Level and Located in Cary
    - R, SQL and Familiarity with Baseball Technologies



# 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**