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 2nd 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
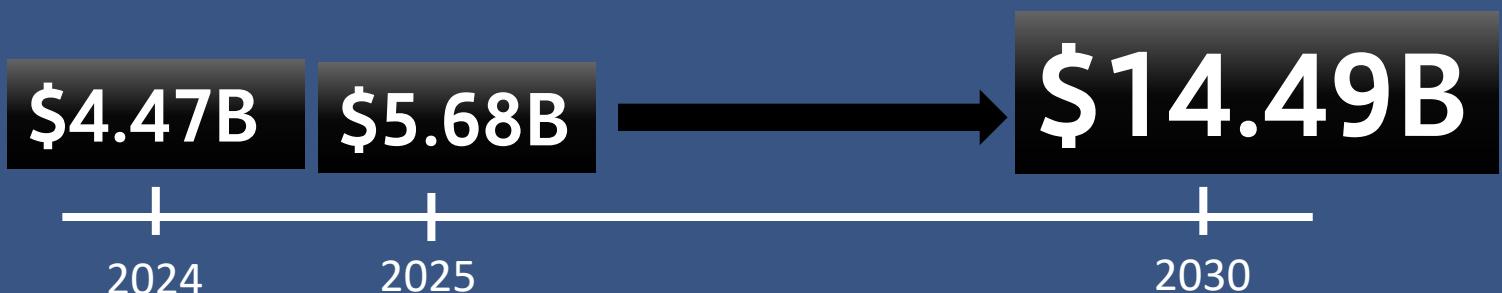
Industry Present

- **Value Placed on Sports Analytics**

    - **Business Research Company Analysis**
        - **Global Sports Industry $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**
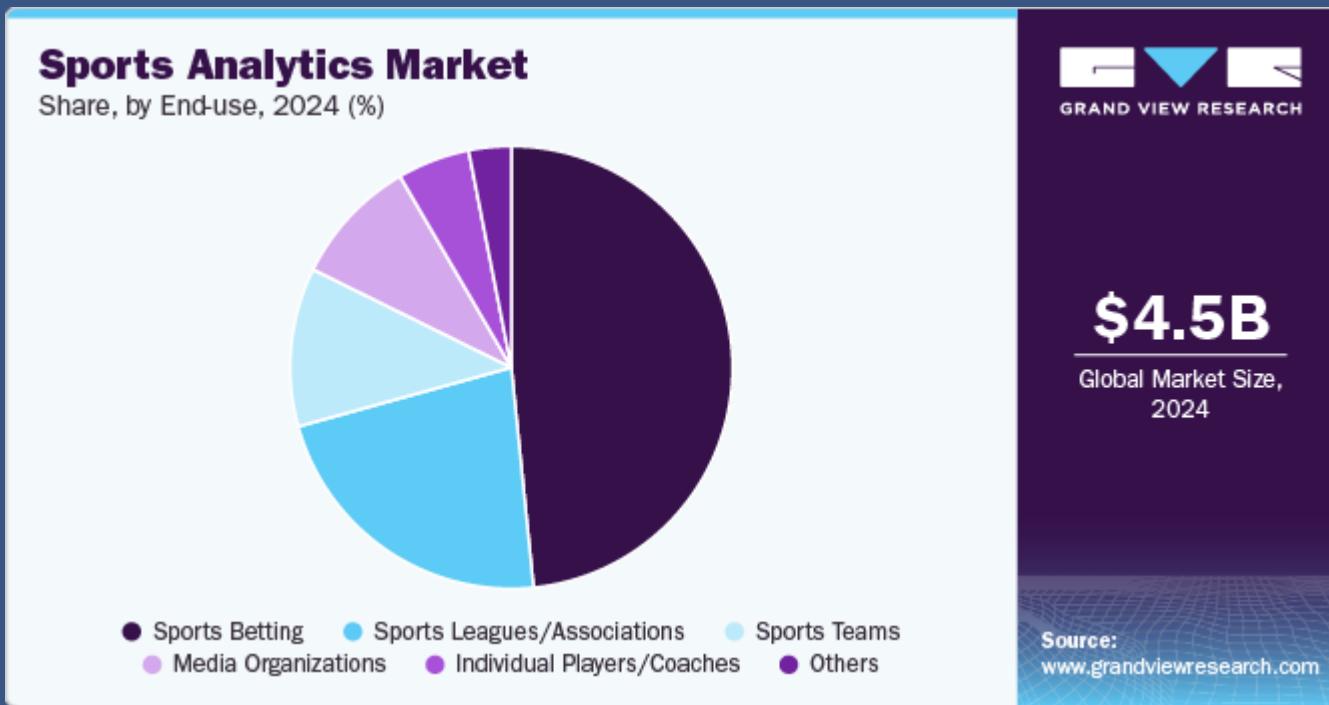
Industry Present

- **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**

$4.47B   **$5.68B** ⟶ **$14.49B**

2024   2025   2030

Industry Present

- **Value Placed on Sports Analytics**

  - **Grand View Research on Sports Analytics Market**

Sports Analytics Market
Share, by End-use, 2024 (%)

GRAND VIEW RESEARCH

$4.5B
Global Market Size, 2024

- Sports Betting
- Sports Leagues/Associations
- Sports Teams
- Media Organizations
- Individual Players/Coaches
- Others

Source: www.grandviewresearch.com

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 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

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

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)**

  - **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 Adminstrator, 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