



# Sports Analytics III

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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%)



# Industry Present

- Value Placed on Sports Analytics

- Global Sports Industry \$486.61B (2022)
- Expected CAGR over next 5 years is 5%
- Global Sports Analytics Market in 2021 = \$1.79B
- Expected CAGR over next 8 years is 27.6%

*Projection in 2029 =  $1.79 * (1 + CAGR)^8 = 12.6$*



Projections in 2029 According to MarketWatch.com





# Industry Present

- Reasons for Projection (MarketWatch)
  - Focus on Data-Driven Decision Making
  - Demand for Fan Engagement
  - Growing Use of Analytics in Sports
  - Technological Advancements
  - Increasing Investment in Analytics





# Industry Present

- Upcoming Market Trends (MarketWatch)
  - Increased Use of AI and Machine Learning
  - Larger Emphasis on Data Visualization
  - More Comprehensive Data Collection
  - Increased Use of Data in Decision Making
  - Increased Demand in Sports Analytics Services
- USA Companies in Market (MarketWatch.com)
  - Oracle
  - WHOOP
  - IBM
  - SAS
  - Stats Perform



# Industry Present

- Modern Applications of Sports Analytics
  - 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
    - Business Research Company
      - Market grew from \$96.84B to 104.78B in Last Year
      - Largest Market is Western Europe



# 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 (Indeed)
  - Data Engineer, Sports Analytics for SIG
    - Data Science in Python
    - Large Data Storage and Data Processing
    - PhD, Master's, or Bachelor's
    - Newest Business Area
  - Sports Scientist, Chicago Women's Soccer Academy
    - Bachelor's or Master's in Exercise Science
    - Experience with Sports Science Technologies
    - Deliver Daily Reports and Provide Data-Driven Feedback





# Your Industry Future

- Real Jobs (Indeed)
  - Sports Performance Analyst, Baltimore Orioles
    - Primarily Data Management/ Organization
    - Requirements are Unknown
  - Sports Injury Data Scientist, RWE Agile Analytics
    - Part of IQVIA
    - SQL, Python, SAS, R
    - Familiar with Basic Statistical Analyses
    - Bachelor's (6-8 years experience)
    - Master's (3-5 years experience)



# Your Industry Future

- Real Jobs (Indeed)
  - Sports Science Coordinator, Houston Texans
    - Master's Required
    - Expected to Constantly Learn
    - MS in Sport Performance
    - SQL, Statistics, R/Python
    - Machine Learning and Time Series Methods
  - Professor of Data Analytics, University of Tulsa
    - Focus on Sports Analytics
    - PhD and Research Background in Sports
    - College of Business



# Your Industry Future

- Real Jobs (Indeed)
  - Analyst, Club Business Operations for MLB
    - Quantitative Market Analyses
    - BS Degree in Business Related Field
    - Excel, PowerPoint, SQL
    - Exceptional Data Evaluation Skills
  - Business Analyst, Sports & Entertainment for Aramark
    - Hospitality Company for Many Industries
    - Data Visualization with Tableau or PowerBI
    - Exposure to Some Programming Language





# Your Industry Future

- Real Jobs (Indeed)
  - Analyst, Baseball Operations for Giants
    - Perform Statistical Analyses
    - Collaboration with Software Engineers
    - BS in Quantitative Field
    - R, SQL, Python
  - Director of Data Science, DICK'S Sporting Goods
    - MS in Stats, Math, Econ, etc.
    - 10-15 Years Experience
    - Proficient in SQL, R, Python, or SAS
    - Cloud Computing Environments
    - Lead Team of Data Science Managers and Data Scientists



# Your Industry Future

- Conferences

- Carnegie Mellon Sports Analytics Conference
- Great Lakes Analytics Conference
- MathSport International
- MIT Sloan Sports Analytics Conference
- New England Symposium on Statistics in Sports
- Rochester Institute of Technology Sports Analytics Conference
- Sports IDEAS Symposium
- Uconn Sports Analytics Symposium





# Final Inspiration

Defense wins championships.  
Offense wins contracts.  
Be offensive.

- Mahatma Mario