



# 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

- Article by Russell Karp (ITProPortal.com)
  - Global Sports Industry \$600B-\$700B (KPMG)
  - Including All Business Dedicated to Sports \$1.3T
  - Global Sports Analytics Market

**\$135.23M**

2016



**\$2.43B**

2025

Projections in 2025 According to MarketWatch.com





# 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
    - Worth Over \$5B According to Nevada Gaming Control Board (NGCB)



# 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)
  - Baseball Analytics Intern for USA Baseball
    - Local Position in Cary
    - CS or Stats Background
    - R, SQL, Excel
    - Love of the Game
  - Analytics Internship for Arizona Coyotes
    - Dashboards in Tableau
    - Various Analytics Projects
    - SQL, R, Python



# Your Industry Future

- Real Jobs (Indeed)
  - Quantitative Sports Researcher for SIG
    - Build Statistical Forecasting Models
    - Implement Models and Simulate Outcomes
    - Demonstrated Experience with Sports Analytics Projects
    - Python, C++, Matlab and/or R
    - PhD Preferred
  - Operational Excellence Internship for FanDuel
    - SQL and Analytics
    - Love of the Game



# Your Industry Future

- Real Jobs (Indeed)
  - Valuation & Analytics Intern at IPG360
    - Build Content Database for Quarterly Insights Report
    - Market and Industry Research Assistance
    - 3.0 GPA and Strong Software Skills (Microsoft Office)
  - Summer Intern for the NFL
    - Corporate Strategy and Data and Analytics
    - MBA Student
    - Coursework in CS, Math, Econometrics, etc.
    - SQL, SAS, Python, R, Big Data





# Your Industry Future

- Real Jobs (Indeed)
  - Analyst for the Cleveland Indians
    - Focus on Consumer Research and Insights
    - Bachelors Required is Business Related Field
    - Knowledge of SurveyGizmo, Qualtrics, etc.
    - Background with SQL or Tableau
  - Product Analyst for Turner
    - Work in Bleacher Report Department
    - Build and Maintain Reports/Dashboards
    - Exploratory Analyses for Deeper Understanding
    - SQL, Python, R, Tableau
    - Regression, Hypothesis Testing, Data Visualization



# Your Industry Future

- Real Jobs (Indeed)
  - Senior Analyst for Kagr LLC
    - Opportunity for Advanced Analytics in Sports
    - Revenue, Ticket Sales, Attendance Forecasting
    - Analytical Models and Machine Learning
    - Interest in Applying Statistical Methodology
    - Degree in Stats, Econ, Math, CS, etc.
    - R, Python, SQL Required
  - Sport Activity Experience Data Science Director
    - Test Products
    - Python and Deep Learning Libraries
    - Masters or PhD Preferred



# Your Industry Future

- Conferences

- Sports Industry Networking and Career Conference, February 18-19
- MIT Sloan Sports Analytics Conference, April 8-9
- Basketball Analytics Summit, April 16
- International Conference on Sports Analytics and Performance Evaluation, June 24-25
- International Conference on Machine Learning and Data Mining for Sports, June 28-29
- Disney Data & Analytics Conference, August 17-18
- Sport & Entertainment Analytics Conference, TBD

Compiled by [statsheetstuffers.com](http://statsheetstuffers.com) and [sportsanalyticsconferences.com](http://sportsanalyticsconferences.com)







# Final Inspiration

Defense wins championships.  
Offense wins contracts.  
Be offensive.

- Mahatma Mario