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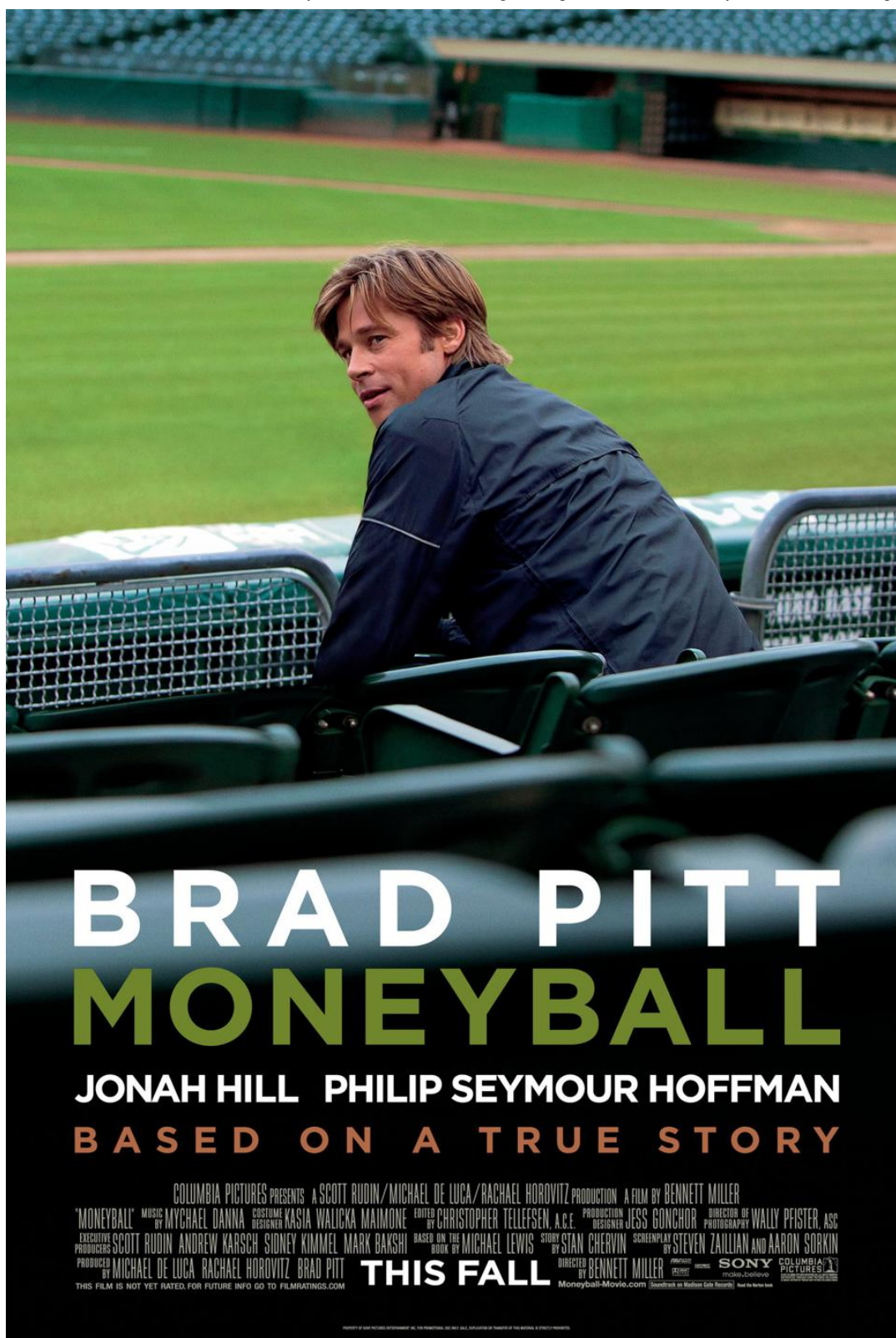
# Moneyball 20 Years Later: A Progress Report On Data And Analytics In Professional Sports

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The late New Yorker writer Roger Angell called baseball “The Summer Game”, a sport distinguished by colorful greats from the past, the likes of which have included Honus Wagner, Ty Cobb, Satchel Paige, Dizzy Dean, and Josh Gibson. As we head into the

2022 MLB playoff season in a few short weeks, it is an apt moment to reflect on how this American past time which began in the wake of the Civil War – the first professional baseball team, the Cincinnati Red Stockings was established in 1869 – has in many ways been transformed through the usage of modern data and analytics, as other professional sports teams are coming to be as well. I have written about similar transformations of 19<sup>th</sup> century businesses in other industries – [Levi's in retail](#), and [JP Morgan Chase in banking](#) – through data and analytics.

Baseball's rise in popularity accelerated during the decades of the 1920s and 1930s. The New York Yankees made their first World Series appearance in 1921, and by the end of the 1930s, had appeared in 11 World Series, led by stars such as Babe Ruth, who set the single-season home run record in 1927. By the 1960's, other professional sports leagues had begun to compete for attention with Major League Baseball, notably the NFL, NBA., and NHL in professional football, basketball, and hockey. The advent of new technologies, and advances in computing power made it possible to capture data and metrics for in-depth statistical analysis of professional sports teams and athletes.

The dawn of a new data-driven era of professional sports was brought to widespread public attention with the 2003 publication of [Moneyball: The Art of Winning an Unfair Game](#), by Michael Lewis. Moneyball told the story of how the Oakland Athletics, under general manager Billy Beane, employed data and analytics to field a competitive baseball team on a low budget. The book was later made into a 2011 film starring Brad Pitt as the data science driven Billy Beane.

The premise of Moneyball was that the collective wisdom of baseball insiders, which included players, managers, coaches,

scouts, and the front office, had become outdated and were relics of a 19<sup>th</sup>-century view of the game. Moneyball argued that data and analytics could be employed to develop modern metrics, whereby organizations might field a team to compete against well-funded, large market teams like the New York Yankees and Los Angeles Dodgers.

Zack Scott is a passionate advocate for the use of data and analytics in professional sports. Scott spent 18 seasons with the Boston Red Sox as a consultant and then in leadership roles including Vice President of Baseball Research and Development and as Executive Vice President and Assistant General Manager. Scott contributed directly to the Boston Red Sox winning 4 World Series Championships during his tenure. Scott also served a single season as Senior Vice President and Acting General Manager for the New York Mets.

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Today, Scott is focused on helping organizations across all professional sports leagues develop and implement data and technology strategies to drive improved on-field performance. Through his firm, [Four Rings Sports Solutions](#), Scott is partnering with sports owners and executives to build sporting operations that drive innovation and sustain success. Scott's professional focus has been on baseball operations side, encompassing player acquisition, player development, and in-game strategy, in contrast to business

operations, which are focused on ticketing, attendance, and fan retention among other responsibilities. He is now bringing that experience to other professional sports leagues, including work with the NHL.

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Scott comments, “The growth in the application of data and analytics in baseball during the past 20 years has been extraordinary, as measured by both the levels of investment and the usage of quantitative metrics. We’ve grown from 10,000 data points to 10 billion data points during this time”. He points out that the average number of dedicated data analysts and software developers has grown to upwards of 18 FTE for leading teams, with the Tampa Bay Rays being an example of a team that is in the forefront with 39 dedicated professionals. Scott sees this as a model for other professional sports leagues as well.

Professional sports teams are building predictive models using the latest biomechanical data, assisted by camera footage. Among the data most captured and used by professional sports teams today are tracking data, captured through video, GPS data, wearable devices, biomechanical devices, and motion capture, which are used to measure variables such as bat speed and pitch velocity in MLB. The integration of data and analytics into sports operations has allowed coaches and scouts to focus on higher order activities such as defensive positioning.

Scott believes that MLB has thus far been ahead of other professional sports leagues for a few reasons. Scott describes baseball as being “more of a precision sport than contact sport” and the largest professional sports league in terms of affiliate operations with its minor league farm teams. Other leagues are striving to follow suit, however. I wrote last year about the efforts of the National Football League (NFL), with the [first hiring of a Chief Data Officer](#) in a major professional sports league.

Key to integrating data and analytics into professional sports teams, according to Scott, is the ability to measure results that demonstrate the value of investments in data and analytics resources and solutions. One measure is based on results on the field, represented by wins. However, teams must account for the “lag effect”, meaning that results don’t always appear overnight, but are more often realized over time.

Scott notes that it is not uncommon for it to take 1-3 years before a professional sports team starts to see the results of their investments in talent and talent development. What is true in professional sports is also true for businesses across many industries. However, in the same way that businesses are held accountable for annual and quarterly results, professional sports teams are held accountable for their performance each season.

As depicted in Moneyball, the use of data and analytics has encountered headwinds and degrees of resistance over the years, largely due to the cultural change that it entails. According to Scott, “The use of data and analytics has tended to encroach on how things had been done in the past. We have needed to address the fears related to greater reliance on data and analytics. We are dealing with human beings”. In the end, Scott notes that using data and analytics to improve performance means that professional

sports team must learn to think differently. So, here's to the crazy ones, the misfits, and rebels, who see things differently. What is true in business is true in professional sports.

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