*Big Data: The Next Revolution of Sports*

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**Abstract:** Big Data –the data that has the potential to be mined/analyzed for valuable information, to optimize performance is transforming modern society. Sport, which has always been a huge part of society is also starting to utilize the potentially huge amounts of data available in the respective different formats of sports, times are changing making decisions solely on the instinct is outdated, the latest innovations are poised to trigger a revolution.

**Keywords:** big data, sport, society, innovation, revolution

*Big Data: The Winning formula in Sports*

Big Data in sports affects two major groups: fans and teams.

1. For the fans, it has provided a new experience- one about which they are extremely happy about. As Fans get to interact in real time with teams and players via Twitter, Facebook accounts and email newsletters. As one can remain updated consistently with all the news and statistics of the team and individual analyses of each player.

For example,

1. (Basketball) the NBA's statistics website,   
   stats.nba.com, has already racked up over 20 million unique views. On this website, fans can find not only figures for points, assists and steals, but also, for example, Kevin Durant's career shooting percentage against the Milwaukee Bucks and the type of pass (chest, bounce, behind-the-back) he uses most often.

The NBA relies on innovative technology to track these statistics. At every game, cameras positioned at various angles record and log the movement of each of the players.

1. Tennis saw the introduction of the IBM Slam Tracker. This technology aggregated and published a variety of statistics- from a competitor's point-by-point probability of winning the match to his/her opponent's popularity on social media at any given moment.
2. For the teams, this new data is a boon. Many teams are now employing a data specialist who is responsible for interpreting advanced statistics.

During training and games, players are now equipped with sensors that monitor every aspect of their performance- from the heart rate and metabolism to reaction time. Cameras, sensors and wearables record every aspect of player performance. This data allows managers and technical staff to determine the factors that influence player performance, dictate calorie intake, training levels and consequently, the performance of the team and make more informed decisions

For example,

1. In the UK, Premier League soccer team Arsenal has recently invested millions in developing its own analytics team to make better use of the data it is now collecting. One important data stream comes from 8 cameras installed around its stadium to track every player and their interactions. The system by sports analytics provider Prozone tracks 10 data points per second for every player, or 1.4 million data points per game. The system is also used to monitor 12,000 soccer matches around the world, which are all analyzed using automated algorithms as well as manual coding of every interaction with the ball to increase the accuracy and value of the analysis.

Teams now have access to information such as ‘all passes by Lionel Messi that were unsuccessful’ or ‘all successful tackles by Cristiano Ronaldo’. Now analysis of ‘off ball’ events is of huge interest. As Most players only spend a fraction of the match directly interacting with the ball and the vast majority making runs, getting in dangerous positions or disrupting the flow of the opposing team, there is a lot of untapped potential that can be found in that data.

1. Baseball: Have you seen Moneyball with Brad Pitt? If not, you definitely should. Then you’ll realize why data analysis is so important in this game. One baseball game is close to generating up to 1TB of data. This processed information has a large influence on team strategy and personnel decisions. The easiest way to understand what we are talking about, my advice is clear – become friends with Moneyball and Brad Pitt.

Soccer is among the growing list of sports being transformed by Big Data. The use of data and statistics to gain a competitive advantage has grown across a wide range of sports including basketball, tennis, and baseball etc.

Technologies:

1. Big data at work with Germany's Football World Cup win:

To gain a competitive edge, the team partnered with German software giant SAP AG to create a custom match analysis tool that collects and analyzes massive amounts of player performance data.

The tool, called Match Insights, analyzes video data from on-field cameras capable of capturing thousands of data points per second, including player position and speed. That data then goes into an SAP database that runs analytics and allows coaches to target performance metrics for specific players and give them feedback via their mobile devices.

Using Match Insights, the team was able to analyze stats about average possession time and cut it down from 3.4 seconds to about 1.1 seconds. The tool allowed them to identify and visualize the change and show it to coaches, players and scouts.

The tool also allows coaches to determine performance indicators for individual players, which they can then send to teammates’ mobile devices. If a coach wanted to adjust a player’s speed, position or possession time, for example, he could send those stats and a video clip from that day’s game to the player’s cell phone. Players can also take a look at their performance data at a setup in the players’ lounge.

When it comes to positioning on the field, Match Insights can show the team virtual “defensive shadows” that show how much area a player can protect with his own body. That can help them visualize and exploit weak links in an opponent’s setup.

1. IBM Slam Tracker: This technology aggregated and published a variety of statistics- from a competitor's point-by-point probability of winning the match to his/her opponent's popularity on social media at any given moment.
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3. Live on the Field Data Collection:

Currently, lots of data is collected manually during games. But much of the live data moves so fast that it's lost in a moment of time. One company trying to log more of the live data is Zebra Technologies. The company makes RFID tags, as part of their Motion Works Sports Solution, that attach to equipment, balls and players to track movement, distance and speed. The tags blink 25 times per second and deliver data in 120 milliseconds. Another company, Sport VU has six cameras in each NBA arena that collect data on the movements on every player and movements of the basketball 25x per second.

Conclusion: (Where I want it to be utilized)

Big data should used in Indian football, as we as a nation have the financial power, so tools mentioned above like wearable technologies, cameras, Match Insights etc need to be introduced for the betterment of our group of players as we would be able to analyze every player playing for the nation at each level, so that players know everything about their playing style, their technical ability, their weaknesses so as to eradicate them. By using big data we will take the standard of Indian football to a whole new level, create a better spectacle for the fans that come to watch their team play and make huge strides in fulfilling the dream of competing in the FIFA WORLD CUP along with the established quality teams the other nations have, and write a new tale in our rich and diversified history.

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