Importance of Analytics In Sport Management: Indian Perspective

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Abstract

\textbf{Background:} This research paper compiles and analyses the work of various researches, Journal Articles, Newspaper reports, and other various e-portal information as sources of information for the study to understand the level and involvement of analytics in sports in India. \textbf{Methods:} India is a growing economy with a lot of potentials. Sports Industry in India is skyrocketing with a growth rate of 15\% (DataPOWA). Hence, in this paper, an attempt has been made to study the performance of Sports Players using various Factor Analysis techniques. \textbf{Conclusion:} The main aim here is to demonstrate the specific objective of this study to assess the development of sports practices with respect to sports analytics in India and further to explore the potential of sports analytics in India. The paper is heavily dependent on secondary research data.

\textbf{Keywords:} big data, data analytics, prediction models, sports management


1. Introduction:

Sports have always been an integral part of our society. There are social and economic aspects associated with sports and play a significant role in shaping a community or a nation. Sports culture has been a parameter for the identity of a nation. England is known for its modern period of the sports hub. South America, Europe, and Africa are famous for football associations. U.S. and NBA, in particular, is the biggest worship ground of Basketball, Boxing is a major event in North and Latin America. Similarly, Badminton is a major sport in South-East Asian countries, and in India, Cricket is considered as a religion. Of all such significance, sports, all around the world, have been commercialized and well regulated. The time, effort, and investment involved in the sports business require to have a more scientific approach to how players, managers, and audiences see the sport. Sports analytics is a recent development in the sports industry and it has impacted the approach towards the particular sport. The scope of statistics and data has dominated the way games are being played. Now, sports are much more than physical and mental games, now it involves data and analysis. It measures from how a player moves to how the audience reacts, stats, and data have revolution the ‘what’ and ‘how’ of sport.

The Global sports player tracking and the analytical market is expected to reach worth $16.288 billion by 2027. Health Assessment, Team Performance, and Athlete Performance applications are the most preferred segment of analytics. The investment on analytics in Hockey alone is expected to be $1.551 billion by 2027 (Correspondent, Global Sports Player Tracking and Analytics Market Valued at US$ 1082.0 Million in 2018 & is Expected to Reach US$ 16,228.8 Million by 2027, Growing at an Estimated CAGR of 38.8% Over Forecast Period With Rising Adoption of Technology for Improving Player, 2020).

Sports serves a much bigger purpose in the life of Indian people. Before Indian Sport was equivalent to Cricket but recent development in sports like football, Kabaddi, Badminton, etc. has rewritten the growth of the sports industry in India. The Indian sports industry has a growth rate of 15\%\textsuperscript{(13)}. The earlier practice of sports analytics started back in 2002-2003 in India in cricket. Indian Premier League (2007) and Commonwealth Games (2010) are the major events for the surge of

Annals of Tropical Medicine & Public Health \url{http://doi.org/10.36295/ASRO.2020.231720}
sports industry in India. Now, India is leaping forward towards using sports analytics and making
sports and sport-related management more scientific, data-supported, and sophisticated. Increasing
the volume of investment in start-ups and businesses working with sports analytics and broadening
the scope of sports analysts in India clearly signifies the growing importance of sports analytics in
India. Analytics, in the last decade, has reflected the sports culture in India. Sports analytics is not
only helping on-the-field performance but also assists in improving the viewer's experience off-
field.

The structure of this paper is designed to provide an overview of sports analytics in sports and
how statistical analysis has or can benefit the current Indian sports culture and how will it make
difference in defining the future of the Indian sports culture. This paper will focus on the
involvement of sports analytics in various sports and how sports analytics has been impacting the
sports behaviour and relate it with the progress one has in India.

LITERATURE REVIEW

General Manager of Oakland Athletics Billy Beans in the early 2000s used sophisticated statistical
models in Baseball games that changed the face of the sports industry. Billy Beans used statistical
methods on assessing the performance of players which resulted in the selection of good players
that others overlooked. This story was cinematized in 2003 in a movie named Moneyball, and
since this incident, if addressed as ‘Moneyball’ and statistical approach is referred as
sabermetrics\(^{15}\).

The metrics such as VORP, FIP, ERA+, Win Probability, and other forward-thinking statistical
approaches can turn sports into a real number game that behave in much the same way as the stock
market\(^{5}\).

Thenmozhi, Palaniappa&Sakthi (2019) conducted a research on the Data Mining on Cricket. From
this data mining model, they concluded that the winner of the IPL game during a different phase of
games can be predicted using the proposed approach. Such prediction considered the historical data
as input and used machine learning algorithms to predict the match. The model considered 24
attributes related to the game\(^{19}\).

Dmonte&Dmello (2017) conducted research on Big Data using the SAP HANA platform and
concluded that Big Data analyses the various factors of the players that provide statistical
information to players to analyze their own strengths and weaknesses as well as the detailed
analysis of competitors\(^{12}\).

Rein and Memmert (2016) conducted a research on big data and tactical analysis in soccer. The
study concluded that the adoption of big data technologies in soccer can enhance a multi-
disciplinary approach towards the evolvement of soccer (Rein & Memmert, 2016).

Milan Lab, a player health and conditioning research and analytical centre and established
in 2002, is the earliest approach of data analytics in football. Milan Lab assisted AC Milan, the Italian
soccer team, benefitted from this approach. Milan Lab tracks 60,000 data points on each player and
data analysis measures the fitness of each player for contract decision and the likelihood of serious
injury\(^{9}\).

Parmar (2017) conducted a study on Kabaddi and the use of sports analytics in Kabaddi. 31
variables were considered and five techniques were used to analyze those variables. The major
takeaways assisted in designing winning strategies, deciding tactics & substitutions, assessing the
impact of various strategies\(^{16}\).

AIMS AND OBJECTIVES

The main purpose of this study is to understand the level and involvement of analytics in sports in
India. The specific objective of this study is:

- To assess the development of sports practices with respect to sports analytics in India
- To explore the potential of sports analytics in India

SIGNIFICANCE OF THE STUDY

The use of analytics in sports in India is a new concept. There has not been much research in India
regarding the need and importance of analytics and the available information is scattered. This
study will have the following benefits.

Annals of Tropical Medicine & Public Health \(\text{http://doi.org/10.36295/ASRO.2020.231720}\)
It will reflect the current practices of analytics in sports across the world.
- It will help the sports enthusiast to understand the concept of sports analytics.
- It enlightens the present scenario of sports analytics in India
- It will consider the potential of sports analytics in India.

2. Material & methods:
This study is based on a meta-analysis of previous researches. Various researches, Journal Articles, Newspaper reports, and other various e-portal information are considered as sources of information for the study.

3. Results and Discussion:
Cricket has changed the fate of Indian Sport and recognized India across the world. Major developments in the sports industry in India has started from cricket. The introduction of events such as Premier Hockey League (PHL), Indian Cricket League (ICL), Indian Premier League (IPL), Hockey World Cup, First Indian Grand Prix, Commonwealth Games, etc. have impacted the way sports was taken in India. These events have changed the way sports are played and managed.

1. For the Sport and Team
The transformation of Cricket from ‘Test-only’ to ‘T-20s’ was possible only because of analytics. Analytics has a greater in evolution of ‘power play’ rule and ‘Duckworth Lewis’. Analytics has been a part of Indian cricket for a time being. Sport Mechanics, a sports technology, performance, and data Analytics Company, is among the leading companies which have been working for the development and management of sports using data and statistics. Sport Mechanics has been associated with the Indian Cricket Team since 2003 and has partnered with other various league clubs and cricket associations around the globe. The company has worked closely with the Indian team, coaches, and management. Sport Mechanics has helped players like Sachin Tendulkar, Virendra Sehwag, and Mahendra Singh Dhoni with their performance.

Similarly, Kabaddi was considered as a traditional game with no touch of technology. No one has ever considered that technology will be considered in these games ever. Parmar (2017) conducted a research considering various traits and rules in Kabaddi and of Kabaddi player and used various statistical methods. The various result during descriptive analysis suggested Violin Plot can be used to characterize a team which will eventually assist in devising a winning strategy.

The predictive model helped predict the game’s real performance with the partial available data. Ensemble Models and Neural Network-based helped to test the impact in various game scenarios.

Gaurav Sundaraman, a sports analyst at Mumbai Indian, one of the teams at the Indian Premier League, claimed that Sports Mechanics has helped the team to win the cup. The exceptional record of Mumbai Indians in IPL i.e. Mumbai Indians has won four out of the last seven seasons. And the team consider analytics and statistics as their X-factor.

Gracenote Sports, a sport analytical company, predicted that India would win 14 medals if Tokyo Olympics 2020 and would rank 21st. All such evaluation was conducted using the data analysis tool and evaluating the entire factors and events outcome.

Data analytics is a powerful tool to predict the happening with precision. It has changed how players used to play, coaches use to coach, the team used to make strategies, viewers used to observe and investors used to invest.

2. Coaching
In the research conducted by Parmar on Kabaddi and data analytic, Artificial Intelligence (AI) can open up new approached to forming game strategies. Reinforced learning from the data analysed assist coaches and players to consider all the scenarios in games run through them. This study advocated about the benefits of analytics in the game of Kabaddi and how it can help coaches and management for effective strategy implementation.
SportsKPI is an Indian analytics agency working together with the National Indian Football team and other various football clubs in India. Most of the teams and players use a tool called Sportscode that collects information from various in and out-field activities. Coaches get benefitted from this tool by analysing player movements, patterns in training, etc. and arriving at decisions regarding the players in the squad. Most of the foreign coaches in Indian National Football team insisted in considering analyst as the crucial part of the football team

3. Player Evaluation

Mumbai Indians are leading India cricket franchises to heavily invest in sports analytics over the time. Sport Mechanics, a sports analyst partner of Mumbai Indians, has been assisting the team while during the auction ceremonies and in every strategic decision making. The analyst working for Mumbai Indians has claimed that the decision of playing Jason Behrendoff against Kholi during Mumbai Indians vs Royal Challengers Bangalore was the outcome of thorough data analysis. The analysis revealed the weakness of Kholi towards left-arm seamers. Similarly, playing LasithMalinga against Andre Russell was a similar decision made. The decision of dropping Dinesh Karthik was also induced by analytics. Analytics covers various parameters on each player and overall teams with all the attributes analyzed to provide the details about the weaknesses and strengths of an individual and the team. Sports Analytics helps to understand other weaknesses and strengths and responsiveness of a particular event on the team and players.

Sports Mechanics, a sports analytics company, helped SaniaNehwal in Olympic Events by providing her with her opponent analysis. The real-time analysis led Sanai to consider all the possible outcomes during the games to build strategies and tackle the opponent. The video analysis and movement tracker can easily identify the weaknesses and strengths of any player. A real-time feed from video analysis helped Sanai during the Olympic events.

All the ranking of players conducted in today’s time involves statistical analysis and data modelling. All the information is recorded and analysed to provide real-time analysis. Similarly, in the IPL auction, analysts are leading the events along with the owner of the team. Forming a team from a player pool of more than 1,000 players requires a lot of analysis. In Chennai Super King, Tamil-Nadu wicket-keeper batsman N. Jagadeesan was the replacement keeper for Mahendra Singh Dhoni. The price difference between them is 75 times i.e. Dhoni is priced 75 times higher than Jagadeesan. This decision was taken because Jagadeesan had an expected level of performance and bidding was also low. The selection of players and bidding for the player is analysed considering the age of the player and long-term contribution. Retaining players or letting go of players is highly influenced by data analysis.

4. Player Development

Many sports experts have said that India needs to invest more in sports analytics and sport management. The performance of India in any international event is average and all the blame is to India’s inefficiency in considering sports analytics. Olympics is the main event for any athlete and hence China and the USA are always leading this event. The main reason concluded was their investment in players or athletes and the involvement of sports analytics. In an article by VikramDevath, he has suggested that investment in analytics is the major leap towards player development and sports development in India.

There are various independent companies that are always analysing the sportsperson and sports events with the help of data available. An analysis by Nasser Hussain clearly reflects ViratKholi to be better than Steve Smith from Australia and Kane Williamson from New Zealand. ThoughtSpot did all the analysis and reflected the strong and weak point of every player and make this deduction.

5. Sport Visualization

Analytics and Infographics are changing the way the audience sees any sports. Sports teams are using analytics and infographics to change the dynamics of their supporters and overall audience. Now the teams are competing with each other on the base who serves the audience and supporter in a more convenient and sophisticated way.

Viewership analysis is also one of the aspects of analytics and this has helped in providing more exclusive content to the viewership. In 2019, Mumbai India, Chennai Super Kings, and Royal Challengers Bangalore were listed in the top 10 most popular sports teams in the world based on their social media activities.

Hotstar, an online streaming platform, has changed the way people watch sport. The viewership in this platform has escalated lately. The sports platform in Hotstar has changed the definition of viewership. Hotstar recorded 5.5 million concurrent viewers on April 10, 2018, which was the highest ever for any live streaming sporting event in the world. Infographics and real-time match analysis are the aspects of sports analytics and these factors have made sports more interactive.

Before data analytics, viewers were concerned about the basics, for instance, in cricket, everyone was concerned about what the score was, the number of wickets taken, strike rate, run rate, etc. Now, viewers are more concerned about what will be the probability of winning a match by a particular team, what is the batting profile of the players, who will be a suitable player to play against the opponent in the given situation, etc.

DISCUSSION

In Indian Sport, the culture of sports analytics has started and is slowing making its recognition. The major contribution of sports analytics can be seen in Cricket and the result can be well generalized from the popularity of the Indian Premier League. IPL is an example of how data science can change the course of a sport. Now, cricket is more than runs and wickets. Data analysis has made every viewer critic and now people speak the language of analyst while watching any game.

There has been progress in other sport as well but the importance given is comparatively less than cricket. Many agencies and companies are working on making Badminton, a game of data science and is collaborating with various players and sport management teams to make the game more scientific. Similarly, the introduction of the Indian Soccer League and Pro-Kabaddi league has introduced data science in the game but the use has been limited. Data Analytics in such games is aiding the visualization experience of customers and fetching data for a more advanced model. In such sports, data analytics is just in the development phase.

India is a land of sports and there are more than 56 sports recognized by Indian National Sports Federation. Most of the sports are struggling for basic infrastructural and equipment crisis and in such a situation, data science is a long path to travel. For the sport like Cricket, BCCI, the apex body for cricket, has just started working for data analytics. In 2019, the body decided to consider performance analyst for India’s Women Cricket Team, similarly, BCCI is planning of establishing Data Analytics Wing for the development of cricket. BCCI is planning to collaborate for Sports Injury analysis with Fortius.

Football is the second most celebrated sport in India and the introduction of data analytics was only possible due to the foreign coaches that were associated with the Indian National Football team. There has not been much regularity and improvement in football. Indian Soccer League has assisted in player development using data and statistics.

Many of the articles consulted argued that the performance of India in world event reflects out a true position in world sports. The performance of India in the Olympics can be much improved with the help of data and stats. The investment of sports in other successful countries can be seen from their performance during the events.

There have been independent efforts from the side of the company working in the field of sports analysis for making sports more scientific. There are various Indian start-ups and companies that are doing great globally but has not been recognized by the authorized party. There has been less support from the government and sports associations for the development of sports analytics.

LIMITATION OF THE STUDY

This study considers meta-analysis for its completion; therefore all the basis for this research is dependent on secondary analysis. There is no quantitative approach to justify the result. These aspects limit the scope of the study.
4. Conclusion:
Applying machine learning for analysing sports by considering previous games data, players' performance, natural parameters, pre-game conditions, and other features are very beneficial for the multiple stakeholders of the game. From players to fans to media, everyone is experiencing its benefits. Players can analyse themselves, coaches can get the right players, match referees can make proper decisions, and mainly it is driving fans into the game. Big data has affected sports industries to a large extent.

Countries across the world have been using data and analysis tools to deal with the crisis in sport and work hard for the development of players, teams, and sport. India has a lot to cover. India is suffering from the basic infrastructural crisis in sports therefore data analytics is the last priority. The potential of sports analytics is unquestionable and India should slowly start investing in sports analytics starting from data collection.

Ethical Clearance: Not applicable
Source of Funding: Self-funded
Conflict of Interest: There is no conflict of interest among the authors

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