SURVEY OF INFORMATION TECHNOLOGY IN SPORTS MANAGEMENT

A. Sreeram*

M N RChowdary**

Y.Srinivas***

J. Vijayasekhar****

V K Narla****

G. AnandaRao*****

Abstract

Information Technology plays a vital role in international games likely cricket, tennis, soccer, etc. It will be very helpful for referees to assess a particular decision and give the decision accordingly, and for coaches it used to be very helpful in giving coaching to the candidates by showing previous matches held and strengths and weaknesses of a particular candidate. Today IT has evolved in gaming in such a way that a user can know the updates over the internet, mobile, and by any other forms of communication and people can also share their views through discussion boards, and discussion will be held on a particular sport with a group of experts .

Keywords:IT, gaming

* Hyderabad Business School, GITAM University, Hyderabad, India.

** Depatment of Physical Education, GITAM University, Hyderabad, India.

*** Department of Information Technology, GITAM University, Hyderabad, India.

**** Department of Engineering Mathematics, GITAM University, Hyderabad India.

***** Department of Applied Mathematics, GITAM University, Visakhapatnam, India.

Introduction

The world of sport is continually changing over the years, and the use of technology is just one of those areas that has made an impact on many sports in the modern day. Most professional sports in many countries have long used instant replay and other high-tech aids to help referees make the right call. Gridiron has used video replay systems to check referees' calls for many years. Basketball referees use replay systems to make sure players are shooting within the time allotted by the shot clock. In international cricket, the third umpire has been used, one sitting off the ground with access to TV replays of certain situations (such as disputed catches and boundaries) to advise the central umpires. The umpires out on the field are in communication via wireless technology with the other umpire. The third umpire is also asked to adjudicate on run out decisions, which he makes without consultation with the two central umpires. One sport that has resisted the use of high-tech assistance is soccer/football. Replays could be used to decide off-side decisions, whether a ball passes over the goal line, and clarify penalty decisions.

With online communication, coaches and athletes can keep in constant contact. Data can be recorded on performance, instructions can be transmitted, and detailed performance modifications can be made. Video conferencing and audio conferencing provide the coaches and athletes with close contact even at extreme distances. With the latest technology, athletes' performance monitoring can include heart rate and blood pressure. It is even possible to analyze waste materials collected directly from source, and send the results automatically to the coach/team doctor for changes in diet and nutrition. With recent sport video analysis systems, coaches can collect and code action data during the event and then show the athlete(s) where problems have arisen for instant corrections. Such programs already exist for most team sports. During intermissions, between heats, and during time outs, teams can watch selected events from the recent action, which can be instantly accessed, and changes can be made that can have a major impact on the outcome of a game.

Applictions of Information Technology in Sports

Recording Information

Official statistics keepers and some scouts use computers to record statistics, take notes and chat online while attending and working at a sports event.

Analyzing Movements

The best athletes pay close attention to detail. Computers can slow recorded video and allow people to study their specific movements to try to improve their tendencies and repair poor habits.

Writers

Many sportswriters attend several sporting events a week, and they take their computers with them to write during the game or shortly after while their thoughts are fresh in their mind.

Scoreboard

While some scoreboards are manually updated, most professional sports venues have very modern scoreboards that are programmed to update statistics and information immediately after the information is entered into the computer.

Technology in Cricket

In international cricket, the third umpire has been used to supplement the role of the two umpires on the ground. The third umpire is equally qualified, and sits off the ground with access to TV replays of certain situations (such as disputed catches and boundaries) to advise the central umpires. The umpires out on the field are in communication via wireless technology with the other umpire. The third umpire is also asked to adjudicate on run out decisions, which he uses video replay and makes a decision without consultation with the two central umpires.

Hawk-Eye Technology

Hawk-eye is the name of a computer and camera system which traces a ball's trajectory. It is being used in international cricket and tennis, and many other sports are also looking at making use of this technology. The system being developed by the UK company Hawk-Eye, would give a definitive decision on whether the ball had crossed the line. The Hawk Eye uses a camera taking 600 frames a second on the goal-line. The information is analyzed by computer and sent to the referee's headset or a device on his wrist.

Snickometer

Snicko is predominantly used by commentators to judge whether the batsman has edged the ball or not. If there is a sound of leather on willow, which is usually a short sharp sound in synchrony with the ball passing the bat, then the ball has touched the bat. Other sounds such as the ball

hitting the batsman's pad or the bat hitting the pitch and so on tend to have a fatter shape on the sound form.

Hot Spot

It is a infra-red imaging system used in cricket to examine whether the ball has struck the batsman, bat or pad. It can play a critical role in determining whether the batsman is our or not in case of an LBW or caught. In this hot spot it uses two infra-red cameras positioned at both ends of the ground. The friction is generated by collision such as ball on pad, ball on bat, ball on ground or ball on glove is detected by these cameras.

Technology in tennis

Online Scoreboard

During play, live results and player performance are compared against the suggested keys and results are displayed online in a visual representation of the match which allow users to see, in an instant, the state of play.

Radar gun

They work on the principle of the Doppler effect: the faster the ball is travelling away from the sensor, the more spread-out the waves bouncing off the ball will be when they return. It's the same thing that produces the wheeeee-whaaaaw noise when a car goes past you - as it comes towards you, the sound waves bunch up, and sound high-pitched; as it zooms away, they are stretched apart, and sound deeper.

Net-cord sensor

it's just a sensor that turns vibrations into electrical energy, called a piezoelectrical device, similar to that used in a hi-fi speaker or microphone. It's attached to the top of the net and detects when it vibrates, to see whether a serve should be called a let or not.

Technology in Football

Soccer goal line technology

The International Football Association Board (IFAB) want to get it right before they implement a system. They have laid down the following four criteria that they want to see in a goal-line system:

- The technology should only apply to goal-line decisions.
- The system must be 100 per cent accurate.

- The signal sent to the referee must be instantaneous.
- The signal is only communicated to the match officials.

Smart Ball

A promising prospect has been a "smartball" loaded with an computer chip, jointly developed by German companies Cairos Technologies and the Fraunhofer Institute for Integrated Circuits, an engineering research and software development company, along with the Adidas athletic clothing and shoe company. The companies' technology uses a network of receivers around the field designed to track the ball's precise position in real time - including exactly when it has fully passed the goal line. That information would be relayed in less than a second to a watch-like device worn by the referee.

Conclusion

IT applications in sports management are noticeably changing the way that we do business. Thinking through how we can use this kind of equipment and these tools greatly enhances outcomes. The bottom line is that these IT tools are rapidly becoming a necessity for the sports administrator at whatever level in the sports hierarchy they are working.

References

1. http://www.topendsports.com/resources/technology.htm
2. http://www.kin.ucalgary.ca/strc/8.htm
3. http://www.topendsports.com/sport/cricket/technology.htm
4. http://www.telegraph.co.uk/technology/news/8592677/Wimbledon-2011-the-top-five-tennis-technologies.html
5. http://www.topendsports.com/sport/soccer/technology.htm