

# Innovations in Rio-Olympics

□ Himanshu Sharma

Olympics is the biggest platform this world can offer to the best talent in the field of sports from the far-flung nations and the remotest locations on globe. Entire human race comes together every four years to celebrate the determined grit and witness the heights of perseverance a human is capable of. Like any other sector, a variety of innovations are taking place in the field of sports also. Particularly, the Olympics have witnessed such innovations in almost all areas including training, time keeping, judgement etc. Despite tremendous efforts athletes put in their training, they may fumble in their actual performances or their results may not be as expected. The reasons can vary from bad judgement to other external disturbances. Innovations play an important role in minimising such unwanted factors and let the athlete completely focus on his/her performance. Innovations can actually save an athlete's years of hard work from turning futile. For example, In the racing events, before photo finish was introduced in 1964 Tokyo Olympics, a placing judge who stood at the finish line had the final say in which participant has won. This method of determining winner was greatly erroneous and in events like 100m dash, where the competition now is for 1/100<sup>th</sup> of a second, appointing a human to determine

the winner would have solved no purpose. Similarly, time keeping in athletic events is as important as determining the final winner. Even the loser of a 100m sprint event at Olympics is conscious of his performance and wants to keep track of his progress. Such small innovations proved pivotal in shaping the modern form of Olympics. Olympics have come a long way from using photo finish and time keeping for first time in Tokyo Olympics (1964) to virtual reality live streaming in Rio Olympics held on 2016. Recently concluded summer Olympics at Rio de Janeiro saw several such amazing futuristic technological innovations in sports, human body mechanics, broadcasting, judging and many other fields.

## Need of Innovations in Sports

Apart from athletics, field events like soccer and hockey also calls for advance equipment for judging so that true spirit of sports is not compromised by foul play. Now, every inch of gameplay is under surveillance by drones, ultra high definition cameras and billions of spectators viewing the sport progress on their super high-vision television sets. When a game receives such a response, the management and refereeing federations are under tremendous pressure of conducting the match with minimum possible glitches, keeping record of each event and broadcast it gracefully across the globe. Not only remote spectators are important but audience sitting in the stadiums are of immense value. Every sports federation and local authorities are particularly concerned about their security and comfort. It is practically impossible to comfort every spectator present in the crowd, so innovations like surveillance balloons, x-ray scanners and radars come to the rescue of management.

## How Innovations shaped the Rio-Olympics?

Let's have a look at how modern innovations shaped the summer Olympics at Rio de Janeiro.

### 1. More Robust Training :

The stellar performances at Rio Olympics were undoubtedly the result of years of hard work put in by the athletes, but with increasing technological advancements, sports preparations are no more limited to blind sweating and hours of beating on the craft. Athletes are now going for a more robust approach. Their training includes a wide variety of gadgets which assist the athletes and help them keeping track of their progress. These gadgets are in no way similar to the normal steps or calorie counters.



**Punch Tracking sensors**

High-tech gizmos like punch tracking sensors by a Y Combinator startup Hykso for measuring the force and impact of a punch was used by Canadian boxing team while training.

**2. Specially Designed Equipments:**

The level of competition offered by USA cycling team can be gauged by analysing the methods and tools they used for training. A specially designed track bike was used along with a special set of goggles called “Solo”. The cycle and goggles were then combined via a cloud based application provided by IBM. Every bit of data like heart rate of athlete, cycle speed and power meter are integrated by the app and then after it is displayed in front of the eyes of the athlete by “Solo” goggles.



**Solo Goggles**

**3. Precise and Effective Judgment :**

Faulty judgement in an event as gigantic as Olympics can break hopes of a billion people and many

countries in a snap. Degree of human involvement in judgement of an event depends on the extent of technicalities involved in the sport. A field event like soccer may not involve human collisions to the extent seen in events like boxing, wrestling, judo or any combat sport. For effective judging many innovations has come up. In London Olympics (2012), taekwondo athletes wore a specially designed vest with embedded sensors which could accurately tell whether the kick was taken on body or not. In Rio Olympics for the first time, fighters sported a head gear with sensors to keep track of the hits taken on head.

**4. Underwater Lap Counters :**

Omega was the official time keeper for third time in an Olympics. Omega came up with a brilliant innovation for long distance swimmers in form of underwater lap counters. It is not unknown for those who follow the sport that many distant swimmers sometimes fail to keep track of the number of laps they’ve covered. While swimmers are racing back and forth in the pool, counters with large displays



**Under Water Lap Counter**

were placed beneath the surface. Every time a swimmer flipped off the wall, a sensor detected the direction change and accordingly updated the lap count on the screen, which the swimmer could easily see. Providing the counters didn’t affect the judging or individual performances, but the swimmers could now solely focus on their performance.

**5. Hand Worn Bracelete to Pay for Things:**

Rio Olympics saw innovations not only in sports, but in other spheres of activity also. Visa collaborated with Brazillian bank Bradesco and came up with a



**Hard Warn Bracelete**

unique hand worn bracelet which allowed the spectators and other sports people to pay for things by hovering their hand over a sensor. Near-field communication powers this innovation. Similar type of system is used by Apple pay and Google Pay.

**6. Use of Virtual Reality for Spectators :**

One of the most iconic innovation showcased in Rio Olympics was the use of virtual reality for the spectators. Virtual reality is the tech of near future and it is being experienced at every platform, Olympics is no exception. Olympics Broadcasting Services (OBS), Getty Images and BBC and other parties in their respective capacities are trying to capitalize the market for virtual reality. OBS captured VR footage of sports like volleyball and athletics along with opening and closing ceremony was made available to international broadcasters. NBC made



**Virtual Reality Spectaors**



*Author is an engineering student of the National Institute of Technology, Delhi and he is grassroot level innovator. He can be contacted at email: [233himanshu@gmail.com](mailto:233himanshu@gmail.com)*

**“The tool that’s most associated with the recent progress against malaria is the long-lasting bed net. Bed nets are a fantastic innovation. We can invent new ways to control the mosquitoes that carry the malaria parasite.”**

**—Bill Gates**