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BIG DATA ANALYTICS

Is Big Data Ruining Sports?



Robert Plant, Associate Professor, School of Business Administration, University of Miami
11/13/2013
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Sport has always been a data-centric activity. In football, data around formations dominates discussions in clubhouses and bars around the world, for example England's classic 1966 World Cup winning 4-4-2 versus the modern 3-5-2 or German variant 3-6-1.

Cricket, the birthplace of sporting statistics

Cricket, so beloved by many, has records and dates laid down in Wisden's almanac since 1864, even the North Texas cricket league keeps its data on googlies and LBWs online.

North America is arguably the world's most statistically focused population for sports data. Thus it is not surprising that the ESPN sports channel even has a searchable cricket database. It's a perfect product to build commercial links to perhaps the greatest nation for cricket data, India, through its fantasy cricket league. However, it is in North America that big data is truly transforming sport. Baseball, the statistical epicenter of sport in the US, has attracted the attention of companies such as SAP who created a business analytics dashboard allowing baseball fans to bring big data to their seats via an online website.



Baseball, like its related game cricket, however is also looking at one of the causes of dissent amongst fans, players, and observers: the umpire's decision. In cricket the 2013 Ashes series between England and Australia (a series first played for in 1882) caused controversy when "hot spot" technology was used by umpires to review their decisions. Similarly in baseball "hawk eye" tennis-based technologies are being considered to ensure a ball is a ball, and not a strike.

Statistical insight on the NBA

Everyone has an opinion on the value of the data produced from these systems and the impact on games. There is even an argument that the decisions should be automated.

Ball and player tracking technologies have been deployed by some NBA basketball and EPL football teams in recent seasons. In the NBA there are six synched cameras above the playing arena -- three in each half are used to track every player movement. Operating at 25 frames per second the time-stamped pictures are analyzed to identify the effectiveness of every player, shot, formation, rebound, jump ball, and foul location, amongst other data. The data are then presented to the coaches court-side in real time. The company that has pioneered this is STATS LLC. It has products covering 15 sports from golf to rugby.

In the 2013-14 season, some of the data from the NBA are being given out as open data, so we can all know facts such as that Detroit Piston Gigi Datome is the player who runs around the court the fastest at 4.7 mph and Sun's Goran Fragic ran the most in a game at 3.1 miles.

Oracle sailing on Oracle tech

Perhaps the most powerful example of data influencing decision making and the outcome of an event recently was Oracle's use of its own big data technology in the 34th America's Cup. Asim Khan, Oracle Team USA's director of information systems recently revealed how the team used both sensors and real-time analytics to improve the boats design and performance. In his article for realbusiness he describes Oracle's use of over 300 sensors embedded in the boat in order to run analytics over 3,000 variables ten times a second. This generated over 200 gigabytes of video data a day, which went to both the sailors and the shore team via 4G connections, as well as to support boats. Data processing was undertaken on the latest Exadata Oracle database machine, a device capable of performing 1.5M I/O operations per second and data capabilities of 150 TB per rack.

With all this big data technology and with a little help from England's Sir Ben Ainslie acting as Oracle tactician, they came back to win the cup from a 1-8 deficit.

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The question thus is, with everything else being equal, will big data be the deciding factor from now on in sports? Can a small team come from obscurity through data analysis to capture the glory, or will the price of entry into this market be too high? Perhaps it is time for clubs not only to consider a director of football to support the coach but also to appoint a true data scientist -- someone who can more easily create a 5 percent improvement in performance than a fitness coach ever could from an already highly trained team.

Unfortunately, it is unlikely that the genie can ever be put back in the bottle for sports. As such, money will buy the technologies to leverage performance. However as Emirates Team New Zealand managed to show, innovation can still come from unexpected quarters in sports and that's what makes things interesting. As Larry Ellison keenly understood, having technology is one thing, but being able to use it quickly and decisively is another. He managed to execute brilliantly and win. For him sports is business and business is sports, potentially a big data lesson for all of us.

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 Saul Sherry, User Rank: Blogger
12/5/2013 | 5:57:18 AM

The Doctor on NPR
NPR recently had Dr Plant live on air to discuss this article and the impact on fans - <http://wfdd.org/post/case-against-big-data-sports> - makes for an interesting listen!

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 Daniel Gutierrez, User Rank: Blogger
11/24/2013 | 9:43:46 PM

Re: The Physics of Baseball
@Saul, of course you're right. I don't want to predict those highlight video type plays, nor do I think they could ever be predicted. That's what makes sporting events so enjoyable, the unpredictability. Bully for athletics!

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 dcawrey, User Rank: Exabyte Executive
11/24/2013 | 6:13:09 PM


Re: Are We Suppressing Talent?
Nice article. You're right baseball is a hugely statistical sport. Should it be? That's up for debate. For the average fan, the number of different types of statistics is massive in scale. But the analysis of sports data is only going to continue.

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My hope is that it doesn't become an overwhelming component, however.

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 Saul Sherry, User Rank: Blogger
11/21/2013 | 3:52:34 AM

Re: Sky ProCycling
So the potential issue there Rob is, sure, sing while you're winning, but we need to be careful you aren't eroding the actual sport you love so much. For how long can one team dominate before 90% of the league/competition's supporters start to lose interest and drift away?

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Of course, this can happen without the onset of tech...

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 Saul Sherry, User Rank: Blogger
11/21/2013 | 3:22:04 AM


Re: The Physics of Baseball
And, more poignantly, should we aspire to that @Daniel? Financial gains aside, these are the moments that leave us breathless, these are the moments we buy tickets for or year long channel subscriptions for. Pafko at the wall, Archie Gemmill against Holland, that Australian who won Speed Skating gold in the Winter Olympics (well.... maybe not *that* example).

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Sports is a great place where physics and philosophy collide.

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 Daniel Gutierrez, User Rank: Blogger
11/20/2013 | 7:02:07 PM

The Physics of Baseball
I'd like to interject with a reference to a fine little book I discovered back in 1990 and now on its 3rd edition: *The Physics of Baseball*. Having been a huge Red Sox fan for as long as I can remember, and also having been involved with astrophysics in a previous life, I took this book to heart to more fully understand the kinematics of baseball so I'd be able to develop machine learning models that describe these dynamical systems. I've been doing this for years, and it's been great fun. But as good as the models become, there are still random events like the weird couple of plays in the just past World Series games. Who can predict that?

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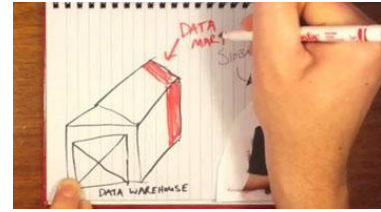
 robratcliff, User Rank: Gigabyte Governor
11/20/2013 | 6:07:01 AM

Sky ProCycling
I am genuinely genuinely shocked that Texas has a cricket team, and that ESPN has a stats thing for it. Forgetting this cultural shock, I think for me, the question of whether you think data is

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ruining sports depends entirely on which team you support. For instance, a British cycling fan (like me) would look at what Team Sky has done in cycling, turning the obsessive scientific use of data into a fine art to win the last two Tour de France's, and say that it's made it boring and predictable.

But a British cycling fan is only ever going to celebrate such innovation. So for the neutral and the losing team's supporters maybe the answer is yes. But when you're winning, nobody really cares how you did it.

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jbosavage, User Rank: Bit Player
11/19/2013 | 8:15:53 AM



Re: Big or little data?

I think this is interesting for two reasons, one, it seems to recognize analytical talent in a way previously virtually ignored in sports. And it lessens the importance of tenacity. IOW, there is less need for the tenacious captain to continue to try different ways of improvement before figuring out the best way to win. Using data cuts the process tremendously.

Second, much of the use of data has been made in the sport of baseball. The Oakland A's with Billy Bean and Red Sox under Epstein. I do wonder whether relegating the human emotional factor to the backseat, so to speak, is always good though. Isn't there something to be said for just going with your gut that that player has something special -- something you can't put your finger (or calculator) on?

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Qasim Bajwa, User Rank: Gigabyte Governor
11/19/2013 | 6:11:59 AM



Re: Big or little data?

@James, you've mentioned some very great points there and I totally concur with your statement, It's only as much as Data can do for you in sports, Team chemistry, the willingness to strive for excellence when the odds are not exactly in your favour is what matters the most. And because if this were not the case I guess the clubs with the most resources would just never be losing, but that's not true now is it?

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Saul Sherry, User Rank: Blogger
11/19/2013 | 5:25:56 AM



Re: Leverage Data in Sports

Another alternative is the sport's governing body making the investment - would the NBA commissioner consider implementing (or enforcing its use) if it meant more competitive games (ala the tech slope in F1 racing?).

Or would we see the national side stepping it up? Would the football association in England want to bring it in, and pay for the tech for each English club, if it gave them more data, more approaches to take when it comes time to put the national squad to work in Brazil next year? (England are obviously a good example there, as all of their international players currently play in the domestic league).

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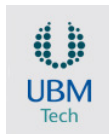
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