Hail to the geeks

March 6 2012, by Peter Dizikes

Basketball dominates the American sports landscape in March. So perhaps it's fitting that the sixth annual MIT Sloan Sports Analytics Conference, held Friday and Saturday in Boston, heavily showcased the great strides basketball analytics has made in dissecting a complex and fast-flowing sport.

Consider Dallas Mavericks owner Mark Cuban, an annual presence at the event who nonetheless had something new to talk about this year: The Mavericks won their first NBA title in 2011, due in part to taking numbers seriously. Dallas' analytics specialist, Roland Beech, sits near the bench during the team's games and seemingly had a hand in suggesting that the team start guard J.J. Barea for the final three games of last year's NBA finals against the Miami Heat, a move that helped Dallas win those games and the title.

"We all looked at all the data," Cuban said at the conference on Saturday, while declining to specify exactly who decided to put Barea in the starting lineup. "We kept on adjusting. … Over a seven-game series, it's all the little nuances that can make a big difference."

Underscoring the statistical approaches becoming available in basketball, the two finalists in the research-paper competition at this year's event both used optical data to make sense of the on-court turbulence of basketball; the winning paper, by a team for four researchers from the University of Southern California, evaluated thousands of shots to suggest which ones are most likely to yield offensive rebounds.

For that matter, Bill James, the baseball expert whose books founded the entire modern sports-analytics movement in the 1980s, lauded basketball's number-crunchers. Compared to baseball research, "basketball analytics is much more sophisticated in many ways," James said Friday.

And yes, all that basketball talk included discussion about whether the rise of the New York Knicks' point-guard sensation Jeremy Lin could have been forecast more widely, apart from a few amateur analysts who had been touting his potential. Two teams, the Golden State Warriors and the analytics-minded Houston Rockets, both gave Lin a look, then waived him in recent months — only to see Lin flourish with the Knicks.

"I'm on probation," joked Houston Rockets general manager Daryl Morey MBA '00, a co-founder of the event in 2007, who let Lin go in December.

Some of the event's speakers, such as coach-turned-announcer Jeff Van Gundy, doubted that many other hidden gems had escaped the eyes of scouts and general managers, but others saw it differently.

"There are players in the NBA who [would excel] if given the opportunity to do the things they do best, but they don't get the chance," said Mike Zarren, the assistant general manager of the Boston Celtics.

Analytics founder meets his fans

To be sure, there was more than basketball analysis represented at this year's event. The MIT Sloan Sports Analytics Conference featured 23 panels covering seven sports and a wide range of business matters; more than 2,200 people attended at the Hynes Convention Center, with representatives of 73 professional teams in six sports present as well.

This year's event also marked the first time that James, whose annual "Baseball Abstract" books gained national recognition in the 1980s, appeared at the event. He received a lifetime achievement award and his influence was a theme of the conference's baseball panel, in which he participated.

"There is no question that sports analytics helped the St. Louis Cardinals win the World Series last year," said Jeff Luhnow, the new general manager of the Houston Astros, who previously worked in the Cardinals' front office.

"Baseball analytics brought an intellect to our game that we didn't have 20 years ago," said prominent player agent Scott Boras.

Yet while baseball has long been regarded as the most developed sport in analytical terms, James said there is still significant work remaining — especially when trying to project the performance of untested players at the major-league level.

"Most of the information we have is about major league players," said James, who has been an adviser to the Boston Red Sox since 2002.

"Most of the information we need is about players in other places: college, Japan, or [the minor leagues]. ... We have no real concept of how those levels of competition fit together."

On the rebound

Moreover, in all sports, it is unclear if players can apply statistical insights to fast-moving games where years of trusted instincts and muscle memory may trigger their actions.

"I wouldn't say [analytics] would help every player, but if there is a motivation to change, there are no limitations," said Rocco Baldelli, former outfielder for the Tampa Bay Rays, who now works in the team's front office. As evidence, he cited Oakland Athletics pitcher Brandon McCarthy, who turned his career around last season after analytical study of his performance.

Still, coaches can also struggle to impart analytics insights in the locker room. "The bigger question is not the knowledge you get from this, but how you share it with the team," Van Gundy said during the basketball analytics panel. If he had a point to make to his players, "I would get numbers to support it, or I would make them up," he added, drawing laughs.

As the research-paper track made clear, the numbers available to coaches are ever-expanding. The winning research paper, "Deconstructing the Rebound with Optical Tracking Data," found that shots taken within six feet of the basket lead to offensive rebounds 36 percent of the time, compared to just 22 percent for longer two-point shots taken from 10 to 22 feet. The paper adds to a body of data suggesting that long two-point shots are a poor-percentage play.

The runner-up research paper, "CourtVision: New Visual and Spatial

Analytics for the NBA," by PhD candidate Kirk Goldberry of Harvard University, studied more than 700,000 field-goal attempts — every shot taken in the NBA from 2006 through 2011. Among other things, Goldberry found that Steve Nash of the Phoenix Suns and Ray Allen of the Boston Celtics shoot well from more spots on the floor than any other players.

Such uses of "big data" are growing in sports analytics: The MIT duo of computer scientist John Guttag and PhD candidate Gartheeban Ganeshapillai produced one of the 10 research papers selected for presentation during the conference by studying every pitch thrown in major-league baseball during 2008 and 2009; they found that some pitchers do have a predictable pitch selection.

There is, in short, plenty of progress being made in sports analytics, but plenty of ground still to be covered.

"There are always going to be a million things you don't know for everything you affirmatively know," James said.

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Provided by Massachusetts Institute of Technology