

Boundless potential with advanced metrics

BOSTON — Think about how cool (and overwhelming) it would be to be able to answer almost any question you could imagine about the NBA. If you could find out, for instance, Kevin Durant's shooting percentage from the left baseline on shots he takes after dribbling the ball with his left hand at least twice.

We're getting there, as was made clear during a presentation by Sandy Weil today at the MIT Sloan Sports Analytics Conference. Weil charted a whole bunch of stuff based on data generated from high-tech cameras, with three-dimensional capabilities, a company called STATS, LLC has installed at a handful of NBA arenas this season. The cameras capture an image 25 times per second and record every event on the court and the location of all the key elements involved — the 10 players, the ball, the referees, etc.

The potential is enormous. A few key bullet points before I get into the meat of the findings:

- Weil's data was based on cameras installed at three arenas, but Brian Kopp, a vice-president at STATS, told me the cameras are currently in place at five arenas — San Antonio, Houston, Dallas, Oklahoma City and Golden State. The Warriors stand out there, since the other three clubs are known for their early and enthusiastic embrace of advanced stats and general geekiness. The Warriors have been known mostly for ugly intra-team disputes over the last few years.

The fact that Golden State has signed up for the STATS cameras

is a very good sign for Warriors fans that the team — and the new ownership group — really gets this.

- The Celtics, another team that has embraced advanced metrics, is next in line to get the cameras, Kopp told me.
- A quick aside: Somewhere between 15 and 17 NBA teams have representatives here at Sloan, depending on whom you talk to. That's a few more teams than were here last season. But still: With the amount of publicity this conference gets now — Malcolm Gladwell, Jeff Van Gundy, Bill Simmons and Mark Cuban are among many headliners — it's surprising to me that nearly half the NBA is not here. Some of that might be due to the economy, since the last three years have not been a time of hugely expanded hiring in any industry. But still.



So far this season, Monta Ellis' passes have led to an NBA-best 60 percent accuracy rate for his teammates.

• Back to Weil's work. He's the guy whose work has (according to some) debunked the idea that there is such a thing as a "hot" shooter. He joked today that his initial analysis of all this new STATS data – nearly 7,000 charted shot attempts — hasn't produced anything that would buck conventional wisdom.

But I'm not sure that's true, or that it even matters. Take this nugget: Kopp took me aside after the presentation and showed me data on the field-goal percentage of players who shoot after receiving passes from specific teammates. San Antonio players, for instance, shoot 60 percent after receiving passes from Tim Duncan. That's a very high number, Kopp said, and it's not entirely unexpected, given how much attention Duncan still draws in the post and on pick-and-rolls. But it's a higher number than the comparable figure for most point guards.

You know whose passes so far this season have also led to a 60 percent accuracy rate for teammates? Monta Ellis, according to what Kopp showed me. The same Monta Ellis most NBA die-hards critique as an inefficient gunner who doesn't help his teammates all that much. Interesting, no?

• The bulk of Weil's work focused on how field-goal percentage changes when shooters are guarded closely. Not surprisingly, field-goal percentage drops the closer the primary defender gets to the shooter, and it drops even more the closer a second defender gets to the shooter. Overall, tight defense drops shooting percentage by about 12 percentage points. That's huge. A tightly contested layup produces about the same amount of points per shot attempt as a wide-open 19-footer, Weil said.

• The other finding that has major implications for your favorite team: Catch-and-shoot attempts are much more efficient than other types of shots when you control for distance and the presence of a defender. A player's shooting percentage jumps significantly when the last thing he does before the a shot is the act of catching a pass — and not the act of dribbling.

But if you catch a pass and hold the ball for about 2.25 seconds, whatever advantage you gained from catching the pass disappears. This makes sense, since holding the ball gives your defender a chance to catch up to you and prepare to defend your next move.

Think about the argument this data is making against the sort of isolation plays that have made someone like Carmelo Anthony into a star. It doesn't mean isolations have no place in basketball — not when there's a clock that limits the time each team has before it must shoot the ball. But this does raise the possibility that this kind of data, as it becomes more accessible, is going to make isolations look even worse than we already know they are.

• One cool thing: Tip-in tries are very low percentage shots. In Weil's data set, only 22 percent of tip attempts went in. This would encompass all kind of tap-backs — the controlled, two-handed tap, and the desperate whack at the ball in mid-air. He suggests that it would be better to grab the rebound (if you can) and reset the offense.

• Overall, shooting percentage on hook shots is about the same as on jumpers. I find this interesting, for some reason.

- Defenders, it turns out, are very smart in the way they negotiate space. If an offensive player with the ball about 17 feet away retreats by a foot or two, the defender will follow, but not very aggressively. But if that offensive player steps from two-point range to three-point range, Weil's data shows defenders pursue as closely as they can.

- Another bit of conventional wisdom Weil's work confirms: Teams shoot a better percentage on possessions that start with a defensive rebound or a forced turnover. But once you dig even deeper, you find that the higher shooting percentage on these possessions only really exists if the team shoots quickly — early in the shot clock, before a defense can get set.

This would indicate that teams that try to force lots of turnovers, such as the Grizzlies and Celtics, might be making a smarter calculation than we realize. It also justifies the urgency with which a lot of point guards command their teammates get their butts moving after a defensive rebound.

There is so much more to talk about here. We're just scratching the surface, which is scary and exciting.