

NOTE: StratBridge portions **highlighted**.

The Boston Globe

Game changers

Today, getting a high-powered job in sports is increasingly about working with the data, and a growing group of Hub-based number crunchers is making inroads -- and waves -- in the business

By [Shira Springer](#)
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Last September, there was a spike in baseball chatter at the MIT Sloan School of Management. It started when professor Stephen Graves received an e-mail from the New York Yankees. The team, Graves said, “was looking for bright analytic young kids interested in sports.” Though Red Sox owner John Henry claims he doesn’t worry about the Yankees pursuing talent a mile from Fenway Park – “Luckily, they’ll find mostly dedicated Sox fans,” he says – the team from New York joins a crowded field of professional sports organizations recruiting Boston talent for jobs in the growing field of sports analytics, the development and use of complicated statistics for decision making in all aspects of the business, from player trades to on-field strategy to ticket prices. “These days, the data is there,” Graves says. “The question is: What can you do with it?”

Boston provides an ideal mix – lots of universities, championship-winning franchises, team owners with big-business backgrounds – for smart, young mathematicians and entrepreneurs who’d like to come up with clever new answers to the professor’s question. In recent years, the city and its suburbs have launched sports-related companies and front-office careers that owe their success to the growing importance of number crunchers.

And some of those involved aren’t that far away from being kids. Harvard sophomore John Ezekowitz, who is 20, works for the NBA’s Phoenix Suns from his Cambridge dorm room, looking beyond traditional basketball statistics like points, rebounds, assists, and field goal percentage to better quantify player performance. He is enjoying the kind of early exposure to professional sports once reserved for athletic phenoms and once rare at institutions like Harvard and MIT. “If I do a good job, I can have some new insight into how this team plays, what works and what doesn’t,” says Ezekowitz. “To think that I might have some measure of influence, however small, over how a team plays is a thrill.” It’s not a bad job, either. While he doesn’t want to reveal how much he earns as a consultant, he says that not only does he eat better than most college students, the extra cash also allows him to feed his golf-club-buying habit.

Ezekowitz is majoring in economics with a minor in statistics and is taking courses in applied math, econometrics, and a class called Art and Thought in the Cold War. He’s also co-president of the Harvard Sports Analysis Collective, a campus club that comes up with new statistical measures and then publishes them in a blog as well as research papers in academic journals (a few of its

members have recently begun blogging for the Globe). In a recent post, Ezekowitz introduced a new basketball statistic to better calculate the added benefit of teams reaching the free-throw line (see Page 35, “A Stat Is Born”). Ezekowitz found the standard box score stat, the free-throw percentage, inadequate. His school doesn’t offer any undergraduate courses devoted entirely to sports analytics, but Tufts University has Sabermetrics 101, a course on baseball analytics that has launched students into Major League jobs with the Tampa Bay Rays and the Arizona Diamondbacks. And the National Hockey League and the National Basketball Association have also recently taken an interest in recruiting at Sloan.

Some team executives consider Boston the Silicon Valley of sports analytics. Celtics co-owner and venture capitalist Steve Pagliuca calls it a new Florence, a place of trendsetting creativity influencing teams around the world. Either way, Boston’s geeks are having a field day.

Sports analytics first gained notice closer to the other Silicon Valley. Michael Lewis introduced the idea to the mainstream in his 2003 book *Moneyball*, which details how Oakland A’s general manager Billy Beane used statistics to build a winning team with players who had been undervalued by conventional measures. (Brad Pitt plays Beane in a movie due out this year.) The book cites the influence of Bill James, senior Red Sox statistical adviser since 2002 and the “father of sabermetrics,” as analytics is known in the baseball world. In the late 1970s, James, who lives in Kansas, began publishing books of his musings and, after nearly two decades, his thinking gained traction with Major League management. Red Sox general manager (and 1995 Yale graduate) Theo Epstein subscribes to the James and Beane school of thinking and is often cited by other young executives as an inspiration. He started out in team public relations – not playing, scouting, or coaching – and moved to operations, then quickly up the ranks largely on the basis of his statistical prowess. He rose to become, at 28, the youngest GM in the Major Leagues.

Now that everybody wants a piece of this kind of thinking, they’re coming to Boston to get it. Later this week, the fifth annual MIT Sloan Sports Analytics Conference will take place at the Boston Convention and Exhibition Center. Born as a series of panels held on MIT’s campus, it is now a two-day event – part trade show, part seminar, part networking hub – that attracts a sellout crowd of 1,500. Dallas Mavericks owner Mark Cuban, a billionaire businessman known for innovative thinking, calls it a “must-attend.” Ezekowitz and his friends from school plan to be there. Author Malcolm Gladwell (*Outliers*) will speak, and the crowd will include team owners, league commissioners, general managers, coaches, and athletes. Last year, Lewis rushed from the conference to Los Angeles for an Oscars party. “I didn’t feel like I went from a low-wattage event to a high-wattage event,” he says. Tellingly, the conversation on both coasts was the same, people wanting to talk sports analytics.

There’s a lot to talk about. It used to be that player evaluation and play calling relied heavily on subjective analysis – what a scout saw, who a general manager thought would fit with other

players, what a coach felt was the right play. Instinct, experience, and very basic statistics like the box scores tracking a baseball player's hits, strikeouts, and runs batted in per game drove decision making.

Now scores of new data points are available, letting team officials know the odds that one strategy will be more successful than another. Is it better to walk a particular player or pitch to him? To sign an aging all-star point guard to a single- or a multiyear contract? To punt, attempt a field goal, or try a running or passing play on a fourth down from the 50-yard line in a certain game situation?

On offense in basketball, for example, a player must decide between passing, dribbling, and shooting; analytics attempts to measure the value of making one of these choices over another. Some of the numbers used by the Celtics, says Danny Ainge, the team's president for basketball operations, adjust for speed of play, factor in a player's time on the court, and attempt to measure defensive impact. "I'm still waiting to find that magic stat," Ainge says, "the one that sets you over the top." Across the NBA and in football, baseball, soccer, and hockey, analysts are developing databases compiling player and team statistics – the number of times a baseball player hits a fly ball versus a line drive, or how often a basketball team wins jump balls – and writing computer programs that sort through the data for meaningful information. The right equations can reveal hidden value, winning strategies, and player attributes not necessarily recognized by a coach during a game or a scout watching a prospect compete. Of course, the precise ways teams use data for strategic purposes is closely guarded, proprietary information. This is a business, after all, and they're in it to win.

Houston Rockets general manager Daryl Morey, 38, a cochairman of the MIT conference this week, has won big with a career built around sports analytics. As a tall, geeky kid with a passion for sports and comic books, he discovered Bill James's books in third grade. His playing days peaked, though, with an intramural basketball championship at Northwestern University, where he received a degree in computer science with an emphasis on statistics. Still, he dreamed of a career in sports and applied for entry-level jobs with every team in baseball and the NBA – with no takers. So Morey pursued an MBA at MIT. "I decided the only way to get into sports was if I started a company and was able to buy a team," he says.

After business school, he joined Boston-based consulting firm the Parthenon Group, and serendipity intervened. There he advised the group of investors headed by Wycliffe Grousbeck and Steve Pagliuca that would eventually buy the Celtics in 2002. Morey's job was to suss out ways to make the team a profitable investment, and he used statistical modeling to do so. The new owners hired Morey full time. He started on the business side, making changes in staffing and ticket sales. He contracted with Harvard-based StratBridge – a software company now squarely focused on sports analytics but then devoted to analyzing financial data – to write a program enabling the Celtics to adjust ticket prices, much as airlines do, to sell out TD Garden. Morey then turned to team operations. "Quickly, you figure out in sports that the highest leverage point is getting the

right players,” he says. He persuaded his bosses to hire a full-time statistical analyst to assist with player evaluation. And now Morey is a boss: After just three years with the Celtics, he was hired by Rockets owner Leslie Alexander and is the NBA’s first – and so far only – general manager who comes from an analytics background.

Other number crunchers are winning big, too. In the back bedroom of a ranch-style house in Framingham, Aaron Schatz, who is 36 (he studied economics at Brown University), sifts through play-by-play data to create footballoutsiders.com, the go-to website for detailed, numbers-driven football analysis.

Across from a cornfield in rural Harvard, StratBridge programmers stare intently at computer screens, writing code. More than 40 professional teams now use the company’s software and consulting services, and some visitors are surprised when they stop by headquarters. When representatives from the English Premier League recently visited, says CEO Matt Marolda, they were shocked that such a small operation (there are just 10 full-time employees, most younger than 35 or 36) in such a setting was impacting decision making at the highest levels of professional sports.

Jessica Gelman represents another kind of outsider who got in. Soon after Gillette Stadium opened in 2002, when she was still a student at Harvard Business School, Gelman proposed a study of the function space. How could it be used for non game day events? What was the market for meetings, trade shows, and weddings? Heading a team from the business school, Gelman gathered the data and made her analysis. The study led to a job with the Patriots, where today Gelman, 35+, is vice president of customer marketing and strategy. It was a natural next step in a career path that had taken her from playing professional basketball in Israel to management consulting to business school. She credits analytics with helping her gain access to this male-dominated business; this week, she’s cochairing the MIT conference with Morey. “In much the way analytics are allowing nonathletes – people who don’t have a background in playing professional sports – to begin to have a role,” she says, “it’s almost leveling the field for women, too.”

Celtics assistant general manager Mike Zarren, also in his mid-30s, is a beneficiary of the new access granted to geeks. When Zarren was a student at Harvard Law School, a friend in Harvard’s statistics department passed along an e-mail from Morey, who was looking for a statistics intern. Zarren got the job. After graduation, he worked for a federal judge during the day and with basketball numbers at night. When offers started coming in from law firms in 2005, he told Ainge, “If you want to keep getting this information, you better hire me.” These days, he’s in-house counsel as well, and still watches Celtics home games at TD Garden with his father, a season ticket holder since 1974. Zarren is easy to spot in his green ’80s-style Celtics jacket. He believes his fanaticism helped ease any front-office skepticism about analytics. “There wasn’t a spot here that I filled,” says Zarren. “We created it.”

Being on the cutting edge of sports analytics, Michael Lewis and others argue, has been great for Boston. “The area was perennially sort of a loser’s town,” Lewis says. “You’re now triumphant in everything because of it. It’s amazing how dominant the Boston area teams are right now – the Red Sox, the Celtics, the Patriots. And it really has a lot to do with embracing a new way of thinking about sports.”

He’s talking about three Super Bowl championships, two World Series wins, and one NBA title under current owners, of course. Steve Pagliuca spells it out. The owners of the Red Sox, Patriots, and Celtics, he says, applied hard numbers “on the field and in the business operation.” Perhaps not coincidentally, Robert Kraft, whose family owns the Patriots, Red Sox owner John Henry, and the Celtics group all come from wildly successful business backgrounds, where number crunching is a way of life.

“If you turn the clock back to the ’70s and the ’80s, it was the local big car dealer, the big insurance guy that used to own sports teams,” says Patriots president Jonathan Kraft. “Today, to buy a sports team, the numbers are large. Usually, the people that can afford the numbers, like the Celtics group or John Henry and his group, are guys who have been extremely successful fact-based businesspeople in other areas. They are guys who have used knowledge and information to make tremendous amounts of money. So, it’s natural when they spend a lot of money to buy an asset like a sports team that they’re going to bring that type of skill set to the table.”

Or, as his father, Robert Kraft, is fond of saying about any decision, “Measure nine times, cut once.”

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