

Sports Analytics Research Collaborations: Connecting Business Schools with Athletic Departments

Panel

Dave Schrader

Teradata University Network
drdaveschrader@gmail.com

Ashish Gupta

Auburn University
ashishg4@gmail.com

Lakshmi S. Iyer

University of North Carolina at Greensboro
Lsiyer@uncg.edu

Shu Schiller

Wright State University
shu.schiller@wright.edu

Ramesh Sharda

Oklahoma State University
ramesh.sharda@okstate.edu

ABSTRACT

This panel focuses on building research collaborations between Business Schools and athletic programs at their respective universities. The panelists are representatives of four such collaborative research projects and will explain the process they used to engage the Athletic Departments; nature of projects that they initiated along with their status; kind of data they obtained; and some of the value-add they were able to provide for their Athletic Departments. The panel discussion will focus on “how to form collaborations” and will stimulate a discussion to engage and encourage the audience to reflect on their own opportunities and challenges in possibly building their own sports analytics projects.

Keywords (Required)

Sports Analytics, Big Data Technologies, Sports Management, Wearables, Research Collaboration

INTRODUCTION

Sports Analytics (SA) is taking center-stage in the sports industry as most sports teams are currently seeking multiple ways to improve game strategies and performance. Effective management of sports requires deep understanding of various sports-related operations both on and off the field. This opens opportunities for collaborations among various athletic programs and groups that have better understanding of the operations as well as domain-specific research. To gain competitive advantage and improve performance outcomes, many sport-related disciplines now deem it very crucial to make strategic decisions that are based on employing statistical techniques (Ofoghi et al. 2013). As a result, the sporting industry is using extensive analytics techniques that have led to a feverish interest in SA. SA can be broadly defined as the statistical analysis of business and player performance data in both individual and team sports to support business decisions, talent identification, player recruitment, athlete development, training priorities, team selection, game tactics, and injury management (Alamar 2013). We would extend this to include various data science and data analytics such as machine learning techniques as well. Historically, any application of such advanced analytic technologies has demonstrated benefits for players, coaches, athletics trainers, and all other stakeholders in the sporting business as they are able to make informed decisions that yield a positive return on their investment (Chen, et al., 2007; Lamb et al, 2010; Ofoghi et al., 2010; Woolf et al., 2007). For instance, Wilkerson et al. (2016) uses sensor and medical data to facilitate the identification of individual football players who are likely to derive the greatest benefit from particular training activities designed to reduce injury risk by adapting to the changing demands as the season progresses.

PANEL OBJECTIVES

The purpose of the panel is to share experiences in creating collaborations with athletic departments in higher education to drive new research via sports analytics projects that are mutually beneficial. The panel will also discuss some of the most important and challenging tasks and issues concerning sports analytics projects. We hope to start stimulating conversations with the IS community in this area and to help the audience further clarify and evaluate their opportunities to build their own collaborative sports analytics projects. To AMCIS attendees, this panel can be a reference point where shared experiences,

advice, guidance, and innovative ideas will inspire their thinking and ongoing practice in this area. In addition, Dr. Dave Schrader, the moderator will provide his vision and advice from an industry perspective to the IS community on how sports analytics projects can establish mutually beneficial relationship and partnership with the industry leaders.

Specifically, the panel will discuss questions such as (but not limited to): 1) What type of projects to apply sports analytics to the business side of sports; 2) What type of analytics projects can be undertaken to analyze individual/team play as well as health and safety in sports; 3) What are some challenges associated with working with the athletic departments on sports analytics projects; 4) How does one go about establishing and maintaining a win-win relationship with athletics; and 5) What are some innovative ideas for sustaining successful sports analytics projects?

PANEL LAYOUT/DESIGN

The total length of the panel will be 90 minutes. The flow and process of the panel are planned as follows.

Introduction (8 min) – Dave Schrader (moderator) will open the panel. He will give an overview of sports analytics and specifically focus on projects he has initiated with higher education. He will also provide some trends in sports analytics and introduce the panelists. Each will then give a short presentation based on his/her unique experiences and expertise in certain areas related to the topic (detailed below).

Ticketing and Marketing (8 min) – **Lakshmi Iyer** will share her experiences in developing collaboration with the University of North Carolina at Greensboro's Athletic department. She will focus on the project regarding ticketing and sales management. Specifically, she will discuss the project; challenges with data obtained, process metadata management, analysis of ticket sales data to understand the demographics of who is buying tickets to their games and targeting those audiences with advertising.

Soccer Practice with Wearables (8 min) – **Shu Schiller** will talk about a senior capstone project on men's soccer practices using wearable technology. The Athletics Department at Wright State University has started experimenting with wearable technologies for both men and women's soccer practices using products from two leading companies. In both cases, athletes wore vests or belts with tracking devices. Data were monitored and recorded live. The project focuses on tracking and analyzing the key measurements of athletes' performance at the soccer practices. In addition, feedback from the coaches and athletes was taken to help better understand the behavioral and social aspects of adopting new technologies in SA.

Sports Injuries Prevention (8 min) – **Ashish Gupta** will describe a project that has been developed in collaboration with the Athletic programs at the Auburn University and the Graduate Athletics Training program at the University of Tennessee Chattanooga. One of the project involves the development of an Android-based sports analytics application that is being used at several high schools and universities to assess an athlete's injury risk. This data science application integrates the data generated from inherent sensors with the athlete's historical benchmarking data for prediction purpose. The findings provide value to the athlete as well as the athletic trainers and coaches to devise tailored training and practice regimes that take an athlete's injury risk propensity into account.

Analysis of Defensive Strategies in Football through Teradata Aster (8 min) – **Ramesh Sharda** will describe the results of an ongoing project to analyze defensive strategies for a football team. We have received encoded videos from actual football games. These videos have been annotated for specific play parameters, expected offense plan, a chosen defense strategy, and the final outcome of the play. We are analyzing this data to assist a defensive coordinator in developing better strategies.

Discussions (20 min). The moderator will ask the following questions to further the discussions:

- Stakeholder- Who are the right group of individuals to establish initial contacts in the athletic programs to launch any sports analytics project? Who needs to be convinced and how did you do it?
- Faculty- is there a difference in faculty enthusiasm for applying analytics to sports vs. the usual business data sets, and also whether the idea of helping their own teams with insights was a motivator.
- Students- whether there is a difference in student energy/enthusiasm for applying analytics to sports vs. the usual business data sets, and whether the idea of helping their own teams with insights was a motivator? How many students wanted to be involved and how did you recruit them? How much guidance did they need?
- Data- How easy was it to get the data? What tools did you use and how did this fit with your existing curriculum?
- Project goals- How did you measure project success? What tips would you give to others who want to try this out?
- Pilot project- What pilot projects did your first project spawn? What follow-on projects might be appropriate?
- Athletic program- What kind of feedback did you get from the Athletic Department, and how are you promoting your success?

In the open discussion we expect reactions from two specific athletic program representatives: Dr. Gary Wilkerson, who is a Hall of Fame inductee for the National Athletic Trainer's Association and Dr. John Parsons, Director of Sports Medicine Institute at NCAA, who plan to attend the panel session.

PANEL PARTICIPANTS

Ashish Gupta is an Associate Professor of Analytics at the Auburn University. Prior to this, he was the founding director of Big Data & Analytics Research Center, an Associate Professor of Analytics & IS at the University of Tennessee Chattanooga and a research affiliate with the UT Health Science Center- Oak Ridge National Lab Center for Biomedical Informatics, Memphis. His research interests are in data analytics, neuroscience, sports injuries and performance, healthcare information Technology, clinical Informatics, and smart technologies. Ashish's recent articles have appeared in journals such as *MIT Sloan Management Review*, *Journal of Biomedical Informatics*, *IEEE Transactions*, *ISJ*, *EJIS*, *DSS*, and *CAIS*. Ashish's research has been supported by numerous grants.

Lakshmi Iyer is an Associate Professor and Director of Graduate Programs in the Information Systems and Supply Chain Management Department at the University of North Carolina at Greensboro. Her research interests are in business analytics, knowledge management, social computing; and social inclusion in IS: women in IS and technologies for disabled users. Her research work has been published in *J AIS*, *CAIS*, *EJIS*, *CACM*, *DSS*, and others. She is a Board member of Teradata University Network and the Special Interest Group in Decision Support and Analytics (SIGDSA), and served as program co-chair for pre-ICIS Business Analytics workshop (2013 to 2015).

Shu Schiller is an Associate Professor of Information Systems in the Raj Soin College of Business at Wright State University. During year 2013-14, she spent her Professional Development Leave working with Teradata on big data and business data analytics. Dr. Schiller has presented multiple times at the Teradata Partners Conference and gave a talk on data storytelling at the inaugural TEDxDayton conference in 2013. Her research interests include computer-mediated communication, multimedia in marketing, virtual teams and virtual worlds, and e-learning.

Dave Schrader spent 35 years working for 3 database vendors, both in advanced software development as well as marketing. Recently retired after 24 years at Teradata, he has spent the past year attending sports analytics conferences (MIT Sloan School Sports Analytics Conference as well as the Sports Analytics Innovation Summit in San Francisco) and interviewing coaches and trainers on how they use data. He's making the information available through the Teradata University Network, a free resource for faculty and students to learn business (and now sports) analytics. He gave 30 university talks in 2015 and 2016 on sports analytics, and has helped several MBA programs establish connections with their Athletic Departments. He holds a Ph.D. in computer science from Purdue University.

Ramesh Sharda is the Vice Dean in the Spears School of Business at Oklahoma State University. He has coauthored two textbooks (*Business Intelligence and Analytics: Systems for Decision Support*, 10th edition, Prentice Hall and *Business Intelligence: A Managerial Perspective on Analytics*, 3rd Edition, Prentice Hall). His research has been published in major journals in management science and information systems including *Management Science*, *Operations Research*, *Information Systems Research*, *Decision Support Systems*, *Interfaces*, *INFORMS Journal on Computing*, and many others. He is currently serving as the Executive Director of Teradata University Network.

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