



Building a Smarter University: Big Data, Innovation, and Analytics (SUNY series, Critical Issues in Higher Education)

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We've reached a tipping point in the path of human evolution; billions of data points are being generated every minute of every day by humans, computers, and technological devices all around us, creating a real-time, digital footprint of our lives with every credit card swipe and smart phone use. With this ocean of information accessible to us, the question becomes how to use the data to better engineer our world to serve our needs. This big data movement is transforming everything from healthcare delivery systems to the way cities deliver services to citizens. Now is the time to examine how the big data movement could help build smarter universities - institutions that can use the huge amounts of data they generate to improve the student learning experience, enhance the research enterprise, support effective community outreach and advance the campus's infrastructure. While much of the cutting edge work being done with big data is happening at colleges and universities, higher education has yet to turn the digital mirror on itself to innovate the academic enterprise. This volume will focus on three primary themes related to building a smarter university: 1) enhancing the operations and management of higher education institutions; 2) improving the education pipeline; and 3) educating the next generation of data scientists.

1)Enhancing Operations & Management: For decades, institutional research offices have been collecting student data to analyze things such as retention and graduation rates. As technology rapidly continues to evolve, the breadth and depth of data available to campuses is growing. Student ID cards allow institutions to track library usage, dining habits on and off campus, health center usage, medical treatments, attendance at co-curricular activities, and what residence halls or classrooms they access. Course management software can monitor student grades, which students access course material and for how long, and provide real-time learning assessments. Colleges and universities also generate the same infrastructure information that many cities are now using to improve their own effectiveness. This includes data created by parking enforcement, pedestrian patterns, traffic flows, energy usage, and recycling efforts. The data is massive and the possibilities for ingenuity are endless.

2)Improving the Education Pipeline: Over the last several years, there has been an growing interest both inside and outside of the academy to better insulate the

education pipeline, seeking to promote access, completion, and success of our students. There have been a growing number of efforts to capture and use data to better understand where students are coming from, how they experience college, and where they go after graduating. 3)Educating the Next Generation of Data Scientists: In grappling with the big data title wave, one of the most important roles of colleges and universities will be to prepare the next generation of data scientists, which the Harvard Business Review has called "the sexy new job of the 21st century." As the need for data scientists grows, colleges and universities should be at the forefront of training the workforce for these next generation careers. This third volume in the SUNY Critical Issues in Higher Education Series - Building A Smarter University: Big Data, Innovation and Ingenuity will take up this topic focusing on the opportunities and challenges of using big data to improve the academic enterprise, The book is intended to be thought provoking, analyzing some of the most pressing and complex issues about harnessing big data to build a smarter university, fostering innovation and ingenuity in the academy, and educating the next generation of data scientists. The authors, though their scholarly and practical insights, frame these issues for an international discussion.

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Editorial Review

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