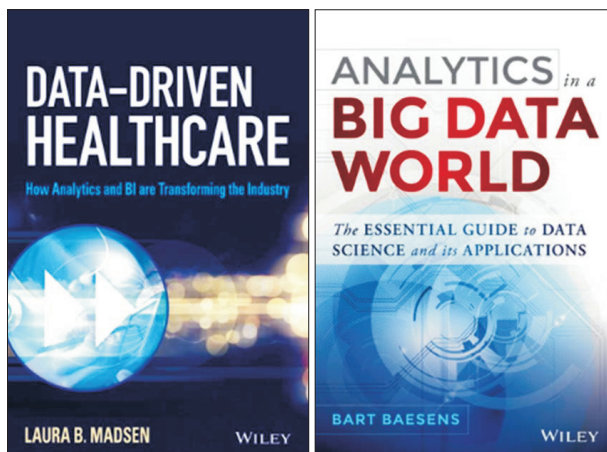


Data-Driven Healthcare & Analytics in a Big Data World

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Data-Driven Healthcare:

How Analytics and BI are Transforming the Industry

Author: Laura B. Madsen

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ISBN: 978-1-118-77221-8

Analytics in a Big Data World:

The Essential Guide to Data Science and its Applications

Author: Bart Baesens

Year: 2014

Publisher: Wiley

ISBN: 978-1-118-89270-1

The amount of data in the world is exploding. In particular, the healthcare industry is generating large amounts of data, driven by a wide range of medical and healthcare functions, including clinical records, medical images, genomic data, health behaviors, clinical decision support, disease surveillance, and public health management [1]. Reports say that worldwide digital healthcare data was estimated to be equal to 500 petabytes in 2012 and is expected to reach 25,000 petabytes in 2020 [2]. However, the challenges in handling this big data are not just about volume. The challenges include capturing, storing, searching, sharing, analyzing, and then finding insights from complex, noisy, heterogeneous, longitudinal, and voluminous data. The collection of large and complex data sets is difficult (or impossible) to process using common database management tools or traditional data processing applications. Therefore, these challenges are a reality for every business, but only a few firms are taking advantage of the new world of data and information.

To take advantage of the massive amounts of data in healthcare fields and provide the right intervention to the right patient at the right time, personalized care to the patient, and potentially benefit all the components of a healthcare system, such as provider, payer, patient, and management, big data analytics needs to bridge data mining and healthcare informatics communities. In particular, data mining researchers need to be introduced to the sources available and the possible challenges and techniques associated with using big data in the healthcare domain; at the same time, healthcare analysts and practitioners need to be exposed to the advances in the computing field to effectively handle and make inferences from voluminous and heterogeneous healthcare data.

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To fulfil these goals, two books out of 62 Wiley and SAS Business Series [3] would be useful: *Data-Driven Healthcare: How Analytics and BI are Transforming the Industry* by Laura Madsen and *Analytics in a Big Data World: The Essential Guide to Data Science and its Applications* by Bart Baesens.

Data-Driven Healthcare tackles the issue and proves why business intelligence (BI) is not only worth it, but necessary for industry advancement. Healthcare BI challenges the notion that data have little value in healthcare, and shows how BI can ease regulatory reporting pressures and streamline the entire system as it evolves. This book illustrates how a data-driven organization is created and how it can transform the industry. Specifically, readers learn why BI is a boon to providers and how it can be used to create powerful infographics to communicate data more effectively. It also explores how big data has transformed other industries and how it applies to healthcare. In addition, this book provides tables, checklists, and forms that allow readers to take immediate action in implementing BI in their organizations.

Analytics in a Big Data World reveals how to tap into the powerful tool of data analytics to create a strategic advantage and identify new business opportunities. Designed to be an accessible resource, this essential book does not include exhaustive coverage of all analytical techniques; instead, it focuses on analytic techniques that really provide added value in business environments. This book advances the discussion of big data by moving it out of the theoretical realm and into everyday business practice. In particular, this book includes numerous case studies on risk management, fraud detection, customer relationship management, and web analytics. It offers the results of research and the author's personal experience in banking, retail, and government. It contains an overview of the visionary ideas and current developments on the strategic use of analytics for business and covers the topic of data analytics in easy-to-understand terms without an undue emphasis on mathematics and the minutiae of statistical analysis. For organizations looking to enhance their capabilities via data analytics, this resource is the go-to reference for leveraging big data to enhance business capabilities.

The two books draw on the authors' expertise on the topics of healthcare business intelligence and big data analytics, respectively. The author Madsen has 15 years of experience in BI and data warehousing for healthcare and is the author of *Healthcare Business Intelligence* [4]. She leads the Enterprise BI and Analytics Program at Children's Hospitals and Clinics of Minnesota, where she is charged with creating a

data-driven healthcare organization, and she has held senior positions with several leading healthcare technology companies. The other author Baesens is an associate professor at Katholieke Universiteit Leuven as well as an internationally known data analytics consultant. He is one of the foremost researchers in the areas of Web analytics, customer relationship management, and fraud detection. His findings have been published in well-known international journals, and he is also a co-author of *Credit Risk Management: Basic Concepts* [5].

Data is taking over in a powerful way, and it is revolutionizing the healthcare industry. Big data analytics has the potential to provide insight from clinical data and other data repositories and facilitate informed decisions. To drive innovation and improve performance for healthcare organizations through the realization of the potential of data in our growing data world, the authors touched upon very important subjects and issues in healthcare and data analytics. The two books would be very useful for students, analysts, programmers, managers, and anyone who is interested in modern data analytics. All will learn the meanings of the main analytical concepts, which challenges they will be facing, and how to overcome most of them, through concepts, processes, and example applications. These two big data analytics books with two different approaches provide a bridge between data mining and healthcare informatics communities to foster interdisciplinary works between them.

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