Business Analytics-Principles, Concepts and Applications
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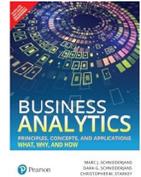
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This book has been written to provide a basic education in business analytics that can serve both academic and practitioner markets. In addition to bringing business analytics up-to-date with literature and research, this book explains the business analytics process in simple terms and supporting methodologies useful in its application. Collectively, the statistical and quantitative tools presented in this book do not need substantial prerequisites other than Business Analytics sic high school algebra. To support both markets, a substantial number of solved problems are presented along with some case study applications to train readers in the use of common business analytics tools and software. Practitioners will find the treatment of business analytics methodologies useful review topics. Academic users will find chapter objectives and discussion questions helpful for serving their needs while also having an opportunity to obtain an Instructor's Guide with chapter-end problem solutions and exam questions. The purpose of this book is to explain what business analytics is, why it is important to know, and how to do it. To achieve this purpose, the book presents conceptual content, software familiarity, and some analytic tools. The conceptual content covers much more than what business analytics is about. The book explains why business analytics is important in terms of proving answers to questions, how it can be used to achieve competitive advantage, and how to align an organization to make best use of it. The book explains the managerial aspects of creating a business analytics presence in an organization and the skills business analytics personnel are expected to possess. The book also describes data management issues such as data collection, outsourcing, data quality, and change management as they relate to business analytics. Having created a managerial foundation explaining "what" and "why" business analytics is important, the remaining chapters focus on "how" to do it. Embodied in a three-step process, business analytics is explained to have descriptive, predictive, and prescriptive analytic steps. For each of these steps, this book presents a series of strategies and best practice guides to aid in the business analytics process.

This book has been described by four parts. Part I includes 1st chapter defining business analytics and explaining the relationship of analytics and business intelligence to the subject of business analytics. It also describes the three steps of the business analytics process, four data classification measurement scales and explains the relationship of the business analytics process with the organization decision-making process.

Part-II includes chapter 3 and 4. It describes Why business analytics is important, the strategy for competitive advantage, applied reasons of business analytics, the importance of business

analytics with new sources of data, resource considerations to support business analytics, business analytics personnel, categorizing Data, Data Issues and business analytics technology.

Part III includes five chapters explaining Organization Structures Aligning Business Analytics, Management Issues, Descriptive Analytics, Predictive Analytics, Prescriptive Analytics and business analytics case problems. Business analytics is about involving the use of software. Unfortunately, no single software covers all aspects of business analytics. Many institutions prefer one type of software over others. To provide flexibility, this book's use of software provides some options and can be used by readers who are not even interested in running computer software. In this book, SPSS®, Excel®, and Lingo® software are utilized to model and solve problems. The software treatment is mainly the output of these software systems, although some input and instructions on their use is provided. For those not interested in running software applications, the exposure to the printouts provides insight into their informational value. This book recognizes that academic curriculums prefer to uniquely train students in the use of software and does not duplicate basic software usage. As a prerequisite to using this book, it is recommended that those interested in running software applications for business analytics become familiar with and are instructed on the use of whatever software is desired.

The analytic tool materials are chiefly contained in this book's appendixes. While the conceptual content in the book overviews how to undertake the business analytics process, the implementation of how to actually do business analytics requires quantitative tools. This book is less involved in technical aspects of business analytics. These appendixes provide an explanation and illustration of a substantial body of business analytics tools to support a variety of analyses. Some of the statistical tools that are explained and illustrated in this book include statistical counting (permutations, combinations, repetitions), probability concepts (approaches to probability, rules of addition, rules of multiplication, Bayes' Theorem), probability distributions (binomial, Poisson, normal, exponential), confidence intervals, sampling methods, simple and multiple regression, charting, and hypothesis testing. This book has no presence of case studies. This is a big deficiency of the book.

Although management information systems are beyond the scope of this book, the software applications previously mentioned are utilized to illustrate search, clustering, and typical data mining applications of MIS technology. This is a bold strength of the book. In addition, quantitative methods tools explained and illustrated in this book include linear programming, duality and sensitivity analysis, integer programming, zero-one programming, forecasting modeling, nonlinear optimization, simulation analysis, breakeven analysis, and decision theory (certainty, risk, uncertainty, expected value opportunity loss analysis, expected value of perfect information, expected value of imperfect information). This book is suitable for modern generation MBA and PGDM students with any type of specializations. Current working culture of corporate world demands the knowledge applications from this book.