



# **ADVANCES IN BUSINESS, OPERATIONS, AND PRODUCT ANALYTICS**

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**CUTTING EDGE CASES  
FROM FINANCE TO MANUFACTURING  
TO HEALTHCARE**

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**MATTHEW J. DRAKE**

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Advances in Business,  
Operations, and  
Product Analytics

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# Advances in Business, Operations, and Product Analytics

Cutting Edge Cases from Finance to  
Manufacturing to Healthcare

Matthew J. Drake

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*For my wife, Nicole,  
and my daughters, Noelle and Maia.  
You are the inspiration  
for everything that I accomplish.*

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# Preface

The field of business analytics continues to gain momentum as more organizations begin to emphasize its importance in improving the effectiveness of the decision-making process. Thomas H. Davenport perhaps did the most to thrust the limelight on the field with his seminal 2006 *Harvard Business Review* article, “Competing on Analytics,” which he and coauthor Jeanne G. Harris later expanded into a book with the same title. In the decade since Davenport’s initial publication, business schools around the world have rushed to ensure that their curricula reflected the analytics trend. Many programs have even established “business analytics” concentrations or minors that can enhance the value of students’ degrees.

The interesting thing about this recent analytics wave is that business analytics itself really is not that new of a concept. A general definition of business analytics is “the scientific process of transforming data into insight for better decision making.”<sup>1</sup> Organizations have been using data analysis to inform their decision making for decades. The more recent development and proliferation of desktop technology applications for analytics have expanded the accessibility of these solutions to a wider range of business professionals instead of relegating them to those experts in computer coding and programming as was the case in the past. Business schools no longer have to reserve coverage of these topics for students who have taken a suite of programming courses because much of the analysis can be performed in a spreadsheet, possibly utilizing add-in tools with point-and-click interfaces.

With more business school programs offering courses in business analytics and incorporating analytics material into their existing courses, there is a need for additional offerings in the library of educational materials. This book is designed to serve dedicated analytics courses as well as instructors in other functional areas who

want to introduce analytics into the coverage of their core material. Cases are an especially effective way to teach analytics because they place the students in a simulated role as a decision maker in an organization. The cases often provide enough detail that the students must identify the information that is relevant to the analysis at hand rather than neatly organizing the information that they will need as textbook problems usually do. These additional details also provide topics for follow-up discussion in the course beyond the original analysis. Instructors can emphasize not only the mechanics of the technical analysis but also the way that the analytical results can be used to help a manager make better decisions.

Several vast case libraries are maintained throughout the world, which allow instructors to identify materials that complement their course content. Many of these cases are written at a level that is only appropriate for graduate students, and it can be challenging to find cases that are appropriate for undergraduates. To address that gap, this book mainly contains cases that could be used effectively at either the undergraduate or the introductory graduate level. They are also of varying length, with some being relatively short for use in a 30-minute class discussion and longer ones that are more appropriate for an out-of-class assignment and subsequent wrap-up discussion.

The cases in this collection are grouped by the business or industry application highlighted in the case. This structure allows instructors of courses in various business functions to identify quickly the cases that are most appropriate for their courses. The degree and sophistication of analysis required varies greatly from case to case, with some cases demanding extensive quantitative modeling and analysis and other cases necessitating a more qualitative approach. Part I includes six “general” business analytics cases that apply to business functions such as demand planning, logistics, and sustainability. Part II contains four cases set in organizations within the service and utility industries. Part III includes three cases that require students to apply analytics to accounting and finance decision environments. Part IV contains two

cases from the public sector to provide a government and nonprofit decision-making perspective. Part V provides two cases that utilize analytics to aid the development of ethical decisions.

### Note: Data Files Available Online

Data files corresponding to the case studies can be found on the book website, [www.ftpress.com/title/9780133963700](http://www.ftpress.com/title/9780133963700). Click the Downloads tab to access them.

It is my hope that the cases in this collection expose students to the opportunity that exists to apply business analytics to improve decision making in organizations in a variety of industries. Students equipped with an effective set of analytical skills and techniques will be valuable contributors to their companies and organizations as a result of their ability to make thoughtful, reasoned decisions informed by data analysis. The broad applicability of these analytical skills will serve the students well regardless of where their careers may take them in the future.

Matthew J. Drake  
Pittsburgh, Pennsylvania, USA  
May 2015

## Endnote

1. Data source: <http://www.informs.org/About-INFORMS/What-is-Analytics>

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