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Preface

Today, companies are competing in a very different environment than they were only a few years ago. Rapid changes such as global competition, e-business, the Internet, and advances in technology have required businesses to adapt their standard practices. Operations management (OM) is the critical function through which companies can succeed in this competitive landscape.

Operations management concepts are not confined to one department. Rather, they are far-reaching, affecting every functional aspect of the organization. Whether studying accounting, finance, human resources, information technology, management, marketing, or purchasing, students need to understand the critical impact operations management has on any business.

We each have more than 25 years of teaching experience and understand the challenges inherent in teaching and taking the introductory OM course. The vast majority of students taking this course are not majoring in operations management. Rather, classes are typically composed of students from various business disciplines or students who are undecided about their major and have little knowledge of operations management. The challenge is not only to teach the foundation of the field, but also to help students understand the impact operations management has on the business as a whole and the close relationship of operations management with other business functions.

We were motivated to write this book to help students understand operations management and to make it easier for faculty to teach the introductory operations management course. We continue to have three major goals for this book.

**Goals of the Book**

1. **Provide a Solid Foundation of Operations Management**

   Our book provides a solid foundation of OM concepts and techniques, but also covers the latest on emerging topics such as e-business, supply chain management, enterprise resource planning (ERP), and information technology. We give equal time to strategic and tactical decisions and provide coverage of both service and manufacturing organizations. We look closely at some of the unique challenges faced by service operations.

2. **Provide an Integrated Approach to Operations Management**

   While several excellent textbooks provide appropriate foundation coverage, we believe that few provide sufficient motivation for students. We are aware that a major teaching challenge in OM is that students aren’t motivated to study OM because they don’t understand its relevance to their majors. We think the course textbook can greatly support the professor in this area; therefore, a chief goal of this book is to integrate coverage of why and
how OM is integral to all organizations. Interfunctional coordination and decision making have become the norm in today’s business environment. Throughout each chapter we discuss information flow between business functions and the role of each function in the organization.

The text also illustrates the linkages and integration between the various OM topics. Our end-of-chapter feature entitled “Within OM: How It All Fits Together” describes how the chapter topic is related to other OM decisions. It addresses the issue that OM topics are linked and interdependent, not independent of one another.

As supply chain management (SCM) has taken on an increasingly important role, the end-of-chapter section titled “The Supply Chain Link” explains the relationships between the specific chapter topic covered and supply chain management.

3. Help Students to Understand the Concepts

This course remains challenging for students to take and professors to teach. Students often have no prior exposure to operations concepts and little real business experience. They have a broad spectrum of quantitative sophistication and often find the math in the course extremely challenging. Therefore, a chief goal of the text and supplement package is to help students with these concepts. We begin each chapter with an example from everyday life, often a consumer or personal example, to help students intuitively understand what the chapter will be about. Then we explain each concept clearly and carefully, with enough depth for non-majors. Sustainability in operations is highlighted at the end of each chapter.

The new edition is focused on helping students by offering problem-solving hints and tips as part of the solution to most examples and solved problems throughout the entire text. Two unique supplements support student comprehension. A “Quantitative Survival Guide,” available as an optional supplement packaged with the text, provides “help with the math” for all chapters. WileyPLUS Learning Space (available on-line via a password in an optional package with the book) provides plenty of homework practice, feedback for students, an e-book, and much more. In addition, algorithmic homework problems have been designed for each chapter in order to provide unlimited practice opportunity.

Organization and Content of the Book

We have arranged the topics in the book in progressive order from strategic to tactical. Early in the book we cover operations topics that require a strategic perspective and a cultural change within the organization, such as supply chain management, total quality management, and just-in-time systems. Progressively we move to more tactical issues, such as work management, inventory management, and scheduling concerns. We recognize that most faculty will select the chapters relevant to their needs. To make it easier for students and faculty, each chapter can stand alone. Any specific knowledge needed for a chapter is summarized at the beginning of each chapter, with specific topic and page references for easy review.

Balanced Coverage of Quantitative and Qualitative Topics

We have tried to find a balance between the quantitative and qualitative treatment and coverage of OM topics. To meet students’ needs, this text presents the application of OM concepts through the extensive use of practical and relevant business examples. We eliminated from the printed book coverage of topics less frequently covered at the introductory level.
However, complete supplementary chapters on spreadsheet modeling, optimization, master production scheduling, rough-cut capacity planning, and waiting line models are available on the book’s Web site (www.wiley.com/college/reid).

**Integrated Technology Perspective**

Advances in e-commerce and the Internet are transforming the business environment, and we integrate these concepts in every chapter. We discuss a range of topics from enterprise resource planning (ERP) and electronic data interchange (EDI) to quality issues of buying goods on-line.

**Changes to this Edition**

We have made a number of changes to this edition in order to make the text as current, user-friendly, and relevant as possible. In particular we have updated company examples, technology, big data analytics, and added some supply chain management issues.

**Company Examples:** Since our last edition we have observed many changes in organizations that we had used as examples. Some companies have gone out of business while others, such as Amazon.com and Dell Computer Corporation, have changed their strategies. In order to offer the most current text we have made updates in company examples across all chapters.

**Technology:** One of the biggest changes we are witnessing relates to changes in technology. We have updated discussions with regard to the latest technologies that impact operations management. This includes discussions of 3D Printing, new generation robotics and automation, and advancements in radio frequency identification (RFID) in Chapter 3.

**Big Data Analytics:** Big data analytics is having a tremendous impact on digitizing operations. We have incorporated the latest on big data analytics in Chapters 1 and 3. In Chapter 8 we have added an entire section on predictive analytics and forecasting.

**Supply Chain Management Issues:** Since our last edition the proposed new shipping facility in Mexico has been canceled, while the Panama Canal is currently being widened. We discuss the ramifications on materials being shipped from Asia to the United States in Chapter 4.

In addition, several chapters have been reorganized to facilitate a better flow. During the past five editions, we have added many new topics. This sixth edition better integrates those topics into the chapters. We continue to emphasize inter-functional coordination and decision making, and have updated a number of features as shown below.

**Before You Begin.** In order to help students when solving quantitative problems, the feature called “Before You Begin,” placed immediately prior to the solution of most in-chapter example problems and end-of-chapter solved problems. Emphasizing our focus on strong pedagogy, this feature provides problem-solving tips and hints that the student should consider before proceeding to solve the problem.

**Supply Chain Link.** To emphasize the increasingly important role of supply chain management, there is a section on supply chain management and expanded coverage of supply chain and services in every chapter.

**Sustainability Link.** In order to address the latest challenges facing business, we have included “The Sustainability Link” feature. This feature discusses how the subject of the chapter directly ties to today’s sustainability concerns and challenges, providing specific business examples that illustrate the issues.
Problem Solving. While our goal is to provide balanced coverage of quantitative and qualitative topics, the new edition further emphasizes and integrates problem solving to help students experience the course more successfully. We provide algorithmic homework problems for every chapter of the text (via WileyPLUS Learning Space) for unlimited practice opportunities, include problem-solving help in the book (“Before You Begin”) and on-line via WileyPLUS Learning Space, and provide step-by-step solved problems in the book and on-line. We also provide “help with math” as needed via WileyPLUS Learning Space. We believe that these changes to the new edition greatly enhance student learning.

Features of the Book

We have developed our pedagogical features to implement and reinforce the goals discussed previously and address the many challenges in this course.

Pedagogy that Provides an Integrated Approach

Chapter Opening Vignettes and Within OM: How It All Fits Together To help students intuitively understand the topic, each chapter begins with a description of a personal problem that can be solved using the concepts discussed in the chapter. Our objective is to attract the attention of students by starting with a personal example to which they can relate. We demonstrate that OM is not just about operating a plant or a business, but that it is relevant in everything that we do. An end-of-chapter section titled “Within OM: How It All Fits Together” describes how the chapter topic is related to other OM decisions. It emphasizes the point that OM decisions are not made independently of one another, but that they are linked together and are dependent on one another.

Links to Practice Other OM texts have many boxes and sidebars, which make it difficult for students to understand what they need to know. Furthermore, the many examples frequently interrupt the flow of the text and make a chapter difficult to read and assimilate. We recognize the importance of including “real-world” examples, but believe they should be integrated into the stream of the text instead of interrupting the text. Therefore, we have developed embedded boxes titled “Links to Practice,” which provide brief examples from actual companies in every chapter. Embedded by both content and design into the general text discussion, each provides a concise and relevant example without interrupting the flow of the text.

Current textbooks typically do not use business examples to which students can relate. The typical examples provided are from large corporations such as General Motors, IBM, or Xerox. Primarily using these types of examples creates the impression for students that this is a field that is either beyond their reach or irrelevant to their needs. We have found that students understand the concepts better when these concepts are also presented in a context that is smaller in scale. The examples chosen range from large multinational organizations to small local businesses.
OM across the Organization and Cross-Functional Icons  Unique to this book is an end-of-chapter summary titled "OM across the Organization" that highlights the relationship between OM and key business functions, such as accounting, finance, human resources, information technology, management, marketing, and purchasing. This section is designed to help students understand the close relationship of operations management with other business functions and appreciate the critical impact OM has on other business functions. In addition, a cross-functional icon is used throughout the text to highlight sections in the text where the relationships between OM and other key business functions are discussed.

Cases  Each chapter ends with four cases that reinforce the issues and topics discussed in the chapter. The first two cases are within the text, while the other two are on-line cases. The cases can provide the basis for group discussion or can be assigned as individual exercises for students. Many cases conclude with a list of questions for students to answer.

In addition, each chapter offers a unique interactive learning exercise titled “Internet Challenge” where students are provided with a short case and given specific Internet assignments.

Interactive Cases  There are two Web-based cases for this edition. The first case features an Internet site for a simulated cruise company that has hired a student intern to help solve operations problems. The second case features an Internet site for a simulated consulting company that works in the medical industry that has hired a student to help solve operations problems. In both cases, the students are given assignments that require them to use information provided at the book Web site to develop solutions. These exercises offer students hands-on experience in the areas of supply chain management, statistical quality control, forecasting, just-in-time, aggregate planning, inventory management, scheduling, and project management, and help tie all the topics in the book together in a service environment.

Pedagogy to Help Students Master the Course

Learning Objectives  At the beginning of each chapter, students are provided with a short statement of what they need to either know or review from previous chapters, referring students to specific topic information. This enables students to review previous material necessary to understand the topic being covered.

Before You Go On  Sections strategically placed within every chapter summarize key material the student should know before continuing. Often the material in chapters can be overwhelming. We felt that breaking up the chapter with a brief summary of key material is highly beneficial in aiding learning and comprehension.

Key Terms and Definitions  Key terms and concepts are highlighted in boldface when they are first explained in the text, are defined in the margin next to their discussion in the text, and are listed at the end of the chapter with page references.
Before You Begin Most example problems within the chapters, and end-of-chapter solved problems, have a feature called "Before You Begin." The feature provides students with problem-solving tips and hints they need to consider before solving the problem. The purpose is to help students with their problem-solving ability.

Solved Problems Numerous solved problems are provided, complete with step-by-step explanations to ensure students understand the process and why the problem is solved in a particular way. Where appropriate, we provide a series of steps for problem solving and offer problem-solving tips.

Teaching and Learning Resources

Our supporting material has been designed to make learning OM easier for students and teaching OM easier for faculty.

Book Companion Site www.wiley.com/college/reid

An extensive Web site has been developed in support of Operations Management. The site is available at www.wiley.com/college/reid, and offers a range of information for instructors and students.

For Instructors

- Instructor’s Manual: Includes a suggested course outline, teaching tips and strategies, war stories, answers to all end-of-chapter material, brief description of the additional resources referenced in the Interactive Learning box, additional in-class exercises, and tips on integrating the theory of constraints.

- Solutions Manual: A complete set of detailed solutions is provided for all problems.

- Virtual Company Cases Instructor’s Materials: Include accompanying Instructor’s Manual with answers to exercises and Excel solutions.

- Test Bank: A comprehensive Test Bank comprised of approximately 1700 questions that consist of multiple choice, true-false, essay questions, and open-ended problems for each chapter. The Test Bank is also available in a computerized version that allows instructors to customize their exams.

- PowerPoint Lecture Slides: PowerPoint Slides are available for use in class. Full-color slides highlight key figures from the text as well as many additional lecture outlines, concepts, and diagrams. Together, these provide a versatile opportunity to add high-quality visual support to lectures.

- Operations Management Video Series: The video package, including Wiley’s own Student OM Videos, offers video selections that tie directly to the theme of operations management and bring to life many of the examples used in the text. Videos can be viewed within WileyPLUS Learning Space.
For Students

- **Supplemental Chapters:** The supplement chapters include Supplement A: Spreadsheet Modeling: An Introduction; Supplement B: Introduction to Optimization; Supplement C: Waiting Line Models; Supplement D: Master Scheduling and Rough-Cut Capacity Planning.

- **Excel Spreadsheets:** Templates are provided so that students can model and solve problems presented in the textbook. A spreadsheet icon appears next to those examples and problems in the textbook that have an accompanying Excel template available on the student Web site. Step-by-step directions are provided. Directions prompt students as they work through each spreadsheet. Expected outcomes and questions are also given.

**WileyPLUS Learning Space**

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- Guide students through what is important in the e-textbook by easily assigning specific content
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- Assess student engagement
- Benefit from a sophisticated set of reporting and diagnostic tools that give greater insight into class activity

Learn more at [www.wileypluslearningspace.com](http://www.wileypluslearningspace.com). If you have questions, please contact your Wiley representative.

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