

教育部高校工商管理类教学指导委员会 双语教学推荐教材

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工商管理经典教材·核心课系列

Administration Classics

运作管理

OPERATIONS

(第8版)

MANAGEMENT

(Eighth Edition)

杰伊·海泽 (Jay Heizer) 著
巴里·伦德尔 (Barry Render)
陈荣秋 改编



中国人民大学出版社

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· 北京 ·

总 序

随着我国加入 WTO,越来越多的国内企业参与到国际竞争中来,用国际上通用的语言思考、工作、交流的能力也越来越受到重视。这样一种能力也成为我国各类人才参与竞争的一种有效工具。国家教育机构、各类院校以及一些主要的教材出版单位一直在思考,如何顺应这一发展潮流,推动各层次人员通过学习来获取这种能力。双语教学就是这种背景下的一种尝试。

双语教学在我国主要指汉语和国际通用的英语教学。事实上,双语教学在我国教育界已经不是一个陌生的词汇了,以双语教学为主的科研课题也已列入国家“十五”规划的重点课题。但从另一方面来看,双语教学从其诞生的那天起就被包围在人们的赞成与反对声中。如今,依然是有人赞成有人反对,但不论是赞成居多还是反对占上,双语教学的规模和影响都在原有的基础上不断扩大,且呈大发展之势。一些率先进行双语教学的院校在实践中积累了经验,不断加以改进;一些待进入者也在模仿中学习,并静待时机成熟时加入这一行列。由于我国长期缺乏讲第二语言(包括英语)的环境,开展双语教学面临特殊的困难,因此,选用合适的教材就成为双语教学成功与否的一个重要问题。我们认为,双语教学从一开始就应该使用原版的各类学科的教材,而不是由本土教师自编的教材,从而可以避免中国式英语问题,保证语言的原汁原味。各院校除应执行国家颁布的教学大纲和课程标准外,还应根据双语教学的特点和需要,适当调整教学课时的设置,合理选择优秀的、合适的双语教材。

顺应这样一种大的教育发展趋势,中国人民大学出版社同众多国际知名的大出版公司,如麦格劳-希尔出版公司、培生教育出版公司等合作,面向大学本科生层次,遴选了一批国外最优秀的管理类原版教材,涉及专业基础课,人力资源管理、市场营销及国际化管理等专业方向课,并广泛听取有着丰富的双语一线教学经验的教师的建议和意见,对原版教材进行了适当的改编,删减了一些不适合我国国情和不适合教学的内容;另一方面,根据教育部对双语教学教材篇幅合理、定价低的要求,我们更是努力区别于目前市场上形形色色的各类英文版、英文影印版的大部头,将目标受众锁定在大学本科生层次。本套教材尤其突出了以下一些特点:

- 保持英文原版教材的特色。本套双语教材根据国内教学实际需要,对原书进行了一定的改编,主要是删减了一些不适合教学以及不符合我国国情的内容,但在体系结构和内容特色方面都保持了原版教材的风貌。专家们的认真改编和审定,使本套教材既保持了学术上的完整性,又贴近中国实际;既方便教师教学,又方便学生理解和掌握。

- 突出管理类专业教材的实用性。本套教材既强调学术的基础性,又兼顾应用的广泛性;既侧重让学生掌握基本的理论知识、专业术语和专业表达方式,又考虑到教材和管理实践的紧密结合,有助于学生形成专业的思维能力,培养实际的管理技能。

- 体系经过精心组织。本套教材在体系架构上充分考虑到当前我国在本科教育阶段推广双语教学的进度安排,首先针对那些课程内容国际化程度较高的学科进行双语教材开发,在其专业模块内精心选择各专业教材。这种安排既有利于我国教师摸索双语教学的经验,使得双语教学贴近现实教学的需要;也有利于我们收集关于双语教学教材的建议,更好地推出后续的双语教材及教辅材料。

- 篇幅合理,价格相对较低。为适应国内双语教学内容和课时上的实际需要,本套教材进行了一定的删减和改编,使总体篇幅更为合理;而采取低定价,则充分考虑到了学生实际的购买能力,从而使本套教材得以真正走近广大读者。

● 提供强大的教学支持。依托国际大出版公司的力量，本套教材为教师提供了配套的教辅材料，如教师手册、PowerPoint 讲义、试题库等，并配有内容极为丰富的网络资源，从而使教学更为便利。

本套教材是在双语教学教材出版方面的一种尝试。我们在选书、改编及出版的过程中得到了国内许多高校的专家、教师的支持和指导，在此深表谢意。同时，为使我们后续推出的教材更适于教学，我们也真诚地期待广大读者提出宝贵的意见和建议。需要说明的是，尽管我们在改编的过程中已加以注意，但由于各教材的作者所处的政治、经济和文化背景不同，书中内容仍可能有不妥之处，望读者在阅读时注意比较和甄别。

徐二明

中国人民大学商学院

改编者的话

本书是杰伊·海泽 (Jay Heizer) 教授和巴里·伦德尔 (Barry Render) 教授合著的一本教材。海泽教授和伦德尔教授长期从事运作管理方面的教学和研究, 具有丰富的实践经验。他们多年为本科生、研究生和企业管理人员讲授运作管理课程, 出版过一些优秀的学术著作, 发表了多篇高水平的学术论文。

本书有以下特点:

1. 制造业和服务业并重。本书不仅阐述了制造业的生产管理及其最新发展, 而且对以餐馆、医院和大学为代表的服务业的运作管理进行了充分介绍, 改变了一般运作管理教材侧重制造业生产管理的偏向, 使本书不仅适合制造业的读者而且适合服务业的读者阅读。

2. 实用性强。本书按照运作管理经理所从事的工作来组织全书的内容, 使本书的实用性大大提高。它不仅适于高等院校本科生和研究生的教学, 而且适于工商企业从事生产运作管理的人员阅读。

3. 结合实际, 内容丰富。每章都给出一个世界著名的跨国公司作为引例, 书中有丰富的运作管理实例和例题解答, 并提供互联网资源, 便于读者研究和练习。

原书分 4 篇 17 章。为便于组织教学, 在保证原书体系结构不变的前提下, 改编者对原书的内容进行了一些删减。删去的内容如下: 第 4 篇“定量模块” (Quantitative Modules), 第 6、7、10 和 11 章的“补充材料” (Supplement 6, 7, 10, 11), 第 17 章“维护与可靠性” (Maintenance and Reliability), 独立于正文的彩图以及各章末尾的关键词、部分习题、视频案例分析、附加案例研究、参考文献等。部分删除的内容放在中国人民大学出版社工商管理出版分社的网上, 读者可登录 www.rdjg.com.cn 阅读或下载。

想一览本书全貌的读者, 可以参考中国人民大学出版社出版的《运作管理》(第 8 版, 翻译版)。

通过改编, 本书内容更加精炼, 便于读者掌握运作管理的核心内容, 相信会受到广大读者的欢迎。

陈荣秋

Preface*

Welcome to your Operations Management (OM) course. In this book, we present a state-of-the-art view of the activities of the operations function. Operations is an exciting area of management that has a profound effect on the productivity of both manufacturing and services. Indeed, few activities have as much impact on the quality of our lives. The goal of this text is to present a broad introduction to the field of operations in a realistic, practical manner. Operations management includes a blend of topics from accounting, industrial engineering, management, management science, and statistics. Even if you are not planning on a career in the operations area, you will likely be interfacing with people who are. Therefore, having a solid understanding of the role of operations in an organization is of substantial benefit to you. This book will also help you understand how OM affects society and your life. Certainly, you will better understand what goes on behind the scenes when you buy a meal at Hard Rock Cafe, place an order through Amazon.com, buy a customized Dell Computer over the Internet, or enter Arnold Palmer Hospital for medical care.

Although many of our readers are not OM majors, we know that marketing, finance, accounting, and MIS students will find the material both interesting and useful because we develop a fundamental working knowledge of the firm. Over 400,000 readers of our earlier editions seem to have endorsed this premise.

FOCUS OF THE NEW EDITION

The new edition continues to place a special focus on important aspects of Operations Management including:

- **Strategy and Ethics**—as our unifying themes in every chapter.
- **Global Operations**—and how this impacts product and process design, location, human resources, and other issues.
- **Service Operations**—recognizing the dominant proportion of jobs and operations decisions in services.
- **Modern topical coverage**—with coverage of Supply Chains, Six Sigma, the Internet, Microsoft Project, E-Commerce, ERP, yield management, and mass customization.
- **Real world examples of operations management**—to maximize student interest and excitement.
- **Active Model Exercises**—to use interactive Excel spreadsheets of examples in the book for “what-if” analysis.

NEW TO THIS EDITION

Service Integration with the Arnold Palmer Hospital and Seven New Video Case Studies In this edition, we illustrate how operations management is put into practice at Arnold Palmer Hospital, one of the top hospitals in the world. Arnold Palmer Hospital invited us to shoot “behind the scenes” operations functions of their organization, giving students an inside look at such issues as project management, quality, process analysis, capacity planning, facility layout, supply chain management, and just-in-time inventory. This exciting and renowned facility, located in Orlando, Florida, emphasizing operations in a service environment, is featured throughout the text in examples, photos, video cases, and a Global Company Profile in Chapter 6. A VHS tape or DVD is available to adopters which includes seven 8–10 minute segments of each topic. The student CD-ROM also contains a 2-minute version of each of these videos. The videos have just received major awards in the annual Telly Award Competitions. Out of over 10,000 entries, the Quality video was chosen as Winner and the Process Analysis video as Finalist.

* 节选。由于版权原因，原著前言中的部分内容不完全适用于英文改编版。——改编者注

Our previous edition focused on the Hard Rock Cafe, one of the most widely recognized company names in the world. The seven video case studies we created for Hard Rock also appear in this edition, making the combination of Hard Rock and Arnold Palmer Hospital the perfect way to integrate service applications into the OM course.

Homework Problem Material This text has long been known for its broad spectrum of material that can be assigned as homework. We offer Active Model Exercises, Discussion Questions, Homework Problems, Internet Homework Problems, Case Studies, Internet Case Studies, and Video Case Studies. With this edition, we add the following five new features:

- 1. Ethics in Operations Management.** Ethical decision-making is more important than ever in our exciting and dynamic field of study. Operations managers, like other top executives, face a plethora of difficult choices that stretch their ethical fibers every day. Each chapter features a new “Ethical Dilemma” and most chapters have more integrated discussions of ethics as well. These exercises make an ideal way to generate thought and discussion of this issue.
- 2. More Challenging Homework Problems Added.** One of the trademarks of our text has always been the large selection of examples, solved problems, Internet and text homework problems. Our 763 homework problems provide the largest, clearest, and now most diverse problem sets of any OM text. With this edition, we increase from a 1, 2, 3 dot level of difficulty for each of these problems, to a 1, 2, 3, 4 system having added challenging 4-dot problems to each chapter. These new homework problems are intended to stretch the thinking of students.
- 3. Excel Spreadsheets.** OM is an ideal field in which spreadsheet analysis can help determine the best solution to a problem. Excel OM, our Excel add-in, is found on the student CD-ROM, and may be used to tackle many of the problems in this text. But many professors prefer to let students build their own Excel models. New to this edition are examples of how to do this.
- 4. OneKey With PH Grade Assist.** OneKey provides an easy-to-use site for all digital resources available with our text, including our powerful new homework/exam feature called PH Grade Assist. With PH Grade Assist, many of the homework problems in this text and problems/questions from our Test Item File may now be assigned online to students. With dozens of options for randomizing the sequence, timing, and scoring, PH Grade Assist makes giving and grading homework and exams an easy task. Scores of these problems have also been converted by the authors to an “algorithmic” form, meaning that there are numerous (sometimes 100’s) of versions of each problem, with the data different for each student. Solutions to each problem and its data set are provided, if instructors wish, to the students immediately after they complete the assignment. Grades can be recorded by the software directly into the instructor’s grade book.
- 5. Decision-Making Exercises.** Four new classroom exercises and their data files are found on the Instructor’s CD. The first is an MSProject exercise built as an expansion of the video case study “Managing Hard Rock’s Rockfest” (Chapter 3). The second is an Excel simulation of a Project Management game called Rock’n Bands. The third is a Dice Game for Statistical Process Control (Supplement 6). The fourth is an inventory simulation, also Excel-based, called “He Shoots, He Scores” (Chapters 12 and 14).

TRADEMARK FEATURES

Our goal is to provide students with the finest pedagogical devices to help enhance learning and teaching.

- **Balance between services and manufacturing.** Both service and manufacturing examples are critical in an Operations Management course. We carefully blend the two together throughout the text. To emphasize each, we follow two manufacturing organizations, a restaurant chain, a hospital, and a university: Regal Marine (3 video cases and a Global Company Profile in Chapter 5); Wheeled Coach (4 video cases and a Global Company Profile in Chapter 1); Arnold Palmer Hospital (7 video cases and a Global Company Profile in Chapter 6); Southwestern University (7 integrated case studies of issues facing this fictional college). In addition, we provide hundreds of other examples of service and manufacturing companies throughout the text, examples, and homework problems.
- **Worked Out Examples.** Step-by-step worked out examples of OM problems are

extremely helpful in an analytical course such as this. The chapters contain 141 examples which are reinforced by 66 end-of-chapter Solved Problems. Further, the student CD and text web site each contain over a hundred Practice Problems.

- **Superb Homework Problems.** As the leading OM text, we take pride in having the leading homework problem set. The 597 problems in the text are coded on a 1, 2, 3, or 4 dot difficulty level. These are supplemented by 166 more homework problems on the book's web site. Solutions to all of these are in the Instructor's Solution Manual, written by the authors.
- **Global Company Profiles** Each chapter opens with a two-page, full-color analysis of a leading global organization. These include Amazon, Volkswagen, Dell, Arnold Palmer Hospital, Delta Airlines, McDonald's, Boeing, and many more.
- **OM in Action Boxes** Fifty-eight half-page examples of recent OM practices are drawn from a wide variety of sources, including *The Wall Street Journal*, *New York Times*, *Fortune*, *Forbes*, and *Harvard Business Review*. These boxes bring OM to life.
- **Active Model Exercises** Active Model Exercises are interactive Excel spreadsheets of examples in the textbook that allow the student to explore and better understand these important quantitative concepts. Students and instructors can adjust inputs to the model and, in effect, answer a whole series of "what if" questions that is provided (e.g., What if one activity in a PERT network takes 3 days longer? Chapter 3. What if holding cost or demand in an inventory model doubles? Chapter 12. What if the exponential smoothing constant is 0.3 instead of 0.5? Chapter 4). These Active Models are great for classroom presentation and/or homework.

COMPANION WEB SITE

Visit our Companion Web site at www.prenhall.com/heizer, to find text-specific resources for students and faculty. Some of the resources you will find include:

For Students:

Self-Study Quizzes These extensive quizzes contain a broad assortment of questions, 20–25 per chapter, which include multiple choice, true or false, and Internet essay questions. The quiz questions are graded and can be transmitted to the instructor for extra credit or serve as practice exams.

Virtual Tours These company tours provide direct links to companies ranging from a hospital to an auto manufacturer, that practice key concepts. After touring each Web site, students are asked questions directly related to the concepts discussed in the chapter.

Internet Homework Problems A set of homework problems are available on the Companion Web site to provide additional assignment material for students.

Internet Case Studies Assign additional free case study material from this web site.

For Faculty:

Instructor support materials can be downloaded from the Prentice Hall online catalog at www.prenhall.com. This password-protected area provides faculty with the most current and advanced support materials available: Instructor's Solutions Manual, Instructor's Resource Manual, PowerPoint slides, Personal Response System slides, and Test Questions.

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Operations and Productivity

Chapter Outline

**GLOBAL COMPANY PROFILE:
HARD ROCK CAFE****WHAT IS OPERATIONS MANAGEMENT?****ORGANIZING TO PRODUCE GOODS
AND SERVICES****WHY STUDY OM?****WHAT OPERATIONS MANAGERS DO**

How This Book Is Organized

**THE HERITAGE OF OPERATIONS
MANAGEMENT****OPERATIONS IN THE SERVICE SECTOR**

Differences between Goods and Services

Growth of Services

Service Pay

EXCITING NEW TRENDS IN OPERATIONS**MANAGEMENT****THE PRODUCTIVITY CHALLENGE**

Productivity Measurement

Productivity Variables

Productivity and the Service Sector

ETHICS AND SOCIAL RESPONSIBILITY

SUMMARY

SOLVED PROBLEMS

DISCUSSION QUESTIONS

ETHICAL DILEMMA

PROBLEMS

INTERNET HOMEWORK PROBLEMS

CASE STUDIES: NATIONAL AIR EXPRESS; ZYCHOL

CHEMICALS CORPORATION

INTERNET RESOURCES

LEARNING OBJECTIVES

When you complete this chapter you should be able to

IDENTIFY OR DEFINE:

Production and productivity

Operations management (OM)

What operations managers do

Services

DESCRIBE OR EXPLAIN:

A brief history of operations management

Career opportunities in operations management

The future of the discipline

Measuring productivity

GLOBAL COMPANY PROFILE: HARD ROCK CAFE

Operations Management at Hard Rock Cafe

Operations managers throughout the world are producing products every day to provide for the well-being of society. These products take on a multitude of forms. They may be washing machines at Maytag, motion pictures at Dreamworks, rides at Disney World, or food at Hard Rock Cafe. These firms produce thousands of complex products every day—to be delivered as the customer ordered them, when the customer wants them, and where the customer wants them. Hard Rock does this for over 35 million guests worldwide every year. This is a challenging task and the operations manager's job, whether at Maytag, Dreamworks, Disney, or Hard Rock, is demanding.

Orlando-based Hard Rock Cafe opened its first restaurant in London in 1971, making it over 35 years old and the granddaddy of theme restaurants. Although other theme restaurants have

come and gone, Hard Rock is still going strong with 110 restaurants in more than 40 countries—with new restaurants opening each year. Hard Rock made its name with rock music memorabilia, having started when Eric Clapton, a regular customer, marked his favorite bar stool by hanging his guitar on the wall in the London cafe. Now Hard Rock has millions of dollars invested in memorabilia. To keep customers coming back time and again, Hard Rock creates value in the form of good food and entertainment.

The operations managers at Hard Rock Cafe at Universal Studios in Orlando provide more than 3,500 custom products, in this case meals, every day. These products are designed, tested, and then analyzed for cost of ingredients, labor requirements, and customer satisfaction. On approval, menu items are put into production—

and then only if the ingredients are available from qualified suppliers. The production process, from receiving, to cold storage, to grilling or baking or frying, and a dozen other steps, is designed and maintained to yield a quality meal. Operations managers, using the best people they can recruit and train, also prepare effective employee schedules and design efficient layouts.

Managers who successfully design and deliver goods and services throughout the world understand operations. In this text, we look not only at how Hard Rock's managers create value but also how operations managers in other services, as well as in manufacturing, do so. Operations management is demanding, challenging, and exciting. It affects our lives every day. Ultimately, operations managers determine how well we live.

Lots of work goes into designing, testing, and costing meals. Then suppliers deliver quality products on time, every time for well-trained cooks to prepare quality meals. But none of that matters unless an enthusiastic wait staff, such as the one shown here, is doing its job.



Operations management (OM) is a discipline that applies to restaurants like Hard Rock Cafe as well as to factories like Sony, Ford, and Maytag. The techniques of OM apply throughout the world to virtually all productive enterprises. It doesn't matter if the application is in an office, a hospital, a restaurant, a department store, or a factory—the production of goods and services requires operations management. And the *efficient* production of goods and services requires effective applications of the concepts, tools, and techniques of OM that we introduce in this book.

As we progress through this text we will discover how to manage operations in a changing global economy. An array of informative examples, charts, text discussions, and pictures illustrate concepts and provide information. We will see how operations managers create the goods and services that enrich our lives.

In this chapter, we first define *operations management*, explaining its heritage and exploring the exciting role operations managers play in a huge variety of businesses. Then we discuss production and productivity in both goods- and service-producing firms. This is followed by a discussion of operations in the service sector and of the challenge of managing an effective production system.

WHAT IS OPERATIONS MANAGEMENT?

Production

The creation of goods and services.

Operations management (OM)

Activities that relate to the creation of goods and services through the transformation of inputs to outputs.

Production is the creation of goods and services. **Operations management (OM)** is the set of activities that creates value in the form of goods and services by transforming inputs into outputs. Activities creating goods and services take place in all organizations. In manufacturing firms, the production activities that create goods are usually quite obvious. In them, we can see the creation of a tangible product such as a Sony TV or a Harley Davidson motorcycle.

In organizations that do not create physical products the production function may be less obvious. It may be “hidden” from the public and even from the customer. Examples are the transformations that take place at a bank, hospital, airline office, or college.

Often when services are performed, no tangible goods are produced. Instead, the product may take such forms as the transfer of funds from a savings account to a checking account, the transplant of a liver, the filling of an empty seat on an airline, or the education of a student. Regardless of whether the end product is a good or service, the production activities that go on in the organization are often referred to as operations or *operations management*.

ORGANIZING TO PRODUCE GOODS AND SERVICES

To create goods and services, all organizations perform three functions (see Figure 1.1). These functions are the necessary ingredients not only for production but also for an organization's survival. They are

1. *Marketing*, which generates the demand, or at least takes the order for a product or service (nothing happens until there is a sale).
2. *Production/operations*, which creates the product.
3. *Finance/accounting*, which tracks how well the organization is doing, pays the bills, and collects the money.

Universities, churches or synagogues, and businesses all perform these functions. Even a volunteer group such as the Boy Scouts of America is organized to perform these three basic functions. Figure 1.1 shows how a bank, an airline, and a manufacturing firm organize themselves to perform these functions. The blue-shaded areas of Figure 1.1 show the operations functions in these firms.

WHY STUDY OM?

We study OM for four reasons:

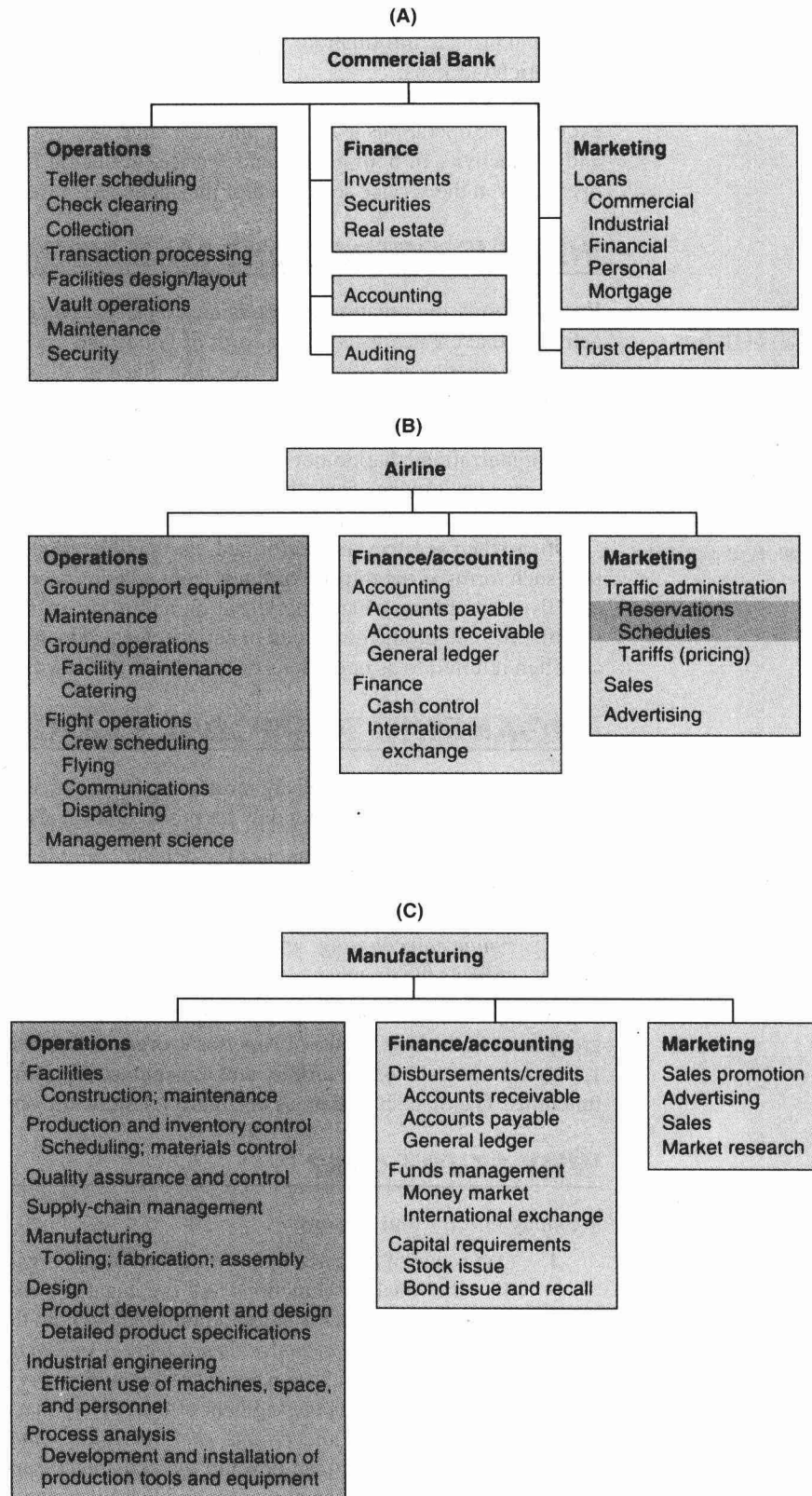
1. OM is one of the three major functions of any organization, and it is integrally related to all the other business functions. All organizations market (sell), finance (account), and produce (operate), and it is important to know how the OM activity functions. Therefore, we study *how people organize themselves for productive enterprise*.
2. We study OM because we want to know *how goods and services are produced*. The production function is the segment of our society that creates the products we use.
3. We study OM to *understand what operations managers do*. By understanding what these managers do, you can develop the skills necessary to become such a manager. This will help you explore the numerous and lucrative career opportunities in OM.

4. We study OM *because it is such a costly part of an organization*. A large percentage of the revenue of most firms is spent in the OM function. Indeed, OM provides a major opportunity for an organization to improve its profitability and enhance its service to society. Example 1 considers how a firm might increase its profitability via the production function.

FIGURE 1.1 ■

Organization Charts
for Two Service
Organizations and
One Manufacturing
Organization

(A) A bank, (B) an airline,
and (C) a manufacturing
organization. The blue
areas are OM activities.



Example 1

Examining the options for increasing contribution

Fisher Technologies is a small firm that must double its dollar contribution to fixed cost and profit in order to be profitable enough to purchase the next generation of production equipment. Management has determined that if the firm fails to increase contribution, its bank will not make the loan and the equipment cannot be purchased. If the firm cannot purchase the equipment, the limitations of the old equipment will force Fisher to go out of business and, in doing so, put its employees out of work and discontinue producing goods and services for its customers.

Table 1.1 shows a simple profit-and-loss statement and three strategic options for the firm. The first option is a *marketing option* where good marketing management may increase sales by 50%. By increasing sales by 50%, contribution will in turn increase 71%, but increasing sales 50% may be difficult; it may even be impossible.

The second option is a *finance/accounting option* where finance costs are cut in half through good financial management. But even a reduction of 50% is still inadequate for generating the necessary increase in contribution. Contribution is increased by only 21%.

The third option is an *OM option* where management reduces production costs by 20% and increases contribution by 114%. Given the conditions of our brief example, Fisher Technologies has increased contribution from \$10,500 to \$22,500 and will now have a bank willing to lend it additional funds.

TABLE 1.1 ■ Options for Increasing Contribution

		MARKETING OPTION ^a	FINANCE/ ACCOUNTING OPTION ^b	OM OPTION ^c
	CURRENT	INCREASE SALES REVENUE 50%	REDUCE FINANCE COSTS 50%	REDUCE PRODUCTION COSTS 20%
Sales	\$100,000	\$150,000	\$100,000	\$100,000
Costs of goods	-80,000	-120,000	-80,000	-64,000
Gross margin	20,000	30,000	20,000	36,000
Finance costs	- 6,000	- 6,000	- 3,000	- 6,000
Subtotal	14,000	24,000	17,000	30,000
Taxes at 25%	- 3,500	- 6,000	- 4,250	- 7,500
Contribution ^d	\$ 10,500	\$ 18,000	\$ 12,750	\$ 22,500

^aIncreasing sales 50% increases contribution by \$7,500 or 71% (7,500/10,500).

^bReducing finance costs 50% increases contribution by \$2,250 or 21% (2,250/10,500).

^cReducing production costs 20% increases contribution by \$12,000 or 114% (12,000/10,500).

^dContribution to fixed cost (excluding finance costs) and profit.

Example 1 underscores the importance of an effective operations activity of a firm. Development of increasingly effective operations is the approach taken by many companies as they face growing global competition.¹

WHAT OPERATIONS MANAGERS DO

Management process

The application of planning, organizing, staffing, leading, and controlling to the achievement of objectives.

All good managers perform the basic functions of the management process. The **management process** consists of *planning, organizing, staffing, leading, and controlling*. Operations managers apply this management process to the decisions they make in the OM function. The 10 major decisions of OM are shown in Table 1.2. Successfully addressing each of these decisions requires planning, organizing, staffing, leading, and controlling. Typical issues relevant to these decisions and the chapter where each is discussed are also shown.

How This Book Is Organized

The 10 decisions shown in Table 1.2 are activities required of operations managers. The ability to make good decisions in these areas and allocate resources to ensure their effective execution goes a long way toward an efficient operations function. The text is structured around these 10 decisions.

¹See related discussion in Michael Hammer, "Deep Change: How Operational Innovation Can Transform Your Company," *Harvard Business Review* 82, no. 4 (2004): 85–93.