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Essentials of Operations Management

by Keah Choon Tan, University of Nevada, Las Vegas

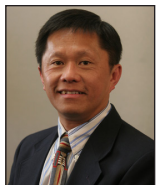
The operations management book market is mature and saturated with a number of excellent multi-color textbooks, some of which have evolved through multiple editions to dominate the market. Over the last decade, a few new entrants have emerged, but many have failed to get past the first edition due to fierce competition. Moreover, a good operations management textbook typically costs well above US\$100. To combat escalating textbook costs, some authors and publishers have resorted to publishing e-Books. There is no dispute that the cost of textbooks is an important factor that affects instructors' textbook choices.

Essentials of Operations Management, on the other hand, is one of the most economical operations management textbooks on the market, retailing for \$62.95. This unadorned (paperback, single-color) 456-page textbook is organized in three parts and fifteen chapters. Three hundred and seventy-four pages are devoted to chapter content, and forty-three pages in the appendix are allotted to three interesting global cases. However, its coverage of subject matter is rather brief in most instances, making it less likely to be adopted for advanced or graduate operations management courses unless used in conjunction with other materials. Based on content and coverage, it is a candidate for an introductory course in operations management, particularly for those who want to cover essential concepts without dwelling on detailed theories or formulas. The end-of-book cases are also potential candidates for term or team projects.

In addition to covering traditional content in operations strategy and management, *Essentials of Operations Management* provides business students with

some contemporary topics not always found in other texts, such as human resource management in operations, "green" operations, and the balanced scorecard. Some key features of the text include:

- A chapter on managing the workforce. While managing the workforce is a crucial responsibility and daily task for the operations manager, it is not always discussed in operations textbooks, which tend to focus on inventory and machine aspects of operations.
- A chapter is devoted to the balanced scorecard, introducing students to measures of firm performance that balance customer, internal processes, and learning and growth measures against traditional financial measures.

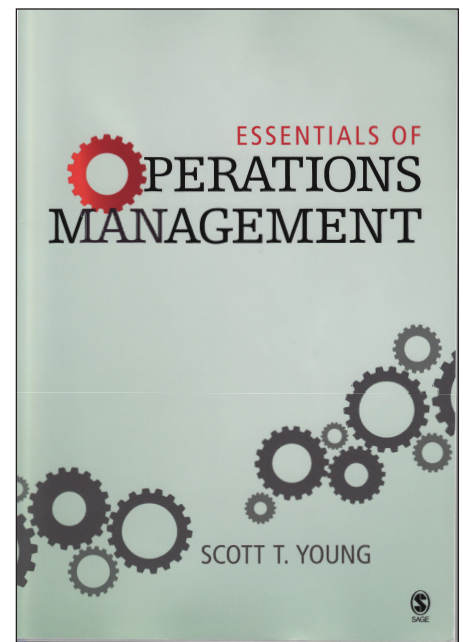


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purchasing manager (CPM) and is also certified in production and inventory management (CPIM). He has published articles in the areas of quality management, supply chain management, and operations scheduling in a number of professional magazines and academic journals. Professor Tan has also coauthored a supply chain management textbook and served as an editor, co-guest editor, and editorial board member for several academic journals. He has received numerous research grants and awards and is a recipient of the UNLV Foundation 2009 Distinguished Teaching Award.

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Essentials of Operations Management
by Scott T. Young, DePaul University
SAGE Publications, (ISBN: 9781412925709)

- There is a discussion of sustainable and “green” operations and why they are important in operations. This is an increasingly important aspect of operations because the earth cannot eternally sustain the exploitation of limited natural resources.
- End-of-chapter review questions, key terms, projects, problem sets, summary terms, and cases. The cases provide opportunities for instructors and students to discuss or apply concepts to real-life situations.
- Instructor resources (on CD) that include PowerPoint slides, chapter overviews, lecture outlines, review questions, and additional end-of-book cases.

Instructors accustomed to advanced operations texts may find the coverage of essential topics too brief and inadequate to fully illustrate the concepts. Coverage of some key topics (e.g., outsourcing, EDI, postponement, and customization) is limited to a brief description of the key terminologies. In addition, discussion of some topics ends abruptly, and new topics are sometimes brought up absent substantive connection to the previous topic. The text focuses on qualitative material and largely avoids quantitative concepts. One may get the feeling that it is about “what is it” rather than “how to do it” as most operations texts emphasize.

Following an introduction chapter, the text consists of three major parts. Part 1 (management and strategy) consists of six chapters, part 2 (planning) consists of four chapters, and part 3 (inventory, logistics, and supply chain management) consists of four chapters. The following provides a brief highlight of each chapter.

The learning objectives of Chapter 1, “Introduction to Operations Management and Productivity,” are to introduce the operations management topic, trace the development of the field, and note the applications of operations management in both manufacturing and service industries such as aircraft manufacturing (Boeing), hotels, and universities. This chapter ends with a short description of the three major parts of the textbook. The

title of the chapter is a little misleading since productivity is not discussed in this short and to the point introductory chapter.

Part I – Management and Strategy

Chapter 2, “Productivity and Process Analysis,” discusses productivity and its measurement, time study, the Define-Measure-Analyze-Improve-Control (DMAIC) process, process analysis, flowcharting, and streamlining processes. It discusses productivity using examples but does not address limitations of productivity measures. Coverage could be more precise. For example, while comparing improvements in global productivity between 1992 and 2005, the caption in Table 2.2 lists “2005 output per hour in manufacturing”, but the text explains that the table does not show total productivity, but rather improvement in productivity, with Korea making the greatest improvement since 1992. While it was not specified in the text, the author was referring to South Korea, though the source of the information was not provided. The chapter is short and uses simple, everyday examples to demonstrate operations management concepts. Six cases accompany the chapter.

Chapter 3, “Operations Strategy,” describes the role of operations management in organizational strategy, strategic questions to be addressed, the importance of operations to the value chain, and stages of dynamic manufacturing. Porter’s (1980) competitive strategy is used to outline the generic competitive strategies of cost leadership, differentiation, and focus. Specific topics covered include nine ways to compete through operations (quality, flexibility, inventory system, human resources management, speed, location, vertical integration, and technology), the profit chain, and dynamic manufacturing. The concept of the value chain is also introduced, but not clearly differentiated from the supply chain. The popular Vermont ice cream maker, Ben & Jerry’s, is used to illustrate the product, economic, and social missions of an organization. The chapter concludes with five review questions, five projects, and three cases.

Chapter 4, “Managing the Operations Workforce,” addresses the managerial role of the operations managers. Its learning objectives focus on leadership, motivations, and human resource management. As pledged by the author, coverage focuses on qualitative concepts, and topics are covered briefly without going into depth. For example, in the discussion of motivation, hygiene theory that addresses basic needs of employees and Maslow’s hierarchy of needs are covered, yet less than a page is devoted to the topic. Other topics include human resource management in operations management, training and development, compensation, and retention. Specific issues such as what is fair compensation or how employees should be compensated are not addressed. The text also uses the ranking approach developed by Jack Welch at General Electric as an example of how to motivate and inform employees, and introduces performance reviews and job satisfaction. However, it does not address how to review performance or ensure job satisfaction. The stated learning objectives cite Wal-Mart as the example that will be used to demonstrate concepts, though Southwest Airlines is in fact used. While an important inclusion in the text, those accustomed to more conventional operations management texts may find that coverage of concepts is limited. The chapter ends with eight review questions, six projects, and three cases.

Chapters 5-7 are relatively short chapters. “The Balanced Scorecard Approach to Operations” briefly covers the basics of the balanced scorecard framework, followed by five review questions, three projects, and two cases. “Total Quality Management” addresses basic total quality management topics but is somewhat terse. However, some common topics such as assignable versus random variation and in-control versus out-of-control processes are not discussed. Hence, it may be difficult for students to fully appreciate the role of statistical process control techniques in detecting assignable variations. Although a major differentiating factor of this text, only twelve pages are devoted to Sustain-

able Operations, with several sections as short as one to two paragraphs. Economic prosperity, environmental quality, and social justice are used to explain why firms should consider 'green' or sustainable operations. Specific topics discussed include environmental impact analysis, operations and waste, operations and the air, conservation, green building, and energy. The environmental efforts of companies including Wal-Mart, Starbucks, General Electric, Ford, and Toyota are also discussed. However, the U.S. Environmental Protection Agency (EPA) and legislation that regulates U.S. environmental policy are not discussed.

Part II - Planning

Chapter 8, "Forecasting and Aggregate Planning," discusses the most common qualitative and quantitative forecast techniques, introduces linear regression, and describes the bias and mean absolute deviation error measures. It avoids coverage of more complex quantitative materials. Although a stated learning objective was to examine the role of capacity in planning, only a quarter of a page was devoted to capacity management.

Stated objectives for Chapter 9, "Scheduling for Operations," include coverage of methods for scheduling job shops, establishing the master production schedule, labor scheduling, scheduling for manufacturing and service organizations, and the theory of constraints. Job shop scheduling techniques such as the shortest processing time, first-come-first-served, earliest due date, and Johnson's rule are covered. A good, if lengthy, example is used to describe labor scheduling. The chapter includes several examples, such as scheduling faculty to classes, railroad scheduling, emergency room scheduling, and the scheduling of professional football and basketball games. There are seven review questions, six problems, seven projects, and one case in this chapter.

Learning objectives for Chapter 10, "Facility Location," include strategic issues in facility location and how locations are selected. Several U.S. and overseas locations such as Chicago, China, India, Taiwan, and Belfast are discussed. Specific

topics covered include global, regional, city, and site issues, the factor rating and center of gravity methods, Geographic Information Systems, and fast-food locations. A survey of the best European cities was discussed, although it was without the appropriate reference.

Chapter 11, "Facility Layout and Waiting Lines," covers waiting line management, major layout types, assembly line balancing, and simulation. While the chapter covers the usual topics in a chapter of this nature, there is a noticeable lack of diagrams to demonstrate concepts. For example, various waiting line structures (i.e. one/multiple line, one/multiple server) could be illustrated by a couple of simple diagrams. Another weakness of the chapter is that unnecessarily large amounts of space are devoted to providing a list of random numbers and illustrating a waiting line simulation.

Part III - Inventory, Logistics, and Supply Chain Management

Chapter 12, "Supply Chain Management," addresses concepts including stages of supply chain management, transportation, the bullwhip effect, outsourcing, make-or-buy, warehousing principles, and customer relationships. Although EDI was introduced as a main heading, only a very short paragraph was provided to explain the section. Similarly, description of another key supply chain technology, radio frequency identification (RFID), could have been a little more precise. While present, coverage of customer relationships management is somewhat terse as is discussion of supply chain ethics. The chapter includes a substantial end of chapter case.

Chapter 13, "Inventory Management and Purchasing," addresses basic inventory policy topics including purchasing, negotiation, inventory cost, EOQ, and ABC inventory control. The chapter also includes details of the Institute for Supply Management's Principles and Standards of Ethical Supply Management Conduct. The discussion of the EOQ model is somewhat limited because the formula for EOQ is introduced without discussion of its origin or relationship with the broader discussion of cost dynamics. Five

inventory management problems are provided at the end of the chapter.

Chapter 14, "Resource Planning," the shortest chapter with just eight pages, discusses dependent demand, the components of material requirements planning (MRP), master production scheduling, and the bill of materials. Coverage of capacity planning is limited. However, the chapter does include two interesting ERP cases. Chapter 15, "Project Management," describes the work breakdown structure, the critical path method (CPM), and project evaluation and review technique (PERT). Some may find that there is a lack of diagrams to showcase the critical path method. Although slack is discussed, the chapter does not discuss the effect of activities that are delayed beyond a project's slack on project duration.

Overall, this text covers both key and contemporary operations management concepts, if not briefly, and avoids more quantitative material. It is a potential candidate for an introductory operations management course, although some may feel that the content in each chapter merely explains the terms used and as such serves more as a reference. ■

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