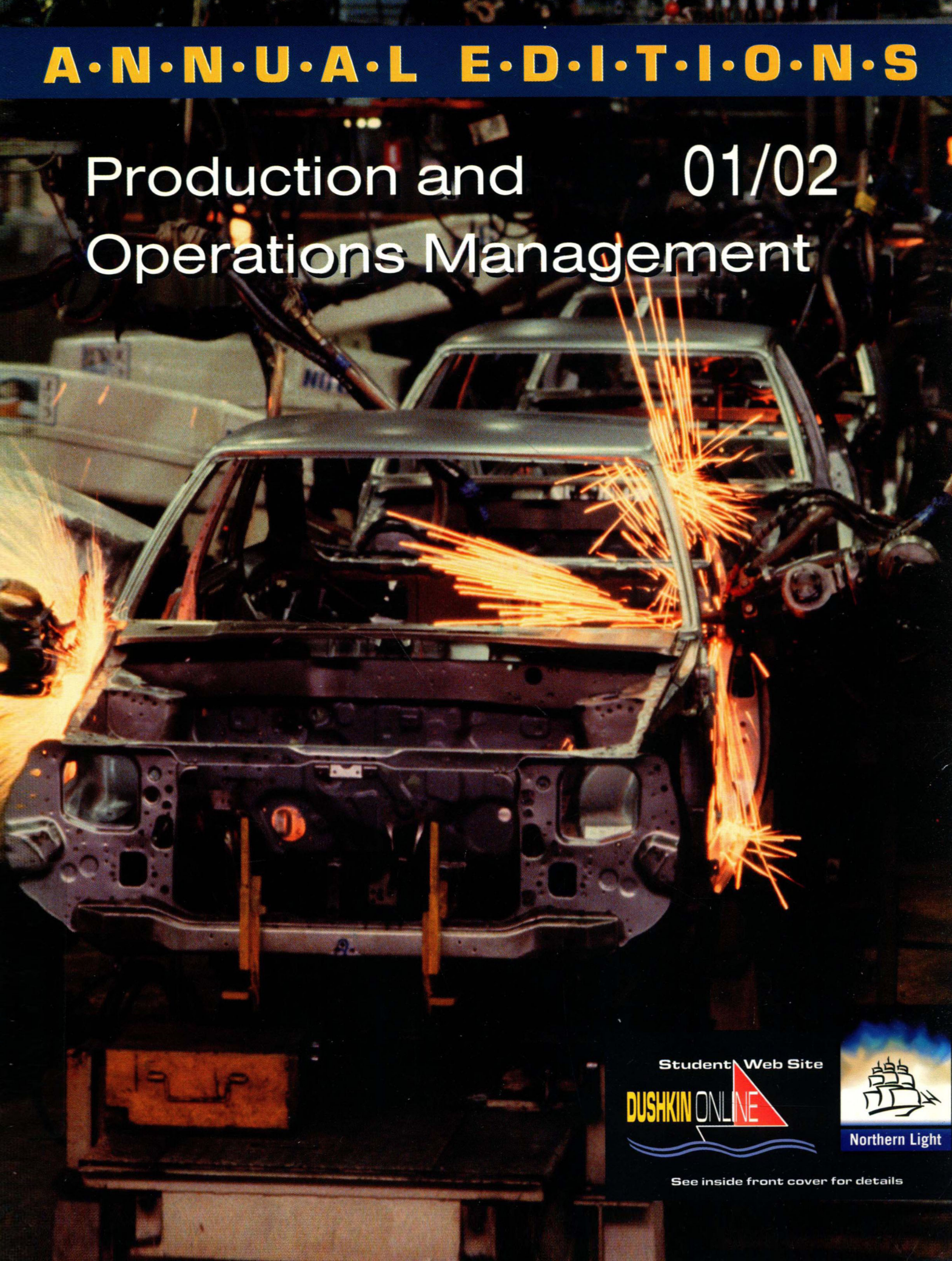
A·N·N·U·A·L E·D·I·T·I·O·N·S

Production and Operations Management

01/02



Student Web Site

DUSHKIN ONLINE

Northern Light

See inside front cover for details

Credits

1. Performance Improvement and Electronic Commerce
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Editors/Advisory Board

Members of the Advisory Board are instrumental in the final selection of articles for each edition of ANNUAL EDITIONS. Their review of articles for content, level, currentness, and appropriateness provides critical direction to the editor and staff. We think that you will find their careful consideration well reflected in this volume.

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Chapman University

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To the Reader

In publishing ANNUAL EDITIONS we recognize the enormous role played by the magazines, newspapers, and journals of the public press in providing current, first-rate educational information in a broad spectrum of interest areas. Many of these articles are appropriate for students, researchers, and professionals seeking accurate, current material to help bridge the gap between principles and theories and the real world. These articles, however, become more useful for study when those of lasting value are carefully collected, organized, indexed, and reproduced in a low-cost format, which provides easy and permanent access when the material is needed. That is the role played by ANNUAL EDITIONS.

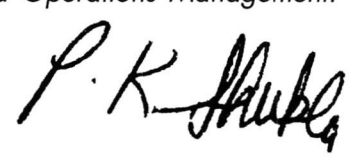
Organizations today are faced with challenges to improve performance and to increase customer service. Firms must provide greater quality and faster delivery than ever before and simultaneously reduce costs. Important decisions are required in forecasting demand accurately, human resources management, capacity, location, logistics, and layout planning. Supply chain management has emerged as a major area of importance for all firms. The Internet has provided new challenges and opportunities for electronic commerce; both business-to-consumer and business-to-business sales opportunities have been created. These challenges are dealt with by the utilization of operations and production management concepts.

The field of production management has its roots in scientific management principles from the early 1900s that were developed when the United States economy was primarily manufacturing-based. As the economy shifted to more service-based and information-based sectors, the focus shifted away from production management to operations management within service organizations. As we see greater globalization, firms must now ensure that they are world class to remain competitive. With the dynamic environment in the field, managers need to keep up with these new developments. This second edition of *Annual Editions: Production and Operations Management* is designed to provide students and managers with a concise review of recent developments in theory and company illustrations of practice.

This publication contains a number of features designed to be useful for managers and students interested in production and operations management. These features include a *topic guide* for locating articles on a specific subject and a *table of contents* with abstracts that summarize each article, highlighting key ideas in bold italics. Also, there are selected *World Wide Web sites* that can be used to further explore the topics. These sites are cross-referenced by number to the topic guide.

Annual Editions: Production and Operations Management 01/02 is organized into seven units, each dealing with specific interrelated topics in production and operations management. The units cover performance improvement and electronic commerce; quality; human resources management for productivity; forecasting and product design; decisions on capacity, location, logistics, and layout planning; inventory and supply chain management; and emerging trends in operations and production management. These seven units cover the major decision areas and considerations faced by managers in the field. The units are interrelated and cumulatively provide the reader with concepts of management within both manufacturing and service environments. Each unit begins with an overview that provides the necessary background information and basic core concepts. These unit overviews allow the reader to place the selections in the context of the book. Important topics are emphasized, and key points to consider address major themes.

This is the second edition of *Annual Editions: Production and Operations Management* and it is designed to provide the reader with the most complete and current selection of readings available on the subject. We would like to know what you think. Please take a few minutes to complete and return the postage-paid *article rating form* at the back of the volume. Any book can be improved, and we need your help to improve *Annual Editions: Production and Operations Management.*



P. K. Shukla
Editor

Contents

UNIT 1

Performance Improvement and Electronic Commerce

Six articles in this section examine some of the elements in improving the process of business operations: reengineering the supply chain, benchmarking, job design, and the management of services.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.

UNIT 2

Quality

Seven selections consider job design, tracking quality, effective service strategies, and improving the various job processes.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.

UNIT 3

Human Resources Management for Productivity

Five articles in this section discuss the various challenges faced by human resources when targeting productivity. Some of the topics considered are: job design, product design, self-directed work teams, and ergonomic machines.

UNIT 4

Forecasting and Product Design

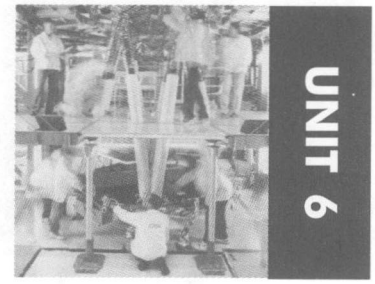
Six articles in this section assess the importance of new product development, the impact of effective management on the project, the role of forecasting, and the need for improving the necessary processes.

UNIT 5

Capacity, Location, Logistics, and Layout Planning

Five selections in this section discuss the importance of creating the proper atmosphere for a productive company.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.



UNIT 6

Inventory and Supply Chain Management

Six articles in this section consider the importance of proper and effective inventory control, the value of Just-In-Time manufacturing, and the general need for a well-designed supply chain system.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.

UNIT 7

Emerging Trends in Production and Operations Management

Six articles in this section look at some of the challenges facing an effective production management system.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.

The concepts in bold italics are developed in the article. For further expansion please refer to the Topic Guide and the Index.

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Production and Operations Management

01/02

Second Edition

EDITOR

P. K. Shukla
Chapman University

Dr. P. K. Shukla is associate professor of management at Chapman University. He received his bachelor's degree from California State University, Long Beach, his master's degree from the University of Southern California, and his doctorate from the University of California at Los Angeles. He is certified in Production and Inventory Management by APICS—The Educational Society for Resource Management. His research and consulting interests include operational and strategic planning. Dr. Shukla resides in Villa Park, California, with his wife and children.

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Topic Guide

This topic guide suggests how the selections in this book relate to the subjects covered in your course.

The Web icon ( ) under the topic articles easily identifies the relevant Web sites, which are numbered and annotated on the next two pages. By linking the articles and the Web sites by topic, this ANNUAL EDITIONS reader becomes a powerful learning and research tool.

TOPIC AREA	TREATED IN
Decisions: Capacity, Location, Logistics, Layout	3. Hurry Up and Wait 25. Not All Projections Bad for Overgrown Theatre Chains 26. State Declares First Stage 3 Power Alert 27. Changes in Performance Measures on the Factory Floor 28. Using Queueing Network Models to Set Lot-Sizing Policies 29. New Route for Boeing's Latest Model ***4, 6, 7, 10, 20, 28, 29, 30***
Forecasting	23. Seven Keys to Better Forecasting 24. Vitamin Efficiency 26. State Declares First Stage 3 Power Alert 39. Global Six ***7, 8, 9, 25, 26, 27***
Global Issues	1. Empirical Assessment of the Production/Operations Manager's Job 8. Conversation With Joseph Juran 10. ISO 9000 Myth and Reality 12. Jac Nasser's Biggest Test 13. Cause of Tire Failures Still a Matter of Dispute 14. How Will Kawai's Hand-Built Grand Play Against Steinway? 20. BMW Drives New Web Strategy 22. New Era About to Dawn for International Space Station 39. Global Six ***17, 35, 36, 37***
Information Technology and Electronic Commerce	2. Reengineer or Perish 6. Using ERP Data to Get [Close] to Customers 11. 2-D or Not 2-D? 16. How Great Machines Are Born 20. BMW Drives New Web Strategy 34. Squeezing the Most out of Supply Chains 37. Electronic Manufacturing 38. Are You Ready for the E-Supply Chain? 40. Thinking Machines 41. One Giant Leap for Machinekind? ***3, 33, 34, 35, 36, 37***
Job Design	1. Empirical Assessment of the Production/Operations Manager's Job 5. Rally of the Dolls 7. Fool Proof Service 8. Conversation With Joseph Juran 9. One More Time 14. How Will Kawai's Hand-Built Grand Play Against Steinway? 15. Less Stress, More Productivity 16. How Great Machines Are Born 17. Characteristics of the Manufacturing Environment 18. Legal Limitations to Self-Directed Work Teams 40. Thinking Machines 41. One Giant Leap for Machinekind? ***1, 2, 3, 6, 7, 10, 12, 13, 14, 22, 23, 24***
Managing Services	3. Hurry Up and Wait 7. Fool Proof Service 15. Less Stress, More Productivity 24. Vitamin Efficiency 25. Not All Projections Bad for Overgrown Theatre Chains ***30***
Process Improvement	1. Empirical Assessment of the Production/Operations Manager's Job 2. Reengineer or Perish 3. Hurry Up and Wait

TOPIC AREA	TREATED IN
	4. Do You Have What It Takes to Be Lean? 5. Rally of the Dolls 7. Fool Proof Service 8. Conversation With Joseph Juran 9. One More Time 11. 2-D or Not 2-D? 18. Legal Limitations to Self-Directed Work Teams 19. Managing the New Product Development Process 29. New Route for Boeing's Latest Model 35. Saturn's Supply-Chain Innovation ● ***1, 2, 6, 7, 11, 20, 22, 23, 24, 30***
Product Design	3. Hurry Up and Wait 13. Cause of Tire Failures Still a Matter of Dispute 14. How Will Kawai's Hand-Built Grand Play Against Steinway? 16. How Great Machines Are Born 19. Managing the New Product Development Process 20. BMW Drives New Web Strategy 39. Global Six 42. Environmental Management ● ***1, 2, 3, 10, 18, 19, 25, 26, 27***
Project Management	17. Characteristics of the Manufacturing Environment 19. Managing the New Product Development Process 21. Bringing Discipline to Project Management 22. New Era About to Dawn for International Space Station 29. New Route for Boeing's Latest Model ● ***1, 2, 3, 4, 6, 7, 26***

TOPIC AREA	TREATED IN
Quality	7. Fool Proof Service 8. Conversation With Joseph Juran 9. One More Time 10. ISO 9000 Myth and Reality 11. 2-D or Not 2-D? 12. Jac Nasser's Biggest Test 13. Cause of Tire Failures Still a Matter of Dispute 14. How Will Kawai's Hand-Built Grand Play Against Steinway? 19. Managing the New Product Development Process ● ***1, 2, 3, 6, 10, 12, 13, 15, 16, 17, 18, 19, 24***
Supply Chain Management/ Inventory, Master Production Scheduling (MPS), Materials Research Planning (MRP)	2. Reengineer or Perish 28. Using Queuing Network Models to Set Lot-Sizing Policies 30. Introducing JIT Manufacturing 31. Tailored Just-In-Time and MRP Systems in Carpet Manufacturing 32. Critical Importance of Master Production Scheduling 33. Manager's Guide to Supply Chain Management 34. Squeezing the Most out of Supply Chains 35. Saturn's Supply-Chain Innovation 36. From Supply Chain to Value Net 37. Electronics Manufacturing 38. Are You Ready for the E-Supply Chain? ● ***4, 6, 7, 9, 10, 11, 13, 14, 19, 21, 22, 28, 29, 30, 31, 32, 33***

AE: Production and Operations Management

The following World Wide Web sites have been carefully researched and selected to support the articles found in this reader. The sites are cross-referenced by number and the Web icon ( ) in the topic guide. In addition, it is possible to link directly to these Web sites through our DUSHKIN ONLINE support site at *http://www.dushkin.com/online/*.

The following sites were available at the time of publication. Visit our Web site—we update DUSHKIN ONLINE regularly to reflect any changes.

General Sources

1. American National Standards Institute (ANSI)
http://web.ansi.org/default.htm
ANSI Online is designed to provide convenient access to timely information on the ANSI Federation and the latest national and international standards-related activities.

2. APICS Online
http://www.apics.org
APICS is the Educational Society for Resource Management. The *Performance Advantage* magazine is located here as well as a link to certification testing information.

3. Data Interchange Standards Association (DISA)
http://www.disa.org
DISA is a not-for-profit organization that supports the development of EDI standards in electronic commerce.

4. Introduction to Operations Management
http://members.tripod.co.uk/tomi/whatis.html
Here is an excellent starting place for understanding the basics of operations management. This TOMI site uses interesting examples on the Web to illustrate its points.

5. Operations Management Center (OMC)
http://www.mhhe.com/pom
OMC is a supersite developed by McGraw-Hill/Irwin that contains a number of resources. Available are links to OM resource sites by topic; full text of OM articles from *Business Week*; a number of links to OM publications, organizations, and news feeds; and virtual tours of OM companies. The site also allows for interactive feedback that effectively works to improve content and coverage.

Performance Improvement and Electronic Commerce

6. Agile Manufacturing Project at MIT
http://web.mit.edu/ctpid/www/agile/atlanta.html
This interesting paper describes the research plan, methods, and early progress of two coordinated Agile Pathfinders focused on the aircraft and automobile industry respectively. The paper's working hypothesis is that a network of companies can improve its performance if participants take proactive steps during early product design.

7. American Productivity and Quality Center (APQC)
http://www.apqc.org
APQC is a nonprofit education and research organization. Its Web site shows how benchmarking and best practices can help an organization improve its processes and performance.

8. Business Forecasting
http://forecasting.cwru.edu
Use this page to access the thinking of business researchers who, using statistics, economics, psychology, and related disciplines, attempt to predict the future.

9. Demystifying Supply Chain Management
http://www.manufacturing.net/magazine/logistic/archives/1998/scmr/myst.htm
Peter J. Metz shows that SCM is, in fact, a logical development of lasting value, and not just a buzzword.

10. Design for Competitive Advantage TOC
http://dfca.larc.nasa.gov/dfc/toc.html
The table of contents of Ed Dean's book *Design for Competitive Advantage* leads to chapters on technologies of business, quality, cost, and others.

11. Galaxy: Manufacturing and Processing
http://galaxy.einet.net/GJ/mnfg.html
Billed as "the professional's guide to a world of information," Galaxy is a rich source of links to engineering and technology (cryogenics, quality control and more).

12. Kaizen
http://akao.larc.nasa.gov/dfc/kai.html
This selection explains *kaizen* and its relationship to Total Quality Control.

13. Voice of the Shuttle: Postindustrial Business Theory Page
http://vos.ucsb.edu/shuttle/commerce.html
Subjects covered at this Web page include the team concept, the quality movement, outsourcing, diversity management, restructuring, reengineering, downsizing, knowledge work, knowledge management, and learning organizations.

14. WARIA, the Workflow and Reengineering International Association
http://www.waria.com
This nonprofit organization tries to make sense of what is happening at the intersection of business process reengineering, workflow, and electronic commerce.

Quality

15. American Society for Quality (ASQ)
http://www.asq.org
Subtitled "Your Quality Resource," ASQ covers the field. The site includes a glossary, quality-related sites, and a quality forum, as well as standards and certification.

16. Concept Corner
http://members.tripod.co.uk/tomi/concepts.html
Concept Corner provides an introduction to Internet sites that help explain concepts, tools, and techniques that may be applied within the subject of operations management.

17. International Organization for Standardization (ISO)
http://www.iso.ch/welcome.html
Through ISO's home page find out everything you need to know about ISO, ISO 9000, and ISO 14000.

18. John Grout's Poka-Yoke Page
http://www.campbell.berry.edu/faculty/jgrout/pokayoke.shtml
Find out about mistake-proofing, zero defect quality (ZDQ), and fail-safing here. Choose from 20 selections, including Poka-Yoke Resources, Bad Designs, and Quality Links.

19. Plan-Do-Check-Act
http://www.inform.umd.edu/CampusInfor/Departments/cqi/Outlook/Tech/pdca.html
This article offers a clear explanation of PDCA as well as an example of how to put this concept of Continuous Quality Improvement (CQI) to work.

Human Resources Management for Productivity

20. Ergonomics, HCI, and Human Factors: Working Environments
http://www.workspace-resources.com/work00.htm
Workspace Resources offers information about the societal changes that have been made in the commercial office.

21. Just-in-Time Manufacturing
http://dali.ece.curtin.edu.au/~clive/public_html/jit/jit.htm
Curtin University of Technology offers this introduction to the basic concepts of a JIT manufacturing system.

22. Quality Circles
http://www.nw.com.au/~jingde/homepa6.htm
This interesting Web page from Australia is all about the behavioral science technique called quality circles.

23. SDWT: Self-Directed Work Teams
http://users.ids.net/~brim/sdwtt.html
This very complete site links to discussions of the what and why of SDWT, skills and steps needed for success, examples of teams, work teams in public, and related resources.

24. TQM: Total Quality Management Diagnostics
http://www.skyenet.net/~leg/tqm.htm
Offered at this Web site is a simplified TQM diagnostic model.

Forecasting and Product Design

25. New Product Development: Practice and Research
http://www.eas.asu.edu/~kdooley/nsfnpd/practices.html
These are the results of a research project that surveyed over 40 New Product Development programs. From this page link to a description of the theory behind this work.

26. Project Management Institute (PMI)
http://www.pmi.org
PMI aims to build professionalism into project management and this Web site is part of that endeavor. Download *A Guide to the Project Management Body of Knowledge* here. The site also contains links to other organizations.

27. STORES June 1998: Editor's Choice
http://www.stores.org/eng/archives/jun98edch.html
This article on sales forecasting, "Retailers, Suppliers Push Joint Sales Forecasting" by Ginger Koloszyyc, introduces the concept of information sharing known as collaborative planning, forecasting, and replenishing (CPFR).

Capacity, Location, Logistics, and Layout Planning

28. Manufacturers Information Net
http://mfginfo.com/newhome2.htm
A complete source of information for industry and services related to manufacturing is provided at the site.

29. Warwick Business School—Focus on Research
http://users.wbs.ac.uk/om/research/
Visit this page for some downloadable research papers. Topics on operations strategy, capacity management, supply chain management, service quality and design, and performance measurement are covered.

30. TWIGG's Operations Management Index (TOMI)
http://members.tripod.co.uk/tomi/index.html
This Index is an entry point to operations management resources on the Web, providing information on topics like purchasing, product development, and quality.

Inventory and SupplyChain Management

31. System 21 Manufacturing
http://jbaworld.com/solutions/infosheets/masterprodsched.htm
This description of System 21 manufacturing is an example of using the computer in a manufacturing environment.

32. MAGI: Master Production Scheduling
http://www.magimfg.com/Master_Production_Scheduler.htm
MAGI, the Manufacturing Action Group Inc., opens windows and shows you the screens it uses in setting up this Web program of master production scheduling.

33. Informs: Institute for Operations Research and the Management Sciences
http://www.informs.org
From the home page of Informs you can link to research on operations research and management science (OR/MS) and also explore articles that have appeared in the press.

Emerging Trends in Production and Operations Management

34. Centre for Intelligent Machines
http://www.cim.mcgill.ca/index_nf.html
CIM's mission is to excel in the field of intelligent machines, stressing basic research, technology development, and education. Domains such as robotics, automation, artificial intelligence, and computer vision systems are explored.

35. International Center for Research on the Management of Technology (ICRMOT)
http://web.mit.edu/icrmot/www/
ICRMOT will demonstrate its scope at this site. Specific research themes include managing complex global projects, capturing the value of technological innovation, and creating and delivering technology-based services.

36. Information Technology Association of America
http://www.itaa.org
An interesting article available at this Web site is one about global information technology spending. The ITAA provides information about the IT industry and links to other sites.

37. KPMG United States
http://www.us.kpmg.com/cm/article-archives/actual-articles/ global.html
KPMG, knowledge management experts, offers this article, "Tips for Improving Global Supply Chains," at their United States Web site.

We highly recommend that you review our Web site for expanded information and our other product lines. We are continually updating and adding links to our Web site in order to offer you the most usable and useful information that will support and expand the value of your Annual Editions. You can reach us at: *http://www.dushkin. com/annualeditions/*.

www.dushkin.com/online/

Unit Selections

1. **An Empirical Assessment of the Production/Operations Manager's Job,** Brian D'Netto, Amrik S. Sohal, and John Trevillyan
2. **Reengineer or Perish,** G. Berton Latamore
3. **Hurry Up and Wait,** Kelly Barron
4. **Do You Have What It Takes to Be Lean?** William Feld
5. **Rally of the Dolls: It Worked for Toyota. Can It Work for Toys?** Alex Taylor III
6. **Using ERP Data to Get [Close] to Customers,** G. Berton Latamore

Key Points to Consider

- What forces within the United States and globally have pressured firms to seek performance improvement?
- What are the similarities and differences in the performance improvement approaches presented in this unit?
- What are the opportunities and challenges to firms from electronic commerce?

DUSHKIN ONLINE Links www.dushkin.com/online/

6. **Agile Manufacturing Project at MIT**
   http://web.mit.edu/ctpid/www/agile/atlanta.html
7. **American Productivity and Quality Center (APQC)**
   http://www.apqc.org
8. **Business Forecasting**
   http://forecasting.cwru.edu
9. **Demystifying Supply Chain Management**
   http://www.manufacturing.net/magazine/logistic/archives/1998/scmr/myst.htm
10. **Design for Competitive Advantage TOC**
    http://dfca.larc.nasa.gov/dfc/toc.html
11. **Galaxy: Manufacturing and Processing**
    http://galaxy.einet.net/GJ/mnfg.html
12. **Kaizen**
    http://akao.larc.nasa.gov/dfc/kai.html
13. **Voice of the Shuttle: Postindustrial Business Theory Page**
    http://vos.ucsb.edu/shuttle/commerce.html
14. **WARIA, the Workflow and Reengineering International Association**
    http://www.waria.com

These sites are annotated on pages 4 and 5.