

INSTRUCTORS GUIDE FOR USING THE THE ENCYCLOPEDIA OF OPERATIONS MANAGEMENT

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Introduction

Many instructors have found the *Encyclopedia of Operations Management (EOM)* to be a valuable text for their supply chain and operations management courses – both at the undergraduate and graduate levels. Practical ways to use the *EOM* in your courses include:

- Assign key terms to be studied as a part of homework assignments and case studies.
- Encourage students to use the *EOM* to learn more about terms used in your class and readings.
- Use homework assignments, quizzes, exams, and cases to hold students accountable for mastering the key terms and concepts used in your course.
- Make sure that your students have mastered all 200 essential terms.
- Be sure to inform your students that the “links” at the end of each entry “point to” related terms for each term. The ebook version of the *EOM* has over 10,000 hyperlinks to help the reader build their own “mental map” of the field of supply chain and operations management.

The 200 essential supply chain and operations terms

The list of 200 “essential” supply chain and operations terms can be found below. These terms are also listed in the *EOM*. In this author’s view, every supply chain and operations manager, student, and instructor should have a good understanding of these 200 terms. These terms are marked with a star (★) before the term in the *EOM* and are hyperlinked in the ebook edition.

5S	carrying cost	design thinking
8 wastes	causal map	direct cost
A3 Report	cellular manufacturing	distribution
ABC classification	commodity	distribution channel
acceptance sampling	commonality	Economic Order Quantity (EOQ)
Activity Based Costing (ABC)	control chart	economy of scale
appraisal cost	control plan	economy of scope
assemble-to-order (ATO)	core competence	effectiveness
automation	cost of quality	efficiency
balanced scorecard	critical path	employee turnover
bathtub curve	Critical Path Method (CPM)	engineer-to-order (ETO)
benchmarking	culture	Enterprise Resources Planning (ERP)
bill of material (BOM)	cycle counting	ergonomics
bottleneck	cycle time	error proofing
brainstorming	decision tree	exponential smoothing
break-even analysis	Delphi Method	facility layout
bullwhip effect	demand	facility location
capacity	demand management	
carrier	Design for Manufacturing (DFM)	

Failure Mode and Effects Analysis (FMEA)	modular design (modularity)	push-pull boundary
finished goods inventory	moment of truth	Quality Function Deployment (QFD)
flexibility	moving average	quality management
focused factory	muda	queuing theory
forecast error metrics	Murphy's Law	Radio Frequency Identification (RFID)
forecasting	Net Promoter Score (NPS)	reorder point
Gantt Chart	New Product Development (NPD)	respond-to-order (RTO)
half-life curve	newsvendor model	risk management
industrial engineering	offshoring	Root Cause Analysis (RCA)
inspection	on-hand inventory	safety stock
Integrated Business Planning (IBP)	on-order inventory	Sales & Operations Planning (S&OP)
inventory management	open order	scheduling
inventory position	operations management (OM)	SCOR Model
inventory turnover	operations performance metrics	service failure
Ishikawa Diagram	operations research (OR)	service guarantee
jidoka	operations strategy	service level
job design	opportunity cost	service management
job enlargement	outsourcing	service quality
job shop	overhead	service recovery
kaizen	Pareto Chart	setup cost
kanban	Pareto's Law	setup time reduction methods
leadtime	Parkinson's Laws	seven tools of quality
lean sigma	part number	shop floor control
lean thinking	PDCA (Plan-Do-Check-Act)	simulation
learning curve	periodic review system	slack time
learning organization	periods' supply	sourcing
linear regression	picking	stakeholder analysis
Little's Law	postponement	standard cost
logistics	process	standardized work
lotsizing methods	process capability and performance	starving
make-to-order (MTO)	process design	Statistical Process Control (SPC)
make-to-stock (MTS)	process improvement program	stockout
make versus buy decision	process map	strategy map
Malcolm Baldrige National Quality Award (MBNQA)	product design quality	sunk cost
manufacturing processes	production planning	supplier
mass customization	productivity	supply chain management
Master Production Schedule (MPS)	product-process matrix	sustainability
Materials Requirements Planning (MRP)	program management office (PMO)	switching cost
Mean Absolute Deviation (MAD)	project charter	takt time
Mean Absolute Percent Error (MAPE)	project management	tampering
Mean Absolute Scaled Error (MASE)	project management triangle	Theory of Constraints (TOC)
mindmap	pull system	time study
	purchase order (PO)	time-based competition
	purchasing	Total Productive Maintenance (TPM)
		transportation management

utilization	voice of the customer (VOC)	work-in-process (WIP)
value added ratio	wait time	inventory
value chain	Warehouse Management	yield
value stream map	System (WMS)	yield management
vendor managed inventory (VMI)	work breakdown structure (WBS)	
vertical integration	work measurement	

The essential terms organized by common textbook chapter titles

The list of essential terms is organized below by chapter titles commonly found in major supply chain and operations textbooks. Many of the essential terms can be found in more than one of the lists below. This list can also be found near the front of the *EOM*. The list of textbooks referenced to create this list can be found at the end of this document.

OPERATIONS STRATEGY – Main term: operations strategy. Additional terms: balanced scorecard, core competence, flexibility, focused factory, learning curve, mass customization, offshoring, outsourcing, postponement, push-pull boundary, respond-to-order (RTO), strategy map, sustainability, switching cost, time-based competition, vertical integration.

PRODUCT AND SERVICE DESIGN – Main term: New Product Development (NPD). Additional terms: commonality, Computer Aided Design (CAD), Design for Manufacturing (DFM), design thinking, flexibility, job design, mass customization, modular design (modularity), part number, postponement, product design quality, project management, Quality Function Deployment (QFD), voice of the customer (VOC).

SERVICE MANAGEMENT AND SERVICE QUALITY – Main terms: service management and service quality. Additional terms: facility layout, moment of truth, Net Promoter Score (NPS), operations performance metrics, outsourcing, quality management, service failure, service guarantee, service level, service recovery, vendor managed inventory (VMI).

QUALITY MANAGEMENT AND QUALITY CONTROL – Main term: quality management. Additional terms: acceptance sampling, appraisal cost, control chart, cost of quality, Design for Manufacturing (DFM), error proofing, inspection, PDCA (Plan-Do-Check-Act), process capability and performance, process improvement program, Quality Function Deployment (QFD), service quality, seven tools of quality, Statistical Process Control (SPC), tampering, voice of the customer (VOC), yield.

PROCESS ANALYSIS AND IMPROVEMENT – Main term: process improvement program. Additional terms: benchmarking, brainstorming, control plan, culture, design thinking, error proofing, job design (work design), lean sigma, lean thinking, learning organization, PDCA (Plan-Do-Check-Act), process map, program management office (PMO), project charter, stakeholder analysis, standardized work, Theory of Constraints (TOC), value stream map, work measurement.

PROCESS DESIGN, LAYOUT, AND LOCATION – Main terms: process design, facility location, and facility layout. Additional terms: capacity, error proofing, process.

PROJECT MANAGEMENT – Main term: project management. Additional terms: Critical Path Method (CPM), Gantt Chart, kaizen, lean sigma, Murphy's Law, New Product Development (NPD), Parkinson's Laws, process improvement program, program management office (PMO), project charter, project management triangle, slack time, stakeholder analysis, work breakdown structure (WBS).

LEAN THINKING – Main term: lean thinking. Additional terms: 5S, 8 wastes, A3 Report, cellular manufacturing, jidoka, kaizen, lean sigma, muda, pull system, standardized work, takt time, value added ratio, value stream map.

THEORY OF CONSTRAINTS – Main term: Theory of Constraints (TOC). Additional terms: blocking, bottleneck, buffer management, CONWIP, critical chain, current reality tree, cycle time, Drum-Buffer-Rope (DBR), leadtime, pacemaker, Pareto’s Law, setup time reduction methods, starving, synchronous manufacturing, throughput accounting, time-based competition.

FORECASTING – Main term: forecasting. Additional terms: Bass Model, Box-Jenkins forecasting, Collaborative Planning Forecasting and Replenishment (CPFR), damped trend, Delphi Method, demand filter, demand management, exponential smoothing, forecast error metrics, forecast horizon, forecast interval, Integrated Business Planning (IBP), linear regression, lumpy demand, Mean Absolute Deviation (MAD), Mean Absolute Percent Error (MAPE), seasonality, technological forecasting, time bucket, tracking signal.

INVENTORY MANAGEMENT – Main term: inventory management. Additional terms: ABC classification, bullwhip effect, carrying cost, cycle counting, demand management, distribution, independent demand, inventory position, inventory turnover, on-hand inventory, on-order inventory, part number, periodic review system, periods’ supply, pull system, purchasing, reorder point, safety stock, service level, stockout, vendor managed inventory (VMI), Warehouse Management System (WMS), work-in-process (WIP) inventory.

MATERIALS REQUIREMENTS PLANNING/PRODUCTION PLANNING – Main terms: Materials Requirements Planning (MRP) and production planning (aka aggregate production planning). Additional terms: bill of material (BOM), Enterprise Resources Planning (ERP), Integrated Business Planning IBP (aka Sales & Operations Planning S&OP), inventory management, leadtime, lotsizing methods, Master Production Schedule (MPS), on-hand inventory, on-order inventory, purchase order (PO), purchasing, scheduling.

PURCHASING/SOURCING/LOGISTICS – Main terms: purchasing, sourcing, logistics. Additional terms: commodity, leadtime, newsvendor model, purchase order (PO), service level, spend analysis, supplier, supply chain management, vendor managed inventory (VMI).

CAPACITY MANAGEMENT – Main term: capacity. Additional terms: bottleneck, learning curve, Little’s Law, process design, queuing theory (aka waiting line analysis), starving, utilization.

SUPPLY CHAIN MANAGEMENT – Main term: supply chain management. Additional terms: bullwhip effect, carrier, distribution, distribution channel, facility location, logistics, make versus buy decision, offshoring, outsourcing, purchasing, sourcing, value chain, vendor managed inventory (VMI), vertical integration.

The list of textbooks used to create the above list of “chapter titles”

The following is the list textbooks used to create the list above. This is a representative list of tables of contents from a number of recently published textbooks. We apologize to the authors of textbooks not included in this convenience sample.

Jacobs & Chase, Operations and Supply Chain Management, 15-th Edition, 2018

Section 1: Strategy, Products, and Capacity

1. Introduction

2. Strategy
 3. Design of Products and Services
 4. Project Management
 5. Strategic Capacity Management
 6. Learning Curves
- Section 2: Manufacturing and Service Processes
7. Manufacturing Processes
 8. Facility Layout
 9. Service Processes
 10. Waiting Line Analysis and Simulation
 11. Process Design and Analysis
 12. Six Sigma Quality
 13. Statistical Quality Control
- Section 3: Supply Chain Processes
14. Lean Supply Chains
 15. Logistics, Distribution, and Transportation
 16. Global Sourcing and Procurement
- Section 4: Supply and Demand Planning and Control
17. Enterprise Resource Planning systems
 18. Forecasting
 19. Sales and Operations Planning
 20. Inventory Management
 21. Material Requirements Planning
 22. Workcenter Scheduling
 23. Theory of Constraints
- Section 5: Special Topics
24. Health Care
 25. Operations Consulting

Stevenson, 13-th edition, 2017

1. Introduction to Operations Management
 2. Competitiveness, Strategy, and Productivity
 3. Forecasting
 4. Product and Service Design
- SUPPLEMENT TO CHAPTER 4: Reliability
5. Strategic Capacity Planning for Products and Services
- SUPPLEMENT TO CHAPTER 5: Decision Theory
6. Process Selection and Facility Layout
 7. Work Design and Measurement
- SUPPLEMENT TO CHAPTER 7: Learning Curves
8. Location Planning and Analysis
 9. Management of Quality
 10. Quality Control
 11. Aggregate Planning and Master Scheduling
 12. MRP and ERP
 13. Inventory Management

14. JIT and Lean Operations
- SUPPLEMENT TO CHAPTER 14: Maintenance
15. Supply Chain Management
 16. Scheduling
 17. Project Management
 18. Management of Waiting Lines
 19. Linear Programming

Schroeder, Rungtusanatham, and Goldstein, Operations Management in the Supply Chain: Decisions & Cases, 7th Edition, 2018

1. The Operations Function
2. Operations and Supply Chain Strategy
3. Product Design
4. Process Selection
5. Service Delivery System Design
6. Process-Flow Analysis
7. Lean Thinking and Lean Systems
8. Managing Quality
9. Quality Control and Improvement
10. Forecasting
11. Capacity Planning
12. Scheduling Operations
13. Project Planning and Scheduling
14. Independent Demand Inventory
15. Materials Requirements Planning and ERP
16. Supply Chain Management
17. Sourcing
18. Global Logistics

Heizer & Render, Operations Management: Sustainability and Supply Chain Management, Global Edition, 12/E, 2017

Part I: Introduction to Operations Management

1. Operations and Productivity
2. Operations Strategy in a Global Environment
3. Project Management
4. Forecasting

Part II: Designing Operations

5. Design of Goods and Services
- S5. Sustainability in the Supply Chain
6. Managing Quality
- S6. Statistical Process Control
7. Process Strategy
- S7. Capacity and Constraint Management
8. Location Strategies
9. Layout Strategies
10. Human Resources, Job Design, and Work Measurement

PART III: Managing Operations

11. Supply Chain Management
- S11. Supply Chain Management Analytics
12. Inventory Management
13. Aggregate Planning and S&OP
14. Material Requirements Planning (MRP) and ERP
15. Short-Term Scheduling
16. Lean Operations
17. Maintenance and Reliability

PART IV: Business Analytics Modules

- Module A. Decision-Making Tools
- Module B. Linear Programming
- Module C. Transportation Models
- Module D. Waiting-Line Models
- Module E. Learning Curves
- Module F. Simulation

Cachon & Terwiesch, Operations Management, 1-st Edition, 2017

1. Introduction to Operations Management
2. Introduction to Processes
3. Process Analysis
4. Process Improvement
5. Process Analysis with Multiple Flow Units
6. Learning Curves
7. Process Interruptions
8. Lean Operations and the Toyota Production System
9. Quality and Statistical Process Control
10. Introduction to Inventory Management
11. Supply Chain Management
12. Inventory Management with Steady Demand
13. Inventory Management with Perishable Demand
14. Inventory Management with Frequent Orders
15. Forecasting
16. Service Systems with Patient Customers
17. Service Systems with Impatient Customers
18. Scheduling to Prioritize Demand
19. Project Management
20. New Product Development

Cachon & Terwiesch, Matching Supply with Demand: An Introduction to Operations Management, 4-th Edition, 2018

1. Introduction
2. The Process View of the Organization
3. Understanding the Supply Process: Evaluating Process Capacity
4. Estimating and Reducing Labor Costs
5. Batching and Other Flow Interruptions: Setup Times and the Economic Order Quantity Model

6. The Link between Operations and Finance
7. Quality and Statistical Process Control
8. Lean Operations and the Toyota Production System
9. Variability and Its Impact on Process Performance: Waiting Time Problems
10. The Impact of Variability on Process Performance: Throughput Losses
11. Scheduling to Prioritize Demand
12. Project Management
13. Forecasting
14. Betting on Uncertain Demand: The Newsvendor Model
15. Assemble-to-Order, Make-to-Order, and Quick Response with Reactive Capacity
16. Service Levels and Lead Times in Supply Chains: The Order-up-to Inventory Model
17. Risk-Pooling Strategies to Reduce and Hedge Uncertainty
18. Revenue Management with Capacity Controls
19. Supply Chain with Capacity Coordination

Swink, Melnyk, Cooper, and Hartley, Managing Operations Across the Supply Chain, 3rd Edition, 2017

Part 1 – SUPPLY CHAIN: A PERSPECTIVE FOR OPERATIONS MANAGEMENT

1. Introduction to Managing Operations Across the Supply Chain
2. Operations and Supply Chain Strategy

Part 2 – FOUNDATIONS OF OPERATIONS MANAGEMENT

3. Managing Processes and Capacity
3. Supplement: Process Mapping and Analysis
4. Product/Process Innovation
5. Manufacturing and Service Process Structures
6. Managing Quality
6. Supplement: Quality Improvement Tools
7. Managing Inventories
8. Lean Systems

Part 3 – INTEGRATING RELATIONSHIPS ACROSS THE SUPPLY CHAIN

9. Customer Service Management
10. Sourcing and Supply Management
11. Logistics Management

Part 4 – PLANNING FOR INTEGRATED OPERATIONS ACROSS THE SUPPLY CHAIN

12. Demand Planning: Forecasting and Demand Management
13. Sales and Operations Planning
14. Materials and Resource Requirements Planning

Part 5 – MANAGING CHANGE IN SUPPLY CHAIN OPERATIONS

15. Project Management
15. Supplement: Advanced Methods for Project Scheduling
16. Sustainable Operations Management – Preparing for the Future

A Word file for this document can be found on the www.ClamshellBeachPress.com website.