

A86012 Management and Principles of Accounting (2019/2020)

Session 8 Operations

Paul G. Smith B.A., F.C.A

SESSION OBJECTIVES & OVERVIEW

Course Overview

1. What is business	15. Accounting: glossary, vocabulary, terms
2. Types of business	16. Introduction to financial accounting
3. Management	17. Accounting for business transactions
4. Review session 1	18. Recording transactions, journal and ledger
5. Marketing	19. Recording owner's contributions & financing
6. Marketing strategy	20. Review session 1
7. Review session 2	21. Recording long-lived assets and investments
8. Operations	22. Recording purchases
9. Finance	23. Recording sales and employee compensation
10. Financial management	24. Review session 2
11. Review session 3	25. Adjusting and closing entries
12. Human resources	26. Adjusting and closing entries ...continued
13. Review session 4	27. Cases and exercises
14. Exam	28. Exam

PGS

SG

PT

Session Objectives

*At the end of this session students will be able to define **operations management** and explain how this differs in **manufacturing** and **service** firms. They will also be able to define some of the elements involved in **planning and designing operating systems** and specify some of the techniques managers may use to manage **the logistics** of transforming inputs into finished products. Students will understand the importance of **quality** and the principal **quality management frameworks**.*

Overview Session 8 – Operations management

- The nature of operations management in manufacturing and service industries
- Planning and designing operations systems
- Supply chain management, inventory control
- Managing quality

Session 8 Overview

	Mins
Session objectives and outline	5
Recap of key points from session 7 – Review Session	15
Definition of operations management (OM). OM in manufacturing and service industries	15
Planning and design of operations systems: product features, operations processes, capacity planning, facility location, facility layout, technology, sustainability	20
Supply chain management: From purchasing to distribution, inventory control	20
Managing Quality: TQM, Six Sigma, ISO 9000, EFQM, Malcolm Baldrige National Quality Award	45
Required reading and research: Business Chapter 8	5
Overview of session 9 – Finance	5
Summary and validation	5
	135

RECAP OF SESSION 7 – REVIEW SESSION

Session Validation

- What is marketing? What is it not?
- What are the functions of marketing?
- What is the marketing concept?
- What are the elements of a marketing strategy?
- What are the 4 elements of the marketing mix?
- Describe the two types of market research
- Why do people buy and what is their buying process?
- What impact does the environment have on marketing?

Session Validation cont'd

- Describe the product development process
- What is a brand and why is it important?
- How can you calculate the value of a product?
- What alternative marketing channels are there for consumer products?
- What is the difference between a push and a pull strategy?
- What is the impact of digital media on the marketing mix?
- Name some of the legal and social issues in internet marketing

THE NATURE OF OPERATIONS MANAGEMENT

The Nature of Operations Management 1 of 6

Operations Management (OM)

- Development and administration of activities
- Historically, OM has been called “production” or “manufacturing,” limiting it to physical goods
- Change from “production” to “operations” views function as whole and recognizes services and ideas

The Nature of Operations Management 2 of 6

OM Activities

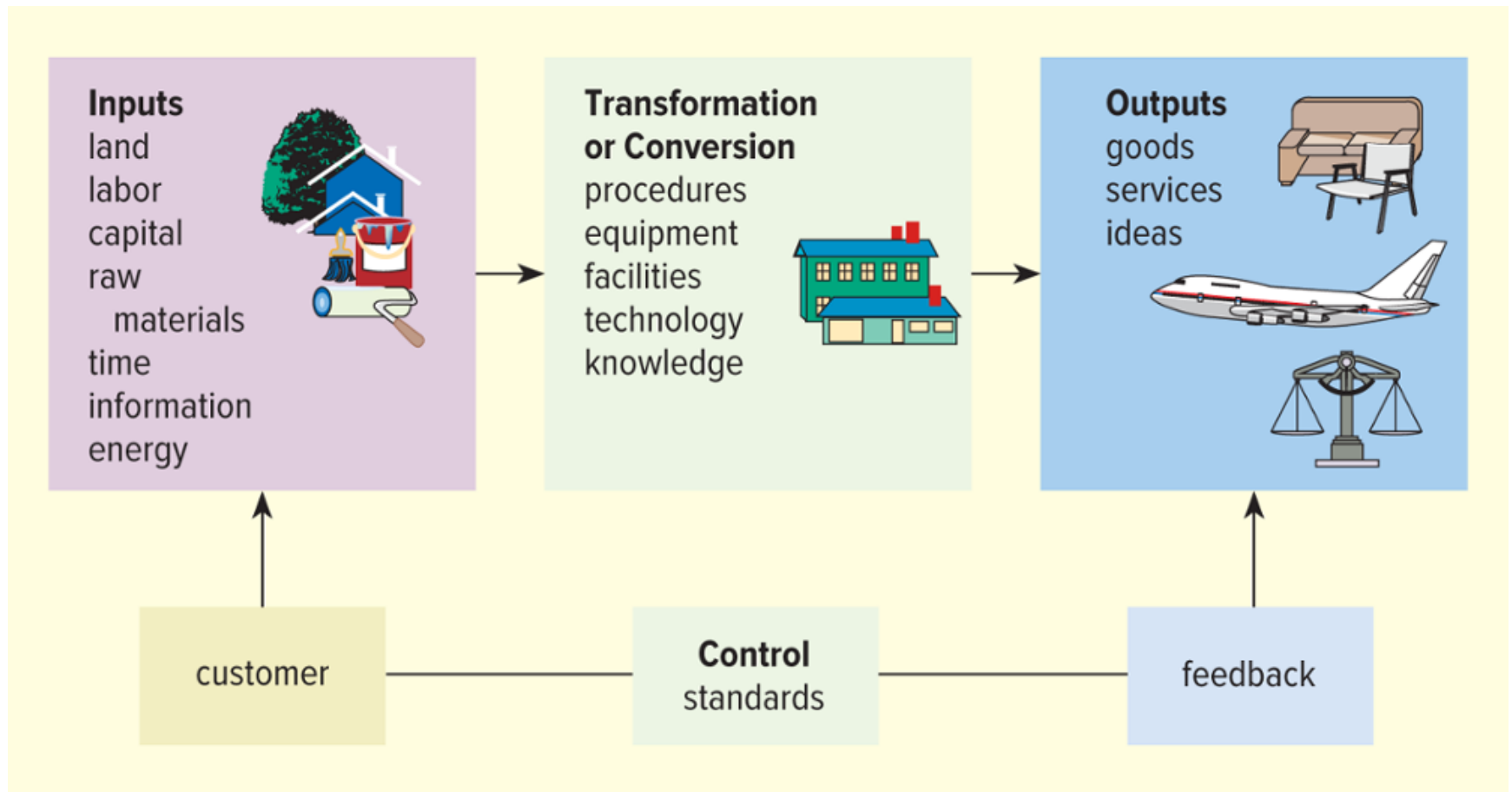
- **Manufacturing or production**
 - Makes tangible products
- **Operations**
 - Makes tangible and intangible products

The Nature of Operations Management 3 of 6

The Transformation Process

- **Inputs** are converted into **outputs**
- Operations managers control process by taking measurements (feedback) and comparing them to established standards
 - Take corrective action for any deviation

Figure 8-1 The Transformation Process of Operations Management

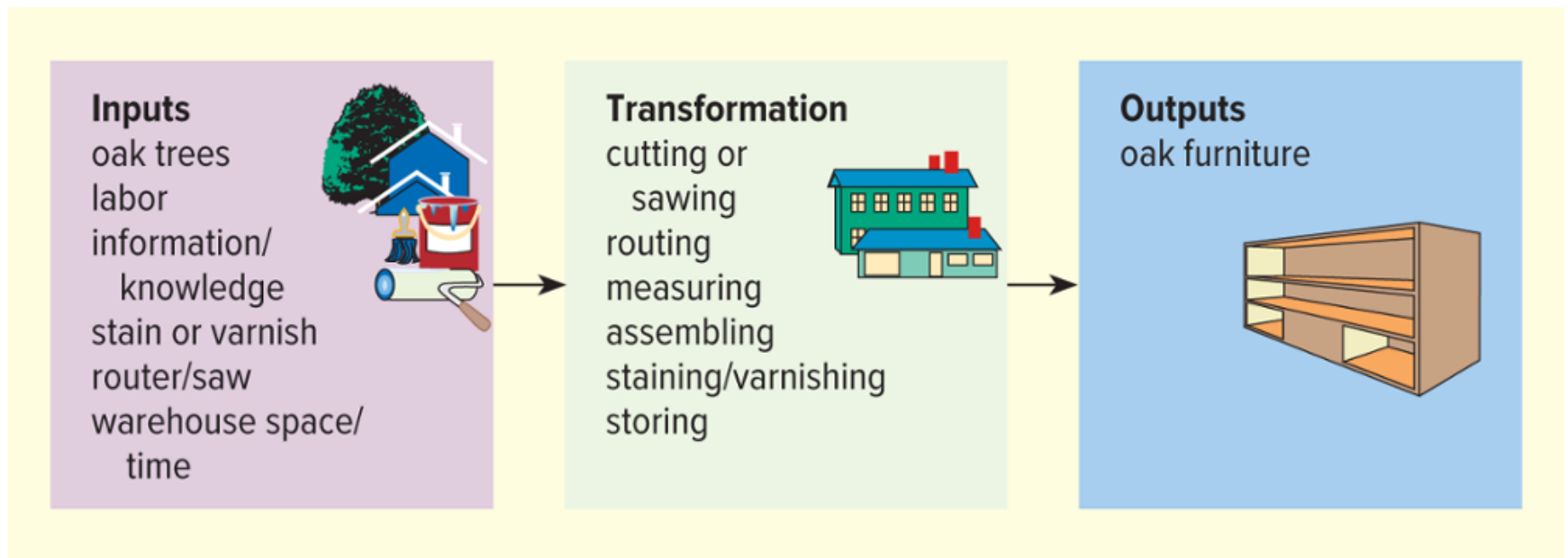


Amazon: A Prime Example of Distribution Success

Ever-Evolving Distribution Systems

- 70 distribution centers
 - Optimized for space, retrieval, and delivery
- Amazon Prime uses two-day or same-day delivery, movie streaming, and online access to books
- Plans to use drones within half hour
 - Testing in United Kingdom

Figure 8-2 Inputs, Outputs, and Transformation Processes in the Manufacture of Oak Furniture



The Nature of Operations Management 4 of 6

Operations Management in Service Businesses

- Transformation processes occur in all organizations, regardless of what they produce or their objectives
- Significant customer-contact component to most services
- Strive to provide standardized process
- Technology offers interface that creates automatic and structured response
- Output is generally intangible and even perishable
 - Few services can be saved, stored, resold, or returned

The Nature of Operations Management 5 of 6

Operations Management in Service Businesses continued

- Nature and consumption of output
 - Services require more customer contact and happen at the point of consumption
- Uniformity of inputs
 - Services are more “customized” to each consumer
- Uniformity of output
 - Each service is performed differently

The Nature of Operations Management 6 of 6

Operations Management in Service Businesses continued

- Labor required
 - Services are more labor-intensive
- Measurement of productivity
 - Intangibility makes measurement more difficult

Subway's Inputs and Outputs

Subway's inputs are sandwich components such as bread, tomatoes, and lettuce, while its outputs are customized sandwiches.



PLANNING AND DESIGNING OPERATING SYSTEMS

Planning the Product

- Operations planning involves making the following decisions:
 - What will we produce?
 - Who are our customers?
 - What processes will we use?
 - Where will we make our products?

Planning and Designing Operations Systems 2 of 11

Planning the Product continued

- Marketing research helps:
 - Determine product and features customers want
 - Gauge demand
 - Set price
- Once management has product, they must plan how to produce it
- Operations managers plan for resources needed to complete transformation process

Designing the Operations Processes

- Products manufactured using one of three processes
 - **Standardization**
 - Used for large quantities for many customers
 - **Modular design**
 - Allows for quick repair but is costly
 - **Customization**
 - Generally unique products

Planning Capacity

- Unit of measurement could be worker, machine, department, branch, or entire plant
- Can be stated in terms of inputs or outputs
- Planning capacity too low results in unmet demand, while planning it too high results in higher cost

Planning Facilities

- Facility location
 - Significant due to the high costs involved and complex because it involves the evaluation of many factors, some of which cannot be measured with precision:
 - Proximity to market
 - Availability of raw materials, transportation, power, labor
 - Climatic influences and community characteristics
 - Taxes and inducements

Planning Facilities continued

- Facility layout
 - **Fixed-position layout**
 - Brings all resources to central location
 - Companies using this layout may be called **project organizations**

Planning Facilities continued

- Facility layout continued
 - **Process layout**
 - Organizes transformation process into departments
 - Companies using this layout may be called **intermittent organizations**

Planning Facilities continued

- Facility layout continued
 - **Product layout**
 - Production broken down into relatively simple tasks in an assembly line
 - Companies using this layout may be called **continuous manufacturing organizations**

Planning Facilities continued

- Technology
 - Developments in computers and robotics have strongly influenced operations of many businesses
 - **Computer-assisted design (CAD)**
 - Design of components, products, and processes on computers
 - **Computer-assisted manufacturing (CAM)**
 - Specialized computer systems guide and control processes

Planning Facilities continued

- Technology continued
 - **Flexible manufacturing**
 - Drones are used in military operations and are being pursued by Amazon for package delivery
 - Robots have become particularly important in industries in which human lives would otherwise be at risk
 - **Computer-integrated manufacturing (CIM)** boosts productivity and quality while reducing costs

Sustainability and Manufacturing

- Sustainability increasingly important to stakeholders and consumers
 - Pollution of land, air, water
 - Climate change
 - Waste management
 - Deforestation and urban sprawl
 - GMOs
- Green operations improve company's reputation, increase customer/employee loyalty, lead to increased profits

SUPPLY CHAIN MANAGEMENT

Managing the Supply Chain 1 of 8

Supply Chain Management

- Also called logistics
- Includes activities involved in:
 - Obtaining/managing raw materials and component parts
 - Managing finished products
 - Packaging products
 - Getting products to customers

Managing the Supply Chain 2 of 8

Purchasing

- Also called procurement
- Aim to obtain items of desired quality in right quantities at lowest possible cost
- May be able to make some component parts more economically and efficiently
- Can arrange to lease item from another company
- What firm does depends on cost, product availability, and supplier reliability

Quality Bicycle Products Pedals a Successful Wholesale Model

Started to solve a problem

- Difficulty in importing certain bicycle components
- Solution was wholesale distribution company
 - Imports parts from Japan and quickly ships to shops across the country
 - Inspects to ensure parts meet high-quality standards

Manufactures own bicycles

- Uses standardized components to increase consistency and quality

Managing the Supply Chain 3 of 8

Managing Inventory

- Finished-goods inventory—products ready for sale
- Work-in-process inventory—products partly completed
- Raw materials inventory—purchased as inputs for making other products

Managing the Supply Chain 4 of 8

Managing Inventory continued

- **Inventory control**
 - Must be closely coordinated with operations management
 - Each item held in inventory carries with it a cost
 - Inventory managers determine proper inventory level for each item
 - Depends on usage rate, cost of maintaining item in inventory, other procedures associated with ordering or making item, and cost of item

Operations Managers

Operations managers are concerned with managing inventory to ensure that there is enough inventory in stock to meet demand.



Managing the Supply Chain 5 of 8

Managing Inventory continued

- Approaches to inventory control
 - **Economic order quantity (EOQ) model**
 - Identifies optimum number of items to order
 - **Just-in-time (JIT) inventory management**
 - Requires less storage space and other inventory management expense
 - **Material-requirements planning (MRP)**
 - Basic components: master production schedule, bill of materials, inventory status file

Managing the Supply Chain 6 of 8

Outsourcing

- Globalization requires supply chain managers to improve speed and balance resources
- Linked with competitive advantage
 - Improved product quality
 - Customers obtain products sooner
 - Overall supply chain efficiencies
- May raise negative public opinion

Managing the Supply Chain 7 of 8

Routing and Scheduling

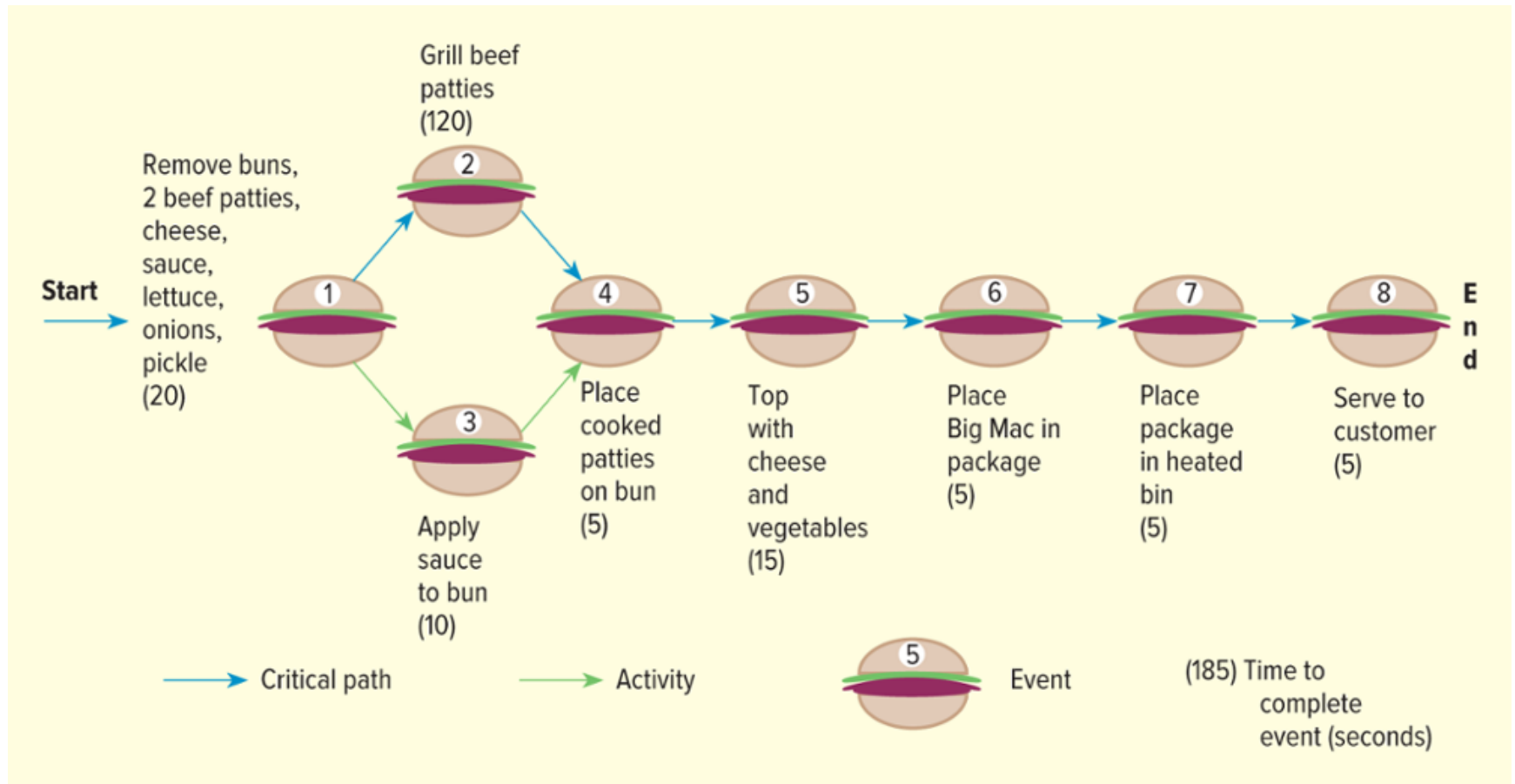
- **Routing**
 - Sequence depends on product specifications
- **Scheduling**
 - Assignment of required tasks

Managing the Supply Chain 8 of 8

Routing and Scheduling continued

- Program Evaluation and Review Technique (PERT)
 - Identifies all major activities or events required
 - Arranges them in sequence or path
 - Determines critical path
 - Path requiring longest time from start to finish; minimum time needed for completion
 - Estimates time required for each event

Figure 8-3 Hypothetical PERT Diagram for a McDonald's Big Mac



MANAGING QUALITY

Managing Quality 1 of 7

Quality

- Critical element of operations management
 - Defective products can quickly ruin firm
- Reflects degree to which good or service meets demands and requirements of customers
- Difficult to determine because it depends on customers' perceptions
- Especially difficult to measure for service
 - Company must define important quality characteristics into measurable terms

Managing Quality 2 of 7

Quality of Automobiles

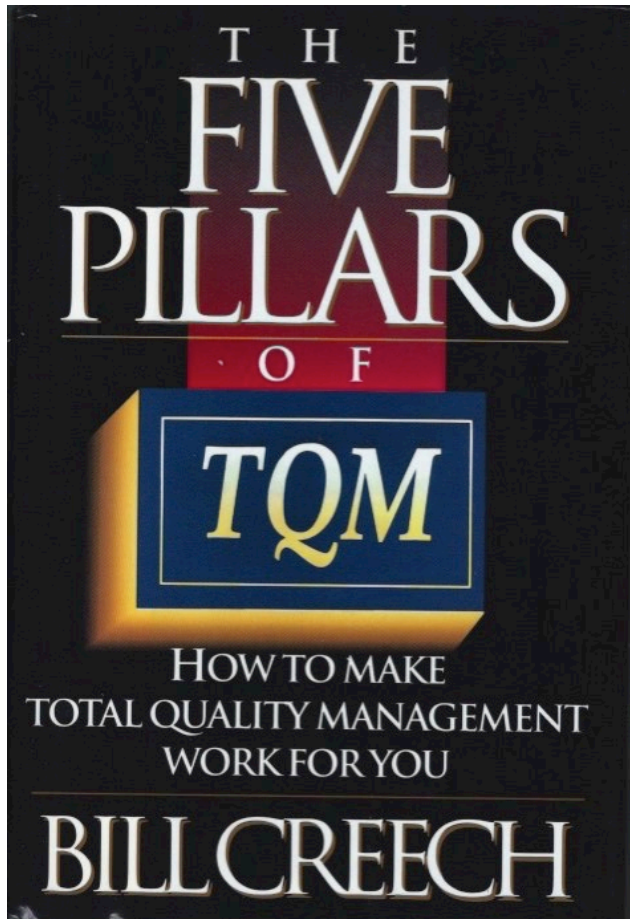
- Fuel economy or reliability of automobile can be measured with some degree of precision
- Automakers use their own measures of vehicle quality
 - J.D. Power and Associates annual initial quality survey
 - Confirmation of quality assessment
 - Consumer perceptions of quality for industry

Managing Quality 3 of 7

Operations Management Control

- **Quality control**
 - Maintain established quality standards
- **Total quality management (TQM)**
 - Commitment to quality in all areas will promote culture that meets customers' perceptions of quality
- **Statistical process control**
 - Pinpoints quality problems in production system

Managing quality - TQM

The image shows the table of contents page from the book. The title 'Contents' is centered at the top. Below it, there is a list of 12 numbered chapters and an index, each with a corresponding page number on the right side.

1. TQM: The Need, the Issues, the Shape It Must Take	1
2. Lessons from Japan's Success and American Failings	41
3. Winning Big by Organizing Small: More Key Examples	78
4. A TQM Turnaround in Our Biggest Bureaucracy	115
5. Product: Focal Point for Purpose and Achievement	158
6. Process: Its Effectiveness Determines Product Worth	191
7. TQM Involves the Entire System, Not Pieces of It	243
8. Leadership: It's a Must, and It's Not Managership	294
9. Creating Organizational Leadership and Competence	349
10. Commitment: TQM Builds It, and It Creates Success	399
11. A TQM Path to Tomorrow: New Ways for New Days	452
12. American Management: The Time for Change Is Now	496
Epilogue: The Guidelines for Five Pillar TQM	527
Index	533

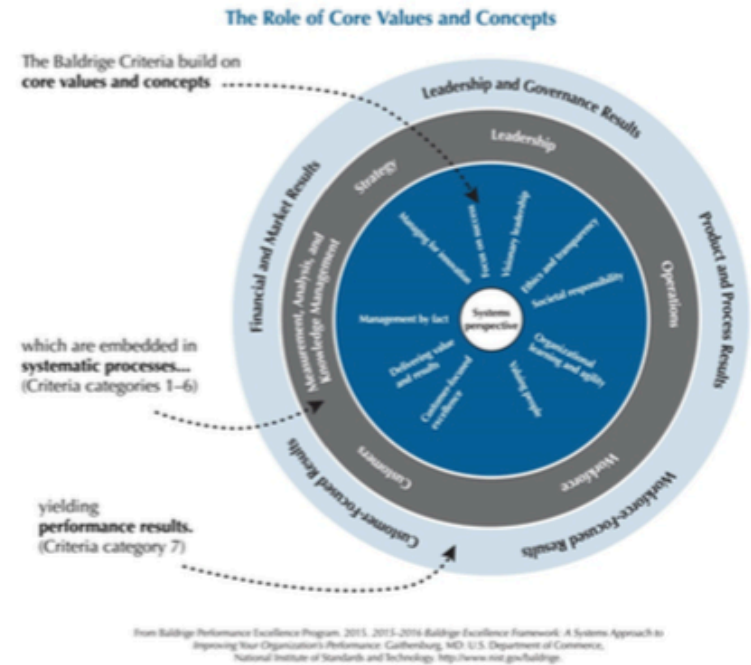
1994

Managing quality – Malcolm Baldrige



From Baldrige Performance Excellence Program, 2015. 2015-2016 Baldrige Excellence Framework: A Systems Approach to Improving Your Organization's Performance. Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology. <http://www.nist.gov/baldrige>.

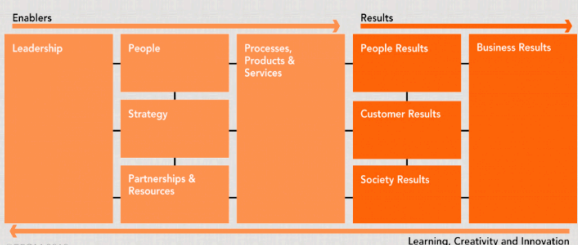
Figure 3 Baldrige Excellence Framework for Measuring and Improving Organizational Performance



From Baldrige Performance Excellence Program, 2015. 2015-2016 Baldrige Excellence Framework: A Systems Approach to Improving Your Organization's Performance. Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology. <http://www.nist.gov/baldrige>.

Figure 4 The Core Values and Concepts Found Within the Baldrige Framework

Managing quality - EFQM



MODEL CRITERIA

Enablers → **Results**

Leadership, People, Strategy, Partnerships & Resources, Processes, Products & Services

People Results, Customer Results, Society Results, Business Results

Learning, Creativity and Innovation

APPLICABLE TO ANY ORGANISATION

The beauty of the Model is that it can be applied to any organisation, regardless of size, sector or maturity. It is non-prescriptive and it takes into account a number of different concepts. It provides a common language that enables our members to effectively share their knowledge and experience, both inside and outside their own organisation. It ensures that all the management practices used by an organisation form a coherent system that is continually improved and delivers the intended strategy for the organisation.

The EFQM Excellence Model is based on nine criteria. Five of these are "Enablers" and four are "Results". The "Enabler" criteria cover what an organisation does and how it does it. The "Results" criteria cover what an organisation achieves.

To achieve sustained success, an organisation needs strong leadership and clear strategic direction. They need to develop and improve their people, partnerships and processes to deliver value-adding products and services to their customers. In the EFQM Excellence Model, these are called the Enablers. If the right Enablers are effectively implemented, an organisation will achieve the Results they, and their stakeholders, expect.

The arrows emphasise the dynamic nature of the Model, showing learning, creativity and innovation helping to improve the Enablers that in turn lead to improved Results.

Each of the nine criteria has a definition, which explains the high level meaning of that criterion.

Managing Quality 4 of 7

International Organization for Standardization (ISO)

- Product specifications and quality standards
 - Must be set so company can compete in marketplace
 - Company must first determine what standard of quality it desires
 - Manufacturing: specifications such as metal thickness
 - Service: standards such as customer wait time

Managing Quality 5 of 7

International Organization for Standardization (ISO)

continued

- **ISO 9000**
 - Ensure consistent product quality under many conditions
- **ISO 14000**
 - Environmental standards that encourage cleaner and safer world
- **ISO 19600**
 - Address risk, legal requirements, and stakeholder needs

Managing quality - ISO



ISO 9000	<i>Quality management systems – Fundamentals and vocabulary</i>
ISO 9001	<i>Quality management systems – Requirements</i>
ISO 9004	<i>Managing for the sustained success of an organization – A quality management approach</i>
ISO 10001	<i>Quality management – Customer satisfaction – Guidelines for codes of conduct for organizations</i>
ISO 10002	<i>Quality management – Customer satisfaction – Guidelines for complaints handling in organizations</i>
ISO 10003	<i>Quality management – Customer satisfaction – Guidelines for dispute resolution external to organizations</i>
ISO 10004	<i>Quality management – Customer satisfaction – Guidelines for monitoring and measuring</i>
ISO 10005	<i>Quality management systems – Guidelines for quality plans</i>
ISO 10006	<i>Quality management systems – Guidelines for quality management in projects</i>
ISO 10007	<i>Quality management systems – Guidelines for configuration management</i>
ISO 10008	<i>Quality management – Customer satisfaction – Guidelines for business-to-consumer electronic commerce transactions</i>
ISO 10012	<i>Measurement management systems – Requirements for measurement processes and measuring equipment</i>

ISO/TR 10013	<i>Guidelines for quality management system documentation</i>
ISO 10014	<i>Quality management – Guidelines for realizing financial and economic benefits</i>
ISO 10015	<i>Quality management – Guidelines for training</i>
ISO/TR 10017	<i>Guidance on statistical techniques for ISO 9001:2000</i>
ISO 10018	<i>Quality management – Guidelines on people involvement and competence</i>
ISO 10019	<i>Guidelines for the selection of quality management system consultants and use of their services</i>
ISO 14001	<i>Environmental management systems – Requirements with guidance for use</i>
ISO 18091	<i>Quality management systems – Guidelines for the application of ISO 9001:2008 in local government</i>
ISO 19011	<i>Guidelines for auditing management systems</i>
ISO 31000	<i>Risk management – Principles and guidelines</i>
ISO 37500	<i>Guidance on outsourcing</i>
ISO/IEC 90003	<i>Software engineering – Guidelines for the application of ISO 9001:2008 to computer software</i>
IEC 60300-1	<i>Dependability management – Part 1: Guidance for management and application</i>
IEC 61160	<i>Design review</i>
	<i>Quality management principles, ISO¹</i>

¹ Available from www.iso.org.

Trader Joe's: Sometimes Less Is More

Uniqueness is asset

- Neighborhood store feel
- Smaller facilities and product lines to maintain specialty image
- 90 percent of sales from private-label items

Inventory control reduces costs

Excels at supplier relations

- Product developers travel world
- Charges less in fees
- Streamlined distribution

Managing Quality 6 of 7

Inspection

- Reveals whether product meets quality standards
- Inspecting finished items determines quality level
- Inspecting work-in-process items finds defects before product is completed so corrections can be made

Managing Quality 7 of 7

Sampling

- Allows company to pass entire batch of products through inspection by testing sample
- Always risk of making incorrect conclusion based on sample
- More likely to be used when inspection tests are destructive to product

Quality Six Sigma

The Six Sigma Methodology is a set of business tools, statistical theory, and quality control knowledge that helps improve your business procedures. It has the capability of improving performance while decreasing process discrepancy. The methodology helps reduce defects and improve profits, and boosts both staff morale and product quality. The goal is to do away with inconsistency, waste, and defects that challenge customer loyalty.

The Six Sigma Methodology offers a high level of quality that makes every effort to reach perfection in products or services sold by a company, organization, or business. It is an approach that is data driven and very disciplined for the purpose of getting rid of defects. This method will describe quantitatively how processes are performing. Simply put, a defect is anything that is outside customer specifications.

This widely popular tactic has gone through a period of evolution and is now commonly used by the business world. This approach began in the early 1980s. At that time the three sigma difference from mean was considered an error that needed to be adjusted to enhance quality of production. Afterwards several measurement standards were recommended and the concept developed. Today the registered trademark is Six Sigma. In other words, when a product is within six sigma specifications, there is fewer than 3.4 defects per million opportunities.



Kaizen



KAI = Change



ZEN = Good

Kaizen is the practice of continuous improvement. Kaizen was originally introduced to the West by [Masaaki Imai in his book Kaizen: The Key to Japan's Competitive Success in 1986](#). Today Kaizen is [recognized worldwide as an important pillar of an organization's long-term competitive strategy. Kaizen is continuous improvement that is based on certain guiding principles:](#)

Good processes bring good results

Go see for yourself to grasp the current situation

Speak with data, manage by facts

Take action to contain and correct root causes of

problems

Work as a team

Kaizen is everybody's business

And much more!

One of the most notable features of kaizen is that [big results come from many small changes accumulated over time. However this has been misunderstood to mean that kaizen equals small changes. In fact, kaizen means everyone involved in making improvements. While the majority of changes may be small, the greatest impact may be kaizens that are led by senior management as transformational projects, or by cross-functional teams as kaizen events.](#)

Integrating Operations and Supply Chain Management

Managing various partners is important because stakeholders hold firm responsible

Companies can adopt Global Supplier Code of Conduct and ensure it's communicated

Supply chain and procurement managers must work together to make operational decisions

Must regularly audit suppliers against firm's standards and take action against those found to be in violation

REQUIRED READING AND RESEARCH ASSIGNMENT

Required Reading and research assignment

- Reading
 - M Business
 - Chapters 8
- Exercises
 - M Business
 - Test Bank Questions Chapter 8
- Research Assignments
 - RA 7 Quality initiatives in Europe's Top Companies
 - RA 8 Start-up company Quality Initiatives

Research Assignment 7

- For your chosen companies identify any specific Quality initiatives.

Research Assignment

- For your chosen start-up companies identify specific Quality Initiatives that you consider will be important to the success of your business.

SESSION SUMMARY AND VALIDATION, OVERVIEW SESSION 8

Session Summary

- The nature of operations management in manufacturing and service industries
- Planning and designing operations systems
- Supply chain management, inventory control
- Managing quality

Overview of Session 9

- The nature of accounting, accountants, bookkeeping, uses of accounting information,
- The accounting process, the accounting equation, double-entry bookkeeping, the accounting cycle
- Financial statements, accounting standards (GAAP)
- ~~Ratio analysis~~
- Importance of integrity in accounting

Session Validation

- What do we mean by Operations Management?
- How does this differ between manufacturing and service organizations?
- What decisions need to be made in planning and designing operations systems?
- What do we mean by supply chain management?
- Name some of the quality frameworks applied by organizations