

Unit 26: Principles of Operations Management

Unit code	A/618/5078
Unit level	5
Credit value	15

Introduction

Operations management is everywhere, in every organisation, in every service experienced and in every product consumed. Operations management is the administration of business practices to create the highest level of efficiency possible in an organisation. It is concerned with converting materials and labour into goods and services as efficiently as possible to maximise profits.

The aim of this unit is to introduce students to the role of operations in an organisation, how the nature of operations management has evolved and how it contributes to sustained competitive advantage. Students will understand the key concepts of operations management in an organisational and environmental context, and how this links to supply chain management, products and processes, organisational efficiency and effectiveness, and the achievement of tactical and strategic objectives. A variety of operations management techniques and frameworks will be explored, including continuous improvement, total quality management, benchmarking and risk analysis.

By the end of this unit, students will have an appreciation of the dimensions of operations management and its central role for organisations across a wide range of sectors. Students will also have the knowledge and skills required to progress to higher levels of study or employment in positions in operations, logistics and supply.

Learning Outcomes

By the end of this unit a student will be able to:

- LO1 Analyse the effectiveness of operations management in contributing to organisational objectives across a wide range of organisations and sectors
- LO2 Apply a range of techniques and analysis frameworks used by operations managers to support decision-making and address problems
- LO3 Apply the concept of continuous quality improvement in an operational context
- LO4 Conduct a strategic risk analysis (SRA) on the operations functions of an organisation.

Essential Content

LO1 **Analyse the effectiveness of operations management in contributing to organisational objectives across a wide range of organisations and sectors**

Operations management in context:

Definition of 'operations' and 'operations management'.

Evolution of operations management from craft to mass production to mass customisation to agile and lean.

The role and function of operations management in an organisation and across the value chain, e.g. planning, organising, co-ordinating and controlling resources.

The strategic, tactical and operational perspectives of operations management and its contribution to achieving organisational objectives.

Scope of operations management, including relevance to public, private and not-for-profit sectors.

Career opportunities and roles in operations management, e.g. Operations Manager, Logistics Manager, Supply Chain Specialist, Operations Analyst.

Skills and competences required:

- soft skills, e.g. logical approach, quality conformance, communication skills and ethical awareness
- technical skills, e.g. collaborative planning and forecasting, assessing and prioritising risks, business continuity planning and mitigation, integrating and improving systems technologies.

Transformational model of the organisation: input-transformation-outputs.

Dimensions of operations processes, e.g. volume, variety, variation and visibility.

External influences on contemporary operations management, including PESTLE factors, globalisation, sustainability.

Global and ethical sourcing of suppliers and supplies.

Design and management of supply chain networks:

Operations and supply chain management interdependencies.

Types of supply chain relationships, including length, breadth, depth.

Types of supply chain networks in manufacturing, services, retail, construction and public sector supply chains.

The impact of operations management on global sourcing and criteria for selecting appropriate suppliers on basis of efficiency, effectiveness, networks, Just-in-Time (JIT) capabilities.

Benefits and risks of deploying technology to drive efficient, effective, sustainable and profitable operations.

The impact of internet-based technologies and the use of database information systems to manage expenditures on goods and services.

LO2 Apply a range of techniques and analysis frameworks used by operations managers to support decision making and address problems

Performance measurement:

Performance objectives of operations management, e.g. quality, speed, dependability, flexibility and cost.

Setting performance targets.

Defining performance metrics, including financial, customer satisfaction, employee satisfaction, productivity, response rate.

Balanced Scorecard approach to performance measurement: financial, customer, internal processes and learning and growth.

Techniques and frameworks:

Control systems and their link to the operational function.

Different types of control systems, to include capacity planning and control, inventory planning and control and supply chain planning and control.

Building a culture of continuous improvement and total quality improvement.

Business Process Re-engineering (BPR) to radically redesign core business processes to achieve productivity and quality improvements.

Cost-benefit analysis for justification of operational decisions, systems or projects.

Valuable, Rare, Inimitable, Organised (VRIO) framework analysis identifying the source of competitive advantage for the organisation.

Benefits of benchmarking for improving organisational performance, e.g. cost position, gaining strategic advantage and increase organisational learning.

The impact of technology on operations management:

Applications of technologies to drive performance, e.g. cloud computing, mobile telecommunications, remote working, convergence of technology platforms.

Use of software and cloud-based systems, e.g. Enterprise Resource Planning systems (ERP), Supply Chain Management (SCM), New Product Development (NPD) and Customer Relationship Management (CRM).

LO3 Apply the concept of continuous quality improvement in an operational context

Role of total quality management in operations management:

Quality and continuous improvement as a philosophy (Kaizen) and approach.

Differences between total quality and quality assurance.

Pioneers of total quality management such as Deming (plan-do-check-act) and Juran e.g. quality planning-quality control-quality improvement

Approaches to total quality management:

- Just-in-Time (JIT), lean
- quality circles
- statistical process control
- process architecture.

Role of information technologies and software in supporting continuous quality improvement

Continuous quality improvement in practice:

Product quality and process quality improvement in relation to compliance to requirements, specifications and customer expectations compared to process efficiency.

Diagnosing quality problems and reducing errors using statistical process control.

Reasons for variations in product quality process quality.

The Taguchi Loss Function, Poka-yoke and the Six Sigma approach to quality improvement.

Quality improvement as a cross-organisational activity and not simply as an independent function.

LO4 Conduct a strategic risk analysis (SRA) on the operations functions of an organisation.

Risk analysis and management:

Conducting a risk analysis at the operational, tactical and strategic level.

Exploring risk analysis options, e.g. avoid, reduce, transfer, accept.

The use of risk management standards and benchmarks.

A strategic risk analysis as a systematic and continual process for assessing the most significant operational risks facing the organisation.

Managing uncertainties and potential threats:

Extending the use of PEST and SWOT to develop contingency plans and strategies to mitigate negative consequences.

Use of risk identification and mapping to support risk assessment and the prioritisation of responses.

Stakeholder analysis and expectations:

The relationship between stakeholders and risk, particularly investors, suppliers and customers.

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
<p>LO1 Analyse the effectiveness of operations management in contributing to organisational objectives across a wide range of organisations and sectors</p>		
<p>P1 Analyse the role and effectiveness of operations management across a range of sectors to meet different organisational objectives.</p> <p>P2 Discuss the contribution of effective supply chains to the organisation.</p>	<p>M1 Critically analyse the relationship between effective operations management and the achievement of tactical and strategic business objectives.</p>	
<p>LO2 Apply a range of techniques and analysis frameworks used by operations managers to support decision making and address problems</p>		
<p>P3 Devise solutions to given operations management problems using a range of techniques and analysis frameworks.</p> <p>P4 Appraise the use of digital technologies for effective operational performance.</p>	<p>M2 Evaluate different techniques and analysis frameworks used by operations managers to solve problems and achieve high operational performance.</p>	
<p>LO3 Apply the concept of continuous quality improvement in an operational context</p>		
<p>P5 Evaluate a range of approaches to continuous quality improvement.</p> <p>P6 Prepare a continuous improvement plan based on operational activities in an organisation.</p>	<p>M3 Critique a range of total quality management approaches and techniques within the continuous improvement plan in order to achieve organisational objectives.</p>	
		<p>D1 Justify the impact of effective operations management and the use of operational techniques on achieving objectives in complex and dynamic trading environments, making valid recommendations and solutions.</p> <p>D2 Critically evaluate, giving evidence-based recommendations, different techniques and frameworks used by operations managers to solve complex problems and drive organisational performance.</p> <p>D3 Produce a continuous quality improvement plan, underpinned by theoretical concepts, that justifies approaches and solutions, with reference to costs, benefits and sustainable performance.</p>

Pass	Merit	Distinction
<p>LO4 Conduct a strategic risk analysis (SRA) on the operations functions of an organisation.</p>		<p>D4 Critically evaluate the significance of strategic risk analysis for organisations operating in diverse and complex environments.</p>
<p>P7 Discuss the role and importance of SRA for an organisation.</p> <p>P8 Undertake a SRA for an organisation using risk identification and mapping.</p>	<p>M4 Assess a range of contingency plans and strategies available to the organisation as it seeks to manage organisational and stakeholder risk.</p>	

Recommended Resources

Textbooks

COLE, G. A. and KELLY, P. (2020) *Management Theory and Practice*. 8th Ed. Andover: Cengage.

JACOBS, F. R. and CHASE, R. B. (2017) *Operations and Supply Chain Management*. 14th Ed. McGraw-Hill Education.

REID, R. D. and SANDERS, N. R. (2019) *Operations Management: An Integrated Approach*. 7th Ed. Hoboken NJ: Wiley.

SLACK, N. and BRANDON-JONES, A. (2019) *Operations Management*. 9th Ed. Harlow: Pearson.

Websites

www.apics.org	Association for Operations Management (General reference)
www.cips.org	Chartered Institute of Procurement & Supply (General reference)
www.ismworld.org	Institute for Supply Management
www.scdigest.com	Supply Chain Digest Resources/Education (General reference)

Links

This unit links to the following related units:

Unit 15: Operations Management

Unit 36: Procurement and Supply Chain Management

Unit 44: Business Information Technology Systems