

Unit 26: Principles of Operations Management

HND Business (Management) — Revision Notes
Covering LO1 | LO2 | LO3 | LO4 • Organisation: Sainsbury's

LO1 – Effectiveness of Operations Management

Operations Management (OM) is the design, execution and control of processes that transform inputs (materials, labour, information) into goods and services. It directly supports tactical goals (e.g. reducing stock waste) and strategic goals (e.g. market growth).

Key Concepts

- **Volume, Variety, Variation in demand, Visibility (customer contact):** The 4 Vs
- **Quality · Speed · Dependability · Flexibility · Cost (Slack et al., 2019):** Operations objectives
- **Eliminating waste to maximise value — used by Sainsbury's in warehouse pick-rates:** Lean operations

Operations Management Across Sectors

Sector / Organisation	OM Focus
Retail — Sainsbury's	Supply chain efficiency, stock availability, click-and-collect fulfilment
Manufacturing — Toyota	Just-in-Time (JIT) production, zero defects, Kaizen culture
Healthcare — NHS	Patient flow management, bed occupancy, appointment scheduling
Hospitality — McDonald's	Standardised processes, speed of service, franchise quality control
E-commerce — Amazon	Automated warehousing, same-day delivery, demand forecasting

Sainsbury's Operations & Objectives

- **Make good food joyful, accessible and affordable for everyone:** Strategic objective (2024):
- **Sainsbury's 'Next Level' plan targets £1bn+ cost savings via supply chain optimisation:** Operational link:
- **Over 1,000 UK suppliers; temperature-controlled logistics reduce food waste by 18% (Sainsbury's AR 2024):** Supply chain contribution:
- **On-shelf availability (target >98%), delivery on time, waste %, customer complaints:** KPIs tracked:

 **Exam Tip – M1/D1**

For Merit/Distinction you must show the LINK between OM and business objectives. E.g. Sainsbury's reducing shrinkage (operational) → lower prices (strategic objective). Always connect micro decisions to macro strategy.

Supply Chain Management

An effective supply chain ensures the right product reaches the right place at the right time at minimum cost (Jacobs & Chase, 2017).

- **Sainsbury's own-brand products reduce supplier dependency:** Vertical integration
- **Long-term contracts with UK farmers improve food security:** Supplier relationships
- **Small changes in consumer demand amplify up the supply chain — mitigated by EDI data sharing:** Bullwhip effect
- **Reduces warehousing costs but increases vulnerability to disruption (e.g. COVID-19, driver shortages 2021):** Just-in-Time delivery

LO2 – Techniques & Analysis Frameworks

Operations managers use analytical tools to diagnose problems, model solutions and drive performance improvement.

Key Analytical Tools

1. SWOT Analysis

Strengths / Opportunities	Weaknesses / Threats
Strong UK market share (~15%)	High dependency on physical stores
Argos & Habitat brand integration	Competitor pressure from Aldi & Lidl
Growing online grocery (Smartshop)	Supply chain disruption risk
Nectar loyalty data for forecasting	Rising energy/logistics costs

2. Linear Programming (LP)

Used to optimise resource allocation — e.g. maximising shelf space profit across product categories subject to constraints (storage m², labour hours, budget).

3. Critical Path Analysis (CPA)

Identifies the longest sequence of dependent tasks in a project. Used by Sainsbury's for new store openings and distribution centre upgrades to ensure on-time launch.

4. Inventory Management – EOQ Model

Economic Order Quantity (EOQ) minimises total ordering + holding costs. For perishable goods, Sainsbury's balances freshness against bulk-order discounts.

EOQ Formula

$EOQ = \sqrt{(2DS/H)}$ where D = annual demand, S = ordering cost per order, H = holding cost per unit per year

5. Capacity Management

- **Sainsbury's uses AI/ML on Nectar card data to predict weekly demand by SKU:** Demand forecasting
- **Adjust staffing to match demand peaks (e.g. Christmas, Bank Holidays):** Chase strategy
- **Maintain constant output — smooth production for bakery & fresh food:** Level strategy

Digital Technologies (P4)

Technology	Operational Benefit at Sainsbury's
SmartShop App (scan-and-go)	Reduces checkout queues; improves customer experience
AI demand forecasting	Reduces overstock/waste; boosts availability
Automated distribution centres	Faster picking; lower labour cost per unit
RFID tagging	Real-time stock visibility; reduces shrinkage
Data analytics (Nectar)	Personalised promotions; better supplier negotiations

Exam Tip – D2

For a Distinction, evaluate both the benefits AND limitations of each tool. E.g. EOQ assumes constant demand — inappropriate for seasonal retailers. AI forecasting is powerful but requires large clean data sets and risks algorithmic bias.

LO3 – Continuous Quality Improvement (CQI)

Quality is fit for purpose — meeting customer expectations consistently at acceptable cost (Reid & Sanders, 2019). CQI means systematically and incrementally improving processes over time.

Key CQI Approaches

Approach	Description & Sainsbury's Application
Kaizen (Continuous Improvement)	Small, daily improvements by all staff. Sainsbury's store teams use daily stand-ups to identify process issues.
Six Sigma (DMAIC)	Define–Measure–Analyse–Improve–Control. Used to reduce defects to 3.4 per million. Applied to fresh food wastage reduction.
Lean Manufacturing	Remove the 7 wastes (TIMWOOD): Transport, Inventory, Motion, Waiting, Over-processing, Overproduction, Defects.

PDCA Cycle (Deming)	Plan–Do–Check–Act. Standard cycle for testing improvements before full rollout.
TQM (Total Quality Management)	Organisation-wide commitment to quality. Requires cultural change, not just process tools.

Total Quality Management (TQM) – Core Principles

- **Quality defined by the customer, not internal standards:** Customer focus
- **Every worker is responsible for quality output:** Employee involvement
- **Consistent processes produce consistent results:** Process approach
- **Quality is a journey, not a destination:** Continuous improvement
- **Use data, not opinions, to drive change:** Evidence-based decision making

Sample Continuous Improvement Plan (CIP) – Sainsbury's Fresh Food

Objective	Action	Measure	Timeline
Reduce food waste by 15%	Implement dynamic markdown pricing using AI	Waste % per store	Q1 2025
Improve on-shelf availability to 99%	Introduce RFID stock scanning in chilled aisles	Stock-out rate	Q2 2025
Cut supplier lead time by 10%	Collaborate on shared forecasting with top 50 suppliers	Average lead time (days)	Q3 2025
Achieve 95% customer satisfaction	Weekly mystery shopper + NPS tracking	Net Promoter Score	Ongoing

Exam Tip – D3

For Distinction, underpin your CIP with theory. E.g. use Deming's PDCA to structure the plan, reference Six Sigma DMAIC for data-driven steps, and address costs (investment in RFID vs waste savings), benefits (margin improvement), and sustainable performance (ISO 9001 certification).

LO4 – Strategic Risk Analysis (SRA)

Strategic Risk Analysis identifies, assesses, and manages risks that could prevent an organisation achieving its strategic objectives. It is essential for organisations operating in volatile, uncertain, complex and ambiguous (VUCA) environments.

Why SRA Matters

- **Identify threats before they become crises:** Proactive risk management
- **Investors, suppliers and customers require evidence of risk governance:** Stakeholder confidence

- **UK Corporate Governance Code requires listed companies (e.g. J Sainsbury plc) to disclose principal risks:** Regulatory compliance
- **Organisations that manage risk better adapt faster to change:** Competitive resilience

Risk Identification Methods

- **Political (Brexit), Economic (inflation), Social (diet trends), Technological (AI), Legal (food safety law), Environmental (net zero targets):** PESTLE Analysis
- **Identifies internal vulnerabilities alongside external threats:** SWOT
- **Systematic log of each identified risk with owner, likelihood, impact and response:** Risk Register
- **Understand which stakeholders face which risks:** Stakeholder mapping

Risk Mapping – Sainsbury's Operational Risks

Risk	Likelihood × Impact → Priority
Supply chain disruption (e.g. extreme weather)	High × High = CRITICAL — contingency: multi-supplier strategy
Cybersecurity breach (customer data)	Medium × High = HIGH — contingency: ISO 27001, incident response plan
Food safety failure / product recall	Low × Very High = HIGH — contingency: HACCP protocols, insurance
Rising energy costs impacting margins	High × Medium = HIGH — contingency: renewable energy contracts
Competitor price war (Aldi/Lidl)	High × Medium = HIGH — contingency: Sainsbury's Quality Value offensive
Regulatory change (sugar/fat taxes)	Medium × Medium = MEDIUM — contingency: product reformulation pipeline


Risk Matrix (Likelihood vs Impact)

Likelihood →	Low Impact	Medium Impact	High Impact	Critical Impact
High	Monitor	HIGH	CRITICAL	CRITICAL
Medium	Low	Monitor	HIGH	CRITICAL
Low	Low	Low	Monitor	HIGH

Contingency Plans

- **Sainsbury's maintains backup supplier lists and emergency stock protocols activated during COVID-19 and 2021 supply crisis:** Business Continuity Planning (BCP)
- **Currency hedging for imported goods; product recall insurance:** Insurance & financial hedging
- **Model best/worst/likely cases for energy prices, demand shifts:** Scenario planning
- **Pre-approved messaging for media, regulators, and customers:** Crisis communications plan

- **Key ingredients sourced from minimum two suppliers in different geographies:** Dual sourcing

 **Exam Tip – D4**

For Distinction, critically evaluate SRA — not just describe it. Consider: Does Sainsbury's face interconnected risks (e.g. climate change affects food supply AND energy costs simultaneously)? Are traditional risk matrices adequate for systemic or 'black swan' events? Reference VUCA environments and the limitations of purely quantitative risk scoring.

Quick Reference: Theorists & Models

Theorist / Model	Key Idea & LO Relevance
Slack et al. (2019) — 5 Performance Objectives	Quality, Speed, Dependability, Flexibility, Cost → LO1
Deming — PDCA Cycle	Plan–Do–Check–Act continuous improvement loop → LO3
Ohno — Toyota Production System / Lean / 7 Wastes	Eliminate non-value-adding activities → LO2, LO3
Juran — Quality Trilogy	Quality planning, control, improvement → LO3
Jacobs & Chase (2017) — Supply Chain Management	Supply chain design and integration → LO1
Six Sigma (Motorola/GE)	DMAIC; reduce process variation → LO3
ISO 9001	International standard for quality management systems → LO3
Porter — Value Chain	Primary & support activities that add value → LO1, LO2
PESTLE / SWOT	Environmental scanning for risk & opportunity → LO4