

Chapter 16

Managing suppliers, customers and quality

Supply-chain management

- ◆ Processes of streamlining the supply chain by managing costs, accelerating time-to-market of new products, and creating close relationships with supplier and customers
- ◆ May include the adoption of e-commerce technologies and cost management techniques

Analysing supplier costs

- ◆ Activity-based costing can be used to estimate the costs of dealing with suppliers
- ◆ Costs associated with dealing with a particular supplier, other than the cost of purchased material and components
 - ▲ Costs of purchasing - ordering, receiving and inspection
 - ▲ Costs of holding inventory
 - ▲ Costs of poor quality
 - ▲ Costs of delivery failure

Managing suppliers

- ◆ Evaluating supplier performance
 - ▶ Supplier performance index: the ratio of supplier costs to total purchase price
 - ▶ Measures may include ability to supply at the contract price, material quality, supplier delivery performance, quality of relationships between employees, union and management
 - ▶ Measure may also focus on the purchasing firm's performance within the relationship

EXHIBIT 16.4 Supplier performance measures

Criteria	Examples of measures	Explanation
Delivery	% orders delivered on time Average lead time* for deliveries	Suppliers may be required to deliver an order within a short time frame (e.g. two hours, one day, two days).
Quality	% orders rejected Achievement of quality certification	Quality inspections may not be undertaken on all deliveries, and financial penalties may be levied on suppliers that deliver defective or inadequate material. A firm may set targets for suppliers achieving certain quality accreditations. These may be international quality standards (e.g. ISO 9000), or quality standards developed by the firm itself (e.g. A1 rating of Ford Australia).
Cost	Success at meeting cost-down targets Achievement of manufacturing cost reduction targets	Firms may set suppliers targets for 'cost downs'. That is, suppliers may be expected to reduce the price that they charge to the firm for materials/components by a certain percentage each year. A firm may assist suppliers to reduce their manufacturing cost, and set targets to measure suppliers' cost reduction performance.

Managing inventory

- ◆ Why hold inventory?
 - ▲ Cope with uncertainties in customer demand and in production processes
 - ▲ Qualify for quantity discounts
 - ▲ Avoid future price increases in raw materials
 - ▲ Avoid the costs of placing numerous small orders with suppliers

Conventional approaches to inventory management

- ◆ Focused on balancing
 - ▶ Ordering costs: the incremental costs of placing an order for inventory
 - ▶ Carrying costs: the costs of carrying inventory in stock
 - ▶ Shortage costs (or out of stock costs)

Economic order quantity (EOQ)

- ◆ The optimum order size for individual inventory items, to minimise the total ordering and carrying costs

$$\text{EOQ} = \sqrt{\frac{2 \times \text{annual requirements} \times \text{cost per order}}{\text{annual carrying cost per unit}}}$$

Timing of orders under EOQ

- ◆ Inventory re-order point (ROP)
 - ▲ The level of inventory on hand that triggers the placement of a new order (or setup)
- ◆ Safety stock
 - ▲ The extra inventory kept on hand to cover any above-average usage or demand

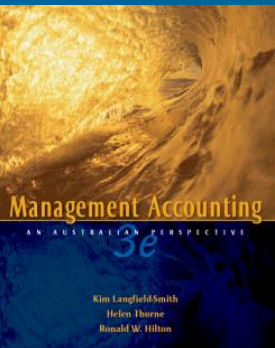
$$\text{ROP} = (\text{inventory used per period of time} \times \text{order lead time}) + \text{safety stock}$$

Assumptions underlying EOQ

- ◆ Demand is known and constant
- ◆ Incremental ordering costs are known, constant per order
- ◆ Acquisition cost per unit is constant
- ◆ Entire order is delivered at one time
- ◆ Carrying costs are known, constant per unit
- ◆ On average, one-half of order is in stock at any time

Just-in-time (JIT) inventory management

- ◆ JIT inventory and production system
 - ▲ A comprehensive system for controlling the flow of manufacturing in a multistage production environment
- ◆ The underlying philosophy is the simplifying of the production process by removing non-value-added activities



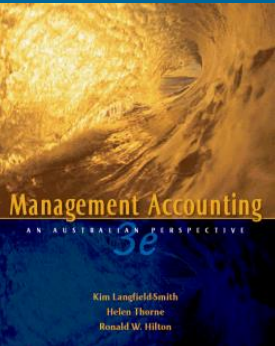
Key features of JIT production

- ◆ A pull method of co-ordinating production, uses kanbans
- ◆ Simplified production processes
- ◆ Purchase of materials, and manufacture of sub-assemblies and products in small lots
- ◆ Quick and inexpensive setups of production machinery

continued

Key features of JIT production

- ◆ High-quality levels for raw materials, components and finished products
- ◆ Effective preventative maintenance of equipment
- ◆ Flexible work teams



JIT purchasing

- ◆ Only a few suppliers
- ◆ Long-term contracts with suppliers
- ◆ Materials and parts delivered in small lots as needed
- ◆ Minimal inspection of delivered materials and parts
- ◆ Electronic ordering and payments

Costs of JIT

- ◆ Substantial investment to change the production to minimise non-value-added activities
- ◆ An increase in the risk of inventory shortages and the associated loss of production, expediting materials costs and loss of sales

Benefits of JIT

- ◆ Savings in inventory-carrying costs
- ◆ Lower insurance costs
- ◆ Fewer losses due to spoilage, obsolescence and theft
- ◆ No opportunity costs of high inventory
- ◆ Elimination of non-value-added activities
- ◆ Meets customers' needs more effectively

Managing customers

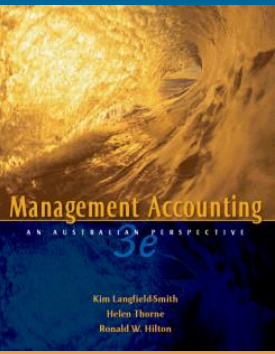
- ◆ Customer relationship management (CRM)
 - ▲ Collecting and analysing data to understand individual customers' behaviour patterns and needs
 - ▲ To develop strong relationships with customers
 - ▲ Can lead to improved customer service, customer retention, new customers, more effective and efficient marketing, increased sales and customer profitability

Customer cost analysis

- ◆ Activity-based costing can be used to determine the profitability of customers
- ◆ Customer cost analysis: assigning the costs of product and customer-driven activities to customers
- ◆ Customer profitability analysis
 - ▲ Relative profitability of customers can be determined and used for a range of strategic decisions

How do customers differ?

- ◆ Customisation of products
- ◆ Marketing and selling activities
- ◆ Distribution channels
- ◆ Customer support activities



What calculate customer profitability?

- ◆ To address the following questions
 - ▲ Which customers generate the most profits? and how do we retain them?
 - ▲ Which customers generate the lowest profits? and how can we make them more profitable?
 - ▲ What types of customers should we focus on to maximise profitability?

EXHIBIT 16.10 Comparison of activities used by high-cost and low-cost customers

Activity	High-cost customer	Low-cost customer
Manufacturing	Customer requires customised features for products.	Customer requires standard products.
Order entry	Salesperson submits order from the customer.	Customer submits orders electronically using EDI.
Distribution	Customer requires overnight delivery.	Customer is satisfied with 3-day delivery.
Credit collection	Customer pays in 90 days by cheque, and requires receipt.	Customer pays in 30 days by direct deposit.
Technical support	Customer requires specialised training for their staff.	Customer provides own in-house training.

Customer profitability analysis

- ◆ Four level of customer-driven activities and costs
 - ▲ Order level activities
 - ▲ Customer level activities
 - ▲ Market level activities
 - ▲ Facility level activities
- ◆ Customer performance measures

EXHIBIT 16.14 Measurement of core customer measures

Customer Measure	Definition	Measurement
Market share	The proportion of sales in a given market	The proportion of customers, sales revenue, or sales volume of the business, as a proportion of the market size
Customer acquisition	The rate at which an organisation attracts and wins new customers	The number of new customers Total sales to new customers Sales to new customers as a proportion of total sales
Customer retention	The rate at which a business retains, or maintains, ongoing relationships with customers	Proportion of total sales to sales from existing customers Customer loyalty: % growth of business from existing customers
Customer satisfaction	The satisfaction of customers, in terms of specific aspects of value	Customer satisfaction surveys that address the degree of satisfaction with specific aspects of the service or product: telephone, mail surveys, interviews
Customer profitability	The net profit attributable to a customer, or customer group	Change in customer profitability per quarter Proportion of loss customers compared to profitable customers

Source: adapted from Kaplan & Norton (1996, p. 68)

Managing quality

- ◆ What is quality?
- ◆ Quality of design
 - ▲ degree to which a product's design specifications meet customers' expectations
- ◆ Quality of conformance
 - ▲ degree to which a product meets formal design specifications

Cost of quality reports

- ◆ Costs incurred in ensuring that the organisation maintains a high level of quality in its products, and the costs that arise from having poor-quality products
- ◆ Internal failure costs
 - ▲ Incurred when defective products or services are detected before they leave the firm

Cost of quality reports

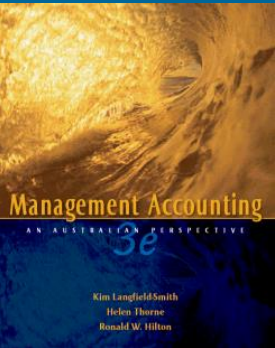
- ◆ External failure costs
 - ▲ Incurred as a result of defective products or services being delivered to customers
- ◆ Appraisal costs
 - ▲ Incurred to determine whether defects exist
- ◆ Prevention costs
 - ▲ Incurred to prevent internal or external failures and to minimise appraisal activities

Usefulness of cost of quality reports

- ◆ Places a dollar figure on the costs of poor quality
- ◆ Helps prioritise quality improvement programs
- ◆ Helps managers monitor the effects of the 'quality effort'
- ◆ Can help identify the optimal level of quality for the firm

TQM and a quality culture

- ◆ TQM is a management approach that focuses on meeting customer requirements by achieving continuous improvement in products or services
- ◆ TQM is a broad philosophy with a number of features which are not included in JIT



Features of TQM

- ◆ TQM is holistic
- ◆ Customer-driven
- ◆ Involves empowerment
- ◆ Has a process perspective
- ◆ Is supported by a quality management system
- ◆ Involves continuous improvement

Quality accreditation

- ◆ Organisations may achieve quality accreditation by meeting a series of quality standards set out in the ISO 9000 series.
- ◆ ISO 9000's are
 - ▲ Expensive to implement and maintain
 - ▲ May have little relevance to many small businesses and service organisations