Unit 3

Types of Purchases

Learning Outcomes

By the end of this unit the learner will be able to:

- ✓ Recognize the Selection of Suppliers and Suppliers' Performance.
- ✓ Identify effective manufacturing strategies.

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Types of Purchases

Different Approaches for Different Products

When we explained a formal process for procurement, we said that it can be extremely complex and time consuming. It would be costly and needlessly complicated to make use of this process for each purchase; nobody wants to waste six months buying a pack of envelopes. On the other hand, main purchases require much more consideration and examination.

This is why organisations change the specifics of their procurement dealings, in order to match material types and supply methods with their needs and prorities. Typically speaking, the higher the cost of materials and the more complex the requirements, the more time and effort the procurement process demands.

Organisations often follow rough rules for the effort they are willing to put into procurement. Maybe using ad hoc actions for low-value routine supplies, an easy, automatic method for purchases up to £20,000, a more precise process for purchases up to £150,000 and unique, comprehensive analysis for bigger purchases.

Once such rules are defined, a management control system can check purchases and ensure that they are completed in the best way. It can review how purchases have been made, if the result is acceptable, if the effort is practical in relation to the costs/value and if the process can be enhanced for the future. One significant point here is the difference between schedule, repeat orders and new ones. If a seller has given good service over an extensive time period, a business may remove itself almost entirely from the procurement cycle and put negligible effort into administering potential orders. Ordering turns out to be routine and the organisation successfully sends a message to say, 'send another order like the last one'. With non-routine buying, an organisation has to be more cautious and put more effort into the choice of supplier and the conditions of purchase.

If an order is repeated often enough, a business might consider the 'make-or-buy' decision. In other words, it has to choose those materials that it can manufacture for itself and those that are best supplied by external suppliers. In its simplest form, the business asks whether it can get materials more inexpensively from a supplier than it can make them in-house. Well-organized strategies and economies of scale often mean that particular suppliers can carry materials at lower prices than other businesses can make them. There are, however, a lot of other factors to consider. Making parts internally can be more reliable, give greater control over supply, allow the company to modify products, have shorter lead times, use spare resources, protect designs, keep value-adding operations, boost the size of the business and so on. On the other hand, buying them from sellers can mean the advantages of specialisation, access to better expertise, economies of scale, decreased stock levels, augmentation of some risk, greater flexibility and so on.

The Department of Trade and Industry suggests that the three major criteria for these decisions are:

- Financial Factors – related to costs;
- Operational Factors – related to responsiveness, reliability and flexibility;
- Strategic Factors – related to the lasting consequences of the decision for the business

In practice, the apparent benefits of outsourcing are rising and more organisations are happy to focus on their core functions and use external suppliers for materials.

Terms and Conditions

Though we have talked in broader terms about 'placing an order', there are numerous types of orders. Organisations usually talk about 'placing an order' for supplies, but then about 'signing a contract' for services and 'leasing' for equipment. To a great extent, these are diverse ways of saying the same things, but there might be legitimate differences.

We have already described some specific types of orders, with the following being most general:

- Purchase orders are utilized as the standard manner for procurement that we described above.
- It is fundamentally a letter from one business to another, communicating information of the materials required and the conditions of buying. This is generally a reaction to a quotation from a capable supplier, giving details of the materials it can provide and its conditions of trade.
- Blanket orders offer a simple system for inexpensive standard items, such as stationery. A business can put a single order for all the goods that it will require over a given time period, such as a year. Then, the seller delivers batches of products when requested during the year.
- E-Procurement uses EDI or the Internet to simplify purchases, replacing paper-based procedures with electronic ones. This provides a fast and efficient method for repeat, or straightforward, orders.
- Contracts give detailed descriptions of am agreement between a business and a supplier. They explain precisely the responsibilities, work and services for each, alongside all applicable terms and conditions. A lot of organisations make use of contracts, regardless of purchase orders for comprehensive services, so they sign a contract for a supply of electricity, for example. In a similar way, businesses can sign a contract for a particular piece of work, like a construction business building a road or housing block.
- Sub-contracts: when a seller signs a contract with the business, it might not do all the work itself, but instead assign some work to a sub-contractor. Then, there are two contracts – the contract between the business and the supplier, and the subcontract between the supplier and sub-contractor. For larger projects, there can be many more layers of sub-contracting.
- Leases and rental agreements are again there to communicate the terms and conditions of getting materials. They are usually used for buildings or equipment that is returned to the owner after a period of utilization by the consumer. You can rent or lease a car, for instance, and when

the deal comes to an end, you return it to the owner.

Pricing is a very complex issue. It is not in an organisation's long-standing interest to force suppliers to offer unrealistically low prices as they will eventually go out of business and not be there when they are required. However, supermarkets in parts of the European Union have bowed to customer pressure to decrease food prices.

While this benefits their consumers – and most probably the wider population – it means paying less to farmers who cultivate the crops. If farmers go out of business, there is a huge impact on rural communities and the countryside, more dependence on imported food, a consequence on the balance of trade and so on.

In general, there are four means of setting a price for materials:

- **Price Lists –** where sellers quote fixed prices. Book publishers, for instance, quote a selling price that they expect retailers to utilize. They can offer discounts for large or unique purchases, but one business basically fixes the price.
- **Special Quotation –** where suppliers quote prices to every customer, mainly for nonstandard materials. Customers submit a quotation request and the supplier returns a price and the conditions that it is willing to offer.
- **Negotiation –** when there is some flexibility in both price and conditions. A seller might give a quote, but is ready to discuss potential perks and advantage for bulk or repeat orders. Similarly, consumers can negotiate if they want special conditions, like fast delivery.
- **Commodity Pricing –** for commodities like oil, coffee, gold and wheat, market forces determine the going rate that is followed by all suppliers. You can see examples of lots of these figures in financial futures markets.

A number of standard conditions are utilized and for historic reasons they are phrased in terms of shipping:

- **Ex-Works:** The customer accepts materials 'at the factory gate' and takes over all liability for transport, documents, customs authorization, insurance, risk and so on. This kind of contract is best when the seller has little experience of shifting materials through the related area, or the buyer has a lot of experience. If neither has the essential experience, they can sub-contract the movement to third party specialists.
- **Free Alongside (FAS):**Here the supplier moves materials to a specified 'port' and delivers them 'alongside a ship'. The customer takes over the loading onto the vessel and all onward movement.
- **Free on Board (FOB):**This is a variation of FAS, where the seller also takes care of the loading onto the vessel, after which the consumer is accountable for onward transport. This may seem like a small adjustment to FAS, but loading may involve heavy lifts, danger of damage or use of heavy machinery.

- **Delivered Ex- Ship:** Where the goods are obtainable on the ship (or quayside) but the consumer has to organize for customs authorization, duty and so on.
- **Cost and Freight (C&F):** Here, the merchant arranges transportation to an agreed point, but the consumer accepts any danger and arranges insurance for the voyage.
- **Cost, Indemnity, and Freight (CIF):** Where the seller delivers to an agreed point and also arranges insurance for the journey.
- **Delivered:** Where the seller is accountable for all aspects of the transport up to delivery to the consumer.

Manufacturing

A considerable number of firms in the supply chain are engaged in manufacturing products. Whereas, just about all businesses are involved in procurement and market distribution operations, manufacturers add value by converting raw materials into commercial or industrial products. They make value by producing and marketing product/service packages, either to end consumers or middle members of the supply chain.

Manufacturing Perspectives

The range of products a business makes derives from its technical ability and marketing strategy. Firms' ideal manufacturing competencies are based upon market opportunity and readiness to take ground-breaking risk. While the products made are clearly diverse, the genuine differentiator between firms is measured in competencies realted to knowledge, technology, procedure and strategy. Once established, a manufacturing business' image and focus are constantly customized in the eyes of supply chain partners as it conducts trade, researches and develops new products and performs agreed-to value-added services.

A firm's manufacturing capability is based on:

- **Brand Power;**
- **Volume;**
- **Variety;**
- **Constraints;**
- **Lead- Time Requirements**

Brand Power

A lot of manufacturers use a great deal of marketing capital to create brand awareness and approval among potential buyers. As a result, they are usually identified by their product brands. The evaluation of a customer's buying preference based on a manufacturer's status, product quality and supply chain abilities is known as brand power.

As a common rule, the stronger a firm's product brand image is among buyers, the more leverage the manufacturing organization will have in determining supply chain structure and strategy. For example, John Deere & Co. dominates how farm machinery, as well as lawn and garden products, are sold, distributed and maintained.

It is normal practice for a business to subcontract some or even all manufacturing and logistics operations necessary to market a particular product. The nature of the production process, costs and next target in the supply chain go a long way to establish the appeal of outsourcing. Logistical needs in terms of inbound materials and finished product allocation are determined by the geographical relationship between places of manufacturing and those of traders and customers.

Volume

Manufacturing processes are categorized in terms of the association of cost per unit to volume of output. The conventional standpoint is to treat volume in terms of the well-established standard of **Economy of Scale.** The scale principle describes a connection, wherein the standard cost of producing manufactured goods declines as its manufacturing size increases. That is, product quantity must be increased as long as per-unit boosts in volume *decrease* the average cost per-unit manufactured. Economy of scale arises from efficiencies generated by specialization of procedure, labour force, fixed asset consumption, procurement economies and minimal need for procedure changeover.

Economy of Scale is extremely important in manufacturing conditions involving high fixed-cost machines to transform raw materials into completed products.

In volume-sensitive industries, elevated capital outlay coupled with the high price of changeover tends to breed long production runs. In terms of logistics, two considerations associated to volume affect and influence supply chain design.

Firstly, Supply Chain Operations must record the number of times a particular product is manufactured during a particular planning period. Such **Manufacturing Frequency** has a direct impact on both inbound and outbound logistical needs. Secondly, the amount or lot size usually produced during a particular manufacturing run determines the product level that must be handled and warehoused in a supply chain structure.

Variety

In comparison to manufacturing situations subjugated by scale, other production technologies allow for flexibility. These manufacturing procedures are characterized by comparatively frequent product runs and high repetition of small lot sizes. As opposed to economy of scale, industrialized processes that favour variety, quickly switch production from one product to another an retain key competences are referred to as having **Economy of Scope.**

Variety refers to the **range** of product variations that can be produced in a given manufacturing procedure. Such differences might result from the nature of how products are routed through a modern

plant and/or the use of general as opposed to specialized equipment. The attainment of economy of scope is also openly related to the speed and cost of changeovers from one product to another.

Constraints

All manufacturing procedures involve a balance between economy of scale and economy of scope. Volume and variety call for corresponding logistical support requirements. Constraints interrelate with volume and diversity to make manufacturing plans.

The three main constraints that govern manufacturing operations are:

- **Capacity;**
- **Equipment;**
- **Setup/Changeover**

Capacity is the measure of quantity in which a particular product can be produced per unit of time. Of particular importance is a firm's **demonstrated** ability of quality production. While a factory, process or mechanism might have a **rated** capability, the related measure is a firm's *verified* ability to attain and sustain a particular level of quality output in an expected time period. A measure of production capability is the swiftness to which a particular procedure reaches confirmed capacity, given an unanticipated change in requirements.

Equipment constraints are linked with flexibility, regarding the utilization and sequencing of particular machines to carry out key manufacturing tasks. Clearly the product range a factory can make is constrained by the range of obtainable equipment and the necessary sequence of work. However, some manufacturing requirements are more simply accommodated across a machines' family and by using changeable work sequences than others. In lots of situations, a particular machine or task tends to limit or act as a bottleneck to the overall manufacturing procedure.

The structure for emphasizing managerial notice is captured in the **Theory of Constraint** method.

Setup changeover constraints are directly connected to the prior discussion regarding variety. Substantial progress has been made in manufacturing administration to speed up both procedure changeover time and the time needed to reach confirmed capacity.

Lead Time

Manufacturing **Lead Time** is a gauge of the elapsed time between release of a production order to the shop floor and the achievement of all work needed to attain ready-to-ship product status. Any given manufacturing procedure uses both functioning and inter-operational time.

Operational Time is a blend of setup, changeover and running or genuine production time. In any manufacturing situation, the greater the amount of total lead-time accounted for by real production, the more efficient the conversion process. Efficient functioning time must be traded off against the issues discussed earlier about volume and diversity.

Manufacturing processes also encounter unforeseen losses of time. Production efficiency is negatively affected during periods when a procedure, line or mechanism is idle because of queuing, breakdown,

Waiting or issues with logistical support. All forms of unanticipated delay represent severe bottleneck issues.

Logistical operations dedicated to supporting production can bolster and improve operating efficiency in a number of ways. The potential benefits of brand power are largely based on a firm's track record in the timely order-to-delivery performance for its consumers.

Lot-size efficiencies related to production frequency and recurrence are reliant on dependable logistical support. The choice to manufacture larger lot sizes creates the specific requirement for enhanced logistical support.

Manufacturing Strategy

The unique nature of every manufacturing procedure and the market served both limit the available range of different strategies. Strategic scope in manufacturing is constrained by both promotion and technological forces.

For example, a producer following a method dominated by economy of scale might wish to develop process flexibility. However, significant investment will normally be necessary to boost frequency and recurrence.

With time, the varying nature of the market and obtainable technology serve to change a firm's ongoing strategic position.

Matching Manufacturing Strategy to Market Requirements

Mass marketing requires limited product/service differentiation. In contrast, a one-on-one production strategy builds on exceptional or tailored product/service offerings for every consumer. The strategic marketing attitude of a firm in terms of flexibility and dexterity to satisfy particular consumer requirements is directly connected to manufacturing capability. To a large degree, a firm's manufacturing ability drives the possible range of its efficient marketing strategy. For a manufacturing business to efficiently compete, it must be able to incorporate manufacturing ability into a significant marketing value proposition.

Strategic Alternatives

The most common manufacturing strategies are Make–to-Plan (MTP), Make-to–Order (MTO) and Assemble–to-Order (ATO). MTP is also referred to as Make–to–Stock (MTS).

As a common rule, MTP strategies are a trait of industries exploiting economy of scale that arises from long production runs. Important finished goods inventory is normally manufactured in expectation of

future consumer requirements. The logistical necessities to support MTP are warehousing facilities to accumulate finished products and to assist product variety for particular customers. When flexible manufacturing is launched to speed up change over, the inventory lots formed are normally smaller in size. However, warehouses are still necessary for short-term storage and to enable product variety.

In comparison, MTO manufacturing strategies focus on manufacturing to customer requirements.

While MTO might not be as simple as the conventional apprach, precise quantities and configurations are manufactured in comparatively small quantities. Logistical ability might be required for provisional storage and to attain outbound transportation consolidation, but most products produced in MTO surroundings are shipped straight to customers.

Total Cost of Manufacturing

The marketing and industrialized strategies of a business determine logistical service requirements. For instance, MTO manufacturing strategies usually require less finished goods inventory than MTP and ATO strategies. However, MTO strategies naturally require dynamic inventory support and might result in high-cost market allocation. In light of such cost trade-offs, the design of a logistics support system should be based on the **Total Cost of Manufacturing (TCM).**

Logistical Interfaces

The well-organized and successful coordination of a manufacturing policy with the procurement of components and materials ultimately relies on logistics. Resource inputs should be procured and made accessible when required for manufacturing operations. Whether the manufacturing scheme is MTO, ATO, or MTP, logistics links the seller base with manufacturing processes.

The better the prospect is for attaining lowest cost of possession and eventually, the lower the total cost of manufacturing. Such operations appear when there is high-level supplier combination in both operations and in design. Just-in-Time, Materials Requirements Planning, and Design for Logistics represent three approaches to achieving effective coordination.

Just-in-Time (JIT) techniques have generated a lot of interest and discussion over recent years, in each functional area linked to Supply Chain Management. Sometimes, this is termed as Just-in-Time production; it's also often called Just-in-Time purchasing and normally referred to as Just-in-Time delivery. The objective of JIT is to time-phase activities so that materials and components bought arrive at the manufacturing or congregation point just at the time they are needed for the transformation procedure.

Requirements can be fulfilled by focusing on the completed product being made. Once the production agenda is established, just-in-time entrance of components and materials can be designed to correspond with those needs, resulting in decreased handling and lower inventories. The implications of JIT are numerous. Of course, it is essential to deal with sellers who have high and reliable levels of quality, as their components will go straight into the finished product. Comprehenisvely steady logistical performance is essential and abolishes, or at least decreases, the necessity for safety stocks of materials.

JIT typically requires more regular deliveries of lesser quantities of purchased inputs, which might necessitate alteration of inbound transportation.

Originally, JIT was implemented to manufacturing procedures characterized as MTP, since the efficient functioning of the system is reliant upon a finalized production timetable.

Some organizations, noting the advantages of JIT systems and recognizing the benefits of supplier amalgamation, have gone so far as to carry their suppliers' personnel into their own manufacturing plants. The seller personnel are allowed to use the customer's purchase orders, have complete access to construction schedules and have liability for scheduling influx of materials.

Requirements Planning

In multifaceted manufacturing organizations, a procedure, which is called **Materials Requirements Planning (MRP),** is regularly used to help bridge the gap between purchaserand seller. MRP systems offer benefits similar to those of JIT; to reduce inventory, preserve high consumption of manufacturing capacity and organize delivery with procurement and associated activities. Execution of MRP systems needs a high level of technical sophistication. Software applications, like superior planning and scheduling systems, have been developed to deal with complex essential information, such as lead-times, quantities on-hand and on-order and mechanism capacities for thousands of materials across multiple manufacturing locations.

Design for Logistics

The way on which logistics overlap with procurement and manufacturing, as well as with engineering and advertising, can be really enhanced by incorporating a method known as **Design for Logistics** into the early stages of product development. Remember that the aims of JIT and MRP are to reduce inventories and handling, with materials and machinery being prepared for assembly or alteration as and when they are required.

Further Reading:

- ✓ ***Jeffrey P. Wincel, (2004), Lean Supply Chain Management: A Handbook for Strategic Procurement***
- ✓ ***Robert W. Turner, (2011), Supply Management and Procurement: From the Basics to Best-in-class***