

MATERIALS MANAGEMENT AND IMPORT/EXPORT TRADING

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Materials management, encompassing production control and purchasing, is a logical integration of complementary functions, which can substantially improve the efficiency of manufacturing. This article discusses the influence of international trading on materials management and the need for a greater understanding of the associated techniques.

When a company is engaged in export activities the challenge of a wider market is accompanied by the difficulties and complications of international trade. The materials manager responsible for purchasing and production control has particular concerns. The development of effective supply chain logistics, the minimisation of tax and duties, the recognition of differences in national quality standards and the implications of trade restrictions all require intelligent and informed management. International trading can appear to be a bed of nails but it offers an opportunity to demonstrate management expertise. Export drawback, product traceability, inventory valuation, and receipt of import shipments require flexible and reactive response.

Before discussing these issues in detail, the role of the purchasing function within the materials management function deserves comment. Purchasing is a key corporate resource in the development of new international markets and a distinctive purchasing input to corporate strategic and business planning is essential. Materials management must provide organisational space for purchasing to make this contribution. This is necessary if purchasing is to reinforce the planning process. International procurement requires strategic decisions, with unique purchasing input, in the areas of cost, delivery, quality, legal protection and inventory.

Similarly materials management needs to educate production control staff in techniques appropriate to the international market place.

The Supply Chain

Supply chain management is concerned with ensuring that the material pipeline (from supply of raw material to final delivery to the

customer) operates smoothly. In the international environment supply chain management includes the planning and control of pipeline inventory, lot sizes, cost, transport, and systems.

Inventory

Material managers in a multi-national company, may have experienced the shock of finding that part of the inventory is on the high seas. This can represent as much as a month of turnover. In multi-nationals it is a common ploy for foreign parent plants to deliver imports on a FOB (Free on Board) basis to the sister UK plant. This inventory is difficult to trace. Conventional inventory software packages take a simple view of ownership, based on the domestic delivery process (i.e. when you get it you own it).

Similarly accounting systems are insensitive to this problem and discrepancies in corporate accounts occur because each plant believes the materials in transit are held on the other's books. If ex-works delivery from the parent plant is non-negotiable purchasing must accept liability for the means of transport as well as the implications of inventory ownership en route.

Purchasing, aware of the FOB condition must budget for transit inventory and associated costs of insurance, and warehousing. Ex-works delivery can create costs not always balanced by supposed purchase advantages. In particular, the materials manager must ensure that non-corporate foreign suppliers do not reap any similar advantage without a substantial cost benefit. The encouragement of single supplier sourcing and on-site consignment stocking is one approach to reducing the problem.

Comparisons between the inventory performance of parent companies and UK plants seldom take transit inventory into account. As a result the inventory turnover of UK plants can appear unfavourable when comparison is made with the parent, or a foreign domestic plant. There is a strong case for identifying the value of inventory in transit within a company's accounts. Transit inventory is wholly attributable to the international profile of the operation.

Conversely Sales within the UK plant, should be encouraged to transfer ownership of finished goods to export customers on an ex-works basis or at the UK port. It is frustrating to be held responsible for inventory awaiting collection by a reluctant customer at a foreign port. The sales order file cannot be relieved nor can invoicing commence until the customer accepts the ownership.

On time delivery is critical when exporting. Letters of credit, and intricate foreign currency transactions mean that delays in delivery can affect the payment of receivables and the eventual shipment date. A delay of a day beyond the expiry of a letter of credit can result in weeks elapsing as new credit terms are negotiated.

If it proves impossible to negotiate ex-works ownership it is sensible to categorise and monitor the resulting inventory. By identifying the nature of inventory, often resulting from badly framed sales contracts, marketing strategies can be questioned and reconsidered. Receivable payments awaiting settlement because of delivery delays also deserve analysis. They represent the hidden cost of failing to deliver on-time.

An alternative strategy is to establish (or work with) a trading company which takes transit inventory into ownership and manages the entire import/export transfer process. Transfer of responsibility for management of the import/export process simplifies plant level decisions and can provide a focus for specialised expertise. The success of Japan in exporting is partly due to the effectiveness of nine large trading companies, the Soga Shoshus, and associated government support in the import/export process. We shall see later how trading companies, involved in counter-trade, can affect the nature of purchases and inventory control procedures.

A special case which can throw company accounting and inventory systems into confusion is the import of goods for an export customer making prepayments for preferred foreign sourcing. Payments are made on receipt of the goods into the supplier plant. There are two approaches. Either profit can be taken and offset against the ultimate shipment value (as

a company liability) or ownership of inventory can be transferred to the customer. The decision requires evaluation of tax and cash flow benefits. Another possibility is the transfer of goods on a free issue basis.

Stock of this nature must be segregated and bonded to minimise customs duty and, where the ownership of the goods is transferred, insurance and storage liability must be written into the original contract.

Problems arise if bills of material are not identified to the specific contract. Both engineering liability and end product costing are influenced by this form of sales agreement.

Lot Sizes

Lot sizing of imported or exported goods can be a major inventory issue resulting from international trading. Factors which influence lot sizing include the frequency and type of transport, the economic shipment volume/weight, and forward purchasing. The effect on inventory of lot sizing extends throughout the pipeline particularly if inventory ownership is vested on port of receipt (export) or at the point of shipment (import). Alternative strategies can be adopted. For example the growing use of air transport is due to the realisation that inventory carrying costs, due to the extended lead time of sea, can justify air freight. The costs of port fees, warehousing and inventory carrying costs for a four week sea voyage can be more expensive than the cost of airfreight with a two day delivery leadtime.

Nevertheless the greater part of world trade is transported by sea, and freight consolidation has reduced shipping costs and improved shipping availability. Freight forwarding companies specialise in consolidation, encouraging companies to share shipping and container space. There are over 2000 companies operating as freight forwarders offering a wide range and variety of services which 90% of UK importers/exporters use. The cost of a freight forwarding service is 3%-5% of the total freight cost.

The uncertainty of consolidation produces problems for managers trying to work with MRP. Consolidation makes it difficult to anticipate delivery and the benefits of reduced transport costs must be balanced against variable lead times. Variable lead times are not easily managed in a deterministic system, such as MRP, and strategic buffer stocks may be necessary. Alternatively lead times can be based on the expected transport lead time and air freight used as a safety valve to cover unacceptable delays. Such decisions must be based on an assessment of the

economic options but the materials manager must remember that time lost is a cost often underestimated.

Receiving is severely effected by the nature of import shipments. A long awaited monthly sea shipment requires assignment of manpower from throughout the plant, if much needed material is to be freed quickly. The bottleneck effect of consolidated shipments can produce major delays at the goods in area.

Packaging and shipping of exports presents similar problems. If a customer demands consolidated shipments then completion of contract may not result in transfer of ownership. Special warehousing facilities may be required for completed export goods awaiting shipment. Failure to deliver an export shipment on time to the departure port can result in costly air freight. The poor reputation of UK companies in meeting delivery commitments encourages foreign customers to insist on heavy contract penalties, forcing this reaction. The lot size of purchases can be influenced by the need to anticipate future currency fluctuations. Forward purchasing to anticipate exchange rates is dangerous and less attractive than use of the banking system for forward buying of currency. Accurate forecasting of the value of import purchases (or conversely export shipments) is essential if this approach is to prove successful. Similarly anticipating fluctuations in commodity prices can result in the buying of raw material ahead of requirements. Manufacturers of food products use futures trading to minimise this need. Though delegated to the finance function materials management need to be fully aware of the benefits of futures trading.

Cost

Minimising the cost of importing and exporting implies a careful review of the costs of transport, insurance, and warehousing. The effect on end products cost is usually disguised by the assignment of these costs to an overall overhead. A fairer approach is to apply import charges as an overhead charge against imported purchases. Conversely export charges, such as packing, insurance, transport should be charged to the export contract or spread throughout the range of export shipments. Whether costs are borne directly by the customer or indirectly within the landed price of the goods, materials management has a clear responsibility to minimise the effect.

Insurance costs can be reduced by additional attention to packing protection. Transit warehousing can be minimised by producing export

shipments just-in-time.

The growth of offset trading agreements and reciprocal purchasing has implications for purchase and inventory management. Offset trading is part of a movement towards countertrade, or barter, by Third World countries. This is a result of the general recession and Third World debt crisis. An offset agreement is an agreement by the seller to direct purchases and industrial activity to the customer country as a contract condition. The offset is usually a percentage (30%-100%) of the value of the contract.

In large corporations, offset in one aspect of trading may complement another. For example a corporation with defence contracts may agree to offset costs by purchases of a non-military nature to meet overall offset requirements. Offset may be direct; i.e. purchases sourced in the customer's country for direct use in the product, semidirect; similar purchase not used in the immediate end product, and indirect; where cooperating companies are involved.

Offset arrangements require close liaison between sales and purchasing and a flexible view of cost and inventory implications. The end customer will wish clear evidence that the terms of the offset arrangement have been met and it is normally advisable to isolate (or clearly identify) stock procured as an offset purchase. Purchase order documentation may distinguish between purchases made against specific or general offset agreements, and accounting may be required to record over a contract period the extent of offset purchases made against different customers in different countries. Not surprisingly purchasing and accounting systems may have to be modified.

Offset agreements require administrative flexibility. Economic and efficient purchasing, in the narrow sense, is secondary to the overall commercial advantages of the contract. Engineering of the end product may involve incorporation of components more suited to the customer manufacturing capability than the economic desire to standardise.

Specialised advisory companies such as Batis International Business Services provide assistance to companies who wish to develop a greater understanding of this market. By 1990 it is estimated that 20% of world trade will involve countertrade agreements.

Supplying into a foreign market place, regardless of offset agreements, raises the question "Could we process/manufacture/assemble more cheaply

in the export location?" The supply of assembly kits and the setting up of limited manufacturing facilities are strategies which influence the nature of a company's material planning system. The materials manager must have a clear understanding of a plant's ultimate mission or objective if he or she is to react positively. Commitment to local priorities is not always in the best interests of the corporation and a manager should beware of taking too parochial a view.

Transport

Pipe line logistics is concerned with transport, and its impact on delivery and cost. It is important to recognise the differences between sea, air, road and rail. While for example, sea shipments are based on the volume shipped air consignments are based on weight. There are restrictions on the transport of dangerous goods which vary according to the transport medium used. Explosives, pressurised gases, inflammable liquids require specialised transport. Air freight documentation is relatively simple but sea transport requires extensive paperwork, including shipping notes, and bills of lading. Consolidation of shipments, the use of containers and the minimisation of shipping space are considerations which may have to be taken into account.

Knock down kits are one approach to minimising shipping costs. Instead of shipping completed units it can pay to ship in kit form assembling at the point of receipt. The benefit of knock down kits is that shipping space is considerably reduced and there are additional benefits in reduced customs duties for un-assembled products. Knock down kitting has long been practised in the automobile industry but now the technique has a wider application, for example in the manufacture of computer products. Materials management needs to respond to the demands made by this method of shipping. For example purchases received in kit form may require immediate assembly to check out missing components or defects and special end-product bills of material may have to be developed.

Flexibility of transport is crucial since modern transport systems are susceptible to industrial action. Customs officers, traffic controllers, and carrier staff are increasingly aware of their commercial muscle. Use of alternative routes, transport means (rail, sea, air or roads) and sources of supply must be anticipated.

Systems

The free flow of import/export goods in the logistics supply pipeline is impeded by the time spent in

documentation preparation and processing. Preparation of customs paper work and the delay of customs clearance causes considerable frustration, but the development of the UK Period Entry Scheme, and of sophisticated computerised import/export routines (e.g. by organisations such as SITPRO) have gone a long way to alleviate these difficulties.

SITPRO established in 1970 to simplify international trading procedures, has initiated a number of simplification and standardisation projects including the development of 'aligned' documentation and international data standards. SITPRO encourages the use of computers (including micros) for document preparation and claim that the cost per consignment can be reduced by at least £10.00 compared with a good manual system. This is relevant for companies wishing to develop their own exporting facility.

The range of export documentation covers, order processing, invoicing, customs, banking, insurance, shipping, and transport. It is not surprising that management of export activities can take 2-3 days. Computerisation can reduce this to half a day and eliminate costly document errors. SITPRO comment that paperwork presented to carriers and banks under documentary credit contain discrepancies in 60% of cases. Computerisation and simplification of the process is justified on this basis alone.

Philips, the multi-national, is making considerable investment in developing computerised systems for transnational shipment of goods. With factories throughout the world the logistical advantages are self-evident.

The EEC regards computerisation as a key weapon in its campaign to reduce the effect of trade restrictions. Administrative procedures in Europe are estimated to put 7-10% on the cost of manufactured goods costing European industry £36 billion a year. Shipping goods from Scotland to Italy takes 24 hours but administration can take 3-4 weeks to complete. The EEC has a £900 million R & D programme covering information technology in this area. The three main projects are CADDIA, coordinating computerisation of European Customs and Excise, INSIS, promoting information technology within the EEC bureaucracy, and CACTUS, building a computerised data base of EEC import/export regulations.

In addition to EEC sponsorship there are a number of interesting international projects linking industry sectors including MERCATOR,

LACES and SWIFT.

Materials management must keep abreast of system developments offering short and long term improvements in managing the supply pipeline.

Minimisation of Tax and Duties

Three possible avenues are open to the importer/exporter intent on minimising the effect of duties. These are recovery of duties on re-export, delay of duty payments, and duty avoidance. Each is examined in turn.

The recovery (and avoidance) of customs duties is a major element of stock management virtually unrecognised in the development of computerised material planning systems. Cost management of import/export activities can yield dramatic cost savings. A small Scottish electronics company saves as much as £70k a month from recovery of customs duties following re-export of goods imported from America.

A company wishing to maximise relief from re-export of imported goods must satisfy the Customs & Excise that imported goods (from outside the EEC) are incorporated in exports (again outside the EEC). Sometimes described as duty drawback the advantage of recovery depends on the value of goods re-exported.

Drawback procedures require traceability of stock usage. In other words, Customs must be satisfied that goods claimed to be imported exist and have not been incorporated in domestic shipments.

If imported parts or material are unique then the problem is easy to administrate. Major difficulties arise and duty recovery is lost when manufactured components or assemblies normally fabricated in the UK are imported from outside the EEC. In these circumstances imported stock must be placed in separate stock locations and detailed accounting of the use of imported stock for exports provided.

Remodi Ltd, a software house, based in Scotland are one of the few manufacturing software companies offering a multiple currency software facility and a computer programme which identifies duty relief transactions for drawback. Multiple currency is a standard feature in sales and purchasing modules and the uniqueness of Remodi's approach is a sad reflection on the insularity of software designers whose packages seem to be based on a wholly domestic market-place.

There are areas of manufacture where an understanding of customs legislation can be of considerable help. The growth of offshore oil related technology and the concept of the

purchasing specifications, and close relations with sales, engineering and quality control offer limited solutions to the difficulties which have to be faced.

Trade Restrictions

The legal protection of a company's interests has become more pressing since the 1979 USA Exodus campaign, restricting sales of high technology goods to the Eastern Block. Traceability of high technology components through to the point of sale (and subsequent resale) is a particular requirement.

In a world climate where national considerations predominate customers may insist that commodities from certain countries are excluded. In the recent Argentinian conflict one multi national in the UK purchasing castings from the Argentine was forced to buy from America at a considerable cost penalty.

Contractual and penalty obligations can also reflect trade restrictions, adding weight to the need for end usage traceability. The Arab/Israeli conflict and Iran/Iraq war are two good examples where failure to accept trading conditions can negate a contract.

A Wider View of Materials Management

As the UK moves toward a service type economy the ability to import and

export intelligently will assume greater importance. In the past the UK prospered on the ability to convert raw materials into finished goods and world markets were grateful to take the products we sold.

Now many of our customers and competitors manufacture our traditional goods at least as efficiently as we do. This is a consequence of the rapid transfer of modern technology to Third World countries. The UK challenge is to accept the purchasing opportunities presented by this changed world and to re-export sophisticated goods of a high quality backed by technical and commercial services which our competitors cannot match. This environment provides an excellent challenge to materials management.

The UK is slowly waking up to the vast European markets opened up by membership of the EEC. The relative speed and ease of trading within the EEC encourages this process. Cultural and language barriers have contributed to our delay in responding to these opportunities and there is an urgent need for UK materials managers to develop second language expertise and a greater knowledge of European commercial practice. BPICS can make its own contribution by encouraging contacts with European P P & C Societies and developing a European P P & C Association which

matches the size and professionalism of APICS in America.

This article is intended to stimulate discussion of an area of materials management which we neglect at our peril. The unwillingness of UK industry to give sufficient attention to the foreign customer and the failure of successive UK governments to focus on the changing export opportunities underlies our current malaise. Unfortunately industry and governments reflect our own attitudes and commitment and if we wish to thrive in changed and changing world markets we must be prepared to extend our knowledge base beyond the UK and to widen our expertise to include systems designed to cope with international trading.

ANNUAL GENERAL MEETING

The Society's Annual General Meeting will take place on Saturday, September 27th, 1986 at the De Montfort Hotel, Kenilworth. Further details of the arrangements will be published in the next issue of CONTROL but in the meantime please reserve the date.

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