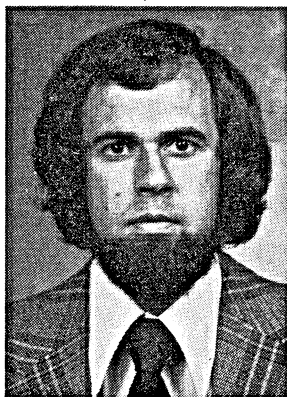


# THE IMPORTANCE OF THE EFFECTIVE MANAGEMENT OF PHYSICAL DISTRIBUTION



By  
Gavin E. Staude  
Dept. of Business Administration  
University of Natal

*Hierdie artikel vestig die aandag op die rol wat fisiese distribusiebestuur speel in enige organisasie wat betrokke is by die vervaardiging of bemarking van produkte. Te lank, sê die skrywer, is fisiese distribusiebestuur as 'n aspoestertjiefunksie behandel; 'n lastige aktiwiteit wat uitgevoer moet word sodra die produk verkoop is. Indien dit egter doeltreffend bestuur word, word al hoe meer erken, kan fisiese distribusie 'n bydrae lewer tot die skepping van 'n vraag. Dit is op hierdie gebied wat kliëntebehoefte onbevredig gelaat word. Daarbenewens is fisiese distribusie 'n terrein wat aansienlike kostebesparings kan meebring indien sisteembeginsels en die totale kostebenadering toegepas word. Om hierdie twee voordele te verkry, nl. groter verkope en/of kostedoeltreffendheid, vereis egter onvermydelik organisatoriese aanpassings waar die algehele fisiese distribusie-aktiwiteit onder een departement of een bestuurder ressorteer.*

## INTRODUCTION

At the very outset, it is necessary to define what is meant by physical distribution and to place it within the context of an overall distribution system. It is necessary to do this, both because of the different interpretations given to the concept, and because of the tendency of many firms to treat the terms 'logistics' and 'physical distribution' as being synonymous.

Bernard La Londe<sup>1</sup> drew attention to this definitional problem and identified three approaches to distribution management which emerged in the United States of America during the 1960's, viz., (a) Physical Distribution Management (b) Materials Management and (c) Business Logistics. The distinctions between these three approaches is illustrated in Figure 1.

Physical Distribution Management has been defined by the National Council of Physical Distribution Management<sup>1</sup>, and as is clear from Figure 1, as

"the broad range of activities concerned with the efficient movement of finished products from the end of the production line to the consumer, (and in some cases includes the movement of raw materials from the source of supply to the beginning of the production line)" (Brackets were inserted by the author).

Materials Management has been defined as<sup>1</sup>:

"that aspect of industrial management concerned with the activities involved in the acquisition and use of all materials employed in the production of the finished product."

Business Logistics, finally has been defined as:<sup>1</sup>

"a total systems approach to the management of the distribution process including all of those activities involved in physically moving raw materials, in-process inventory, and finished-goods inventory, from point of origin to point of use or consumption."

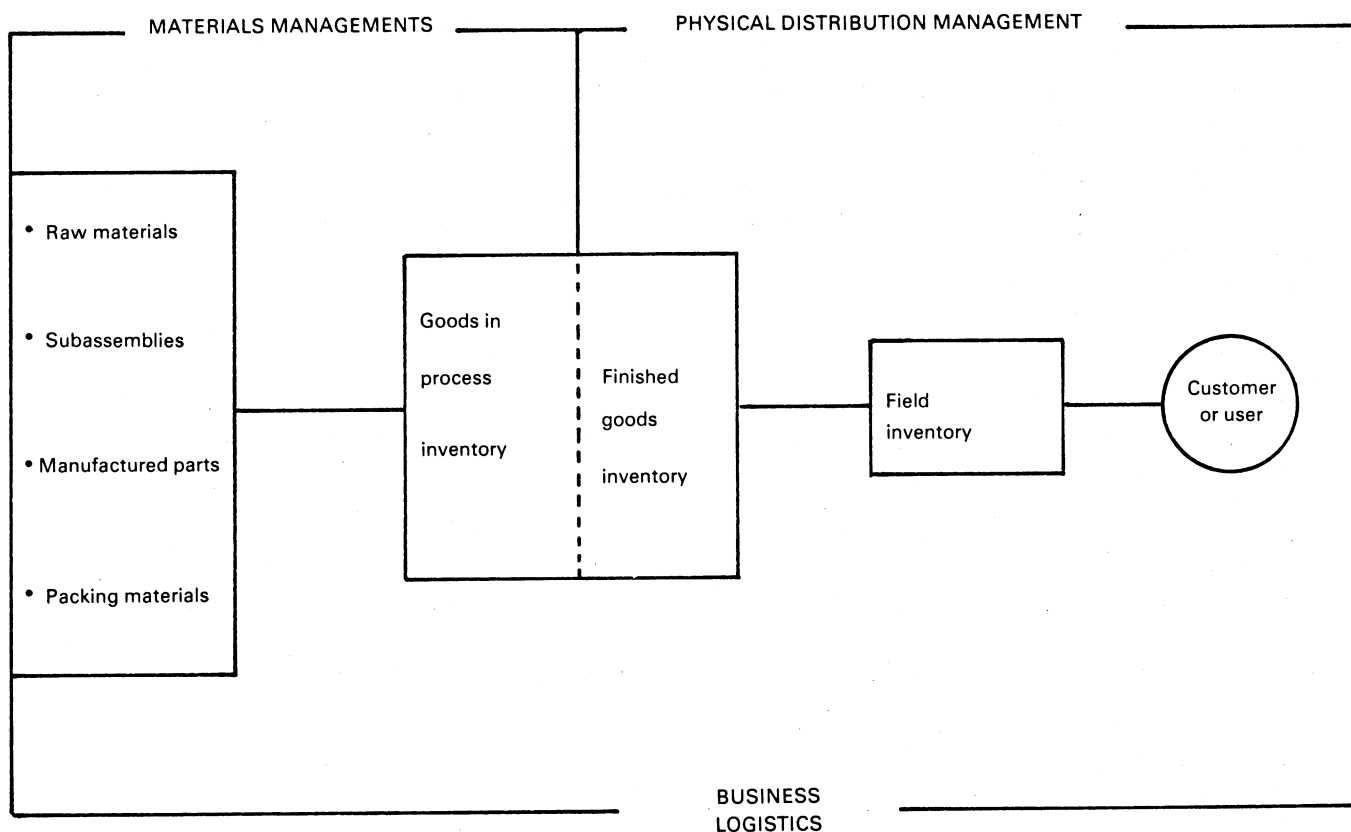
Thus, far from being synonymous with business logistics, physical distribution is merely a *part* of business logistics, as is materials management.

Having drawn a broad distinction between physical distribution and logistics, and having placed it within the context of the product flow through a business enterprise, the activities which constitute physical distribution need examination.

## Physical Distribution Activity Centres

In moving finished products from the end of the production line to consumers, physical distribution management encompasses a broad range of activities of which the following are the most important:-

- (1) *Facility Locations*: This is concerned with the optimum siting of plants, warehouses and depots. The underlying principle here is that a superior network of distribution facilities can result in speedy deliveries at minimum cost with obvious customer satisfaction and profit implications.
- (2) *Unitization*: This is concerned with the economics of palletization, packaging, cube utilization of warehousing, containerization. This is another area with marketing and profitability implications.
- (3) *Communication*: There are two aspects of communication flow in the context of physical distribution:-



**Figure 1 INTEGRATED DISTRIBUTION MANAGEMENT** from "Integrated Distribution Management: An American Perspective", B.J. La Londe, *Long Range Planning*, December 1969.

- (a) **order collection and processing:** This is a critical aspect because the customer's order is the initial input into the total physical distribution system. If there are bottlenecks at this stage, the whole process can be slowed down with customer dissatisfaction a possible result.
- (b) **order preparation:** It is important from the point of view of good customer relations that customers receive their shipments as promised with regard to time, quantity and quality of goods.
- (4) **Inventory:** Recognising on the one hand that the holding of stocks ties up working capital and incurs a cost, but on the other hand that it is necessary to keep customers and achieve sales, the idea is to maintain the minimum practical level of stocks. To achieve this objective, the following points bear consideration:
  - (a) **Quality of customers:** A firm typically sells to a variety of customers in terms of profit opportunities. The Pareto rule invariably applies here with 20 per cent of customers accounting for 80 per cent of sales and profits. It makes good sense here to apply the principle of reciprocity and to look after the good profit opportunities by offering the said 20 per cent of customers a high level of physical distribution service, i.e. stocks when they want them. The remaining 80 per cent of customers must be satisfied with lesser service.
  - (b) **Quality of products:** A similar situation applies with products. Thus it would make good sense to stock in all location those items which contribute most to total profits while only maintaining stocks of slow moving, low profit items in a central depot.
  - (c) **Competitor performance:** Paradoxically, it may pay a firm to deliberately maintain high inventory levels. By creating a competitive advantage in this way, the resultant increase in sales may more than outweigh the increase in costs.
- (5) **Transport:** There are three aspects of importance here:-
  - (a) **Cost of service:** The aim should be to minimise transport costs. This does not necessarily imply, however, that the cheapest mode of transport should always be chosen.
  - (b) **Speed of service:** The speed and cost of a transport mode usually relate in two ways: (i) the faster a mode of transport, the more expensive it is; (ii) the slower a mode of transport, the longer the period that

inventories are locked up and the higher the stockholding costs.

- (c) *Consistency of service*: There is evidence to believe that for most customers, consistency of service is more important than speed. If the order cycle length, i.e. time between submission of order and receipt of goods, is two days on one occasion, and six days the next, serious bottlenecks could occur in the customer's logistics system.

### Fragmented Physical Distribution

Traditionally, these various physical distribution activities have been the responsibilities of different departments within the firm. For example, the Marketing department is usually responsible for field inventory, customer service and distribution channels; Finance and Accounting is often responsible for communications, data processing and order processing, and the Production department for warehousing, transport and in-company inventory. In other words, physical distribution activities are traditionally extremely fragmented and spread throughout the company.

This fragmentation inevitably has adverse consequences:-

- (a) each physical distribution activity tends to be relegated to a role of secondary importance to the major responsibility of its parent department. The net effect is that physical distribution comes to be regarded as a necessary evil; its full potential as a means of *creating* demand, as well as simply *servicing* demand, is overlooked;
- (b) because physical distribution activities are spread throughout the organization, it is very difficult, if not impossible, to calculate the *total* cost of physical distribution. In the words of Peter Drucker<sup>2</sup>:

"Physical distribution is a cost area and purely a cost area . . . . . Usually there is no idea how big a cost area it is. The one cost element that managements have traditionally seen, freight of finished products, goes in many cases up to 10 per cent of what the customer pays. And yet, it is a fairly small cost. The actual costs of physical distribution of materials all the way along the economic process may be 30 per cent or 50 per cent of the total cost. Even though the total costs are unknown, they are certainly the largest single item in the cost structure."

- (c) Because of the difficulty of co-ordinating the movement of goods through a fragmented physical distribution system, sub-optimization tends to be the norm. This sub-optimization is seen in the following situations: The transport manager, because he is evaluated on his total freight costs, ships products only by full truck

loads and by the most economical transport mode. The salesman, on the other hand, because he is judged on total sales, expects reliable and rapid customer order service, while the production manager, evaluated on unit production costs, wants to make only one type of product in one size.

This sub-optimization can lead not only to poor distribution performance from the customer's viewpoint but also to inefficiency and waste from a management point of view.

To overcome these problems, it is necessary for a firm to adopt the physical distribution concept.

### Physical Distribution Concept

This concept simply states that all activities related to product flow must be fully integrated within a single control system. Emphasis here is on the word "system" and the application of systems principles, of which the following are very important:-

- (a) It is the performance of the *total* system which is of paramount importance.
- (b) Costs incurred on individual items such as warehousing, protective packaging, inventory, transport, are of importance only as they relate to *total costs* and performance of the *total* system.
- (c) Individual activity centres integrated within a total system can produce better results than attainable by a series of individual efforts. These better results will be reflected in lower *total* costs and/or improved customer service.

As intimated, what is known as trade-off analysis is an integral part of the physical distribution concept. Trading-off involves maintaining a sub-optimal position in one or more sub-systems so that the system as a whole operates at optimum efficiency. Thus, a ten warehouse system will incur higher warehousing and stockholding costs than a five warehouse system. The savings in transport costs and stockout costs however, may more than compensate for these increases. In this situation, then, an increase in warehousing and stockholding costs have been traded-off against a reduction in stockout and transportation costs to an extent that the cost-effectiveness of the overall system has been improved.

The effects of trade-offs can be assessed in two ways<sup>3</sup>:-

"first from the point of view of their impact on total system costs, and secondly from their impact on sales revenue. It is possible to trade-off costs in such a way that total costs increase, yet because of the better service now being offered, sales revenue increases. If the difference between revenue and costs is greater than before, the trade-off may be regarded as leading to an improvement in cost-effectiveness."

To be able to effectively conduct trade-off analyses, effective co-ordination of, and communication between, the various physical distribution activities is necessary. Thus the adoption of the physical distribution concept by a firm requires adjustments in its organizational structure. Previously dispersed activities should come under the responsibility of one manager or department where possible.

### Reasons for the relatively recent focus on Physical Distribution Management in South Africa

There are a number of factors which have given rise to the increasing attention being paid to logistics and physical distribution by South African firms:-

- (1) The important role of distribution in providing customer satisfaction and in attracting customers is being recognised. As the business environment has become more competitive, management has finally come to recognise that attracting an order is only half of the total marketing job. *Getting* the rights goods to the customer at the right time and in the right quantities is the other half, and it is becoming an increasingly important half. This is particularly so for those firms selling relatively homogeneous products such as chemicals, milk and many types of food and beverages.

As the *customer* begins to adopt data processing technology and becomes aware of the precise costs of holding inventory and the importance of consistent service, physical distribution will become even more critical to many firms.

The point is that it has been recognised that physical distribution can also be used as a means of *creating* demand and increasing sales, and not merely as a means of *servicing* demand.

There are a number of ways in which an effective physical distribution system can generate additional sales or at least keep present customers satisfied and loyal:-

- (a) *Minimize out-of-stock occurrences.*
- (b) *Reduce customer inventory requirements:* To the extent that it is possible for a company to reduce its customer order cycle length, it will be possible for customers to hold less stock and thus lower their costs.
- (c) *Solidify customer relationships:* It may be possible to integrate a firm's delivery facilities with a customer's receiving facilities and thereby increase customer loyalty.
- (d) *Increase customer discounts:* As a result of a successful trade-off exercise, enough savings may be achieved to pass on some of these to customers in the form of discounts. This will immediately improve the attractiveness of that firm as a supplier.
- (e) *Enable expanded market coverage:* A more efficient physical distribution system may permit a company to expand into distant markets for the same total costs as at present.

- (2) As economic conditions have become more difficult, many firms have found themselves in a profit-squeeze situation. As a result they have begun to look around for cost reduction opportunities. It is not always possible, however, to achieve cost reductions without a major restructuring of the cost centres within which they occur. With physical distribution, however, it is possible to achieve these cost savings merely by juggling and manipulating the elements within a cost centre and without restructuring the cost centre itself. For example, it may be possible to reduce the level of stocks held. This will reduce the level of customer service offered and inevitably, sales will be adversely affected. Because of the more than proportionate decrease in costs, however, net sales may well have increased.

Cost reductions in the physical distribution area can provide considerable profit leverage. If a company is currently making 2% net from R1 sales, then a reduction in physical distribution costs of 2 cents is equivalent to an increase in sales of R1. Similarly, a reduction in costs of R2 and R20 is equivalent to an increase in sales of R100 and R1 000 respectively. The point is that in a recessionary economic climate it may well be easier to accomplish the savings in costs rather than the required increase in sales.

The real impact of physical distribution costs on profits is much greater than many managements think. These costs very often increase insiduously because they lie in a managerial no-man's land outside the scope of responsibility of any operating manager. They are not, strictly speaking, the responsibility of the distribution manager because they are incurred in, and as part of, the marketing department, production department or some other functional area of the business. On the other hand, however, these costs cannot be effectively dealt with by these respective operating managers because they are related to distribution policy and strategy which should be the sole preserve of the distribution manager. This state of affairs is directly attributable to the fragmented nature of distribution in many firms. It is for this reason, then, that physical distribution costs in many cases represent a significant untapped profit improvement potential.

- (3) A third reason why physical distribution is receiving increasing attention in South Africa is the significant proportion of total costs which physical distribution costs represent. In two dairies in the Pietermaritzburg area, for example, it was established that total physical distribution costs represent between 30% and 35% of total costs.

It is widely held that the distribution area is probably one of the last remaining frontiers for

significant cost savings. According to Peter Drucker<sup>2</sup>:-

"Physical distribution is the only area in which there is still a great deal of room for improvement. In a well-managed plant, it is not really possible to cut costs of the machine work substantially. The problem with sales expenses is not that they are too high, but that salesmen are not productive enough. When it comes to costs, physical distribution is about the only area in which efforts really pay off. A 10 per cent improvement in physical distribution costs is probably worth a 40 per cent improvement in true manufacturing costs."

- (4) A fourth factor which has resulted in increasing attention being paid to physical distribution, and indeed which has paved the way for the emergence of physical distribution as an important business function, is the use of computers. Distribution data are classified as a high input, low calculation, high output form of processing. The advent of magnetic tape, random access files, etc., has made it possible to handle masses of distribution data in an integrated way. As a result, management for the first time, probably, has been *fully* informed of the true state of its physical distribution activities.

## CONCLUSION

The effective management of its physical distribution activities, can result in two major benefits accruing to a firm: Firstly, costs can be considerably reduced as a result of the adoption of the physical distribution concept and its attendant systems principles and trade-off analysis; secondly, sales can be considerably increased by offering customers satisfactory levels of service.

As in every sphere of business, however, costs must be balanced against the expected benefits.

Finally, to quote Peter Drucker<sup>2</sup>:-

"Physical distribution is thus today's frontier in business. It is the one area where managerial results of great magnitude can be achieved. And it is still largely unexplored territory."

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- <sup>3</sup> Christopher, M. *Total Distribution* (Gower Press, London, 1971).