

DETERMINISTIC FACTORS FOR CHOOSING OF DISTRIBUTION MODEL

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Summary: Great companies whose number of retail and supplier units are numerous face complexities due to the large number of suppliers, large number of products and the scale of distribution. It's essential for them to have supply chain well managed. Distribution is one of the key strengths. Right distribution set up is influencing landed cost of the goods for customer on high level. Nowadays when companies face high level of uncertainty it is not always clear that the cheapest solution is the best one. What other factors do we have to define the best solution?

Key words: distribution model, supply chain, leadtime, landed cost, intensive and extensive logistic

INTRODUCTION

Distribution model is the mode where products are delivered from supplier to the distributor and then to the final customers. It is generally known as supply chain. There are different ways how to move the products from supplier to the final customers. I have watched on factors and price perspective to see what is the first step before deciding which distribution model to be used.

1. DEFINITION OF DISTRIBUTION MODEL

Each company goal is to sell product they provide as much as possible with the required quality of article and service as add value itself. It is essential to use distribution system to get product from A to B.

Distribution model consist of distribution channels. We can define 3 main functions of distribution channel. It has commercial, logistic or support function. We will focus on logistic function. There are 3 types of distribution system – horizontal, vertical and hybrid. Horizontal system is connection of retail shops located at the same place [commercial zones at the outskirts].

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Costs for marketing, parking and others services provided to the customers are shared. Vertical system is when all links of distribution way are independent and providing services upon agreement. Hybrid system is the one we are speaking about here. System where company is using more distribution ways directed to 1 sales place [country, city etc.]. It enables to provide service from more suppliers and to more retail units [different market places].

Inventory [raw material, semi-finished goods, ready to sell goods] is stored in many points of supply chain. Nowadays is given high demand on all costs within the supply chain as it is one of the main figures for sales price. Transport is needed to get inventory from A to B, either raw material or finished goods. To get balance and optimal costs there are different ways how to secure transport of inventory as good as possible with high demand on price level and getting the goods at receiving point on time.

Great companies whose number of retail and supplier units are numerous face complexities due to the large number of suppliers, large number of products and the scale of distribution. It's essential for them to have supply chain well managed. Distribution is one of the key strengths. Right distribution set up is influencing landed cost of the goods for customer on high level. You can see what are influencing figures on landed cost. It is essential to focus on analyse how the different delivery solution can change price of the article.

2. WHAT IS THE INFLUENCING FACTOR FOR CHOOSING DISTRIBUTION MODEL?

The choice of a distribution set up is strongly influenced by many factors mostly relating to the product that company is selling to their customers. Character of the product is the first. The way how it will be used by customers, size and weight, usage purpose, durability etc. are main factors which have to be analysed at the beginning. Grocery requires different type of transport and storage then glass vases. If you are selling cloths you will be able to use probably sea transport to make your costs as low as possible compare to selling vegetable or magazines which's durability is quite short and have to be sold quickly after dispatch from supplier. What is the network of retail unit that company have? Are they focused worldwide or only on country level? What is the willing of customers to travel to store to buy a product? All those factors are influencing choice of distribution set up highly.

For companies owning hundreds of stores worldwide is best choice to hold their own distribution facility which enables them to decrease logistic costs by paying to third parties.

Let's have a look at company where you have different sizes and types of products, suppliers of those products and hundreds of stores within the world. Imagine you have long supply and high demand on availability at each store. Then you need to have developed distribution set up on high level. What are the main factors for choosing which delivery method?

On the picture 1 there are described two main distribution methods:

1. DC deliveries

Where the goods is ordered from central DC (distribution centre) and stored at the DC. This method is creating storage costs and handling costs at DC and STO (store).

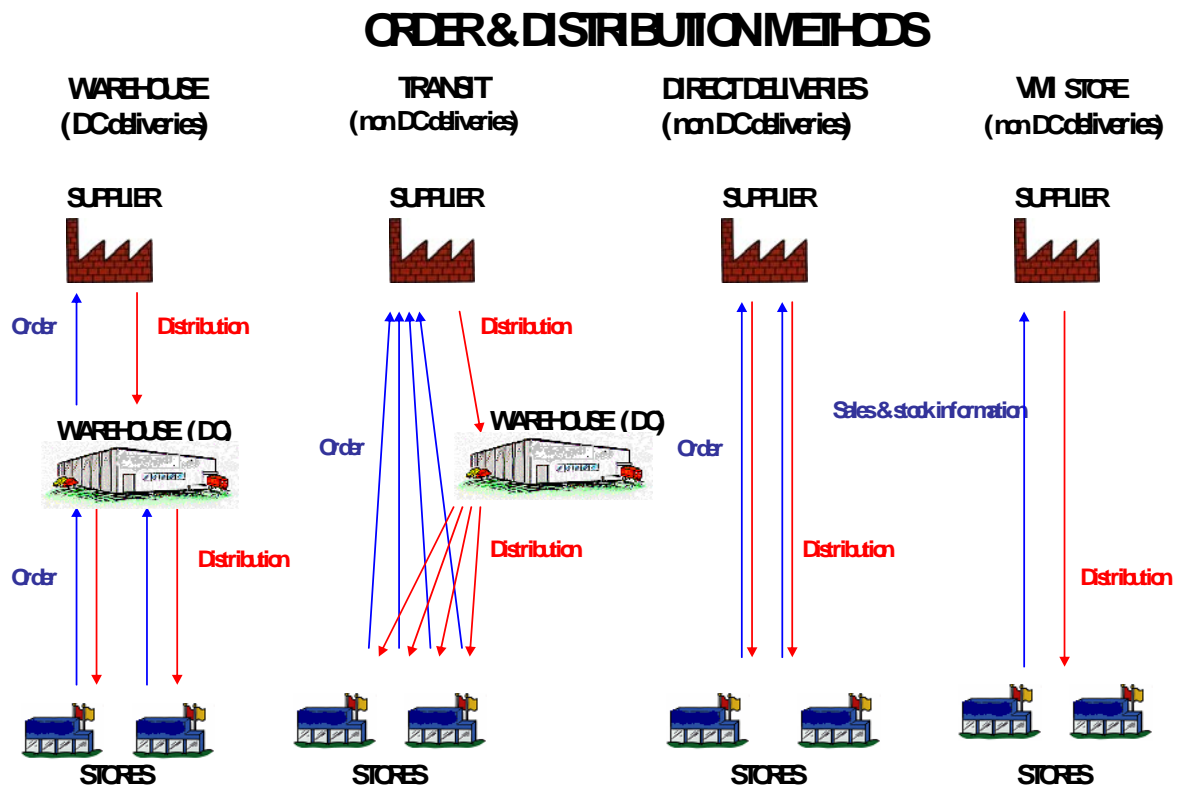
2. NON DC deliveries

There are more types of non DC deliveries.

TRANSIT deliveries, where the goods is transported to DC, is re-loaded on the ramp and within 24 hours is sent to STO which means no storage costs, just handling costs at DC and STO. Orders are going to supplier from DC. Stores are ordering from DC. Security stock is kept by DC which has to secure right level and keep it.

Direct Deliveries, where the goods is ordered and distributed directly to the STO. There is no storage and no handling at DC, only handling in STO + less transport costs.

VMI to STO, the most developed distribution method, a supplier is driving the stock at store using the inventory limits [min and max stock level] from each store/article and delivering just in time directly to stores. There is no storage costs, no handling at DC, minimum handling at STO, savings on transport.



Source: Authors

Fig. 1 – Order and distribution methods

3. WHAT ARE THE MAIN FACTORS FOR CHOOSING WHICH DELIVERY METHOD?

When deciding which delivery [distribution] method to use it is important to take into consideration more factors. What are our goals at the selected market, character of a product, what do we want to offer to our customers, what is our target group of customers and of course profitability of chosen method. There are more types of distribution. When delivering products to final customers we can use three types of distribution [intensive, selective or exclusive distribution]. When using intensive distribution product is sold throughout many retail units. It is important for products where decision to buy or not provide comfort, it is useful for products with low price and prompt consumption. Selected distribution is used for products such as cloths, domestics, electronic goods, sports equipment and flat equipment. Number of retail units is limited compare to intensive distribution and it is sold only in selected retail units because target group is smaller. Sales promotion is more focused on selected market and target group. Selected distribution is determined for more aggressive sale. It is useful for more expensive products and it is sold at special sales place under franchise with producer. Exclusive distribution increase image of product which enables to make higher retail price.

Lets have a look on retail part of supply chain and show what are main factors when choosing delivery set up. There are more parameters on which retail unit [store] base its decision about purchasing product. [on price level and store limitations]. Distribution can make price on different level. On the picture bellow is seen different landed cost price [total cost of product with distribution costs to sales place] based on different delivery solution.

1 full load
132 pcs of half pallets
99 pcs per pallet
in total 13068 pcs in 1 truck

DELIVERY SOLUTION	COSTS per pc					
	purchase price	handling	storage	transport	other costs	landed cost
warehouse delivery	4,09	0,14	0,10	0,09	0,06	4,48
transit delivery	4,09	0,11	0,11	0,09	0,06	4,46
direct delivery	4,09	0,08	0,13	0,06	0,06	4,42

storage in DC and store

storage in store only

Source: Authors

Fig. 2 – Delivery solution

Purchase price is constant for all distribution methods. The rest of costs is changing for each distribution method.

When it comes to direct delivery the landed cost is cheapest from all 3 delivery solutions we are taking into consideration. But price is not the only one figure. Space limit of each retail unit is essential criteria when choosing delivery of product. Store intention is to make profit which means that each square meter is intended to be used as sales place and warehouse part is considered to be as small as possible. That's why the storage costs are highest in store. Distribution centre purpose is to bring product closer to store and allow store to keep as low stock as possible.

When it comes to transit delivery from the storage perspective it is more comfortable for stores. They can have their products within short leadtime and doesn't have to keep high stock of goods as short leadtime allows them to have goods mostly within 2 days at sales place.

When it comes to warehouse delivery it is most expansive method because of long leadtime and storage costs at the DC. This method is mostly used for suppliers whose volume is low and their production is not quick enough to be able to dispatch full truck of goods for certain country each week.

How to decide which delivery method is the best one? Its crucial as there are limits on sender and on receiver perspective as well. How to define best solution? Nowadays when companies face high level of uncertainty it is not always clear that the cheapest solution is the best one. Lets have a look on leadtime factor for choosing right distribution method.

4. LEADTIME

Leadtime is the period of time from the begging to the end of some process [in supply chain is its definition based from the receiving of order till delivery to the final customer]. There are many parts of total leadtime taking into consideration in supply chain. Production leadtime, sender leadtime, transport leadtime, receiving leadtime based on the direction to consider.

When deciding which distribution [delivery] method is suitable to choose you have to take into consideration leadtime parameter.

Length of the leadtime is deeply wedded with the costs. Each supply chain point have different view of the leadtime period. Look at the leadtime perspective and its specifics.

Production LT: It is time period of production process from raw material to ready made product [finished goods]. Each supplier and production have different leadtime based on specific of production itself, intention of supplier to hold cash flow, leadtimes from his sub-supplier etc. There are many factors influencing leadtime.

EXPECTED VOLUME FOR DELIVERIES TO DCs in EUROPE						
Country	RCVs no	current volume/nm3	new/nm3	total/nm3	truck yearly	LT in days
Sweeden	001	880,2	357,6	1237,8	26	13,9
Germany	053	1134,7	2062,8	3197,6	68	5,4
Dortmund	064	53,2	0	53,2	1	322,3
Italy	236	590,8	494,0	1084,7	23	15,8
France	247	945,8	276,9	1222,7	26	14,0
Poland	310	479,8	175,8	655,6	14	26,2
Austria	318	439,3	197,8	637,1	14	26,9
Russia	339	707,8	146,4	854,2	18	20,1
Belgium	359	648,1	226,0	874,1	19	19,6
GB	390	438,0	223,5	661,4	14	25,9
Spain	487	842,9	259,8	1102,7	23	15,6

Calculation based on FR: 59%

Source:author

Fig. 3 - Result of calculation of LT based on volume and FR level

Sender LT: supplier part, the period from receiving of order up to the dispatch finish goods, keeping high stock at the supplier costs money and holds cash flow.

Transport LT:

The fastest deliveries are mostly the most expensive. From the transport cost perspective its better to have longer transport leadtime. From the receiving perspective its opposite as the receiver have to keep higher stock of goods to be able to supply customer with goods on time.

Receiving LT:

Time period when is transport unit unloaded at the receiver point and got into storage place (for DC) or to the sales place (at the store).

There are many factors and views on choosing distribution set up. We have seen that price is not always the key factor when deciding.

5. CONCLUSION

Leadtime and distribution method are main figures to be taken into consideration when evaluating to decide which distribution set up to choose. We have watched on costs level for each of the delivery method and saw what is influencing the landed cost of a an article. As we have seen there are certain types and views of distribution. Price of the delivery is not always the main figure. Leadtime is influencing decision quite a lot when we take into consideration all components and parts of supply chain it influences.

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