ABC Analysis

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Abstract:-ABC Analysis is an inventory categorization technique used to classify and prioritize inventory items in an effort to better allocate business resources. This technique is based on Pareto Principle for determining which items should get priority in the management of a company's inventory. It is a method which consists in dividing items into three categories (A, B, C).

I. INTRODUCTION

- ABC analysis is an Warehouse/inventory categorization method which divides items into three categories (A, B, C):
  - A being the most valuable items,
  - B being the less valuable than A and more valuable than C,
  - C being the least valuable ones.

- This method tends to draw the Industry supervisor's attention on the critical few (A-items) not on the insignificant many (C-items).
- The ABC approach defines that a company should categorize items from A to C, based on the following rules:
  - *A-items* are goods with annual consumption value highest; the top 70 to 80% of the annual consumption value of the company typically accounts for only 10 to 20% of total inventory items.
  - *B-items* are the interclass items, with a medium consumption value; those 15 to 25% of annual consumption value typically accounts for 30% of total inventory items.
  - *C-items* are goods with annual consumption value lowest; the lower 5% of the annual consumption value typically accounts for 50% of total remaining inventory items.
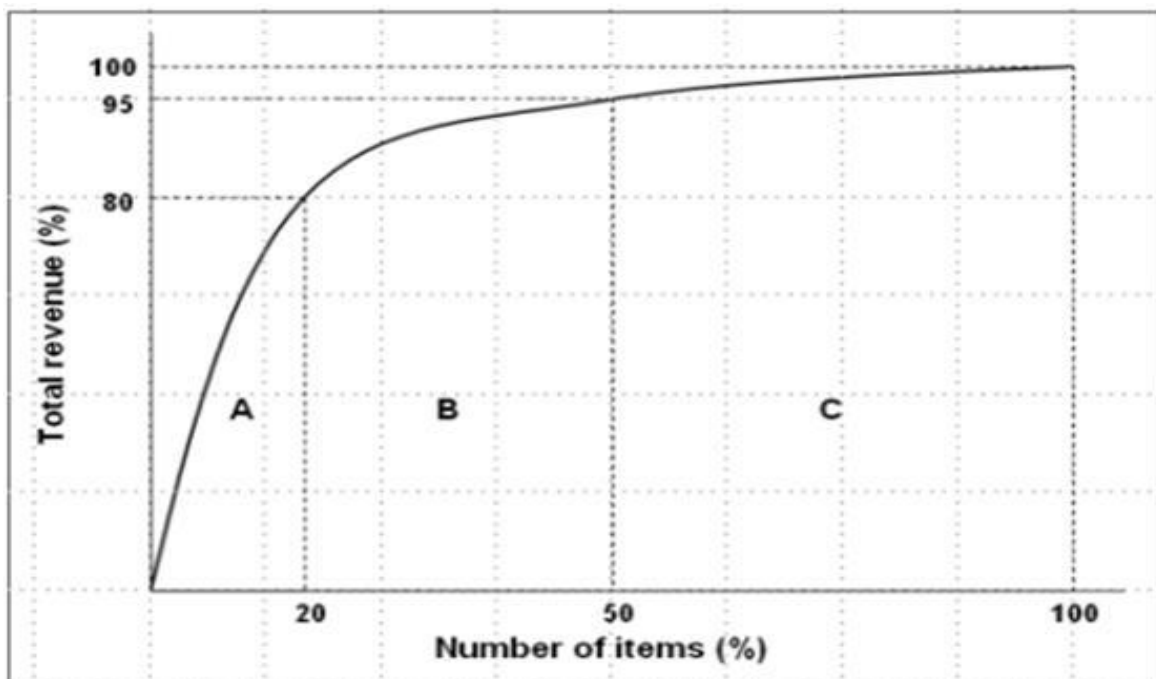
- The annual consumption value Can be calculated with the above mentioned formula:

(Annual demand) x (item cost per unit)

- With this categorization, the supply manager can easily identify inventory hot spots, and separate them from the rest of the items, especially those items that are numerous but not that important in terms of profit.
- Steps for the classifying items of inventory:

- Firstly, find out the unit cost and the usage of each material over a given period;
- In second step multiply the unit cost by the estimated annual usage to obtain the net value;
- In third step list out all the items and arrange them in the descending value (Annual Value);
- And last the fourth step accumulate value and add up number of items and calculate percentage on total inventory in value and in number;

	Percentage of items	**Percentage value of annual usage**	
Class A items	About 20%	About 80%	Close day to day control
Class B items	About 30%	About 15%	Regular review
Class C items	About 50%	About 5%	Infrequent review

EXAMPLE:-

Name	Item no.	Unit Cost	Annual Demand
Packing	101	35	4000
Packing	102	60	183
Packing	103	16	226
Rubber washer Large	104	40	7700
Rubber washer Small	105	26	1324
O-Ring	106	15	1023
O-Ring	107	12	3324
O-Ring	108	12	1921
O-Ring	109	12	1329
O-Ring	110	15	1900
O-Ring	111	8	1427
O-Ring	112	20	15510

SOLUTION:-

Step-1

Name	Item no.	Unit Cost	Annual Demand
Packing	101	35	4000
Packing	102	60	183
Packing	103	16	226
Rubber washer Large	104	40	7700
Rubber washer Small	105	26	1324
O-Ring	106	15	1023
O-Ring	107	12	3324
O-Ring	108	12	1921
O-Ring	109	12	1329
O-Ring	110	15	1900
O-Ring	111	8	1427
O-Ring	112	20	15510

Step-2

Item no.	Unit Cost	Annual Demand	Total cost per Year
101	35	4000	140000
102	60	183	10980
103	16	226	3616
104	40	7700	308000
105	26	1324	34424
106	15	1023	15345
107	12	3324	39888
108	12	1921	23052
109	12	1329	15948
110	15	1900	28500
111	8	1427	11416
112	20	15510	310200
Total			941369

Step-3

Item no.	Unit Cost	Annual Demand	Total cost per Year	Usage as a % of total usage
101	35	4000	140000	14.8
102	60	183	10980	1.1
103	16	226	3616	0.4
104	40	7700	308000	32.7
105	26	1324	34424	3.7
106	15	1023	15345	1.6
107	12	3324	39888	4.2
108	12	1921	23052	2.5
109	12	1329	15948	1.8
110	15	1900	28500	3
111	8	1427	11416	1.3
112	20	15510	310200	32.9
Total			941369	

Step- 4 (Results of calculation)

Category	Items	Percentage of Items	Percentage usage (%)	Action
Class A	101, 104, 112	25%	80.5%	Close control
Class B	105, 107, 108, 110	33%	13.3%	Regular review
Class C	102, 103, 106, 109, 111	42%	6.2%	Infrequent review

II. ADVANTAGES OF ADAPTING ABC ANALYSIS OF INVENTORY IN COMPANIES

A. End of Life Management

In a lifespan of a product, it goes through four phases; launch growth, maturity and decline. Once the product reaches the maturity stage it is bound decline sooner or later. With the concept of ABC analysis, inventory planners can determine the demand for products beforehand and also manage the stock levels according to the need.

B. Supplier Negotiation

As class A items in inventory contribute 70% to 80% of money annually made, it is obvious that company would negotiate with the supplier as they are tightly controlled products.

C. Inventory Optimization

ABC analysis benefits in optimization of the inventory as it allows inventory planners to organize high priority items

aligning to customer requirement. Depending on the demand fluctuations the inventory is stocked   to high demand items and also carrying low stock for undesirable items.

D. Strategic Pricing

ABC analysis tracks down the products in the inventory which contribute upto 80% of the annual profit .this helps down the company to set the prices for such products. As a slightly increased rate of a class A item increases the turnover of the company.

E. Resource Allocation

ABC analysis with resource allocation is a continuous process. It require periodic tracking of class A items. Since these items are of utmost value, the stock level of class A items must always align with the customer demand. In case a class A item is no longer desired by the customers or has fairly lower demand by any circumstances, the item needs to be moved to a lower classification B or C.

F. Customer Service Levels

All products are treated in different manner and every product have different customer service levels all this based on various factors like item cost, quantity sold and margin on the product. There is no sense in overloading of the warehouse with low margin products which are sold rarely. Hence ABC analysis allows the inventory planner to set the service levels based on product distribution, which improve the overall supply chain performance carrying less safety stock.

III.   CONCLUSION

In this way ABC analysis plays an important role in any company and hence is followed by many multinational companies. So in this article the benefits for adapting ABC analysis and the procedure for ABC analysis are explained.

REFERENCES

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Website

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