A B C ANALYSIS

- Always Better Control
- Analytical technique for classification of inventory items was first introduced by an AMERICAN FIRM- GENERAL ELECTRIC COMPANY.
- Three categories of inventory items A, B and C type depending upon their percentages of consumption.

ABC ANALYSIS

ABC plan is based upon segregation of materials for selection control.

It measures the money value, i.e., cost significance of each material item in relation to total cost and material value.

The study of each item of stock in terms of its usage, lead time, technical or other problems and its relative money value in the total investment in inventories.

Critical, i.e., high value items deserve very close attention, and low value items need to be devoted minimum expense and effort in the task of controlling inventories.

CLASSIFICATION

- **In this technique, the items of inventory are classified according to the value of usage.**
- **Materials are classified as A, B and C according to their value.**

- Items in **class 'A'** constitute the most important class of inventories so far as the proportion in the total value of inventory is concerned. The 'A' items constitute roughly about 5-10% of the total items while its value may be about 80% of the total value of the inventory.
- Items in **class 'B'** constitute intermediate position. These items may be about 20-25% of the total items while the usage value may be about 15% of the total value.
- Items in **class 'C'** are the most negligible in value, about 65-75% of the total quantity but the value may be about 5% of the total usage value of the inventory.

STEPS

The important steps involved in segregating materials or inventory control are:

i. Find out future use of each item of stock in terms of physical quantities for the review forecast period.

ii. Determine the price per unit for each item.

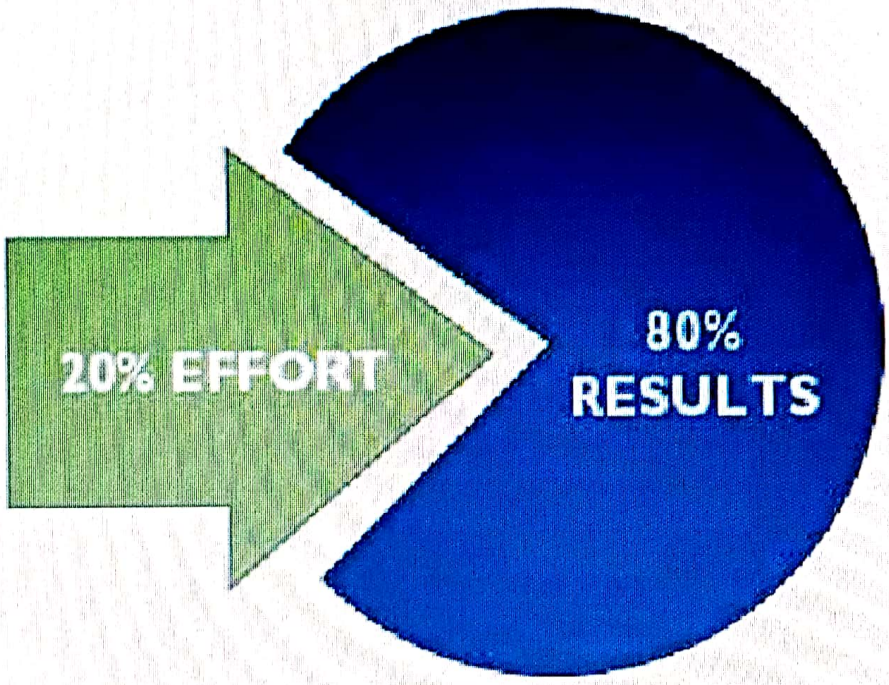
iii. Determine the total project cost of each item by multiplying its expected units to be used by the price per unit of such item.

iv. Beginning with the item with the highest total cost, arrange different items in order of their total cost as computed under step (iii) above.

v. Express the units of each item as a percentage of total costs of all items.

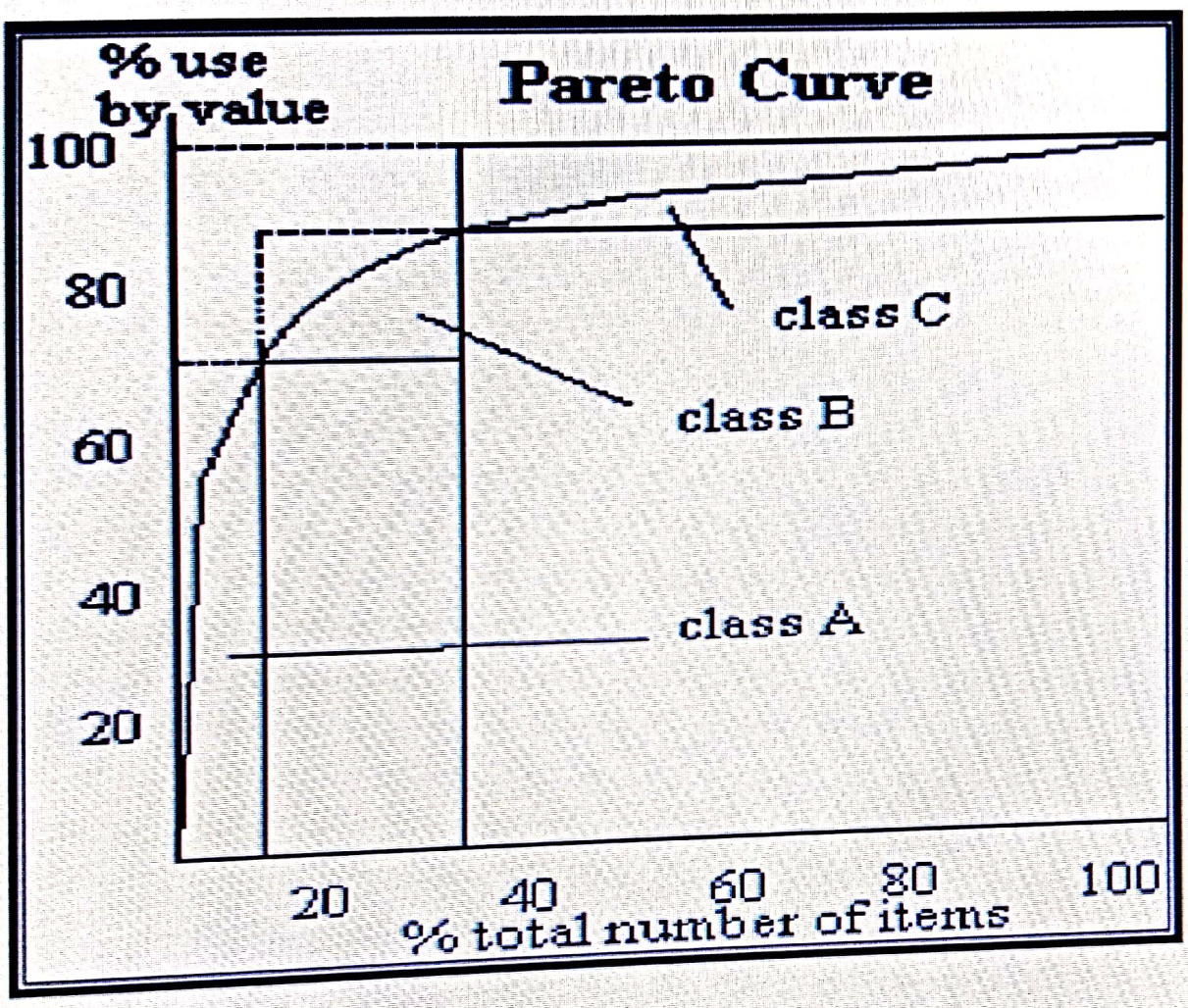
vi. Compute the total cost of each item as a percentage of total costs of all items.

PHILOSOPHY BEHIND



ABC Classification of Inventory Items

- A items : 70% of the annual consumption of inventory is covered by only 10% of the items in the inventory, deserve highest attention
- B items : 20% of the items covering 20 % of the inventory investment(less stringent control)
- C items : rest 70% of the inventory items (very little control).



POLICIES FOR 'A' GROUP ITEMS

- Develop class A suppliers more
- Forecast A items more carefully
- Purchasing department make maximum efforts to expedite and delivery of these items
- Purchase of these items in hands of top officials
- The stock report of 'A' items should be sent more frequently, say at least once in 15 days.

POLICIES FOR 'B' GROUP ITEMS

- Order quantities, re-order stocks and safety stock should be fixed and revised for 'B' items at least one in every 4 to 6 months.
- B items should be ordered less frequently than A items

POLICIES FOR 'C' GROUP ITEMS

- Large quantities can be brought at a time, as total investment will be least.
- Paper work can be reduced considerably if orders are placed once or twice a year.
- The source of supply can be one or two based on their reliability.

Criteria	A type	B type	C Type
Quantity	10%	20%	70%
Annual Usage	70%	20%	10%
Control	Very strict	Moderate	Less
Ordering	Daily/weekly	Monthly	Yearly
Safety stock	Less	Moderate	High
Handled By	Senior officers	Middle management.	Fully delegated.

STEPS IN ABC ANALYSIS

a Determine the annual usage in units for each item for the past one-year.

b. Multiply the annual usage quantity with the average unit price of each item to calculate the annual usage in US$ for each item.

c. Item with highest dollar usage annually is ranked first. Then the next lower annual usage item is listed till the lowest item is listed in the last.

d. Arrange the items in the inventory by cumulative annual usage (dollars) and by cumulative percentage. Categorize the items in A, B , and C categories.

TABLE 1: DETERMINATION OF RANKS BY ANNUAL USAGE IN US$

Item #	Average usage (units)	Unit cost (US$)	Annual usage (US$)	Rank
1	17	2.5		
2	50	17		
3	15	15		
4	25	17		
5	5	17		
6	50	119		
7	153	5		
8	20	2.125		
9	16	2.656		
10	17	2.5		

TABLE 1: DETERMINATION OF RANKS BY ANNUAL USAGE IN US$

Item #	Average usage (units)	Unit cost (US$)	Annual usage (US$)	Rank
1	17	2.5	42.5	
2	50	17	850	
3	15	15	225	
4	25	17	425	
5	5	17	85	
6	50	119	5950	
7	153	5	765	
8	20	2.125	42.5	
9	16	2.656	42.5	
10	17	2.5	42.5	

TABLE 1: DETERMINATION OF RANKS BY ANNUAL USAGE IN US$

Item #	Average usage (units)	Unit cost (US$)	Annual usage (US$)	Rank
1	17	2.5	42.5	8
2	50	17	850	2
3	15	15	225	5
4	25	17	425	4
5	5	17	85	6
6	50	119	5950	1
7	153	5	765	3
8	20	2.125	42.5	7
9	16	2.656	42.5	9
10	17	2.5	42.5	10

TABLE 2:CATEGORIZING THE ITEMS IN ABC RANKING

Item #	Annual usage (US$)	Cumulative annual usage (US$)	Annual usage %	Category assigned
6	5950	5950		
2	850	6800		
7	765	7565		
4	425	7990		
3	225	8245		
5	85	8330		
8	42.5	8372.5		
1	42.5	8415		
10	42.5	8457.5		
9	42.5	8500		
Total	8500			

TABLE 2:CATEGORIZING THE ITEMS IN ABC RANKING

Item #	Annual usage (US$)	Cumulative annual usage (US$)	Annual usage %	Category assigned
6	5950	5950	70	
2	850	6800	80	
7	765	7565	89	
4	425	7990	94	
3	225	8245	97	
5	85	8330	98	
8	42.5	8372.5	98.5	
1	42.5	8415	99	
10	42.5	8457.5	99.5	
9	42.5	8500	100	
Total	8500			

TABLE 2:CATEGORIZING THE ITEMS IN ABC RANKING

Item #	Annual usage (US$)	Cumulative annual usage (US$)	Annual usage %	Category assigned
6	5950	5950	70	A
2	850	6800	80	B
7	765	7565	89	B
4	425	7990	94	C
3	225	8245	97	C
5	85	8330	98	C
8	42.5	8372.5	98.5	C
1	42.5	8415	99	C
10	42.5	8457.5	99.5	C
9	42.5	8500	100	C
Total	8500			

TABLE 3: ABC CATEGORY - SUMMARY

category	Item#	% of items in inventory	$ in the category	% $ in the category
A	6	10	5950	70
B	2, 7	20	1615	19
C	1, 3, 4,5,8,9,10	70	935	11
Total	10	100	8500	100

Advantages

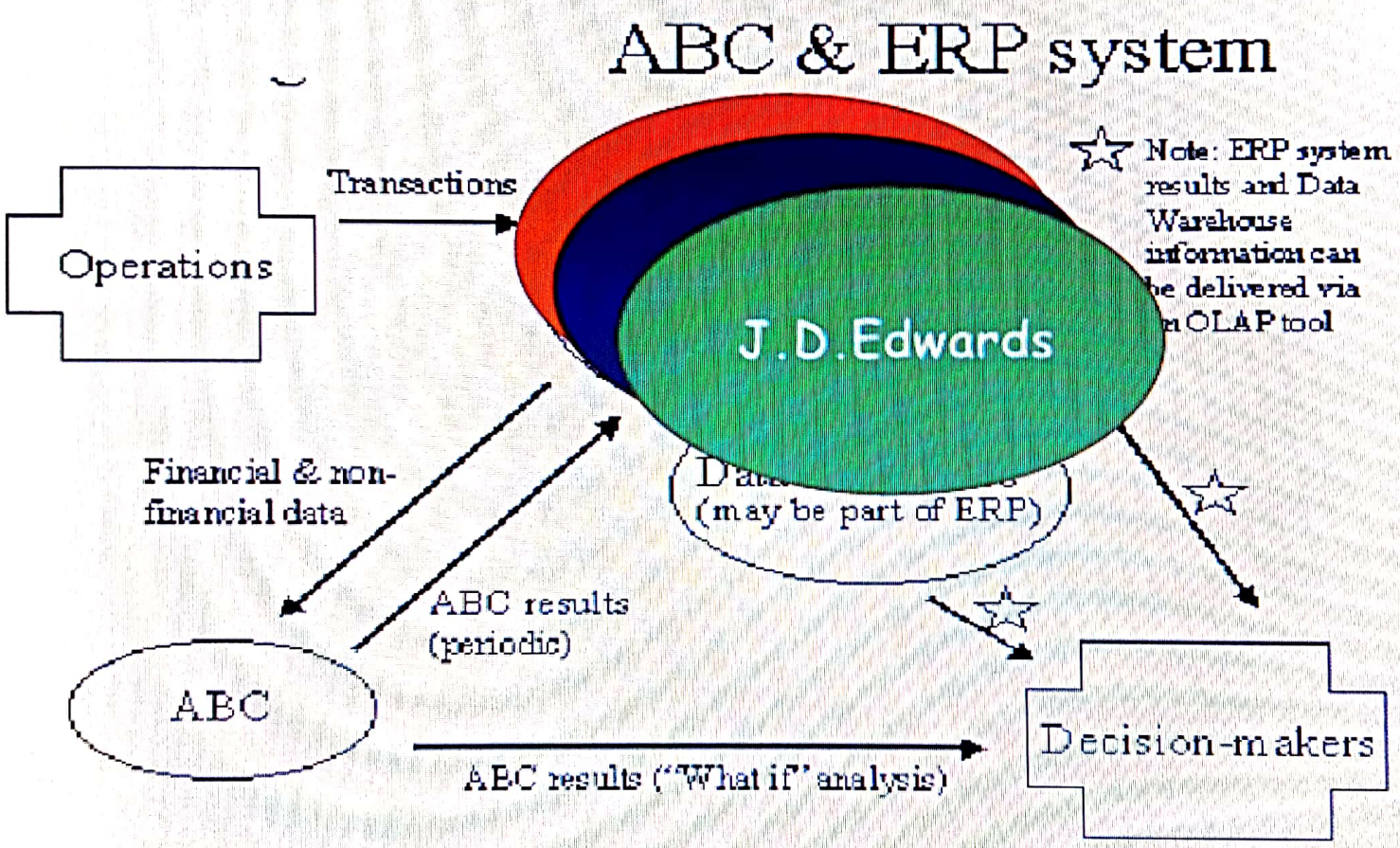
- **CONTROL** : Stocking a better mix of the right inventory allows a company to control **over-supply** and **under-supply** of important SKUs.

- **COST** : Once a company has determined which items fall into each ABC category it can establish cost-reduction initiatives at the SKU level.

- **IMPROVED SERVICE** : Improvement in customer service levels and order fulfillment. ABC analysis provides a company with information to stock the right-mix of inventory.

- **WAREHOUSING** : ABC inventory extends to warehouse management has well. Companies utilizing ABC analysis in the warehouse give priority space to faster moving

Implementation



Implemented

- Midland Bank Group
- British Aerospace
- Swiss Automobile Association
- London Underground
- Gardner Merchant Vending Services
- Dervo Inc - Division of Johnson and Johnson

Apollo Hospitals

Background: The basic principle of inventory control is ABC based on cost criteria .

Methods: Based on ABC matrix, economic analysis of drug expenditure of priced vocabulary of medical stores (PVMS)

Result: Out of 493 drugs in PVMS section 01, only 325 drugs were being used in the reference hospital. The total cost of drugs used

was Rupees 55,23,503. Of these 325 drugs, 47(14.4%) drugs were **Category A** , consuming 70% of total expenditure, 73 (22.46 %)

drugs **Category B** consuming 20% and rest 205 drugs (63.7%) **Category C** drugs cost only 10% of expenditure.

INVENTORY CONTROL

- Inventory control is the systematic control and regulation of purchase, storage and usage of materials:

i. To maintain an even flow of production;

ii. To avoid excessive investment in materials.

- Efficient material control reduces loses and wastages of materials that otherwise pass unnoticed.
- Inventory control is the core of materials management.
- The need and importance of material varies in direct proportion to the idle time cost of men and machinery and the urgency of requirements.

OBJECTIVES

Scientific control of materials should serve the following purposes:

(i) To provide continuous flow of required materials, parts and components for efficient and uninterrupted flow of production.

(ii) To minimise investment in inventories keeping in view operating requirements.

(iii) To provide for efficient store of materials so that inventories are protected from loss by fire and theft and handling time and cost are kept at a minimum.

(iv) To keep surplus and obsolete items to minimum.

METHODS

The following are the common techniques of inventory control:

i. Min-max Plan

ii. The Two-bin System

iii. Order Cycling System

iv. ABC Analysis

v. Fixation of various levels

vi. Use of Perpetual Inventory System and continuous Verifications

vii. Use of Control Ratios

viii. Review of Slow and Non-moving Items.