Cost Allocation, Customer-Profitability Analysis, and Sales-Variance Analysis – THIS WORK IS THEAl SOLE REPRESENTATION OF ME AND ONLY ME AND THE ACTUAL BOOK

I. Learning Objectives
   a. Identify four purposes for allocating costs to cost objects
   b. Understand criteria to guide cost – allocation decisions
   c. Discuss decisions faced when collecting costs in indirect – cost pools
   d. Discuss why a company's revenues and costs can differ across customers
   e. Identify the importance of customer-profitability profiles
   f. Subdivide the sales-volume variance into the sales-mix variance and sales-quanity variance

II. Purposes of Cost Allocation
   a. Indirect costs are related to a cost object but can be traced in an economically objective way.
   b. Products, customers and distribution channels are cost objects that make up a large amount of these costs and subcosts.
   c. Allocation of indirect costs-business functions
      i. Research and development
      ii. Design of products and processes
      iii. Production
      iv. Marketing
      v. Distribution
      vi. Customer Service

Purpose	Examples
1. Provide information to economic decisions	To decide whether to add a new flight. To decide whether to manufacture a component part of a television set or to purchase it from another manufacturer. To decide on the selling price for a customized product or service. To evaluate the cost of available capacity used to support different products
2. To motivate managers and other employees	To encourage the design of products that are simpler to manufacture or less costly to service. To encourage sales representatives to emphathize high-margin products or services
3. To justify costs or compute reimbursement amounts	To cost products at a "fair" price, often required by law and government defense contracts

	To compute reimbursement for a consulting firm based on a percentage of the cost savings resulting from the implementation of its recommendations.
4. To measure income and assets	To cost inventories for reporting to external parties To cost inventories for reporting to tax authorities.

d.

e. Different product design alternatives affect the allocation and types of costs.

f. Income and asset measurement for external individuals under GAAP, will generally include only manufacturing costs and design costs.
    i. These are inventoriable and allocated to the product.

g. Contracts include cost-reimbursement rules so that a payment plan is shown, for example marketing might be excluded.

h. Development costs are capitalized if economic feasibility was reached or if they plant to use the asset as occurred and research costs are expensed under IFRS.

III. Criteria to Guide Cost-Allocation Decisions

a. Four criteria to guide cost-allocation decisions-indirect pools and indirect factors-number and allocation base(cost driver) is affected
    i. Cause and effect – resource identification
    ii. Benefits received-beneficiaries of cost factors. Beneficiaries are responsible and represent allocation in the exact quantitative ratios
    iii. Fairness or Equity – government contracts set fair prices that then result in equal allocation factors.
    iv. Ability to bear – Cost objects are able to maintain a certain amount of costs and this is represented by the allocation factors.
        1. However, there is criticism that results because you can take costs from an unprofitable cost object, which is saturated with costs
            a. Allocate them to a different object, also known as cross-allocation or subsidization. It does not give an accurate view of the costs.

IV. Cost Allocation Decisions

a. Cost allocation – having an understanding of full costs and how they are related to the product based on ABC system
    i. Stage 1: Indirect cost pools for different activities and use cost drivers as bases.
        1. Assignment and reassignment of costs for costing products, service, customers, or employees.

2. Example – CAI's management team collects costs at the following levels:
    a. Corporate costs:
        i. Human resources management
        ii. Corporate administrative costs
        iii. Self -owned stock aska ?
3. Division Costs – 2 direct cost categories(direct materials and direct labor) and 7 indirect cost categories
    a. One cost pool for each of the five categories.
        i. Design, setup, manufacturing, distribution, administration
        ii. One cost pool for facility costs and one for corporate treasury costs.
    b. Allocation of corporate and division and indirect costs

Corporate costs
Corporate allocation bases
Corporate cost pools
Division indirect costs
Division indirect allocation bases
Cost object
Direct costs

    c. Costs in the remaining six indirect pools are allocated based on cost drivers.

V. Allocating Corporate Costs to Divisions and Products
    a. Indirect cost allocation? How to determine how many to allocate?
        i. Allocation of corporate costs to cost centers/profit centers. In addition, full costing requires allocation of corporate indirect costs.
        ii. Exclusion of certain corporate costs. Including some but not all is the controllability function. Pg 508
        iii. Variable and fixed are applied to give a better prediction of future costs.
        iv. If the cost center or profit center costs are less then total profits then it should not be closed down.
        v. Creating cost pools with similar features is an important aspect of organizing the costs. Same cause and effect relationship with the same allocation base for similar cost categories.

VI. Implementing Corporate Cost Allocations
    a. It allocates "shares it owns" costs as follows:
        i. Refrigerator = 900000 x 5200000/5200000+3800000= 520,000
        ii. Output unit level, batch level, end sales object conserving.
    b. Allocates corporate costs based off of admin costs.

i. Added to the admin cost pool

VII. Customer Profitability Analysis

a. Consumer yield analysis – revenues and costs separated out and analyzed by individual components.

b. Differences in revenues and costs can explain a reason for changes in profitability.

VIII. Customer revenue analysis

Cases sold	42000	
List selling price	14.40	
Price discount	.96	
Invoice price	13.44	
Revenues(Row 3 x Row 6)	564,480	

a. Price discounting and case purchases are the two components of revenue difference that describe the differences above. Reduction of sales price from the documented or registered encourage customers to buy more.

IX. Customer cost analysis – maintaining, gaining, helping customers

a. Cost basis and drivers reorganize cost pools

b. Customer output unit level costs

c. Customer batch level costs- costs related to a case sold to customers

d. Customer sustaining costs- costs to support individual customers

e. Distribution channel costs – costs related to a distribution channel

f. Corporate Sustaining costs – Non customer or distribution channel costs.

X. Customer level costs

a. Customer output, batch and sustaining

Activity area	**Cost Driver and Rate**	**Cost-Hierarchy Category**
Product handling	Per case sold	Customer ouput-unit-level-costs
Order taking	Per purchase order	Customer batch level costs
Delivery vehicles	Per delivery mile traveled	Customer batch level costs
Rush deliveries	Per expedited delivery	Customer batch level costs
Visits to customers	Per sales visit	Customer sustaining costs

b. Costs incurred are not all included as customer level costs. For example, distribution costs are not really going to effect the customer directly. They are not going to impact customer – involved decisions and vice versa.

c. Another reason it does not allocate the distribution costs to customers is inspiration. There would be a loss of motivation if costs were allocated to a distribution channel that had little to no influence on actual sales salary.

d. Customer Profitability Analysis

Revenues at list price	604,800
Price discount	40,320
Revenues	564,480
Cost of goods sold	504,000
Gross margin	60,480
Customer level operating costs	
Product handling	21,000
Order taking	3000
Delivery vehicles	600
Rush deliveries	300
Visits to customers	480
Total customer – level operating	25,380

e. Income Statement of Spring Distribution

	Total
Revenues	12,138,170
Customer – level costs	11,633,760
Customer level operating income	504,360
Distribution channel costs	160,500
Distribution Channel Level	343,860

Corporate sustaining income	263,000
Operating income	80,860

f. Corporate sustaining income is not allocated directly to distribution channels because it does not have an impact on the distribution channel.
g. Shutting down the distribution channel is not proportional to any amount of income within the csc income category(corporate, finance)

XI. Customer profitability profiles

a. Tools for managers

Retail Customer code	Customer -level operating income(1)	Customer Revenue(2)	Customer level Operating income divided by revenue 3=1+2	Cumulative customer level operating income 4	Cumulative customer level operating income as a % of total customer-level operating income – highest profit margin 5=4+133,910
B	51,160	467,280	10.9%	51,160	38%
A	35,100	564,480	6.2%	86,260	64%
C	27,070	295,400	9.2%	113,330	85%
D	20,580	277,000	7.4%	133,910	100%
F	12,504	143,500	8.7%	146,414	109%
J	3,330	41,000	8.1%	149,744	112%
E	176	123,00	.1%	149,920	112%
G	-1,190	38,280	-3.1%	148,730	111%
H	-5,690	39,220	-14.9%	143,040	107%
I	-9,120	42,000	-21.7%	133,920	100%

b. The three most profitable customers contribute 85% of the total operating income.
c. Whale curve – depicts customer profitability – back end shows where customers start to be unprofitable
    i. Factors managers should consider in deciding how to allocate resources among customer include
        1. Likelihood of customer

2. Potential for sales growth
3. Long-run customer profitability
4. Increases in overall demand from well-known customers
5. Ability to learn from customers

ii. Using the Five-Step Decision-Making Process To Manage Customer Profitability

1. Identify the problems and uncertainties
2. Obtain information
3. Make Predictions about the future
4. Make decisions by choosing among alternatives
5. Implement, decision, evaluate performance and learn.

XII. Presenting Profitability Analysis

a. Profitability per dollar of revenue by customer. Although customer A has the second highest income, the percent profitability is lower because of price discounts.

XIII. Sales Variance

	Selling price	Valuable Cost per unit	Contribution Margin per Unit	Sales Volume in units	Sales Mix	Contribution Margin
Wholesale channel	13.37	12.88	.49	712,000	80%	348,880
Retail channel	14.10	13.12	.98	178,000	20%	174,440
Total				890,000	100	523,320

a. Actual Results

	Selling price	Variable cost per unit	Contribution margin per unit	Sales volume in units	Sales Mix	Contribution
Wholesale channel	13.37	12.88	.49	756,000	84%	370,444
Retail channel	14.10	13.17	.93	144,000	16%	133,920

XIV. Static-Budget Variance

a. Difference between the actual and the corresponding budgeted
b. The total static-budget variance is 18,960 unfavorable(actual contribution margin of 504,360 – budgeted contribution margin of 523,320).

c. Static budget variance subdivided into flexible-budget variance and sales volume variance.

XV. Flexible Budget Variance and Sales Volume Variance

a. Flexible budget variance is the difference between an actual result and the corresponding flexible-budget amount based on actual output level in the budget period.

	Actual Results: actual units of all products sold x actual sales mix x actual contribution margin per unit	Flexible budget: Actual units of all products sold x actual sales mix x budgeted contribution margin per unit	Static Budget: Budgeted units of all products sold x budgeted sales mix x budgeted contribution margin per unit
Wholesale	900000x.84.49=370440	900000x.84x.49=370,440	890,000x.80x.49=348,880
Retail	900000x.16x.93=133920	900000x.16x.98=141,120	890000x.20x.98=174,440
	504,360	511,560	523,320
	Flex budget variance 7200U		**Sales volume variance** 11760U
		Static budget variance 18,960U	

XVI. Sales – Mix Variance

a. The sales mix variance is **the difference between budgeted contribution for the actual sales mix** and **budgeted contribution margin for the budgeted sales mix**.

Products	Actual Units of all products sold	(Actual Sales Mix % - Budgeted Sales Mix %)	Budgeted Contribution Margin per Unit	=Sales-Mix Variance
Wholesale	900,000 units x	(.84-.80)	x.49 per unit	=17,640 F
Retail	900,000 units x	(.16-.20)	x.98 per unit	=35,280 F

b. The wholesale has a favorable sales mix variance because actual sales mix%-budgeted sales mix % is the higher % rate

c. A composite unit is a hypothetical unit with weights based on the mix of individual units. The composite unit consists of .80 units of sales to the wholesale channel and .20 units of sales to the retail channel. The budgeted contribution margin per composite unit for the budgeted sales mix is as follows:

i. (.80)x(.49) + (.20)x(.98) = .5880

d. The actual sales mix, the composite unit consists of .84 units of sales to the wholesale channel and .16 units of sales to the retail channel. The budgeted contribution margin per composite unit for the actual sales mix is therefore as follows:
   i. (.84) X (.49) + (.20) X (.98) = .5880

XVII. Sales Quantity Variance

a. Is the difference between
   i. Budgeted contribution margin based on actual units sold of all products at the budgeted mix
   ii. Contribution margin in the static budget- based on the budgeted units of all products to be sold at budgeted mix

	Flexible budget: actual units of all products sold x actual sales mix x budgeted contribution margin per unit	Actual Units of all products sold x budgeted sales mix x budgeted contribution margin per unit	Static Budget: Budgeted Units Of All Products x Budgeted Sales Mix x Budgeted Contribution Margin per unit
Wholesale	900,00x.84x.49=370 440	900,000x.80x.49=352,800	890,000x.80x.49=348,880
Retail	900,000x.16x.98=141,120	900,000x.20x.98=176,400	890,000x.20x.98=174,440
	511,560	529,200	523,320
	Sales- mix variance- mix variance 17,640U		5,880 F Sales-quantity variance
		11,760 U Sales – volume variance	

iii.

	Budgeted Sales – Mix Percentages	Budgeted Contribution Margin per unit	Sales Quantity Variance
Wholesale (900,000 units – 890,000 units)	X .80	X .49 per unit	3,920 F
Retail(900,000 units- 890,000)	X .20	X .98 per unit	1,960