

Assignment number: 1

Profitability and customer segmentation

Use cell references in your formulas instead of copying or copying values.
DO NOT round decimal Excel results to whole units in ALL EXCEL CALCULATIONS!!!

Solved problems

Bulk Corporation Inc. is a wholesaler of various brands of beverages whose average catalog selling and b

	Liqueurs	Wines
Selling price (average)	250 CZK/bottle	130 CZK/bottle
Purchase price (average)	150 CZK/bottle	90 CZK/bottle
Number of bottles per pack	2 bottles per pack	2 bottles per pack
weight of 1 pack (kg)	1.00 kg	1.40 kg

Bulk a.s. delivers the beverages in gift packs in which its employees repackage the purchased bottles.

Since its inception, Bulk a.s. has operated as the exclusive supplier to Large Customer A. Only the year b

Customer	Liqueurs	Wines
A	238,000 bottles	125,000 bottles
B	40,000 bottles	32,000 bottles
C	19,000 bottles	22,000 bottles
D	40,000 bottles	80,000 bottles
Others	50,000 bottles	20,000 bottles
Total	387,000 bottles	279,000 bottles

The expansion was accompanied by a rapid increase in the company's total sales to almost double. How

The return on sales (ROS) fell from the original values of around 15% to 6% after the expansion (before c

Sales (gross)	145,044,000.00 CZK	100%
Discounts	- 8,181,000.00 CZK	6%
Purchase prices - direct	- 93,180,000.00 CZK	64%
Gross profit margin	43,683,000.00 CZK	30%
Overhead - Handling unit	- 12,000,000.00 CZK	8%
Overhead - Trading unit	- 7,440,000.00 CZK	5%
Overhead - Distribution	- 15,000,000.00 CZK	10%
Operating profit	9,243,000.00 CZK	6%

Bulk a.s. decided to introduce Activity Based Costing (ABC). The following table shows the key activities,

Activities	ACD	RCD (= numer of empl.)
Repackaging	Number of repackaging	15
Storage	kg of products repackaged	5

1. Using the past year's data, assign a cost to one bottle of each commodity group using the ABC model

The activities of the 'Sales' and 'Distribution' departments cannot be identified well enough by commod
The 'Trade' unit is represented by the single activity 'Customer Care'.

The 'Distribution' unit carries out two activities, namely 'Order administration' (estimated at one fifth of

Department:	Trading	D
Activity:	Customer Care	Order administration
ACD:	Number of customer visits per year	Number of items on orders per year
Customer A	6	6,000
Customer B	220	6,000
Customer C	4	2,000

Customer D	360	15,000
Others	30	1,000
Total ACD	620	30,000

2. Calculate the profitability of each customer. Calculate the cost of serving customers (= cost-to-serve, I Discounts and rebates were only given to customer A.
3. Does the 80:20 rule apply to revenues and profits? Demonstrate graphically.
4. Interpret the graph of the zero profit line (X-axis = cost-to-serve to sales, Y-axis = gross profit.margin e How does your figure explain the paradox felt by the management?
5. Discussion with customer D revealed that he was unaware of the difficulty of his service. He is willing By increasing orders, Customer D would reduce all ACDs (number of store visits, number of items on c Should Bulk Corporation Inc. agree to such an arrangement? What should it take into account? What

Separate task

6. Refine the profitability calculation for EACH (incl. E, F, G, H) customer based on the additional informa

The new arrangement with Customer D (see Task 5) failed. At the same time, Bulk a.s. worked to refine i

- (a) The "Handling" unit actually performs three different activities, whose RCD a

Activities	ACD	CD (= number of employee
Supply	number of purchases	4
Repackaging	number of repackaging	11
Storage	kg of repackaged products	5

- (b) The Bulk a.s. information system records the following numbers of purchases of individu

	Liqueurs	Wines
Total number of purchases per	1,260 purchases	940 purchases

- (c) The "Other" customer group was too heterogeneous. It was therefore split down to indi

Customer	Liqueurs	Wines
Other - Customer E	23,000 bottles	3,000 bottles
Other - Customer F	7,000 bottles	9,000 bottles
Other - Customer G	11,000 bottles	3,000 bottles
Other - Customer H	9,000 bottles	5,000 bottles
Others total	50,000 bottles	20,000 bottles

- (d) Following the division of the "Other" customer group, cost drivers were also discussed ir

Activity:	Customer Care	Order administration
ACD:	Number of customer visits per year	Number of items on orders per year
Ostatní - Ostatní - Zákazník E	7	295
Ostatní - Ostatní - Zákazník F	6	200
Ostatní - Ostatní - Zákazník G	4	250
Ostatní - Ostatní - Zákazník H	13	255
Ostatní - Celkem ACD	30	1,000

Buying prices are shown in the following table.

Water
12 CZK/bottle
10 CZK/bottle
6 bottles per pack
9.00 kg

Before it significantly expanded its capacity and started to supply other customers as well:

Water
505,000 bottles
16,000 bottles
55,000 bottles
276,000 bottles
150,000 bottles
1,002,000 bottles

However, the same trend did not occur in the efficiency of the business. (deducting administrative, tax and finance costs, which we will ignore).

RCD and ACD for the "Handling" unit:

outlined above.

city group, but only by customer.

'the unit's time pool) and 'Delivery' (the rest of the time pool).

Distribution
Delivery
Annual kilometres travelled when delivering to customers
36,000
97,500
21,000

106,500
39,000
300,000

MSDA) as a separate balance.

after rebate to sales, size of the gross sales circle).

to significantly increase his orders if he receives a 3% discount on the price of all goods purchased. orders, number of miles driven) by 40% of the current level. impacts can be REALLY expected in the short and long term?

tion provided.

its ABC model, identifying the following more detailed information: and ACD are shown in the following table: s)

al types of commodity groups per warehouse:

Water
210 purchases

vidual customers. The following table shows the quantities taken by them:

Water
3,000 bottles
24,000 bottles
45,000 bottles
78,000 bottles
150,000 bottles

detail:

Delivery
Annual kilometres travelled when delivering to customers
4,000
3,000
21,000
11,000
39,000

Bulk a.s.

Task 1 Allocation of direct costs and "Handling" unit

Handling

Phase 1 ABC - Identification of indirect costs of activities

Activity	RCD
Repackaging	15 employees
Storage	5 employees
Total	20 employees

Phase 2 ABC - Determination of product costs

	Liqueurs
Average purchase price	150.00 CZK/bottle
Repackaging	9.00 CZK/bottle
Storage	0.79 CZK/bottle
Cost of products	159.79 CZK/bottle
<i>Auxiliary: number of repackagings</i>	<i>193,500 packs</i>
<i>weight of packs sold</i>	<i>193,500 kg</i>

Task 2 ABC allocation of "Trade" and "Distribution" costs to customers

Phase 1 of ABC - identification of indirect costs of activities

Activity	RCD
Trading - "Customer Care"	
Distribution - "Order Management"	20%
Distribution - "Delivery"	80%
Distribution - TOTAL	
Total cost of service (=cost of service)	

Phase 2 ABC - Identification of customer costs

	Customer A
Sales	81,810,000 CZK
Cost of goods	58,310,703 CZK
Discounts and rabates	8,181,000 CZK
Profit margin after Handling and rabates	15,318,297 CZK
as a percentage of sales	18.7%
Customer care	72,000 CZK
Administration	600,000 CZK
Distribution	1,440,000 CZK
Cost-to-Serve	2,112,000 CZK
as a percentage of sales	2.6%
Profit margin	13,206,297 CZK
as a percentage of sales	16.1%
	13,206,297 Kč

Task 3 80:20 Rule

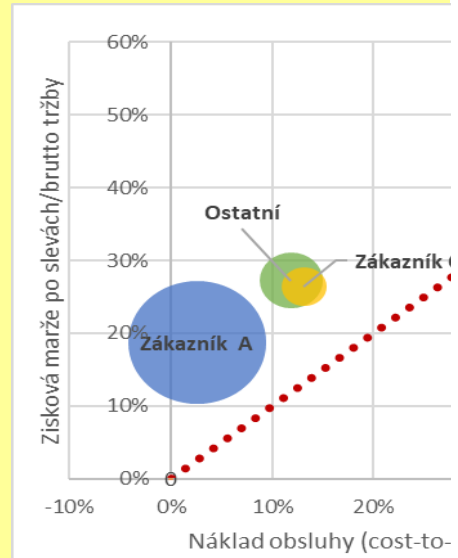
Customers GRADUALLY by sales	Sales
Customer A	81,810,000 CZK
Customer D	23,712,000 CZK
Other	16,900,000 CZK
Customer B	14,352,000 CZK
Customer C	8,270,000 CZK
Total enterprise	145,044,000 CZK

Customers GRADUALLY by profit margin	Profit margin
Customer A	13,206,297 CZK
Others	2,581,351 CZK
Customer C	1,097,686 CZK

Customer B	-	2,629,297 CZK
Customer D	-	5,013,038 CZK
Total		9243000

Task 4 Zero profit straight line

		Customer A
Cost-to-serve on sales		2.6%
Gross profit margin on sales		18.7%
Revenue		81,810,000 CZK



12,000,000 CZK

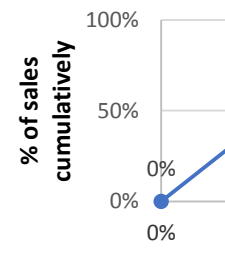
Activity cost	Notes
9,000,000 CZK	
3,000,000 CZK	4.00 CZK
12,000,000 CZK	rate = 600,000.00 CZK per one employee

Wines	Water	Activity Total	ACD	
90.00 CZK/bottle	10.00 CZK/bottle			
9.00 CZK/bottle	3.00 CZK/bottle	9,000,000 CZK	500,000 packs	sazba=
1.11 CZK/bottle	2.38 CZK/bottle	3,000,000 CZK	1,891,800	sazba=
100.11 CZK/bottle	15.38 CZK/bottle			
139,500 packs	167,000 packs	500,000 packs		
195,300 kg	1,503,000 kg	1,891,800 kg		

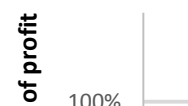
Activity cost	Rate for ACD	ACD
7,440,000 CZK	12,000 CZK	per 1 visit at the customer
3,000,000 CZK	100 CZK	per 1 item
12,000,000 CZK	40 CZK	per 1 km
15,000,000 CZK		
22,440,000 CZK		

Customer B	Customer C	Customer D	Ostatní	Total
14,352,000 CZK	8,270,000 CZK	23,712,000 Kč	16,900,000 Kč	145,044,000 CZK
9,841,297 CZK	6,084,314 Kč	18,645,038 Kč	12,298,649 Kč	105,180,000 CZK
				8,181,000 CZK
4,510,703 CZK	2,185,686 CZK	5,066,962 CZK	4,601,351 CZK	31,683,000 CZK
31.4%	26.4%	21.4%	27.2%	21.8%
2,640,000 CZK	48,000 CZK	4,320,000 CZK	360,000 CZK	7,440,000 CZK
600,000 CZK	200,000 CZK	1,500,000 CZK	100,000 CZK	3,000,000 CZK
3,900,000 CZK	840,000 CZK	4,260,000 CZK	1,560,000 CZK	12,000,000 CZK
7,140,000 CZK	1,088,000 CZK	10,080,000 CZK	2,020,000 CZK	22,440,000 CZK
49.7%	13.2%	42.5%	12.0%	15.5%
-2,629,297 CZK	1,097,686 CZK	-5,013,038 CZK	2,581,351 CZK	9,243,000 CZK
-18.3%	13.3%	-21.1%	15.3%	6.4%
-2629296.543	1097686.013	-5013037.742	2581351.094	

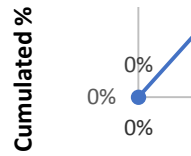
Relatively in %	% Customers cumul	% revenues cum
	0%	0%
56%	20%	56%
16%	40%	73%
12%	60%	84%
10%	80%	94%
6%	100%	100%
100%		



Relatively in %	% Customers cumul	% profit cumul
	0%	0%
143%	20%	143%
28%	40%	171%
12%	60%	183%



-28%	80%	154%
-54%	100%	100%
100%		

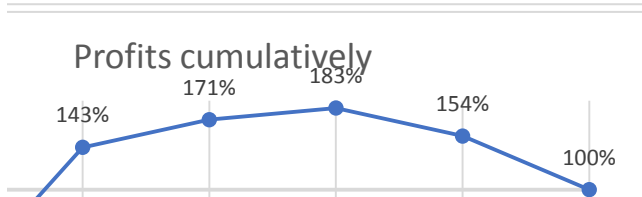
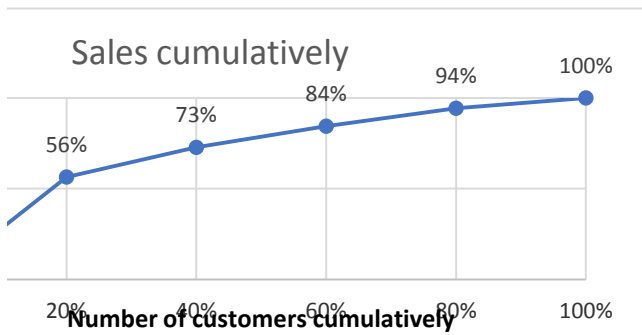


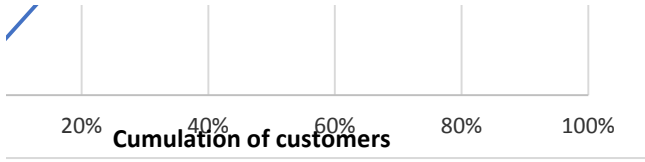
Customer B	Customer C	Customer D	Others	Total
49.7%	13.2%	42.5%	11.9%	15.5%
31.4%	26.4%	21.4%	27.2%	21.8%
14,352,000 CZK	8,270,000 CZK	23,712,000 CZK	16,900,000 CZK	145,044,000 CZK



18.00 CZK/pack
1.586 CZK/kg

Customer D	Unused capacity
23,712,000 Kč	
18,645,038 Kč	
711,360 Kč	
4,355,602 Kč	
18.4%	
2,592,000 Kč	1,728,000 Kč
900,000 Kč	600,000 Kč
2,556,000 Kč	1,704,000 Kč
6,048,000 CZK	4,032,000 CZK
25.5%	
-1,692,398 Kč	
-7.1%	





Bulk a.s. - separately

Task 6 Allocation of direct costs and "Handling" unit

Phase 1 Allocation of direct costs and "Handling" unit

Activity	RCD
Supply	
Changing	
Storage	
Total	

Phase 2 ABC - Determination of product costs

	Liqueurs
Average purchase price	
Supply	
Repackaging	
Storage	
Cost of products	

ABC allocation of "Trade" and "Distribution" costs to customers

Phase 1 ABC - Identification of indirect costs of activities

Activity	RCD
Business - "Customer care"	
Distribution - "Order Administration"	
Distribution - "Distribution"	
Distribution - TOTAL	
Total cost of service (=cost-to-serve)	

Phase 2 ABC - Identification of customer costs

Quantification of customer profitability

	Customer A
Revenue	
Cost of goods	
Discounts and rebates	
Profit margin after Handling and rebates	
as a percentage of sales	
Customer care	
Administration	
Distribution	
Cost-to-Serve	
as a percentage of sales	
Profit margin	
as a percentage of sales	

Activity cost **Pozn.**

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Wines **Water** **Activity Total** **ACD**

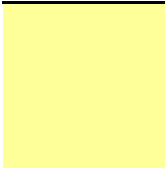
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Activity cost **ACD rate**

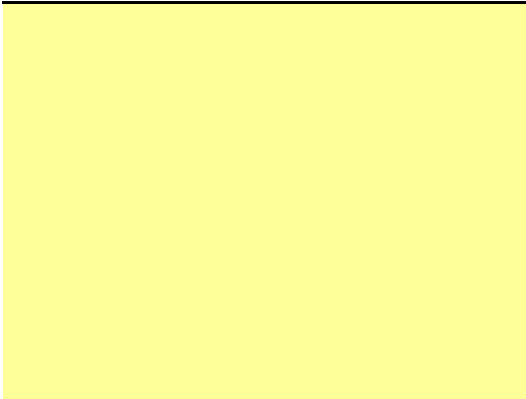
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Customer B **Customer C** **Customer D** **Other-E customer** **Other-F customer**

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Other-G customer	Other-H customer	Total
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Bulk a.s.

Task 1 Allocation of direct costs and "Handling" unit

Phase 1 ABC - Identification of indirect costs of activities

Activity	RCD
Repackaging	15 employees
Storage	5 employees
Total	20 employees

Phase 2 ABC - Determination of product costs

	Liqueurs
Average purchase price	150.00 CZK/bottle
Repackaging	9.00 CZK/bottle
Storage	0.79 CZK/bottle
Cost of products	159.79 CZK/bottle
<i>Auxiliary: number of repackagings</i>	<i>193,500 packs</i>
<i>weight of packs sold</i>	<i>193,500 kg</i>

Task 2 ABC allocation of "Trade" and "Distribution" costs to customers

Phase 1 of ABC - identification of indirect costs of activities

Activity	RCD
Business - "Customer Care"	
Distribution - "Order Management"	20%
Distribution - "Delivery"	80%
Distribution - TOTAL	
Total cost of service (=cost of service)	

Phase 2 ABC - Identification of customer costs

	Customer A
Sales	81,810,000 Kč
Cost of goods	58,310,703 Kč
Discounts and rebates	8,181,000 Kč
Profit margin after Handling and rebates	15,318,297 Kč
as a percentage of sales	18.7%
Customer care	72,000 Kč
Administration	600,000 Kč
Distribution	1,440,000 Kč
Cost-to-Serve	2,112,000 Kč
as a percentage of sales	2.6%
Profit margin	13,206,297 Kč
as a percentage of sales	16.1%

Task 3 80:20 Rule

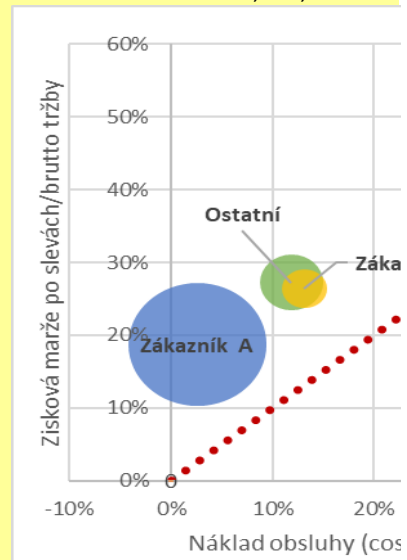
Customers GRADUALLY by sales	Sales
Customer A	81,810,000 Kč
Customer B	23,712,000 Kč
Customer C	16,900,000 Kč
Customer D	14,352,000 Kč
Other	8,270,000 Kč
Total enterprise	145,044,000 Kč

Customers GRADUALLY by profit margin	Profit margin
Customer A	13,206,297 Kč
Customer B	2,581,351 Kč

Customer C		1,097,686 Kč
Customer D	-	2,629,297 Kč
Others	-	5,013,038 Kč
Total		9,243,000 Kč

Task 4 Zero profit straight line

Customer A	
Cost-to-serve on sales	2.6%
Gross profit margin on sales	18.7%
Revenue	81,810,000 CZK



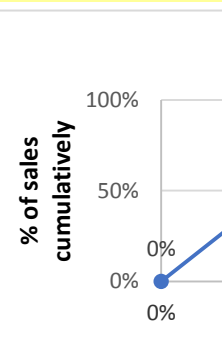
Activity cost	Notes
9,000,000 CZK	
3,000,000 CZK	4.00 CZK
12,000,000 CZK	rate = 600,000.00 CZK per one employee

Wines	Water	Activity Total	ACD	
90.00 CZK/bottle	10.00 CZK/bottle			
9.00 CZK/bottle	3.00 CZK/bottle	9,000,000 CZK	500,000 packs	sazba=
1.11 CZK/bottle	2.38 CZK/bottle	3,000,000 CZK	1,891,800	sazba=
100.11 CZK/bottle	15.38 CZK/bottle			
139,500 packs	167,000 packs	500,000 packs		
195,300 kg	1,503,000 kg	1,891,800 kg		

Activity cost	Rate for ACD	ACD
7,440,000 Kč	12,000 Kč	Numer of visits at customer per year
3,000,000 Kč	100 Kč	Number of items within orders
12,000,000 Kč	40 Kč	Annual kilometres travelled for customer deliveries
15,000,000 Kč		
22,440,000 Kč		

Customer B	Customer C	Customer D	Ostatní	Total
14,352,000 Kč	8,270,000 Kč	23,712,000 Kč	16,900,000 Kč	145,044,000 Kč
9,841,297 Kč	6,084,314 Kč	18,645,038 Kč	12,298,649 Kč	105,180,000 Kč
				8,181,000 Kč
4,510,703 Kč	2,185,686 Kč	5,066,962 Kč	4,601,351 Kč	31,683,000 Kč
31.4%	26.4%	21.4%	27.2%	21.8%
2,640,000 Kč	48,000 Kč	4,320,000 Kč	360,000 Kč	7,440,000 Kč
600,000 Kč	200,000 Kč	1,500,000 Kč	100,000 Kč	3,000,000 Kč
3,900,000 Kč	840,000 Kč	4,260,000 Kč	1,560,000 Kč	12,000,000 Kč
7,140,000 Kč	1,088,000 Kč	10,080,000 Kč	2,020,000 Kč	22,440,000 Kč
49.7%	13.2%	42.5%	12.0%	15.5%
-2,629,297 Kč	1,097,686 Kč	-5,013,038 Kč	2,581,351 Kč	9,243,000 Kč
-18.3%	13.3%	-21.1%	15.3%	6.4%

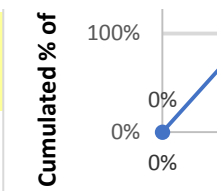
Relatively in %	% Customers cumul	% revenues cum
	0%	0%
56%	20%	56%
16%	40%	73%
12%	60%	84%
10%	80%	94%
6%	100%	100%
100%		



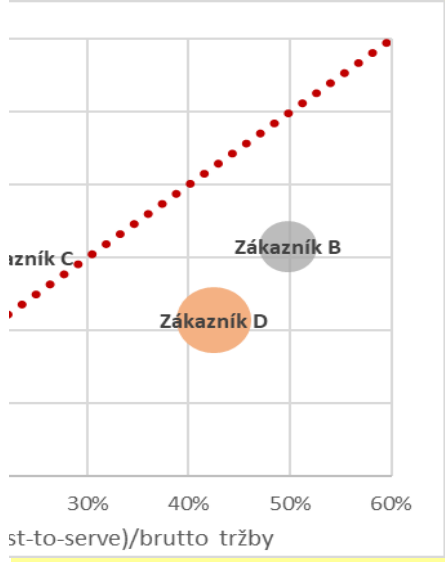
Relatively in %	% Customers cumul	% profit cumul
	0%	0%
143%	20%	143%
28%	40%	171%

profit

12%	60%	183%
-28%	80%	154%
-54%	100%	100%
100%		



Customer B	Customer C	Customer D	Others	Total
49.7%	13.2%	42.5%	11.9%	15.5%
31.4%	26.4%	21.4%	27.2%	21.8%
14,352,000 CZK	8,270,000 CZK	23,712,000 CZK	16,900,000 CZK	145,044,000 CZK



18.00 CZK/pack
1.586 CZK/kg

Task 5

Customer D	"Unused capacity"		
23,712,000 Kč			
18,645,038 Kč		tzn. rozvázány ruce oběma útvarům	
711,360 Kč		Obchodu a Distribuce	odhadovaná
4,355,602 Kč			Uvolněná kapacita
18.4%	VH se PRAVDĚPODOBĚ krátkodobě propadne o slevu!		
2,592,000 Kč	1,728,000 Kč	<i>Oba útvary si musejí</i>	23%
900,000 Kč	600,000 Kč	<i>najít nové zákazníky</i>	20%
2,556,000 Kč	1,704,000 Kč	<i>jinak budou v dlouhém období redukovány</i>	14%
6,048,000 Kč	4,032,000 Kč	<i>kapacity a propuštění, majetek prodán</i>	18%
25.5%			
-1,692,398 Kč	-4,032,000 Kč		
-7.1%			

