

Activity Based Costing

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

NiceBath Corporation, Inc. manufactures whirlpools. It produces two models - the basic "Basic" and the upgr
Since the introduction of the Magic product, the company's profits have been stagnant, although sales have
Product Basics

Model:	Basic	Magic
Direct material per unit	700 €	1,200 €
Direct labour (€5 per hour) per 1 pc	120 hours	180 hours
Number of pcs produced and sold	600 pcs.	100 pcs.
Selling price	3,200 €	4,800 €

1. Determine the cost and profitability of both products as likely to be estimated by the current costing syst

The CFO has learned about the modern trend of **activity-based costing (ABC)** and wants to prototype it on l
The team has identified production activities and their activity cost drivers (ACDs).

At the same time, it decided that the full-time equivalent (FTE) employees engaged in the activity would ser

Activity	ACD	Basic	Magic
Machine production	machine hours	20,000	20,000
Assembly	hours of direct labour	72,000	18,000
Supply	number of orders	600	200

2. Allocate the PRODUCTION costs using the ABC model outlined and interpret the results.

The project team also broke down the sales and administrative overhead of € 540.000, which consists of the
To allocate them, the team has chosen the number of employees as the resource cost driver (RCD), where C

Customer segments	Sold pieces		
	Basic	Magic	Total pcs.
Baumax	310 pcs.	20 pcs.	330 pcs.
Bathroom studios	120 pcs.	50 pcs.	170 pcs.
Others (direct, freelancers)	170 pcs.	30 pcs.	200 pcs.
Total	600 pcs.	100 pcs.	700 pcs.

3. Determine the cost and benefit of the customer segment "Bathroom studios" using ABC. Use the number Assign administrative adn sales overhead by simple division by the number of units.

Individual task

4. By analogy to the segment "Bathroom studios", construct similar customer segment cards for the segmen

The project team examined the activity "Assembly" in more detail. They now propose to split it into two sub

Activity	ACD	Basic	Magic
Assembly - Setting-up	hours of direct labour	72,000	18,000
Assembly - Line Adjustment	number of adjustments	30	31

5. Modify the ABC model according to the proposed improvement and assign costs to products and custome

graded "Magic", which has a more powerful and sophisticated nozzle system, promising a more intense experience. The company's Chief Financial Officer (CFO) believes that the company's costing model may be hiding indirect costs and the allocation bases for allocating them

	Indirect cost	Allocation base
Production	675,000 €	hours of direct labour
Sales and administration	540,000 €	Simple division by the pieces

em.

last year's data. He has therefore assembled a project team to apply the ABC model.

ve as the resource cost driver (RCD).

Total	FTE
40,000	20
90,000	50
800	20

relatively difficult to separate common costs of the "Customer Care" and "Management" activities. Customer Care has 12 FTEs while Management has 8 FTEs

Number of visits at the customer
120 visits
1,200 visits
840 visits
2,160 visits

of visits as the activity cost driver (ACD) for Customer Care.

its "Baumax" and "Other". Use the same ABC model as in Task 3.

-activities - "Setting up" and "Line Adjustment". Their RCD (FTE) and ACD are:

Total	FTE
90,000	45
61	5

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Task 1 Traditional cost calculation

	1 ks Basic
Direct material	700.00 €/pc
Direct labour cost	600.00 €/pc
Production overhead	900.00 €/pc
Production cost	2,200.00 €/pc
Administration and sales	771.43 €/pc
Total cost	2,971.43 €/pc
Price	3,200.00 €/pc
Profit	228.57 €/pc
ROS	7%

Task 2 Allocation of production cost based on the ABC method

1st phase of ABC - identify the indirect costs of the activities

Activity	RCD
Machine production	
Assembly	
Supply	
Total	

2nd stage of ABC - identify the production costs of products

	1 pc Basic
Direct material	
Direct labour cost	
Machine production	
Assembly	
Supply	
Production cost	
Administration and sales	
Total cost	
Price	
Profit	
ROS	

Task 3 ABC allocation of NON-PRODUCTION costs to customers

1st phase of ABC - identify the indirect costs of the activities

Activity	RCD
Customer care	
Management	
Total	

2nd stage of ABC - identify the customer costs

	Baumax
Customer care	

Customer profitability card "Bathroom studios"

Revenues	
Product costs	
Direct material	
Direct labour cost	
Machine production	
Assembly	

Supply	
Total cost per products	
Customer Service cost	
Customer care	
Business sustaining expenses	
Management - simple division	

1 ks Magic	Total			
1,200.00 €/pc	540,000 €			
900.00 €/pc	450,000 €			
1,350.00 €/pc	675,000 €	90,000 hours	rate=	7.50 €/hour
3,450.00 €/pc	1,665,000 €			
771.43 €/pc	540,000 €	simple division		
4,221.43 €/pc	2,205,000 €			
4,800.00 €/pc	2,400,000 €			
578.57 €/pc	195,000 €			
12%	8.1%			

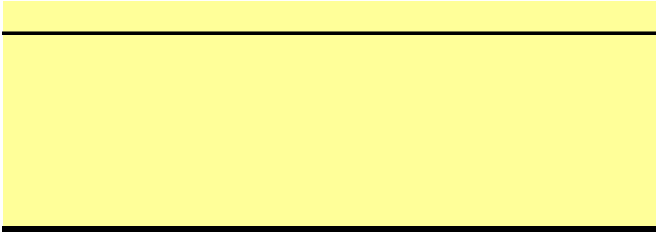
Activity costs	Notes

1 pc Magic	Activity total	ACD

Activity costs	Notes

Bathroom studios	Others (direct, freelancers)	Activity (Total)

Margin	% of margin from revenues



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Task 4 Profitability of remaining customer segments

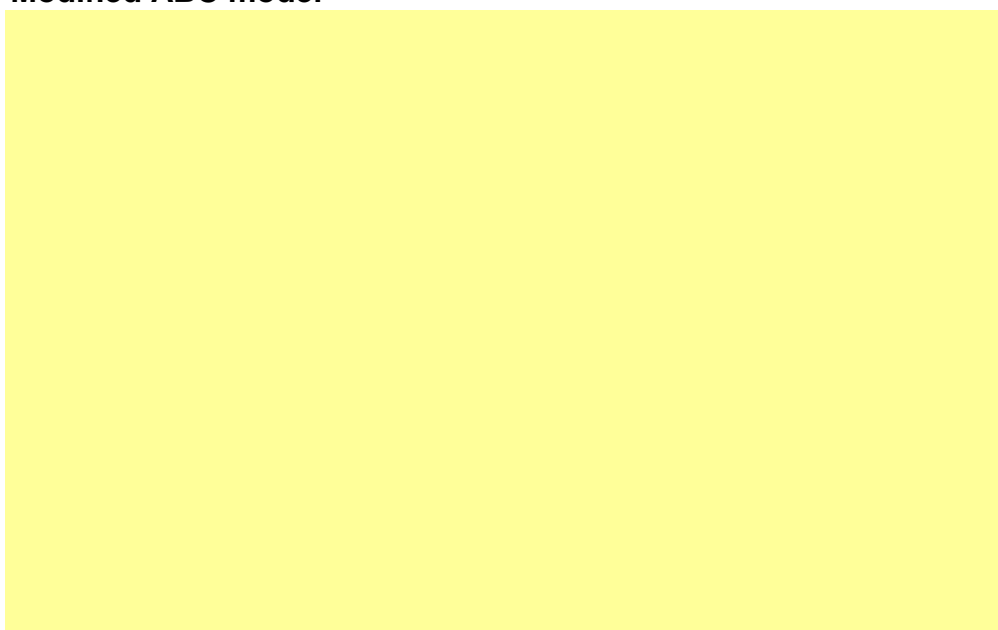
Customer profitability card "Baumax"

Revenues	
Product costs	
Direct material	
Direct labour cost	
Machine production	
Assembly	
Supply	
Total cost per products	
Customer Service cost	
Customer care	
Business sustaining expenses	
Management - simple division	

Customer profitability card "Others"

Revenues	
Product costs	
Direct material	
Direct labour cost	
Machine production	
Assembly	
Supply	
Total cost per products	
Customer Service cost	
Customer care	
Business sustaining expenses	
Management - simple division	

Task 5 Modified ABC model



Margin % mmargin from revenues

Margin % mmargin from revenues

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Task 1 Traditional cost calculation

	1 ks Basic
Direct material	700.00 €/pc
Direct labour cost	600.00 €/pc
Production overhead	900.00 €/pc
Production cost	2,200.00 €/pc
Administration and sales	771.43 €/pc
Total cost	2,971.43 €/pc
Price	3,200.00 €/pc
Profit	228.57 €/pc
ROS	7%

Task 2 Allocation of production cost based on the ABC method

1st phase of ABC - identify the indirect costs of the activities

Activity	RCD
Machine production	20 employees
Assembly	50 employees
Supply	20 employees
Total	90 employees

2nd stage of ABC - identify the production costs of products

	1 pc Basic
Direct material	700.00 €/pc
Direct labour cost	600.00 €/pc
Machine production	125.00 €/pc
Assembly	500.00 €/pc
Supply	187.50 €/pc
Production cost	2,112.50 €/pc
Administration and sales	771.43 €/pc
Total cost	2,883.93 €/pc
Price	3,200.00 €/pc
Profit	316.07 €/pc
ROS	10%
Auxiliary: machine hours per 1 piece	33.33
Orders per 1 piece sold	1

Task 3 ABC allocation of NON-PRODUCTION costs to customers

1st phase of ABC - identify the indirect costs of the activities

Activity	RCD
Customer care	12 employees
Management	8 employees
Total	20 employees

2nd stage of ABC - identify the customer costs

	Baumax
Customer care	18,000 €

Customer profitability card "Bathroom studios"

Revenues	624,000 €
Product costs	
Direct material	144,000 €
Direct labour cost	117,000 €
Machine production	52,500 €
Assembly	97,500 €
Supply	41,250 €
Total cost per products	452,250 €
Customer Service cost	

Business sustaining expenses	180,000 €
Management - simple division	52,457 €

1 ks Magic	Total			
1,200.00 €/pc	540,000 €			
900.00 €/pc	450,000 €			
1,350.00 €/pc	675,000 €	90,000 hours	rate=	7.50 €/hour
3,450.00 €/pc	1,665,000 €			
771.43 €/pc	540,000 €	simple division		
4,221.43 €/pc	2,205,000 €			
4,800.00 €/pc	2,400,000 €			
578.57 €/pc	195,000 €			
12%	8.1%			

Activity costs	Notes			
150,000 €				
375,000 €				
150,000 €				
675,000 €	rate=	7,500 €		per 1 employee

1 pc Magic	Activity total	ACD		
1,200.00 €/pc	540,000 €			
900.00 €/pc	450,000 €			
750.00 €/pc	150,000 €	40,000 hours	rate=	3.75
750.00 €/pc	375,000 €	90,000	rate=	4.166666667
375.00 €/pc	150,000 €	800	rate=	187.5
3,975.00 €/pc	1,665,000 €			
771.43 €/pc	540,000 €			
4,746.43 €/pc	2,205,000 €			
4,800.00 €/pc	2,400,000 €			
53.57 €/pc	195,000 €			
1%	8%			
200	ok			
2				

Activity costs	Notes			
324,000 €				
216,000 €	simple division	309 €		per sold piece
540,000 €	rate=	27,000 €		per 1 employee

Bathroom studios	Others (direct, freelancers)	Activity (Total)		
180,000 €	126,000 €	324,000 €	na 1 návštěvu	150.00 €/náv.

Margin	% of margin from revenues
480,000 €	76.9%
363,000 €	58.2%
310,500 €	49.8%
213,000 €	34.1%
<u>171,750 €</u>	<u>27.5%</u>
171,750 €	27.5%

-8,250 €	-1.3%
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-60,707 €	-9.7%
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324,000 €