WOLOWITZ CASE – SOLUTIONS





A BRIEF ANALYSIS ABOUT THE INITIAL COST STRUCTURE

First hypothesis: the cost of direct labor is fixed (company operating in Europe)

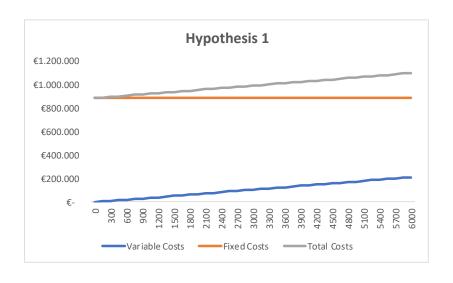
	Variable	Fixed	Total
Manufacturing	\$ -123.200,00	\$ -540.600,00	\$ -663.800,00
Selling	\$ -66.459,00	\$ -82.000,00	\$ -148.459,00
Administrative & General		\$ -263.405,00	\$ -263.405,00
Total	\$ -189.659,00	\$ -886.005,00	\$ -1.075.664,00

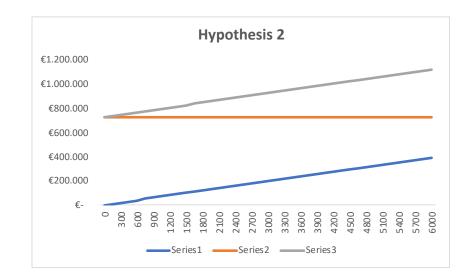
Second hypothesis: the cost of direct labor is variable (company operating in USA)

	V ariable	Fixed	Total
Manufacturing	\$ -284.800,00	\$ -379.000,00	\$ -663.800,00
Selling	\$ -66.459,00	\$ -82.000,00	\$ -148.459,00
Administrative & General		\$ -263.405,00	\$ -263.405,00
Total	\$ -351.259,00	\$ -724.405,00	\$ -1.075.664,00



A COMPARISON BETWEEN THE HYPOTHESIS





Manufacturing variable cost per unit =
$$\frac{$123.200}{5.410} = $22,77$$

Manufacturing variable cost per unit =
$$\frac{$284.800}{5.410} = $52,64$$

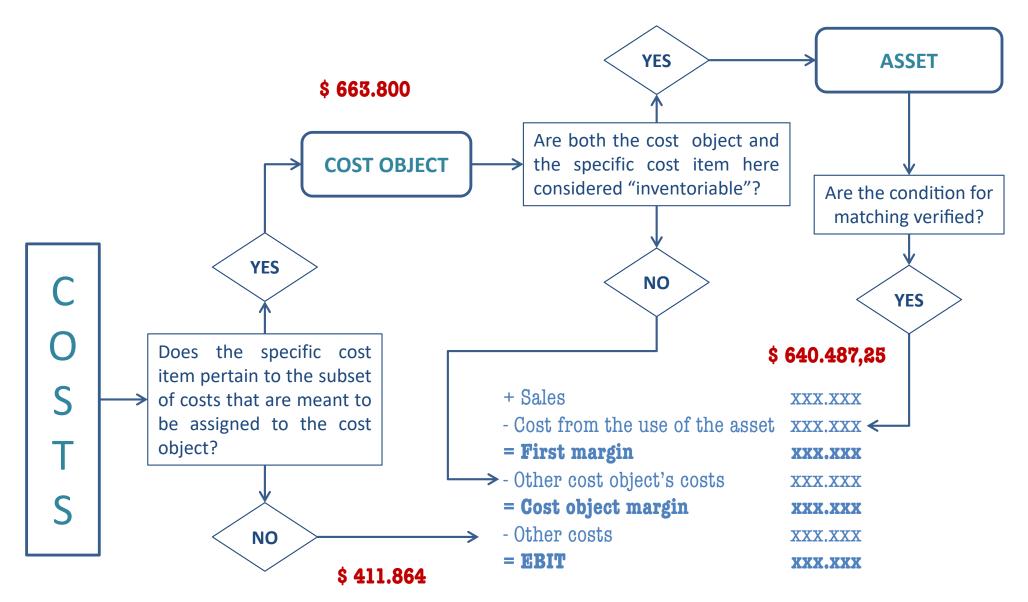
Selling variable cost per unit
$$= \frac{$66.909}{5.220} = $12,82$$

Selling variable cost per unit
$$= \frac{$66.909}{5.220} = $12,82$$

Fixed Costs = \$886.005

Fixed Costs = \$ 724.405







ABSORPTION COSTING – COGS INCOME STATEMENT

Direct Labour		Direct Materials	\$ 100.060,00	\$ 18,50
Manufacturing Overhead (Fixed) \$ 379.000,00 \$ 70,06 Total Manufacturing Costs \$ 663.800,00 \$ 122,70 # of chairs made 5410 Full Manufacturing Cost per unit \$ 122,70 Please note: this method of determining the cost per unit assumes the adoption of a "push" logic in the assignment of fixed costs (the fixed cost coefficient is calculated on the basis of the quantities obtained Cost of Goods Sold \$ 640.487,25 1041.100,00 100,00% 5.220 chairs Cost of Goods Sold \$ -640.487,25 -61,52% Gross Margin \$ 400.612,75 38,48% - Selling General & Administrative Expesnes \$ -411.864,00 -39,56%		Direct Labour	\$ 161.600,00	\$ 29,87
# of chairs made 5410 Full Manufacturing Cost per unit \$ 122,70 Please note: this method of determining the cost per unit assumes the adoption of a "push" # of chairs sold 5220 logic in the assignment of fixed costs (the fixed cost coefficient is calculated on the basis of the quantities obtained 5.220 chairs Sales Revenues \$ 1.041.100,00 100,00% 5.220 chairs - Cost of Goods Sold \$ -640.487,25 -61,52% = Gross Margin \$ 400.612,75 38,48% - Selling General & Administrative Expesnes \$ -411.864,00 -39,56%		Manufacturing Overhead (Variable)	\$ 23.140,00	\$ 4,28
# of chairs made Full Manufacturing Cost per unit \$ 122,70 Please note: this method of determining the cost per unit assumes the adoption of a "push" logic in the assignment of fixed costs (the fixed cost coefficient is calculated on the basis of the quantities obtained 5.220 chairs Sales Revenues \$ 1.041.100,00 100,00% - Cost of Goods Sold \$ -640.487,25 -61,52% - Gross Margin - Selling General & Administrative Expesses \$ -411.864,00 -39,56%		Manufacturing Overhead (Fixed)	\$ 379.000,00	\$ 70,06
Full Manufacturing Cost per unit # of chairs sold Cost of Goods Sold \$ 1.041.100,00 Cost of Goods Sold Co		Total Manufacturing Costs	\$ 663.800,00	\$ 122,70
# of chairs sold # of chairs sold Cost of Goods Sold \$ 640.487,25 \$ 1.041.100,00 \$ 640.487,25 Cost of Goods Sold \$ 1.041.100,00 Cost of Goods Sold \$ 640.487,25 Cost of Goods Sold \$ 640.487,		# of chairs made	5410	
# of chairs sold Cost of Goods Sold \$ 640.487,25 logic in the assignment of fixed costs (the fixed cost coefficient is calculated on the basis of the quantities obtained) 5.220 chairs Sales Revenues - Cost of Goods Sold - Cost of Goo		Full Manufacturing Cost per unit	\$ 122,70	determining the cost per unit
Cost of Goods Sold \$ 640.487,25 quantities obtained 5.220 chairs Sales Revenues \$ 1.041.100,00 100,00% 5.220 chairs - Cost of Goods Sold \$ -640.487,25 -61,52% = Gross Margin \$ 400.612,75 38,48% - Selling General & Administrative Expesses \$ -411.864,00 -39,56%		# of chairs sold	5220	<u>logic in the assignment of fixed</u> <u>costs</u> (the fixed cost coefficient is
5.220 chairs - Cost of Goods Sold \$ -640.487,25 -61,52% = Gross Margin \$ 400.612,75 38,48% - Selling General & Administrative Expesses \$ -411.864,00 -39,56%		Cost of Goods Sold	\$ 640.487,25	
= Gross Margin \$ 400.612,75 38,48% - Selling General & Administrative Expesses \$ -411.864,00 -39,56%	5.220 chairs	Sales Revenues	\$ 1.041.100,00	100,00%
= Gross Margin \$ 400.612,75 38,48% - Selling General & Administrative Expesses \$ -411.864,00 -39,56%	5.220 chairs	- Cost of Goods Sold	\$ -640.487,25	-61,52%
		= Gross Margin	\$ 400.612,75	38,48 %
= EBIT \$ -11.251,25 -1,08%		- Selling General & Administrative Expesnes	\$ -411.864,00	-39,56%
		= EBIT	\$ -11.251,25	-1,08%



ABSORPTION COSTING – TOTAL OUTPUT INCOME STATEMENT

	Full Manufacturing Cost per unit	\$ 122,70		
	# of chairs increasing the inventory	190		
	Change in Inventory	\$ 23.312,75		
ស្ត				
5. 4 10 chairs	Sales Revenues	\$ 1.041.100,00	100,00%	
	Change in Inventory	\$ 23.312,75	2,24%	
41(Total Output	\$ 1.064.412,75	102,24%	
ໝ່	Direct Materials	\$ -100.060,00	-9,61%	ပ္
	Direct Labour	\$ -161.600,00	-15,52%	5.410
	Manufacturing Overhead (Variable)	\$ -23.140,00	-2,22%	
	Manufacturing Overhead (Fixed)	\$ -379.000,00	-36,40%	chairs
	Gross Margin	\$ 400.612,75	38,48 %	, w
	Selling Variable Costs	\$ -66.459,00	-6,38%	
	Selling Fixed Costs	\$ -82.000,00	-7,88%	
	General & Administrative Expenses	\$ -263.405,00	-25,30%	
	EBIT	\$ -11.251,25	-1,08%	



UNITARY MANUFACTURING COST

Variable Manufacturing Costs	\$	123.200	
Fixed Manufacturing Costs	\$	540.600	
Total Manufacturing Costs	\$	663.800	
Variable Manufacturing Coata	ф	197 900	
Variable Manufacturing Costs	\$	123.200	
# of chairs made		5410	
Variable Manufacturing Cost per unit		\$	22,77
Fixed Manufacturing Costs	\$	540.600	
# of chairs made		5410	
Fixed Manufacturing Cost per unit		\$	99,93
6 2		·	,
Total Manufacturing Costs per unit		\$	122,70



TWO COMPONENTS, DIFFERENT BEHAVIOR

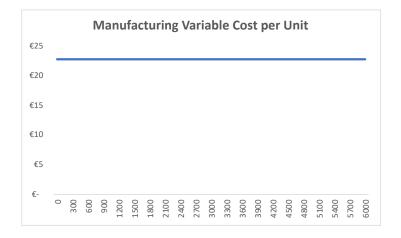
Manufacturing Variable Costs

Product Made

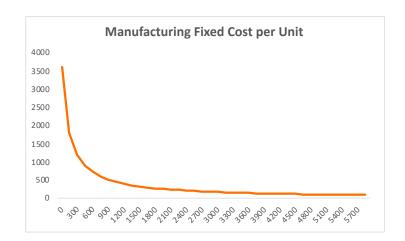


Manufacturing Fixed Costs

Product Made



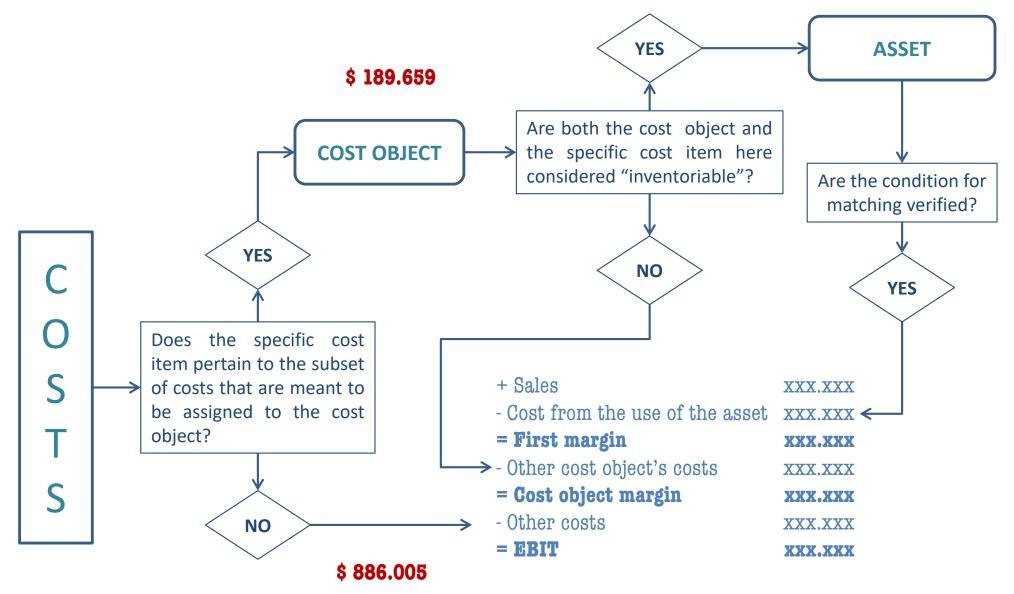






VARIABLE COSTING

Please note: from now on it is assumed that the company operates in Italy, consequently *the labour cost is supposed to be fixed*.





VARIABLE COSTING

Raw Material are used and converted in Finished Products using Direct Labour and other Manufacturing Resourcs



Products obtained are put into storage



Products obtained are sold to costumer



Variable Manufacturing Costs are incurred

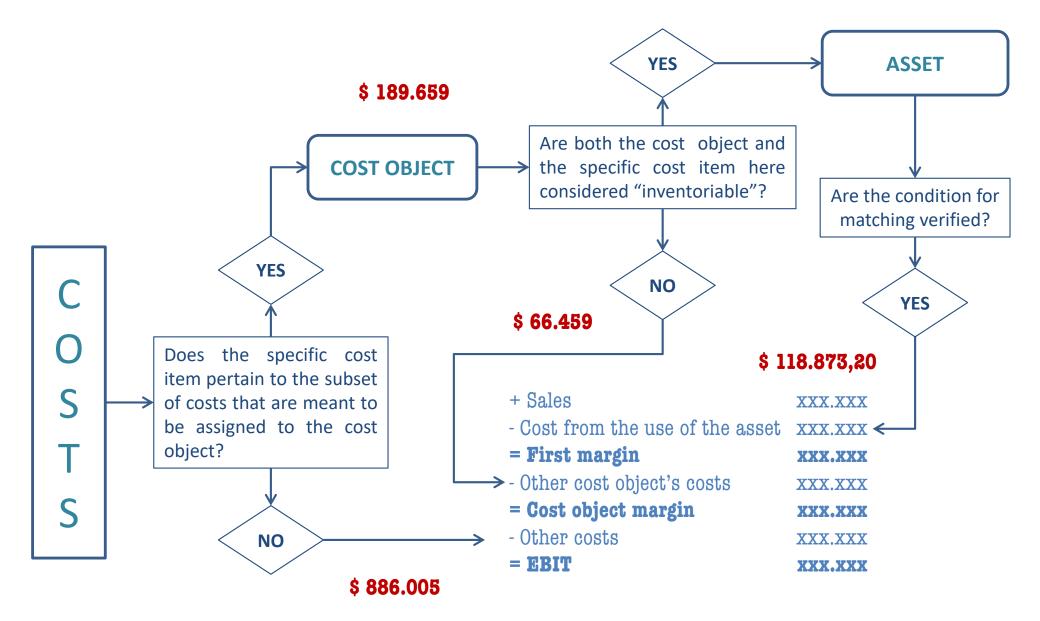
Variable Selling Costs are incurred



MORE PRECISELY **WORK IN PROCESS Variable Manufacturing Costs FINISHED PRODUCT YES ASSET WORK IN PROCESS FINISHED PRODUCT** Are both the cost object and the specific cost item here **COST OBJECT** considered "inventoriable"? **Variable Costs** Are the condition for matching verified? **YES Variable Selling Costs** NO **YES** Does the specific cost item pertain to the subset + Sales of costs that are meant to XXX.XXX be assigned to the cost - COGS (@ manufacturing variable) XXX.XXX ← object? = Manufacturing Variable Margin XXX.XXX → - Selling variable costs XXX.XXX = Contribution Margin XXX.XXX → - Fixed Costs XXX.XXX NO = EBIT XXX.XXX



Fixed Costs





VARIABLE COSTING – COGS INCOME STATEMENT

Direct Materials	\$ 100.060	
Direct Labour	\$ -	
Manufacturing Overhead (Variable)	\$ 23.140	
Manufaturing Variable Costs	\$ 123.200	
# of chairs made	5.410	
Variable Manufacturing Cost per unit	\$ 22,77	
# of chairs sold	5.220	
Cost of Goods Sold (@Manufacturing Variable)	\$ 118.873,20	
Sales Revenues	\$ 1.049.800,00	100,00%
- Cost of Goods Sold	\$ -118.873,20	-11,32%
= Manufacturing Variable Margin	\$ 930.926,80	88,68%
- Selling Variable	\$ -66.909,00	-6,37%
- Contribution Margin	\$ 864.017,80	82,30%
- Direct Labour	\$ -161.600,00	-15,39%
- Other Manufacturing Fixed Costs	\$ -379.000,00	-36,10%
- Selling General & Administrative Expesnes (fixed)	\$ -345.405,00	-32,90%

= EBIT

5.220 chairs

-21.987,20

-2,09%

VARIABLE COSTING – TOTAL OUTPUT INCOME STATEMENT

	Variable Manufacturing Cost per unit	\$ 22,77		
	# of chairs increasing the inventory	190		
	Change in Inventory	\$ 4.326,80		
irs	- Sales Revenues	\$ 1.049.800,00	100,00%	
5.4 10 chairs	Change in Inventory	\$ 4.326,80	0,41%	
91	Total Output	\$ 1.054.126,80	100,41%	
5. 4	Direct Materials	\$ -100.060,00	-9,53%	CI
	Direct Labour	\$ -	0,00%	5.410 chairs
	Manufacturing Overhead (Variable)	\$ -23.140,00	-2,20%	<u></u>
	Selling Variable Costs	\$ -66.909,00	-6,37%	lair
	- Contribution Margin	\$ 864.017,80	82,30%	Ŋ
	- Direct Labour (fixed)	\$ -161.600,00	-15,39%	
	- Manufacturing Fixed Costs	\$ -379.000,00	-36,10%	
	- Selling General & Administrative Expesnes (fixed)	\$ -345.405,00	-32,90%	
	= EBIT	\$ -21.987,20	-2,09%	



UNITARY VARIABLE COST

Variable Manufacturing Costs	\$ 123.200		
Variable Selling Costs	\$ 66.909		
Total Variable Costs	\$ 190.109		
Variable Manufacturing Costs	\$ 123.200		
# of chairs made	5.410		
Transakla Manusia skuming Claub man umib	,	.	00 88
Variable Manufacturing Cost per unit	•	\$	22,77
Variable Selling Costs	\$ 66 909		
Variable Selling Costs	\$ 66.909		
Variable Selling Costs # of chairs sold	\$ 66.909 5.220		
	\$		
	\$ 5.220	\$	12,82
# of chairs sold	\$ 5.220	\$	12,82
# of chairs sold	\$ 5.220	\$	12,82



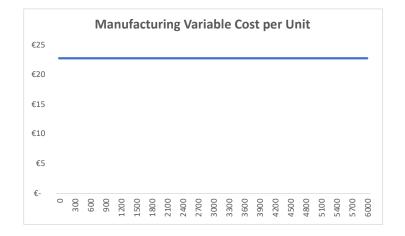
TWO COMPONENTS, BOTH CONSTANT

Manufacturing Variable Costs
Product made

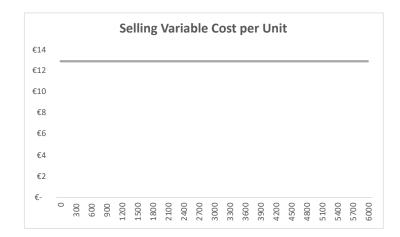


Selling Variable Costs

Product sold









ABSORPTION COSTING – COGS INCOME STATEMENT

E 410 obeing MADE	+ 125	E EZE chains MADE	
5.410 chairs MADE		> 5.535 chairs MADE	
5.220 chairs SOLD		5.220 chairs SOLD	
Direct Materials	\$ 100.060	Direct Materials	\$ 102.372
Direct Labour	\$ 161.600	Direct Labour	\$ 161.600
Manufacturing Overhead (Variable)	\$ 23.140	Manufacturing Overhead (Variable)	\$ 23.675
Manufacturing Overhead (Fixed)	\$ 379.000	Manufacturing Overhead (Fixed)	\$ 379.000
Total Manufacturing Costs	\$ 663.800	Total Manufacturing Costs	\$ 666.647
# of chairs made	5410	# of chairs made	5.535
Full Manufacturing Cost per unit	\$ 122,70	Full Manufacturing Cost per unit	\$ 120,44
# of chairs sold	5220	# of chairs sold	5.220
Cost of Goods Sold	\$ 640.487,25	Cost of Goods Sold	\$ 628.707,34
Sales Revenues	\$ 1.049.800,00	Sales Revenues	\$ 1.049.800,00
- Cost of Goods Sold	\$ -640.487,25	- Cost of Goods Sold	\$ -628.707,34
= Gross Margin	\$ 409.312,75	= Gross Margin	\$ 421.092,66
- Selling General & Administrative Expesnes	\$ -412.314,00	- Selling General & Administrative Expesnes	\$ -412.314,00
= EBIT	\$ -3.001,25	= EBIT	\$ 8.778,66



VARIABLE COSTING – COGS INCOME STATEMENT

B 410 1 1 354BB	+ 12	5	> 0.000 1 / 36400		
5.410 chairs MADE			→ 5.535 chairs MADE		
5.220 chairs SOLD			5.220 chairs SOLD		
Direct Materials	\$	100.060	Direct Materials	\$	102.372
Direct Labour	\$	-	Direct Labour	\$	
Manufacturing Overhead (Variable)	\$	23.140	Manufacturing Overhead (Variable)	\$	23.675
Manufaturing Variable Costs	\$	123.200	Manufaturing Variable Costs	\$	126.047
# of chairs made		5.410	# of chairs made		5.535
Variable Manufacturing Cost per unit	\$	22,77	Variable Manufacturing Cost per unit	\$	22,77
	,	,.		•	,.
# of chairs sold		5.220	# of chairs sold		5.220
Cost of Goods Sold (@Manufacturing Variable)	\$	118.873,20	Cost of Goods Sold (@Manufacturing Variable)	\$	118.873,20
Sales Revenues	\$	1.049.800,00	Sales Revenues	\$	1.049.800,00
- Cost of Goods Sold	\$	-118.873,20	- Cost of Goods Sold	\$	-118.873,20
= Manufacturing Variable Margin	\$	930.926,80	= Manufacturing Variable Margin	\$	930.926,80
- Selling Variable	\$	-66.909,00	- Selling Variable	\$	-66.909,00
- Contribution Margin	\$	864.017,80	- Contribution Margin	\$	864.017,80
- Direct Labour	\$	-161.600,00	- Direct Labour	\$	-161.600,00
- Other Manufacturing Fixed Costs	\$	-379.000,00	- Other Manufacturing Fixed Costs	\$	-379.000,00
- Selling General & Administrative Expesnes (fixed)	\$	-345.405,00	- Selling General & Administrative Expesnes (fixed)	\$	-345.405,00
= EBIT	\$	-21.987,20	= EBIT	\$	-21.987,20

