

NICHE-SEARCH

WORKSHEET 4 OF 9

# Multi-Product BEP Rebuild After Product-Mix Shift

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*Use when a major product line is added, discontinued, or when a single product's share of revenue has changed by more than 15 points from the baseline used in the original BEP.*



Complementary worksheet for  
*Break-Even Analysis Handbook*  
by Ibrahim Anwar

## What This Is For

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A product-mix shift of more than 15 percentage points invalidates the WACM used in the previous BEP calculation. This worksheet rebuilds BEP from the new mix using a structured nine-step process that leaves an auditable trail: which product changed, by how much in dollar terms, and what the new floor looks like in units and operating days.

This is not a monthly routine — it is triggered by an event. The event might be a single large customer placing all their orders on a low-CM product, a deliberate strategy to grow a new SKU, or the discontinuation of a product that was quietly holding WACM up. Each case requires the same rebuild process. Work through all nine steps in sequence; skipping step five produces a WACM that will look plausible but will be wrong.

# Benefits

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What you get when you actually run this worksheet on a real situation:

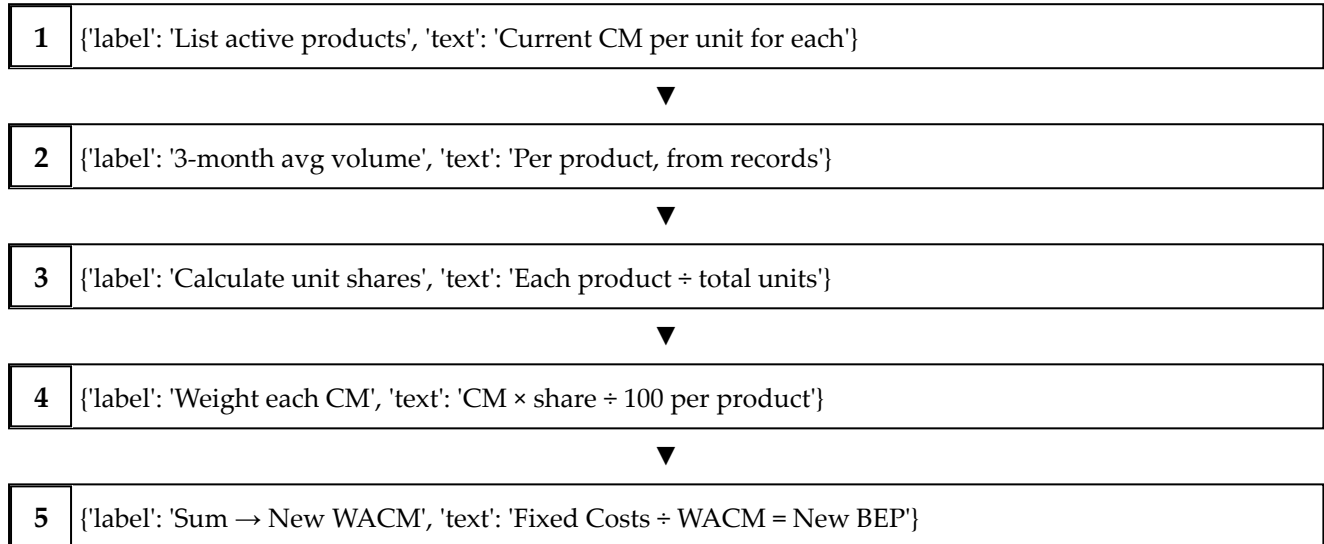
- Produces a fully auditable BEP that can be presented to a bank, investor, or board — each step is traceable to a source figure.
- Quantifies the dollar impact of the mix shift: exactly how much did WACM move in per-unit terms, and how many additional units per month does the new BEP require?
- Identifies whether any currently small but high-CM product can be promoted to counteract the shift without adding fixed costs.
- Translates the new BEP into operating days at current average daily volume — the most operational way to read a BEP number.
- Works with any number of products; the nine-step structure scales from two SKUs to twenty.

# Framework To Use

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## — Nine-Step WACM Rebuild

*Reconstruct weighted-average CM from scratch using this period's actual product mix — not the mix from when BEP was last calculated.*



# How To Use

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Follow these steps in order. Each one builds on the previous.

- 1 Step 1: List all current active products and their CM per unit. Do not include products that generated no revenue in the past three months.
- 2 Step 2: For each product, record the three-month average units sold — not this month's count. A three-month average smooths one-off spikes and gives a more reliable mix picture.
- 3 Step 3: Sum all three-month average volumes. Divide each product's average by the total to get its share percentage. Verify the shares sum to 100%.
- 4 Step 4: Multiply each product's CM per unit by its share percentage, then divide by 100. Write this weighted contribution per product.
- 5 Step 5: Sum all weighted contributions. That is the new WACM.
- 6 Step 6: State total fixed costs for the current month — audited, from the full fixed cost identification worksheet (Chapter 02).
- 7 Step 7: Divide fixed costs by new WACM to get BEP Units. Divide by new WACM ratio for BEP Revenue.
- 8 Step 8: Compare new BEP Units to the previous BEP Units. Write the difference — in absolute units and as a percentage increase.
- 9 Step 9: Divide new BEP Units by average daily volume over the past three months. That is the number of operating days needed each month to clear the new floor.

## Example Use

*A processed food manufacturer has three products: Premium Spice at \$6 CM, Standard Sauce at \$3 CM, and Budget Paste at \$1.20 CM. Three months ago, the mix was 30/40/30. A retailer recently doubled orders on Budget Paste, shifting the mix to 20/30/50. Fixed costs are \$9,000/month.*

Old WACM:  $\$6 \times 0.30 + \$3 \times 0.40 + \$1.20 \times 0.30 = \$1.80 + \$1.20 + \$0.36 = \$3.36$

Old BEP:  $\$9,000 \div \$3.36 = 2,679$  units/month.

New WACM:  $\$6 \times 0.20 + \$3 \times 0.30 + \$1.20 \times 0.50 = \$1.20 + \$0.90 + \$0.60 = \$2.70$

New BEP:  $\$9,000 \div \$2.70 = 3,333$  units/month.

The mix shift from Premium at 30% to 20% and Budget from 30% to 50% raised BEP by 654 units — a 24.4% increase from a single customer order pattern change.

At average daily volume of 110 units: old BEP required 24.4 days, new BEP requires 30.3 days. The business now needs more operating days per month than exist in most months. The owner must either promote Premium Spice (which carries \$6 CM) or raise the floor price on Budget Paste contracts.

# The Worksheet

Tear this out, copy it onto a fresh sheet, or fill it in directly.

## Multi-Product BEP Rebuild After Product-Mix Shift

Use when a major product line is added, discontinued, or when a single product's share of revenue has changed by more than 15 points from the baseline used in the original BEP.

STEP	DESCRIPTION	YOUR CALCULATION	RESULT
1	List all current active products with their CM per unit		
2	Record last 3-month average units sold per product		
3	Calculate each product's share of total units (%)		
4	Multiply CM per unit $\times$ share % $\div$ 100 for each product		
5	Sum column 4 $\rightarrow$ New WACM		
6	State total fixed costs (current, audited)		
7	BEP Units = Fixed Costs $\div$ New WACM		
8	Compare to old BEP Units — how much did it move?		
9	At current average daily volume, how many operating days to clear new BEP?		

## Reflection Prompts

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*After filling in the worksheet on the previous page, work through these.*

1. Which product was discontinued or added, and how did it change the WACM? Express the shift as a percentage point move.
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2. If the new BEP is higher than the old, what is the minimum monthly volume increase needed to restore the prior margin of safety?
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3. Is there a product currently small in mix but high in CM that could be deliberately promoted to pull WACM back up without adding fixed costs?
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# Tips and Traps

## TIPS

- Use a three-month average for volumes, not a single month. A single month's mix can be distorted by one unusual order; three months reflects actual operating conditions.
- After the rebuild, update the WACM figure used in worksheet hv-3 (Monthly Tracker). An outdated WACM in the tracker produces a false margin-of-safety reading every month until corrected.
- If the mix shift is driven by one customer, estimate what BEP looks like if that customer reduces or stops ordering. That is the downside scenario to hold alongside the current BEP.

## TRAPS

- Including inactive products — lines with zero sales for two or more months — in the WACM calculation. A \$0 share times any CM contributes \$0 weighted CM but inflates the product count and can mask the real mix concentration.
- Comparing the new BEP to the business plan BEP rather than to last month's operating BEP. The business plan figure is from a different cost and mix environment. Compare to the most recent calculated BEP.
- Stopping at step 7 without doing steps 8 and 9. The move in absolute units (step 8) and the days-to-cover calculation (step 9) are the numbers that change operational decisions — not the raw WACM.

# Appendixes

## Appendix A — Mix Shift Impact Estimator

To quickly estimate the WACM impact of a mix shift before running the full rebuild:

Simple formula for a two-product business:

$$\text{WACM} = (\text{CM}_A \times \text{Share}_A) + (\text{CM}_B \times \text{Share}_B)$$

Change in WACM from a 10-point shift from Product B to Product A:

$$\Delta\text{WACM} = (\text{CM}_A - \text{CM}_B) \times 0.10$$

Example:  $\text{CM}_A = \$5.00$ ,  $\text{CM}_B = \$1.50$ , shift = 10 points toward A.

$$\Delta\text{WACM} = (\$5.00 - \$1.50) \times 0.10 = +\$0.35 \text{ per unit}$$

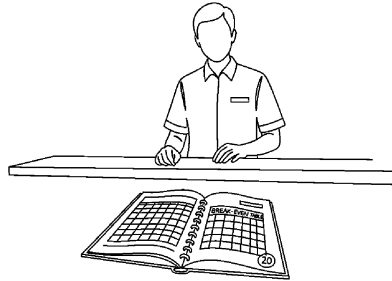
Impact on BEP (at \$9,000 fixed costs):

$$\text{Old BEP (WACM} = \$3.50\text{): } \$9,000 \div \$3.50 = 2,571 \text{ units}$$

$$\text{New BEP (WACM} = \$3.85\text{): } \$9,000 \div \$3.85 = 2,338 \text{ units}$$

BEP drops by 233 units – a 9.1% improvement from a 10-point mix shift.

Run the quick estimate first. If the WACM change is less than \$0.10, the BEP move is likely within the noise margin (under 5%). If the change is larger than \$0.50, run the full nine-step rebuild.



WHERE THIS WORKSHEET COMES FROM

## Break-Even Analysis Handbook

*Calculate How Many Units Must Sell Before This Business Turns a Profit*

by Ibrahim Anwar

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This worksheet is one of nine in the *Break-Even Analysis Handbook* companion worksheet pack. The full pack is grouped into three categories: high-volume worksheets you can run weekly, niche-search worksheets for rare but high-value situations, and specific-case worksheets that walk you through a single concrete scenario.

Every framework, decision filter, and figure used in these worksheets is drawn from the chapters of the source book. The book sets the diagnosis, the worksheets give you the form to act on it.

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