



Image, Hans in Pixabay, 2011.

Just Oats, Cost Optimization

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This problem situation was written by Luis Antonio Camacho Galindo (luiscamacho@tec.mx) and Mariana Pacheco Langner (marian@tec.mx), with the purpose of serving as discussion material in the classroom; it does not intend to illustrate good or bad administrative practices. The story on this document is based on different people's experiences; some data has been modified at the request of the people and institutions involved.

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The company

Sara walks the corridor of her small protein bars factory. She is currently supervising the production of a very important order that must be completed for the Costco wholesale store before the end of the month. As she walks, she focuses on every detail, she is aware that this is what has led her to success.

Some years ago, Sara started her health journey, motivated to look for healthier snack alternatives, and realized that the protein bars that she used to buy did not meet her needs; she felt dissatisfied with all the ingredients that were neither natural nor healthy, and that was how Sara undertook the task of making her own protein bars.

Sara was encouraged when she read about one of the [mega trends](#) in recent years: the wellness market. “Consumers intend to keep spending more on products that improve their health, fitness, nutrition, appearance, sleep, and mindfulness” (McKinsey & Company, 2021).

After several attempts with different recipes, she was able to produce protein bars with great taste, low in sugar, low in carbohydrates, and high in protein, all with 100% natural ingredients.

The company began receiving orders from her family members and little by little she was known for the quality of her protein bars, and the orders began to pour in.

As a Mexican company, Just Oats is characterized for innovating and capturing opportunities that the market offers, being concerned about health, nutrition and flavor. Just Oats is engaged in the manufacturing of natural protein bars for daily consumption.

Production Process

The protein bars manufacturing process starts with high quality oats.

The first step is mashing bananas until smooth, adding peanut butter, vanilla extract, high quality oats, and finally dark chocolate chips.

After thoroughly mixing the ingredients, the mixture is moist and perfectly sweetened with no sugar added.

Then the mixture is poured into a pan and baked for 15 minutes. Once the mixture has a golden brown color, it is removed from the oven and transferred to a wire rack to cool. Once cooled, it is cut into small bars.

“At Just Oats, we use natural ingredients and we monitor each step of the manufacturing process to ensure quality in each bar.” - Sara explains-.

Just Oats is engaged in the manufacturing of protein bars with great flavor.



Image. Production Process of Protein Bar.
Source. Karen Laárk Boshoff in Pexels, 2021.



**She needs to know
the precise unit cost
to calculate profits.**

Unit cost

Just Oats uses a job costing system to accumulate its production costs, and a predetermined factory overhead rate based on direct labor costs to apply factory overhead to all jobs. Since the beginning, the protein bars had the highest demand, because of their natural high quality ingredient: oat.

During the first semester of 2022, the company processed four batches of 2,150 pieces each one:

1. JO-Oats-001
2. JO-Oats-002
3. JO-Oats-003
4. JO-Oats-004

In order to manufacture a single unit the following are needed:

- ▶ Oats: 35 gr. at \$95 MXN*/kilogram
- ▶ Banana: 20 gr. at \$40 MXN/kilogram
- ▶ Peanut butter: 5 gr. at \$219 MXN/kilogram
- ▶ Vanilla extract: 5 ml. at \$454 MXN/liter
- ▶ Chocolate chips: 5 gr. at \$423 MXN/kilogram
- ▶ Direct labor: 0.25 hours at \$21.61 MXN/hour

The estimated semester overhead for 2022 includes:

- ▶ Indirect labor: 400 hours
- ▶ Rent: \$26,000.00 MXN
- ▶ Indirect supplies : \$4,550.00 MXN
- ▶ Maintenance and repairs: \$1,850.00 MXN
- ▶ Equipment depreciation: \$4,200.00 MXN
- ▶ Others: \$3,000.00 MXN

Sara is wondering the following information:

- ▶ 1. How many Direct Labor hours have been used?
- ▶ 2. How much is the Overhead application rate?
- ▶ 3. She also needs to know the precise unit cost to calculate profits.

*1 MXN=\$0.04691 USD (X-rates.com, 2021).

Job Costing

Sara wants to know everything about the costs. She wants to be clear: costs are not one of her strengths, so she asks you to prepare:

- ▶ 4. The total manufacturing cost for each batch
- ▶ 5. A Cost Statement of Goods Manufactured
- ▶ 6. An Income Statement for the semester that ended June 30, 2022.

Normal Cost

The cost to be calculated is per job.

Revenues are calculated adding a profit margin of 55% to the Cost of Goods Sold.

Sales and Administrative Expenses as a percent of revenues are 18%.

Inventories are not considered since the production of the semester is scheduled: it begins and ends within the period without accumulating inventories, except for a beginning materials inventory, made up of :

- ▶ Oats: (20 kg * \$95 MXN) \$1,900.00 MXN.
- ▶ Peanut butter: (10 kg * \$219 MXN) \$2,190.00 MXN.
- ▶ Vanilla extract: (10 lt * \$454 MXN) \$4,540.00 MXN.
- ▶ Chocolate chips: (10 kg * \$423 MXN) \$4,230 MXN.

Batches 001, 002, 003 and 004 were completed in the production area. Batches 001, 002 and 003 were fully delivered to Costco's stores, batch 004 was 85% delivered to the Costco store and the rest is in the finished goods inventory.

From Jobs to a Process

Sara considers that the wellness trend has gained market share little by little and is here to stay, as new generations prefer these natural products over industrialized ones.

Due to this increase in consumption, sales increased favorably. With the profits generated, Sara invested in the purchase of machinery that allowed her to standardize the process and increase production capacity. This is how Just Oats migrated from a job costing system to a process costing system. The production process involves two steps: Mixing and Baking-Cooling.

After this migration, Sara wants to know:

- ▶ 7. The new Cost of Goods Manufactured
- ▶ 8. The new Income Statement for the semester ending December 31, 2022.

During the first semester of having implemented this change in the company, the accounting department decided to use the Weighted Average Method. The following data was obtained:

Revenues are calculated adding a profit margin of 55% to the Cost of Goods Sold.

Data Related to the Process Costing System

PROCESS 1 MIXING				PROCESS 2 BAKING-COOLING			
Concept	Units	Completion Percentage	Costs	Concept	Units	Completion Percentage	Costs
Beginning Work in process inventory	0			Beginning Work in process inventory	0		
Direct materials		0%	\$ -	Direct materials		0%	\$ -
Conversion		0%	\$ -	Conversion		0%	\$ -
Units started during July	25,000						
Units completed during the period	¿?			Transferred-in	¿?		¿?
Final Work-in-process inventory	0			Units to account for			
Direct materials		100%		Work-in-process inventory, June 30	1,800		
Conversion		100%		Direct materials		100%	
				Conversion		70%	
Costs added during the period				Costs added during the period			
Direct materials			\$ 247,809.00	Materials			\$ -
Conversion			\$ 28,250.00	Conversion			\$ 23,680.00
Total costs incurred			\$ 276,059.00	Total costs incurred			\$ 23,680.00

Sara is asking for some additional information to the Just Oats accountant:

- 9. What is the difference between using job costing and process costing?
- 10. Was it appropriate to switch to process costing? Why?
- 11. What are the equivalent units?
- 12. What are the transferred costs?

Just Oats' future depends on a good management of costs and profits, so your answers are crucial.