

Make versus Buy introduction

CASE STUDY: SUPPLY CHAIN ANALYTICS IN POWER BI



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Case study and prerequisites

- Apply Power BI skills
- Combine previously learned concepts
- Solve an example problem
- Advanced Case Study

Prerequisite courses

- Intermediate DAX in Power BI
- Data Modeling in Power BI
- Data Visualization in Power BI

What is a Supply Chain?

A network of individuals and companies who are involved in creating a product and delivering it to the consumer.

The Supply Chain:

- Begins with the producers of raw material
- Ends with the product being delivered to the consumer.



¹ <https://www.investopedia.com/terms/s/supplychain.asp>

What is Make versus Buy?

A make-or-buy decision is an act of choosing between manufacturing a product in-house or purchasing it from an external supplier.



Make versus Buy

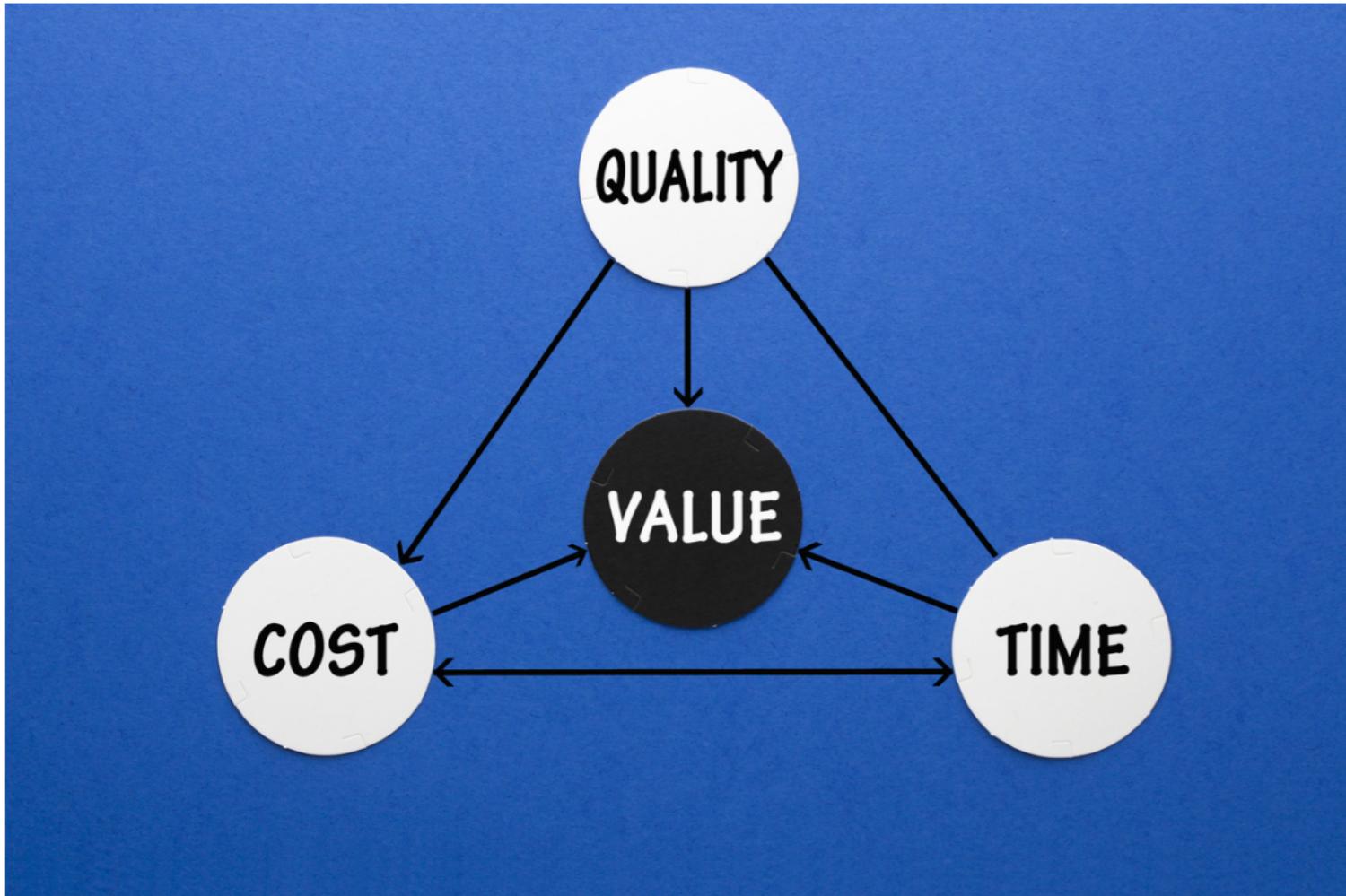
¹ <https://www.investopedia.com/terms/s/supplychain.asp>

Make versus Buy in real life

- Make: Prepare a pizza in your own oven
- Buy: Order pizza at your local restaurant



Factors in the Make versus Buy analysis



- Quality: Who makes a better pizza?
 - Pizza restaurant might have tastier pizza
- Time: Which option takes longer?
 - Making a pizza takes time
 - Ordering a pizza takes minutes
- Cost: Which option costs the most?
 - Might save money at home
 - Restaurant might buy ingredients in bulk

Skills can be applied to more than just cost.

The problem

- You are the supply chain analyst!
- Quotes data table
- Internal Manufacturing data table

Quote: A document that a seller provides to a buyer to offer goods or services at a stated price, under specified conditions.



¹ <https://www.sumup.com/en-gb/invoices/dictionary/quotation/>

The Buy option

Column name	Description
Part_Number	An ID of the Part Number Quoted
Supplier	Name of the supplier that submitted the quote
Volume	Minimum production volume for the quoted price
Unit_Cost	Quoted cost per unit
Non_recurring_expenses	One time expenses required for the production volume

Time to explore the quote data!

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Extended Cost and Full Cost

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Unit Cost

Unit cost - the marginal cost of purchasing another unit.



Unit Cost would include:

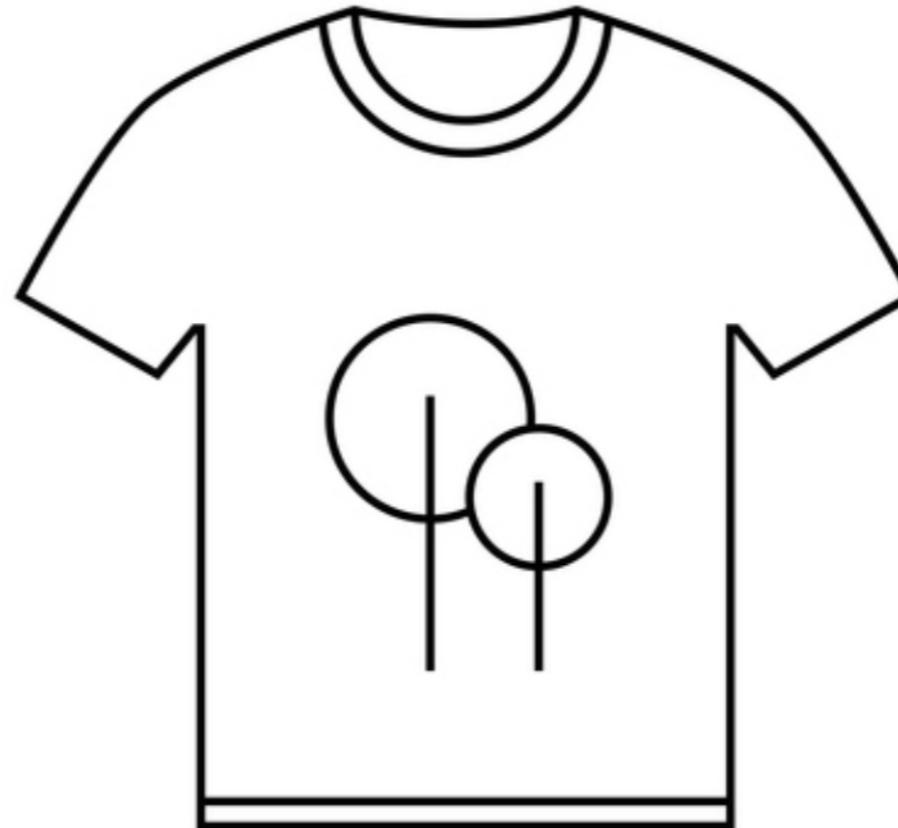
- Raw Material:
 - Blank shirts
 - Ink
- Cost of Production:
 - Energy
 - Labor hours
- Manufacturer Profit

Extended Cost

Extended cost - The cost paid for the products only (does not include one-time expenses)

Extended Cost = (Unit Cost) * (Quantity of Units purchased)

Extended Cost = \$15 per shirt * 10 shirts = \$150



Non-Recurring Expenses

- One-time costs required to enable production

Common examples of non-recurring expenses:

- Tooling or fixtures specific to the manufacturing process
- Engineering expenses for production set-up
- Minimum charge to occupy manufacturing equipment



Full Cost

- The total amount a company must pay to buy a certain quantity of products.

Full Cost = Extended Cost + Non-recurring Expenses

Full Cost = (\$15 per shirt * 10 shirts) + \$65 set-up fee = \$215



A note about Overhead Rates

The overhead rate is a cost allocated to the production of a product or service. Overhead costs are expenses that are not directly tied to production such as the cost of the corporate office

For simplicity, this course do not include overhead rates.

¹ <https://www.investopedia.com/terms/o/overhead-rate.asp>

Let's calculate some Full Costs!

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