

Assessing the Make option

CASE STUDY: SUPPLY CHAIN ANALYTICS IN POWER BI



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Internal cost estimates

- Buy option uses quotes from suppliers.
- Make option uses internal estimates.
- Internal estimates need to have enough information for full cost
- Cost per unit is similar to the "quoted cost"



Internal estimate data - Cost per Unit

Part_Number	Cost_per_Unit	...
P1125	\$8.066	...
P9091	\$4.639	...
P1227	\$3.22	...

- Cost per unit includes costs for:
 - Raw material
 - Energy
 - Labor

Internal estimate data - equipment data

Part_Number	Machine Model	Unit Capacity	Existing Capacity	Machine Fixed Cost	...
P1125	3D Printer79	304	1472	\$5,000	
P9091	Lathe23	13224	29,760	\$1,000,000	
P1227	3D Printer79	500	850	\$5,000	

- Internal estimates include part specific data:
 - Machine model
 - Existing capacity
 - Cost of a new machine
- If production exceeds capacity, new investment is required.

Incremental equipment costs

Incremental costs: New costs introduced by our make or buy decision, not sunk costs that exist before the decision.

- Incremental costs are included in the full cost
- Sunk costs are **NOT** included in the full cost



Pizza example



Incremental Costs (included in decision cost):

- Dough
- Cheese
- Sauce

Sunk Cost (do not include in decision cost):

- Your oven

Pizza party example



Incremental Costs (included in decision cost):

- Lots of dough
- Lots of cheese
- Lots of sauce
- **Additional pizza oven**

Sunk Cost (do not include in decision cost):

- Your first oven

Other types of incremental make costs

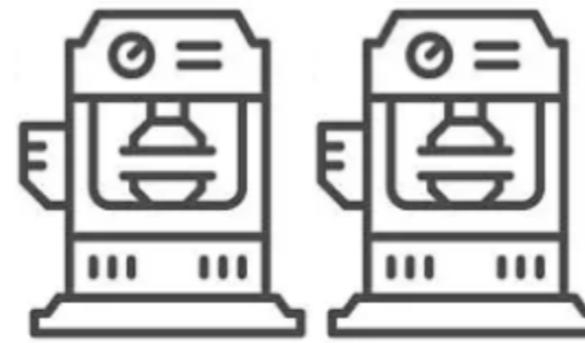


Other incremental costs can include:

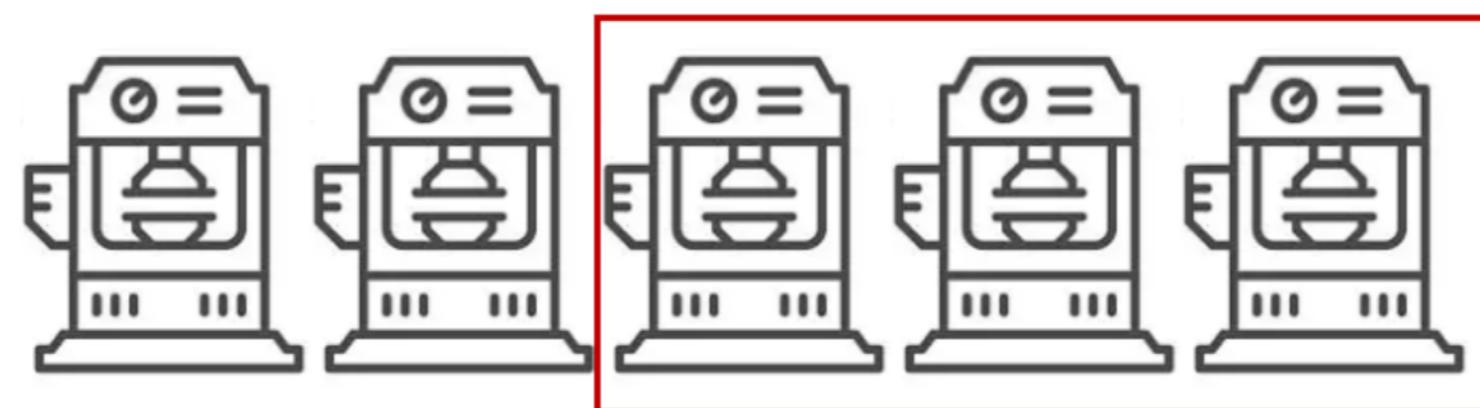
- New facilities
- Salaried labor such as engineering, production planners

Calculating investment required

Machines on-hand:



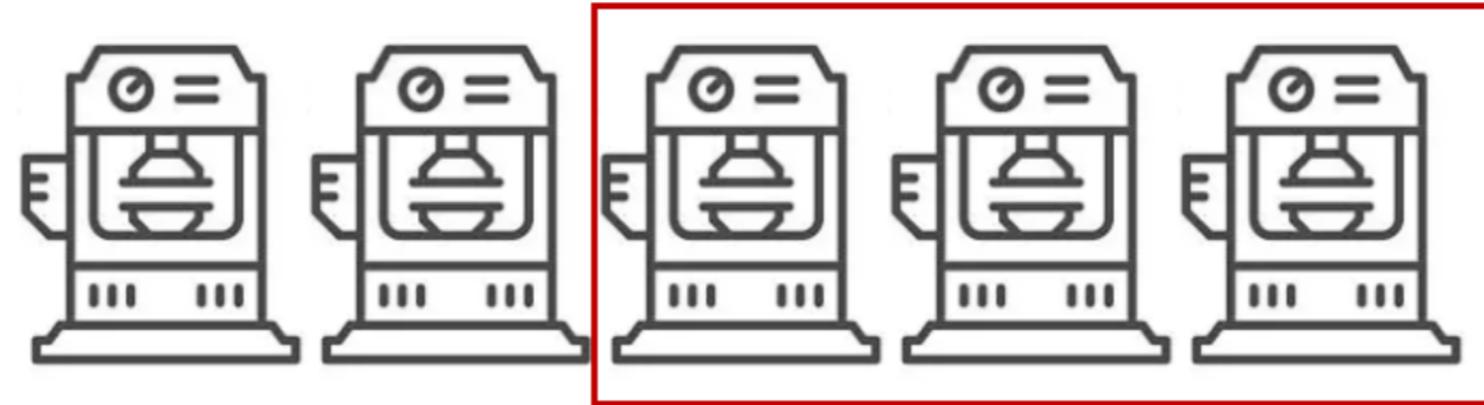
Machines required for production:



¹ Machine image is from: <https://www.istockphoto.com/vector/set-line-icons-of-machine-tool-robotic-industry-gm540375844-96455873?phrase=manufacturing%20equipment%20icon>

Equipment needed formula

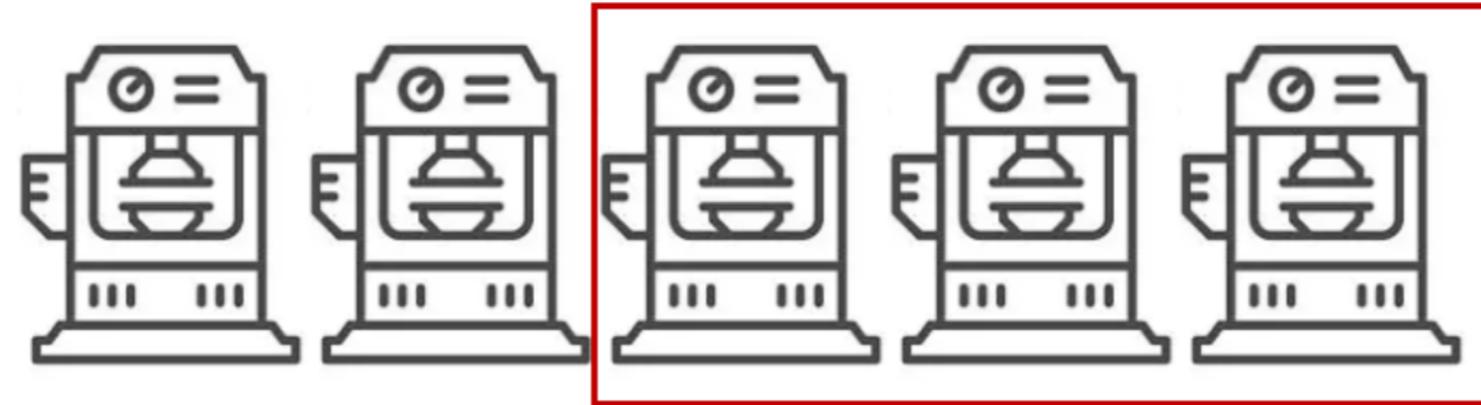
Machines required for production:



Machines Required to Purchase = Production Volume - Existing Capacity) / Unit Capacity

Equipment needed formula

Machines required for production:



Machines Required to Purchase = ROUNDUP (Production Volume - Existing Capacity) /
Unit Capacity, 0)

Let's practice!

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Wrap-up

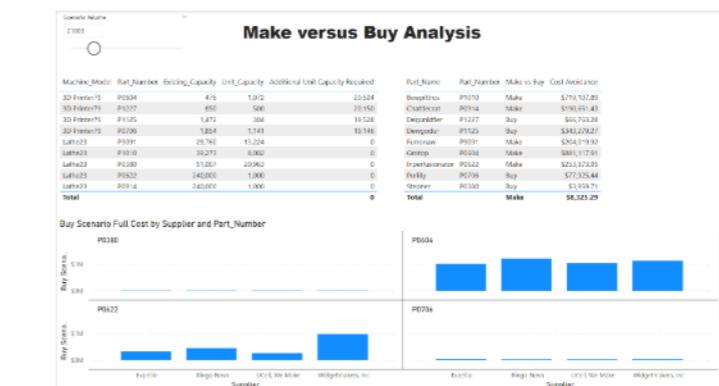
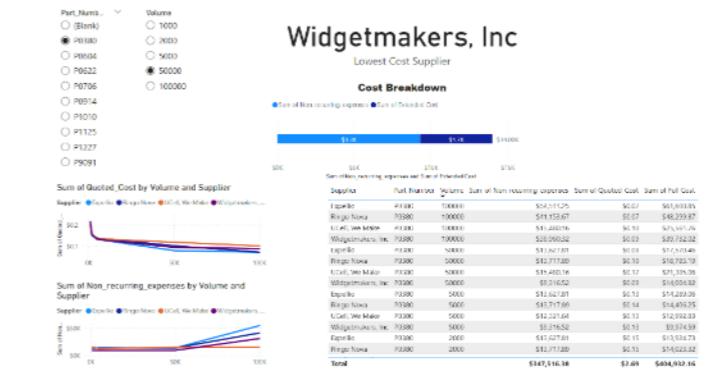
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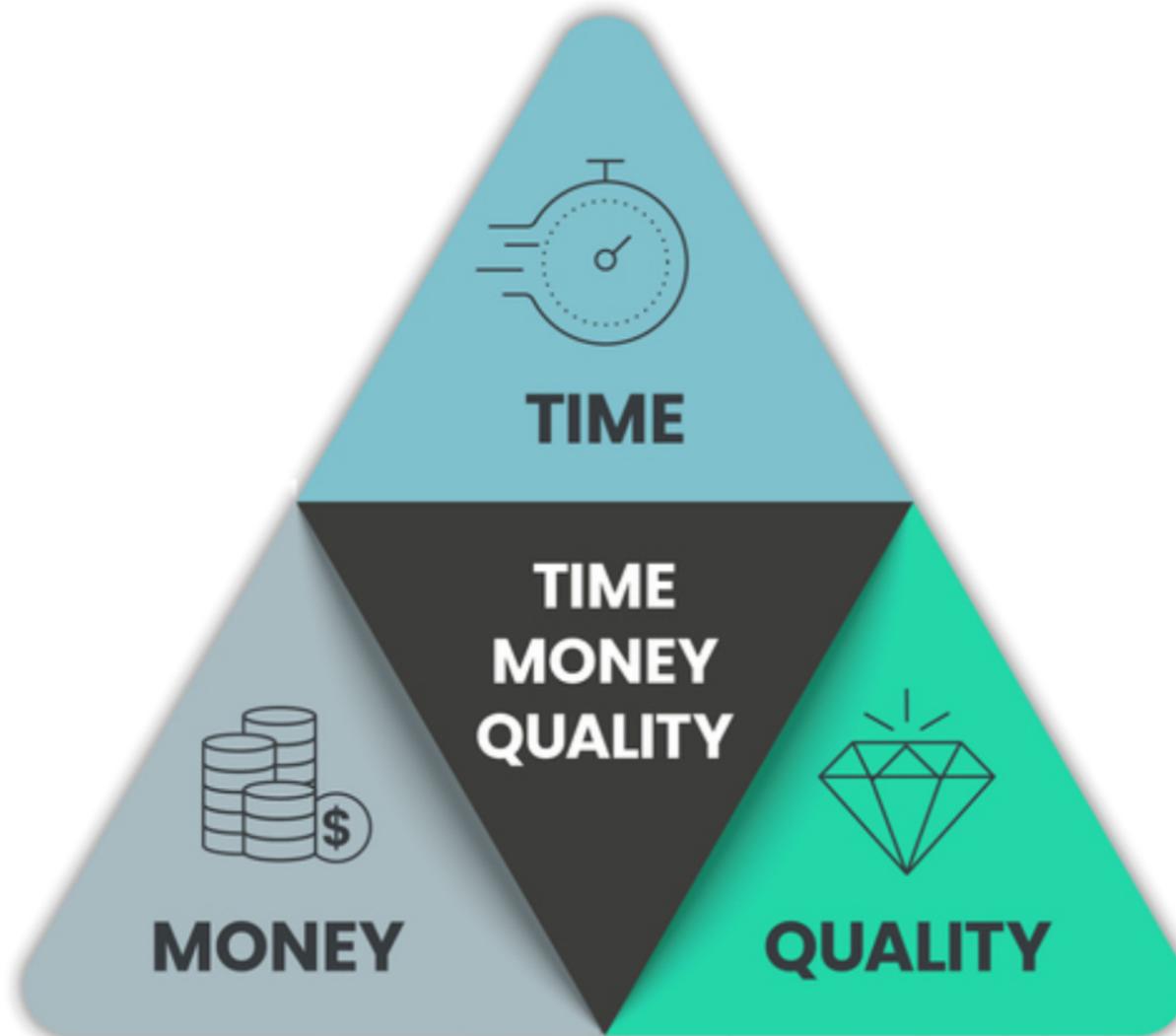
Summary

- **Chapter 1:** Buy Option Full Cost at fixed volumes
- **Chapter 2:** Buy Option Full Cost at variable volumes
- **Chapter 3:** Make Option Full Cost at variable volumes and Cost Avoidance



A baseline data model

TIME-MONEY-QUALITY



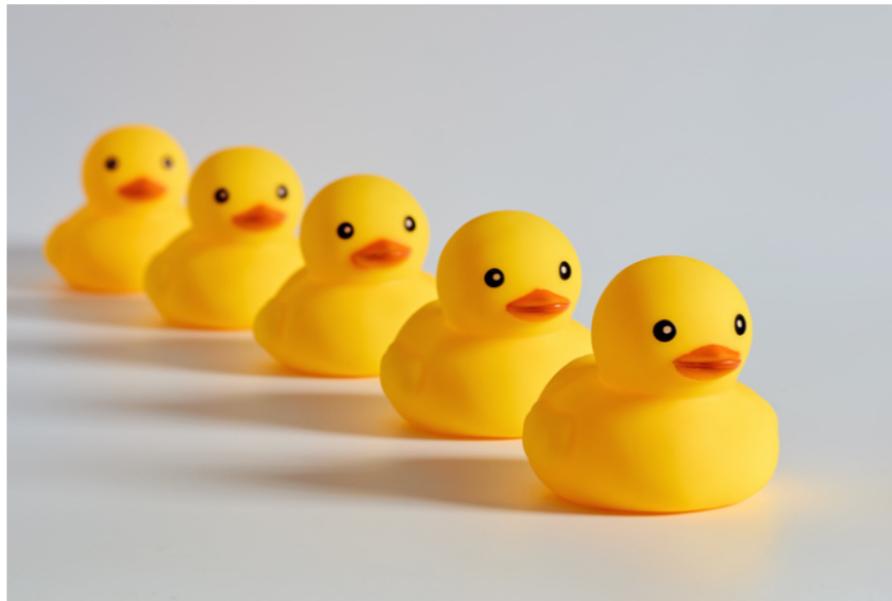
- More cost considerations
 - Salaried employees
 - Extra Facilities
 - Variable overheads
 - Freight Costs
- Time considerations
- Quality metrics

Power BI or spreadsheets



Consistency and control

Consistency across analyses



- More quotes can be added
- Same logic
- Avoids new spreadsheets

Control



- Data security
- Avoids flawed data

Simple, powerful Sharing



- Online dashboards and interactive reports
- Easy and immediate access
- Beautiful visualizations built-in

Congratulations!

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