



Experimenting in Business

You were on holiday and just had the best tasting pizza ever! It was so good that you must recreate it at home. But there is a problem - the pizza had a fancy/unpronounceable name and you forgot what the ingredients were.



So what do you do? You had to experiment to find out what makes a mighty tasty pizza. In business terms, this is known as Causes and Effects (in the world of pizza: it is called ingredients and taste).

Sometimes it is easy to link the a cause to an effect - you run up 25 flights of stairs: you get out of breath. Other times things are a bit more mysterious: the blue screen of death on your computer seems to appear for no apparent reason. In the world of pizza, we know that tomato sauce and cheese usually go well together, but we are not too sure whether kumquats and chickpeas will work out. So you experiment...

Experiments allow you to create (or recreate) situations in a controlled fashion. It is a situation that you put together to study and analyse the problem in a controlled environment. Sometimes these are called scenarios, role playing or simulations. It is an area of business loaded with jargon, but we reckon it is actually nearer to pizza making than rocket science. There are several steps to this procedure.

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1. Define Scope

Before you start, you define the limit of your investigation. This scope therefore gives you a set of practical limits to work with.

2. Search for Causes

You then gather your information, look for causes, reasonable causes, probable causes or even possible causes. After collecting a mass of data, you are about to start investigating.

3. Testing Assumptions

You analyse by testing your assumptions. The assumptions will allow you to categorise the issues broadly, look at the data and try to make some sense.

4. Relating Causes to Effects

You link the assumptions to any observations such as: "A will lead to B". The extent that this actually happens is known as "Correlation".

For example, oil on the walkway is likely to be a cause of someone slipping.

Recreating the Pizza

1. In the case of a pizza experiment, you can set limits: vegetarian or meat and vegetables, fresh herbs or dried herbs and so on.

2. In the pizza experiment, you gather reasonable / probable / possible ingredients.

Reasonable: tomato, basil, cheese...

Possible: seaweed, pine nuts...

3. For example, you remember the pizza being savoury, so you assume no sweet ingredients. Or you remember the pizza was red- so you look through your red ingredients: tomatoes, peppers, chiles etc

4. Tomato with basil combination gives good pizza taste: a perfect fit has a correlation of "1".

Turnips with pickled cabbage combination is less desirable and unlikely to work as a good pizza : the "no-fit" has a correlation of "0".

5. Designing Experiments

Up to now, it has been assumptions and data, you are now ready to carry out your experiment.

“Design of Experiments” is a term used in analysis to describe a technique where groups of factors are combined to minimise the number of experiments.

5. Making a pizza is a good example of Design of Experiments - you can try high correlation combinations of ingredients: tomato and cheese with basil or sausage with peppers and mushrooms on pizzas, rather than trying a much large number of pizzas each with one ingredient only. (See table below).

In a business situation, you need to list the relevant variables that you derived from your analysis. These are then assessed as to the causes and effects. You then analyse them for the correlation to each other. From there you will have a structured set of factors to conduct the necessary experiments.

Example of Design of Experiments - Designing the Ultimate Pizza

2 Causes: (tomatoes, olives)	A	B	Experiments: 8
2 Observations: (cheese, peppers)	X	Y	A.X.H B.X.H A.X.L B.X.L
2 Levels: (sausages, mushrooms)	H	L	A.Y.H B.Y.H A.Y.L B.Y.L

In pizza experimenting, we would recommend taking the same approach but with the addition of having some indigestion medicine ready to hand if your Design of Experiments analysis suggests anything more than 2-3 pizzas - Enjoy!