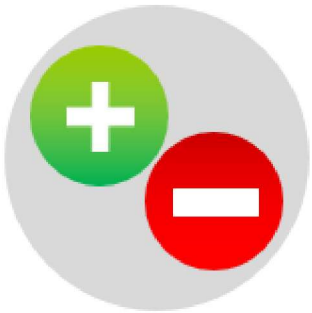
Pugh Matrix



A **Pugh Matrix** is a selection method used to compare and select the best solution from a set of alternative proposals. It helps determine which of the solutions are more valuable than the others. One advantage of this method is that it does not require a great amount of quantitative data. Furthermore, subjective opinions about one alternative versus another can be made more objective.

The pugh matrix is a form of prioritization matrix in which the alternative proposals are compared against a standard. This standard can be the current solution that already exists. It can also be a goal or benchmark to be reached in the near future. Scoring is often made in the form of pluses and minuses, where:

- Better than Baseline
- Worse than Baseline
- About the Same

The pugh matrix is often used when making design decisions during the product development cycle. It allows to evaluate multiple design concepts, using customer requirements as the criteria for comparison. It can also be used when designing or redesigning processes to achieve faster, more convenient and more efficient performance. The pugh matrix can be used in a number of other applications, such as deciding which investment to take, deciding which vendor to select, and deciding which improvement project to initiate.

Developing a list of criteria is the first step before evaluating your alternatives. Each criteria can then be given a weighted value to indicate its importance. The more important the criteria, the higher the weight it can be. These weights can be set by the team members working to select the best alternative, or by a group of experts. It can simply be implemented by letting the team members distribute a certain number of points between the selected criteria.

Now, the team has to work through the matrix and determine how each alternative is compared with the baseline solution (using pluses and minuses). The final scores can be obtained by adding up the weighted scores for each alternative. The selection of the best solution is made based on the obtained scores; the alternative with the most pluses and the fewest minuses is considered the best. Further solutions can then be developed by mixing the positive aspects of a number of solutions.

Criteria	Weight	Baseline	1	2
1				
2				
3				
		Score		
		Rank		

There are many tools that can help you to select the best solution from a set of alternative. The simplest way is to use this pugh matrix template.

How to Construct and Use the Pugh Matrix

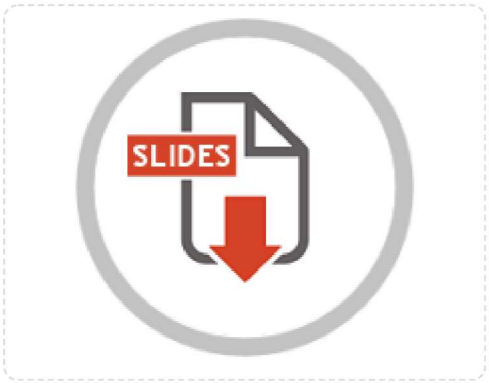
- Clearly explain to the team the purpose for constructing the pugh matrix.
- Prepare the list of alternative proposals and identify the relevant criteria.
- Draw a table, then place the criteria in the left hand column and the alternatives in the top row.
- Select the baseline solution or benchmark to be used as a standard for comparison.
- Indicate how the solution is compared with each of the alternatives by placing a plus, minus, or zero.
- Notice the strongest solutions, the ones with the most pluses and the fewest minuses.
- Look for opportunities to combine the best aspects of different solutions.

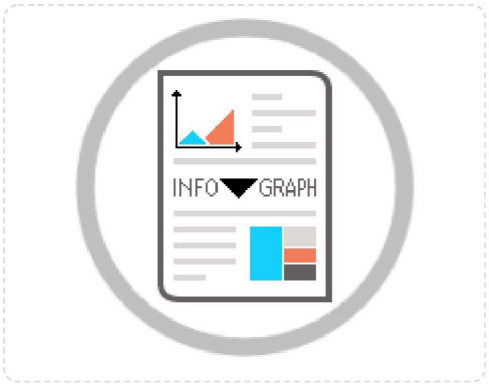
Example

The following is an example of a pugh matrix that was created to select the best concept from among three alternative proposals.

Criteria	Alternative 1	Alternative 2	Alternative 3	Baseline	Weight
Safe	–	–	0	0	
Durable	+	0	–	0	
Weight	–	–	+	0	
Easy to assemble	+	0	–	0	
Reliable	–	–	–	0	
Cost	+	0	+	0	
Net Score	0	-3	-1		
Rank	1	3	2		
Continue?	Yes	No	No		

Other Formats





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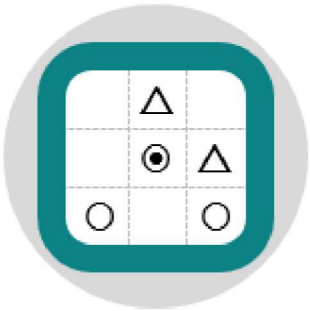
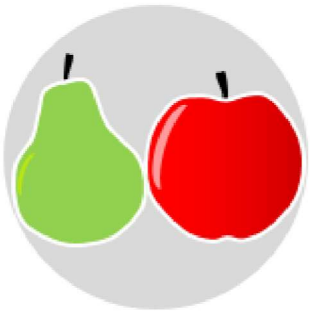


Paired Comparison Analysis



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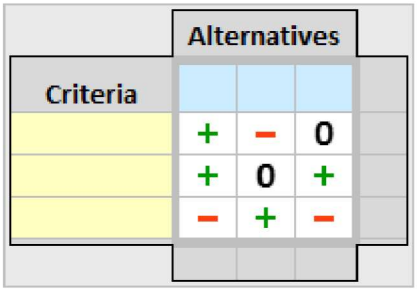
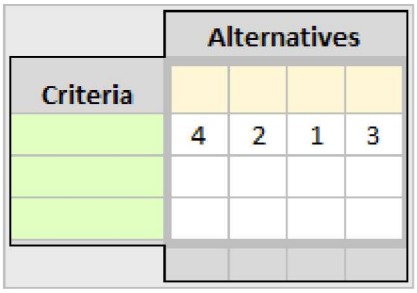
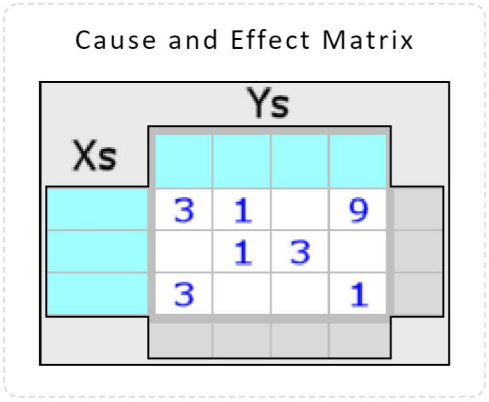
Pugh Matrix



Prioritization Matrix





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