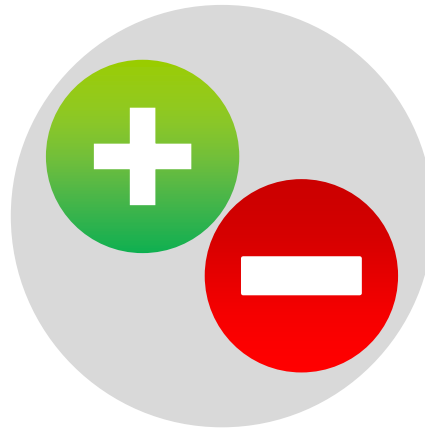


Continuous Improvement Toolkit

Pugh Matrix

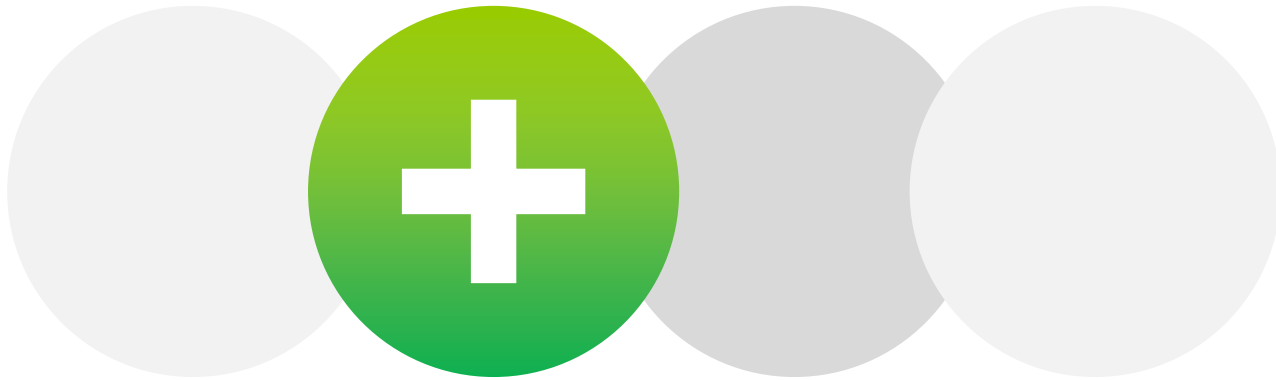


The Continuous Improvement Map



Pugh Matrix

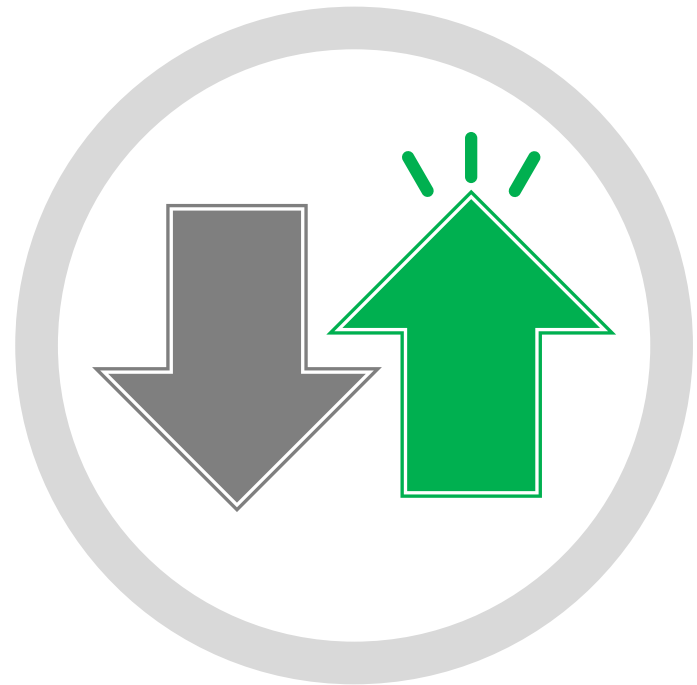
A selection method used to **compare** and **select** the best solution from a set of alternative proposals



Helps determine which of the solutions are more valuable than the others

Pugh Matrix

A form of
Prioritization Matrix



Pugh Matrix

The alternative proposals are compared against
a standard . .

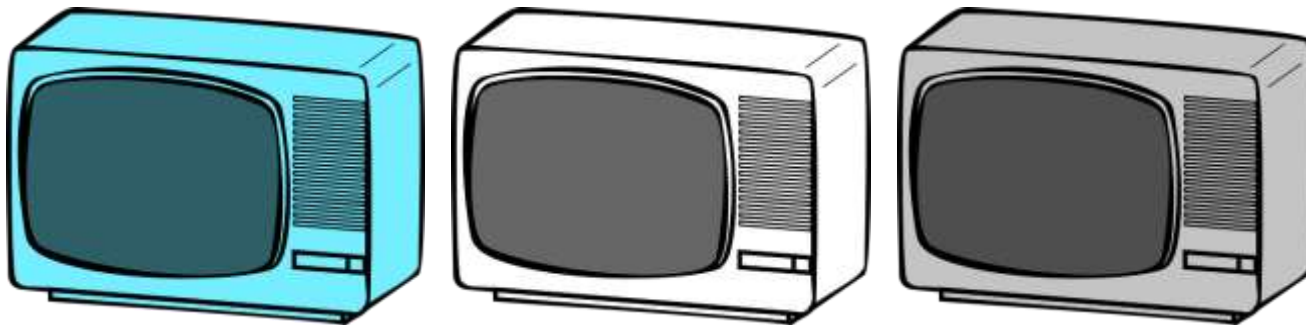
The current solution that
already exists

A **goal** or benchmark to be
reached in the near future



Pugh Matrix

It allows for example to compare multiple design concepts versus a baseline design using customer requirements (VOC) as the criteria for comparison



Pugh Matrix

Benefits

Does not require a great amount of **quantitative data**

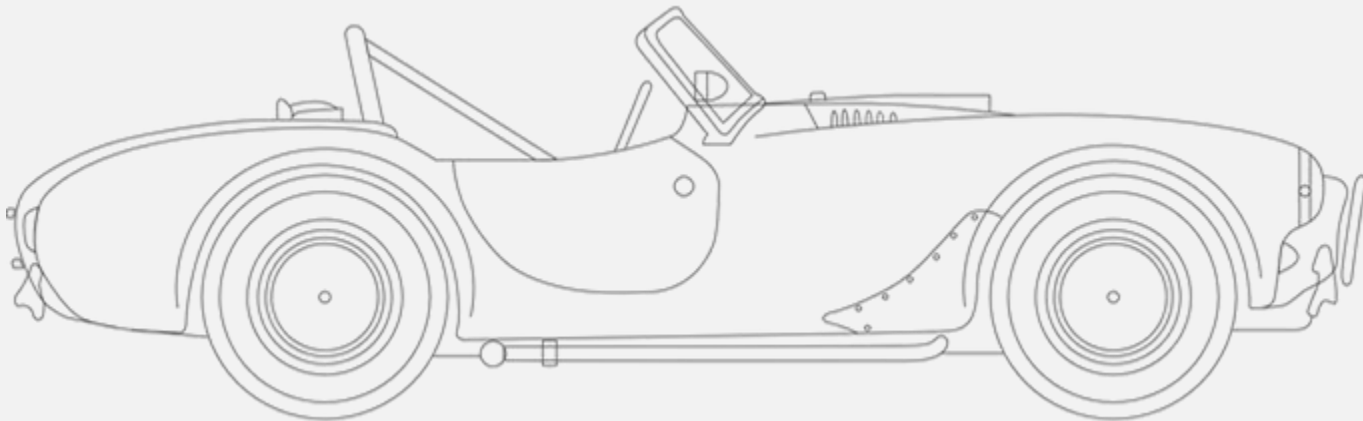
Subjective opinions about one alternative versus another can be made **more objective**



Pugh Matrix

Uses

Often used when making **design** decisions during the product development cycle



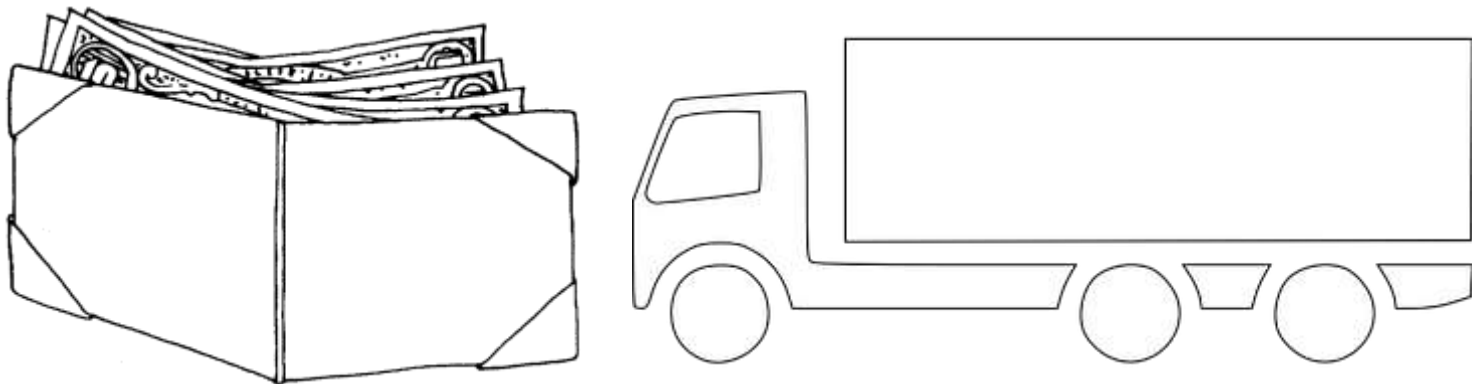
Pugh Matrix

Other Uses

Deciding which **investment** to take

Deciding which **vendor** to select

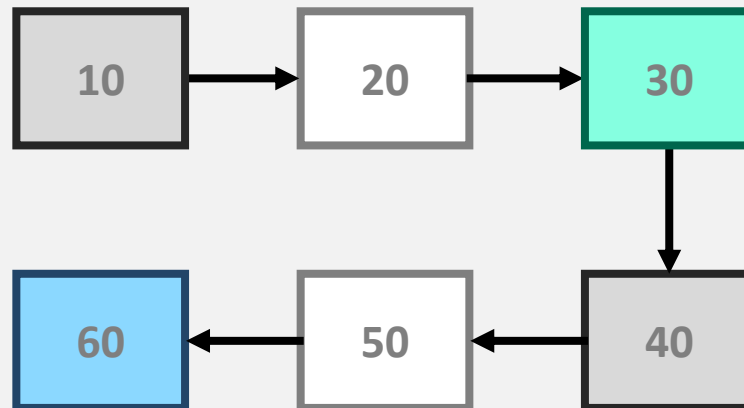
Deciding which **improvement project** to initiate



Pugh Matrix

Other Uses

When **designing or redesigning processes** to achieve faster, more convenient and more efficient performance



Pugh Matrix

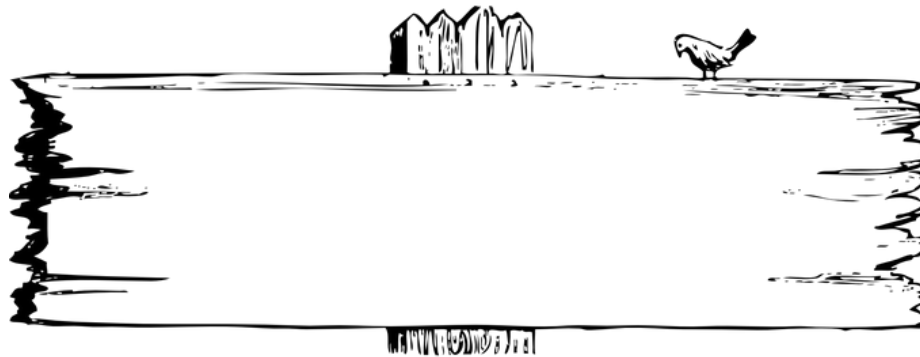
Developing a **list of criteria** is the first step before evaluating the alternatives

Criteria	Weight	Baseline	1	2
1				
2				
3				
4				
Score				
Rank				

Pugh Matrix

For evaluating **product designs**, use VOC requirements as the criteria

For evaluating **improvement proposals**, use customer requirements (VOC)
or organizational improvement goals



Pugh Matrix

Each criteria item can be given a **weight value** to indicate its importance

These weights can be set by a group of experts or by the team

Criteria	Weight	Baseline	1	2
1	1			
2	3			
3	1			
4	5			
		Score		
		Rank		

*The more important
the criteria, the
higher the weight
it can be given*

Pugh Matrix

The baseline solution is always set to **Zero**

Criteria	Weight	Baseline	1	2
1	1	0		
2	3	0		
3	1	0		
4	5	0		
Score				
Rank				

Pugh Matrix

Indicate how the baseline solution is **compared with** each of the alternatives by placing a plus, minus, or zero

Criteria	Weight	Baseline	1	2
1	1	0	+	-
2	3	0	-	-
3	1	0	+	+
4	5	0	0	+
Score				
Rank				

Pugh Matrix

Scoring

For each alternative, determine whether the alternative is better, same or worse than the baseline



Better than baseline



Worse than baseline



About the same

Pugh Matrix

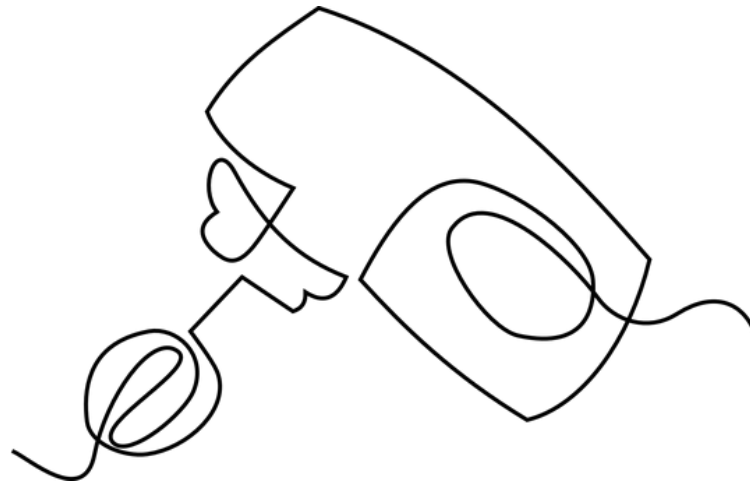
The final scores can be obtained by adding up the weighted scores for each alternative

Criteria	Weight	Baseline	1	2	3	4
1	1	0	+	-	+	0
2	3	0	-	-	0	-
3	1	0	+	+	+	0
4	5	0	0	+	+	-
		Score				
		Rank				

The **selection** of the best solution is then made based on the obtained scores

Pugh Matrix

Further solutions can then be developed by mixing the positive aspects of a number of solutions

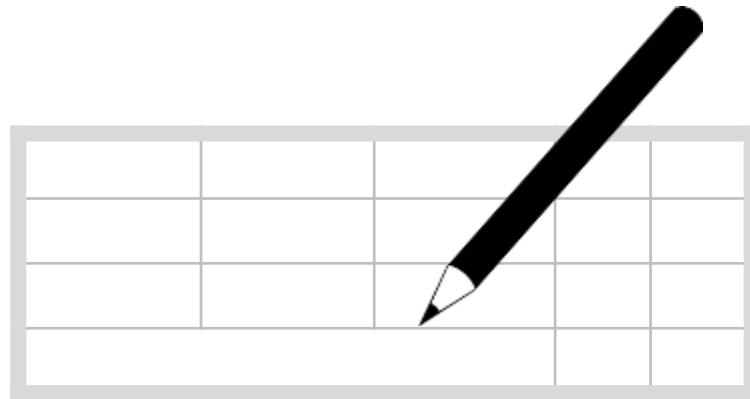


Pugh Matrix

How to Construct and Use the Pugh Matrix

Clearly explain the **purpose** for constructing the pugh matrix

Prepare the list of **alternative** proposals and Identify the relevant **criteria**

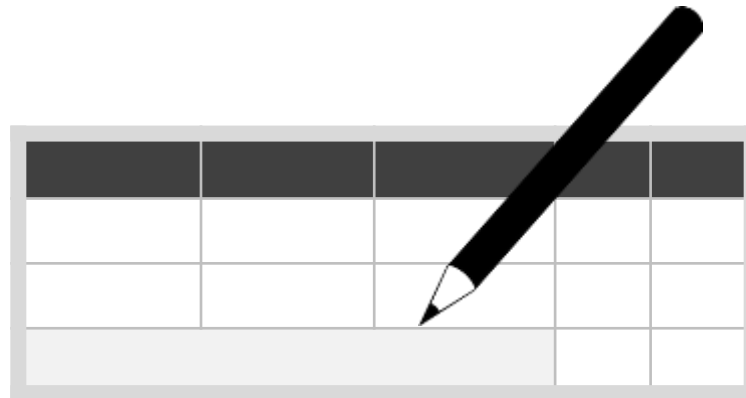


Pugh Matrix

How to Construct and Use the Pugh Matrix

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



Pugh Matrix

How to Construct and Use the Pugh Matrix

Indicate how the baseline solution is compared with each of the alternatives by placing a plus, minus, or zero

Notice the strongest solutions, the one with the most pluses and the fewest minuses

Look for opportunities to combine the best aspects of different solutions

Pugh Matrix

Example – Concept Selection from Among Three Alternatives:

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		