Continuous Improvement Toolkit

PRIORITIZATION MATRIX

PRIORITIZATION MATRIX

Many real-life **decision-making situations** have several conflicting criteria that need to be considered at the same time.

Traditionally, this is often carried out by applying trial-and-error methods, or by relying on the experience of people.

PRIORITIZATION MATRIX

In such situations, decision makers are required to use prioritization in order to make effective decisions.

Prioritization is an essential skill that needs to be mastered by professionals to make the best use of their own and their team's time and effort.
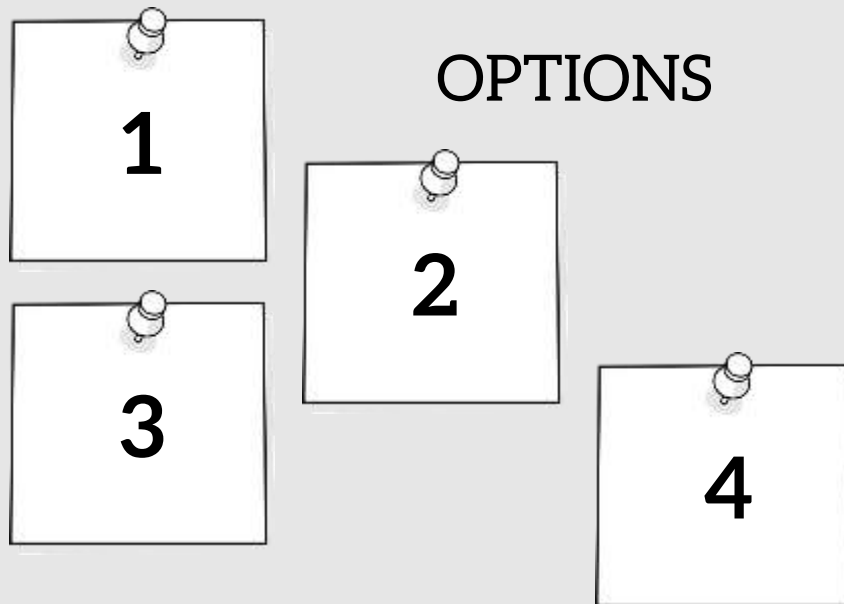
PRIORITIZATION MATRIX

Prioritization allows to select the most appropriate alternative after evaluating multiple conflicting criteria as part of the decision-making process.

PRIORITIZATION MATRIX

Prioritization allows to determine the **best feasible option** according to predefined criteria.

OPTIONS

1

2

3

4

Helps **selecting** items to be actioned from a list of possible alternatives

PRIORITIZATION MATRIX

A **prioritization matrix** provides a way to prioritize a list of items into an order of importance for decision making.

This provides a foundation for sorting and selecting the items and helps in the overall evaluation.
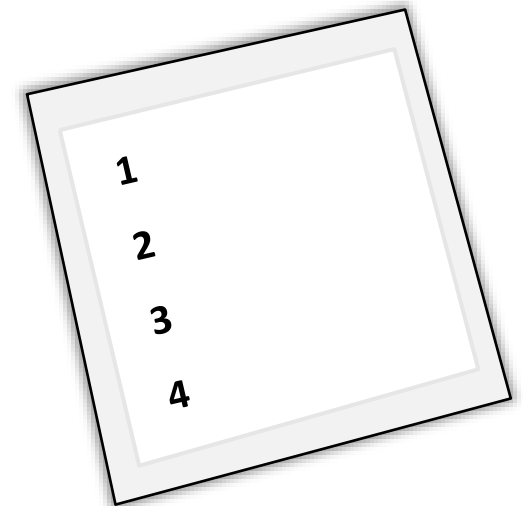
PRIORITIZATION MATRIX

Applications of Prioritization Matrix

Can be used when you need to prioritize **customer needs** based on what customers say is important.

Often used in **project management** to select the potential projects that need to be initiated

1

2

3

4

PRIORITIZATION MATRIX

Applications of Prioritization Matrix

Equipment and machine selection

System and software selection

Personnel selection

Material and service selection

Vendor and supplier selection

PRIORITIZATION MATRIX

Used in problems solving and process improvement to:

- ▶ Select the **problem** that needs to be resolved before initiation.
- ▶ Then, select the **solution** that needs to be implemented after analysis.
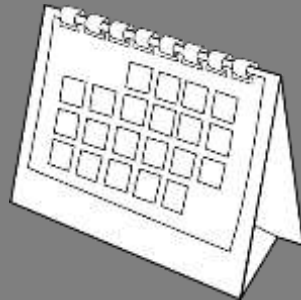
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BENEFITS

Helps making more informed and justifiable decisions

Helps reducing options to the most effective and least costly

Helps making use of time and resources to focus on the things that really matter

Allows the team to agree on priorities and move toward the action collectively
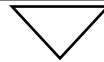
PRIORITIZATION MATRIX

Prioritization Matrix Components

1	Problem / objective

2	Decision makers and their preferences

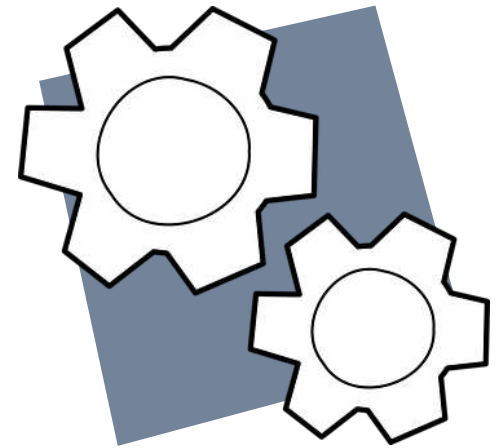| 3	Alternatives / options

4	Evaluation criteria

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Evaluation Criteria

Represent defined **standards** by which the different alternatives can be measured and compared.

Provide an objective and consistent basis for comparison.

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Evaluation Criteria

Evaluation criteria for selecting projects . . .

Risks

Costs

Benefits

Time

What else?
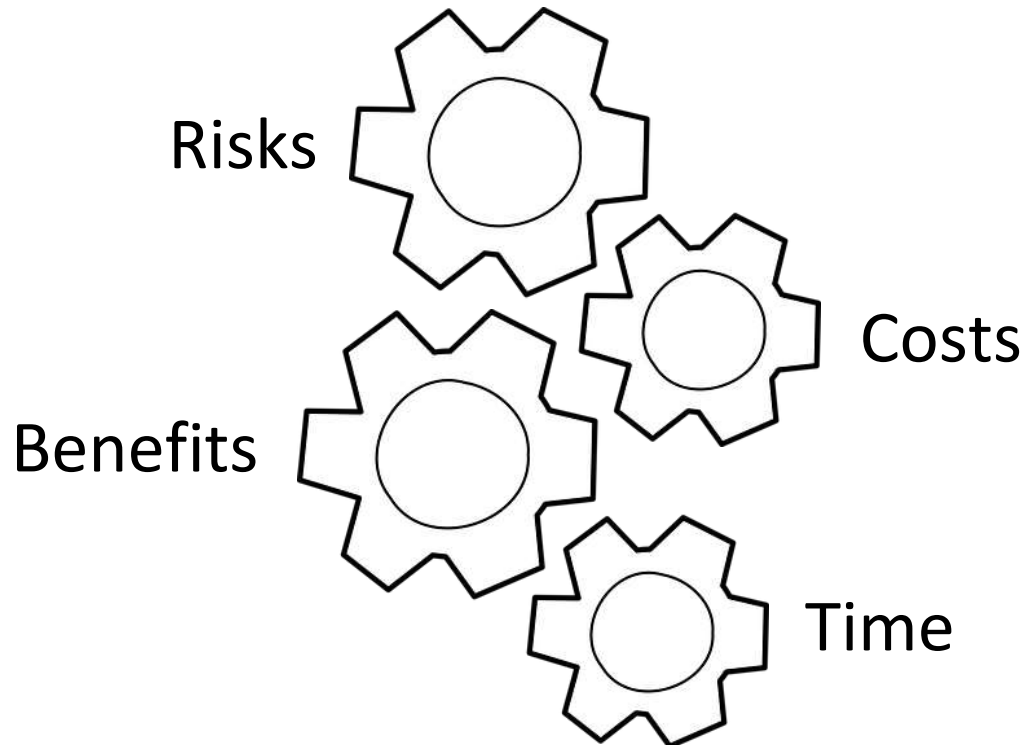
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Evaluation Criteria

Evaluation criteria when hiring a new employee . . .

Experience

Skills

Availability

Attitude

What else?
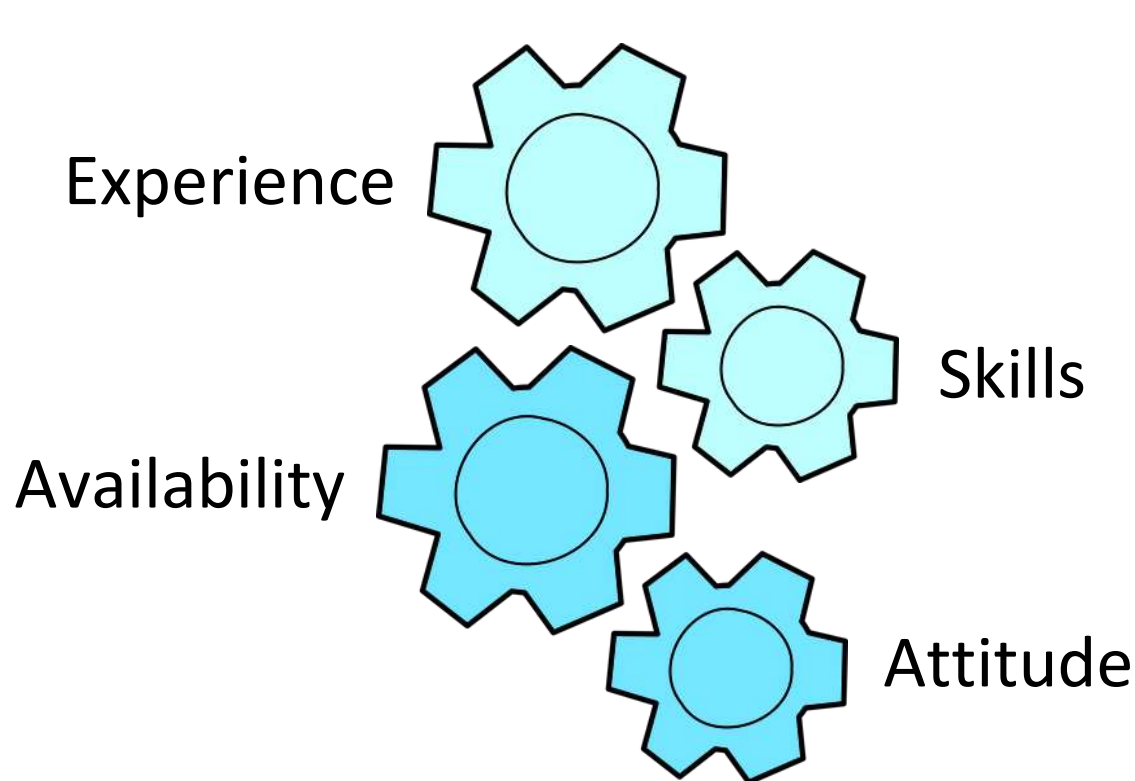
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Evaluation Criteria

Evaluation criteria when buying a new car . . .

Cost

Safety

Performance

Comfort

What else ?
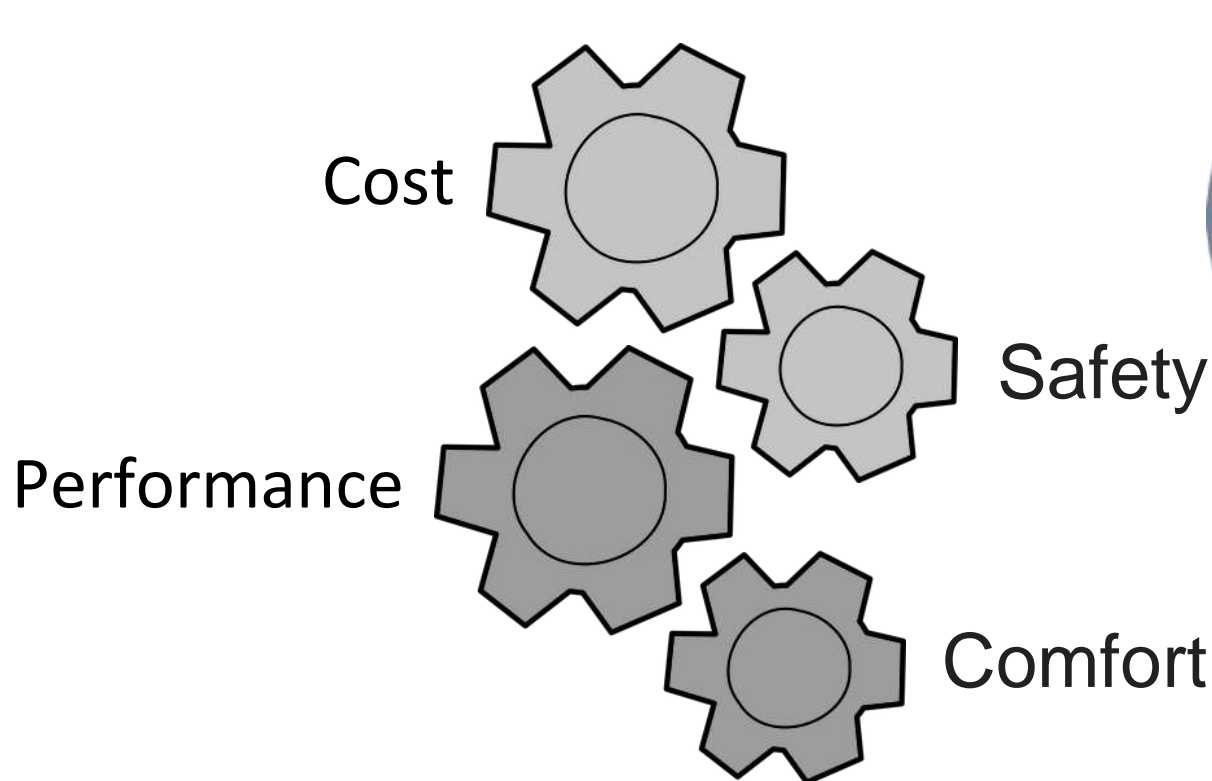
PRIORITIZATION MATRIX

Evaluation Criteria

How to Develop Evaluation Criteria?

Generate ideas
(Brainstorming)

Organize criteria
(Affinity diagrams)

Reduce Criteria
(Voting)

Evaluation criteria development session

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Evaluation Criteria

Should be easily **measured**	→	Should be **relevant** to the situation	→	Should be **useful** for the evaluation
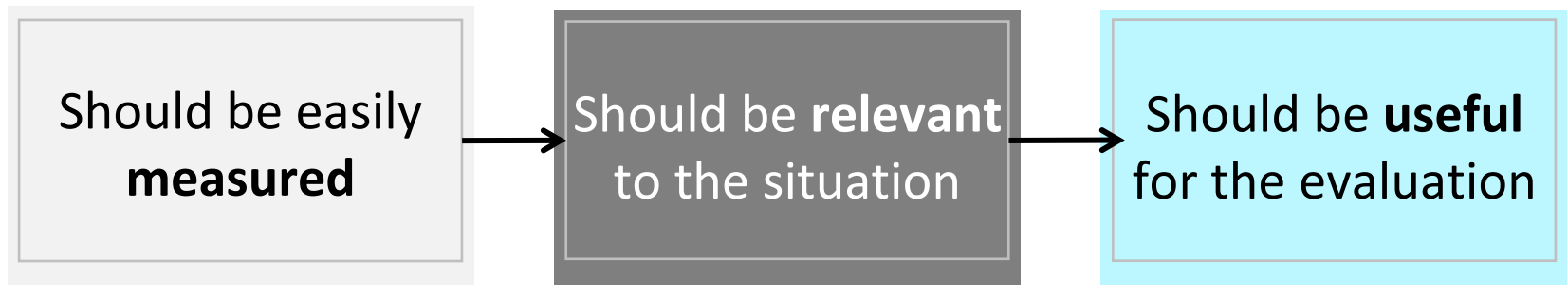
PRIORITIZATION MATRIX

Evaluation Criteria

Questions that may help develop your evaluation criteria . .
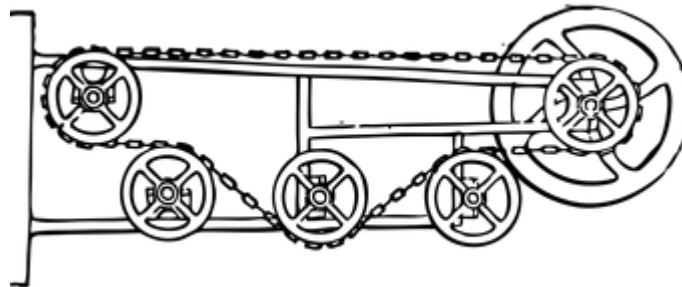
Will the solution solve the problem permanently?

Will it improve **customer satisfaction**?

What are the **cost** for implementing the solution?

How **easy** is it to implement?

How much **time** it will take?

Are there any potential problems or **risks** that can arise in future?

Are there any potential regulatory issues that need to be considered?

PRIORITIZATION MATRIX

Simple Prioritization Matrix Template

CRITERIA \\ OPTIONS					Scores	Rank

PRIORITIZATION MATRIX

Prioritization Matrix Template – Rotated Version
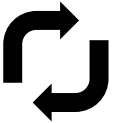
OPTIONS / CRITERIA				
Scores				
Rank				

PRIORITIZATION MATRIX

Prioritization Matrix Template – 2 Version

PRIORITIZATION MATRIX

Example – Selecting New Equipment

CRITERIA / OPTIONS	Cost effective	Decreased defects	Increased productivity	User friendly	Scores	Rank
New equipment 1	3	2	2	3	10	2
New equipment 2	2	3	3	4	12	**1**
New equipment 3	1	2	4	2	9	3
New equipment 4	4	1	1	1	7	4

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Weighting Evaluation Criteria

The evaluation criteria can be weighed according to their relative importance based on the **preferences of the team**.

For example, when hiring a new employee, **skills** may weigh less than the **experience**, because it considered by the recruitment team to be less important.

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How to Weight Evaluation Criteria?

Allowing the team to **distribute** a certain number of points (for example 100) between the selected criteria

Totaling the scores collected during the evaluation criteria development session
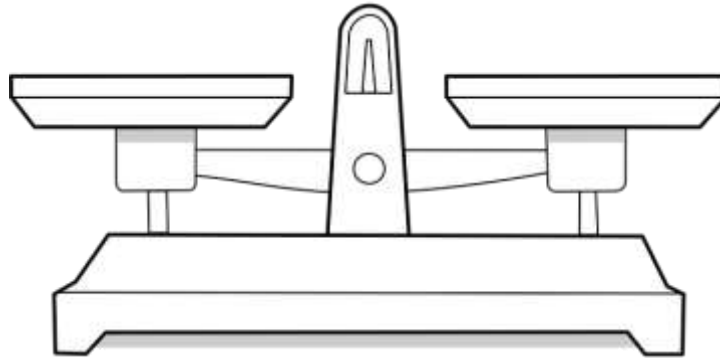
PRIORITIZATION MATRIX

Weighting Evaluation Criteria – Selecting new Equipment

Ask each team member to distribute 100 points between the selected criteria

Criteria	Adam	Emir	Sara	Zekaria	Total
Cost effective	40	10	20	15	85
Decreased defects	15	20	30	15	80
Increased productivity	40	55	50	30	175
User friendly	5	15	0	40	60
	100	100	100	100	

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Prioritization Matrix Template (Including Weighting)

Criteria					Weighted scores	Rank
↓ Options / Weight →						

PRIORITIZATION MATRIX

Prioritization Matrix Template (Including Weighting)

		Options			
Criteria	Weight				
Weighted scores					
Rank					

Rotated Version

PRIORITIZATION MATRIX

Prioritization Matrix Template (Including Weighting)

Criteria				Scores	Rank
Weight → ↓ Options					

	Options			
Criteria	Weight			
Weighted scores				
Rank				

PRIORITIZATION MATRIX

Example – Selecting New Equipment

Criteria	Cost effective	Decreased defects	Increased productivity	User friendly	Weighted scores	Rank
↓ Options / Weight →	1	1	1	1		
New equipment 1	3	2	2	3	10	2
New equipment 2	2	3	3	4	12	**1**
New equipment 3	1	2	4	2	9	3
New equipment 4	4	1	1	1	7	4

PRIORITIZATION MATRIX

Example – Selecting New Equipment

Criteria	Adam	Emir	Sara	Zekaria	Total
Cost effective	40	10	20	15	**85**
Decreased defects	15	20	30	15	**80**
Increased productivity	40	55	50	30	**175**
User friendly	5	15		40	**60**
	100	100	100	100	

Criteria	Cost effective	Decreased defects	Increased productivity	User friendly	Weighted scores	Rank
↓ Options / Weight →	0.85	0.8	1.75	0.6		
New equipment 1	3	2	2	3	9.45	3
New equipment 2	2	3	3	4	11.75	**1**
New equipment 3	1	2	4	2	10.65	2
New equipment 4	4	1	1	1	6.55	4

PRIORITIZATION MATRIX

Example – Selecting New Equipment

Criteria	Adam	Emir	Sara	Zekaria	Total
Cost effective	40	10	20	15	**85**
Decreased defects	15	20	30	15	**80**
Increased productivity	40	55	50	30	**175**
User friendly	5	15	0	40	**60**
	100	100	100	100	

You may express weights as a whole number, decimal or percentage

Criteria	Cost effective	Decreased defects	Increased productivity	User friendly	Weighted scores	Rank
	0.85	0.8	1.75	0.6		
New equipment 1	3	2	2	3	9.45	3
New equipment 2	2	3	3	4	11.75	**1**
New equipment 3	1	2	4	2	10.65	2
New equipment 4	4	1	1	1	6.55	4

Scores for each criterion are multiplied with their weights

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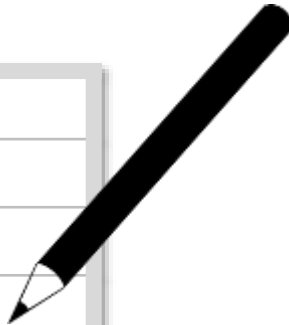
How to Conduct a Prioritization Exercise?

Explain the **purpose** for constructing the prioritization matrix

Identify and agree on the **alternatives** that need to be prioritized

Note: All alternatives are subject to being changed during the prioritization session
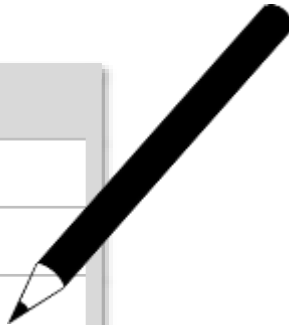
Alternatives

1

2

3

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How to Conduct a Prioritization Exercise?

Select the **evaluation criteria** and their weights

Ensure that the evaluation criteria and their weights are agreed by all

Criteria

	1	2	3
1			
2			
3			

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How to Conduct a Prioritization Exercise?

Facilitate the prioritization session by allowing each team member to **rank** the alternatives against each criteria from best to worst

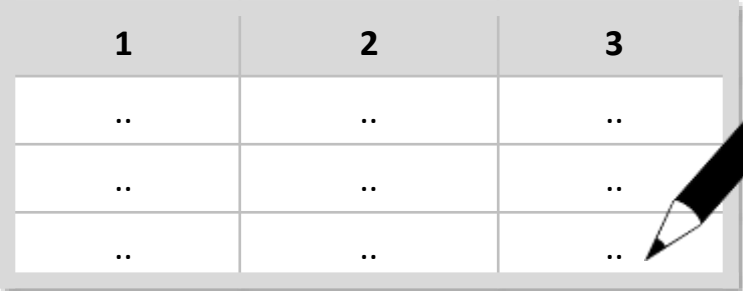The best will have the highest rank score
(e.g., 5 out of 5 alternatives)

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How to Conduct a Prioritization Exercise?

Collect the team's rank scores and add them up on **one worksheet**

The general preference score is the weighted average of all criteria

	1	2	3
1	..	..	..
2	..	..	..
3	..	..	..

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Calculate the final weighted **scores** for each alternative

Sort the items by their **ranks** to make them clearer for communication and decision making
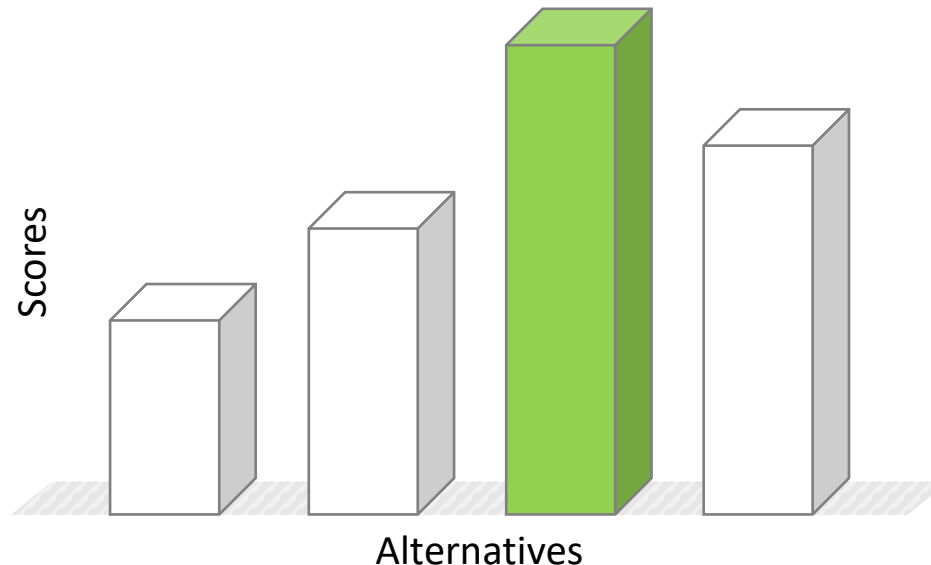
	1	2	3	Scores	Rank
1	..	..	..	..	..
2	..	..	..	..	..
3	..	..	..	..	..

PRIORITIZATION MATRIX

Example – Select the Most Efficient Data Collection Method

Criteria	Cost	Response time	Quantity	Weighted scores	Rank
↓ Option / Weight →	0.4	0.2	0.3		
Questionnaire	4	1	4	4.8	**1**
Interview	2	4	1	4.3	2
Observation	3	2	3	3.7	3
Focus group	1	3	2	2.2	4

Note: High score of cost doesn't mean that the cost is high, but low (or cost-effective)

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The outcome of the analysis can be **presented** using a bar chart to see which alternative is the most suitable based on the scores of the team.
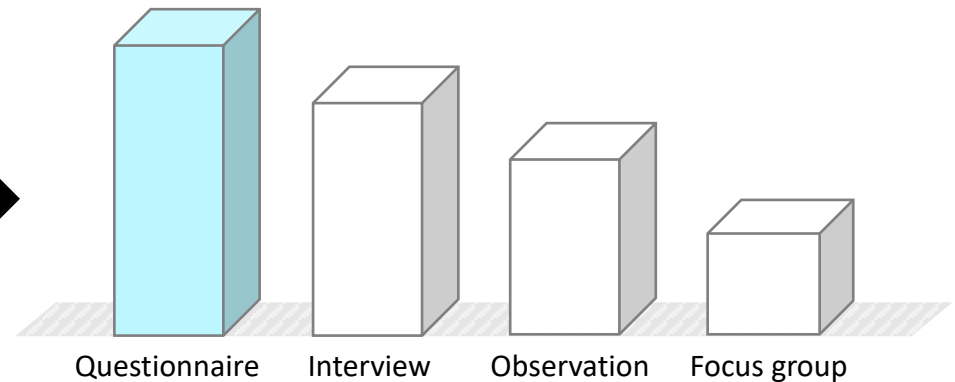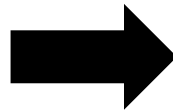
PRIORITIZATION MATRIX

Example – Select the Most Efficient Data Collection Method

Criteria	Cost	Response time	Quantity	Weighted scores	Rank
↓ Option / Weight →	0.4	0.2	0.3		
Questionnaire	4	1	4	4.8	1
Interview	2	4	1	4.3	2
Observation	3	2	3	3.7	3
Focus group	1	3	2	2.2	4

An ordered bar chart that represents the results →

Questionnaire   Interview   Observation   Focus group

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Example – Project Selection

A manufacturing company needs to select **two projects** to be implemented this year. Consider the following project alternatives and criteria . . .

	Cost $	Savings $ 1st year (X3)	Months to complete
Energy reduction	$36,000	$43,000	10
Spoilage reduction	$30,000	$120,000	12
Reduce strap width	$5,500	$11,000	3
Reduce stretch wrap usage	$7,000	$4,000	5
Reduce over varnish usage	$20,000	$66,000	8

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Example – Project Selection

It was agreed that savings should be given a weight of 3 as it is relatively more important than the other two criteria.
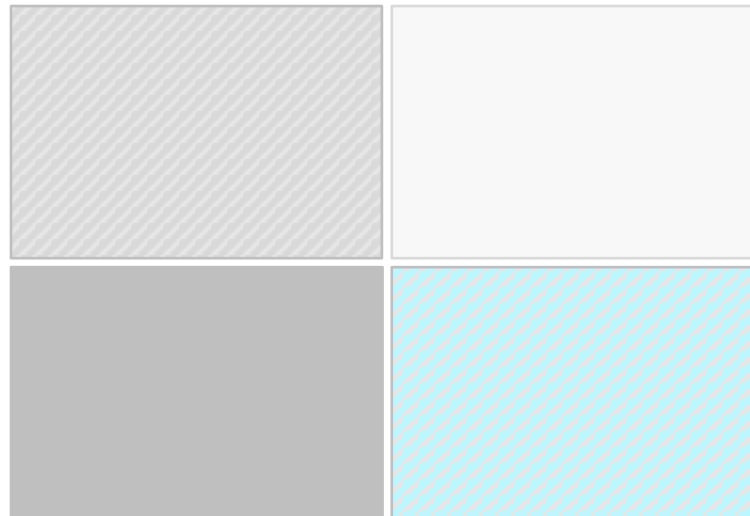
Criteria ↓ Option / Weight →	Cost $	Savings $ (1st year)	Months to complete	Weighted scores	Rank
	1	3	1		
Energy reduction	1	3X3= 9	2	12	4th
Spoilage reduction	2	5X3 = 15	1	18	**1st**
Reduce strap width	5	2X3 = 6	5	16	3rd
Reduce stretch wrap usage	4	1X3 = 3	4	11	5th
Reduce over varnish usage	3	4X3 = 12	3	18	**1st**

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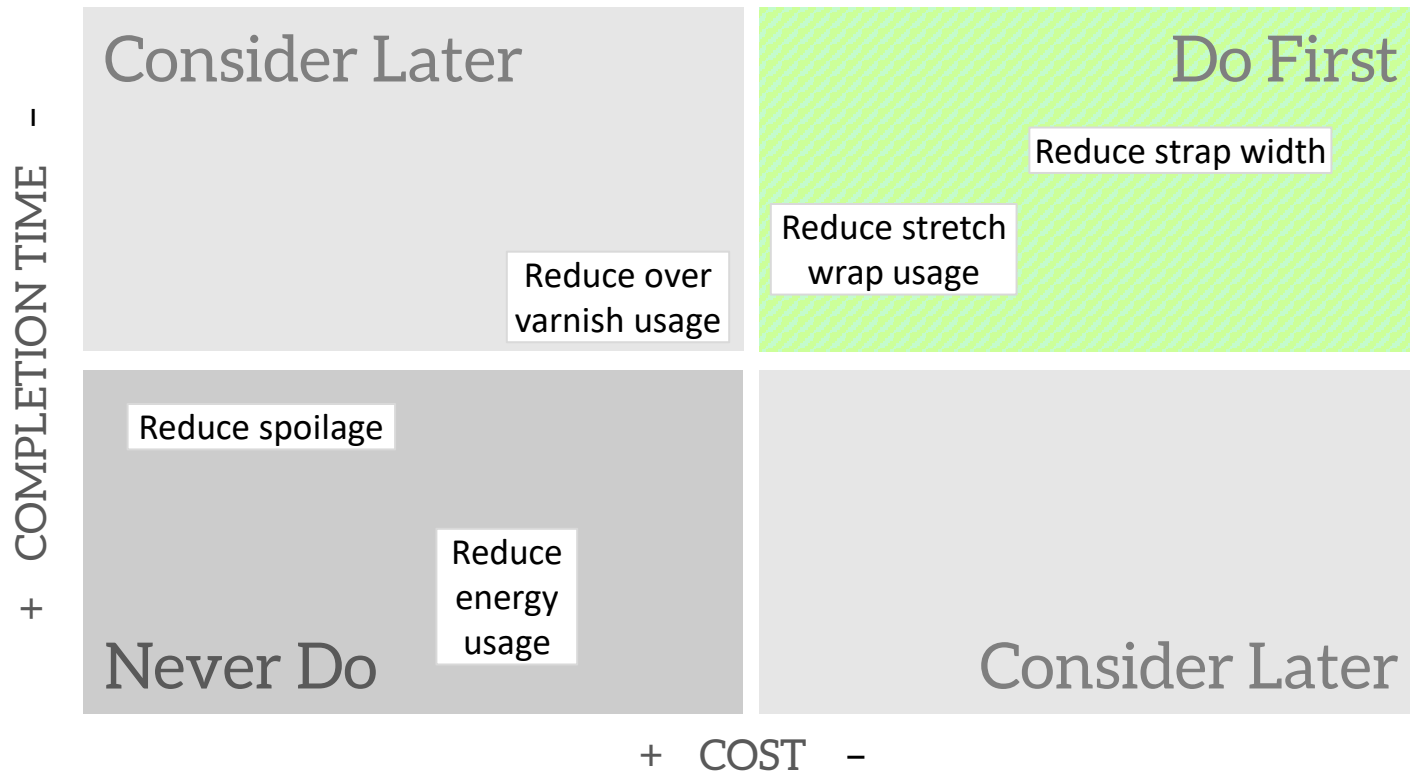
Four Field Prioritization Matrix

If you have only two evaluation criteria, you can present the alternatives in a **four-field matrix**.

A four-field matrix

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Four Field Prioritization Matrix – **Example**

Consider Later

Do First

Reduce strap width

Reduce stretch wrap usage

Reduce over varnish usage

Reduce spoilage

Reduce energy usage

Never Do

Consider Later

− COMPLETION TIME +

+ COST −

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Further Information

It is important to include people with enough knowledge of the situation to avoid missing any critical point.

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