



THE CRITERIA WEIGHTAGE WORKSHOP

Creating a Custom Evaluative Framework

Abstract

This document is an in-depth guide on determining what weights different criteria should hold when evaluating a product in a procurement project. Such a framework may also be applied in areas outside of procurement.

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The Criteria Weightage Workshop

Introduction:

The criteria weightage workshop helps improve inter-department transparency and communication, centralises the procurement process, and ensures that clients can reliably select tender bids that suit evolving business needs.

Illustrating the Problem:

- A company wishes to procure a new piece of technology that will enhance its customer service capabilities.
- A team of procurement evaluators from the company are deciding between three different products: ATX-P960, BN930S and CM350; or **products A, B and C**.
- These procurement evaluators want to find out which product best suits the company's needs and have chosen three main elements to evaluate on: **Pricing, Delivery & Methodology and After Sales Service Capabilities**.
- Each of these three main elements have further sub-elements that need to be individually evaluated. For example: **Preventative Maintenance Costs** are a sub-element of **Pricing**.
- **The Problem:** When considering which of the three products to procure the evaluators discovered that they did not know what elements should be given priority. Is an appropriate Pricing more important than having a better After Sales Service Capability? To what extent is one element more important than another? How can they reliably justify to the company which product is best suited for their business model needs?
- **The Solution:** Conducting an internal **Criteria Weightage Workshop** amongst relevant company personnel will help the evaluators interpret which elements/ criteria are most important when considering what product is best suited to the company's needs.

Part I: Conducting a Criteria Weightage Workshop

- In this example we shall have six participants: five voters (1, 2, 3, 4, 5) and a workshop coordinator (C).
- The workshop coordinator will present a product element to the voters and record their scores. The voters will score the element on a scale of one to five in terms of its importance.
- To speed up the voting process, the voters shall cast their vote without having to give verbal justification.

- Voter 1 shall cast the first vote on a given element's importance, followed by Voter 2 and so on until Voter 5 casts the last vote. The coordinator shall record each vote as it is cast.
- As the next element is chosen, the first voter position shall rotate by one so that Voter 2 casts the first vote. This is to avoid the perpetuation of a first mover influence on any single voter.

Part II: The Criteria Weightage Workshop Template Guide

Please refer to the excel file: 'Criteria Weightage Workshop Template.xlsx'

Workbook Summary:

The data gathered from the Criteria Weightage Workshop can be translated into a standardised and coherent evaluative measure.

Sheet 1: Session 01 Voting Document

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Criteria Weightage Workshop: Session 01															
2	PRODUCTS: ATX-P960, TN930S, HM530				Voter No.	16	Date:	05/12/2018								
3																
4	Scheduled Participants	Present	Department	Position	Vote 1	Vote 2	Vote 3	Vote 4	Vote 5	Vote 6	Vote 7	Vote 8	Vote 9	Vote 10	Vote 11	Vote 12
5	Gordon Ramsay	Yes	Administration	CEO	2	1	1	4	3	3	2	2	1	3	3	5
6	Ryan Reynolds	Yes	Finance	CFO	3	5	1	1	4	5	5	3	5	2	1	4
7	Adam Smith	Yes	Finance	HoD	4	3	5	3	4	3	2	3	2	5	1	1
8	Abraham Lincoln	Yes	Tax	HoD	3	5	5	4	5	1	4	4	1	3	3	5
9	Bill Gates	Yes	IT	HoD	3	3	5	4	1	3	5	5	5	2	2	3
10	Jim Jeffries	Yes	IT	Senior Director	3	4	5	1	5	5	2	2	1	4	5	4
11	Hillary Duff	Yes	Legal	HoD	3	3	4	5	5	3	3	2	2	5	1	3
12	Donald Glover	Yes	Legal	Senior Director	3	5	3	5	4	3	3	4	3	5	3	2
13	Mark Zuckerberg	Yes	HR	HoD	4	3	3	4	5	2	3	3	5	4	4	4
14	Gal Gadot	Yes	HR	Senior Director	3	1	2	5	5	5	2	2	5	4	1	2
15	Warren Buffet	Yes	Accounting	HoD	4	1	3	3	2	4	1	4	2	1	2	3
16	Lee Kuan Yew	Yes	Accounting	Senior Director	3	4	5	5	1	1	2	3	4	4	5	5
17	David Attenborough	Yes	Operations	HoD	4	5	4	5	5	5	2	2	5	1	3	4
18	Steve Irwin	Yes	Operations	Specialist	3	5	1	2	1	5	1	3	1	4	3	2
19	Kanye West	Yes	Outsourced: ZTX	Specialist/ Project Advisor	2	1	2	4	5	4	5	1	1	5	2	1
20	Wednesday Adams	Yes	Outsourced: UCLA	Specialist/ Project Advisor	2	1	3	2	3	5	2	5	5	1	3	5
21	Total Points				49	50	52	57	58	57	44	48	48	53	42	53
22																
23	Absentees															
24	George Washington	No	IT	Specialist												

Fig. 1: Criteria Weightage Workshop, Session 01 Voting Document Screenshot.

Fig 1. Features:

Fig. 1 is a record of the votes cast by voters during the workshop. The votes are based on a scale of one to five and denote how important a product element is to each voter; with five being of most importance, and one being of least importance.

- **Rows 1 and 2** give general information for record-keeping purposes such as the workshop session, date, candidate products and the number of participants.

- Regarding **Rows 4 until 20**:
 - **Column A, B, C and D** records the attendance and information of the workshop participants, including their names, department and position. These participants should be considered for their expertise, proximity and relevance to the product.
 - **Column E, F, G...P** are the elements that are being voted upon.
 - In this workbook ‘Vote 1’ refers to the ‘Pricing’ main element.
 - ‘Vote 2’ refers to the sub-element ‘Unit Costs or Schedule Rates’, and so on down the list of elements and sub-elements.
- **Row 21** is the total points awarded to each element. The more points an element has indicates that the element is collectively regarded as higher in importance.
- **Row 24** lists an absentee that was scheduled to attend the meeting.

Sheet 2: Session 01 Criteria Weightage

Criteria Weightage Workshop: Session 01						
Products: ATX-P960, BN930S, CM530		Voter No.		16		Date: 05/12/2018
CRITERIA	Point Total	Average	Relative Raw Weightage (%)	Overall Weightage (%)	Overall Fitted Weightage (%)	Fitted Weightage Corrections (%)
Pricing	49	3.0625		32.02614379	Nearest 0.25%	Correction N/A
Unit Cost or Schedule Rates	50	3.125	16.72240803	5.35554244	5.25	5.25
Labour Schedule of Rates	52	3.25	17.39130435	5.569764138	5.5	5.5
Management Fees	57	3.5625	19.06354515	6.105318382	6	6
Preventative Maintenance Costs	44	2.75	14.71571906	4.712877347	4.75	4.75
Transition In Cost	48	3	16.05351171	5.141320742	5.25	5.25
Total Cost of Ownership	48	3	16.05351171	5.141320742	5.25	5.25
Relative Total	299	18.6875	100	32.02614379	32	32
Delivery & Methodology	53	3.3125		34.64052288	Nearest 0.25%	Correction N/A
Delivery Methods	42	2.625	22.7027027	7.864334923	7.75	7.75
Lead Time	53	3.3125	28.64864865	9.924041689	10	10
Systems and Processes	39	2.4375	21.08108108	7.302596714	7.25	7.25
Account Management	51	3.1875	27.56756757	9.54954955	9.5	9.5
Relative Total	185	11.5625	100	34.64052288	34.5	34.5
After Sales Service Capabilities	51	3.1875		33.33333333	Nearest 0.25%	Corrected
Technical support customer service	46	2.875	23.35025381	7.783417936	7.75	7.75
Support Response Time	56	3.5	28.42639594	9.475465313	9.5	9.5
Training	47	2.9375	23.85786802	7.952622673	8	8.25
Warranty	48	3	24.36548223	8.121827411	8	8
Relative Total	197	12.3125	100	33.33333333	33.25	33.5
Main Element Total Score	153		Main Element Total Score	100		
			Main Element Fitted Total Score	99.75		
			Main Element Fitted Total Score (Corr.)	100		

Fig. 1: Criteria Weightage Workshop, Session 01 Voting Document Screenshot.

Fig. 2 Features:

- **Rows 6 and 7** give general information for record keeping purposes such as the workshop session, candidate products, the number of participants and the date.
- There are key differences between how we calculate and use the weights of main elements such as ‘Pricing’ or ‘Delivery and Methodology’, and sub-elements such as

‘Management Fees’ or ‘Training’. This is because the sub-elements are components of the main-element; therefore their weights are also component of the main-element’s weights.

○ *Main Elements*

- Consider the main-element ‘Pricing’ located in cell **A9**. Let’s look across **Row 9**.
- Cell **B9** shows the total score awarded to the main-element ‘Pricing’ during the Criteria Weightage Workshop.
- Cell **C10** shows the average score awarded by voters. It is calculated by: $\frac{\text{Total Score Awarded to element}}{\text{No. of Workshop Participants}} = \frac{49}{16} = 3.0625$
- Cell **D9** is left blank.
- Cell **D16** is the cumulative total of all ‘raw’ sub-elements’ weights, which must sum to 100.
- Cell **E9** is the overall percentage weight of the main-element ‘Pricing’ compared to all other main elements. It is calculated by: $100 \left(\frac{\text{Main Element Score (Pricing)}}{\sum \text{Combined Total Score of Main Elements}} \right) = 100 \frac{49}{153} = 32.026 \dots$
- Cell **E16** is the sum of the overall sub-element weights under ‘Pricing’ and must be equal to the overall percentage weight of ‘Pricing’.
- Cell **F9** notes that the author has rounded the percentage weights to the nearest 0.25%.
- Cell **F16** is the sum of the sub-element’s overall fitted percentage weights under ‘Pricing’.
- Cell **G9** notes whether any ‘Corrections’ have taken place under the main-elements. The corrections ensure that a standard 100% is achieved for ease of calculation when comparing products.
- Cell **G16** shows the corrected total of the main element ‘Pricing’ to be used in the final percentage weights.

○ *Sub-elements*

- Consider the sub-element ‘Unit Costs or Schedule Rates’ located in cell **A10**. Let’s look across **Row 10**.
- Cell **B10** shows the total score awarded to the sub-element ‘Unit Costs or Schedule Rates’ during the Criteria Weightage Workshop.

- Cell **C10** shows the average score awarded by voters. It is calculated by: $\frac{\text{Total Score Awarded to element}_{B9}}{\text{No. of Workshop Participants}_{B29}} = \frac{50}{16} = 3.125$

- Cell **D10** shows the weightage in percent of the sub-element relative to all other sub-elements that share the same main element (Pricing). It is calculated by:

$$100 \left(\frac{\text{Average of Sub-element}}{\sum \text{Average of all Sub-elements (PRICING)}} \right) =$$

$$100 \left(\frac{3.125}{3.125+3.25+3.5625+2.75+3+3} \right) = 100 \left(\frac{3.125}{18.6875} \right) = 16.72 \dots \%$$

As they are a percentage, they must sum to 100%. (see Cell **D15**)

- Cell **E10** consolidates the sub-elements percentage weight within the context of all sub-elements irrespective of their main-elements. (i.e Their overall importance in the context of the entire product according to voter's opinions.) It is calculated by:

$$\frac{\text{Relative \% weight of Subelement}_{D10} \times \text{Overall Weight of Main Element}_{E9}}{100}$$

$$= \frac{16.722 \dots \times 32.026 \dots}{100} = 5.355 \dots \%$$

○ Total Summations

- Cell **B29** is the sum of main-element scores.
- Cell **D29** is the sum of main-element scores (and their component sub-elements) as a percentage. It must equal to 100%.
- Cell **D30** is the sum of main-element scores (and their component sub-elements) as a percentage after they have been rounded. *In this example we have rounded to the nearest 0.25%. This has caused the sum of rounded main-element scores to equal 99.75% instead of the standard 100%. Further adjustments (or 'corrections') need to be made to the weightages of the sub-elements to bring the total to 100%.*
- Cell **D31** is the sum of corrected main-element scores. The scores must equal 100% to ensure ease of calculation when comparing elements.

Sheets 3, 4, 5: Translating the Weightages into Comparable Scores

Using the weights in Sheet 2, the evaluators are then able to deliberate and score the product elements in harmony with the company's needs. The results of product evaluation can now be

understood better and reveal connections between the company's needs and the product's features. For example:

Fig. 3: Evaluation Score Sheets: Products A, B and C Summaries

CRITERIA	Weighted Score (%)
Pricing	
Unit Cost or Schedule Rates	2.625
Labour Schedule of Rates	2.2
Management Fees	4.2
Preventative Maintenance Costs	3.8
Transition In Cost	4.2
Total Cost of Ownership	3.675
Pricing Element Total	20.7
Delivery & Methodology	
Delivery Methods	6.975
Lead Time	8
Systems and Processes	5.8
Account Management	8.55
Delivery & Methodology Total	29.325
After Sales Service Capabilities	
Technical support customer service	5.425
Support Response Time	8.55
Training	5.775
Warranty	6.4
After Sales Service Capabilities Total	26.15
Overall Score	76.175

Fig. 3a: Product A Summary

CRITERIA	Weighted Score (%)
Pricing	
Unit Cost or Schedule Rates	0.525
Labour Schedule of Rates	1.65
Management Fees	1.8
Preventative Maintenance Costs	4.275
Transition In Cost	2.625
Total Cost of Ownership	3.15
Pricing Element Total	14.025
Delivery & Methodology	
Delivery Methods	3.1
Lead Time	6
Systems and Processes	2.9
Account Management	5.7
Delivery & Methodology Total	17.7
After Sales Service Capabilities	
Technical support customer service	3.1
Support Response Time	4.75
Training	4.125
Warranty	4.8
After Sales Service Capabilities Total	16.775
Overall Score	48.5

Fig. 3b: Product B Summary

CRITERIA	Weighted Score (%)
Pricing	
Unit Cost or Schedule Rates	0.525
Labour Schedule of Rates	0.55
Management Fees	3
Preventative Maintenance Costs	0.475
Transition In Cost	2.1
Total Cost of Ownership	0.525
Pricing Element Total	7.175
Delivery & Methodology	
Delivery Methods	6.975
Lead Time	1
Systems and Processes	6.525
Account Management	4.75
Delivery & Methodology Total	19.25
After Sales Service Capabilities	
Technical support customer service	0.775
Support Response Time	0.95
Training	4.95
Warranty	4
After Sales Service Capabilities Total	10.675
Overall Score	37.1

Fig. 3c: Product C Summary

- We can read across the rows of the three products and see which one's are most in-line with the company's needs.
- We can see that Product A is the most suitable overall, whilst Product C is the least suited.
- Elements can also be compared, with A being the most competitive in all three main elements.
- Evaluators may wish to impose thresholds on scores to single out suitable products. For instance: For a product to pass the evaluation stage they must achieve an Overall Score of 90 and above.

Part III: Criteria Voting Workshop Alternatives

- A more discrete and schedule-sensitive way to gather opinions is by sending a survey amongst the relevant personnel to complete. The survey shall ask the chosen recipient to vote on which elements of a product are more important from a scale of one to five.
- A **mobile application** or dedicated online app can be created to make voting even speedier during workshops, or perhaps those chosen participants can do the voting in their own time instead of going to workshops. (Currently being developed.)

Conclusion

To conclude, the Criteria Weightage Workshop is a useful organisational tool that may be used to assign weights to a given list of criteria. It also has its advantages in consolidating inter-department opinions on the company's business model and reveals how different areas of the company diverge in their operational priorities. The Criteria Weightage Workshop may also be applied to other areas outside of procurement.