Decision Making Tools Paper 2

The Emphasis Curve

Sunil Kumar Puri

In any moment of decision the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing.

Theodore Roosevelt

Whenever decision making process becomes complex or the interests at stake are too high, we often do not know what to decide or how to decide. Often people resort to tossing a coin, asking a friend, and times even visiting an astrologer, etc. These methods are not only impractical but also reflect the persons lack of understanding of the problem, lack of understanding of the decision making skills. However formal decision making process as well as support from an expert has many advantages. It not only helps us in understanding the problem but also provides us the best possible solution in any given scenario.

“A good decision is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives. When decision making is too complex or the interests at stake are too important, quite often we do not know or are not sure what to decide.” (Arsham)

Decision-making is a rational process and can be studied, learned, and taught and therefore it makes the decision-making process a scientific method as it is based on logical principles. There is no such thing as "someone who is born as a business person"; rather, one becomes a business person. If a successful business person is also a management scientist, then he/she can transfer management knowledge to other persons as well. The reasons why one must learn the decision making science are many but to quote a few are; the business is becoming more complex, the environmental changes are so rapid that past theories and practices are not appropriate anymore and that the cost of bad decision can be huge.

In the previous paper we discussed how to make decisions where multiple choices and constraints are to be addressed but these choices and constraints were easily measurable. In this paper we discuss how to make decisions when there are a number of factors involved which cannot be quantified in measurable terms. The Emphasis Curve or The Paired Comparison tool makes the process of decision making easier and comprehensible. In this paper we discuss the Emphasis Curve. This technique is used for ranking a number of factors which cannot be quantified readily in measurable terms like cost, frequency of occurrences etc., in priority order. It is not possible for a human brain to make judgment of the relative importance of more than three or four non-quantifiable factors. It is however easier to judge which is more important of two factors, using a predetermined criteria. The emphasis curve technique uses this fact by comparing only two factors at a time.

The Emphasis Curve

The technique can be used in any or all such situations where number of factors are more and the factors cannot be easily quantified. We discuss two cases of equipment buying as case study. The first example is for making a decision to buy a car, and the second example is to make a decision to buy a capital equipment i.e., a knitting machine. The technique can also be used for analyzing data to conclude results and conclusions.

The Method

The steps used for emphasis curve are as follows:
In table attached write down the

List the factors for ranking under “Scope”. The number of factors may be more than ten. The matrix can be extended.

Compare factor 1 with factor 2 and rank the most important, To judge the relative importance of two factors the criteria used may use weightings e.g., degree of seriousness, capital investment, speed of completion etc, on a scale of 1-10. Ring the more important of the two

Compare factor 1 with factor 3 and weight the two, determine the more important and ring that factor, similarly compare factor 1 with all other factors 4, 5, 6, 7, 8, 9, and 10 and put a ring around the more important.

Having compared factor I against all the factors proceed to compare factor 2 with factor 3, 2 with 4, 2 with 5 and so on.

Similarly compare factor 3 with 4, 3 with 5 and so on till you compare factor 9 with 10.

Count the rings factor wise and write the number of rings in the right hand side Colum against the factor. In row against factor 1 write the total number of rings marked around number 1 and in row two write the number of rings marked around the number 2 and so on.

Check the total with formula Total = N(N-1)/2 in a matrix of ten factors the total shall be N(N-1)/2 or 10(10-1)/2 = or 90/2 = 45

Write the factor number in the box that equals the number of rings put around that factor number. If in any box there are two or more factor numbers i.e., if two or more factors obtain same number of rings check with each other and rank the factor according to the importance as per the original decision.

Generally the length of time to make a judgment between two factors shall not significantly affect the outcome; therefore the rule is “accept the first decision and record it and move quickly to the next pair.

Given below is the blank table of The Emphasis Curve, The Emphasis Curve for purchase of a car and The Emphasis Curve for purchase of a Knitting Machine filled as an example which explicitly explains the working procedure of this chart and the results so obtained. The blank sheet is for readers use as a ready template.

The Emphasis Curve Table																						
S. No	Factor																			No of Rings		
1										1	1	1	1	1	1	1	1	1	1			
										2	3	4	5	6	7	8	9	10				
2											2	2	2	2	2	2	2	2	2			
											3	4	5	6	7	8	9	10				
3												3	3	3	3	3	3	3	3			
												4	5	6	7	8	9	10				
4													4	4	4	4	4	4	4			
													5	6	7	8	9	10				
5														5	5	5	5	5	5			
														6	7	8	9	10				
6															6	6	6	6	6			
															7	8	9	10				
7																7	7	7	7			
																8	9	10				
8																	8	8	8			
																	9	10				
9																		9	9			
																		10				
10																			10			
																Total						

Check the total with formula Total = N(N-1)/2 in a matrix of ten factors the total shall be N(N-1)/2 or 10(10-1)/2 = or 90/2 = 45

Write the factor number in the box that equals the number of rings put around that factor number. If in any box there are two or more factor numbers i.e., if two or more factors obtain same number of rings check with each other and rank the factor according to the importance as per the original decision.

Score	10	9	8	7	6	5	4	3	2	1	0
Factor											
Final Rank	1	2	3	4	5	6	7	8	9	10	
Factor											

The Emphasis Curve Table																							
S. No	Factor																					No of Rings	
1	Central Locking	1	1	(1)	1	1	1	(1)	1	1	1											2	
		(2)	(3)	4	(5)	(6)	(7)	8	(9)	(10)													
2	ABS		(2)	(2)	2	(2)	(2)	(2)	(2)	(2)	2											8	
			3	4	(5)	6	7	8	9	10													
3	Power Steering			(3)	3	3	3	3	(3)	3	3											4	
				4	(5)	(6)	(7)	(8)	9	(10)													
4	Sun Roof				4	4	4	(4)	4	4	4											1	
					(5)	(6)	(7)	8	(9)	(10)													
5	Four Wheel Drive					(5)	(5)	(5)	(5)	(5)	5											9	
						6	7	8	9	10													
6	Collapsible Steering Wheel						6	(6)	6	6	6											4	
							(7)	8	(9)	(10)													
7	Alloy Wheels							(7)	(7)	(7)	7											7	
								8	9	10													
8	Price								8	8	8											0	
									(9)	(10)													
9	Fuel Consumption									9	9											4	
										(10)													
10	Maintenance Cost										10											6	
								Total															

Check the total with formula Total = N(N-1)/2 in a matrix of ten factors the total shall be N(N-1)/2 or 10(10-1)/2 = or 90/2 = 45

Write the factor number in the box that equals the number of rings put around that factor number. If in any box there are two or more factor numbers i.e., if two or more factors obtain same number of rings check with each other and rank the factor according to the importance as per the original decision.

Score	10	9	8	7	6	5	4	3	2	1	0
Factor		5	2	7	10		3 6 9		1	4	

Final Rank	1	2	3	4	5	6	7	8	9	10	
Factor	5	2	7	10	6	9	3	1	4	8	

The Emphasis Curve Table

S. No	Factor											No of Rings
1	Price	(1) 2	1 (3)	1 (4)	1 (5)	1 (6)	(1) 7	1 (8)	(1) 9	(1) 10	1	4
2	Delivery		2 (3)	2 (4)	2 (5)	2 (6)	2 (7)	2 (8)	2 (9)	2 (10)	2	0
3	Cost of Maintenance			(3) 4	(3) 5	3 (6)	(3) 7	3 (8)	(3) 9	(3) 10	3	7
4	No of Feeders				4 (5)	4 (6)	(4) 7	4 (8)	4 (9)	4 (10)	4	3
5	Intarsia					5 (6)	(5) 7	5 (8)	(5) 9	(5) 10	5	6
6	Fashioning						(6) 7	6 (8)	(6) 9	(6) 10	6	8
7	Comb							7 (8)	(7) 9	(7) 10	7	3
8	Service								(8) 9	(8) 10	8	9
9	No of Systems									(9) 10	9	3
10	Optimum Knitting Speed										10	2
								Total				

Check the total with formula Total = N(N-1)/2 in a matrix of ten factors the total shall be N(N-1)/2 or 10(10-1)/2 = or 90/2 = 45

Write the factor number in the box that equals the number of rings put around that factor number. If in any box there are two or more factor numbers i.e., if two or more factors obtain same number of rings check with each other and rank the factor according to the importance as per the original decision.

Score	10	9	8	7	6	5	4	3	2	1	0
Factor		8	6	3	5		1	4 7 9	10		2

Final Rank	1	2	3	4	5	6	7	8	9	10	
Factor	8	6	3	5	1	7	9	4	10	2	

The final rank for selecting a car as per the interview of a car buff who is of adventurous nature would be:

Rank	Factor
1	Four Wheel Drive
2	ABS
3	Alloy Wheels
4	Maintenance Cost
5	Collapsible Steering Wheel
6	Fuel Consumption
7	Power Steering
8	Central Locking
9	Sun Roof
10	Price

The results also reveal that the interviewee is also concerned about safety and being adventurous is also a bit show off by choosing the alloy wheels, is conscious about say to day costs but does not mind the one time cost factor the price.

The other example revels the results as:

Rank	Factor
1	Service
2	Fashioning
3	Cost of Maintenance
4	Intarsia
5	Price
6	Comb
7	Number of systems
8	Number of Feeders
9	Optimum Knitting Speed
10	Delivery

The results reveal that the most important factor for buying a capital equipment which determines the productivity of a factory remains the service quality. A non productive capital equipment for a period longer than desired is not preferred. The second most important factor is fashioning as this is the demand of the market. Cost of Maintenance and Price are other important factors. This way it becomes easier for any one to decide rationally and base the decision factor on factual data. It helps to identify ones own needs market demand and capabilities of the equipment being offered and decide by comparing each deciding factor against the other.

Bibliography

Arsham, P. H. (n.d.). *Applied Management Science .*