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Weights and values as a decision making tool

The weight-value decision making process

In a decision making process the selection is often best made by a multidimensional process based on situational characteristics and factors that are nominally variable.

The purpose of decision making for the responsible project manager is to insure that an objective recommendation is provided to his or her upper management. Upper management is then responsible for adjusting the objective decisions of the project manager to a decision in line with what upper management staff personally, politically, professionally, subjectively, and technically feel is the appropriate selection.

The area addressed in this essay is the application of an orderly procedure to objective decision making. The technique is called the weight-value or WV process.

The WV process is implemented by taking well defined steps necessary to reach project level decisions. These steps are:

1. Select, write down, and verify the various decisions possible. What courses of action are available?
2. Select the major factors of importance in making an objective selection of a best course of action. What are the items that are important to making a proper decision? It is recommended there be no more than ten of these. If you have selected more than ten try to combine factors having similar evaluation characteristics.
3. Assign a weight to each factor that describes numerically, to those to whom the recommendation will be made, how important the project manager and his team think this factor is in selection of a course of action. Factors should be given a weight of one to ten. One means the factor is of minimum importance in the evaluation. Ten indicates the factor is crucial to the evaluation.

It is essential to realize that the factors selected and screened for use must all be of relative importance and that the assignment of weights should spread from one to ten. A help in doing this properly is to determine the most important and critical of the factors and assign it a value of eight to ten. Next select the least important factor and give it a weight of from three to one. The remainder should fall somewhere in

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between. Remember more than one of the factors being weighed can receive the same number. You are not ranking the factors, you are weighing them.

4. Assign a value to each potential course of action or each decision possible for each of the factors selected and weighed. If there are three courses of action possible, and you have selected five factors by which these are to be judged, you will have to assign $3 \times 5 = 15$ values to the entire array. This can be seen in the following matrix example where alternative project delivery systems for constructing a warehouse are being considered.

The three delivery systems under consideration are an award of a hard money contract from a full set of contract documents, retention of a non liable construction manager to run the project, or use of a liable general contractor involved early as a construction consultant and providing iterative estimating help leading to submission and acceptance of a guaranteed maximum price.

Project delivery systems being considered & their value in satisfying the demands of each factor of importance - warehouse project

<u>Factors</u>	<u>Wts.</u>	<u>Values</u>		
		<u>Hd money</u>	<u>Non liable cm</u>	<u>Prog pricing to gmp</u>
1.Capital cost	08 x	08 = 064	04 = 032	06 = 048
2.Function	10 x	09 = 090	06 = 060	10 = 100
3.Appearance	02 x	06 = 012	04 = 008	07 = 014
4.Life cycle cost	04 x	06 = 024	03 = 012	08 = 032
5.In house staff reqmts	08 x	04 = 032	03 = 024	07 = 056
Totals		222	136	250

The selection analysis above indicates the best delivery method of the three being considered is a progressive pricing system leading to submission of a guaranteed

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maximum price for which the contractor will construct the project.

It should be emphasized that the validity of factor selection, the factor weighing, the selection of alternatives and their valuing depend totally on the exercise of sound judgments by those making the analysis. Usually for each decision to be made such an analysis as above is made by several qualified staff. Some may not even be associated with the project directly but only acquainted with the key demands of the project program and mission. This wider range of views and ideas often lends strength to the recommendations.