

## **Decision Analysis and Resolution Guidelines**

**Revision History:**

Version	Date	Prepared by / Modified by	Significant Changes	Approved By	Approved On
1.0	1-May-2017	Steve Sommers Rakesh Solleti	First Draft Made	Anitha T G	15-May-2017

## **Introduction**

Decision Analysis and Resolution (DAR) is to analyze possible decisions using a formal evaluation process that evaluates identified alternatives against established criteria. This process is used for only the critical decisions taken by the project or department within the organization.

Decision analysis and resolution is used to analyze decisions using a formal, structured process to evaluate identified alternative solutions against established criteria. It identifies alternatives to issues that have a significant impact on meeting project objectives, analyzes the alternatives, and selects one or more alternatives that best support prescribed objectives.

There are many decision making techniques available, some of them are given below

- Decision Tree
- Pugh Matrix
- Weighted Sum Method
- Cost Benefit Analysis
- Simulation

But here in this organization based on the current environment we use the weighted sum method and this document cover only this technique in detail.

Formal Decision Analysis includes the following steps

- Identify the Criteria to use the Formal DAR Process
- Define the alternative solutions
- Come out with the criteria
- Select the evaluation method
- Evaluate the alternatives
- Select the Best Alternative
- Take the Approvals

## **Criteria for Using DAR Process**

Due to unique constraints associated with each project, no single set of DAR event triggers can be created. As such, each project shall document the event triggers it will use to define when the formal decision process (DAR) is necessary.

The Project Management Plan shall specify these triggers. Typical criteria for triggering DAR include, but are not limited to:

- Project cost increases a defined threshold
- Make, buy, reuse decisions
- Significant architectural Decisions
- Significant schedule slippages
- Selection of third party providers
- Selection of Tools
- Modification of critical processes
- Technology selection
- Infrastructure selection
- Hardware / software (COTS) selection

## **Define the Alternative Solutions**

As a guideline, there shall be no less than two and should be no more than five prospective solutions to consider. If there are too many solutions, it is likely that time constraints will dictate that some of them will not be given proper consideration. This in turn detracts from a more thorough analysis of the other potential solutions.

Typical methods of alternative solutions identification include, but are not limited to:

- Brainstorming

- Question and answer
- Market research
- Competitor analysis
- Customer feedback
- Analysis of similar problems solved on other projects and their solutions
- Feedback from SMEs
- Internet Search

## **Evaluation Criteria**

As a guideline, there shall be no less than two and should be no more than five evaluation criteria. The project can choose more depending on the criticality and complexity of the decision.

Each project shall document the evaluation criteria it shall use for DAR along with the weighting factor, or coefficient, associated with each criteria. The coefficient is used to reflect the driving factors of the program. Each evaluation criteria should have a unique coefficient. The larger the coefficient, the more important that criteria is for the project. The DAR Worksheet shall contain the evaluation criteria and coefficients.

Typical evaluation criteria used to evaluate potential solutions include, but are not limited to:

- Cost
- Schedule
- Risk
- Performance
- Reliability
- Reusability
- Efficiency
- Maintainability
- Scalability
- Portability
- Quality

The team will identify the criteria and the coefficients of weights for that decision on a scale of 1 to 5, sample criteria is given below

- Cost (5)
- Performance (3)
- Quality (4)
- Usability (2)
- Maintainability (1)

## **Evaluation Method**

As discussed above here in the organization we use weighted sum method for the formal DAR evaluation. This technique is suitable for most of the decisions used in the organization.

Once the solutions are identified and rated against each evaluation criteria, the total score for each solution is computed. The total score shall be the weighted summation of the evaluation criteria. A higher score represents a better solution choice.

The method used to compute the total score shall be:

Total Score = sum (rating \* coefficient) for each evaluation criteria.

Below table provides an example of evaluating four potential solutions

Criteria	Weight	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Cost	2	4	2	1	2
Performance	4	2	3	3	5
Schedule	5	3	1	4	3
<b>Total</b>		<b>31</b>	<b>21</b>	<b>34</b>	<b>37</b>

Best solution based on the weighted sum method is 'Alternative 4' as it has received the highest score.

### **Select the Solution**

The solution with the highest total score shall be selected. In the event of a tie between multiple solutions or overall score is very close, then the solution with the best (highest) ranking for the most important evaluation criteria shall be selected.

The identified solution is to be updated in the DAR report and send to the stakeholder who is supposed to authorized the solution.

Any risks or challenges associated with the identified solution are to be documented and tracked in the Risk Management Plan and Project Workbook as appropriate.