

**PMEducation**

INFLUENCE DIAGRAM

**WHAT IT IS**

The Influence Diagram is a compact graphical tool for decision making where there are uncertainties. Also known as a Relevance Diagram, Decision Diagram, or Decision Network, it depicts key elements including Decisions, Uncertainties, and Objectives as geometric shapes (nodes). Influences are shown as arrows (arcs). Colour may be used.

This tool is used in Risk Management for the process of Quantifying the Risks. The application of numerical values to uncertainty nodes provides Risk Quantification and helps to find the least risky path. Also, the act of drawing an Influence Diagram can uncover previously unidentified Risks.

For our simple example we are planning a vacation and want to select (decide on) a suitable vacation activity. We hope the selection made will lead to an enjoyable experience which we will call “Satisfaction”.

The drawing below illustrates this simple example.

**HOW IT WORKS**

1. Begin with the desired objective and draw it in an octagon called an Objective Node or a Value Node. Our desired objective is “Satisfaction” with the vacation activity to be selected.
2. Then brainstorm all possible uncertainties; in our case all Risks that could lead to an unsatisfactory vacation experience. Draw these Chance Variables in ovals called Uncertainty Nodes. We have identified the “Weather Condition” ***on the day of the*** ***activity.*** We have also identified the “Weather Forecast” as a Risk which will exist up to the day of the activity (after which Weather Forecast becomes Weather Condition)
3. Place the Decision to be made (“Vacation Activity”) in a rectangle.
4. Now we start to connect the shapes with arrows, which show the direction of influence. (The tail of the arrow influences the head of the arrow).
* Arrows ending in a Value Node are called “Functional Arcs.”
* Arrows ending in an Uncertainty Node are called “Conditional Arcs.”
* Arrows ending in a Decision Node are called “Informational Arcs.”

**KEY ELEMENTS**

For this method to be effective, the following key elements must be used:

* Requires Risk information
* Agreement in the group about the use of this tool.
* Use as few words as possible to keep the diagram legible

ADVANTAGES and DISADVANTAGES

Of INFLUENCE DIAGRAM

 ADVANTAGES

* Highly visual. Easy to see and to explain to others
* Diagram is compact, takes little room
* May uncover previously unidentified risks
* Identifies relationships between Risks, Decision, and Objective
* Generates discussion amongst participants

 DISADVANTAGES

* Requires disciplined thinking
* Not always easy to determine diagram shape

FINAL NOTE: This tool is useful for Quantifying the Risks. It also helps uncover unidentified risks. MCDA is useful anytime a “go or status quo” decision needs to be made where there are uncertainties.

Below you will find the Influence Diagram for selecting a vacation activity. Due to space limitations we are only showing 2 Risks.

* Satisfaction is influenced by the Vacation Activity selected and by the Weather Condition on the day of the Activity.
* The Weather Forecast does not directly influence the Satisfaction.
* Selecting the Vacation Activity must be done ahead of time, so it is influenced by the Weather Forecast, not the Weather Condition
* Although the diagram shows Weather Forecast is influenced by Weather Condition, I feel the arrow should point the other way.

