



VIS-IT™ Technique: The CAUSAL LOOP DIAGRAM (CLD)

The causal loop diagramming technique described here has its roots in the discipline of “systems thinking,” which is of almost universal value. In fact, VIS-IT™ Tools and Techniques were first developed to facilitate systems thinking within groups or teams. The term “system,” as it is used below, refers to the environment in which there is a problem, an issue, or an opportunity we care about. Before the specific technique is described, however, we suggest that the first-time practitioner become acquainted with the following concepts.

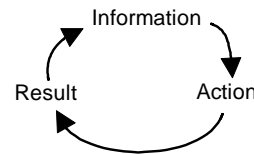
Open Loop Thinking vs. Closed Loop Thinking

Instead of this:

Information → Action → Result

The discipline of Systems Thinking requires that one take on a “Closed Loop” perspective.

Look for *feedback*



A Causal Loop Diagram (CLD) is an illustration of the “cause-effect-cause” relationships between the factors, which, over time, generate the dynamic behavior of the system being considered. As such, a CLD is a diagram that depicts the arrangement of the important parts of the structure of the system.

A Causal Link within a CLD is described by a single-head arrow, or “link”, denoting the direction of causality between a cause and its effect(s). An “o” at the arrowhead means “opposite” causality, i.e., if the variable at the tail of the link goes *up*, the variable at the arrowhead will go *down*, and *vice versa*. If there is no “o” at the arrowhead, then if the variable at the tail of the link goes *up*, then the variable at the arrowhead will also go *up*; and if the variable at the tail of the link goes *down*, then the variable at the head of the link will also go *down*. To make this “same” relationship more explicit, some CLD diagrams will display an “s” at the arrowhead to indicate that the variables move in the “same” direction.

A Causal Loop is a Feedback Structure. A “loop” implies feedback, or circular causality. Simply put, we have a feedback loop in a CLD whenever we can begin with any variable and from there find any “one-way” path of arrows that brings us back to our starting point. Even in a relatively simple CLD, there can be a large number of feedback loops throughout the system, some with only two variables (the minimum) and some linking together many variables in the structure. A feedback loop is a “balancing loop” if there is an odd number of “opposite” causal

that could *rise or fall, grow or decline, or could increase or decrease*. Further, use a variable name that conveys a “positive” sense, i.e., Satisfaction, not Dissatisfaction, to avoid confusion over causal direction notation. An single “event” occurring at a specific time and place is not eligible for inclusion in a causal loop diagram because one event cannot represent a variable pattern of behavior over time. Events do, however, have certain, specific attributes or characteristics that can be measured, and which can vary over time as subsequent similar events occur. These attributes can be selected as variables to represent behavior patterns of the associated events.

Translating Hexagon Cluster Labels into CLD Variables: In VIS-IT idea processing activities, hexagon cluster labels frequently become variable names. These variables are used to initiate a causal loop diagram by teams who want to understand important relationships that emerge from their thinking together. In many instances, the cluster label is already something that is easily seen as a “variable”. Examples of ready-to-use variables might be Customer Satisfaction, Innovative Products, or Investments. But in many other sessions, important, meaningful cluster labels are words or phrases like: Improve Customer Service, Encourage Leadership, Customer is King, Reduce Time to Market, or Must Make Dramatic Cost Reductions. Cluster labels like these, often beginning with a verbs or action phrases, convey ideas that work best in a CLD if they are translated into nouns or noun phrases, e.g., Quality of Customer Service, Quality of Leadership, Perceived Importance of the Customer, Time to Market, and Costs.

Use the CLD to Design Business and Organizational Systems: A CLD is like a schematic diagram drawn by an electronics engineer to depict how electric impulses behave and are controlled as they move through the circuits that make up an electronics system. The schematic is not the “product” itself, but is a blueprint used by others, like those in computer manufacturing companies, to guide the production or use of the product. In this sense, the schematic is a “model” of the real or proposed system. The electronics engineer may use a schematic to either document how existing circuits operate, or as a tool for designing a new or improved circuit system. The purpose of design work is to create a product or system that will, when used or operated, generate desired outcomes, or behavior patterns, in the present or future time. The CLD is a tool to understand and design complex business and organizational systems.

About Thinking Tools LLC (formerly Vision Works LLC)

The PURPOSE of Thinking Tools LLC is to develop and offer highly effective team-support tools and methods for innovative thinking, facilitation and training. Our VIS-IT tools focus thinking to generate greater insight, creativity and problem-solving capabilities! Our VIS-IT techniques make teams more productive! Together, our products and methods enable anyone to conduct Better meetings. On purpose. Please share your experiences and comments on this technique at www.facebook.com/thinkingtoolsnet.