

COMPARATIVE STUDY OF METHODS – Part Two

In this part, we take a look at Goldratt's Theory of Constraints. This is in the corner of the Matrix quite opposite to Social Dreaming (which we will not come to until the last part of the series). The relative positions in the Matrix are significant, as we will see; but for a note on the use of 'relative position' and arrangements of this kind, called toponomics, see below.

SYSTEMATICS	DIALOGUE	SOCIAL DREAMING	INTEGRATION
TRIZ	LVT	CONSTELLATIONS	INNOVATION
GOLDRATT	DEMOCS	CYNEFIN	ANALYSIS
TECHNICAL SYSTEMS	CONVERSATIONAL SYSTEMS	NATURAL SYSTEMS	

This provides a basis for a comparative study of methodology, in which we consider each of the eight methods in relation to LVT. The aim is to reach some mutual illumination between methods. When we discuss their relation to LVT, we are also drawing out their relation to each other. To set the scene we start with LVT. The sequence of exposition then follows the scheme shown here, in which Goldratt's Theory of Constraints and Social Dreaming Matrix define the extremes.

7	8	9
4	5	6
1	2	3

METHOD IS NOT MECHANISM

We are using the term 'method' loosely in the sense of 'how to do something'. It does not mean that there is any defined mechanism for getting results (as we need to understand in something as important as the idea of 'scientific method' but also in general with any 'method'). All methods involve people and human experience, sense and sensibility. At least three different types of element are involved:

- Tools
- Procedures
- Language

There are also assumptions about context of use, introducing such elements as:

- Task
- Psychology
- Culture

And other elements still, to do with the

- Contractual arrangements
- Facilitators and their agendas
- History of the method

Not forgetting:

- Nature of working spaces
- Time available
- Resourcing

But, most of all, the background, character, beliefs, passions, capacities, etc. of the participants. Seemingly different methods can produce similar results if they draw on what the people can do rather than impose a set of controls and models on them.

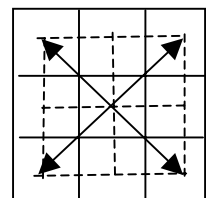
A true method is one that follows the original meaning of the word 'educate', i.e. as 'to lead (or bring) out' what is there.

NOTE ON TOPONOMICS

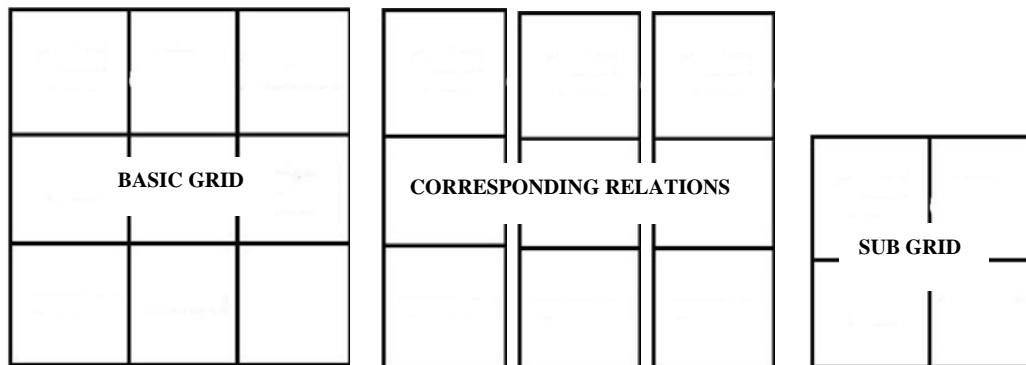
Toponomics (*topos* – place; *nomos* – rule) is the arrangement of meanings in a meaning space, whereby their relative positions are meaningful. If we imagine two elements of meaning (MMs in our LVT language) related together then this relationship might be represented in terms of their relative position to each other. This is widely used in all cultures - in terms at least of 'above', 'below', 'left', 'right', etc. – and sometimes codified (as in Hindu art cf. the *Vastusutra Upanishad*).

Typically, if a matrix is assembled with identifiable meanings along the vertical and horizontal axes, we will find that the *diagonals* yield new insights. There are eight combinations of three and if all of them are significant then the matrix as a whole is highly coherent. Their content (MMs) and arrangement (where placed) can be refined with increasing understanding.

FOUR LINES
OF MEANING



When we place MMs in 'cells' as in a matrix or table, we also allow for composite and higher order meanings defined by combinations of cells. In a 3 x 3 matrix there are four 4-cells (2 x 2) as well as numerous 3, 2 and 1 cells. Each of these can be looked at as composite or higher order meanings. They can also be looked at in terms of common 'ratios'. For example, the three vertical 3-cells can be interpreted as having the same relation between their MMs as each other (see below). If we picture the meaning space as a 'game board' then the different composites represent sub-games of the total game. The sub-games can be independent and combine together to produce the total meaning game, or vice versa, or both.



1. GOLDRATT THEORY OF CONSTRAINTS AND LVT

Goldratt Theory of Constraints

The Theory of Constraints is based on the convergence of cause and effect logic to a core problem; the alignment of all local actions to support the "global" or "holistic" system solution to this problem and the implementation of a solution - through the only long-term competitive advantage an organisation has – its people. Through educating, assisting and developing the understanding of how to focus on critical constraints, exponential improvement is quickly gained.

Goldratt's treatment of cause and effect limits the method to situations of a causal nature – in terms of the Cynefin (to be discussed in Part Four) approach, the realm of the *knowable*. The idea of a *critical constraint* is that in any knowable process, there will be one (or only a few) regions which significantly affect the whole process. When a process is going wrong, is inefficient or leading to dissatisfaction, the root cause can often be found in just one place. Identifying what this is, is the first step to making changes that can radically improve the whole process.

The identification of the key constraint is similar to the diagnosis of the critical *contradiction* in TRIZ. In both methods, new thinking is needed to break through the barriers of mental inertia. The people involved in the process may know the constraint implicitly but avoid articulating it clearly because of social, political and other influences. Their typical explanations for what is going wrong are often misunderstandings and excuses. A saying in the Goldratt theory is 'don't let inertia be the constraint'.

The identification of the key constraint is the prelude to agreeing what is to be done and how to do it. This involves working through conflicts and getting people to 'buy in' to solutions. The *thinking process* detailed in Goldratt theory involves five steps and eight techniques but it is not obviously apparent how they work. Though the realm of the constraint is that of causal reality, the realm of human systems may not be amenable in causal terms. The gaining of agreement is therefore a meta-process to the initial causal analysis. The nature of *conflict* may be very different from that of *constraint*. The Goldratt method relies on making very clear maps – such as 'reality trees', 'conflict resolution diagrams' and implementation 'trees' – to support an explicit discussion concerning commitment to action.

CAUSE AND EFFECT IN THE THEORY OF CONSTRAINTS

Central to the concept of TOC is the acknowledgement of cause and effect. The Thinking Processes of TOC give us a series of steps which combine cause-effect and our experience and intuition to gain knowledge. TOC is a verifiable philosophy. By knowing how we should think, we can better understand the world around us; by better understanding we can improve.

Organizations are a complex web of people, equipment, methods, materials and measures. This detail complexity is bad enough. Then add to it the dynamic complexity of changing customers, suppliers, workforce, regulations, .etc. and you have a picture of the challenge faced by today's management team.

Traditionally, management has divided the organization into smaller, more manageable pieces. The objective is to maximize the performance of each part. The global improvement is assumed to be equal to the sum of the local improvements.

Wrong! TOC claims that a change to most of the variables in an organization will have only a small impact on the global performance - on the bottom line. There are very few variables, perhaps only one, where a significant improvement in local performance causes a significant improvement in global performance. Such a variable is called a "Constraint". You can compare it with the weakest link in a chain.

THE STEPS IN THE THEORY OF CONSTRAINTS APPROACH

The essence of the TOC approach is that If you want to achieve more of your goal, you must:

1. Identify your Constraint.
2. Focus on the Constraint. A company must first know its goal and the necessary conditions for achievement. Then it must identify the Constraint(s), that is/are limiting the level of achievement of that goal.
3. Follow it through. The Process Of On Going Improvement:
 1. Identify the Constraint.
 2. Exploit it.
 3. Subordinate all other operations to the necessity to exploit the Constraint.
 4. If after #2 and #3 more capacity is needed to meet market demand, elevate the Constraint.
 5. Go back to #1, but don't let inertia become the system's Constraint.

http://www.12manage.com/methods_goldratt_theory_of_constraints.html

The thinking process (TP)

The thinking processes are generic tools to help people walk through a buy-in process. They are also useful tools for any kind of human interactions. The buy-in process has the following steps (see levels of resistance):

1. Gain agreement on the problem
2. Gain agreement on the direction for a solution
3. Gain agreement that the solution solves the problem
4. Agree to overcome any potential negative ramifications
5. Agree to overcome any obstacles to implementation

The thinking process, as codified by Goldratt and others:

- **Current Reality Tree** (CRT, similar to the current state map used by many organizations) - evaluates the network of cause-effect relations between the undesirable effects (UDE's, also known as gap elements) and helps to pinpoint the root cause(s) of most of the undesirable effects.
- **Evaporating Cloud** (conflict resolution diagram or CRD) - solves conflicts that usually perpetuate the causes for an undesirable situation.
- **Core Conflict Cloud** (CCC) - A combination of conflict clouds based on several UDE's. Looking for deeper conflicts that create the undesirable effects.
- **Future Reality Tree** (FRT, similar to a future state map) - Once some actions (injections) are chosen (not necessarily detailed) to solve the root cause(s) uncovered in the CRT and to resolve the conflict in the CRD the FRT shows the future states of the system and helps to identify possible negative outcomes of the changes (Negative Branches) and to prune them before implementing the changes.
- **Negative Branch Reservations** (NBR) - Identify potential negative ramifications of any action (such as an injection, or a half-baked idea). The goal of the NBR is to understand the causal path between the action and negative ramifications so that they negative effect can be "trimmed."
- **Prerequisite Tree** (PRT) - states that all of the intermediate objectives necessary to carry out an action chosen and the obstacles that will be overcome in the process.
- **Transition Tree** (TT) - describes in detail the action that will lead to the fulfilment of a plan to implement changes (outlined on a PRT or not).
- **Strategy & Tactics** (S&T) - the overall project plan and metrics that will lead to a successful implementation and the ongoing loop through POOGI.

http://en.wikipedia.org/wiki/Theory_of_constraints

At http://www.12manage.com/methods_goldratt_theory_of_constraints.html

go to: Compare with Theory of Constraints: [Root Cause Analysis](#) | [Analogical Strategic Reasoning](#) | [Brainstorming](#) | [Kepner-Tregoe Matrix](#) | [Crisis Management](#) | [Game Theory](#) | [Real Options](#) | [Dialectical Inquiry](#) | [Delphi Method](#) | [Six Thinking Hats](#) | [Plausibility Theory](#) | [Mind Mapping](#)

LVT

To recapitulate, LVT has a basic method of five stages:

1. Focus
2. Gather
3. Organise
4. Integrate
5. Realise (make)

These are general stages without reference to any particular topic or method of analysis. As such, the stage Focus would correspond to the articulation of the constraint in Goldratt and the other stages to resolving conflict, planning action and getting agreement. There is no explicit mention of any kind of 'gathering' in the Goldratt approach, which is probably taken for granted. In correlating LVT with Goldratt, it is necessary to consider the five LVT stages as being reiterated with different emphases and purposes.

In the first iteration, the object of focus is the key constraint and at the stage of Realise people arrive at an agreed analysis of what this is. The 'current reality' tree is a form of Organisation of inputs and Integrate is when all parties involved can see how to agree on what the key constraint is (to Realise is then to commit to resolving the problem by further work).

In the second iteration, the two 'clouds' appear. The first – 'evaporating cloud' – corresponds to the *clustering* used in standard LVT. The second – 'core conflict cloud' – is a step of Integration. Realise is then when the participants agree to seek the future reality tree, which leads into a new iteration.

These are very general correlations. The Goldratt theory uses very explicit structures which relate to the purpose it serves. The general method of LVT simply allows for specific forms of knowledge organisation to come into play according to the shared purpose of the group and the *kind of problem or issue it is concerned with*. LVT itself has no directed theory that speaks about the nature of reality, or what people *should* concentrate upon.

The question of having precise theories and procedures is also addressed in the section on **TRIZ and LVT** (in Part Five). As a method historically based on technical innovation, it is close in spirit to the Goldratt approach, yet not so much focused on causal analysis.

Mechanical and Human Systems

One of the benefits of the Goldratt approach is that by developing a 'reality map' the conversations possible between people are enhanced and likely to be productive. In LVT, the essence of this is that participants share in a known and visible reality and any discussion they have is rooted in this reality, no matter how widely it develops.

What is more obscure is the interplay between the language of mechanical systems (causal) and the language of human systems (intentional). In LVT, a type of application begins (Gather) with a mapping of current reality but *only as a set of MMs* and not as an organised display. In the stage of Organise, the reasons for combining the 'factual' elements – to represent 'interpretations' of the data – involve the perspectives or values of the participants. This is intended to yield higher order MMs as the meanings of the combinations. In the stage of Integrate, the differing interpretations come together in a total global picture in which they all have to accommodated and resolved.

A more explicit picture of the Goldratt procedure cannot be made without specification of the form in which relevant information is gathered. If various maps, etc. are made, then what are the elements they contain? Would they constitute a type or types of MM?

In LVT, an MM is a unit of *meaning*. By using the term 'meaning' three aspects or dimensions are implied:

1. It is about something in the real world, related to time, space, drives and circumstances.
2. It expresses a point of view; it has arisen as part of someone's experience, which is therefore shaped and highlighted by the emotions (motivations) of people. *Personal construct theory* has relevance here.
3. It implicitly belongs to a global perception that embraces diverse points of view and can correspond to the 'natural system' which exhibits co-operation in human terms and efficiency, etc. in mechanical terms. In TRIZ this corresponds to Ideality.

By using such MMs, LVT can elicit *points of view* at the stage Organise and *global understanding* at the stage Integrate.