Appendix 6
p. 292, *The Missing Links* by Caroline Mondon (Industrial Press, 2016)
www.themissinglinks.info

Theory of Constraints Introduction

The Theory of Constraints (TOC in short) is a science of management that applies systems thinking, scientific principles, methods and logic to the general management problem for guiding human-based organizations (and individuals) in their decision-making processes. TOC's set of holistic processes and rules exploit the inherent simplicity within complex systems through focusing on the few "leverage points" (or constraints) as a way to synchronize the system so that ongoing improvement in the performance of the system as a whole is achieved.

Development of TOC started in the 1970s with work by Dr. Eliyahu M. Goldratt (1946-2011); it has been widely popularized in his bestselling business novel "The Goal" (1984). Today TOC has gained in depth and reach and is applied across a broad range of systems and organizational settings, e.g., from manufacturing and supply chain management, to engineering and project management, to decisions making and problem resolution in industry, government, health care, education and even prison systems.

The Goal

In a for-profit-environment, TOC assumes that a business follows a three-dimensional objective that takes into account the legitimate needs of three key stakeholder groups: owners, employees, and the market. In order to achieve this, the continuous improvement of profitability becomes an essential operational goal – "make money now and into the future".

Continuous Improvement

Goldratt developed and defined a generic five step process of focused ongoing system improvement ("Five Focusing Steps", 5FS in short):

1. IDENTIFY the system's constraint(s) – what is limiting system performance
2. Decide how to EXPLOIT the system's constraint(s) – use it in the most effective way
3. SUBORDINATE everything else to the above decision – synchronize all aspects of the system to maximize global performance
4. ELEVATE the system's constraint – only now an investment in additional constraint capacity should be considered
5. Don't allow INERTIA to be the system's constraint. When a constraint has been broken, go back to Step 1 – As a constraint moves, the system must be re-calibrated around the new constraint

Analyzing and Improving a System or a Situation

When TOC started to move beyond its original application area in manufacturing, a different set of tools for analysis and improvement was necessary. TOC put again the focus on constraints or leverage points with the development of the Thinking Processes (TP) in the late 1980s and early 1990s (first introduced in Goldratt's "It's not Luck").

The TP start with gaps between aspired state and the real situation (called Undesirable Effects, UDEs). The only way to remove these UDEs is to resolve the underlying systemic conflicts. Overall, the TP provide a logical, structured, and rigorous process to guide decision-making, utilizing the intuition and knowledge of those involved and invoking challenges to existing thinking. Simply put, the TOC is a recipe for change that is applied to logically and systematically answer three questions essential to any process of ongoing improvement (POOGI):

1. What to change?
2. What to change to?
3. How to cause the change?

The TP has been instrumental in the development of TOC (and other) applications outside of the original DBR. It has been used in various other settings from education to health care, to supporting rehabilitation of prison inmates.

Applications of TOC

The basic ideas of TOC have led to the development of several "generic" applications of TOC to different environments. These aim at creating superior operational performance as a basis for developing a competitive advantage:

- Drum-Buffer-Rope and Simplified Drum-Buffer-Rope for manufacturing
- Critical Chain for project management
- A basic demand-oriented model for replenishment and distribution

Strategy

The difference between the traditional and the TOC approach to strategy is the high degree of focus. It is as much about choosing to not do many things as it is about focusing on the single biggest leverage point of an organization, thus exploiting the inherent simplicity of the system. The key to success with a TOC strategy is keeping an executive team focused on their single biggest leverage point long enough to sustain results. The most recent TOC strategies are designed to drive first measurable and significant results within a few weeks. Without such an effect, any team loses energy fast and readily chooses diversions.

TOC uses an innovative yet helpful definition of the terms strategy and tactics. Strategy defines what we want to achieve. Tactics describe how we plan to achieve the strategy. To be successful both must remain connected. The Strategy and Tactics (S&T) Tree is an advanced Thinking Process tool to achieve this synchronization; it serves as a development tool and as a guideline for implementation.

References and Resources

The Theory of Constraints International Certification Organization (TOCICO) is a global association of TOC professionals, offering certification services, regional and global conferences as well as numerous case studies, new knowledge research and other presentations on its website TOCICO.org. When looking for help and assistance in TOC matters, one should verify that a consultant or professional is currently certified by TOCICO.

On over 1,200 pages the TOC Handbook provides a comprehensive overview of TOC, its various applications and developments: James F. Cox III and John G. Schleier, Jr. (editors), The Theory of Constraints Handbook, New York 2010 (Mc Graw Hill), available in print and as an e-book.

Eli Goldratt mainly used business novels to share his ideas. These continue to be bestsellers and are available in many languages.

Other TOC experts have published numerous books (both fiction and non-fiction) and maintain websites covering traditional TOC applications, new developments and new frontiers.

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