

Hughenden and the Theory of Constraints

If we said "A chain is only as strong as its weakest link", you would know what I meant. Or if we used the expression "slowest ship in the convoy", you would know that the convoy can only make progress at the pace of the slowest ship. Fundamentally, The Theory of Constraints (TOC) explores and expounds the principles behind the influence and power of bottlenecks and the way they should be understood and used to improve company performance in all sorts of ways.



TOC in the Steel Industry

Cold Drawn Tubes (CDT)

Then part of the Tube Investments Group, CDT manufactured steel tube for the automotive industry. The pressure for high levels of customer service and short

lead-times was greater than they were achieving. Dr Goldratt and I presented the Theory of Constraints to 35 Manufacturing and Managing Directors from around the group, and straight away the MD from CDT wanted to try to apply it to his business.

In a V-plant such as CDT, where a small number of Raw Materials can end up as many different types of end product, "Capacity is King"; selling from Finished Goods stock was not a concept they understood. So, understanding exactly the nature of their true capacity was vital to increasing Throughput, reducing lead-times and so increasing customer service.

Traditionally the draw benches were regarded as the primary plant. Keep those running and everything would be

About Hugh Williams

Hugh has been a consultant in the Supply Chain Planning sector for 20 years. He has been a keynote speaker on many platforms for professional and commercial organizations around Europe (including for the Institute of Operations Management, SWEPIIMS, Danish Logistics Institute, Institute of French Motor Manufacturers, University of Leuven, Infor, Synchron, Manugistics/STG, Ross Systems, Dynasys, Ortems, FuturMaster).

"My career in consultancy began when I joined the company founded by Dr Eli Goldratt, manufacturing "guru" and author of The Goal. The six years that I spent with Eli has been the foundation of my continuing work.

I subsequently went on to become the Managing Director of a specialist consultancy in finite capacity scheduling, and a partner in a consultancy that focused on supply chain planning. Setting up Hughenden has allowed me to focus on the people and processes in Supply Chain Planning where the real benefits lie – it is something of a return for me to the early days with Eli of persuading people why and how to change for greater effectiveness."

Hughenden Consulting Team

Hughenden specialises in the field of Supply Chain Planning. We believe that the only way to provide effective advice and guidance for our Clients is to have a highly experienced and proficient team. Every one of our consultants has in excess of 10 years practical experience in Supply Chain. Our expertise includes:

- Theory of Constraints
- Lean Thinking/Manufacturing
- MRP, MRPII
- Advanced Planning and Scheduling
- Six Sigma
- SPC
- Quality Management
- Neuro-Linguistic Programming
- Change Management

We participate in several professional bodies, including the Institute of Operations Management, the Institute of Logistics and Transport, the Institute of Mechanical Engineers and the Institute of Purchasing & Supply.

ok. We found that whilst it was important to understand the capabilities of the main activity (i.e. drawing tubes down to size), the limiting factors were elsewhere in annealing. This operation had long been seen as a “service” to the main activity and so not scheduled with an appropriate level of detail and attention.



The result was lower levels of Work-in-Progress, less stealing (over-producing one sort of material at the expense of another from the same material), shorter lead-times and greater Throughput.

In due course, the original OPT finite capacity scheduling software was implemented to support the new planning process, but it was the approach that led to the improved performance.



TI Desford Tubes

“Thank God the walls are where they are. If they were any further apart, we’d have even more inventory!”, the Manufacturing Director was heard to cry.

He had two major Hot Mills producing tubes from billets of steel for the bearing industry. After the Hot Mills, they went through a whole series of finishing operations and from one end of the factory to the other – which happened geographically to be in a different village (a

real ‘Us and Them’ culture). The problem was that the hot mills, at £35million each, were regarded as being such a major investment that they could not possibly stop them running, particularly as they cycled through size and temperature ranges. So, as the prime plant and the major technology of the business, they needed to be as efficient as possible.

Downstream of the hot mills, however, the place was flooded with inventory, people were cherry-picking the work they wanted to do, products were being left for a long time untouched (at the bottom of a very heavy pile of tubes), lead-times were too long and customer service was suffering badly.

Whilst it was very difficult for them to accept, using the Theory of Constraints to analyse the situation, the real bottleneck was found to be a heat treatment area half way through the overall process; a relatively inexpensive furnace, but there was only one of them. It was causing all sorts of problems, but it was so difficult to see because of the levels of inventory. Running the hot mills the way they did was simply filling up the factory. How to create a change in culture that said that the hot mills were non-bottlenecks and should not be run all the time?

We carried out an extensive amount of education and workshops not only for the senior management of TI Desford Tubes but also for the Production management team. The end result was for them to move the hot mills away from running monthly cycles to running weekly cycles, doing more changeovers, but at the same time creating a position of much more responsiveness to customer requirements. Of course, the level of the lake reduced dramatically and they started the project to open the bottleneck in a controlled way.



TOC Support Examples

By Hughenden

Over the last few years, Hughenden has taken a number of clients through TOC education, which led to tangible financial and operations benefits.

- **Prysmian Cables & Systems** (formerly Pirelli Cables & Systems) in the UK, rolled out a number of courses across its manufacturing plants.
- **Kerry Foods** used TOC as a building block for a series of courses that took delegates from throughout the group through Supply Chain Planning.
- **Kerry Foods Portadown** used TOC principles and practices in an assignment with Hughenden to determine their manpower capacity requirements.
- **SCA Packaging** tackled their batch size policies in a number of their plants across Europe, applying the logic behind TOC. As a result, some of the sites achieved a significant reduction in their stock levels (up to 60%) whilst maintaining customer service.