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TOC-Lean Institute News

From the newsletter of the GrantRail Group: Making Tracks 8th May 2007

Putting theories into practice

GrantRail is always keen to explore new approaches to business in its commitment to ongoing continuous improvements and one recent initiative now looks set to reap significant rewards. A group of senior staff have attended workshops based on the Theory of Constraints (TOC) – a systemic approach to managing an organisation through a logical and measured attitude to problem solving. Initially described in the fictional story *The Goal* by Eli Goldratt, TOC is now widely viewed as an effective tool for improving the bottom line performance of a company, this can be applied in a wide range of industries and has been increasingly adopted in the Far East.

According to Dr Ted Hutchin of I & J Munn, who has been conducting the GrantRail workshops, TOC requires the use of three key measures for assessing progress towards the goal of a for-profit company: throughput, investment and operating expense. The principle is to focus on increasing the former while controlling the other two, ie generating more sales whilst at the same time, keeping costs down. Dr. Hutchin explained: "The GrantRail team are on the Jonah Practitioner programme which involves intensive classes and support sessions, the thrust of which is to identify core problems, construct a solution, implement change and maintain progress. The theory can be applied both strategically and tactically so while it can produce dramatic changes in a specific area, it can also be used in day to day management."

A key part of the process is to encourage clear thinking and Ian Knowles, GrantRail's Director of Renewals, has been extremely impressed with the methods involved. "The Theory of Constraints is almost like a mathematical discipline in that you have to carry out every single step to reach the right answer," he explained. "It may seem pedantic but it's based on logical rigour and common sense and it's easy to see why it works. I've actually found it a fascinating subject and I'm confident it will bring major benefits when applied to our business."

The theory will be used by GrantRail to do things differently and, in particular, will be applied to improve the planning and delivery of jobs during weekends. This ties in perfectly with Network Rail's 'Early Deployment' initiative – a smarter, quicker approach to track renewals. The group, which also includes Chris Newell, Roger Peters, Alan Jackson, Bruce Wright and Meredith Blake, have already attended a trio of three-day sessions and support classes will be ongoing during the summer.

"We now have a very robust analysis of the business and have identified some real and practical ways in which to take it forward," continued Ian. "It has been a very worthwhile experience and I really can see a big step change taking place over the next few months," he added.

The following three articles are from the May 2007 Newsletter of the Goldratt Implementation Group (GIG) and are reproduced here by permission:

How to reduce total working hours and shorten the needed duration, in a project environment - in 2 simple 'Do it yourself' steps.

Who does not recognize the phenomenon of Bad Multi Tasking (BMT), jumping between a large number of open tasks waiting for his/her attention? It leads to a decrease of output, an extension of the time to complete the tasks and delayed deliveries of projects; it hurts the quality of work and decreases the motivation. The phenomenon is prevalent in all aspects of management. Managers deal with many subjects, and frequently jump to the new subject before they have completed and closed the previous subjects. R&D people, engineers, technicians and software people deal simultaneously with great number of tasks; and also lawyers and accountants handle many cases in parallel.

Mental Setup

When we start to work a on new subject, we need time to learn and adapt to the new task: What is the goal of the task? What do they actually want from me? How will I solve this problem? What exactly do I have to do? This process is called 'Mental Setup'. When you leave an unaccomplished task, pass to another task and after some while return to the first task, in many cases you do not remember the details of the task and the strategy of its solution. You have to do a new 'Mental Setup'.

If the task is finished in one treatment from start to end, we can save many 'Mental Setups'. As an result the output will increase and the delivery time will be shortened. And above all, the quality of the work is significantly improved. When the task is completed by continuously working on it for the required 40 work hours in one week, the quality of the work and the delivered task specs are dramatically higher than when the same task is dragged over 3 months with long interruptions. The latter will definitely consume a lot more work hours.

Gating

Undoubtedly, the conditions that enable you to work on one task only are not there in the modern world of management. What can be done, though, is to reduce the effect of the BMT (Bad Multi Tasking). Awareness is the necessary condition for the reduction, but this is not enough. The tactic to use is "Gating", controlling the number and the flow of tasks to the persons or the teams who will execute these. It means that we ensure that they have no more than a predetermined number of tasks in front of them. If they already have the quota, no more tasks are released to the people/teams until one of the existing ones has been declared completed.

In many cases people or teams have 10 to 20 open tasks; sometimes the total work load represented is several months. That causes the management to have bad control over the project and setting priorities that will justify themselves becomes an almost impossible mission. We should reduce it to a maximum of five but preferably to three.

One of the reasons for the BMT is the assumption that the project's client would like to 'know' that his project is in process. The result is that all the tasks are delayed and majority of the projects are not finished on time. The result of Gating will be more satisfied customers, better quality and the release of a significant amount of additional capacity (that will enable you to take more projects.)

Full Kit

The second step that you should implement is not to release any task that does not have a 'Full Kit'. It must have full specification, complete work process and all task requirements must be available. In the current mode of operation (with a lot of BMT) this is not so important; anyhow we put tasks aside, so we will wait for a predecessor that we have not finished yet, we wait for clarifications or for further instructions.

Under the Gating regime those tasks will not be released (it is better to wait for the release and let the resource clean his area in the meantime).

The nice aspect of these two recommended steps is - you can do it immediately, without waiting for any additional software. You just have to nominate a 'Gate Keeper', a person who will be responsible for the Gating.

If you are familiar with CCPM (Critical Chain Project Management) you know that when you use it, it will bring you better results by setting the priorities on a global objective consideration, rather than the more intuitive and local ones as suggested here. But it takes time to choose the right software and to train the right people. If you implement the 2 steps described you can immediately harvest the better performance and you will be able to speed up the CCPM implementation and get all the tremendous benefits a lot earlier.

Alex Meshar

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FAQ's: TOC application: Critical Chain Project Management

Q: We already use a "Critical-path" scheduling, why do we need "Critical Chain"?

A: The Critical-path methodology was a very important improvement to get a better view on the complex interference between the different tasks of the project and to have a good estimation for the global completion time.

If your organization really uses this method, you must have experienced that it is very difficult to keep a stable schedule and oblige everybody to follow the schedule. In practice, people try to reschedule but it is a main source of miss-communication about priorities and resource allocation. The other way around is to leave the first schedule untouched and/or avoid frequent updates, which often causes the well-known "fire fighting" mode.

Let's not forget that Critical-path methodology was developed in the 50's and was successfully applied to space projects in an era when budgets and resources didn't cause any problem, but things have now changed. The main problems nowadays are caused by budget and resource constraints.

Q: We don't have estimated task times. Should we not wait until we have a correct view on those aspects?

A: Experience teaches that the task time is never precise and it probably will never be the case, so you better not wait for that miracle. It makes more sense to use a system that counts with this reality and start with the available information. The improvement opportunities that you will find through buffer analysis will show you the right way.

Q: Isn't there a fundamental contradiction: How can you shorten project duration while inserting time buffers?

A: Yes, it seems to be contradictory, but it has to do with waiting queues and inflated task times and protections where it doesn't help, while the real risks are mostly not protected at all. This is one of the major keys to making the concept work and you can find a lot of interesting knowledge about this subject by reading the book "Critical Chain" by Dr Eli Goldratt. Those who have read his previous novel "The Goal" will certainly enjoy this management novel.

Q: Everything is so unpredictable; we are very dependent on the external world.

A: Precisely, and it is very difficult to change the external world. That's the reason why you better start to improve your own environment and as a result of it you will get a better grip on the external aspects.

Q: We already use MS-Project, so why should we change?

A: That's a good start, but you know that MS-Project is based on the project-concepts from the 50's, and that MS-Project does not support buffer management. This feature is supplied by specific add-ons. But, let's not forget that a tool is only a tool and has to support a common way of project management.

Q: We cannot motivate our people to follow the schedules, so why should they follow Critical Chain?

A: If people do not see any advantage of using a schedule, they will indeed never do it. With the implementation of the Critical Chain methodology however, you will reach a situation where everybody has clear priorities.

The resources as well as the managers will no longer work in the "Management by Decibels" mode. The TOC implementation workshops are famous for their "Socratic approach" which allows managers and resources to discover the real benefits whilst also improving the solution by adding their own experience. By that process the application becomes their baby.

Q: OK, but if the project definition and the project break-down (into realistic tasks) are not properly done, how can we expect better scheduling results?

A: This is mostly a part of the implementation program. A specific module, "The I-O Map" (Intermediate Objectives), has been derived from the conceptual TOC toolbox. It is a nice process that even helps in designing a full solution if you start with a vague idea. By the way, this is another common cause of not starting projects as planned: as long as some crucial parts of the project (especially new ones) are not well defined, some people hesitate and postpone the project while they wait for some miracle to happen.

It is our experience that by using the appropriate tools this process is done in a very short time frame and becomes more and more reliable.

Q: Maybe the individual projects will improve but how to manage the global project portfolio and assign common resources?

A: Critical Chain contains one of the most powerful solutions for managing multi-project environments. By managing the priorities the right way (by using

buffer management) and eliminating bad multi-tasking, very often a regular project environment is able to deliver 30% to 50% more projects with the same resources and with the due dates met!

Georges Leonard

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Success in Operations can lead to a huge pitfall!

One of the major pitfalls in improving Operations is the lack of connection with Sales. I will give you two examples:

Example 1:

Suppose you implement Drum Buffer Rope with Buffer management. During the implementation you decrease your lead-time by more than 50%, you improve your due date performance dramatically and you reveal excess capacity. The Sales department sees the improvement and sells the improvement for free to get more Turnover.

What will happen?

The customer becomes used to the shorter lead times and will count on it in the future. Sales go up and suddenly you run into problems because the plant is overloaded. Bottlenecks will pop up and you will not be able to fulfil demand in the new shorter lead times. Customers are dissatisfied and the risk that they will run away is huge. You lose trust in the market and Sales drop dramatically.

What went wrong?

Because you gave away your improvement to the market for free you spoiled your customers. But, with shorter lead times you had less time to deal with disturbance in the system, such as noise and Murphy. When the Sales went up, your load went up and you had also less protective capacity to deal with disturbances. This is a dangerous situation and can bring your company into big trouble.

How to avoid?

Never sell your improvement for free! If you are in a market where speed is rewarded, offer this market different lead times with different prices. Make sure that you do not overload your system, because you can run into chaos. By offering different prices for different lead times you can increase your Throughput without Operational Expenses increase.

Example 2:

Suppose you implement DBR and Buffer Management. You improve your performance and also reveal excess capacity. Marketing and Sales are not involved in this project.

What may happen?

When the Sales stay almost at the same level, your efficiency goes down because you needed less capacity for the same volume. If you are in an environment that is measured by costs and efficiency, the following will happen: because of the improvement in Operations, the people who did this will

be 'rewarded' with a reorganization, employees will be fired. Motivation will drop dramatically and future improvement will be harder to implement.

How to avoid?

When you want to improve Operations, always make sure that this is a business strategy connected with the other functions in your company. Also make sure that improvement leads to more Throughput with the same amount of employees. Reward the employees for their improvement and never lay off people!!!! The latter is the killing point in motivation.

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