

Implementing the Theory of Constraints

Delivering A Successful, Sustainable Implementation in Manufacturing

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How Do You Put TOC Into Practice?

A great deal has been written about Constraint Management and the Theory of Constraints. Many people have written their success stories. There is a lot about how it works, but not how to do it. The answer to the question, “What in my business has to change in order to be successful?” eludes many.

There are four elements for a successful, sustainable implementation:

1. Commitment and Leadership from Senior Management
2. A sound strategy for managing the change that will take place
3. A robust design of your new system
4. A commitment to ongoing improvement

What is a “Successful” CM Implementation?

I don’t judge success against an indicator of x percent improvement of profit or return on investment. If you implement constraint management, even a few elements, you will improve overall business performance. I have NEVER seen an implementation where the concepts were applied and the organization didn’t see significant bottom line results.

A successful implementation is one where the management team is, on a regular basis, considering constraint implications in the daily decisions of allocating resources and making customer commitments. The management team is making the long-term operations decisions (i.e., outsourcing and resource acquisition) using similar criteria. A successful implementation is one that uses the *processes* of constraint management. Therefore, focus on the cause of the success, not the effect.

Implementation Philosophy

There are four elements that provide a general approach and philosophy to shape the decisions and implementation priorities:

- ◆ Getting control of the business is paramount. Promise and deliver orders on time.
- ◆ Get the implementation going as quickly as possible with concrete changes that demonstrate results. Don’t wait for perfect solutions before you act.
- ◆ Make changes as soon as problem policies are identified. Break policy constraints as they are identified.
- ◆ Start with simple/low-tech solutions first, then implement refinements later. Automation is necessary, but useless without understanding what automation does.

You should always try to prevent implementations that feature a single expert that understands the overall system. Strive for nothing less than a complete change in the behavior of management. In order to accomplish that, you must have a critical mass of managers that understand, embrace, and practice the philosophy.



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Unlike many cultural changes, *total* buy-in from all managers is unnecessary, only a general agreement not to hinder the project. As long as people are willing to try, the system will work. Once it's operational, they will not want to go back to what they were doing before.

Get control of the business

Mastering the order fulfillment process is foundational for every other improvement project. Mastery means that you consistently deliver product on or before your promised delivery date at least 90% of the time (If you don't know what your company's on time performance is, you should assume it's less than 50%. And just because your customers aren't complaining doesn't mean that your performance is good enough.). Not having mastery of the order fulfillment process in manufacturing is like a restaurant that can't deliver the meal. Who would patronize a restaurant that could not deliver the meal in a timely fashion?

Having control of the business is measured by on-time performance. On-time delivery performance is a competitive competency that can be easily copied. If the market is dominated by a poorly performing organization and I want to take the market, all I have to do is develop a more responsive order fulfillment process. I don't need a higher quality product, a more advanced product, or even a cheaper product. If I care for your customers better than you do, they'll be mine.

You don't have to look far to validate this truth. Examine your own behavior. Don't you prefer to take your business to the merchants that serve you better – even if the price is higher? Your personal aggravation factor always figures into the buying decision. Despite the purchasing agent's protestations, emotion still figures into the buying decision. Examine the psychology of the buyer. Their first priority is to not shut production down – get the product there on time. If you fail to do that, you have just created a major headache for him (or her). She would like to keep her job and avoid problems, too.

According to research done by the Forum Corporation, delivery reliability is the single most valued dimension of customer service. Improving this single dimension will increase sales and facilitate increasing the margin of existing sales.



The way to get control of the business is to synchronize the activity of your business to your customer. By synchronizing the business, lead-time is reduced, which again, affects margins and sales, and of course, the bottom-line. That's to say nothing of reducing the waste associated with poor resource synchronization – expediting, premium freight, and overtime.

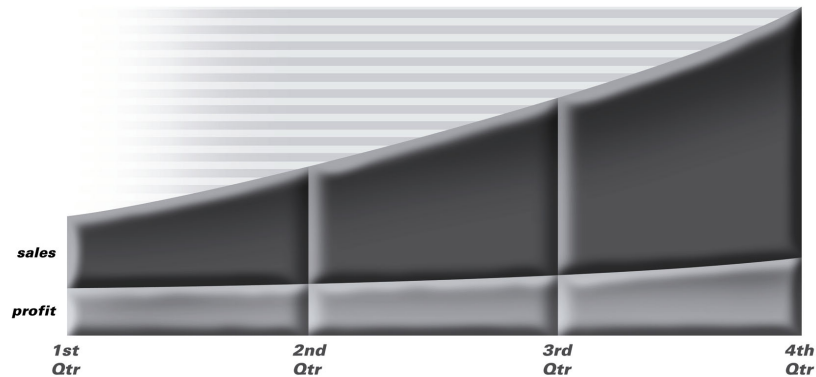


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Poor synchronization is often the source of the problem in organizations that have increasing sales and profits, but not at the same rate. Therefore, getting control is a prerequisite to undertaking major marketing or sales initiatives. If you can't effectively manage the level of business you have today, imagine how difficult it will be with 10%, 20%, or 30% more business.



Sales Increase, But Profits Don't

Get the implementation going quickly

The largest obstacle to implementation is organizational inertia. If people are not actively engaged in improving the business, we must engage them. There is quite a bit of work to be done to implement CM and at times, it will be difficult. Therefore, you must develop momentum early in the project. Don't want to overanalyze before you act. Some very simple things can and should be done immediately to start the ball rolling.

Make the policy changes as soon as possible

When you reexamine the business processes, you will undoubtedly find stupid things. This is true even if you're not implementing CM. Systems and policies are implemented for good reasons. Time passes and the situation changes. The original reason for the policy is no longer valid, but it stays in place. The effect of the policy is that it is no longer helping things, but blocking increased performance. As soon as these are identified, change or eliminate them.

Start Simple

I could also say "start small". Begin with simple systems and procedures that will yield *some* results, rather than try to implement a sophisticated system or procedure that will yield optimal results. Try using a ratio of time to implement vs. time to use. If you can't start doing it in a week or so, do something else that can be done in a week or so. Save the hard stuff for later in the implementation.

You're trying to break the inertia, change the culture, and teach a new way of doing business all at the same time. So aim for changes that can be put into practice quickly. This allows people to see results and learn the why of the philosophy. It's also low risk. You don't need to spend weeks doing a study to see if it works, try it and make adjustments. Change is happening, and it's happening in very small increments, so the resistance to change will be very low.



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Elements of Success

There are two main contributors to success – a good process design and a well-executed implementation (change management) process. These are the two most fundamental problems with any initiative, ‘what to change to’ and ‘how to orchestrate the change. If you follow the business press, you’ll find many good ideas, but they assume you’ll be successful in implementing them.

Business Process Development

A reliable process is robust and simple. It may or may not include the use of the computer system. The process determines how things are going to be done after implementation. There are three dimensions to the order fulfillment process: planning, execution, and alignment. These dimensions are facets of the same process, moving product to your customer in a reliable, productive way.

Planning Elements

The planning process is built around recognizing demand and reconciling it to the available capacity. It covers the medium and short term. Typical decisions are related to production and evaluation of vendor capabilities (make vs. buy). By and large, you’ll be concerned with order promising, master scheduling, and capacity planning processes.

In long term planning, resource synchronization is not the issue; reconciling market opportunity to capital availability to break constraints is the primary concern. Typical decisions are related to capital costs like purchasing machines or new market initiatives.

Execution Elements

The execution process concerns itself primarily with satisfying the plan and dealing with variation. Out of the execution process will come valuable information that will be used in planning. The execution processes help you understand and manage the internal resources. These processes involve shop floor prioritization, batch sizing, and reporting policies.

Organizational Alignment

Organizational alignment is when all elements of a company work together in concert within the context of the organization’s core ideology and type of progress it aims to achieve - its vision or goal

Let’s break that down a little bit. Alignment is achieved when all elements of the company:

- ◆ Work together in concert
- ◆ In the context of its core ideology (culture)
- ◆ To achieve its vision

The new process will not be sustainable if it works at cross-purposes with the existing systems, culture and vision. Don’t underestimate the shift in thinking that is required. The constraint management system is almost solely focused on increasing Throughput, with



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reducing cost and operating expense a secondary consideration. Therefore, if your organization's culture gives primary consideration to costs, you'll find that implementing constraint management fully in the organization will be extremely difficult¹.

The effort of creating processes that promote organizational alignment is at first geared towards organizational integration. Later phases of the implementation will affect greater parts of the organization and alignment will be achieved through behavior modification, not by scheduling.

Implementation Process

The process of implementation has to do with how you manage change. Done correctly, you can overcome resistance and work towards success. Done incorrectly, the implementation is doomed.

The implementation process is broken into 5 components:

1. Consensus Building
2. Assessment
3. Design
4. Implementation Planning
5. Project Management

Consensus Building

The implementations that have the best, most enduring results are led from top management (the person(s) most accountable for profit and loss). The most practical reason for this is that top management has maximum control over the resources and the implementation *will* consume resources. The second reason is that the organization looks to senior management for direction and guidance. If they are not on board, it will be much more difficult to get people to risk changing the process. The third reason is that they control the measurement process. If you can't control what gets measured, you will be unable to change the behavior of the organization.

Don't confuse management leadership with management implementation. We don't necessarily need to have the CEO or president directly involved in the implementation. My experience has been that he or she does not know or want to know the details at the depth required to be effective leading the project. Besides, they should not be focusing their attention on this level of detail; they should be building the business and the market.

So – how to get the top executive? What if they are not on board? You can implement some things that will earn you the right to be heard, but unless they are on board, you won't achieve a lasting implementation. Sorry.

¹ The cost-saving mentality is focused on the independent links of the organization. Constraint management focuses on the overall system, and is not concerned with the sub-optimization of the individual links within the chain. The goal of constraint management is to optimize the performance of the *entire* system.



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How to do it?

Consensus proceeds from interest to inquiry to commitment. If your organization knows nothing about constraint management, start with The Goal. Start passing out books to decision-makers and opinion leaders in the organization. Send out articles of success stories about constraint management. Pick the ones that have the same problems as your company. Talk it up. Educate yourself by attending constraint management seminars and workshops. Organize training sessions for your people. You can do this yourself or hire a consultant.

Once you have sufficient interest, organize an internal workshop for the senior management team to learn what constraint management is about. There is no substitute for this step. Don't forget the magnitude of change you're asking people to make. They should invest at least a day to learn in detail what it's about. The Goal² is too simplistic and narrow to get people to commit. Someone who is knowledgeable about constraint management concepts and experienced in implementation should lead the session. Senior management will have some tough questions, be prepared! After the workshop, conduct a study mission to a business that has implemented successfully. There are plenty of success stories and most people are happy to share their success.

This step, if done properly, should lead to commitment. However, commitment will not come unless you have a proposal to achieve a specific result. The proposal should be tied to quantifiable, bottom line results. The initial commitment may only be a pilot project. If that's what it is, take it and run! The results will be obvious to anyone, and will lead to greater levels of commitment.

To summarize, get people's interest using The Goal, articles, and discussions. Create opportunities for further inquiry using workshops and plant visits. Secure commitment to a specific project.

The Champion

An overlooked part of building consensus is maintaining momentum. The job of keeping everything together falls to the project champion. He or she is the one responsible for maintaining forward movement when things go slowly. The champion is the person that takes personal responsibility for the implementation. In essence, they play, "you bet your job" on the outcome of the project. Without someone taking responsibility for success, the implementation is destined for failure.

Change Management

The project should be structured in to involve as many people as possible, but no one should be on the project team unless he or she has a specific job to do. Everyone should have a specific task or responsibility or he or she is not on the team. That includes the President or GM. Communication to senior management takes place via the measurement reports, procedure approval and the steering committee meeting. Part of the implementation is to prepare for the project planning, tracking and reporting aspects of the implementation. While

² The Goal: A Process of Ongoing Improvement, 2nd Revised Edition, Goldratt & Cox, North River Press



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not affecting the procedures or processes being implemented, effective project management will have a dramatic impact on the success of the implementation.

A “Typical” Implementation

Your implementation will generally follow this pattern: procedure development, education (conceptual and technical), implementation, huge success, procedure re-development, re-education and re-implementation. Up until now, everything has been conceptual – who can argue with paper? But you are about to change the business. What can you expect? What will the implementation look like?

It’s difficult to give a specific answer to that question, since every organization is different. In general, the implementation goes like this:

- ◆ Enthusiastic changing of some policies
- ◆ Unbelievably positive improvement
- ◆ Less enthusiastic changing of more policies and procedures
- ◆ Positive improvement
- ◆ The constraint moves to an area not addressed by the initial implementation.
- ◆ Pretty good improvement
- ◆ Leveling off

The first stage of the implementation will be like housecleaning, with many constraints that you identify and then quickly break. Each time you break one your results will improve. This period lasts about 90 days. Eventually, you’ll find a constraint that will be difficult to break. Might be the market. Might be the product. Might be a \$2 million machine.

Then comes the hard work; implementing new policies and processes to exploit and subordinate will take longer than the quick hits you’ve become accustomed to. If you don’t plan for it, the implementation can become bogged down and stall. This phase may take 30 days; it might take 6 months. It’s in this phase the commitment you’ve gained in the prior steps will pay off. It’s not really that fun implementing a scheduling process and dealing with people that want to work on product early. You’ll also encounter “the back to Egypt crowd”³ here. They’re the ones who will insist that the business worked better before the constraint management concept came around. They’ll resist changing. Project deliverables will be missed. People will be “reassigned” because they won’t change. It will happen. That’s why we implement a measurement system first. If we don’t have any measurable results, it will be hard to fight these people.

Summary

The implementation process is a system to build and maintain consensus to change (a process of ongoing improvement). The technical aspects of the system are straightforward. Therefore,

³ The “back to Egypt crowd” refers to the Israelites that thought they were better off being slaves in Egypt than being killed at the Red Sea – just before the Red Sea parted.



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you must address the change management, system design, and project management aspects of the implementation in the process.

The most difficult obstacle to a sustained implementation is inertia. The implementation process has to move people from working *in* the business to actively working *on* the business. A process of ongoing improvement requires vigilance and a desire to move to the next level. There can never be a thing such as “good enough”. It’s criteria that you change your measurements and the following behaviors to ingrain the policies and processes into the way things are done in your business.

Organizations that desire to achieve ongoing improvement can and do achieve successful, sustainable implementations.

Want to know more?

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