

# THEORY OF CONSTRAINTS

## TOC in Brief for CXOs



**A Concise Resource Book On All Aspects Of  
Theory Of Constraints [TOC]**

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**THIS IS A SAMPLE BOOK EXTRACTED FROM “TOC In Brief for CXOs”.**

**The chapters are incomplete.**

**The purpose is only to give you a brief insight into the book.**

## Preface

Hey CXO,

I have great pleasure in presenting this book to you.

There are millions and millions of companies in the world, and each company has at least one CXO. The number of CXOs per company may vary from one to thousand plus.

And they have an unmet need!

What a huge market if one can meet that need.

### *The Unmet Need*

The Theory of Constraints is a management philosophy that helps businesses to improve their financial results. No doubt. However, despite its existence for about 40 years, many decision-makers are either unaware or have very little knowledge of it.

There is a lot of material available to learn TOC. However, if one wants to understand most aspects of TOC **briefly**, there is no such resource – at least not to my knowledge. So, how does one get a quick view of all the aspects of TOC? This seems to be an unmet need of CXOs at large.

This unmet need has two angles:

1. They need a brief, concise resource.
2. They need an exhaustive resource, i.e., that will cover all the aspects of TOC.

Generally, brief/concise, and exhaustive are considered to be mutually exclusive. You can either be concise or exhaustive, but you can't be both.

However, this is precisely the unmet need of the CXO community at large.

And I am happy to say that this book is specially designed to meet this need.

Let's see how.

The book is exhaustive in as much as it covers almost all the aspects of TOC. You name a topic and you will find it in the book. No topic is excluded. No topic is unduly shortened.

So, this makes the book **exhaustive** – all-inclusive.

As a CXO you can only spend a very limited time reading and understanding TOC.

Keeping this need in mind, I have tried to keep the matter at a level of abstraction.

It was not as easy as it may sound.

In some chapters, I felt that the matter is too abstract. So, I added the next level of detail there. In some other chapters, I found that I have written too much detail. So, I mercilessly curtailed those details. I even rewrote some chapters to fit the bill. I visited the chapters again and again and every time looked at them from both angles – Exhaustive and Concise. There was a lot of back and forth.

Making it exhaustive and concise! It was like a rope walk. It was not easy for me to keep the balance. After all, the dividing line between the level of abstraction and the level of detail is too thin.

Hopefully, I have succeeded in striking a balance between abstraction and detail in writing this book. No cutting corners, no too detailed description. No unnecessarily large chapters, no too short chapters. They are just adequate.

This book is intended to meet this unmet need of millions of CXOs for gaining quick, adequate, and good enough TOC knowledge.

This is the way I made the book **exhaustive and concise**. Finally!

### *What else?*

You will find “**Points to Ponder**” at several places in the book. These are very brief points that you may want to remember.

Also, I have **suggested** a few **actions** at various points. If you take those actions, it will certainly help you in fostering your understanding of TOC.

This book is useful for CXOs, no doubt. This book is also useful to all aspiring CXOs and every management professional in industry or service organizations.

If you are a decision-maker or not but if you need a fair insight into what TOC is about, then this book is for you.

### *There is one good thing and one bad thing about this book.*

Let me tell you the **bad thing** first.

The bad thing about this book is that it contains more than 250 pages, and I am afraid you may not have the time and patience to read it. (Also, it is not written in a story form,

so the emotions that flow in any story are missing. Also missing is the drama, music, suspense, and thrill...)

Now the **good thing** about the book!

*The good news is, you need not read the whole book!*

*Yes. I recommend reading up to the chapter “TOC Measurements/TOC Financials” (about 70 pages).*

*Then, look at the table of contents and choose to read any of the remaining chapters starting with “**Applying TOC to...**” depending on your interest. These chapters explain TOC’s solutions for Manufacturing, Distribution, Projects, etc.*

For example, if your interest is manufacturing, you need to read the chapter “Applying TOC to Manufacturing System (Focus and Flow)”. If you wish to know about Sales & Marketing, you can directly jump to those chapters. And so on.

Of course, you can read through all the chapters if your objective is to know how TOC is applied to various businesses.

**Don’t Miss...**

However, please do not miss the subsequent chapters. They contain a lot of TOC wisdom and you should not miss it.

**Warning**

Let me warn you. This book is not intended to tell you everything about the Theory of Constraints. I have only attempted to bring together almost all the aspects of TOC in one book with good enough brevity, clarity, and a fair amount of detail.

Please read this book slowly. The fastest way of learning is to go very slowly. Read only one chapter at a time. Think about it. Let the contents sink in. Only after that read the next chapter, again very slowly. Please reread chapters whenever you feel a little uncomfortable. Do not move ahead if you have not understood it clearly.

So, good luck and happy reading,

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## Brief Introduction

### Preamble

Theory of Constraints (TOC) is a **Management Philosophy** created by Dr. Eliyahu M. Goldratt. It is applied to running and improving organizations created for profit or for any other goal.

The Theory of Constraints gets its name from the fact that all organizations are constrained by something. If they weren't, they would grow infinitely! But that's not the reality and thus gets its name from the central role that constraints play in determining the achievement of what the organizations desire.

### Definition of Theory of Constraints

*Hey CXO,*

*If you are fond of definitions, here is the definition of TOC. You will really get the true sense of it only when you learn and use it.*

*Till then, it may sound like some complex statement.*

*Be patient!*

#### Definition

Theory of Constraints (TOC) is a set of holistic processes and rules, all based on a systems approach that brings out and utilizes the inherent simplicity within complex systems through focusing on the few "leverage points" as a way to synchronize the parts to achieve ongoing improvement in the performance of the system as a whole.

### The terms “Theory” and “Constraints”

#### What do we mean by “Theory”?

For a section of people, the term theory means something that is not practical, whereas what it really means is a set of principles tested over a period of time. It is exactly the opposite.

Some people confuse “Theory” with “Hypothesis”. “Hypothesis” is something that is required to be tested, whereas “Theory” is something that has been tested and proved over a period of time.

There is nothing more practical than a theory. A theory is a model, a representation of reality that will facilitate the prediction of effects based on cause analysis.

The Theory of Constraints (TOC) is an organizational change method developed by Dr. Eliyahu M. Goldratt in the 1980s. It is a management philosophy that views any system as being limited in achieving its goals by a very small number of constraints. It is based on the idea that there is always at least one constraint, and the only way to improve the system is to identify and manage it. The goal of TOC is to maximize the effectiveness of a system by eliminating or reducing the effects of the constraint.

For many, it is a new paradigm.

### What do we mean by “Constraint”?

*Hey CXO,*

*You know constraints very well. You face them every day. You have spent your life dealing with them. So, you may be wondering why defining them is even necessary.*

*Read through it, and you will know!*

Constraint is the factor that limits a company's ability to achieve more of its goal. It is the operation that is limiting the productivity of the system. The thing that we don't have enough of, to the extent that it limits the overall performance of the entire system, is the Constraint.

The Constraint is the weakest link in an organization. View the organization as a chain - a chain of related and dependent parts. Out of these parts, the weakest part limits the performance of the system.

The Constraint dictates the current level of performance. Either you manage constraints, or they manage you. Sometimes, they bring you on your knees.

### Types of Constraints

A Constraint may be in the form of Market, Resource, Material, Supplier, Financial, and Knowledge/Competence.



Here are the details:

- **Market:** The market is said to be the Constraint when you do not have enough demand for a product or service. It means you have more capacity than what the market is currently demanding from you.
- **Resource:** A resource or a type of resource is said to be the Constraint when you do not have enough of it - people, equipment, or facilities - to satisfy the demand for products or services. It means the market demand for your products or services is more than what you can really meet.
- **Material:** A material or a type of material is said to be the Constraint when you are unable to obtain required materials in the quantity or quality needed to satisfy the demand for products or services. It is an external material shortage.
- **Supplier/Vendor:** A supplier/vendor or a type of suppliers/vendors is said to be the Constraint when they are unreliable most of the time. The unreliability (inconsistency) of a supplier/vendor is in terms of timeliness, quality, and quantity, or excessive lead time in responding to orders. The ramification is that you are unable to meet the market demand. Therefore, they become the constraint.
- **Financial:** A financial constraint occurs when a company does not have the financial resources to meet its obligations – a cash flow problem. For example, a company that can't produce more until payment has been received for work previously completed because they might need that revenue to purchase materials for a firm order that's waiting.
- **Knowledge/Competence:** This is similar to Resource Constraint.
  - **Knowledge:** Information or knowledge to improve business performance is not available within the organization. A knowledge constraint occurs when the organization doesn't know how to do what needs to be done to succeed.
  - **Competence:** People don't have the skills (or skill levels) necessary to perform at higher levels required to remain competitive. A competence constraint occurs when an existing competence is used to its limit, and any improvement in that particular competence will result in more profit.

So, TOC is about managing your Constraints.

**Read the book for more information on constraints.**



## TOC as a solution

*Hey CXO,*

*You know that our today's problems arise out of yesterday's solutions! So better be careful while choosing any solution.*

*Is there a good solution to help businesses to bring about a Radical Business Performance Improvement that, once built, can be capitalized on and then sustained? Can we really have wave after wave after wave of Radical Business Performance Improvement?*

Is there such a good solution? Is TOC a solution? Yes and No!

Unless a problem is well-defined, no solution can exist. TOC provides tools and techniques to define problems correctly. TOC also provides solutions to certain well-defined problems.

Dr. Goldratt defined certain criteria for a solution to be called a "good solution".

A solution is good if:

- Results in excellent benefits,
- Win-Win-Win for all whose collaboration is needed,
- Risk (multiplied by damage) is small relative to the benefits,
- Simpler than what we do now,
- The sequence enables people to come on board – any cluster of actions brings immediate significant results,
- Does not self-destruct.

Probably, these criteria can be applied to any solution, be it technical, financial, procedural, logistical, or any other. Any solution that does not meet these criteria is not likely to be a good solution.

One of the most comprehensive studies on TOC was done by Professor Victoria Mabin and Steven Balderstone, based on an analysis of published case studies of TOC implementations. The findings of the research showed mean improvements as follows:

- **Lead Times: Mean Reduction 70%.**
- **Cycle Times: Mean Reductions 65%.**
- **Due Date-Performance: Mean Improvement 44%.**
- **Inventory Levels: Mean Reduction 49%.**
- **Revenue: Mean Increase 83%.**

- **Throughput: Mean Increase 65%.**
- **Profitability: Mean Increase 116%**

If you observe, TOC has paved the way for a quantum improvement, an order of magnitude indeed!

**Point to Ponder:**

- Every organization's performance is limited by its Constraint.

**CXO, take these actions please:**

- Try and identify the Constraint in your area of work. It is okay if you don't succeed now. In subsequent chapters, we will discuss how to identify the Constraint.
- Pick up any solution you recently implemented and apply the criteria suggested by Dr. Goldratt.

## The GOAL

What is the goal of your company?

**CXO, take this action please:**

- So, please close your eyes for a minute and think. After that, write down and complete this sentence, "The goal of my company is..."

Please do not read ahead unless you have written the complete sentence. You don't need to write a paragraph or a complex statement. Write a simple statement defining the goal of your company in one sentence.

Several top executives have been asked this question, and the typical answers are:

- To be the number one in the market (to have the largest market share).
- To provide better products/services.
- To provide high quality.
- To have the lowest cost
- To have the highest customer satisfaction.
- To survive.

What is your answer? Is it somewhat similar?

**Read the book to know more about the goal of your company. You may be surprised.**

## Managing the Weakest Link – The Chain Analogy

### Visualizing your company

*Hey CXO,*

*Just close your eyes and visualize your company.*

*You will see that your company is a network of several departments or functions – large or small. Further, you will notice that they are essentially interdependent.*

*Somebody in your company does Marketing.*

*Somebody brings in orders.*

*Somebody procures materials.*

*Somebody hires people.*

*Somebody produces the products.*

*Somebody delivers them.*

*Somebody keeps the books of accounts.*

*Somebody collects money from customers.*

*Somebody maintains plants, factories, offices...*

*Somebody does this; somebody does that; somebody..., Somebody..., Somebody...*

*There are several things done in your company – most of them in conjunction with others. As a result, your organization is like a **CHAIN**.*

### Where will you focus your improvement efforts?

Now, you want to improve your business. Where will you focus? Which department? Which function? How would you decide? Or will you want all of them to improve?

Will you focus on the biggest department in terms of the number of people?

Will you focus on the department that has the most expensive machines?

Will you focus on the department which can be easily improved?

Chances are you may want to improve the department in which you are highly experienced and knowledgeable.

The answer is that you should improve that department or function that is the weakest of all. Why? If your company is like a chain, the strength of the chain depends upon the strength of the weakest link. Isn't it? Then, is there any point in improving a link in a chain that is not the weakest? Will it contribute towards the overall goal? No way!

So, what is blocking you from getting more of your goal? What is coming in the way that is inhibiting more Net profit, ROI, and cash flow?

The answer is obvious.

It is the weakest link!

So, what this weakest link is about? How does it impact our goal?

**Read the book to know more about the weakest link.**

## Five Focusing Steps

*Hey CXO,*

*You may already know these Five Focusing Steps or have only heard of them. It is possible that you may not be aware of them.*

*Use this chapter to learn about them or to refresh or confirm your knowledge.*

*At the end of it, you will find them to be highly useful.*

**Five Focusing Steps are at the heart of TOC. They show us the way for moving towards the goal.**

They are:

**Step 1: Identify the System's Constraint**

**Step 2: Decide how to exploit the System's Constraint**

**Step 3: Subordinate everything else to the above decision**

**Step 4: (Evaluate various alternatives to) elevate the system's Constraint**

**Step 5: If in the previous steps, a Constraint has been broken, go back to Step 1 (Do not let the inertia to set in).**

**Read the book to understand the Five Focusing Steps.**

## TOC Defined in One Word

Before we look at the “One-word” definition, let’s look at two formal definitions of TOC:

Theory of Constraints (TOC) is a set of holistic processes and rules, all based on a systems approach that brings out and utilizes the inherent simplicity within complex systems through focusing on the few "leverage points" as a way to synchronize the parts to achieve ongoing improvement in the performance of the system as a whole.

TOCICO dictionary defines TOC as “A holistic management philosophy developed by Dr. Eliyahu M. Goldratt that is based on the principle that complex systems exhibit inherent simplicity, i.e., even a very complex system made up of thousands of people and pieces of equipment can have at any given time only a very, very small number of variables – perhaps only one (known as a constraint) – that actually limit the system's ability to generate more goal units”.

Some people ask to define TOC in one sentence using layman’s language. In that case, it would be “TOC is a process of putting more money in your pocket now and even more money in your pocket in the future”.

Then the next question follows, “How?” and the answer is, “By turning the weakest link into a leverage point for increased throughput by applying a rigorous "cause and effect" approach”.

Once Dr. Goldratt was asked to define **TOC in one word**, his response was, “\*\*\*\*\*”.

**Please read the book to know about the one-word definition of TOC by Dr. Goldratt.**

## TOC Measurements/TOC Financials

*Hey CXO,*

*Measurements are not new to you. In your organization, several things are measured, and complex metrics are derived and used for decision-making.*

*Sometimes, you might have wondered whether these measurements were really useful. You have had enough experience when your decisions based on this data backfired. If they are not found useful, typically, people blame the underlying data or the lateness of receiving them.*

*Many times, you are able to see some trends, but it is not uncommon to see a lot of randomness in trends.*

*Now, let's see what TOC measurements are. No, I am not proposing additional measurements on top of what you are already measuring. This is something new that you will be amazed by as you understand and use them. You will replace the existing measurements with these new ones.*

*So, here we go.*

Obviously, Net Profit and ROI are the most important measurements. But can you really calculate net profit for every decision you take? Obviously not.

Therefore, TOC provides a set of measurements that is a bridge between your decisions and net profits.

Here are the measurements:

THROUGHPUT	INVESTMENT	OPERATING EXPENSES
The rate at which the system generates money through sales	All the money the system invests in purchasing things the system intends to sell	All the money the system spends in turning inventory into throughput

**Read the book to know more about the definitions and how to use these measurements.**

Let's explore various judgments that Finance provides to organizations and see how these decisions are made:

1. **Judgment of the performance of the system as a whole** – Finance provides this judgment by way of annual/quarterly Balance Sheets, Profit & Loss a/c, Cash Statements, etc.
2. **Judgment on investment in equipment** - Finance calculates Return on Investment (ROI), compares the price of the equipment with the expected cost saving, and helps in decision-making on buying equipment.
3. **Make or Buy judgment** – Finance provides the judgment of Make or Buy by comparing the price with the internal production cost.

4. **Judgment of sub-systems** – Almost all systems are comprised of sub-systems, and Finance provides the judgment of these sub-systems by declaring them as profit-centers and by providing the profit & loss a/c of each profit center.
5. **Judgment of Product / Service viability** – Finance provides “Product Cost” for each product/service to enable making decisions.

Typically, the above-mentioned information is provided late and is not accurate. Therefore, organizations spend a huge amount of money on installing a computerized system with the hope of getting them early and accurately.

Dr. Goldratt believed that the major problem is not the timeliness or accuracy; the major problem is that these judgments are based on wrong measurements that lead to enormous distortions.

**Read the book to see what way TOC way of decision-making is different and effective. Traditional way could be disastrous.**

## Applying TOC to Manufacturing System (Focus and Flow)

### Symptoms

What are Manufacturing related problems typically addressed by TOC? Here are some of the symptoms:

- Poor Due Date Performance.
- Long Lead-times.
- Too high Inventories.
- Long Payback periods.
- Too many customer complaints.
- Bad human relationships.

### **CXO, take this action please:**

- **Look at the abovementioned symptoms and determine how true they are for your organization.**

If you suffer most of the symptoms mentioned above, TOC's solution DBR can be very useful. If, however, you are suffering only from some of the symptoms mentioned above and there are many other problems, you may have to use the “Thinking Process” tools explained in this book elsewhere.



## The Vicious Cycle

Every company has a strong desire to deliver their orders on time. For this purpose, we do most of the following:

- We release the material as early as possible.
- We improve utilization and efficiency everywhere.
- We take large batches to minimize Setups. For this purpose,
  - We pull future orders ahead and
  - We produce more for the sake of large batch size.
- We reduce Setup time everywhere.
- We reduce waste everywhere.

However, to our surprise,

- Our inventory – Raw Materials, WIP, and Finished Goods – keeps increasing.
- More and more cash gets tied up in inventory.
- Our lead time increases.
- Our orders start going late.
- Our quality becomes an issue.
  - There are increased rejections, rework and scrap.

What more do we do to finish our orders on time?

- We decide to work even harder
  - We release more and more materials.
  - We keep everyone busy.
  - We increase our batch size.
- We try to improve everything, everywhere, and everyone.
- We undertake cost reduction programs.
  - We identify and fire excess staff.
  - We sell off some excess capacity.
  - We outsource the parts that appear to be cheaper outside.
- To reduce the cost per unit, we keep our costly machines running all the time.
- We strive for high utilization and efficiency everywhere.

However, to our dismay, we find that

- Our lead time has increased further.
- More and more orders are going late.
- Inventory is going through the roof.
- We are wasting lots of time and money due to rework and scrap.

- Cash flow has become a threat now.
- There are more customer complaints.
- Our profitability is at rock bottom.
- We had to lay off some trained people.

As a result, we start losing orders and customers to our competition. And then, unknowingly, our situation starts improving on its own.

How? Please read on.

- As a result of fewer orders, our workload goes down.
- Due to a lower workload, things start moving faster than before.
- So, our on-time deliveries start improving.
- As a result, we start getting more orders again.
- And then, as per our existing practice, we start releasing more and more materials to the shopfloor once again!

### **And the Vicious Cycle – the negative loop – continues.**

The vicious cycle explained above may or may not exactly match with what is happening in your company, but surely, a similar negative loop is happening in your organization too. You need to identify it and then look at the solution explained below.

### **CXO, take these actions please:**

- **Write the bullet points above and mention against each one whether the statements are valid for your organization.**
- **Identify the Vicious Cycle in your department and organization.**

## **Reversing the Vicious Cycle**

This vicious cycle is not an act of God, and we can certainly reverse it.

If we want to reverse the vicious cycle, we need to

1. Stop doing a few things that we have been doing and
2. Start doing a few things that are exactly opposite of what we are doing now - things that are counter-intuitive.

So, what is the solution? What are the things that we need to do to reverse the vicious cycle?

**Read the book for the details of the solution.**

## Applying TOC to Distribution System (Pool & Pull)

*Hey CXO,*

*TOC's solution for Distribution is quite counter-intuitive. If you believe you need to keep more inventory closer to the customers, be ready for a surprise!*

*If you need to keep a lot of inventory in the system to meet customer demand, you are in for a pleasant surprise.*

Typically, you will have the following Undesirable Effects (UDEs), and TOC's solution can help resolve them:

- There is a shortage of fast-moving products.
- Slow-moving products are piling up.
- There is a high level of Inventory everywhere.
- Lots of cash is tied up in Inventory.
- Customers are dissatisfied with product availability.
- There are many emergency orders.
- Not enough space is available for the display and storage of products.
- Product variety cannot be increased easily.
- Many slow-moving products have to be disposed of at a reduced price or scrapped.
- There is a lot of wastage due to product expiry or obsolescence.
- Lots of products have to be scrapped or sold at reduced prices when new models are introduced.

### A Simple example to Explain TOC Replenishment System

Look at what happens every day with a soft drink vending machine. Typically, it is replenished every day or even twice a day. The person who replaces the products has clear visibility of the vending machine. He can easily figure out how many bottles of soft drinks, water, etc., have been consumed. He replenishes precisely what is consumed – nothing more, nothing less. The vendor is holding his inventory at the next higher level, i.e., the vehicle - the truck, which makes it easy to distribute his product to various vending machines.

After completing his rounds for the day at each vending machine, the truck driver returns to the Warehouse and replenishes his truck for the next day. And the Warehouse is replenished by the Factory. Typically, they replenish what has been sold. The overall inventory is held to the minimum value, thus tying up much less cash.

This is precisely what the TOC Distribution solution is about. Now, let's look at it in detail.

The solution details have the following components:

- **Structure and functioning of the Distribution network.**
- **Dealing with Forecast.**
- **Determine Target Level inventory for each product.**
- **Minimizing Replenishment Time.**
- **Buffer Zones.**
- **Buffer Management.**

### **New Mantras**

Let us clearly understand what we need to do differently:

- **If you want to service your customers better, keep the inventory away from them.**
- **Replenish what is sold.**
- **Order daily, and replenish frequently.**
- **React to the signals from the Buffer Management System.**
- **Thrive on aggregation in the world of variation.**
- **Pull, don't push.**

In short, it is **"POOL AND PULL"**.

### **Expected results**

- **Inventory in the system decreases by about 50%.**
- **Sales go up by about 20%-30%.**
- **Inventory Turns increase – more than double.**
- **Fewer cross-shipments amongst RDCs.**
- **Obsolescence drops substantially.**
- **Operating Expenses stay about the same.**
- **Relationship with suppliers and clients improves significantly.**

**Read the book for the details of the solution.**

## Applying TOC to Projects (Thrive on Aggregation)

*Hey CXO,*

*What are your expectations from your Projects Organization?*

*Simple. You expect them to deliver projects on time, within budget, and with full scope.*

*So, are they able to keep up with your expectations? If not, this chapter is for you.*

*Vast experience tells us that keeping all three expectations is not easy. Dr. Goldratt said that most compromises to budget and scope stem from the pressure to meet the promised due date.*

*Therefore, if we develop a proper mechanism to deliver projects on or before time, we are likely to meet the other two expectations.*

*Let's see how.*

There are some assumptions related to estimates, project planning, and project execution. Let's have a look at them.

### Assumption related to Estimates:

1. Estimate
  - a. An estimate is not a commitment.
  - b. An estimate is a range of possibilities.
  - c. There is nothing like an "Accurate Estimate"!
2. The estimates regarding project and **task durations are probabilistic** and not deterministic. There is no way to calculate them accurately. An estimate is the best guess of the expected time to completion based on experience and certain assumptions. They are not sacrosanct.

### Assumptions related to Project Planning

3. **No. of tasks in a project:** To get excellent control, it is necessary to keep the number of tasks in the Project Plan Network to less than 300 (for huge projects zooming might be needed). Too many tasks in a project plan make it redundant very quickly. No matter how detailed the plan is, it does not make the uncertainty certain.
4. Task duration estimates are treated as commitments. This causes people to **pad their estimates** so that they can keep these estimates. The devastating impact of this "solution" is that people end up adding **about 50% of the time as safety** during the project planning process.

5. **Releasing projects too early:** If projects are released based on the Constraint's capacity (and not when they are won), most projects can be delivered on time. If there are several elephants in a room and your job is to take them out as early as possible, not only the first elephant but also the last elephant will go through a door much faster if they go in procession.
6. **Keeping people busy:** Releasing projects to keep some people busy is counter-productive.

### Assumptions related to human behavior

7. Human beings **suffer from Student's Syndrome**. There is a natural human tendency to procrastinate (and we need to protect our projects from this tendency).
8. **Multitasking is a time-wasting behavior**. Typically, in a multi-project environment, bad multitasking is prolific.
9. Projects inherently **suffer from Murphy's Law**: "If anything can go wrong, it will".
10. There is a tendency among people to fully use the available time rather than finish their task at hand early and move on to the next task. This tendency is called "**Parkinson's Law**".

### Assumptions related to Project Execution

11. Adding **safety** at the task level usually **gets wasted** during execution for reasons like Student Syndrome, Multitasking, Murphy's Law, Parkinson's Law, etc.
12. There is a high degree of **uncertainty and variability** in task execution.
13. The variability in task duration, along with resource dependency, has a cascading effect on overall project duration.
14. Overloading resources with tasks slow down the work.
15. There is a tendency to start on as many tasks as possible. We need some rules in place for deciding which tasks to start and when.
16. The **law of aggregation works**; variations in task execution time average out when we aggregate the safety/buffer/padding at certain strategic points in project plans.
17. The rules for a multi-project environment are vastly different from those for a Single-project environment.
18. **"Percentage complete" cannot give a fair estimate of the remaining duration** for the task (90% work of a project is finished in one year, and the remaining 10% work takes another year!)
19. A single priority system is needed to ensure the smooth completion of projects.
20. There is a tendency to **assign resources "equitably"** among the projects, whereas what is needed is to assign the maximum number of effective resources to tasks.

### Points to Ponder

- **Stop** treating estimates as commitments. Never compare the task estimates with the actuals.
- **Stop** using CPM for project planning. Instead, **start** using the CCPM method, i.e., creating your plans considering the Task Dependencies and Resource Dependencies.
- **Stop** creating a too-detailed project plan. Instead, **start** building plans with a limited number of tasks that enable proper control.
- **Stop** 'early starts' on every path. Instead, **start** ensuring the 'early start' for the Critical Chain and 'late start' on all other paths as suggested by the software.
- **Stop** Bad Multitasking. **Start** and encourage focusing on single-tasking.
- **Stop** falling prey to timewasters like Student's Syndrome, Parkinson's Law, etc.; instead, **start** focusing.
- **Stop** allocating resources in an ad hoc manner. Instead, **Start** allocating the maximum number of resources to tasks.
- **Stop** releasing projects for execution as and when they are won. Instead, **start** using the Staggering Mechanism to determine project start dates.
- **Start** a single priority system based on Critical Chain completion and Buffer Consumption.
- **Start** looking at the early warnings given by Buffer Colors and choose your actions.
- **Stop** wasting buffers. Instead, **start** managing them.
- **Start** reviewing the projects by following TOC/CCPM culture. **Stop** digging into the past unnecessarily. Create an atmosphere where people ask for help when they get stuck, and seniors offer help when they suspect their help is necessary to take a project forward.

**Read the book for the details of the solution.**

## Applying TOC to Marketing (Manage Perceptions)

**“Marketing is spreading the corn for the ducks to come and sit. Sales is taking a gun and shooting a sitting duck. If the duck is not sitting and moving like a mosquito, don't blame the salesperson; blame the fact that you don't have marketing.”** – Dr. Eliyahu M. Goldratt.

In other words, Marketing is about bringing the market to desire your product or service. When you are at the marketing stage, you don't see individual prospects; you see at least a section of the market.

The Sales function is choosing the prospect and closing the deal. If you think shooting a sitting duck is easy, try doing it. But remember, if you miss the shot and the bullet goes near its ear, the duck will fly away.



Good marketing is having a lot of sitting ducks with glue on their feet.

To continue with Dr. Eli Goldratt's interesting analogy:

**"If selling were the same as shooting sitting ducks while they ate corn by the side of a lake, then advertising would be the same as spreading corn for the ducks to see and come ashore to eat.**

**Marketing would be figuring out that ducks ate corn in the first place."**

Marketing is about generating demand, i.e., constructing a value proposition to large enough markets and creating mass awareness.

The sales function is about converting the demand into money, i.e., directly dealing with specific prospects.

When you have a product or service, there are two different perceptions of the value of the same product or service.

One is the perception of the value of the supplier, which is based on the efforts that have gone into providing this product or service. The more effort, the more money, and the more time that you took to provide this product or service, the more you think it is valuable.

This is called "**Supplier's perception of value**", which is according to the investment that is made to bring the product or service to the market.

However, there is another perception of value for the same exact product or service. This is called "**Market's perception of value**". It has nothing to do with your costs or efforts to bring the product to the market. Instead, it is solely according to how much benefit the product or service will bring to the clients. It has everything to do with satisfying the client's needs but nothing to do with your efforts.

**Read the book for the details.**

## Summary of TOC Principles

*Hey CXO,*

*Here is the summary of various TOC principles and the actions needed.*

*Why is this chapter needed?*

*It is a reminder list. It is a means to check to what extent you are aligned with TOC principles.*

*If you are not in agreement with any of those principles or actions, it is an indication that you need to learn more.*

- **Aggregation Principle**
  - Inventory and resources are best held centrally because that is where consumption varies the least.
  - If you have shared resources, it is necessary to hold them and schedule them centrally to derive the maximum benefit from them.
- **Buffer Principle**
  - Strategically placed units or time Buffers minimize the spread of disruptions and the damage they may cause across an entire system.
- **Capacity Principle**
  - An unbalanced capacity is more productive because the Constraint can be used to manage the entire system.
  - When you see actions to balance capacity, do not think it is good; it is bad.
  - You need a protective capacity for non-constraints.
- **Chain Principle**
  - A system can only produce as much as its weakest link - the Constraint - will allow.
- **Conflict Principle**
  - Win-win solutions are not only possible, but they are also the best way to prevent conflict from recurring.
- **Decision-making Principle**
  - The effect of a proposed change can be assessed by using measurements like Throughput, Investments, Operating Expenses, and Cash Flow.
- **Demand Principle**

- Forecasts are usually wrong, but reacting to actual demand is usually right.
- **Flow Principle**
  - Managing the Constraint manages the flow of an entire system.
- **Focus Principle**
  - An entire system can be managed by focusing on the Constraint.
- **Multitasking Principle**
  - Trying to concentrate on more than one task at once decreases performance on all of those tasks.
- **Optimization Principle**
  - Local optimizations do not add up to global optimization.
  - In order to optimize a system, we must sub-optimize its parts.
- **PULL Principle**
  - Rather than pushing work through a system, setting up procedures that pull work increases the total amount of work done.
- **Relay Race Principle**
  - As it happens in a Relay Race, the tasks should be picked up by the next resources as soon as the previous resources complete the work on those tasks.
- **Replenishment Principle**
  - Replenishing what is sold from a central location leads to fewer shortages and surpluses than pushing inventory to retail locations.
- **Time Principle**
  - Time lost on the Constraint is time lost on the entire system.

## TOC Causes Paradigm Shift

### What is the meaning of paradigms?

We use a frame of reference to “see” the world and make decisions. Paradigms let through data that match our “expectations” and block data that doesn’t. What may be impossible with one paradigm may be easy to do with another.

Paradigms are sets of concepts, beliefs, patterns, or assumptions which form the basis of all decisions. It is the way we look at things.

In TOC, we define “Paradigms” simply as **sets of assumptions** we believe are valid. We go through a ‘paradigm shift’ when we realize one or more of our assumptions are no longer valid.

TOC causes a major paradigm shift.

*Hey CXO,*

*Are you aware of paradigms?*

*Would you like to check your paradigms, challenge them and get new paradigms?*

*Here is an opportunity to check your paradigms, challenge them and ingest new ones.*

*Look at every paradigm listed below. Think about it. Determine whether it is or it is not your paradigm. And then, check with the TOC paradigm and think about it.*

*Maintain your score for:*

- The traditional paradigms you agree with.*
- The TOC paradigms that you agree with.*
- Paradigms about which you are not sure.*

Here we go.

**Traditional Paradigm:** There are several constraints in an organization.

**TOC Paradigm:** There are very few constraints in an organization, only one in most cases.

**Traditional Paradigm:** Everyone should have enough work on their desks to keep them busy.

**TOC Paradigm:** Some people will always be idle from time to time.

A company in which everyone is working all the time is very inefficient – Dr. Eli Goldratt

**Traditional Paradigm:** An hour lost is a loss for the system, and an hour saved is a gain for the system.

**TOC Paradigm:** An hour lost at a constraint is an hour lost for the system. An hour saved at a non-constraint is just a mirage.

**Traditional Paradigm:** We need to improve everything, everywhere, and everyone!

A system is as strong as its strongest link.

**TOC Paradigm:** We don’t need to improve everything, everywhere, and everyone! It is counter-productive.

A system is only as strong as its weakest link. Improving other links will not help to improve the bottom line.

**Traditional Paradigm:** In order to optimize a system, you must optimize its sub-systems!

**TOC Paradigm:** In order to optimize a system, you must **sub-optimize** the parts!

**Traditional Paradigm:** Local improvements are important; give numerical targets to people for local improvements.

**TOC Paradigm:** If you give folks a numerical target, they'll make it, even if they have to destroy the company in the process.

**Traditional Paradigm:** We need more and more information for decision-making. More, the merrier.

**TOC Paradigm:** A wealth of information creates a poverty of attention - Herbert Simon

**Traditional Paradigm:** The scale of importance – Reduce cost, Reduce Inventory and then Increase Throughput.

**TOC Paradigm:** The scale of importance – Increase Throughput, Reduce Inventory, and then Reduce cost. Things that matter most should never be at the mercy of the things that matter least. – Johann Wolfgang Van Goethe

**Traditional Paradigm:** Companies may close down if they report a loss.

**TOC Paradigm:** Companies do not necessarily close down because they report losses! They close down when they run out of cash.

**Traditional Paradigm:** You will incur a loss if you sell your products below your Product Cost.

**TOC Paradigm:** You can make more money by selling your products below your Product cost!

**Read the book to know more.**

## Thinking Process Tools

*Hey CXO,*

*In our organization, we are well aware of several problems, and we also know the solutions intuitively. However, we don't verbalize our intuition, perhaps for want of a suitable tool or a way to express ourselves. And "when we don't verbalize our intuition", as Dr. Goldratt said, "we ourselves will do the opposite of what we believe in".*

*We need a way to verbalize our intuition, check the connection among the problems we face, identify other causes that trigger our problems, and present the problems and our solution in such a way that people accept it wholeheartedly.*

*TOC's Thinking Process Tools help us precisely to do that.*

The Thinking Process tools offer us the means to create truly powerful solutions, so powerful that when most people hear of them, they immediately declare, "It's common sense!"

What do Thinking Processes do? Here is a summary:

#### Thinking Process

- Enables us to drill down our intuition.
- Helps us to verbalize the Cause-and-Effect Relationship.
- Allows us to capture non-obvious leverage points.
- Allows us to interrogate the situation in a systematic and logically rigorous way.
- Allows us to analyze, synthesize, communicate the situation, and generate organizational knowledge.
- Enables obtaining an implementable solution.
- Helps us in Problem-solving and Change Management system.

There are five tools in the set. They are:

1. The Current Reality Tree (CRT),
2. The Evaporating Cloud,
3. The Future Reality Tree (FRT),
4. The Prerequisite Tree (PRT) and
5. The Transition Tree (TrT).

With these, a trained person can identify an organization's core problem, the root cause for most of the organization's headaches. (**What to change**).

He/she can identify one or more powerful solutions to eliminate the core problem (**What to change it into**).

And he/she can construct detailed, step-by-step transition plans that literally cause the desired change (**how to make the change happen**).

Together, they are called the Thinking Process tools. They help you create such crystal-clear logic that the solutions end up looking like little more than common sense. But when was common sense ever common, really?

**Read the book to know more about Thinking Process.**

## TOC Process for Buy-in

*Hey CXO,*

*Can you remember a time when you came up with an idea to make a change, and it was so great that you could not contain your excitement? It was so incredible that you could not wait to tell other people about your idea. Not only were you feeling fully engaged, but you were also brilliant! You started telling others your fabulous idea with genuine enthusiasm, thinking how obviously the idea solves a particular problem that has been haunting you (as well as the rest of the organization).*

*Then, before you even realize it, everyone is shooting holes in your idea. What? Why aren't they getting this? How can they not understand? Do they have ulterior motives?*

*Naturally, you start to defend your idea but become more and more agitated. The experience leaves you deflated, angry and exhausted.*

*You know that change is the only constant; despite the world's hate for change, they resist it. Why?*

*Does this sound familiar?*

*If yes, you have tested the resistance for a change! This experience is not uncommon.*

***Read the book to understand the Buy-in process.***



## Knowledge Resources Published by Rajeev Athavale

The following resources have been published:

### 1. eBooks consisting

#### 1.1. TOC Learners Guide

- 1.1.1. Theory of Constraints (TOC) Basic Concepts and Decision Making
- 1.1.2. Theory of Constraints (TOC) Application for Manufacturing
- 1.1.3. Theory of Constraints (TOC) Application for Projects
- 1.1.4. Theory of Constraints (TOC) Application for Distribution

#### 1.2. Echoes of TOC

- 1.2.1. Echoes of TOC Volume 1
- 1.2.2. Echoes of TOC Volume 2

#### 1.3. TOC Do It Yourself Kit

- 1.3.1. Theory of Constraints – Do It Yourself Kit for Small & Medium size Enterprises for Manufacturing.
- 1.3.2. Theory of Constraints – Do It Yourself Kit for Small & Medium size Enterprises for Distribution.
- 1.3.3. Theory of Constraints – Do It Yourself Kit for Small & Medium size Enterprises for Projects.

All these eBooks are available here: <https://leanpub.com/u/rajeevathavale>

### 2. Learn on the Net (Video series) [www.learntoc.thinkific.com](http://www.learntoc.thinkific.com)

- 2.1. The core of the Theory of Constraints
- 2.2. Throughput Accounting, aka TOC for Finance & Measurements
- 2.3. The core of TOC for Projects (CCPM)

### 3. YouTube Channel for TOC-related videos: <https://tinyurl.com/TOC-with-Rajeev>

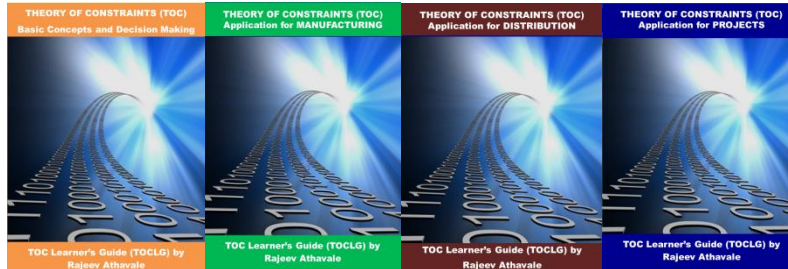
- 3.1. Resolving Conflicts  
[https://www.youtube.com/playlist?list=PLy2mSKrjLhSyT7dSpNhoSM\\_j7En-EVUli](https://www.youtube.com/playlist?list=PLy2mSKrjLhSyT7dSpNhoSM_j7En-EVUli)
- 3.2. Unrefusable Offer  
[https://www.youtube.com/watch?v=esjZrjGNTvg&list=PLy2mSKrjLhSxFc\\_UiLV7AzteTF\\_S4sYxS3](https://www.youtube.com/watch?v=esjZrjGNTvg&list=PLy2mSKrjLhSxFc_UiLV7AzteTF_S4sYxS3)
- 3.3. Full Kit  
[https://www.youtube.com/watch?v=\\_GyzHqX9cBc&list=PLy2mSKrjLhSww9REzS3Mrz\\_UobARho6jck](https://www.youtube.com/watch?v=_GyzHqX9cBc&list=PLy2mSKrjLhSww9REzS3Mrz_UobARho6jck)
- 3.4. Buffers in TOC Applications  
<https://youtube.com/playlist?list=PLy2mSKrjLhSxpl9UZImQfvXKlrGgPeLFd>
- 3.5. Constraint [https://youtube.com/playlist?list=PLy2mSKrjLhSybKx\\_fAw8eVsyIThlQpYdO](https://youtube.com/playlist?list=PLy2mSKrjLhSybKx_fAw8eVsyIThlQpYdO)
- 3.6. Videos You May Want to Watch  
<https://youtube.com/playlist?list=PLy2mSKrjLhSyYcPI6LVc9hruCuk963k0f>

### 4. Online TOC Examinations

- 4.1. TOC Basics url <https://leanpub.com/c/tocbasics>
- 4.2. Throughput Accounting url <https://leanpub.com/c/tocta>
- 4.3. TOC Manufacturing url <https://leanpub.com/c/tocmfq>
- 4.4. TOC Projects (CCPM) url <https://leanpub.com/c/tocprojects>
- 4.5. TOC Distribution url <https://leanpub.com/courses/leanpub/tocdistributionon>

## eBooks

### Learner's Guides (TOCLG)



1. **Theory of Constraints (TOC) Basic Concepts and Decision Making:** This eBook explains the basic concepts of the Theory of Constraints (TOC).

The eBook discusses in detail the Five Focusing Steps. It defines the basic measurements prescribed by TOC and shows how to use them for decision-making.

2. **Theory of Constraints (TOC) Application for Manufacturing:** This eBook discusses the problems faced by manufacturing industries and shows the causes that are responsible for these problems.

It explains, in detail, TOC's application for Manufacturing, i.e., Drum-Buffer-Rope (DBR) and Simplified-Drum-Buffer-Rope.

3. **Theory of Constraints (TOC) Application for Projects:** This eBook discusses the problems faced by Projects organizations and shows the causes that are responsible for these problems.

It explains in detail TOC's application for Project Management, i.e., Critical Chain Project Management (CCPM).

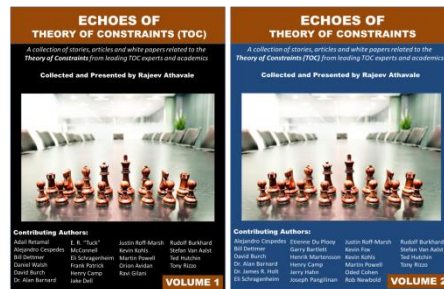
4. **Theory of Constraints (TOC) Application for Distribution:** This eBook discusses the problems faced by Distribution systems in most companies and shows the causes of these problems.

It explains in detail TOC's application for Distribution systems.

These eBooks contain several Figures, Tables, Diagrams, Pictures, Charts, Graphs, Examples, Quotes, Exercises, and Games as appropriate. At the end of many chapters, a summary is provided under the heading "Points to Ponder".

Each of these eBooks has about 25 Multiple Choice Self-assessment questions. They help you to assess yourself the knowledge gained by you by reading this eBook. This eBooks series is an excellent guide for those who want to learn TOC and its applications.

## Article Repository (eTOC)



1. Echoes of TOC Vol. 1
2. Echoes of TOC Vol. 2

Rajeev Athavale has published a collection of articles authored by respected and well-known TOC Experts from all over the world.

The authors' list (in alphabetical order) is as follows:

Adail Retamal, Alejandro Cespedes, Bill Dettmer, Daniel Walsh, David Burch, Dr. Alan Barnard, Dr. James R. Holt, E. R. "Tuck" McConnell, Eli Schragenheim, Etienne Du Plooy, Frank Patrick, Gary Bartlett, Henrik Martensson, Henry Camp, Jake Dell, Jerry Hahn, Joseph Pangilinan, Justin Roff-Marsh, Kevin Fox, Kevin Kohls, Martin Powell, Oded Cohen, Orion Avidan, Ravi Gilani, Robert Newbold, Rudolf Burkhard, Stefan Van Aalst, Ted Hutchin, and Tony Rizzo.

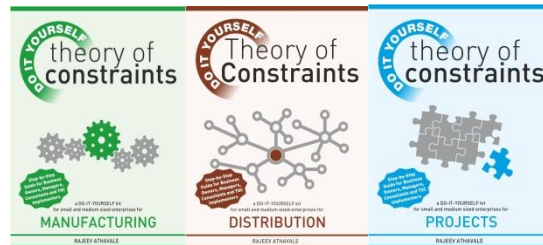
These articles have been divided into two volumes, each containing 40 articles.

We've all found seams and traces of TOC gold scattered all over the web – echoes and extensions of the magnificently simple and profound concept so well-articulated and conveyed by Eli Goldratt.

"Echoes of TOC" gathers some of the best of these echoes together into a single easily accessible resource that you can refer to when you want to be reminded of an insight or to browse to refresh and extend your mastery occasionally. It will also help to grow your clients' insights into TOC, making it easier for you to help them capitalize on those insights even further.

It's ideal for the TOC enthusiast, whether new to TOC or an expert in TOC practice.

## TOC Applications: Implementation Guidance (TOCDIY)



Rajeev Athavale has written three eBooks to help easily implement TOC applications for Manufacturing, Distribution, and Projects. They are small eBooks and give a very systematic path for implementing TOC.

If you are a business owner or a consultant, or a manager in a manufacturing business and you have problems delivering orders on time, your lead time is increasing over a period of time, and you have high inventory on the shop floor, the eBook for Manufacturing can certainly help you.

If you are a business owner or a consultant, or a manager in a Distribution business, and you have frequent shortages and surpluses and are carrying high inventory, the eBook for Distribution can certainly help you.

If you are a business owner or a consultant, or a manager engaged in Projects, and you are struggling to deliver the projects on time, within budget, and with full scope, and your project lead time is increasing over a period of time, the eBook for Projects can certainly help you.

If you are a consultant or an implementer implementing one or more of these applications, these eBooks will serve as a handy guide or checklist for the steps to be followed.

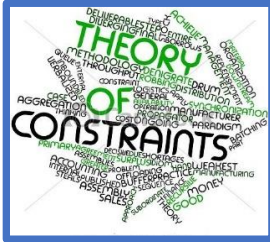
These eBooks are meant for Business Owners, Managers, Consultants, and Implementers. These eBooks are Instruction Manuals for the three business applications and provide step-by-step guidance for implementing TOC applications.

1. **Theory of Constraints – Do It Yourself Kit for Small & Medium size Enterprises for Manufacturing.**
2. **Theory of Constraints – Do It Yourself Kit for Small & Medium size Enterprises for Distribution.**
3. **Theory of Constraints – Do It Yourself Kit for Small & Medium size Enterprises for Projects.**

All these eBooks are available at: <https://leanpub.com/u/rajeevathavale>

Some of these eBooks have been translated into the following languages:

**French – Joel-Henry Grossard, German – Juergen Kanz, Italian – Carlo Buora, Spanish – Alejandro Fernandez, Portuguese – Luis Cristovao, and Catlan – Mario Calvet.**



**Core of Theory  
of Constraints**



**Throughput Accounting  
aka Core of TOC for  
Finance & Measurements**



**Core of TOC  
for Projects**

The salient features are:

- There is no “Batch” and no fixed time; it is **flexi-time**. Learn at your pace. You don’t need to be logged on at a specific date and time. You access the course whenever you have time.
- Can one revisit the lessons? : Yes. **Revisit** the lessons whenever you need them or until you fully understand them.
- Want to read what was said? : Read the **PDF** version of the manuscript.
- Any time limit for completing the course? Does the enrollment expire? : There is **no expiry** for enrollment. It will be available as long as it is there on the website.
- Are there any extracts for **free viewing**? : Yes, look at “Free Material for Viewing”. There are 16 lessons for free viewing.
- Where: [www.learntoc.thinkific.com](http://www.learntoc.thinkific.com)

## YouTube Channel for TOC-related videos:

<https://tinyurl.com/TOC-with-Rajeev>

1. Resolving Conflicts

[https://www.youtube.com/playlist?list=PLy2mSKrjLhSyT7dSpNhoSM\\_i7En-EVUli](https://www.youtube.com/playlist?list=PLy2mSKrjLhSyT7dSpNhoSM_i7En-EVUli)

2. Unrefusable Offer

[https://www.youtube.com/watch?v=esjZrjGNTvg&list=PLy2mSKrjLhSxFc\\_UiLV7AzteTFS4sYxS3](https://www.youtube.com/watch?v=esjZrjGNTvg&list=PLy2mSKrjLhSxFc_UiLV7AzteTFS4sYxS3)

3. Full Kit

[https://www.youtube.com/watch?v=\\_GyzHqX9cBc&list=PLy2mSKrjLhSww9REzS3MrzUobARh\\_o6jck](https://www.youtube.com/watch?v=_GyzHqX9cBc&list=PLy2mSKrjLhSww9REzS3MrzUobARh_o6jck)

4. Buffers in TOC Applications

<https://youtube.com/playlist?list=PLy2mSKrjLhSxpI9UZImQfvXKlrGgPeLFd>

5. Constraint [https://youtube.com/playlist?list=PLy2mSKrjLhSybKx\\_fAw8eVsyIThlQpYdO](https://youtube.com/playlist?list=PLy2mSKrjLhSybKx_fAw8eVsyIThlQpYdO)

6. Videos You May Want to Watch

<https://youtube.com/playlist?list=PLy2mSKrjLhSyYcPI6LVc9hruCuk963k0f>

## Online TOC Examinations



1. TOC Basics url <https://leanpub.com/c/tocbasics>
2. Throughput Accounting url <https://leanpub.com/c/tocta>
3. TOC Manufacturing url <https://leanpub.com/c/tocmfg>
4. TOC Projects (CCPM) url <https://leanpub.com/c/tocprojects>
5. TOC Distribution url <https://leanpub.com/courses/leanpub/tocdistributionon>

Here are the salient features:

1. There are five different exams focused on different TOC topics.
2. They are online exams; no paper & pencil is required.
3. One can appear for the exams from any location; no traveling is needed.
4. No fixed schedule for the exams; one can appear for the exams at any time.
5. Each exam has 100 multiple Choice Questions. It takes about an hour to complete.
6. No descriptive answers are required.
7. At the end of each exam, it shows the correct answers for errors and omissions.
8. It issues a certificate with grades on successful completion.



## TOC-related Quotes

Over the years, I have gathered and published on LinkedIn about 350 TOC-related quotes.

These quotes are not only from the teachings of Dr. Goldratt but also from the work of other management Gurus like Peter Drucker, Albert Einstein, Stephen Covey, Deming, Taiichi Ohno, Steve Jobs, and many others. I have picked up those quotes from these thought leaders that go well with TOC thinking, and one can easily relate them to some TOC principles.

Do you wish to visit any of the 350 TOC Bytes I posted on LinkedIn? But you can't go through all of them in one go, perhaps. You would instead want to go through them in small chunks.

Right?

If so, here is a way.

How about viewing 25 of them at a time? It may take 10-12 minutes to view 25 bytes.

I give below the links of the posts at an interval of 25 TOC Bytes so that it would be easy for you to keep going to previous posts in short time breaks.

Link for TOC Byte no. 350: <https://lnkd.in/gAsqhGku>

Link for TOC Byte no. 325: <https://lnkd.in/gcM5pVNa>

Link for TOC Byte no. 300: [https://lnkd.in/gr\\_DgdKa](https://lnkd.in/gr_DgdKa)

Link for TOC Byte no. 275: <https://lnkd.in/eDYnazYS>

Link for TOC Byte no. 250: <https://lnkd.in/ehydpUF8>

Link for TOC Byte no. 225: <https://lnkd.in/drPuNPZ>

Link for TOC Byte no. 200: <https://lnkd.in/gYTvZGfu>

Link for TOC Byte no. 175: <https://lnkd.in/g4n76TuH>

Link for TOC Byte no. 150: <https://lnkd.in/dUF-3Vq>

Link for TOC Byte no. 125: <https://lnkd.in/dk5Fqkf>

Link for TOC Byte no. 100: <https://lnkd.in/d8UaujE>

Link for TOC Byte no. 75: <https://lnkd.in/dyUiKZ3>

Link for TOC Byte no. 50: <https://lnkd.in/dsja2Hj>

Link for TOC Byte no. 25: <https://lnkd.in/dtBbhAt>