

# SupplyChainDigest™

## DR. ELI GOLDRATT UNPLUGGED – PART 2

This is part 2 of SCDigest editor Dan Gilmore's interview with Dr. Eli Goldratt, father of the Theory of Constraints, and author of "The Goal" and several other influential books on business and supply chain topics. "The Goal," first published in 1984, is a novel that tells the tale of plant manager Alex Rogo, whose factory is a disaster and on the verge of being shut. With the help of a Goldratt-like consultant named Jonah, he turns things around by focusing on eliminating a series of bottlenecks (constraints) that are barriers to efficiency and service.

[You may also enjoy Part 1 of the Goldratt interview.](#)

**Gilmore:** You've said "inertia" is a big problem in many companies. What do you mean?

**Goldratt:** Inertia is related to the patterns of how a company does business or executes a function like supply chain. But when there is a paradigm shift, or the need for significant change, these patterns are what kill you.

So you have to go back and re-examine the basic assumptions. The tough question is: How do you know what assumptions you have to re-examine when you are facing an intolerable compromise?

But most companies just accept the compromise, rather than realizing they just got the gift that can point to us the wrong assumptions and the wrong patterns. Instead of working to find the correct pattern that will remove the conflict, and by that generating a win-win solution, we still compromise. That's a huge mistake.

So, we have things that are good in the normal course of things, patterns and inertia, in the case of paradigm shift, is killing us.

**Gilmore:** It seems to me that the Theory of Constraints has some strong parallels to concepts like Lean and Six Sigma. Right or wrong?

**Goldratt:** Let's put it this way. In almost every implementation of the Theory of Constraints, we also force in the concepts of Lean and Six Sigma. The techniques themselves are beautiful. What is lacking is the mechanism to use them. In other words, Lean and Six Sigma will never force you to examine the policies of top management.

And that's why they have a limited effect. Once you have used Theory of Constraints at a higher level to really understand what you need to do, at a lower level these techniques are fantastic. But you need to know where to use them and where not.

For example, the U.S. Navy has an RFP last year for all its logistics operations, a huge undertaking. In the RFP, they said the umbrella for the operator must be Theory of Constraints, and underneath that Lean. That's exactly what I am saying.

**Gilmore:** When you are working with companies, what is typically the "Aha" moment, when the light bulb finally goes off?

**Goldratt:** If you really want an answer to that, I am going to have to market myself. Let's look at "The Goal." In that book, the consultant, Jonah, leads Alex Rogo step by step down the path, almost by the nose. I am actually sick of that approach.

*If Jonah would have told Alex in "The Goal" what the performance of the factory really should be a year or so down the road, Alex would have fainted.*

That book focused at the plant level. My assumption was that if I showed top management the whole thing up front, they'd say "It's unrealistic," "We're different," all the usual things, and they will not move.

Even at a more local level, it can be hard. If Jonah would have told Alex in "The Goal" what the performance of the factory really should be a year or so down the road, Alex would have fainted.

And this is the problem. You go into a company, you use Theory of Constraints to make progress, move someone one step then another, they get fat and happy again, and then they just want to stop. But you've just started!

So – this is the marketing part – I've started with a new thing called "Viable Vision," where I am showing company execs the whole thing for the first four years. And again, I tell most of them that in four years they can have net profit equal to their current total sales.

Of course, the first reaction is "This is totally unrealistic," but then we say back, "Give us the data, and we'll show you how to do it." We show them how to do it, and then we take on the implementation plan.

**Gilmore:** Net profit in four years equal to current sales?

**Goldratt:** That's right. Not every company. Right now, I know how to do it with about 80% of them.

**Gilmore:** What's the barrier at the other 20%?

**Goldratt:** I'm stupid – I don't know enough yet. I am restricting myself now, for example, to physical products. Not hospitals, banks, etc., even though we know in general Theory of Constraints works beautifully there, but we have less data and don't want to take on too big a risk because all of our contracts are based almost totally on realizing the results.

**Gilmore:** When you look at the issues and plans across companies after you do this analysis, what are common themes or opportunities?

**Goldratt:** Let me give you the truth. In order to minimize risk and best enable my people to execute this, I have eight generic solutions. If it fits one of these eight, we take the project. If it doesn't, we don't.

Those eight templates cover 80% of the physical products companies, including manufacturers, retailers, wholesalers, etc.

**Gilmore:** Can you describe a common template?

**Goldratt:** Well, to do this in half a page or whatever this will be will probably be mumbo-jumbo, but fine.

Suppose that we are producing manufactured products that are sold through distribution, wholesale and retail, ok?

***It doesn't matter to me that in general they order from you once a week. What I want to know is for each specific product how frequently they order. And if the answer is they order once in two weeks or more than two weeks, that's it - I have the solution.***

Then the question the question I am really interested in is "How frequently those channels are ordering from you the same SKU?" It doesn't matter to me that in general they order from you once a week. What I want to know is for each specific product how frequently they order. And if the answer is they order once in two weeks or more than two weeks, that's it - I have the solution.

Because what happens is that if say they are ordering the same product once a month, that means the total order lead time – from when they sell a unit to when they order a unit – is one month. This is enough to kill them.

It will typically create big problems with excess inventory, along with frequent problems with unavailability. So now, the standard solution shows them how to do this with less than half the inventory, with almost no unavailability.

Do you understand once you are doing that you are taking the market?

A retailer or wholesaler's key metric is inventory turns, and its main concern unavailability. If you solve both these problems, that's it, the customer is yours.

**Gilmore:** Ok, I think the basic issue is well understood. We've been trying to solve that with many things, from collaborative planning to RFID and lots of other technologies and strategies.

**Goldratt:** These are all hard. This solution is so damn simple.

Do you know that I have put in the public domain computer courses? Because I found that in a manager wants to get buy-in from his people, a computer course is far more effective than a book. Exactly what I have told you about how to do that solution is in one of the computer courses.

**Gilmore:** Procter & Gamble is among the companies trying to solve this, and is doing so in part by trying to make their factories more flexible to shorten the length of production runs and enable more SKUs to be made each day....

**Goldratt:** First, so you know, the Procter & Gamble soap and detergents division implemented my distribution solution in 1989! But it is just that division, as far as I know.

**Gilmore:** Procter & Gamble is of course better than most, but they are committed to this further improvement, though whether the manufacturing economics will allow them to make tubes of Crest or whatever in much shorter runs, as even they have said, remains to be seen.

**Goldratt:** But at the same time I think you'd find the P&G or at least most consumer goods manufacturers give big discounts to retailers and wholesalers for ordering in large quantities. That's part of what kills them all. If they would refrain from that, then they probably wouldn't need to make their plants more flexible.

Let's consider an example. You are a shop. And let's say I say to you, you have to buy minimum of 100. And you are selling two per day, on average. So immediately I have elongated your cycle by 50 days. Because now you will wait to order until you have run down the first 100 and then order another 100. I have put into the replenishment time 50 days.

***So save two cents there so you can pay 20 cents over here. Very smart. Let small warehouse concerns override smart business decisions. Think about what you've just said. Rather than pick a carton or two instead of a full pallet and have a few more pennies of warehouse cost, I need to invest in flexible plants?***

**Gilmore:** The response, I would think, is that there are trade-offs between inventory and transportation, and my costs of shipping the two I sold that day are way too high.

**Goldratt:** Since when are we allowed to put only one type of product in a truck? So, where is this argument coming from?

**Gilmore:** Let's take it back further then. It costs a lot more per unit to pick and ship say two items than a pallet of them.

**Goldratt:** Your right – so save two cents there so you can pay 20 cents over here. Very smart. Let small warehouse concerns override smart business decisions. Think about what you've just said. Rather than pick a carton or two instead of a full pallet and have a few more pennies of warehouse cost, I need to invest in flexible plants?

**Gilmore:** Well, part of the issue of course is that most companies in the end are still siloed, and the distribution director is in fact primarily concerned with DC operational efficiency, and transportation managers their metrics, etc.

**Goldratt:** No you understand why in the Theory of Constraints that the number one thing we attack all the time is called "Local Optima." Someone tries to optimize a piece of the system, and you kill the system. That's why again we now focus up front on viewing the whole picture.

**Gilmore:** People and companies have taken the Theory of Constraints and taken it in all kinds of different directions. Are they doing this well, or is it being misapplied?

**Goldratt:** I would say most of them are valid.

**Gilmore:** Some software vendors have adopted at least in part a Theory of Constraints orientation, especially in "optimization" products. What is the role of software in TOC?

**Goldratt:** It depends. There are in fact cases where I don't know how to solve a company's issues without the software. For example, if you are dealing with large distribution networks of course you have to have the software. You'll get killed trying to do it on spreadsheets. You also need software for big project management activities.

**Gilmore:** Let's talk about manufacturing in Europe and North America. There is a lot of general concern and political heat around "saving" manufacturing in the west, amidst low costs and pressure from China and other low cost countries. Can adoption of Theory of Constraints principles help revitalize those manufacturing companies?

**Goldratt:** I think that question doesn't consider what is really going on. What is this "save western manufacturing?" Let me talk about China and India – these are the two you are afraid of, right?

I work a lot in China. You know the biggest problem in China is right now? Getting people – for the 2<sup>nd</sup> shift. Can you imagine not enough people in China? Salaries are now skyrocketing. Statistics say that in 2004 salaries rose by 24%. When they are finalized in 2005, it will be much higher.

Have you been in Shanghai, for example? You may have had images like I had of rickshaws and bicycles – No! This is a western town. With the best cars everywhere, and fewer bicycles than in Holland. I sent an assistant to go and look in some shops for bargains. She said, "Sorry Eli, the prices are the same as in Amsterdam."

So, China is not only becoming a big producer, but a huge consumer. If what we see now continues another 5-6 years, China will be by then the largest consumer market in the world.

What's happening in India is even more fascinating. I can say without blinking an eye that in India they have the best management of companies in the world. Better on average than I have seen in Europe or the United States. Their problem was that they had put chains on themselves, in terms of regulations, tariffs, etc. This is gone.

Because of it, the biggest boom is happening. India is also growing at 8-10 percent per year, and salaries are also rising rapidly. So again, in just a few years you will see a huge consumption market.

Do you understand what together this means? In a few years, we will triple the world consumption in 5 to 6 years. You will see supply chain bottlenecks everywhere in the world. The best thing that ever happened to us is what is happening now in China and India. It is time to stop complaining about Chinese producers and focus on how to enter the Chinese market or export to China and India. What huge, beautiful markets.

**Gilmore:** Yes, if they continue to open their markets....

**Goldratt:** They are open right now. Fine, it still takes 3-4 months of bureaucracy – what’s the big deal? As if there is no bureaucracy to overcome in Europe or the U.S.

China and India shouldn’t be looked on as a threat but as a fantastic opportunity.

**Gilmore:** Our audience is a supply chain audience. How do they best understand and get started with these concepts? And from what you’ve said earlier, is this something that really only makes sense to start at the CXO level with?

***Does the VP of Supply Chain have influence on marketing strategies and policies? If that answer is No, then immediately you are working with one of your hands tied behind your back.***

**Goldratt:** When I start with a company, yes I start from the CEO down, because from a business perspective, “grass roots” is just usually too hard.

It’s also because if you start in one function, you improve that, but then immediately the constraint just moves to another function.

**Gilmore:** But in “The Goal,” Alex was a plant manager. There was something in the TOC constraints for him.

**Goldratt:** He was quite lucky. If you remember, if he hadn’t have had the VP of Marketing on his side because of the problems he was also facing, Alex would have crashed into the wall.

**Gilmore:** So does TOC work for the VP of Supply Chain or not?

**Goldratt:** Absolutely yes, because you have to assume his or her boss is not an idiot. They should drag the CEO to one of our seminars and say “Let’s do this right.”

Think about it. Does the VP of Supply Chain have influence on marketing strategies and policies? If that answer is No, then immediately you are working with one of your hands tied behind your back.

For example, in the consumer goods example we had, if I was the VO of Supply Chain and I was making these improvements, but the policy was to still give big reductions for ordering in large quantities, rather than **selling** in big quantities, then I will fail in achieving results.

Do you understand what that last sentence means? It’s fine to say that as long as you sell 500 a month, you get the reduction in price, but it does not mean you have to order 500 at a time. Because if I still have to order 500, I can kiss away much chance of improving my supply chain.

**Gilmore:** Can the principles not be applied within a function?

**Goldratt:** Let’s take R&D or new product development. Let’s say you have used TOC to radically reduce development time. But if the other strategies of the company have not changed, you will not know how to effectively use this stream of new



products you can develop, and because of that the end result will be you have too many engineers and you will have to lay some of them off. How would you like to be in the situation where you get buy-in from the engineers to do this in a much better way, and then come back and say as a reward for this effort, we have to lay a bunch of you off? That's the problem, and why you eventually need a more comprehensive view.

**Gilmore:** You are talking about radical, almost unbelievable performance improvements. Most companies are happy with and struggle just to achieve continuous, incremental improvement.

**Goldratt:** Incremental improvement is nothing. This is exactly what I am crying about. Incremental improvement generally does not lead to more and more but to a crash, because one of your competitors is not taking an incremental approach but a breakthrough one, and eventually they crush you.

**Gilmore:** There really are companies achieving these kinds of results.

**Goldratt:** Yes!

**Gilmore:** When you present this, do CXOs want detailed, specific examples?

**Goldratt:** Sometimes, but not usually. It's like reading "The Goal." Does not that make simple, logical sense that you are convinced contains truth? It's the same way when we explain the principles to a CEO, with their data. Usually the first reaction is "Let's do it!" Sometimes at an enterprise level, it's even simpler than it was for Alex Rogo.

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