**Course Paper – The Goal**

Dan Doan

College of Technology, University of Houston

TLIM 4341: Production and Service Operation

Professor John Terrell

August 9, 2021

Table of Contents

**Title page1**

**Table of Contents2**

**Synopsis3-5**

Introduction3

Character introductions3

Story synopsis3-5

**Key concepts6-9**

Finding out the goal6

Operational measurement7

Dependent events & statistical fluctuations & compounding delay7-8

Bottlenecks8

Process Of On-Going Improvement (POOGI).9

**Conclusion10**

**References11**

Synopsis

Introduction

The Goal is a book that talks about a man’s experience in the early 1980s and his job of working as a manager in a manufacturing plant. The story is about how a struggling manager slowly learns, using his personal and work experience, to become a better and more knowledgeable manager and husband.

Character Introduction

First, to start, I would like to list out all the important characters and their relationship with the main character so that we are cleared of who’s interacting with who at all times. We have the main character in the story, Alex Rogo, who works as the manufacturing plant manager. Jonah, his old physics professor, who offers him advice and clues on how to operate his plant. Julie Rogo, who is Alex’s wife, will provide side conflict to develop Alex’s story. Bill Peach, the Division vice president, is the current boss of the main character. Lou, the plant’s head accountant. Stacey, The plant’s inventory manager. Bob Donovan, the production manager. Ralph Nakamura, the data processing manager. Dave and Sharon, the son and daughter of Alex. And with all that, there are also a few other side characters.

Story synopsis

The story starts with Bill Peach visiting Alex’s plant to inquire about an order that is seven weeks overdue. Bill told Alex that the order must be shipped today and gave him three months to make the factory profitable and productive again. It then shifts to Alex’s home life, where they struggle to acclimate to the small town that they moved in. Julie got into an argument with Alex about how she wanted to go out for lunch, and he promises her to be back by then, which he does not fulfill because of the current situation at work. Back at the plant, the order finally shipped, but at the cost of overtime for many employees, delaying other orders and reducing the efficiency of that day’s work.

The next morning, Alex rushed to a meeting at the office. While at the meeting, Alex remembers the time when he ran into Jonah at the airport, where Jonah accurately predicts that Alex’s plant is having issues such as high inventory and missed shipping dates. As they speak, Jonah talks about how Alex’s plant isn’t as efficient as he thinks it is. Jonah leaves Alex with a large question before leaving for his flight, asking him what the true goal of his plant is. Back to the meeting, Alex leaves as he ponders about the question that Jonah gave him. Then it suddenly strikes him that the goal of the plant is to make money (of course) and can use that to measure which actions can bring him closer to the goal. He then had a meeting with Lou, who agrees that it makes sense, but points that they would need a specific standard to measure that goal.

Alex then calls Jonah again and explains that his plant goal is to make money. Jonah leaves Alex with the definition of throughput, inventory, and operational expense. The next day, Alex had a meeting with Bob, Lou, and Stacey, where they discussed the metrics Jonah told him about. Later that night, Alex decided to take an overnight flight to meet up with Jonah and ask for more advice. While at home Julie is angry at Alex for taking an unannounced flight. Alex meets Jonah at a hotel and was told that “a plant in which everyone is working all the time is very inefficient” (Goldratt et al., 2016, p. 90), which leaves Alex confused. Jonah then leaves Alex with two keywords, “dependent events” and “statistical fluctuations”. When Alex got home, he and Julie got into a fight about how he never spends time with her and the kids. They went on a hike on the next day where Alex volunteered to be the lead, due to a promise with his son Dave. This is where Alex learns more about dependent events and statistical fluctuations. When they got home from the hike, Alex discovers that Julie has left him, he then left the kids to his mom before trying to figure out where Julie went and return to work.

At work, he observes compounding delay due to statistical fluctuations on a single station even if the machine and the person are efficient. He and his staff realize that they need to focus on the entire system rather than just individual efficiency. Alex then reports back to Jonah, who then told him to identify his “bottlenecks” in the plant. Alex sees that two machines are the bottleneck, Jonah advice that if they can increase the bottleneck capacity, then they can increase the capacity of the whole system, which will raise throughput. Alex and Stacey create a tagging system to organize which parts need to be processed by bottleneck machines. At home, Alex finds out that Julie is living with her parents and is considering a divorce. To prevent this, he starts to visit her several times a week and even goes on dates without any interference. Meanwhile, the plant is showing real progress by lowering excess inventory stock and shipping orders on time, the plant is now profitable and it’s only two months in. Jonah tells Alex to let the bottleneck machine regulate the pace of the whole system. Peach visits again but is unimpressed at the growth. He asks for more improvement (15%). Alex feels demoralized, but Jonah thinks he can do it. Jonah advice Alex to cut the batches in half, in turn, halving the wait time between each part and further increases their production output. Meanwhile, at home, Alex and Julie’s relationship is mending and she returned to their house.

Alex bumped into a man named Johnny Johns, the division sales manager. John asked him to create a marketing strategy to help with a new customer willing to buy a huge quantity of product, they came up with something and won the order due to their proposal. With the month over, Lou calculates that they had an increase of 17% with his new accounting method, with the help of delivering the new orders. While other people still using the standard method only got 12.8%, and they even believed that the plant would show losses soon. Peach then tells Alex that the plant isn’t going away! And that Peach was promoted, and Alex is taking over his old position to look over three plants instead of one. Alex tries to ask Jonah for help again, Jonah asks Alex to find out what is needed for effective management. At home, Alex and Julie went out on a fancy dinner and discuss how he will set the new workers to buy into his ideas.

Alex shows up at the plant, promoting his old teammates Lou, Bob, Stacy, and Ralph. They then had many daily meetings on how to make this process work on the entire division instead of just their plant. They came up with a five-step system, Process Of On-Going Improvement (POOGI).With that, Stacey modified the tagging system, and Alex and John plan for bigger future expansion in the market. John finds a new client in Europe, helping them break into the European market, meanwhile, Alex was called by Peach to help and show other his practices. Alex and Lou create a few questions of their own “What to change? What to change to? How to cause the change?” (Goldratt et al., 2016, p. 343). Alex then figures that he can’t use Jonah’s help anymore and must find out how to resolve complex issues while not creating new problems on his own.

Key Concepts

Many concepts were talked about in the book, but I believe these five are the most important concepts:

* Finding out the goal
* Operational measurement
* Dependent events & statistical fluctuations & also compounding delay
* Bottlenecks
* Process Of On-Going Improvement (POOGI).

Finding out the goal

The first and most important concept that was introduced to us by Jonah was that, finding out the true goal of the organization and use that goal to set steps to then reach such goal, “Then, tell me, what is the goal of your manufacturing organization?" (Goldratt et al., 2016, p. 38). This is important because as we can see in the story, at first Alex was just doing whatever to get the day going and doesn’t have a primary goal in mind. And we saw how that turned out, he was somehow seven weeks late on an order. After the conversation with Jonah, that’s when Alex figures out the goal of the plant and then basically uses a bunch of methods to find out how to improve the plant to reach the goal. He also has a side conflict with his wife, where he also kind of had a goal in mending their relationship and he also took small steps to reach that. Nowadays in the world, goal-setting is something everyone uses. From top-level athletes to successful businesspeople. They set goals to see the long-term change while also having short-term goals to get their motivation up. One thing I see everyone also uses is SMART goal, or they set it so that it is specific, measurable, achievable, realistic, and timely (By the Mind Tools Content Team et al., 2021). This also applies to our class, how we create the syllabus to have goals to meet every week. A goal is something that everyone should have, from Alex’s story back in the 1980s about the goal of his plant to everybody today having their personal goals.

**Operational measurement**

The next concept I believe is important is operational measurement, which I see is something you can measure to get closer to your goals. Specifically used in the story, the main measurement were throughput, inventory, and operational expense. And Jonah defines these as, "Throughput is the money coming in. Inventory is the money currently inside the system. And operational expense is the money we have to pay out to make throughput happen.” (Goldratt et al., 2016, p. 79 & 80). I believe this concept is important because as said with the goal-setting above, you need something to find out if you are slowly reaching your goals or not. To compare operational measurement to today, it’s a similar concept to having a short-term goal to reach your long-term goal. In the story, Alex uses these operational measurements to find out if his decisions are helping the plant move towards the goal or not, which was making money. Using SMART goals, we can find that measurable is one of the specific keywords describe by it. This just really means if the goal is achieved, you will have evidence of you making progress towards your final goals. This is also something we use in the class, we have small goals every week that we need to meet to progress towards our main goal, which is completing the class. Having smaller steps towards a large goal is always a nice thing to have. Alex used it back then to help him plan and reach his goal and people still uses a similar concept, such as steps or short-term goals, to reach their bigger goal in today’s world.

**Dependent events & statistical fluctuations & also compounding delay**

The third concept I believe is important is dependent events & statistical fluctuations & in turn create compounding delay. Jonah explains this in the story as “I mean that an event, or a series of events, must take place before another can begin . . . the subsequent event depends upon the ones prior to it.” And “But there are other kinds of information we cannot precisely predict. Like how long it will take the waiter to bring us our check. Or how long it will take the chef to make an omelet. Or how many eggs the kitchen will need today. These types of information vary from one instance to the next. They are subject to statistical fluctuations.” (Goldratt et al., 2016, p. 93 & 94). I believe this is an important concept because it happens every day in our lives. For example, if you are a manager at a grocery store, you might not know what trouble you will run into each shift you go to, which is statistical fluctuation. And for the other one, everyone has plans in their daily day routine. Usually, they want to do something first, before they do something else, which is dependent event. In the story, this concept was used to describe the process of Alex’s plant and how they make their items and slowly find out that the more they faced this concept, the more their operational measurement worsen, which in turn causes more and more delays towards their goal. Using this concept, we can try to make our daily lives a little easier, for example, instead of scheduling back to back events, try and have a little time between them to make sure that any spillover won’t cause a huge chain reaction throughout the day that might cause by fluctuation. This might apply to students in our class, let’s say someone made plans that should be done by the time class start, but the event spilled over so now they can’t make it to class anymore. Overall, this concept teaches you about making good plans and having little gaps between them to avoid compounding delays and any queue you might encounter throughout the day.

**Bottlenecks**

The second to last concept I believe is important to know is bottlenecks. Everyone should know what a bottleneck is.  Jonah explains bottleneck as, “Is any resource whose capacity is equal to or less than the demand placed upon it. And a non-bottleneck is any resource whose capacity is greater than the demand placed on it. Got that?” (Goldratt et al., 2016, p. 145). Saying whenever something is hindering a workflow and affect a streamline process, is a bottleneck. This concept is used throughout the world today, but more specifically in the manufacturing department. Like we learned in the story, Alex’s plant had two specific bottleneck items that he tried to improve to then make the plant progress go smoother. Jonah even suggested to let the bottleneck regulate the whole process in the plant. And the same process should apply in today’s world of manufacturing. Any plant’s manager will try to increase the bottleneck capacity to improve the plant itself. Another example I could think of outside of manufacturing is in transportation. Let’s say a road is working fine, but then a traffic light stopped working. It will cause a bottleneck because now all cars will have to stop, and it will soon create a traffic jam, aka hindering the streamline process of the road. Something else similar is whenever a road is under construction, usually turning multiple lanes road into a single lane, which will usually cause slower traffic (mosimtec, 2021).

**Process Of On-Going Improvement (POOGI).**

The last and final concept is POOGI, or Process of On-Going Improvement, which I think is a concept that anyone managing and working should know. These are the steps of POOGI according to the book, “STEP 1. Identify the system's bottlenecks. (After all it wasn't too difficult to identify the oven and the NCX10 as the bottlenecks of the plant.) STEP 2. Decide how to exploit the bottlenecks. (That was fun. Realizing that those machines should not take a lunch break, etc.) STEP 3. Subordinate everything else to the above decision. (Making sure that everything marches to the tune of the constraints. The red and green tags.) STEP 4. Elevate the system's bottlenecks. (Bringing back the old Zmegma, switching back to old, less "effective" routings. . . .) STEP 5. If, in a previous step, a bottleneck has been broken go back to step 1.” (Goldratt et al., 2016, p. 307). That doesn’t just apply only to manufacturing plants, but you can use the POOGI concept on any problem that you might face in the world today. The word bottlenecks that the book uses in this situation can be replaced by constraints, which is anything that is preventing the system from achieving its goal. For an everyday person, there might be a few to a hundred constrain that they might be facing to prevent them from reaching their goal. Whatever the issue is, they can try and use POOGI to eliminate a few of them at least to get closer to their goal. POOGI is a great five-step system that anyone can use to improve anything that they want improvement on.

**Conclusion**

The book THE GOAL A Process of Ongoing Improvement THIRD REVISED EDITION By Eliyahu M. Goldratt and Jeff Cox was a great read. I enjoyed all the problems that Alex in the story faced and was excited about how he will fix them using either his ideas or others around him that he can use for help. There were quite a few concepts that were used and described in the book, but I thought wasn’t as important as the five main ones that I listed such as**:** seek answers, teamwork, don’t be afraid to ask for help, never give up, work smarter, not harder and improves the overall system, not just individual. The interview at the end was a nice bonus to read too, finding out what everyone thought about the book was and how it helped them in their career. I saw that one person even make it mandatory for their employee to read the book, which is funny because it’s what we’re doing in this class.

**References**

Goldratt, E. M., & Cox, J. (2016). 11. In *The goal: A process of ongoing improvement* (3rd ed.). essay, Routledge Taylor and francis Group.

mosimtec. (2021, July 13). *5 insightful Bottleneck Analysis Examples*. MOSIMTEC. https://mosimtec.com/5-insightful-bottleneck-analysis-examples/.

the Mind Tools Content Team By the Mind Tools Content Team, wrote, B. T., & wrote, D. (n.d.). *Smart goals: – how to make your goals achievable*. Time Management Training From MindTools.com. https://www.mindtools.com/pages/article/smart-goals.htm.