The Goal

The Goal is a book that truly lives up to its name. In a simple, unassuming manner, it informs the reader of the most obvious, yet most neglected goal of any company: to make money. The Goal presents the Theory of Constraints as the most optimal way to achieve the proverbial goal, with the late Dr. Goldratt speaking through Jonah to disclose TOC's most fundamental ideals to Alex specifically and the readership in general.

In an almost enlightening manner, the book breaks down the conventional suppositions one may have about the field of business management. I myself believed that businesses would be most productive when the labour force and capital machinery would be operational for as long as possible and the costs borne by the company was as low as possible. The book provided me with a microscopic lens to observe the inner workings of a business, and how everything is so dependent on certain 'bottleneck' resources, or resources having capacity equal to or less than market demand. It is the efficiency in the management of said bottleneck resources that acts as a make or break factor for the attainment of the 'goal'.
I shall further elucidate my learnings from the book here.

The book makes it adequately clear to readers about the specific nature of the goal. The goal is:

1. To increase throughput, or the rate at which output that is actually sold in the market and generates monetary value for the company. In simpler words, it is the money coming into the system.
2. To reduce inventory, or the output that isn't sold in the market. Unsold inventory is basically a loss of investment, so it must be kept as low as possible. Obviously, an optimally low amount is required to respond to unforeseen fluctuations in the market. In simpler words, it is the money currently within the system that could generate monetary value for the business. It need not necessarily be goods and services, it is anything that could be sold to generate money in the future.
3. To reduce operational expenses, that is to reduce the cost of turning inventory into throughput. It is the money going out of the system. Adding value to products through direct labour therefore, is not an investment but an operational expense. It could also include depreciation on capital machinery. However, the act of reducing operational expense must not hinder the ability to generate throughput or reduce inventory.

The book further delineates the offshoots arising from the aforementioned definition of the 'Goal', that is that a balanced plant is often very inefficient. It explains this through the simple yet effective comparison to a chain of trekkers where variations in speed cause ever-agglomerating distances between individual walkers. This explains the statistical fluctuations and dependent events that dictate production at any plant. The book's explanation subverts the statistical law of large numbers to demonstrate how statistical fluctuations only add up over time. It clearly explains how production at any plant is not composed of independent events which need to be locally optimized, but dependent events much like the chain of walkers. Therefore, the statistical deviation in a preceding process becomes the starting point

of the current process which is dependent on the previous process, and as the process moves ahead the deviation increases. Finally, the output is almost always lower than the expected value.

Here the book introduces the concept of the bottleneck, which is the medium through which statistical fluctuations and dependent events really manifest themselves. This is because bottleneck capacity is just equal to market demand, so there is large potential for deviations in preceding processes costing the business very much. The entire plant is only as good as the most constrained, or "bottleneck" resource. So, the idea is to achieve managerial success vis-à-vis handling bottlenecks efficiently. To me, this came across as the core tenet of the Theory of Constraints. A perfectly balanced plant and the chase of the local optima is not a smart decision on the part of the system managers. Rather, local optima should be given up to make way for global optima, which can only occur when bottlenecks are well-managed. The capacity of the plant must not be balanced with market demand, rather the flow of products through the bottleneck should be balanced with market demand.

Now with regard to managing the bottlenecks, the book tells the reader about the 5-step process given below:

1. Identifying the system's bottlenecks
2. Deciding how to exploit those bottlenecks
3. Subordinating every decision in the pursuit of efficient bottleneck management (this is why policies to reduce operational expense must be subservient to increasing throughput)
4. Elevating the system's bottlenecks and attaining an optimal capacity for the bottlenecks
5. Monitoring the system to keep track of the load of demand on all resources and keeping track of transitions from bottleneck to non-bottleneck and vice versa.

The steps delineated above are followed throughout the book.

The process of finding bottlenecks itself requires deep analysis and careful observation. One tell-tale sign mentioned in the book is the presence of a large backlog in front of the bottleneck. The book also reveals that the bottleneck may not be physical. It may be caused by a policy enacted by a company, which constrains the flow of products through the plant. This is exemplified by the example of the tag system I shall touch upon later.

The book further conveys to me that a major cause of the bottleneck-mismanagement related losses the system witnesses is due to idle time on the part of the bottleneck resource. While in other sections of the plant an hour lost may be covered up, at the bottleneck an hour lost is an hour lost for the whole plant. The monetary value lost can never be recovered. So, there is a need to fully utilize bottlenecks. This is given practical shape through the priority system that would keep the bottlenecks busy at all times. Nevertheless, this system later became a sort of "self-imposed bottleneck" since product flow through the otherwise non-bottleneck machinery fell short of flow through the original bottleneck. Bottlenecks thus need not be physical. Moreover, market demand by itself is a bottleneck for the plant's operations. Flow through the plant must match the flow through the bottleneck.

An example of the same occurs in the heat treat section, where the efficiency of non-bottlenecks is reduced by offloading the machinery such that the machinery is in tune with the workings of the bottleneck resources. Not only does such a tactic increase throughput, but also it reduces operational expense. This is a wonderful example the book gave me about how chasing local optima must be given up for chasing global optima. While the books would consider this as a short-term loss in efficiency, in the long term operational changes such as these would only benefit the company. Such actions the book details only reinforce that simple truth that any step that makes the plant money is productive, anything that doesn't is unproductive, regardless of how cost accounting measures portray such changes.

Operational changes must also be made regarding bottleneck management so as to elevate their performance. Policies such as reducing batch sizes to half, which not only reduced inventory but also led to shorter production and faster response times, effectively elevated the workings of the bottleneck resources. Moreover, they also helped in elevating the constraint of market demand: the faster response times and higher quality service automatically increased consumer demand for the plant.

At the same time, the book also demonstrates the importance of monitoring the constraints in the system and identifying any new ones. Operational changes need to be made again and the cycle is repeated, else the same issues of lost time and mismanagement of bottlenecks may persist ('inertia' as a cause for the system's constraints). This continuous monitoring and operational optimization is what leads to the Process of On-Going Improvement (POOGI).

Such is the way the book explains the 5 points to the reader. In my opinion, these 5 points would classify as one of the most important points of TOC and gives a high-level understanding of the 3 most fundamental questions in TOC: what to change, what to change to and how to cause the change. These are dealt with in the next book summary of "It's Not Luck."

It's Not Luck

"It's not luck" is defined by its delineations of the "Thinking Processes" that define TOC, pertaining to the management questions of 'what to change to' and 'how to cause the change'. As a plant manager in "The Goal", Alex had used Jonah's conclusions of the Thinking processes but in this book, he demonstrates how to use Thinking Processes to reach the core problem and find solutions.

When UniCo decides to focus on its core business and liquidate the diversified group to improve the credit standing of UniCo, Alex's foremost concern is his employees. To save their jobs (and his) he starts his quest of turning around these companies by finding a marketing breakthrough through a decisive, competitive edge without any kind of investment. I did not think this was possible at first, but the TOC approach the book reveals which led to targeted operational changes within UniCo changed my mind about the same.

It's Not Luck has endowed me with a deeper understanding of TOC. It introduces many interesting concepts as it progresses in Alex's personal as well as professional life along with his company presidents (Pete, Bob, Stacy) and his assistant (Don) as they try to turn around the companies. There are three diversified group companies - Pete's printing press, Bob's cosmetics company, and Stacy's 'Pressure-Steam', a B2B company providing high pressure steam machines. Each of these companies is not only made profitable using Jonah's Thinking Processes, but also become models for their respective industries. The printing press and ICosmetics fetch UniCo hefty prices and Pressure Steam is retained by UniCo, thus fulfilling the twin goals of a good credit standing for UniCo as well protecting the employees.

Thinking Processes

Thinking Processes are, in my opinion, the core of the TOC approach to solving a problem. They are quintessential to analyzing difficult situations and constructing a win-win solution. The various Thinking Processes covered in the book are - The conflict cloud, The Current Reality Tree, The Future Reality Tree, The Transition Tree and The Prerequisite Tree.

Breaking the cloud - a technique to resolve conflicts

These Thinking Processes are employed to represent conflicts diagrammatically in the form of a cloud. Solutions to a seemingly unresolvable conflict can be generated by 'breaking the cloud'. Breaking the cloud involves proving that one of the motivations on the part of one party that necessitates the conflict is null and void or can be avoided as both parties pursue their common goal.

With a clear understanding of the common objective (if a negotiation is taking place there is bound to be a common objective), one should examine the assumptions that have been made to fulfill the common objective. Challenging and breaking any of these assumptions breaks the cloud and thus the conflict.

Whenever there is a conflict, one should not attempt to avoid it by compromising. The first step is to stop the dialogue and then to write the cloud precisely. To me, this came across as an ingenious, elegant, yet simple method of resolving disputes and ensuring constant motion towards the common goal. Instance of its use are seen throughout the book:

- Pete's printing press was losing out on the high-volume wrapper business as his machines were old and thus not fast enough. They did not have the other technological advantages like his competitors. The conflict between "closing the wrapper department" to increase profits and "keeping the wrapper department operational" to protect the asset base had the common objective of "Sell Pete's company for a good price". This conflict cloud was broken by proving that the assumption "wrapper department must be closed to increase profits" was wrong.
- The wrapper department was then made the most profitable in the company by helping the buyer break his cloud - the buyer's conflict between the need to get lower prices (volume discounts) and the need to have lower inventories (as the wrapper designs change frequently). The buyer's assumption that the lower prices are possible only by ordering high volumes was broken to resolve the problem. This not only made the wrapper department profitable but was the key to increase the value of Pete's company tremendously.

- The main objective of UniCo is to serve its stakeholders. Thus, while it is important to protect the interest of the shareholders (sell diversified companies to improve the financial state of UniCo), it is also necessary to protect the interest of the employees (do not sell companies as they then lose their jobs). The assumption here is that the companies are not profitable enough and hence must be sold. The way to break this cloud is to make the companies profitable and thus simultaneously protect the interests of shareholders and employees.

The Current Reality Tree

In any situation, the problems, or UnDesirable effects (UDEs) are just the symptoms of a core problem which is at the root of all UDEs. This technique of carefully and meticulously constructing a Current Reality Tree helps in connecting the UDEs in a logical way and thus in identifying the core problem. Making a CRT involves starting with a list of 5 to 10 problems or UnDesirable Effects (UDEs). Using intuitive connection, these UDEs then need to be arranged in a cause-and-effect relationship, while not ignoring the trivialities.

In the case of the diversified group, using the CRT, the core problem is identified as "The Managers are trying to run their companies by striving to achieve local optima".

Moving from the Current to the Future

The core problem now needs to be defined more precisely. Like in this case, Alex has to find the "why?" for the core problem. Why are the managers striving to achieve the local optima and not run their companies by arriving at good decisions including breakthrough solutions when needed?

This traditional method leads to a conflict in perception of value of the product by the Suppliers (resources and effort put into the product) and the Market (benefit gained from using the product). To a large extent most managers ignore the market's different perception of value for the same product.

"Make decisions and act upon the clients' perception of value" is mutually exclusive to "Make decisions and act upon the suppliers' perception of value" - This is the conflict that needs to be resolved. To get a good margin the managers must sufficiently increase the perception of value of the Market as compared to the supplier's perception. This can be achieved by making an entire Product Offering (not just changing the physical product) that addresses the core problem of the market. A CRT helps in identifying the core problem of the buyers that is related to the policy of its vendors.

The Future reality Tree

This starts with identification of the objectives (opposite of UDEs) . A Future Reality Tree is built guided by the objectives and using injections on how to reach the objectives.
A difficult one to make, FRT, needs a lot of understanding and intuition in that business/domain as it involves predicting the unavoidable impact on the client on all the injections that lead to the objectives.

Gather as many reservations as possible for these injections as Negative Branches. Negative branches that lead to real hazards must be trimmed by making those changes to the Product Offering. Thus, better product offerings can be done by bringing additional positives OR by

eliminating negatives. Don't ignore relevant injections even if they lead to more negative branches.

The strategic objectives of the diversified group companies are - "Sell all the capacity without reducing prices", "Have an apparent, dominant, competitive advantage". Alex and his team then add injections to achieve these objectives, deal with the negative branches and come up with unique Product offerings for each of the companies.

Satisfying the Market's perception of product value is key to success.

This was one of the more important conclusions I drew from the book. This is well demonstrated by the success of all the three companies which modified their product offerings around the Market's perception of the product (product plus the periphery offerings) which is much broader than the supplier's perception.
The companies, using the CRT of the market, addressed the core problem (not just the UnDesired effects) of the client through their Product Offering.

Pete's Printing company makes a Product Offering using which the buyer ends up considering the price as "price per usable unit" rather than "price per unit." The buyer now could order in smaller batches of 2 months rather than 6 months, and still receive the order in batches of 2 weeks with the option of cancelling the order after the first shipment. This helps avoid obsolescence of the wrappers for which the buyer has already spent money (disadvantage of ordering in bulk) and now needs to scrap due to design changes. This product offering increases the sales many folds, making the company a gold mine for the prospective buyer. The added value is that Pete's company's operations can be used as a role model for all their other companies. Pete's company eventually gets sold for $178 million while the initial estimate was $20 million with the added benefit of the job security of all the employees.

Bob's cosmetics company comes up with a Product offering addressing the core problem of the shops related to vendor's policy.
The core problem was shops giving big orders to get discounts for high volumes (vendor's policy). This was leading to multiple UDEs like a lot of inventory, loans, heavy financial expenses leading to trouble getting merchandise, shops preferring to sell old products in the inventory over the newly launched, shops going bankrupt etc. The two injections that help solve the problem were - 'basing discounts on the dollar amount the shops order each year rather than the size' and 'replenishing the shops daily.'
They made a very attractive Product Offering quickly as Bob had already worked on a better distribution system. The negative branch of 'reduction in sales in the short run' was taken care of by giving the merchandise to the shops on consignment terms i.e. pay upon selling and asking for shelf space for the products. This led to an increase in sales and negated the effect of the negative branch.

UniCo decides to retain iSteam which now owns the equipment, spare parts and the maintenance team and maintains these machines for their clients. What they sell to the client is pressure steam based on the location and usage.

The Transition Tree

This is a typical 'How to' tree which details the logic of how to transfer from the present into the desired future.

Market Segmentation

Effectively take actions to segment a market which might look uniform. Imposing a single price leads to customers who have a high perception of value to also pay a low price. Earlier, the lack of segmentation in UniCo's market constrained UniCo's profits, but through intuition and experience, the book teaches that we can indeed examine different value perceptions for the product for various market segments and optimize the product offer to unleash maximal profitability.

Conclusion

When Alex is asked to present the future strategy for UniCo he gives equal importance to the 3 goals of a company instead of just the first:

1. Make money now and in the future
2. Provide a secure and satisfying environment for employees now as well as in the future
3. Provide satisfaction to the market now as well as in the future

He also talks about how it is important to create flexibility, specially to achieve the second goal. This can be done by making sure every employee is serving not just one segment of the market, but many segments.

The processes are very appealing as they are applied to very simple personal life situations before using them to solve bigger problems in the group. Although the processes need a lot of thinking and intuition about the businesses, in the end the solutions usually look like common sense solutions understandable by everyone and applicable in most situations.