The Ultimate TOC Reference Sheet

5 Focusing Steps of TOC
1. *Identify* the system's constraint
2. Decide how to *Exploit* the constraint
3. *Subordinate* everything else to improve the performance of the constraint
4. *Elevate* the system's constraint
5. If the constraint is broken, go back to the first step, but do not allow *Inertia* to become the new system constraint

6 Layers of Buy-In
1. Agree on the problem
2. Agree on the direction of the solution
3. Agree that the solution solves the problem
4. Agree the solution doesn't lead to negative effects
5. Agree on how to overcome any obstacles
6. Agree to implement

Eli Goldratt's Philosophy
1. People are good
2. Every conflict can be removed
3. Every situation, no matter how complex it initially looks, is exceedingly simple
4. Every situation can be substantially improved; even the sky is not the limit
5. Every person can reach a full life
6. There is always a win-win solution

Throughput Accounting (TOC Priorities)
1. **Maximize Throughput (T)**. T is the rate at which money is generated through sales or interest. T is revenue minus truly variable costs.
2. **Reduce Investment (I)**. I is all monies spent on things intended for sale including material inventories plus resources such as equipment, land, and computers.
3. **Reduce Operating Expenses (OE)**. OE is all monies spent turning Investment into Throughput. It includes direct labor, SG&A, utilities, and rents.

- Net Profit (NP) = T – OE, ROI = (T – OE)/I
- Throughput Dollar Days = The sum of the throughput value of each late order X days late
- Inventory Dollar Days = The sum of the throughput values of excessive inventory X the days unsold
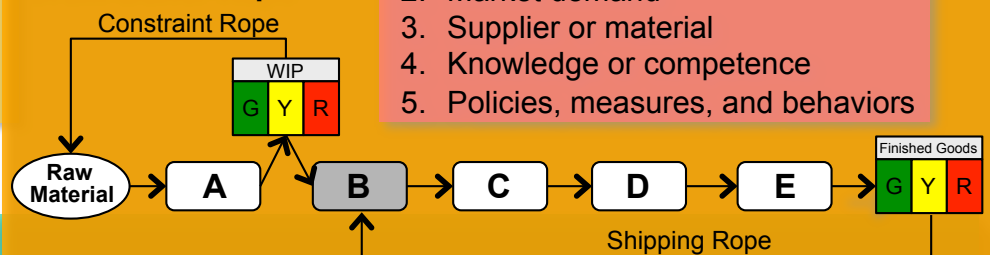
Commitments
1. Make only commitments you intend to keep
2. Don't make fuzzy commitments
3. If a commitment must be broken, give earliest possible notice, apologize, and agree on a new commitment
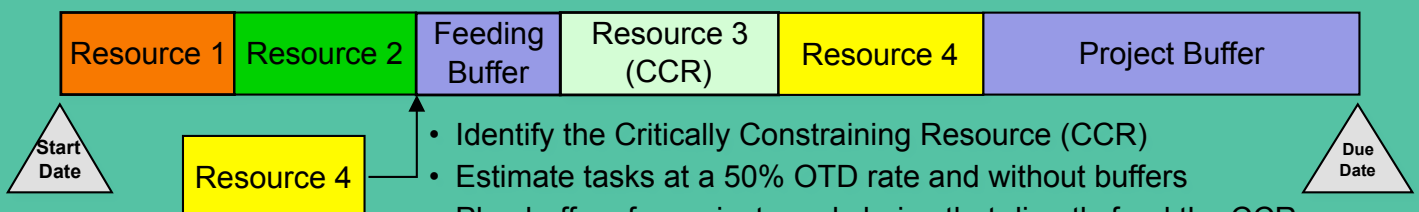
Types of Constraints
1. Physical or capacity
2. Market demand
3. Supplier or material
4. Knowledge or competence
5. Policies, measures, and behaviors

Drum-Buffer-Rope

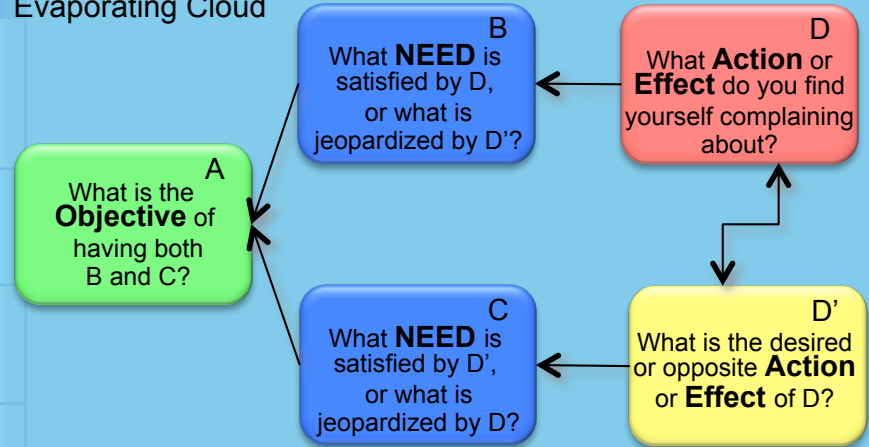
Critical Chain Project Management

- Identify the Critically Constraining Resource (CCR)
- Estimate tasks at a 50% OTD rate and without buffers
- Plan buffers for projects and chains that directly feed the CCR
- Begin tasks as late as possible
- Relay team work ethic
- No bad multitasking! Project managers must insure this even across simultaneous (multiple) projects
- Insure a "full kit" is ready for the CCR
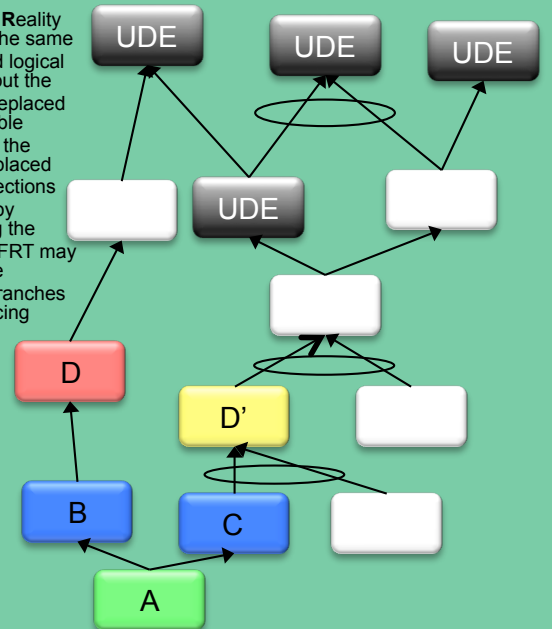- Manage project portfolio to maximize throughput from the CCR

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TOC Thinking Processes

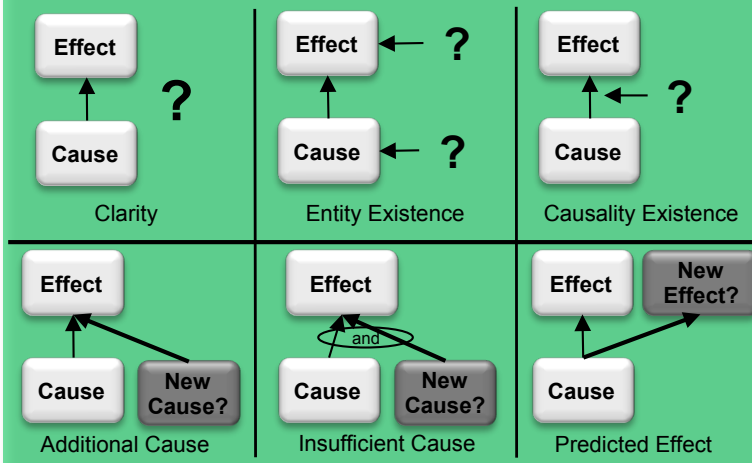|	TP Tool	How to read it
What to Change?	Intermediate Objective Map	From top to bottom, connecting each pair of entities with "In order to…, We must…"
	Evaporating Cloud	From left to right, connecting each pair of entities with "In order to…, We must…"
	Current Reality Tree	From bottom to top, connecting each pair of entities with "If…, Then…"
What to Change to?	Evaporating Cloud	From left to right, connecting each pair of entities with "In order to…, We must…, Because?" to raise imbedded assumptions so they can be challenged
	Future Reality Tree	From bottom to top, connecting each pair of entities with "If…, Then…"
How to make the Change?	PreRequisite Tree	From top to bottom, connecting each pair of entities with "In order to…, We must…"

Evaporating Cloud

A — What is the **Objective** of having both B and C?

B — What **NEED** is satisfied by D, or what is jeopardized by D'?

C — What **NEED** is satisfied by D', or what is jeopardized by D?

D — What **Action** or **Effect** do you find yourself complaining about?

D' — What is the desired or opposite **Action** or **Effect** of D?

Current Reality Tree

The **F**uture **R**eality **T**ree uses the same general and logical structures but the UDEs are replaced with Desirable Effects and the Cloud is replaced with the Injections generated by evaporating the cloud. The FRT may also include Negative Branches and reinforcing loops.
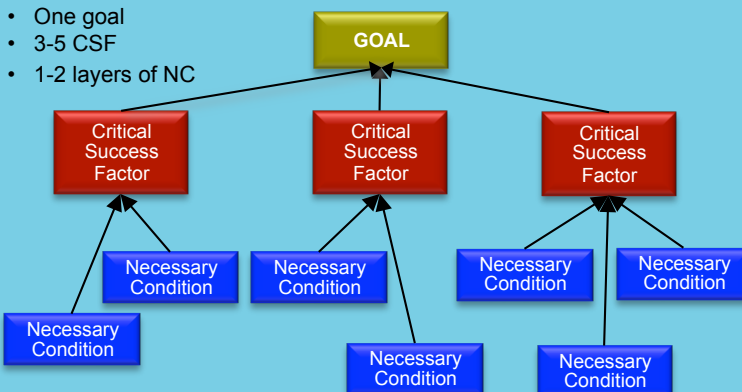
UDE, UDE, UDE, UDE, D, D', B, C, A

Categories of Legitimate Reservation

Effect / Cause — **Clarity**	Effect ← ? / Cause ← ? — **Entity Existence**	Effect ← ? / Cause — **Causality Existence**
Effect / Cause, New Cause? — **Additional Cause**	Effect / Cause, New Cause? (and) — **Insufficient Cause**	Effect / Cause, New Effect? — **Predicted Effect**

Intermediate Objective Map

- One goal
- 3-5 CSF
- 1-2 layers of NC

GOAL

Critical Success Factor (×3)

Necessary Condition

PreRequisite Tree

Injection or Necessary Condition

Intermediate Objective

Obstacle
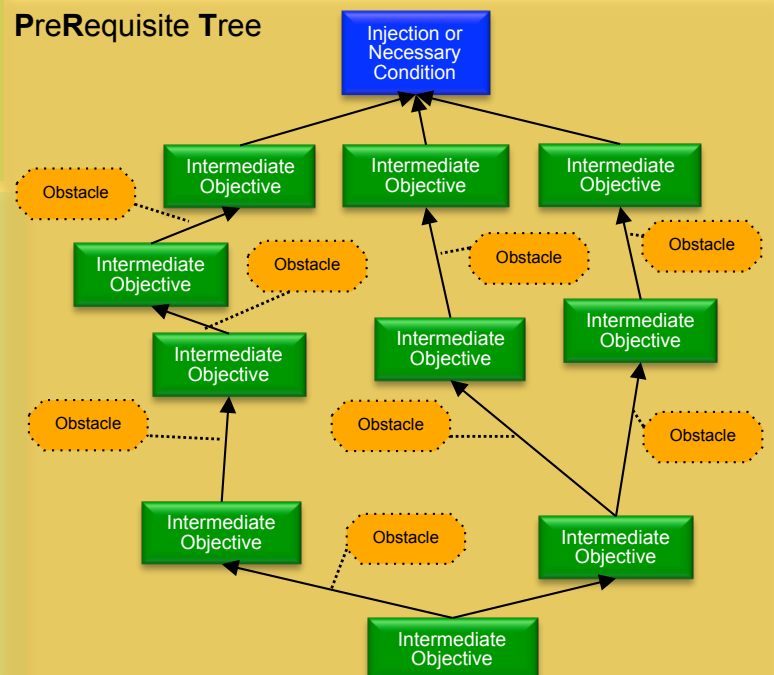
No problem can withstand the assault of sustained thinking. - Voltaire