



T O C

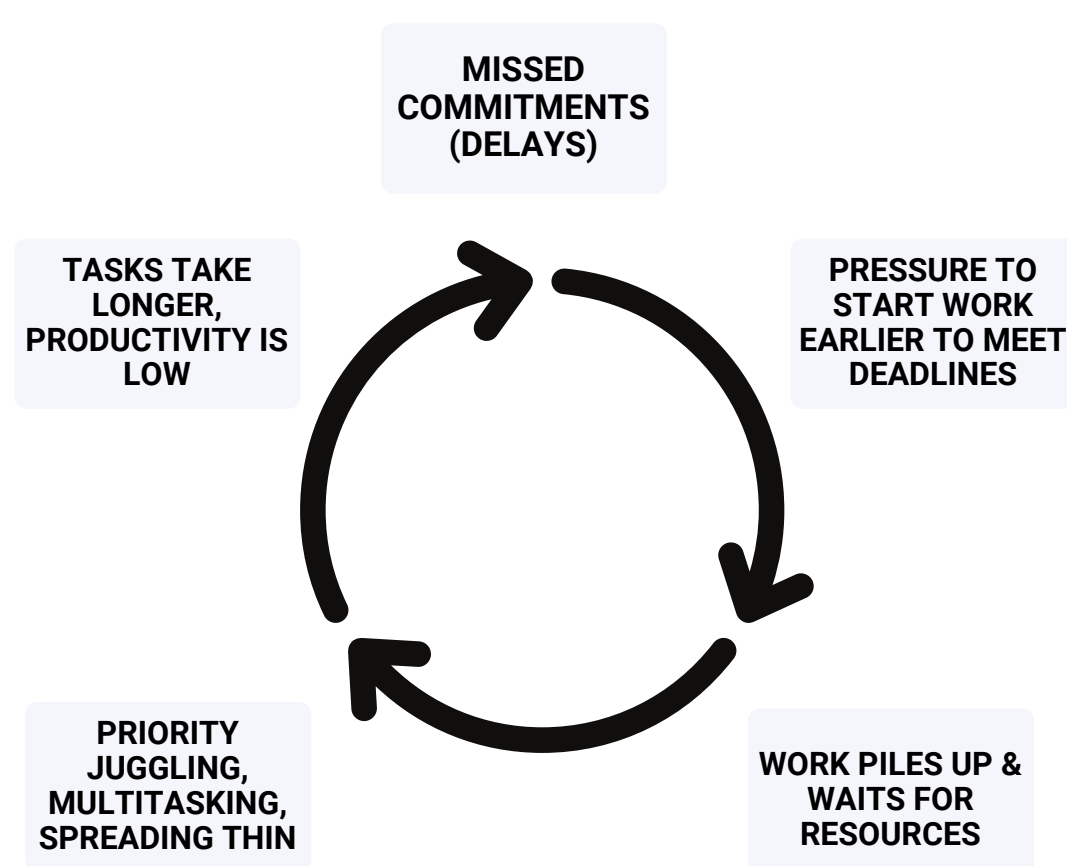
THEORY OF CONSTRAINTS

Your quick reference guide to Theory
of Constraints basics and an
introduction to resources

WHAT IS THEORY OF CONSTRAINTS?

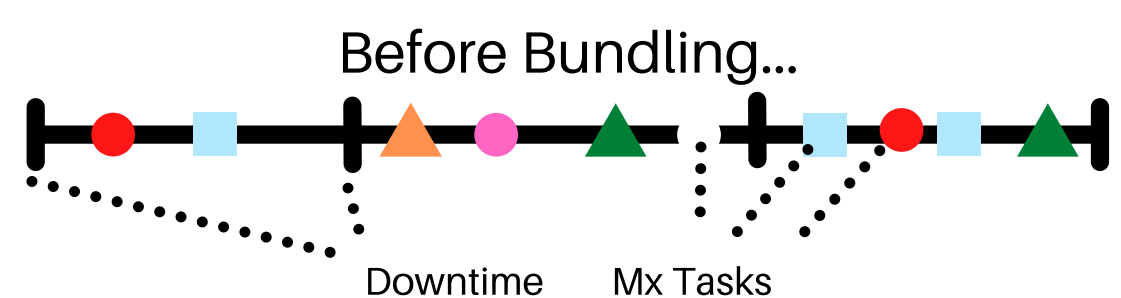
- **Theory of Constraints (ToC)** — Management methodology which enables highly variable organizations to find, focus, and resolve the most important issues facing the organization's goals
- **Constraint**—A constraint is anything that prevents the system from achieving its goal
 - Every system is like a chain whose strength is dependent on the weakest link...or the constraint
 - **Cost-World Thinking** — Thinking every individual department, resource, shop must be efficient...improving local efficiencies does NOT translate to global throughput
 - **Throughput- World Thinking** — Ignoring individual departmental performance as non-relevant and concentrate solely on overall system performance

- **Vicious Cycle** — ToC states that in real world systems, a majority of the flow disruptions are due to the way we react to and manage the natural delays, causing a vicious cycle



- **Full Kitting** — Having *EVERYTHING* (parts, tools, equipment, work documents, tech data, manpower w/right proficiency levels and skills, etc) ready before starting the job
- **Critical Path/Chain** — Sequence of tasks to be accomplished in order to meet the overall objective. Critical path tasks are what are sometimes referred to as the "long pole"

- **Bundling (Consolidating Mx)** — Looking forward to see if there is any future work that can be accomplished in the same scheduled downtime of a task



...Look ahead 'X' days



After Bundling!



Bundling increases "days of health" in between downtime AND reduces Work in Process for orgs

WIP IT!

- **Work in Process (WIP)**— The active workload that is being accomplished
- **WIP Control (Focus and Finish)** — Controlling the amount of work at any given time. The more work you have in queue the longer it will take to complete each task
- **Little's Law** - Simple theorem to help us calculate our WIP for a given process

WIP = Throughput x Cycle Time

WIP Board Example

Unassigned Queue	Work in Queue					Name	WIP	Hold	Completed
	P5	P4	P3	P2	P1				
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Note: Only items in the queue can be moved. Once an item is in WIP, focus & finish until complete! Avoid switching priorities and stopping work.

"Improving FLOW is the primary goal of Operations" - Dr. Goldratt

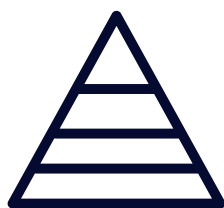
Flow—Flow is the orderly movement of work through a series of established steps. The objective of flow is to improve the OVERALL system's throughput and not the individual (shop, specialty, shift) efficiencies

TOC FRAMEWORK



Principles of FLOW

- Primary objective of operations is to improve flow
- Practical mechanism that guides the operation when not to produce
- Local efficiencies must be abolished
- A focusing process to balance flow must be in place



5 Focusing Steps

1. Identify the constraint
2. Decide how to exploit the constraint
3. Subordinate everything else to the above decision
4. Elevate the system's constraint
5. Don't let inertia become the constraint; go back to step 1

FOCUS



Root Cause Analysis

- Resolve Core Conflicts & Vicious Cycle rather than symptoms

"What makes ToC different than other Continuous Process Improvement (CPI) initiatives? (LEAN, Six-Sigma, Kaizen, AFSO21, Total Quality Management, etc) "

SO WHAT'S THE DIFFERENCE?

ToC helps us improve organizational performance **DESPITE** the inevitable dependencies & variability. It doesn't aim to attack waste, variation, customer satisfaction, or small improvement events...ToC thinking focuses on the overall system ...unless we can improve the constraint, the overall system will not improve



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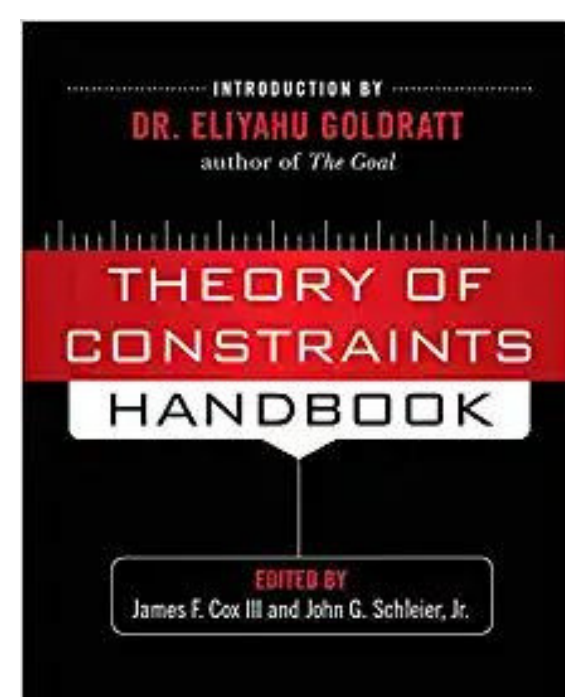
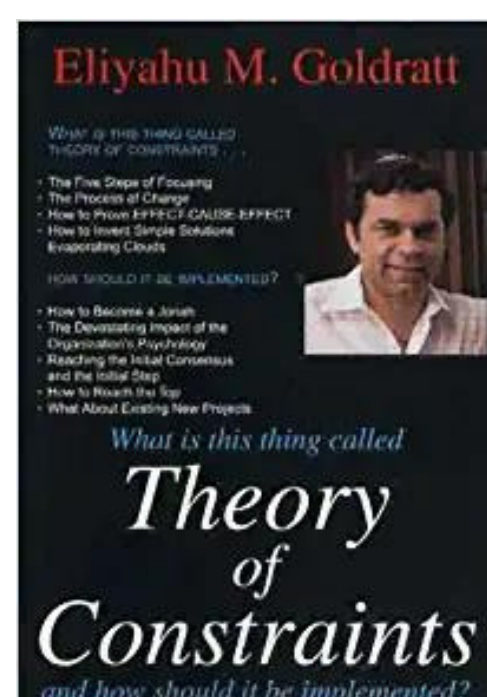
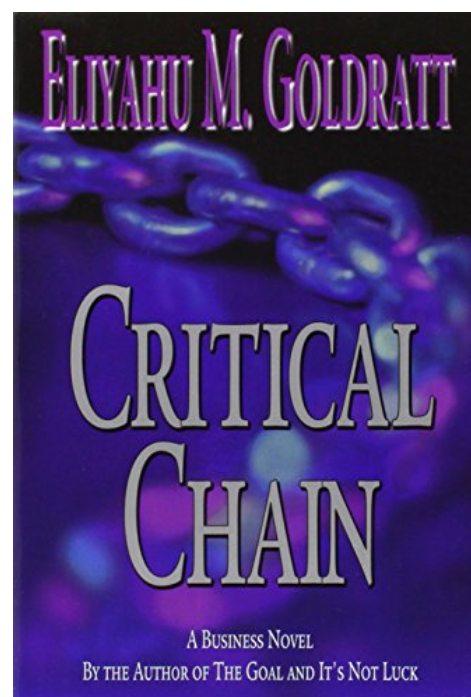
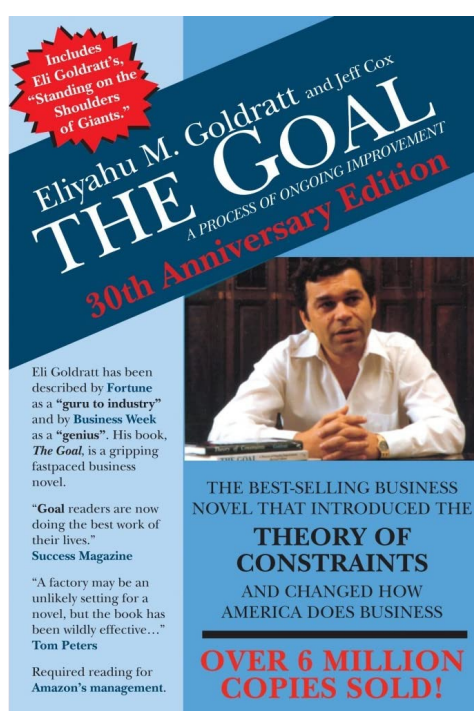
AIRMAN RESOURCES

- **AFIT Courses**

- ToC fundamentals click [HERE](#)
- ToC 101 click [HERE](#)
- ToC 201 click [HERE](#)



- **Top Reads on TOC**



- **Resources on AVOVLE for Airmen**

Note - Must have prior access to AVOVLE

- Tesseract ToC Playbook (Volume 1 - Acft Mx) click [HERE](#)
- 423d Mobility Training Squadron ToC Flash Bulletin click [HERE](#)
- Air Force Art of the Possible Handbook - Air Force Sustainment Center click [HERE](#)