

## **Rebirth of American Manufacturing Through Theory of Constraints**

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With the most recent drive for “Rebirth of Manufacturing” in the USA, we are faced with an increased concern about the overall competitiveness of our production system. Be it a department, division or business, the best path forward is almost always the simplest. For those overseeing transformational / value-adding activities, an invaluable approach has been provided by the Theory of Constraints (TOC), a systems-based approach to managing the production processes. Over the last 20 + years, businesses large and small have adopted this approach with bottom line improvements averaging over 30%.

While the steps are simple, their adoption requires a change in how we view and perceive the components (steps / operations) within our value-adding process. If we view the various process steps as being independent and whose individual variation in performance averages out when taken as a whole, then we are falsely assuming that the individual pluses and minuses will average themselves out. In reality, our value-adding process is a series (chain) of inter-dependent activities whose output is determined by the step with the most limited output. This is what the TOC steps are designed to accomplish.

The five focusing steps of TOC:

1. Identify the systems constraint (the operation / resource with the least amount of capacity).
2. Exploit the constraint (get the most out of the system’s limited resource). This might mean:
  - a. reduce set-ups on the resource
  - b. reduce or eliminate breaks at the resource
  - c. ensure all work going into the constraint is of good quality
  - d. ensure all work processed will be used, not for excess inventory
3. Subordinate the system to the pace of the constraint. Only feed the system at the rate the constraint is able to process. This exposes any excess capacity in the system – capacity that is in excess of what is needed to ensure the system is producing at its capacity (the pace of the constraint).
4. Elevate the Constraint. To increase the system’s overall productive capacity, the capacity of the system’s constraint must be increased or elevated.
5. Go back to Step 1. When you complete step 4 – elevate the constraint, the system’s constraint usually moves; go back to Step 1 and identify the system’s new constraint.

Over the last fifteen years I have been actively involved in bringing this approach to a number of organizations. In each of them, the level of output significantly increased without capital investment, which resulted in improved financial performance. The downside to this improvement is the plant manager is usually promoted leaving the plant with the risk of continuity of the TOC approach.

Hence, our ongoing challenge: proliferation of this approach for the benefit of the American Rebirth of Manufacturing. We will continue to publish a series of case studies and examples in our upcoming OpExcellence newsletters.