

Choose your bottleneck

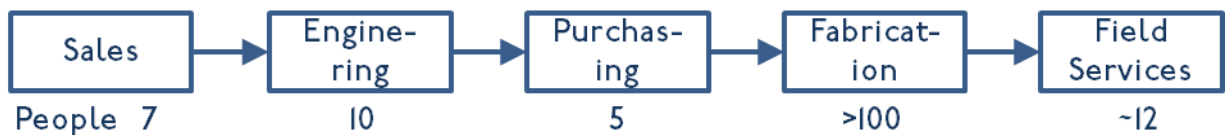
One of the primary rules of the Theory of Constraints (TOC) or Bottleneck theory as it is often called is that every process and hence every business has a bottleneck. Now that bottleneck can be inside the business or it can be outside. Most people are familiar with the idea of an internal bottleneck; company capacity being limited by the capacity of a piece of equipment or the number of bays in a shop. External bottlenecks also exist; these can be sales or the customer. If Sales can't match capability or the customer can only take so much delivery then the bottleneck is external.

Situation

The company we were working with was a rapidly growing fabricator of heavy equipment to the Oil and Gas industry. One issue the company was experiencing was the Fabrication shop was experience bouts of feast and famine depending on the supply of drawings and hence parts from Engineering and Purchasing.

The Process

With the client we quickly mapped out the general business process and the number of people involved:



We then started to work through where the bottleneck should be, the conversation went along these lines

- AP- What is the most expensive part of the process?
- VP- That's the Fab shop, I've got over a hundred guys in there I need to keep burning rod.
- AP- So what happens when Purchasing or an Engineer gets delayed or something happens?
- VP- It probably mean I end up with 10 shop guys doing less than I paying for them to do or them stood around with
- AP- At the moment sometime the Fab shop is the bottleneck and sometimes it's the Engineering or Purchasing. So where do you want the bottleneck to be?
- VP- So if I want to keep the Fab shop busy as the bottleneck, that means I'm going to have to have Engineering at 105/110% of Fab shop capacity?
- AP- Yes it does. And what are you going to do with that extra engineering capacity?
- VP- That's easy, I've got improvement projects those guys should be working on; there is no risk of them not being busy.

Results

By nominating the Fab shop as the bottleneck, the company was able to protect it. This meant increased engineering costs but reduced overall labour costs, mostly from not needing the Fab shop to work overtime to play catch up as it did not suffer repeated work shortages. The change also improved on time delivery, shortened cycle time and in turn the bottom line.