



## Identifying Operational Opportunities to Increase Throughput in Due Diligence.

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Not having enough volume to keep your plant or business busy can be a challenging problem. And often times, having too much volume can also be a challenge (albeit a much better “problem” to have)! After the initial jubilation over the new contract, the thought of all that must be done to fulfill the business comes to mind! One company faced a stark situation. They process, marinate and package salmon for retail consumption. In the span of 2 months they landed major accounts at both Sam’s Club and Costco and doubled their volume. 10 minutes after cracking the champagne the weight of their responsibility settled squarely in their conscience. While they were able to increase their output by 30% by expanding to 24-7 production, there was still a sizable gap to fill! They needed to increase throughput, build a new plant, or potentially have to walk away from a new customer!

In this article, we will review:

The benefits of increasing throughput

- Signs that indicate a plant or business can increase throughput
- The rest of the Salmon story!

### Why increase throughput?

Improving throughput refers to increasing the actionable output of a plant, service location, supply chain or other facility with existing resources (most efficient) or additional resources (most costly). There is more to throughput than increased sales. Surely, increasing sales with existing assets drives tremendous benefits. Such marginal volume provides income at variable cost margins. There are more subtle benefits as well. Increased throughput, or additional capacity to drive throughput, allows the company to:

1. Offer shorter lead times. As we increase capacity in an operation, we can build / process more orders in a given time period. This can be used to process more orders within a given time period and, through this, to become more responsive to customer demand.
2. Rely less on forecasts and more on visibility. Another application of additional capacity is the ability to begin building orders later in the process. This could allow us, in some cases, to convert business from a make to stock approach (which requires us to rely on forecasts to some degree) with a make to order schedule. The benefits of minimizing our reliance on forecasts, which are always wrong to some degree, can be substantial!

3. Set aside time to improve. Continuous improvement processes require time. As we enhance our ability to fill orders in less time, we can shut lines down and run kaizen events or improvement projects.
4. Maintain equipment. This downtime can also be used to maintain the equipment.

These concepts can all be applied to factory floors, front offices and to service companies.

**The indicators of opportunity.**

What can you look for in an operation that will signal if an opportunity to increase throughput and capacity justifies additional investigation? How do you know if your portfolio company or target acquisition has such potential? Here are the top indicators we look for:

Indicator	Definition	Evidence to Consider
<b>Work in process inventory (WIP)</b>	WIP includes unfinished inventory that is awaiting additional conversion to become saleable finished goods inventory. Please note, we would exclude “bright stock” inventory from this category. The existence of WIP can indicate that operations run at different speeds and the plant’s flow is not balanced. Correcting any such issue can dramatically increase throughput and capacity.	<ul style="list-style-type: none"> <li>• Physically look for any inventory, or an “inbox” before any operation.</li> <li>• Does WIP inventory equate to more than 1 shift of production?</li> <li>• Is the elapsed “lead time” to complete a finished good or process significantly more than the cumulative cycle times of all operations?</li> <li>• In an office setting, you might see WIP in inboxes!</li> </ul>
<b>Scrap, field failures, warranty costs</b>	Scrap is a double whammy. Not only do we have to dispose of purchased materials and write off the efforts we invested to complete our finished good, but we also have to re-do the item to fulfill an order. As a result, any reduction in scrap not only avoids the related expense, but it also creates capacity. If we stop making items we have to throw away, we can use the time to make saleable items!	<ul style="list-style-type: none"> <li>• Is scrap and warranty expense measured and tracked?</li> <li>• Does the company hold anyone accountable for scrap?</li> <li>• Is engineered scrap differentiated from start-up and process scrap?</li> <li>• Is total scrap measurably above engineered scrap?</li> <li>• Does the company routinely attack scrap through root cause analysis and corrective action?</li> <li>• Do customers complain about quality?</li> <li>• In the front office, scrap can include billing errors, order entry errors, rejected applications, etc.</li> </ul>
<b>Rework</b>	Rework, similar to scrap, requires that we complete steps to finish a product a second time. Eliminating rework avoids not only the labor and conversion costs required to complete the tasks an additional time, but it also opens up capacity for additional volume.	<ul style="list-style-type: none"> <li>• Does the company rework any items or tasks?</li> <li>• Is rework measured?</li> <li>• Is first pass yield measured and near 100%?</li> </ul>

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<b>Downtime</b>	Common drivers of downtime include: <ul style="list-style-type: none"> <li>• Maintenance issues</li> <li>• Lack of materials required to complete the run</li> <li>• Change overs</li> <li>• Reactive vs. Proactive maintenance work</li> </ul> Eliminating downtime opens up additional time to produce.	<ul style="list-style-type: none"> <li>• Do you see downtime while touring the facility (planned or unplanned downtime)?</li> <li>• Does the company measure Overall Equipment Effectiveness (OEE)? That is, does the company compare actual output to theoretically possible output?</li> <li>• Does the company measure itself against “standards”?</li> </ul>
<b>Line speed</b>	Does the company run its operations at the proper line speed? Often, equipment is run at slower speeds and for many different reasons. Line speed needs to be measured and controlled.	<ul style="list-style-type: none"> <li>• Is there a variance in the rate of output by shift, day of the week, operator?</li> <li>• Do operators have control of line speed?</li> <li>• Does the company measure output vs. theoretical / potential output at designed line speeds?</li> </ul>
<b>Excess and obsolete inventory</b>	Peter Drucker once said that there is nothing worse than doing efficiently that which should not be done at all! Excess and Obsolete inventory, by definition, indicates that items were produced that were not required by customers!	<ul style="list-style-type: none"> <li>• Does the company write off significant amounts of inventory each year?</li> <li>• Is excess and obsolete inventory more than 10% of total inventory?</li> <li>• Does the company turn inventory slower than the best companies in their industry?</li> <li>• Do you find dust on any inventory?</li> <li>• In the front office, aged accounts receivables may indicate the similar opportunity to excess inventory in a factory.</li> </ul>
<b>Late deliveries / past due back orders</b>	At times, poor customer service can be attributed to a real lack of capacity. We simply cannot produce what our customers demand when they want it. At other times, however, it is more accurate to say that we do not produce at the rate our customers require.	<ul style="list-style-type: none"> <li>• Is the company’s “perfect order” metric above 90%?</li> <li>• Does the company have a meaningful past due backlog of sales?</li> </ul>

There is one situation we have found that indicates a company does **not** have the potential to create more capacity with current resources. If the company turns inventory as fast as its best competitor and consistently delivers to customers when demanded, the company is likely using its potential capacity well!

When considering the importance of understanding true capacity, remember that increasing throughput will drive one or more of the following:

- Marginal EBITDA (assuming demand exists) at variable cost margins!
- Cost reductions even when additional customer demand does not exist
  - Reduced labor costs
  - Avoidance of excess and obsolete inventory creation
  - Lower cost of capital tied to inventories
- Lead time / flexibility improvements. While these types of improvements do not directly lead to financial impact, they do improve market position.

**The rest of the story**

The seafood company did not have to build a new plant, and they ended up satisfying the demand of both new customers! Identifying and addressing the combination of the following factors led to an increase of output by 50% with no new equipment, no new space, and fewer man hours.

- Work in process inventory. We noted tubs of inventory ahead of several operations. This indicated that the operations did not work at the same speed.
- Line speed. Some of the automated equipment ran at various speeds. No controls were in place to ensure that appropriate and designed speeds were used.
- Operations within the plant operated at different speeds. This created significant levels of work in process inventory and, with it, the time required to manage, put away, pull and complete the stock.
- Downtime. The lines did suffer from significant downtime whenever they changed products and due to mechanical issues.
- The 24/7 staffing plan was rebalanced to demand planning, inventory planning and operational improvements which drove costs down and eliminated a challenging regional staffing issue.

At the end of the day, identifying and taking action on a mix of the items described above led to a 50% increase in volume with no new equipment or and no additional man hours. This fundamentally changed the market position and income statement for the company. Looking for these indicators can help you ensure you don't let a similar opportunity slip by.

In our next article we will share the methods we use to identify opportunities to reduce variable costs, to reduce the expense directly related to the volume of products or services provided by a company. We will look at how we bring these opportunities to light during a normal due diligence process! The questions we ask. The analysis we complete. The indicators we look for during plant tours. The reports we review.

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